

Fort Buchanan  
 Puerto Rico

Family Housing Replacement Construction

711 13 78348 26,000

1.0000 U.S. DOLLAR/US\$

|  |    |    |         |               |
|--|----|----|---------|---------------|
| PRIMARY FACILITY                           |    |    |         | 14,241        |
| F. Hsg, Colonel, O6, 4 BR, OCONUS          | FA | 2  | 577,937 | (1,156)       |
| W. Officer, W4-W5, 4 BR, OCONUS            | FA | 3  | 537,029 | (1,611)       |
| W. Officer, W4-W5, 3 BR, OCONUS            | FA | 3  | 472,155 | (1,416)       |
| CO Grade Officer, O1-O3, 4 BR, OCONUS      | FA | 1  | 455,241 | (455)         |
| Senior NCO, E9 4 BR, OCONUS                | FA | 1  | 537,029 | (537)         |
| Total from Continuation page(s)            |    |    |         | (9,066)       |
| SUPPORTING FACILITIES                      |    |    |         | 8,632         |
| Electric Service                           | LS | -- | --      | (585)         |
| Water, Sewer, Gas                          | LS | -- | --      | (1,222)       |
| Paving, Walks, Curbs And Gutters           | LS | -- | --      | (665)         |
| Storm Drainage                             | LS | -- | --      | (592)         |
| Site Imp(1,676) Demo(2,891)                | LS | -- | --      | (4,567)       |
| Information Systems                        | LS | -- | --      | (168)         |
| Antiterrorism Measures                     | LS | -- | --      | (163)         |
| Other                                      | LS | -- | --      | (670)         |
| ESTIMATED CONTRACT COST                    |    |    |         | 22,873        |
| CONTINGENCY (5.00%)                        |    |    |         | 1,144         |
| SUBTOTAL                                   |    |    |         | <u>24,017</u> |
| SUPERVISION, INSPECTION & OVERHEAD (6.50%) |    |    |         | 1,561         |
| TOTAL REQUEST                              |    |    |         | <u>25,578</u> |
| TOTAL REQUEST (ROUNDED)                    |    |    |         | 26,000        |
| INSTALLED EQT-OTHER APPROPRIATIONS         |    |    |         | (130,000)     |

Construct twenty-six (26) replacement Family quarters: 2 four-bedroom Senior Officer (O6) quarters, 1 four-bedroom Company Grade Officer (O1-O3, W1-W3) quarters, 3 three-bedroom Senior Non-Commissioned Officer (E9, W4-W5) quarters, 4 four-bedroom Senior Non-Commissioned Officer (E9, W4-W5) quarters, 2 three-bedroom Senior Non-Commissioned Officer (E7-E8) quarters, 2 four-bedroom Senior Non-Commissioned Officer (E7-E8) quarters, 4 four-bedroom Senior Non-Commissioned Officer (E1-E6) quarters and 8 three-bedroom Junior Non-Commissioned Officer (E1-E6) quarters. Project includes storage, garages, patios, backyard fencing, landscaping, air conditioning, emergency lights, and private entrance. Supporting facilities include: site work, all required utility systems, storm drainage, street lighting, and information systems. Measures in accordance with the Department of Defense (DoD) Minimum Antiterrorism for Buildings standards will be provided. At least five percent of these units will be accessible and easily modifiable for use by persons with disabilities. Comprehensive building and furnishings related interior design services are required. This project will include home design features that will help lower energy consumption by reducing the heat gain load in homes. This includes Low-e glazing on windows, Insulation in roof/walls, and High-efficiency air conditioning units. Natural ventilation will be maximized through ceiling fans and operable windows. This project includes all equipment and appliances for fully functional residential living units. All major appliances refrigerator, oven, microwave, will meet Energy Star standards,

