ENGINEERING STAFFING TOOLS AND METHODS

Development and Implementation of Staffing Tools and Approaches for VHA Engineering Programs

OFFICE OF PRODUCTIVITY, EFFICIENCY, AND STAFFING (OPES)

EILEEN MORAN, DIRECTOR, OPES

DOUGLAS PETERSON, PROGRAM ANALYST

OPES HELP DESK

U.S. Department of Veterans Affairs

VHA ENGINEERING STAFFING TOOLS AND METHODS INITIAL OBJECTIVES

01

Understand current staffing levels of engineering staffing across VHA

(NAS Recommendation 1)

02

Develop a risk-adjusted staffing (demand) model for monitoring engineering FTE

(NAS Report Chapter 3)

03

Monitor variation in staffing through development of an engineering/facilities staffing tools

(NAS Recommendations 2 / 5.5)

04

Integrate top-down, demand-based model with existing data while developing benchmarking, workload, and quality data

(NAS Recommendations 4.4 / 4.5)

VHA ENGINEERING STAFFING TOOLS AND METHODS
DEFINING ENGINEERING STAFFING

How do we predict what we need if we don't really understand what we have?

- Definition of "engineering" staff is not rigorously defined
  - Variation in VHA facility organization and reporting means that not all engineering staffs look identical across facilities
  - Staff that fall under the umbrella of engineering may have responsibilities within other aspects of facilities management

Engineering Administration

Communication
Finance and Business
Leadership and Strategy
Property Management
Quality Assurance

Capital Projects (Project Management)

Design, Bid, Build
Contracting
Technical Representation
Punch List

Operations and Maintenance

Repairs
Utilities
Facility Sustainability

VHA ENGINEERING STAFFING TOOLS AND METHODS
DEFINING ENGINEERING STAFFING

VHA Healthcare Environment and Facilities Programs

VHA Healthcare Engineering

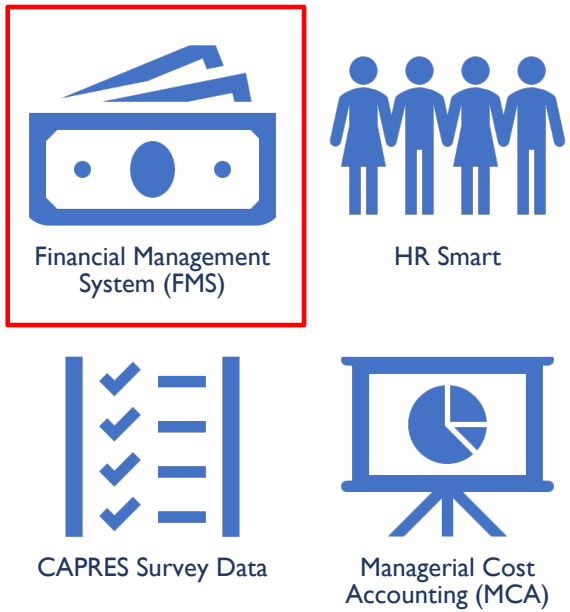
- Engineering Administration
- Project Management
- Operations and Maintenance

Other Healthcare Environment and Facilities Programs

- Facilities Safety
- Interior Management
- Environmental Management
- Transportation

IDENTIFYING AND COMPARING AVAILABLE DATA SYSTEMS TO DESCRIBE ENGINEERING STAFFING AND RESOURCES

- NAS Recommendation 1:
  - Choice of platform of facilities database
  - Ensure continual completeness, accuracy, reliability, and validity of the data

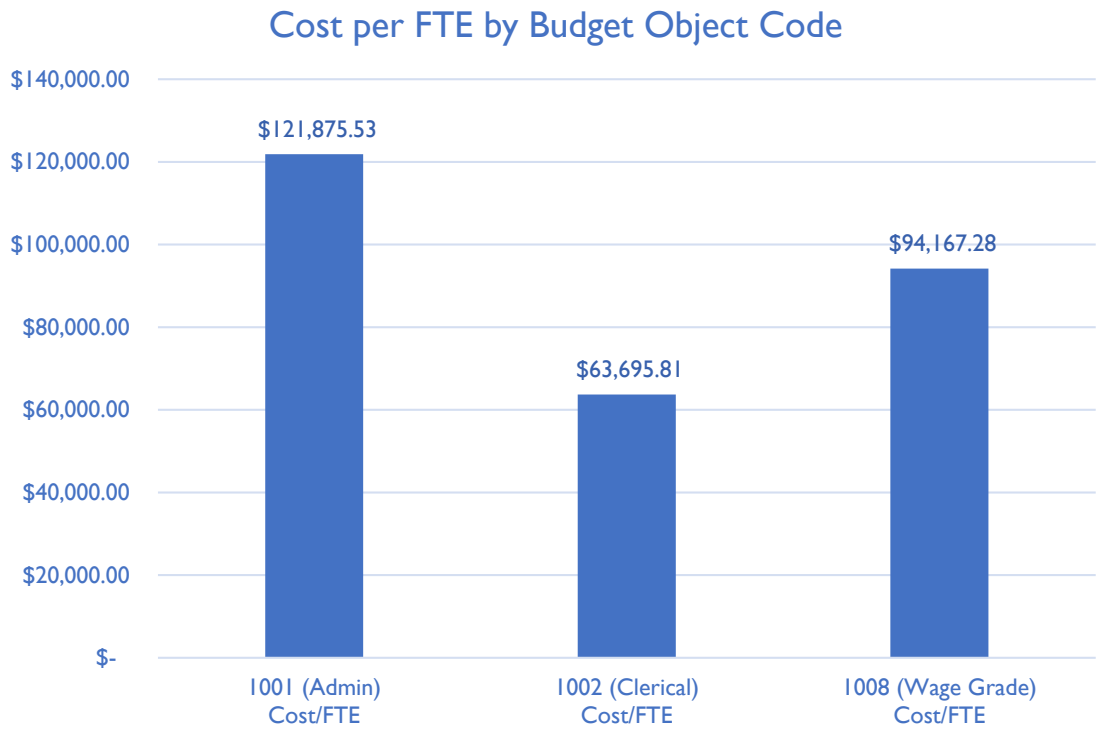


Financial Management System (FMS) 830 Report

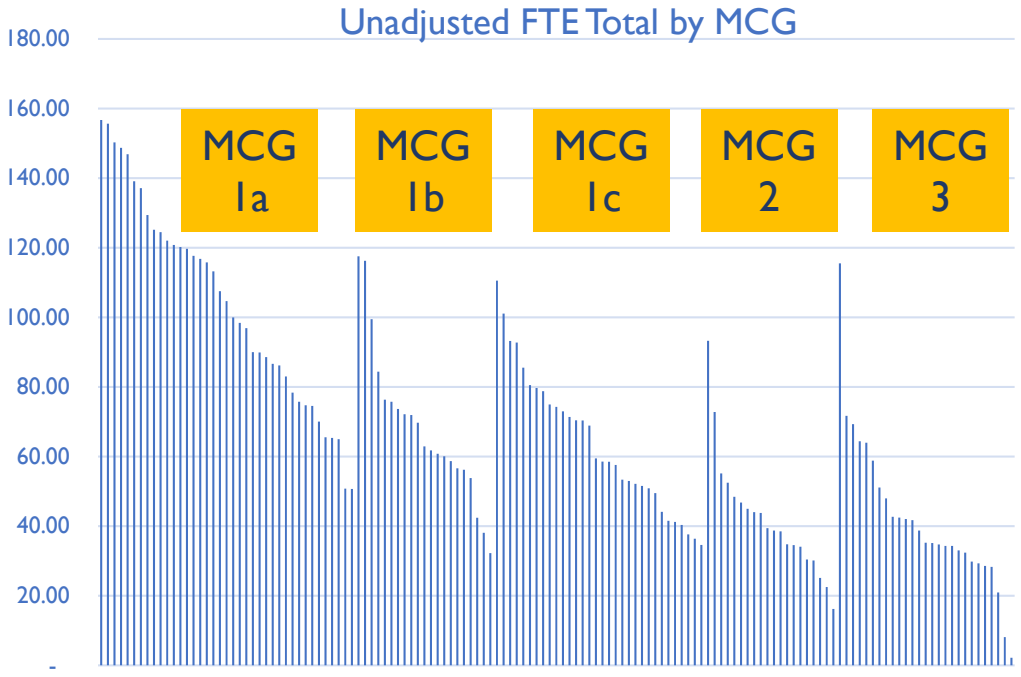
- Contains official annualized FTE counts as the official financial data source of VHA
- FTE counts are based on accounting data integrated with VHA payroll system (PAID)
- FTE counts are summarized at the parent facility level which matches well with other VHA data sources
- FTE contains budget object code (BOC) and VA cost center (VACC) information
- FMS 830 Report provides the import data for the Capital Resources Survey (CAPRES) data and is the data source of record for official reporting on VHA staffing
- Engineering resources relating to other facilities functions and contracted work are readily captured within FMS financial data

