

# **Real Property Restoration Cost**

***A revised assessment of Fort Hancock Reuse Property  
available cost data and a Recommendation for  
Improvement***

**28 May 2014**

# Real Property Cost Working Group

- Members:
  - Shawn Welch
  - Mike Holenstein
  - Guy Hembling
  - NPS Support – Pete McCarthy
- Working Group Purpose - Provide detailed information and cost analysis recommendations to support Fort Hancock 21<sup>st</sup> Century Committee fact finding, analysis, deliberations and recommendations
- COMMITTEE REQUEST: An outline of current status of industry standard costs for restoration of Fort Hancock reuse candidate facilities

# Cost Working Group Determination

- THE NEED:
  - A reasonably accurate industry standard cost projection for effective reuse marketing
- THE SHORTFALL:
  - We currently lack an industry standard restoration cost estimate for reuse marketing

# Reuse Bldg Costs by Building and *Example* OSD Facility Type

FH21 Proposed OSD FAC Definition	Bldg #	Former Army use	Optimizer Band	Count of Records	Sum of FH21 UM	Sum of CRV	Sum of DM	Sum of CSDM	Sum of Est. Army Restoration Cost MAX w/Hist CF (FY15) - Condition For Occupied bldgs only	Sum of Est. Army Restoration Std Dev Cost w/Hist CF (FY15)	Sum of Est Cost Facilities Sustainment (Maint & Repair)	Sum of Annual Cost Facility Operations
General Administrative Building	15	Off Qtrs	5	1	8,556	\$2,614,641	\$500,059	\$0	\$458,420	\$127,782	\$48,853	\$48,066
	16	Off Qtrs	5	1	7,412	\$2,412,255	\$392,589	\$1,907	\$397,126	\$110,697	\$42,321	\$41,639
	17	Off Qtrs	5	1	7,412	\$2,412,255	\$434,339	\$12,338	\$397,126	\$110,697	\$42,321	\$41,639
	20	Off Qtrs	5	1	2,000	\$545,809	\$133,146	\$5,968	\$107,158	\$29,870	\$11,420	\$11,236
	23	Brks	5	1	17,145	\$6,925,407	\$1,597,189	\$305,692	\$918,609	\$256,057	\$97,894	\$96,318
	24	Brks	5	1	17,116	\$6,925,407	\$1,532,883	\$297,161	\$917,055	\$255,624	\$97,728	\$96,155
	25	Brks	4	1	17,145	\$11,615,019	\$6,304,528	\$90,904	\$918,609	\$256,057	\$97,894	\$96,318
	33	Bakery	5	1	2,740	\$659,954	\$496,674	\$53,199	\$146,806	\$40,921	\$15,645	\$15,393
	36	Barn	5	1	7,629	\$2,288,035	\$523,027	\$215,983	\$408,753	\$113,938	\$43,560	\$42,858
	53	PX	5	1	6,180	\$1,610,911	\$481,922	\$2,311	\$331,117	\$92,297	\$35,286	\$34,718
General Administrative Building (Misc)	79	Oil & Paint S	(blank)	1	500	\$0	\$0	\$0	\$13,395	\$7,467	\$2,855	\$2,809
	2	Off Qtrs	5	1	7,412	\$2,335,456	\$727,972	\$323,592	\$0	\$16,605	\$6,348	\$0
Exchange Eating Facility	55	Mess Hall	5	1	6,676	\$1,118,991	\$1,246,838	\$13,072	\$363,235	\$103,099	\$74,377	\$240,488
	56	Mess Hall	5	1	6,676	\$1,118,991	\$809,658	\$64,983	\$363,235	\$103,099	\$74,377	\$240,488
	57	Mess Hall	5	1	6,676	\$1,118,991	\$1,208,795	\$187,581	\$363,235	\$103,099	\$74,377	\$240,488
Exchange Sales Facility	60	Gas Station	5	1	1,325	\$439,291	\$255,542	\$43,519	\$62,851	\$17,024	\$7,961	\$4,197
Indoor Physical Fitness Facility	40	Gym	5	1	18,890	\$4,676,215	\$89,214	\$0	\$0	\$215,427	\$88,691	\$63,938