Fort Buchanan  
Puerto Rico

Family Housing Replacement Construction 78348

9. COST ESTIMATES (CONTINUED)

| ITEM                            | UM | QUANTITY | UNIT COST | COST (\$000) |
|---------------------------------|----|----------|-----------|--------------|
| PRIMARY FACILITY (CONTINUED)    |    |          |           |              |
| Senior NCO, E7-E8, 4 BR, OCONUS | FA | 2        | 455,241   | (910)        |
| Senior NCO, E7-E8, 3 BR, OCONUS | FA | 2        | 399,696   | (799)        |
| Jr NCO E1-E6, 4 BR, OCONUS      | FA | 4        | 367,575   | (1,470)      |
| Jr NCO E1-E6, 3 BR, OCONUS      | FA | 8        | 357,426   | (2,859)      |
| Hurricane Measures              | LS | --       | --        | (1,681)      |
| Cyber Security                  | LS | --       | --        | (250)        |
| EMCS Connection                 | LS | --       | --        | (135)        |
| Sustainability/Energy Measures  | LS | --       | --        | (962)        |
|                                 |    |          | Total     | 9,066        |

and all new homes will be outfitted with solar water heaters and LED lights.

Project includes individual unit metering of utilities, hard wired interconnected smoke detectors, and carbon monoxide detection. In addition, this project includes neighborhood amenities (tot lot, play lot, picnic area, benches, etc.), walkways, Utility Energy Monitoring and Control System (UEMCS), environmental measures required by law and associated supporting infrastructure. Project shall comply with the Army Standard for Family Housing and the Unified Facility Criteria 4-711-01.

This project will also include the installation of Photovoltaic (PV) Power Inverter System and Rainwater Harvesting System in accordance with the Energy Policy Act of 2005 (EPACT 2005) Section 203. Facilities will be designed to a minimum life of 40 years and energy efficiencies meeting, Leadership In Energy and Environmental Design for Housing at the silver certification level through improved building envelope and integrated building systems performance. Demolish 56 buildings at Fort Buchanan, PR (112,344 Total SF).

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11. REQ: 56 FA ADQT: NONE SUBSTD: 56 FA

PROJECT:

Construct twenty-six (26) replacement Family quarters. 2 four-bedroom Senior Officer (06) quarters, 1 four-bedroom Company Grade Officer(01-03, W1-W3) quarters, 3 three-bedroom Senior Non-Commissioned Officer/Warrent Officer (E9, W4-W5) quarters, 4 four-bedroom Senior Non-Commissioned Officer/Warrent Officer (E9, W4-W5) quarters, 2 three-bedroom Senior Non-Commissioned Officer (E7-E8) quarters, 2 four-bedroom Senior Non-Commissioned Officer (E7-E8) quarters, 4 Four-Bedroom Senior Non-Commissioned Officer (E1-E6) quarters and 8 three-bedroom Junior Non-Commissioned Officer (E1-E6) quarters. Project will include neighborhood amenities, supporting infrastructure, and will demolish 56 existing Army Family Housing units. (Current Mission)

Fort Buchanan  
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Family Housing Replacement Construction

78348

REQUIREMENT:

This project is required to improve existing Family housing living conditions at Fort Buchanan, by providing quarters that meet current standards of quality of life, energy conservation, size, habitability, and safety. Existing homes are deteriorated and inadequate in terms of Army Family Housing (AFH) standards for size, configuration and amenities.

CURRENT SITUATION:

The Las Colinas housing area consists of 29 dwelling units, built in 1948. The Coconut Grove housing area consists of 27 dwelling units, built in 1955. Dwelling units are deteriorated and fail to meet current Army Family Housing standards for size, amenities, safety, and maintainability. These deficiencies cannot be sustained indefinitely and require continuous expenditure of operations and maintenance dollars.

IMPACT IF NOT PROVIDED:

If this project is not provided, Family housing quarters will continue to deteriorate; adversely affecting the quality of life for all residents. Overall dwelling unit quality will continue to deteriorate and temporary fixes of deficiencies will continue to drain funds while facilities fail to comply with Army Family Housing standards.

ADDITIONAL:

This project has been coordinated with the installation physical security plan, and all physical security measures are included. All required antiterrorism protection measures are included. Alternative methods of meeting this requirement have been explored during project development. This project is the only feasible option to meet the requirement. The Deputy Assistant Secretary of the Army (Installations, Housing and Partnerships) certifies that this project has been considered for joint use potential. The facility will be available for use by other components. Sustainable principles, to include life cycle cost effective practices, will be integrated into the design, development and construction of the project and will follow the guidance detailed in the Army Sustainable Design and Development Policy - complying with applicable laws and executive orders.