MODEL DEFINITION OF ENGINEERING STAFFING

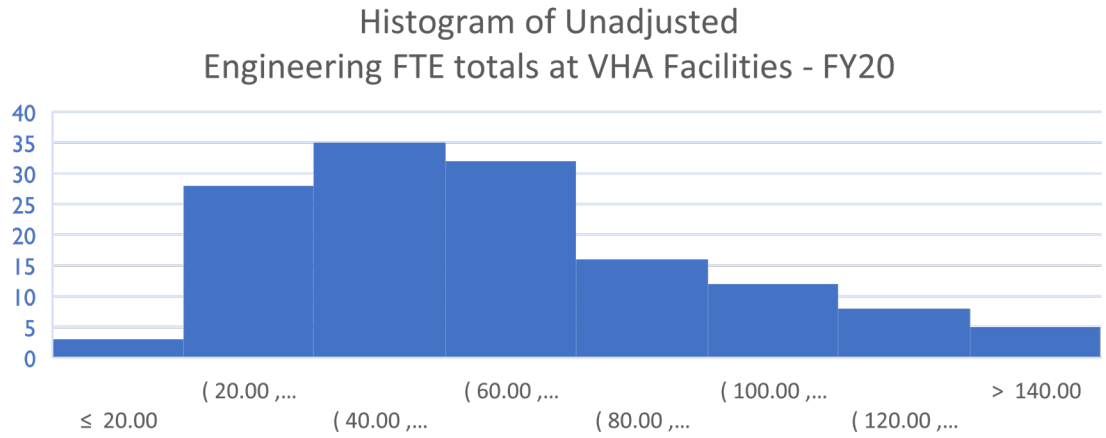
- FMS 830 (Expenditures and FTE) Report
  - Exclude Non-VHA Funds (e.g. Construction, VBA and NCA)
  - Exclude VA Central Office and VISN Station Identifiers
  - Include only Engineering VACC
  - Include Budget Object Codes (BOC) 1001 (administration), 1002 (clerical), 1008 (wage grade)
  - Adjust BOC 1002 and 1008 FTE by standardizing BOC 1002 and 1008 FTE to the cost of BOC 1001
- **Final Dependent Variable:** Total Standardized Healthcare Engineering FTE

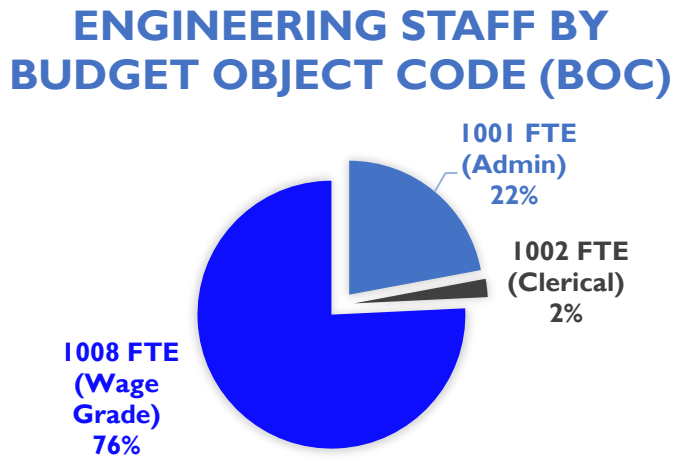


VHA ENGINEERING STAFFING TOOLS AND METHODS DESCRIBING CURRENT STATE OF ENGINEERING STAFFING

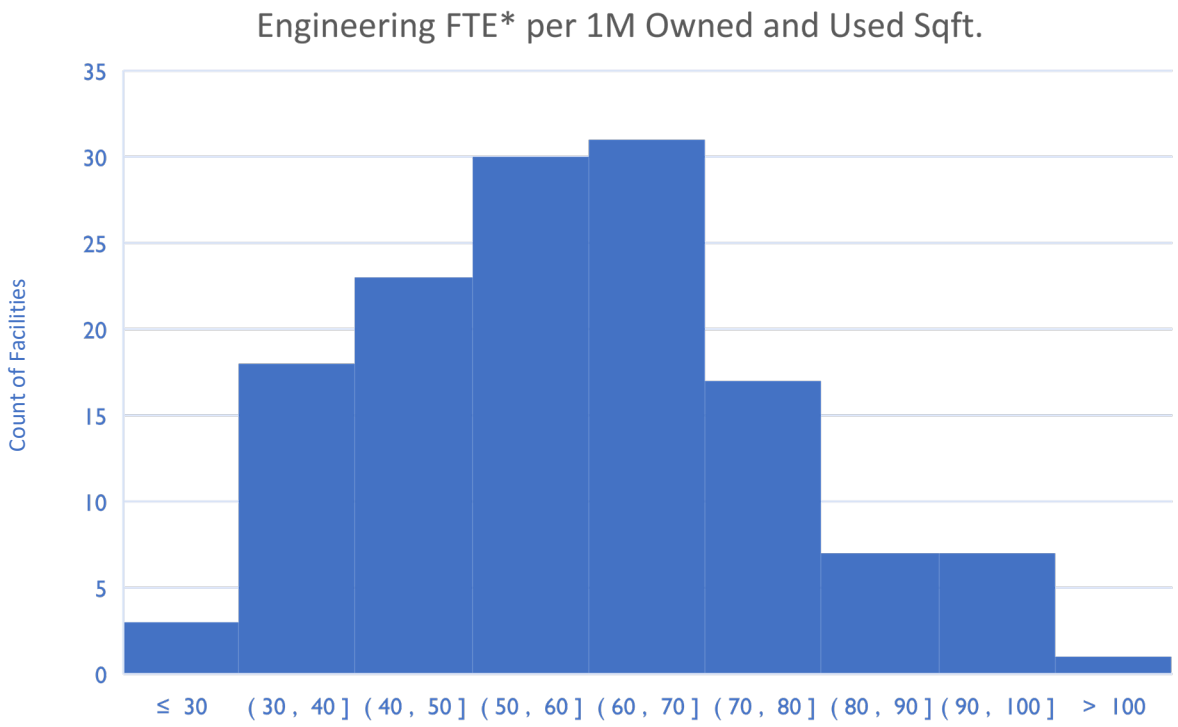


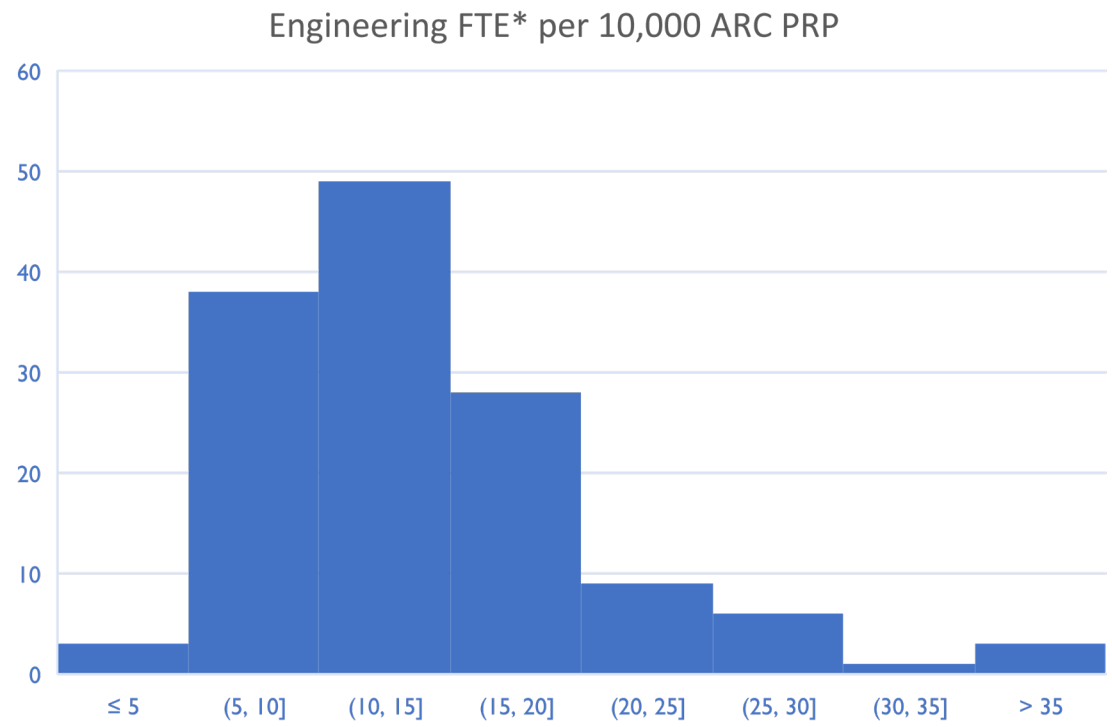
Medical Center Complexity Group (MCG) is a standardized peer-grouping methodology frequently used in VHA