	70	PX/Gym	(blank)	1	7,346	\$0	\$0	\$0	\$134,856	\$83,776	\$47,644	\$26,162
Museum	28	Guard House	2	1	4,670	\$2,610,990	\$699,857	\$145,373	\$0	\$0	\$30,009	\$22,297
Rec Lodging	3	Off Qtrs	5	1	7,412	\$2,335,456	\$377,626	\$6,366	\$1,020,165	\$201,541	\$47,334	\$44,632
	4	Off Qtrs	5	1	7,412	\$2,335,456	\$383,026	\$0	\$1,020,165	\$201,541	\$47,334	\$44,632
	5	Off Qtrs	5	1	7,412	\$2,335,456	\$340,165	\$105,436	\$510,083	\$201,541	\$47,334	\$44,632
	6	Off Qtrs	5	1	7,412	\$2,412,255	\$398,830	\$5,271	\$1,020,165	\$201,541	\$47,334	\$44,632
	7	Off Qtrs	5	1	7,412	\$2,412,255	\$335,027	\$7,191	\$510,083	\$201,541	\$47,334	\$44,632
	8	Off Qtrs	5	1	7,412	\$2,412,255	\$357,081	\$3,569	\$510,083	\$201,541	\$47,334	\$44,632
	9	Off Qtrs	5	1	8,556	\$2,614,641	\$440,243	\$0	\$1,177,622	\$232,648	\$54,640	\$51,521
	10	Off Qtrs	5	1	8,556	\$2,614,641	\$769,844	\$5,584	\$1,177,622	\$232,648	\$54,640	\$51,521
	11	Off Qtrs	5	1	8,556	\$2,614,641	\$849,580	\$45,747	\$1,177,622	\$232,648	\$54,640	\$51,521
	21	Off Qtrs	3	1	5,716	\$2,134,233	\$197,270	\$0	\$0	\$155,425	\$36,503	\$19,812
	29	NCO Qtrs	2	1	2,128	\$362,517	\$240,385	\$71,829	\$292,892	\$57,863	\$13,590	\$7,376
	30	NCO Qtrs	2	1	3,108	\$533,113	\$415,987	\$104,604	\$427,776	\$84,510	\$19,848	\$10,772
	52	NCO Qtrs	2	1	3,240	\$548,479	\$325,967	\$0	\$445,944	\$88,100	\$20,691	\$11,230
	64	NCO Qtrs	2	1	2,000	\$407,068	\$228,959	\$96,006	\$275,274	\$54,382	\$12,772	\$6,932
	104	Off Qtrs	2	1	1,746	\$477,365	\$44,347	\$41,502	\$0	\$47,476	\$11,150	\$6,052
Trans Lodging	12	Off Qtrs	5	1	10,724	\$3,132,091	\$1,281,775	\$5,149	\$1,476,019	\$291,599	\$104,968	\$67,814
	13	Off Qtrs	5	1	8,556	\$2,614,641	\$331,885	\$18,866	\$588,811	\$232,648	\$83,748	\$54,105
	14	Off Qtrs	5	1	8,556	\$2,614,641	\$430,234	\$8,081	\$1,177,622	\$232,648	\$83,748	\$54,105
	27	BOQ	5	1	10,303	\$3,319,682	\$476,024	\$135,067	\$709,037	\$280,151	\$100,847	\$65,152
	80	Off Qtrs	5	1	2,080	\$622,939	\$0	\$0	\$0	\$56,558	\$20,359	\$13,153
	114	Officer's Club	5	1	23,616	\$8,919,082	\$5,305,616	\$179,658	\$3,250,435	\$642,148	\$231,157	\$149,338
Grand Total				40	305,419	\$99,201,522	\$30,964,105	\$2,603,505	\$23,069,005	\$6,174,238	\$2,126,869	\$2,253,401

# Cost Working Group Recommendation

- Working Group Recommendation:
  - National Park Service expedite a Facility Management Support System assessment (work order) update for Deferred Maintenance (**DM**) and Critical Systems Deferred Maintenance (**CSDM**) at full cost restoration for a projected use for all Fort Hancock candidate buildings identified for non-NPS re-use
- Benefits of executing this recommendation:
  - An industry standard “maximum” cost will be generated for use in reuse marketing and for NPS management decision making
  - Will bring NPS into compliance with Chief Financial Officer’s (CFO) Act requirements for Condition Cost Auditability
  - Will bring NPS into compliance with Federal Real Property Council standards of condition status auditability