ENGINEERING STAFFING DESCRIPTIONS



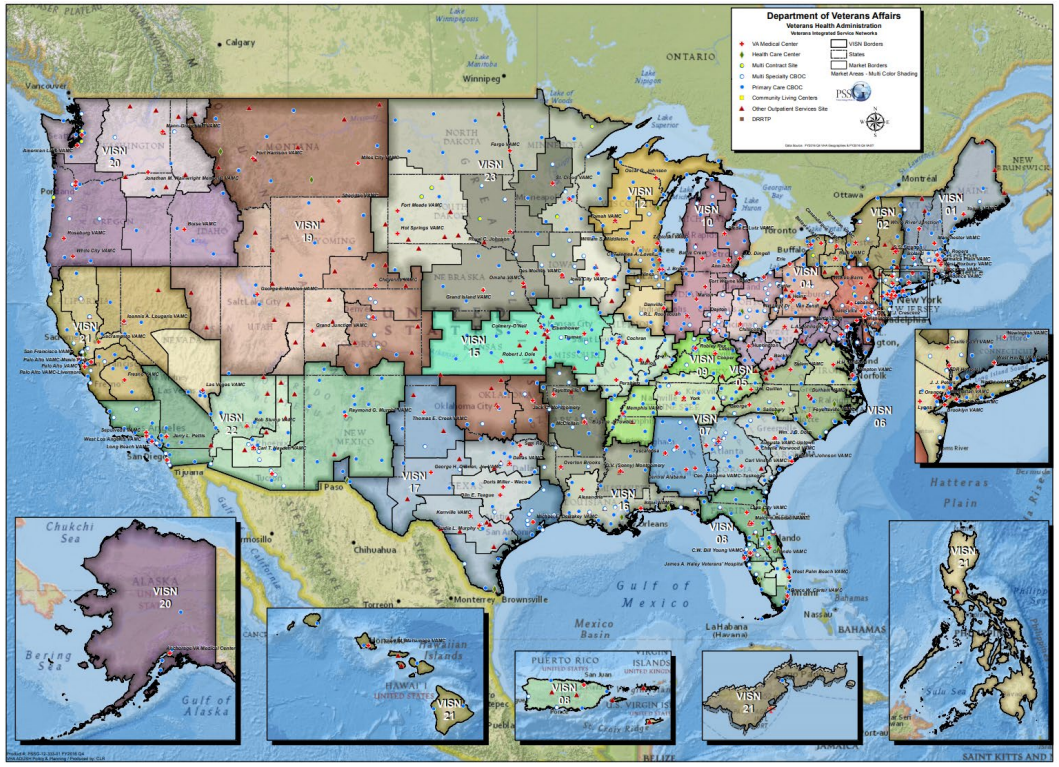


DEMAND-BASED LINEAR REGRESSION MODEL

- NAS outlined a set of primary design/goal choices within chapter 3 of its analysis; below are VHA's preliminary decisions for adopting that framework as a first step in the staffing model process.
- Descriptive model of existing engineering staffing within VHA health care system
  - Use multivariate (log-linear) regression model for describing current state of VHA engineering staffing
  - Identify key variables related to existing engineering staffing variation
- Model outcomes identify relative staffing levels after risk adjusting for variables with known relationships to engineering staffing
  - Risk-adjusted staffing levels provide information for staffing decision support
  - In conjunction with outcomes data, model can be used to inform program staffing sufficiency
  - Model provides a structured approach to monitoring data quality in relevant databases

MODEL DEPENDENT VARIABLE AND UNIT OF ANALYSIS

- **Dependent Variable:** Engineering FTE
  - FTE located at VHA field stations
    - Central Office FTE and non-VHA funded FTE excluded
  - FTE within Engineering VA Cost Centers
  - Standardized by cost per FTE by Budget Object Code
- **Unit of Analysis:** Administrative Parent Facility
  - Parent facility defined by facility director and their scope of administrative control
  - Facilities with less than 10 FTE excluded from final analysis (see model limitations slide)
  - 137 facilities in end of year FY20 final model



VHA ENGINEERING STAFFING TOOLS AND METHODS REGRESSION MODEL DEVELOPMENT

OPES Risk-Adjustment Variable Profile

Patient Population Characteristics

Patient volume

Case-mix / patient risk

Reliance, priority, and service connection

Facility Characteristics

Referral facility

Academic mission

Services provided

Facility age and size characteristics

Geographic Characteristics

Geographic cost

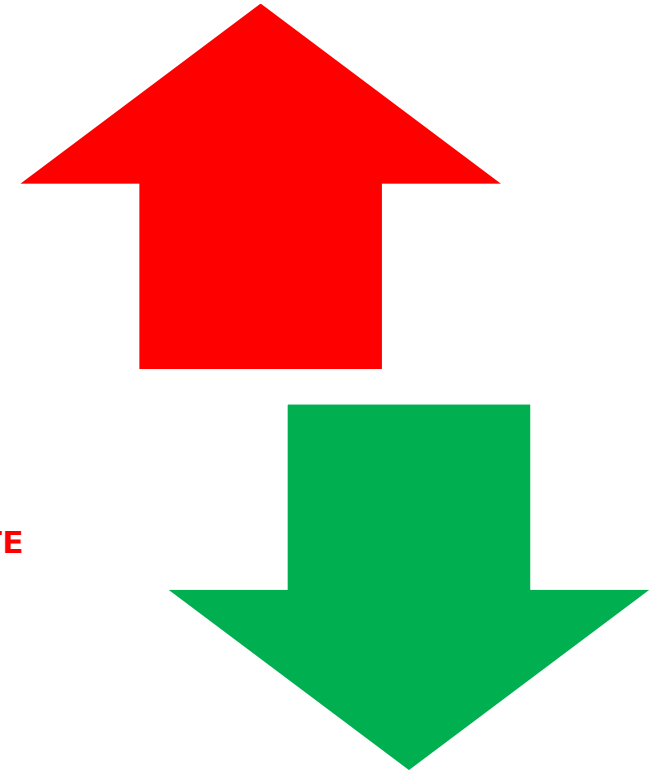
Travel times

Relevant Engineering Staffing Variables

- Patient population
  - **ARC PRP** (Patient Volume)
- Facility size and age characteristics
  - **Owned and used square footage** (Facility Size)
    - Owned Sqft. – Vacant Sqft.
  - **Outleased GSF**
  - **Age of building**

** Data validation through CAPRES is focused on the size and age of building data as captured by the VHA Capital Asset Inventory (CAI) database

VHA ENGINEERING STAFFING MODEL INDEPENDENT VARIABLES (FY20)



VHA Owned and Used Square Footage (sqft.)
Allocation Resource Center (ARC) Pro-Rated Patients (PRP)
Percentage of Facility Patients Covered by Medicare
Long Term Care (LTC) Average Daily Census (ADC)
Count of Buildings
Count of Rehabilitation Beds

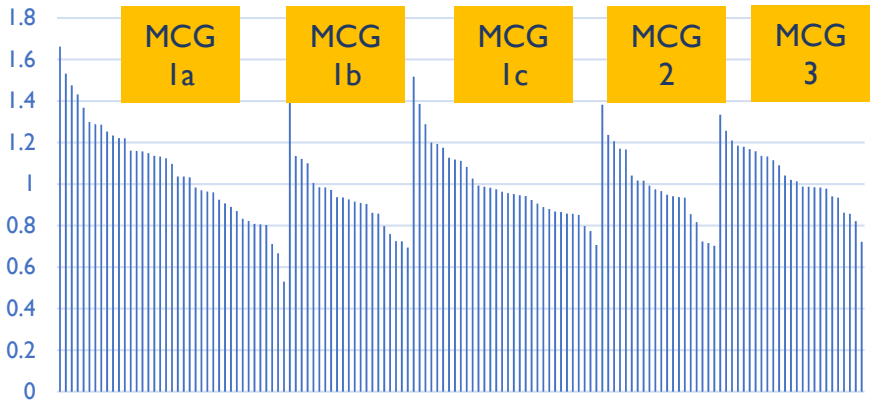
$R^2 = 0.83$
9,530 Engineering FTE

Drivetime to Specialty Care
Outleased Gross Square Footage (GSF)
Percentage of Building Area (sqft.) Between 10 and 40 Years Old

VHA ENGINEERING STAFFING MODEL
ENGINEERING MODEL RESULTS

- Model results provide a picture of existing variation after adjusting for relevant characteristics
- VISNs and facilities can use this report for evaluation of current staffing by using the observed to expected value as a benchmark for engineering staffing
  - Data validation / correction
  - Variation in engineering staffing
    - Complexity, peer sites, internal variation.