# **Real Property Cost Analysis**

***Backup Material***

# Fort Hancock Reuse Cost Analysis

## *Key Terms and Definitions*

Facility Management Software System (FMSS) – This software meets all the NPS criteria for a relational database to manage assets at the individual park level. FMSS (Maximo™) is an asset –based work identification, work management, and work analysis program. This “cradle to grave” asset and work management system allows a park, region or NPS HQ to track all aspects of work related to a specific asset, such as: planning and design, construction, operations/maintenance, and rehabilitation or removal. This system meets the intent of the Federal Real Property Council’s guidance on compliance with the Chief Financial Officer’s Act on asset accountability. All costs are generated from the work orders developed within the system. Without work orders, costs are either basic costs assuming no condition assessment or absent costs.

Current Replacement Value (CRV) – Standard industry costs and engineering estimates of materials, supplies, and labor required to replace facility at existing size and functional capability. This cost includes current costs for planning/design, construction, and construction management.

Deferred Maintenance (DM) – Maintenance that was not performed when it should have been or was scheduled to be and which, therefore, is put off or delayed. Continued deferment of maintenance will result in deficiencies. Generated by FMSS work orders.

Critical Systems Deferred Maintenance (CSDM) – Critical systems are those systems that directly accomplish the fundamental function for which the asset type (structure) denotes. These are systems that are required for an asset to elementally be in operation such as electrical, bearing walls/structural components, drainage, key mechanical components, and for historic structures selected physical and mechanical components key to the basic interpretation of the asset.

Sum of Est. Army Restoration Cost MAX w/Hist CF (FY15) - no condition - occupied only – applies 15% of total cost to unoccupied facilities, 100% to occupied buildings. This projects an average **ONE TIME** cost for full facility restoration assuming the worst conditions are present across the building’s components.

Sum of Est. Army Restoration Cost MAX w/Historic CF (FY15) - Condition For Occupied bldgs only = same as above and also applies 100% for Facility Condition Index “Poor” and “Serious”; 50% for “Fair”; 0% for “good”

Est Cost Facilities Sustainment (Maint & Repair) – annual recurring routine maintenance and repair for existing real property inventory to maintain it in an operable condition throughout its lifecycle.

Annual Cost - Facility Operations – utilities, real property services, trash collection, pest control, engineering services such as inspections and work order management, etc.

# Costs of GNRA By Unit

All GNRA real property records with DoD/Army cost factors applied. Full requirement assumes 100% standards are met – seldom achieved even in the most lavish funding conditions. All structures within GNRA were costed via OSD categories (FACs) that were assigned hypothetically with the purpose of facilitating costing only. Different facility types (FACs) when proposed by the FH21 Committee will yield different costs when Unit of Measure costs by facility category are applied.

Gateway By Unit w/FH Reuse	Count of Records	Sum of FH21 UM	Sum of CRV	Sum of DM	Sum of CSDM	Sum of Est. Army Restoration Cost MAX w/Hist CF (FY15) - Condition For Occupied bldgs only	Sum of Est. Army Restoration Std Dev Cost w/Hist CF (FY15)	Sum of Est Cost Facilities Sustainment (Maint & Repair)	Sum of Annual Cost - Facility Operations
Ft Hancock Reuse Property	40	305,419	\$99,201,522	\$30,964,105	\$2,603,505	\$23,069,005	\$6,174,238	\$2,126,869	\$2,253,401
Fort Hancock - Sandy Hook	331	2,209,547	\$1,451,184,448	\$48,843,190	\$7,663,941	\$28,955,086	\$16,937,704	\$8,494,599	\$2,321,798
Jamaica Bay	620	4,114,988	\$2,989,517,175	\$467,563,304	\$59,310,280	\$50,105,604	\$63,161,044	\$25,770,964	\$11,909,190
Staten Island	334	1,335,402	\$3,864,559,783	\$82,649,720	\$16,626,225	\$26,868,397	\$15,224,919	\$8,095,034	\$1,886,868
Grand Total	1325	7,965,356	\$8,404,462,928	\$630,020,320	\$86,203,950	\$128,998,092	\$101,497,904	\$44,487,467	\$18,371,257

- Title headings are defined in backup definitions slide
- Total count of assets that are measured in Square Feet (99% buildings) number 666 facilities
- The remaining 659 assets range from roads to light posts to electric lines to sewage lines and similar systems and assets.
- The costs for **CRV**, **DM** and **CSDM** are all generated by NPS Facility Management Support System (FMSS) and was provided to the committee in March 2013.