Observed to Predicted Ratio
Engineering FTE by MCG

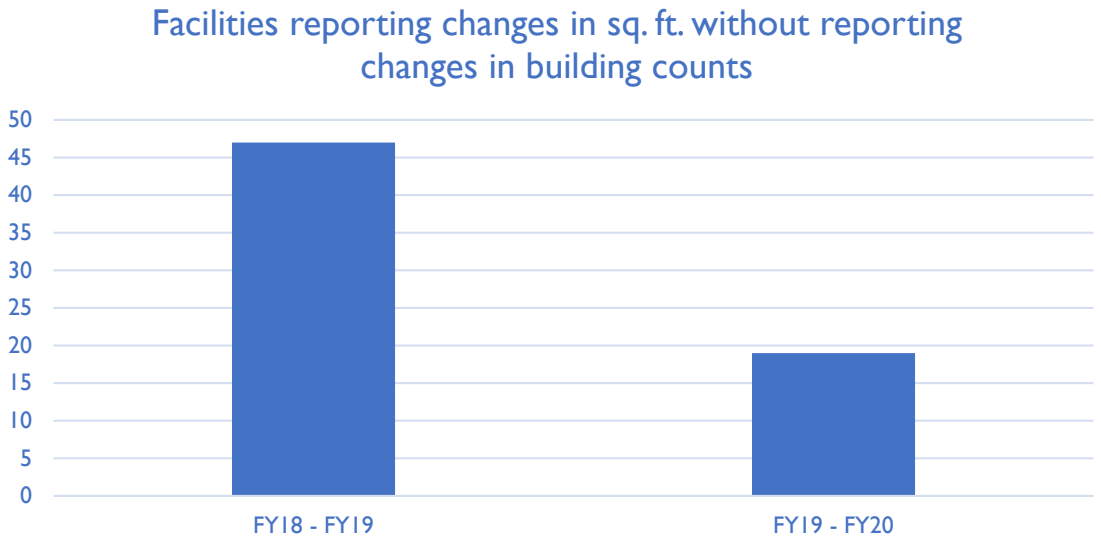


FY 2021 VHA Engineering FTE Profile by VISN

VISN	Observed FTE	Predicted FTE	Total Owned & Used Sqft (1,000,000)	Observed FTE per 1M sqft	Predicted FTE per 1M sqft	Observed to Predicted Ratio	Observed Minus Predicted
1V01	469.46	427.86	7.81	60.12	54.79	1.10	41.60
1V02	608.14	627.20	12.43	48.91	50.44	0.97	(19.06)
1V04	394.04	423.24	6.94	56.79	61.00	0.93	(29.21)
1V05	335.38	289.46	6.24	53.77	46.41	1.16	45.93
1V06	453.23	425.65	6.81	66.52	62.47	1.06	27.58
2V07	390.76	402.30	8.45	46.26	47.63	0.97	(11.54)
2V08	636.25	618.22	9.96	63.87	62.06	1.03	18.04
2V09	233.78	264.39	6.42	36.42	41.19	0.88	(30.61)
3V10	638.70	626.69	11.47	55.66	54.61	1.02	12.01
3V12	445.48	441.61	8.99	49.55	49.12	1.01	3.87
3V15	416.56	356.58	6.39	65.15	55.77	1.17	59.98
3V23	388.72	398.47	7.88	49.33	50.57	0.98	(9.75)
4V16	399.40	465.43	10.54	37.91	44.17	0.86	(66.03)
4V17	393.06	381.52	7.66	51.30	49.80	1.03	11.54
4V19	357.41	312.45	5.53	64.63	56.50	1.14	44.96
5V20	312.92	327.90	6.15	50.87	53.31	0.95	(14.98)
5V21	427.39	375.41	7.17	59.58	52.33	1.14	51.98
5V22	569.14	560.28	10.65	53.45	52.62	1.02	8.87
VHA Totals	7,869.81	7,869.81	147.50	53.36	53.36	1.000	-

MODEL VALIDITY AND USABILITY

- Reliability of input data
  - FMS data linked to accounting / payroll (PAID) data
  - CAPRES survey data
    - In FY19, CAPRES instructions modified to encourage editing of corporate financial and capital asset databases



- Data validation of engineering staff
  - Starting in FY19, CAPRES survey required examination of model engineering staff totals per model
  - Accompanying edits to staffing totals were required to be made within the corporate financial systems
- Facilities able to use model results as a risk-adjusted benchmark for VHA staffing
  - Sites with observed to expected (O/E) values greater than 1.0 have more engineering FTE than VHA average
  - Sites with O/E values less than 1.0 have fewer engineering FTE than VHA average

MODEL IMPROVEMENT OPPORTUNITIES

Impact of Contract Staff / Contract Spending

Engineering staffing can be purchased through contracting (either through purchase of services or as a part of a lease).

Data on FTE associated with contract agreements is unavailable to date. Data on contract staff costs is difficult to obtain because of contract structures.

Limited Specificity on Type of Building Space

In other staffing models, types of space factor into maintenance staffing levels

CAI has some building space criteria via building types and via the facility space driver information, but this data has not been investigated to date

Comparison to outcomes data would assist in validating appropriateness of staffing

Outcomes data to date has been of limited utility; comparison in staffing between programs of different quality would aide in understanding unexplained variation in staffing levels

Limited availability of industry comparable non-VHA benchmarks

Industry standard benchmarks would provide additional information for evaluating the appropriateness of the staffing levels at individual VHA facilities

OPES ENGINEERING FTE DECISION SUPPORT APPROACH

OPES

FY 2021 VHA Engineering FTE Profile by Facility

VHA OPES Engineering FTE Website

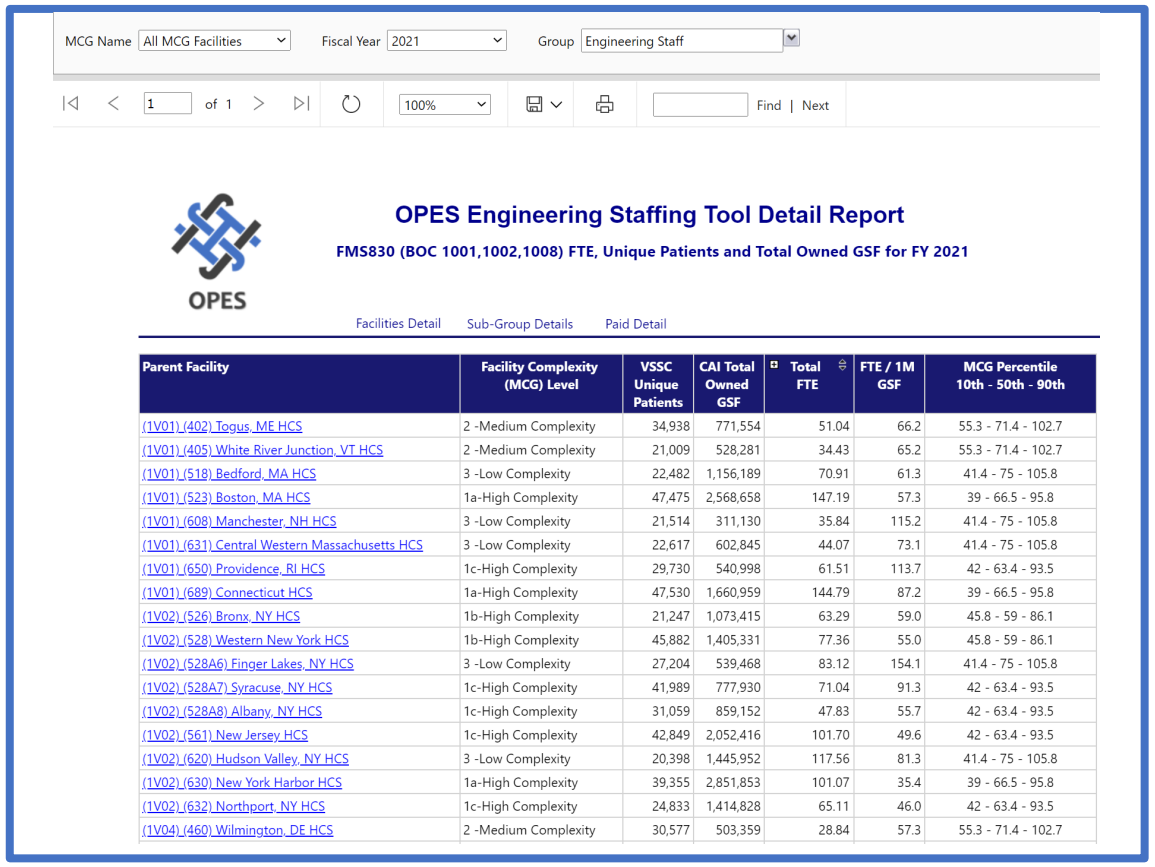
Model Views

STA3N	STATION NAME	VISN	Observed Engineering FTE	Predicted Engineering FTE	Total Owned and Used Sqft 1,000,000	Observed FTE per 1M Sqft	Predicted FTE per 1M Sqft	Observed to Predicted Ratio	OME Engineering FTE
	Facility A		88.60	61.90	1.06	83.62	58.41	1.43	26.71

STA3N	STATION NAME	VISN	Observed Engineering FTE	Predicted Engineering FTE	Total Owned and Used Sqft 1,000,000	Observed FTE per 1M Sqft	Predicted FTE per 1M Sqft	Observed to Predicted Ratio	OME Engineering FTE
	Facility B		63.07	94.65	2.00	31.58	47.39	0.67	(31.58)

(*note:* website and link is internal to VHA)

DEVELOPING TOOLS FOR MONITORING ENGINEERING STAFFING



MCG Name: All MCG Facilities | Fiscal Year: 2021 | Group: Engineering Staff

1 of 1 | 100% | Find | Next

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OPES Engineering Staffing Tool Detail Report

FMS830 (BOC 1001,1002,1008) FTE, Unique Patients and Total Owned GSF for FY 2021

Facilities Detail | Sub-Group Details | Paid Detail

Parent Facility	Facility Complexity (MCG) Level	VSSC Unique Patients	CAI Total Owned GSF	Total FTE	FTE / 1M GSF	MCG Percentile 10th - 50th - 90th
(1V01) (402) Togus, ME HCS	2 -Medium Complexity	34,938	771,554	51.04	66.2	55.3 - 71.4 - 102.7
(1V01) (405) White River Junction, VT HCS	2 -Medium Complexity	21,009	528,281	34.43	65.2	55.3 - 71.4 - 102.7
(1V01) (518) Bedford, MA HCS	3 -Low Complexity	22,482	1,156,189	70.91	61.3	41.4 - 75 - 105.8
(1V01) (523) Boston, MA HCS	1a-High Complexity	47,475	2,568,658	147.19	57.3	39 - 66.5 - 95.8
(1V01) (608) Manchester, NH HCS	3 -Low Complexity	21,514	311,130	35.84	115.2	41.4 - 75 - 105.8
(1V01) (631) Central Western Massachusetts HCS	3 -Low Complexity	22,617	602,845	44.07	73.1	41.4 - 75 - 105.8
(1V01) (650) Providence, RI HCS	1c-High Complexity	29,730	540,998	61.51	113.7	42 - 63.4 - 93.5
(1V01) (689) Connecticut HCS	1a-High Complexity	47,530	1,660,959	144.79	87.2	39 - 66.5 - 95.8
(1V02) (526) Bronx, NY HCS	1b-High Complexity	21,247	1,073,415	63.29	59.0	45.8 - 59 - 86.1
(1V02) (528) Western New York HCS	1b-High Complexity	45,882	1,405,331	77.36	55.0	45.8 - 59 - 86.1
(1V02) (528A6) Finger Lakes, NY HCS	3 -Low Complexity	27,204	539,468	83.12	154.1	41.4 - 75 - 105.8
(1V02) (528A7) Syracuse, NY HCS	1c-High Complexity	41,989	777,930	71.04	91.3	42 - 63.4 - 93.5
(1V02) (528A8) Albany, NY HCS	1c-High Complexity	31,059	859,152	47.83	55.7	42 - 63.4 - 93.5
(1V02) (561) New Jersey HCS	1c-High Complexity	42,849	2,052,416	101.70	49.6	42 - 63.4 - 93.5
(1V02) (620) Hudson Valley, NY HCS	3 -Low Complexity	20,398	1,445,952	117.56	81.3	41.4 - 75 - 105.8
(1V02) (630) New York Harbor HCS	1a-High Complexity	39,355	2,851,853	101.07	35.4	39 - 66.5 - 95.8
(1V02) (632) Northport, NY HCS	1c-High Complexity	24,833	1,414,828	65.11	46.0	42 - 63.4 - 93.5
(1V04) (460) Wilmington, DE HCS	2 -Medium Complexity	30,577	503,359	28.84	57.3	55.3 - 71.4 - 102.7

OPES Engineering Staffing Tool Detail Report

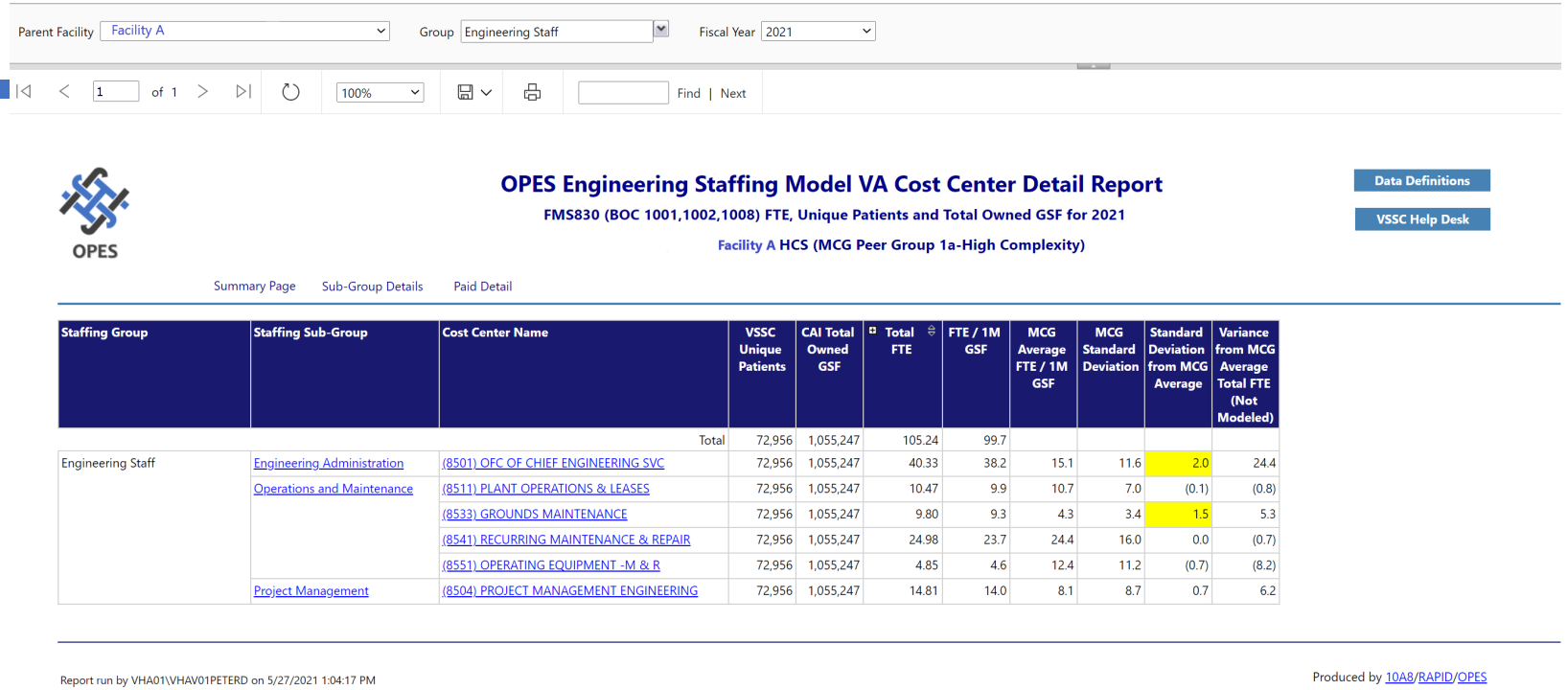
(*note:* link is internal to VHA)

- National report to include Total FTE by BOC, FTE/GSF, Peer comparison
- Includes only Engineering Cost Centers defined by HEFP in guidance
- Individual facilities can be selected for hyperlink drill down to facility level reporting
  - Drill down returns staffing grouped by VA cost center and engineering staff type
- Reporting includes all facilities-series cost centers in addition to engineering specific cost centers for audit purposes