	Sum of CRV	Sum of DM	Sum of CSDM	Sum of Est. Army Restoration Cost MAX w/Hist CF (FY15) - Condition For Occupied bldgs only	Sum of Est. Army Restoration Std Dev Cost w/Hist CF (FY15)
Ft Hancock Reuse Cost Per SF	\$325	\$101	\$9	\$76	\$20
Fort Hancock overall Cost Per SF	\$1,694	\$35	\$6	\$13	\$7



## *Data and Cost Factor Sources*

- GNRA provided Real Property Inventory data (by unit, building, square footage and current/design use, cost execution data by facility operations, facility sustainment (routine maintenance and repair), restoration and other Park Operations.
- Army Restoration and Modernization Cost Factors were provided by the Army's Office of the Assistant Chief of Staff for Installation Management (OACSIM) in FY15 dollars. These factors are available for review by contacting COL Shawn Welch, Army Program Analysis and Evaluation
- Office Secretary of Defense (OSD) Deputy Secretary of Defense for Installations and Environment (DUSD-I&E) Facility Sustainment and Operations cost factors for FY10 and FY07 (utilities) inflated to FY15 dollars. These cost factors are available for review in the OSD Facilities Pricing Guide issued by fiscal year and available at [http://www.acq.osd.mil/ie/fim/programanalysis\\_budget/tool\\_metrics/FPG/fpg.shtml](http://www.acq.osd.mil/ie/fim/programanalysis_budget/tool_metrics/FPG/fpg.shtml) though some data is only available using DoD Common Access Card.

# Data and Analysis Assumptions

- “Costing” applied DoD and Army cost factors to each record by its Unit of Measure (UM)
  - Cost Factors provided from the OSD Pricing Guide version 10 applied for Sustainment, Engineering and Real Property Services, Utilities (version 7), solid waste collection and pest control.
  - Cost Factors for Restoration from the Army version 15 of the Installation Status Report and either taken at maximum factor or standard deviation factor across “components” of a given facility analysis category (FAC) or Facility Category Group (FCG) which relates to a single OSD FAC.
  - All records applied Earle, NJ area cost factor and inflated to FY15 dollars.
- Several UM’s were converted to align with the OSD/Army cost factors . Most changes involved:
  - Square Feet (SF) to Square Yards (SY)
- Estimated Army Restoration Cost maximum applies
  - Historic (monumental construction) cost factor (1.5)
  - Only applied to occupied buildings.
  - Condition ratings applied; Good = 0 ; Fair = 50%; poor & serious = 100%
  - Estimated cost for full restoration to usable standards

# Reuse Bldg Costs by *Example* OSD Facility Type

FH21 Proposed OSD FAC Definition	Count of Records	Sum of FH21 UM	Sum of CRV	Sum of DM	Sum of CSDM	Sum of Est. Army Restoration Cost MAX w/Hist CF (FY15) - Condition For Occupied bldgs only	Sum of Est. Army Restoration Std Dev Cost w/Hist CF (FY15)	Sum of Est Cost Facilities Sustainment (Maint & Repair)	Sum of Annual Cost - Facility Operations
General Administrative Building	11	93,835	\$38,009,692	\$12,396,356	\$985,464	\$5,014,172	\$1,401,408	\$535,775	\$527,149
General Administrative Building (Misc)	1	7,412	\$2,335,456	\$727,972	\$323,592	\$0	\$16,605	\$6,348	\$0
Exchange Eating Facility	3	20,028	\$3,356,973	\$3,265,291	\$265,636	\$1,089,704	\$309,296	\$223,132	\$721,464
Exchange Sales Facility	1	1,325	\$439,291	\$255,542	\$43,519	\$62,851	\$17,024	\$7,961	\$4,197
Indoor Physical Fitness Facility	2	26,236	\$4,676,215	\$89,214	\$0	\$134,856	\$299,203	\$136,335	\$90,100
Museum	1	4,670	\$2,610,990	\$699,857	\$145,373	\$0	\$0	\$30,009	\$22,297
Rec Lodging	15	88,078	\$26,549,829	\$5,704,338	\$493,102	\$9,565,496	\$2,394,950	\$562,482	\$484,528
Trans Lodging	6	63,835	\$21,223,075	\$7,825,534	\$346,820	\$7,201,925	\$1,735,752	\$624,827	\$403,665
Grand Total	40	305,419	\$99,201,522	\$30,964,105	\$2,603,505	\$23,069,005	\$6,174,238	\$2,126,869	\$2,253,401