Engineering Staffing Facility Cost Center Detail Report

(*note:* link is internal to VHA)

- Individual facilities data available by staffing sub-groups and cost center names
- Comparison of FTE by BOC and FTE / 1M GSF to MCG average
- Includes standard deviation from MCG average (z-score) and variance from MCG average (total FTE)
- Information can be used to identify where staffing is relatively high compared to VHA / MCG average or low compared to VHA / MCG average



Parent Facility: Facility A | Group: Engineering Staff | Fiscal Year: 2021

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OPES Engineering Staffing Model VA Cost Center Detail Report

FMS830 (BOC 1001,1002,1008) FTE, Unique Patients and Total Owned GSF for 2021

Facility A HCS (MCG Peer Group 1a-High Complexity)

Data Definitions | VSSC Help Desk

Summary Page | Sub-Group Details | Paid Detail

Staffing Group	Staffing Sub-Group	Cost Center Name	VSSC Unique Patients	CAI Total Owned GSF	Total FTE	FTE / 1M GSF	MCG Average FTE / 1M GSF	MCG Standard Deviation	Standard Deviation from MCG Average	Variance from MCG Average Total FTE (Not Modeled)
		Total	72,956	1,055,247	105.24	99.7				
Engineering Staff	Engineering Administration	(8501) OFC OF CHIEF ENGINEERING SVC	72,956	1,055,247	40.33	38.2	15.1	11.6	2.0	24.4
	Operations and Maintenance	(8511) PLANT OPERATIONS & LEASES	72,956	1,055,247	10.47	9.9	10.7	7.0	(0.1)	(0.8)
		(8533) GROUNDS MAINTENANCE	72,956	1,055,247	9.80	9.3	4.3	3.4	1.5	5.3
		(8541) RECURRING MAINTENANCE & REPAIR	72,956	1,055,247	24.98	23.7	24.4	16.0	0.0	(0.7)
		(8551) OPERATING EQUIPMENT -M & R	72,956	1,055,247	4.85	4.6	12.4	11.2	(0.7)	(8.2)
	Project Management	(8504) PROJECT MANAGEMENT ENGINEERING	72,956	1,055,247	14.81	14.0	8.1	8.7	0.7	6.2

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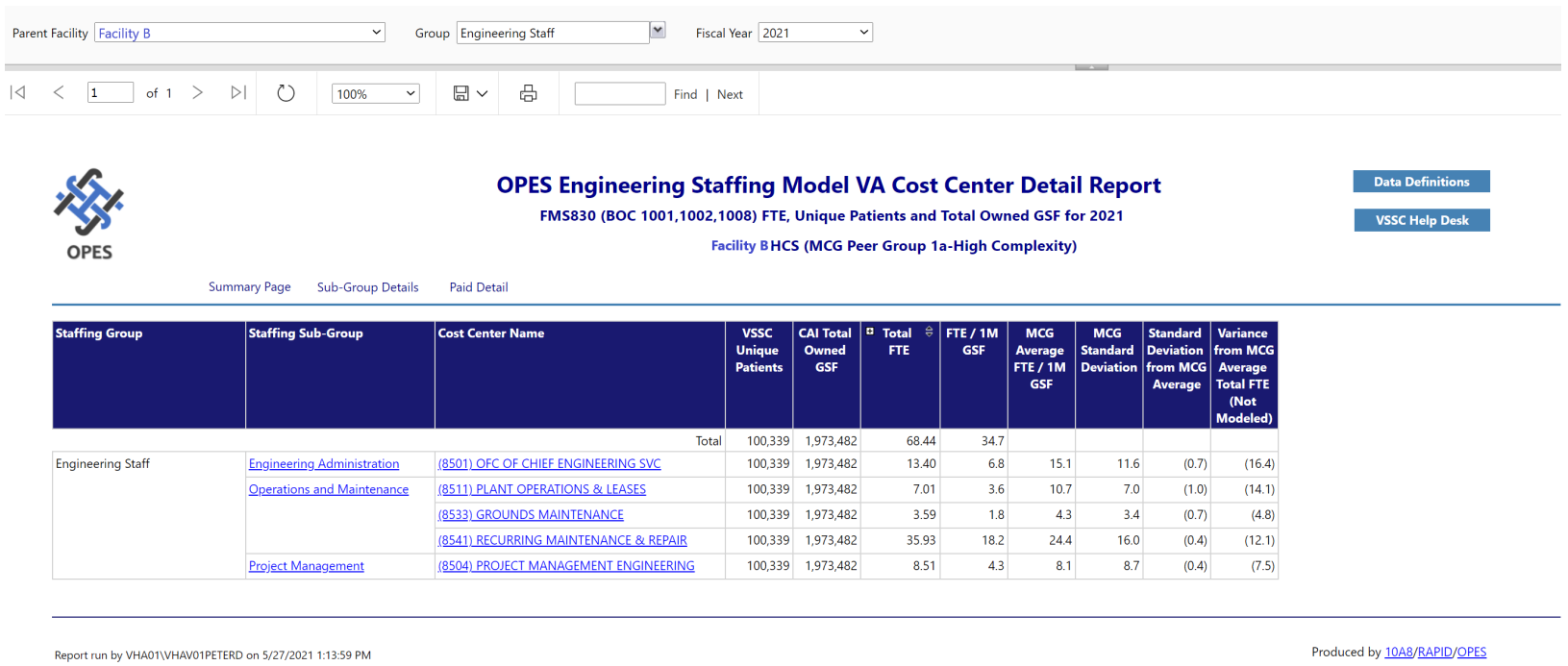

Parent Facility: Facility B | Group: Engineering Staff | Fiscal Year: 2021

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OPES Engineering Staffing Model VA Cost Center Detail Report

FMS830 (BOC 1001,1002,1008) FTE, Unique Patients and Total Owned GSF for 2021

Facility B HCS (MCG Peer Group 1a-High Complexity)

Data Definitions | VSSC Help Desk

Summary Page | Sub-Group Details | Paid Detail

Staffing Group	Staffing Sub-Group	Cost Center Name	VSSC Unique Patients	CAI Total Owned GSF	Total FTE	FTE / 1M GSF	MCG Average FTE / 1M GSF	MCG Standard Deviation	Standard Deviation from MCG Average	Variance from MCG Average Total FTE (Not Modeled)
		Total	100,339	1,973,482	68.44	34.7				
Engineering Staff	Engineering Administration	(8501) OFC OF CHIEF ENGINEERING SVC	100,339	1,973,482	13.40	6.8	15.1	11.6	(0.7)	(16.4)
	Operations and Maintenance	(8511) PLANT OPERATIONS & LEASES	100,339	1,973,482	7.01	3.6	10.7	7.0	(1.0)	(14.1)
		(8533) GROUNDS MAINTENANCE	100,339	1,973,482	3.59	1.8	4.3	3.4	(0.7)	(4.8)
		(8541) RECURRING MAINTENANCE & REPAIR	100,339	1,973,482	35.93	18.2	24.4	16.0	(0.4)	(12.1)
	Project Management	(8504) PROJECT MANAGEMENT ENGINEERING	100,339	1,973,482	8.51	4.3	8.1	8.7	(0.4)	(7.5)

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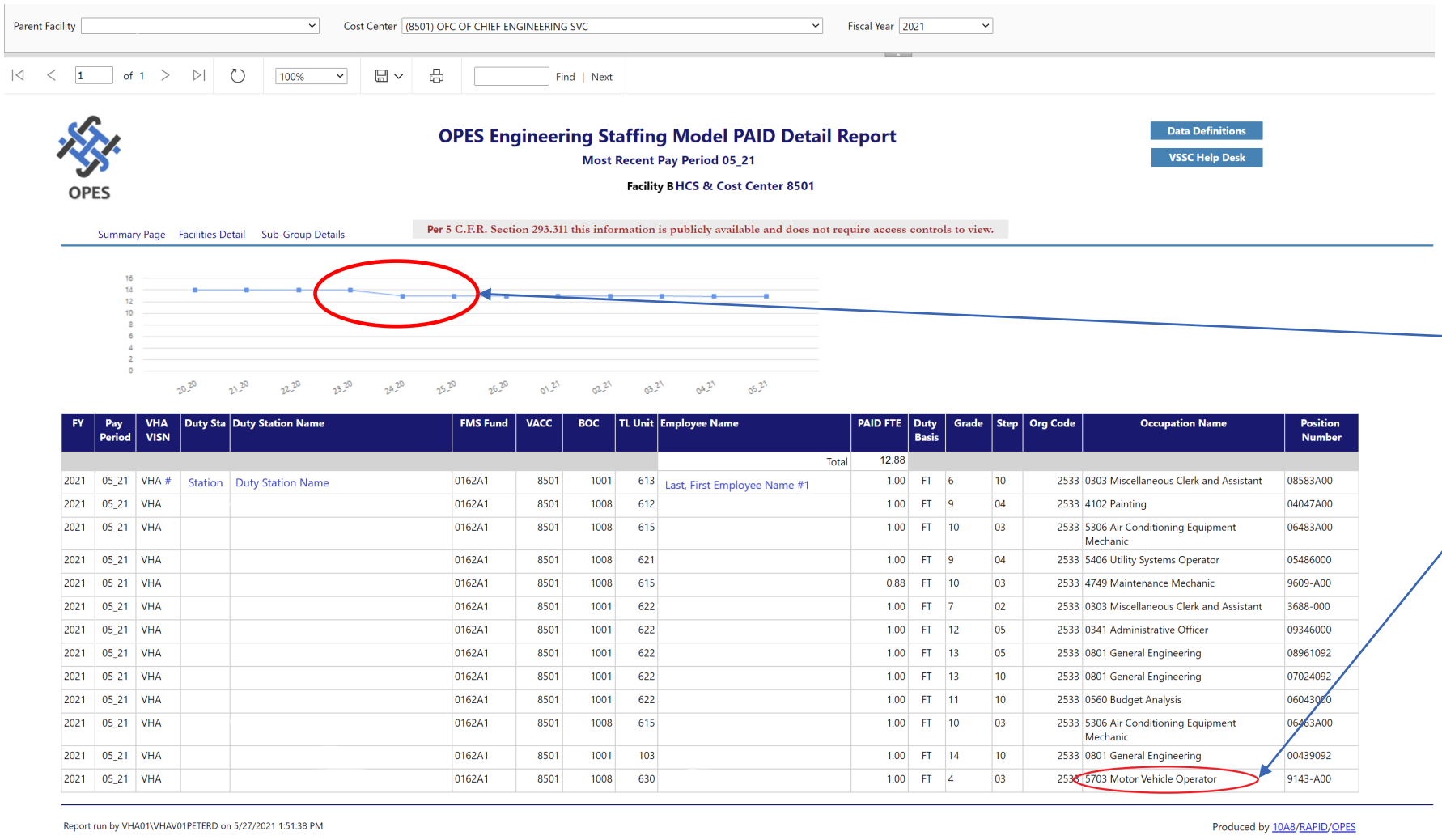
ENGINEERING STAFFING NAME DETAIL REPORT



Parent Facility | Cost Center (8501) OFC OF CHIEF ENGINEERING SVC | Fiscal Year 2021

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OPES Engineering Staffing Model PAID Detail Report

Most Recent Pay Period 05_21

Facility B HCS & Cost Center 8501

Data Definitions | VSSC Help Desk

Summary Page | Facilities Detail | Sub-Group Details

Per 5 C.F.R. Section 293.311 this information is publicly available and does not require access controls to view.

FY	Pay Period	VHA VISN	Duty Sta	Duty Station Name	FMS Fund	VACC	BOC	TL Unit	Employee Name	PAID FTE	Duty Basis	Grade	Step	Org Code	Occupation Name	Position Number
									Total	12.88						
2021	05_21	VHA #	Station	Duty Station Name	0162A1	8501	1001	613	Last, First Employee Name #1	1.00	FT	6	10	2533	0303 Miscellaneous Clerk and Assistant	08583A00
2021	05_21	VHA			0162A1	8501	1008	612		1.00	FT	9	04	2533	4102 Painting	04047A00
2021	05_21	VHA			0162A1	8501	1008	615		1.00	FT	10	03	2533	5306 Air Conditioning Equipment Mechanic	06483A00
2021	05_21	VHA			0162A1	8501	1008	621		1.00	FT	9	04	2533	5406 Utility Systems Operator	05486000
2021	05_21	VHA			0162A1	8501	1008	615		0.88	FT	10	03	2533	4749 Maintenance Mechanic	9609-A00
2021	05_21	VHA			0162A1	8501	1001	622		1.00	FT	7	02	2533	0303 Miscellaneous Clerk and Assistant	3688-000
2021	05_21	VHA			0162A1	8501	1001	622		1.00	FT	12	05	2533	0341 Administrative Officer	09346000
2021	05_21	VHA			0162A1	8501	1001	622		1.00	FT	13	05	2533	0801 General Engineering	08961092
2021	05_21	VHA			0162A1	8501	1001	622		1.00	FT	13	10	2533	0801 General Engineering	07024092
2021	05_21	VHA			0162A1	8501	1001	622		1.00	FT	11	10	2533	0560 Budget Analysis	06043000
2021	05_21	VHA			0162A1	8501	1008	615		1.00	FT	10	03	2533	5306 Air Conditioning Equipment Mechanic	06483A00
2021	05_21	VHA			0162A1	8501	1001	103		1.00	FT	14	10	2533	0801 General Engineering	00439092
2021	05_21	VHA			0162A1	8501	1008	630		1.00	FT	4	03	2533	5703 Motor Vehicle Operator	9143-A00

Report run by VHA01\VHAV01PETERD on 5/27/2021 1:51:38 PM

Produced by 10A8/RAPID/OPES

OPES Engineering Staffing Model PAID Detail Report

(*note:* link is internal to VHA)

- Name level detail of staff by associated cost center
- Information on duty station (staff physical location) and time and leave (T&L) unit for identifying supervisor
- Trend line of FTE by pay period
  - Identifies changes in staffing levels over time
- Occupation name identifies OPM occupation series
  - Can be used to audit appropriate costing of staff member

TOOL NEXT STEPS AND IMPROVEMENTS

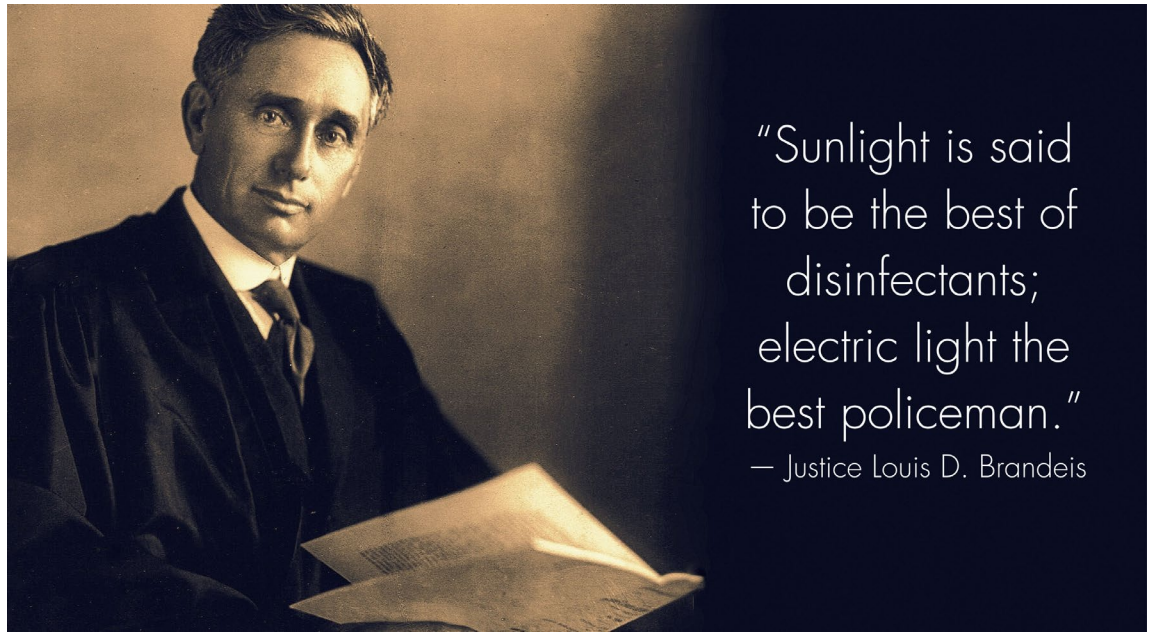
- Comparison of staffing to outcomes
  - Identifying specified outcomes for engineering staff and developing measurement approaches
  - Comparison of staffing levels to outcome success
- Workload-based (bottom-up) modeling
  - Can use workload to build out productivity models similar to VHA's productivity models for clinical workforce
    - VHA Directive 1065: Productivity and Staffing Guidance for Specialty Provider Group Practice
  - Industry standard workload / work order systems and timing
- Future state – examine composition of the workforce; development of management tools
  - Substitution between classes of engineering staff and facilities staff, substitution between contract and VA in-house staffing
  - Management tools for monitoring facility KPIs and relevant management metrics
  - Data quality auditing tools, migration to next generation HR, finance, and work order systems

POTENTIAL FUTURE OUTCOME MEASURES

- NAS Outcome contender list
  - Recommendation 4.3 development of Key Performance Indicators (KPIs)
  - Notional list of "never events"
  - Critical systems maintenance
- VHA Engineering potential outcome measures
  - Issue briefs
  - Joint commission requirements
  - Patient satisfaction
  - Environment of care (EOC) rounds data
  - Closure / downtime data
  - Maintenance check data

DECISION-MAKING / POLICY APPROACH

- Internal benchmarking
  - Prioritize resources within facilities
- Enhances data integrity
  - Increased transparency compels correction of data
  - Provides a standard framework for analyzing staff
- Decision support enhancement
  - Gives local managers resources for justifying efficient resource allocation and deployment
  - Ensures funding and feasibility



QUESTIONS AND FEEDBACK

The VHA Engineering Staffing Model represents the first step in building a comprehensive staffing model for examining staffing needs and justifications. We welcome feedback on the model approach and future state!