All 40 structures under consideration by FH21 Committee with OSD categories (FACs) assigned *hypothetically* with the *purpose of facilitating costing only*. Different facility types (FACs) will yield different costs.

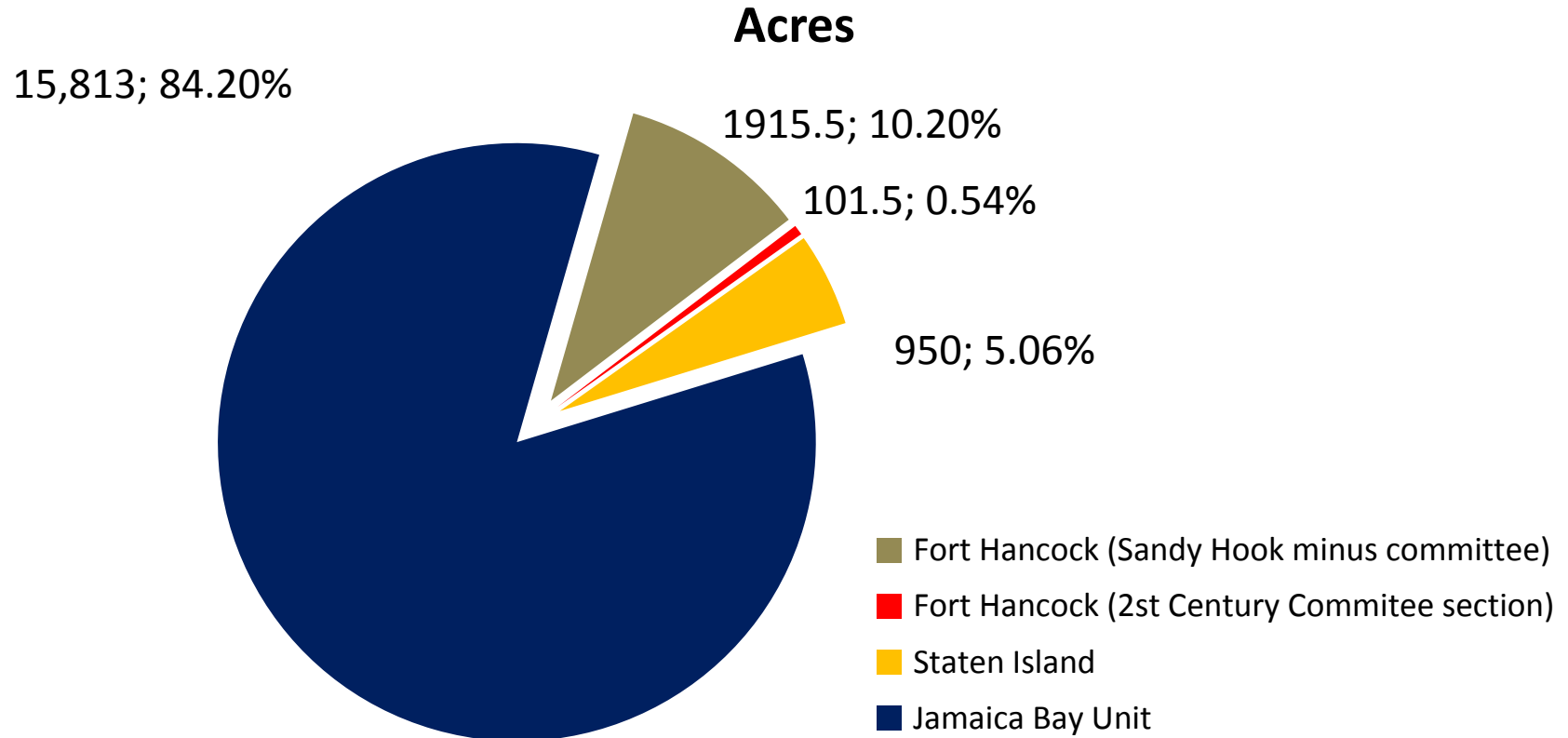
# Data and Analysis Assumptions

- GNRA provided a real property inventory listing with 1,325 records
  - 896 records were costed (67% of total)
  - 666 records were Unit of Measure (UM) Square Feet (SF) (50% of total records)
  - 490 UM SF were costed (36% of total records, 73% of SF records)
- 429 records (32%) were not costed.
  - Consisted of 36% of adjusted UM inventory and 19.14% of NPS Deferred maintenance inventory
  - Much of this inventory had UM that could not be converted to appropriate UM for application of OSD and Army cost factors
  - Examples included pump houses, water lines, sewage lines and electric lines/stations.
  - Some records of UM “each” had no applicable cost factor
  - Some records were not costed due to small size and/or no related cost factor
- Fort Hancock Historic District is considered “Occupied” in this analysis.

# Acronyms

- CF = Cost Factor
- SF = Square Feet
- UM = Unit of Measure; square feet, square yards, gallons per minute, etc.
- DoD = Department of Defense
- CRV = Current Replacement Value
- DM = Deferred Maintenance (from NPS MAXIMO)
- CSDM = Critical Systems Deferred Maintenance
- FAC = Facility Analysis Category (Dept of Defense term)
- FCI = Facility Condition Index
- FH21 = Fort Hancock 21<sup>st</sup> Century Committee
- FSM = Facility Sustainment Model
- FY = Fiscal year
- GNRA = Gateway National Recreation Area
- OSD = Office of Secretary of Defense
- FMSS = Facility Management Software System
- MAXIMO – commercial real property management system that is the backbone of FMSS
  - (<http://www-03.ibm.com/software/products/us/en/maximoassetmanagement/>)

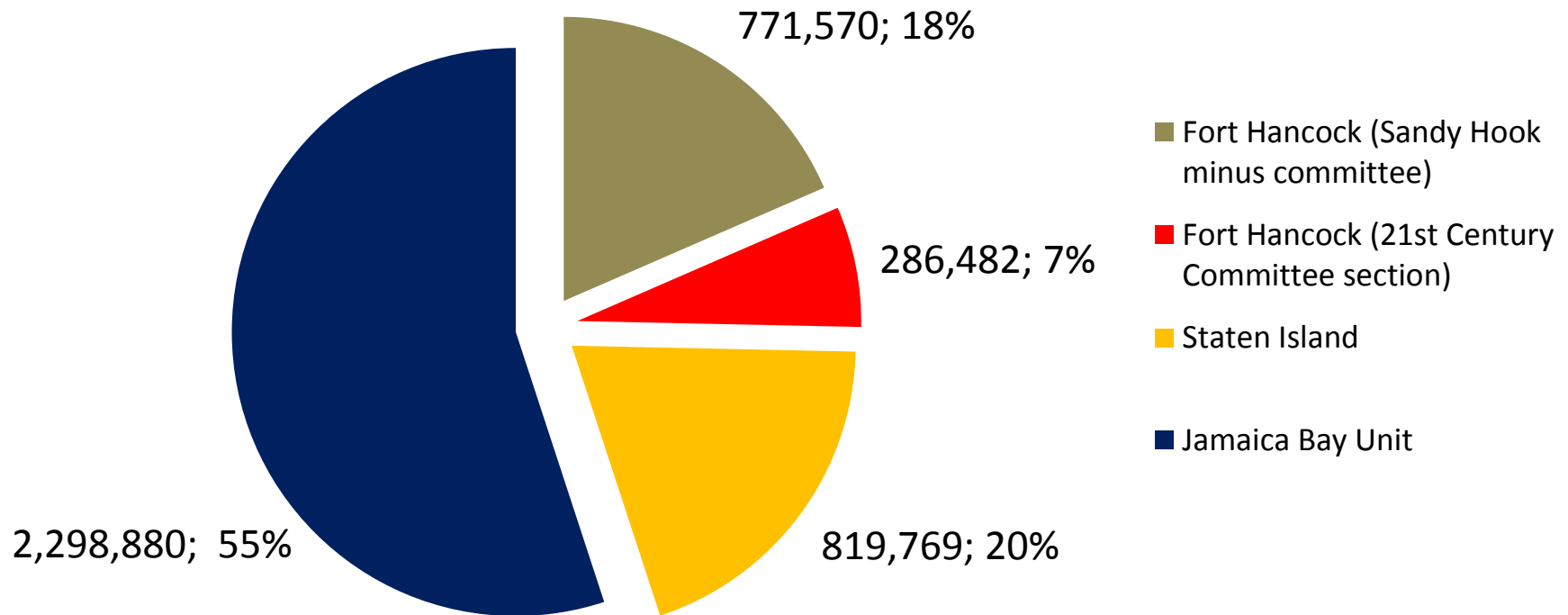
# Gateway National Recreation Area



**Sources:** All acreage data from NPS, revised 20 May 2013

# Gateway National Recreation Area

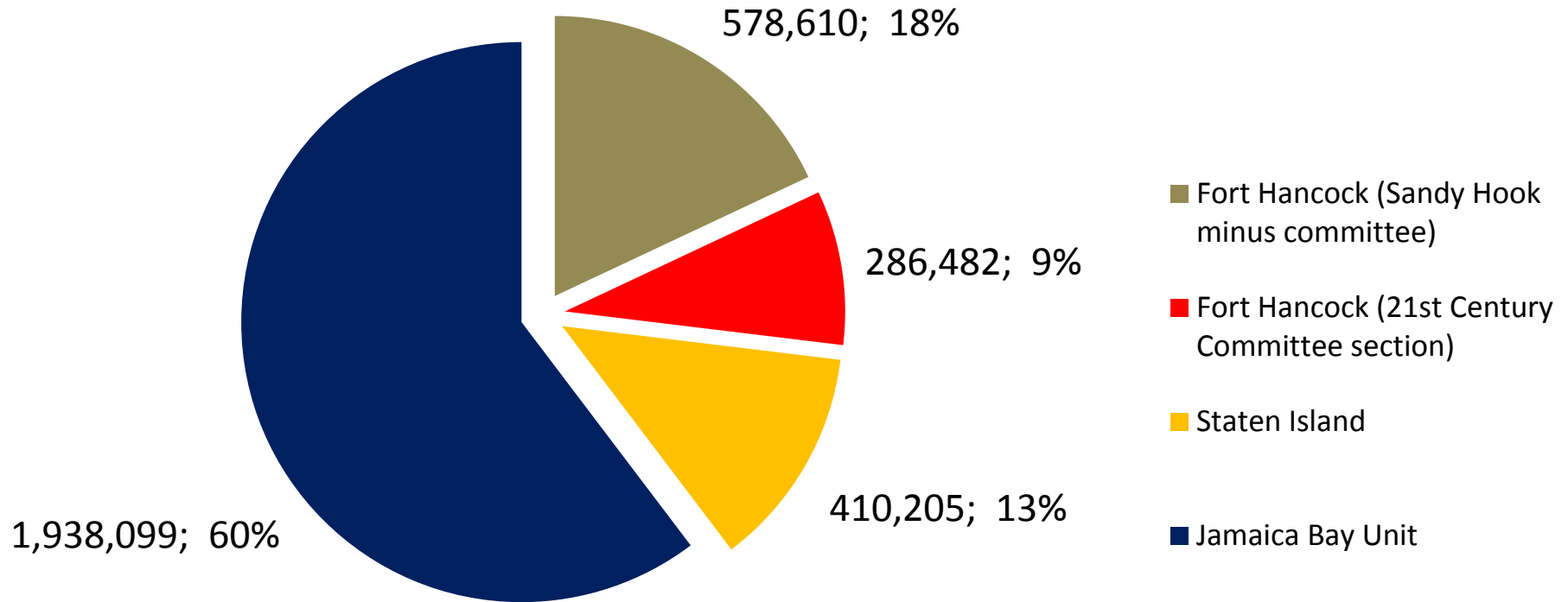
## Total Square Footage



**Sources:** From GNRA real property inventory as recorded in MAXIMO and provided by Public Works office.

# Gateway National Recreation Area

## Occupied/In Use Square Footage



**Sources:** From GNRA real property inventory as recorded in MAXIMO and provided by Public Works office.

Fort Hancock Historic District is currently unoccupied, but is considered occupied for this analysis.