OPES Help Desk

OPES
Office of
Productivity
Efficiency
Staffing

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SUPPORT SLIDES

Supporting Slides and Documentation

OPES STAFFING MODEL APPROACH

Generally, OPES engages in the following approach to understanding staffing variance within VHA:

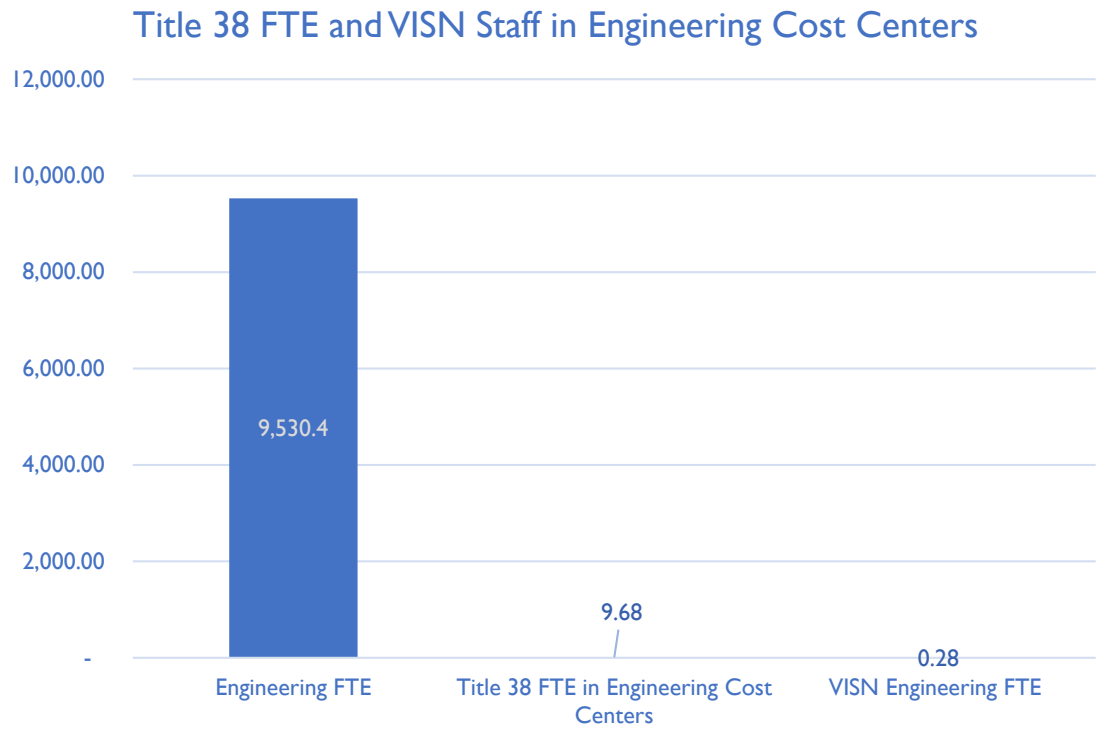
- Identify and define the staffing area of interest
- Describe the state of current staffing
- Identify potential data systems available to help understand differences in staffing across VHA
  - Where systems do not exist, identify alternative approaches for understanding that variance
  - Where systems do exist, understand the existing weaknesses in those systems
- Develop a model to help understand differences in existing staffing levels
- Model approaches
  - Top-down regression modeling
  - Bottom-up workload analysis modeling
- Compare results of analysis to outcomes to ensure current staffing profile is meeting existing needs
- Compare results of analysis to existing external benchmarks to ensure existing staffing profile compares to the private sector/other industry standards
- Develop tools to ensure model data transparency
  - Identify potential areas of weakness within existing tools
  - Develop feedback loops to enhance data integrity of tools
  - Identify potential areas of enhancement for new or existing tools

NAS RECOMMENDED VARIABLES (COLLECTED / TESTED)

Tested Variables	Modified Variables	Untested (Unavailable)	Untested (Rationale)
☐ Tested Variables	☐ Proximity of facilities	☐ Topography and land use at the site	☐ Weather conditions (snowfall)
☐ Building Gross Square Feet (GSF)	☐ Deferred maintenance	☐ Distance or time driven to remote worksites	☐ Anticipated amount of SCIP program
☐ Managed Acres	☐ NRM project size, number	☐ Ease of work order tracking	☐ Construction dollars
☐ Topography and land use at the site	☐ Climate zone	☐ SCIP dollar value	☐ Dollar value of equipment
☐ Building Age and Condition	☐ Unique requirements	☐ Projects designed in house	☐ "Unique systems"
☐ Historic Buildings		☐ Building height	
☐ FCA dollar value		☐ Ability to outsource engineering activities	
☐ Hospital complexity			
☐ Rural / Urban			

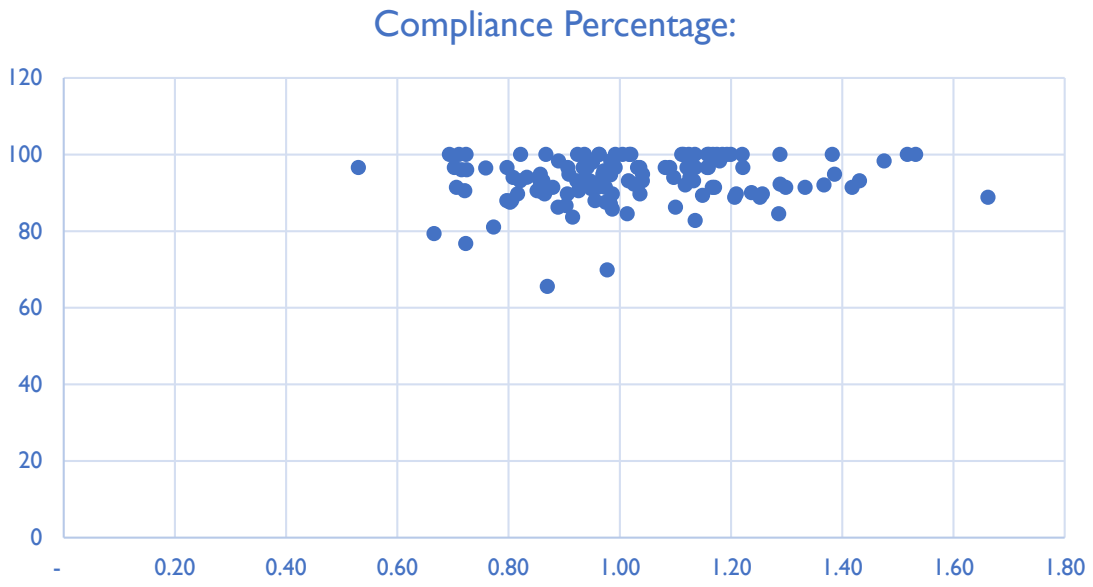
IMPACT OF VISN AND TITLE 38 STAFF ON ENGINEERING FTE TOTALS

- Potential impacts on engineering staffing
  - VISN Engineering Staffing
    - Consolidated or VISN level engineering programs
  - Clinical staff (Title 38 FTE) working in an engineering capacity
    - FTE in BOCs other than BOC 1001, 1002, 1008
- Limited impact on healthcare engineering staff and excluded from model
  - Impact is substantially higher on other Healthcare Environment and Facilities Programs and would need to be investigated for models related to those programs



OCAMES ENGINEERING STAFFING MODEL
RELATIONSHIP OF CAPRES OUTCOMES TO STAFFING O/E

CAPRES Compliance Aggregate Measure to Draft Engineering FTE Model O/E Ratio



CAPRES Quality Aggregate Measure to Draft Engineering FTE Model O/E Ratio