/S/ Caryn S. Heard  
COL, EN  
Commanding

|                                     |          |        |      |
|-------------------------------------|----------|--------|------|
| ESTIMATED CONSTRUCTION START:       | MAR 2019 | INDEX: | 2845 |
| ESTIMATED MIDPOINT OF CONSTRUCTION: | DEC 2019 | INDEX: | 2991 |
| ESTIMATED CONSTRUCTION COMPLETION:  | SEP 2020 | INDEX: | 3036 |

Fort Buchanan  
 Puerto Rico

Family Housing Replacement Construction

78348

| Item   | U/M | Qty    | Unit Cost | Cost (\$000) |
|--|-----|--------|-----------|--------------|
| PRIMARY FACILITY.                                |     |        |           |              |
| GENERAL.   |     |        |           |              |
| 1.0) 71112 F. Hsg, Colonel, O6, 4 BR, OCONUS     | FA  | 2      | 577,937   | (1,156)      |
| 1) 71112 F. Hsg, Colonel, O6, 4 BR, OCONUS       | SF  | 5,040  | 229.34    | 1,156        |
| 2.0) 71113 W. Officer, W4-W5, 4 BR, OCONUS       | FA  | 3      | 537,029   | (1,611)      |
| 1) 71113 W. Officer, W4-W5, 4 BR, OCONUS         | SF  | 6,930  | 232.48    | 1,611        |
| 3.0) 71113 W. Officer, W4-W5, 3 BR, OCONUS       | FA  | 3      | 472,155   | (1,416)      |
| 1) 71113 W. Officer, W4-W5, 3 BR, OCONUS         | SF  | 6,060  | 233.74    | 1,416        |
| 4.0) 71114 CO Grade Officer, O1-O3, 4 BR, OCONUS | FA  | 1      | 455,241   | (455)        |
| 1) 71114 CO Grade Officer, O1-O3, 4 BR, OCONUS   | SF  | 2,150  | 211.74    | 455          |
| 5.0) 71115 Senior NCO, E9 4 BR, OCONUS           | FA  | 1      | 537,029   | (537)        |
| 1) 71115 Senior NCO, E9 4 BR, OCONUS             | SF  | 2,310  | 232.48    | 537          |
| 6.0) 71115 Senior NCO, E7-E8, 4 BR, OCONUS       | FA  | 2      | 455,241   | (910)        |
| 1) 71115 Senior NCO, E7-E8, 4 BR, OCONUS         | SF  | 4,300  | 211.74    | 910          |
| 7.0) 71115 Senior NCO, E7-E8, 3 BR, OCONUS       | FA  | 2      | 399,696   | (799)        |
| 1) 71115 Senior NCO, E7-E8, 3 BR, OCONUS         | SF  | 3,720  | 214.89    | 799          |
| 8.0) 71116 Jr NCO E1-E6, 4 BR, OCONUS            | FA  | 4      | 367,575   | (1,470)      |
| 1) 71116 Jr NCO E1-E6, 4 BR, OCONUS              | SF  | 7,800  | 188.50    | 1,470        |
| 9.0) 71116 Jr NCO E1-E6, 3 BR, OCONUS            | FA  | 8      | 357,426   | (2,859)      |
| 1) 71116 Jr NCO E1-E6, 3 BR, OCONUS              | SF  | 13,040 | 219.28    | 2,859        |
| 10.0) 00000 Hurricane Measures                   | LS  | --     | --        | (1,681)      |
| 1) Hurricane Measures                            | SF  | 26     | 64,658    | 1,681        |
| 11.0) 00000 Cyber Security                       | LS  | --     | --        | (250)        |
| 1) Cyber Security - EMCS                         | LS  | --     | --        | 250          |
| 12.0) 89220 EMCS Connection                      | LS  | --     | --        | (135)        |
| 1) EMCS Connection                               | EA  | 26     | 5,200.00  | 135          |
| 13.0) 00005 Sustainability/Energy Measures       | LS  | --     | --        | (962)        |
| 1) SDD and EAct05                                | LS  | --     | --        | 240          |
| 2) Electric Power, Photovoltaic                  | KW  | 130    | 3,540.00  | 460          |
| 3) Solar Water Heating                           | EA  | 26     | 10,077    | 262          |

INFO SYS & ANTITERRORISM MEASURES.

The following Building Information Systems cost can be found only in Tab F: \$87,005

SUPPORTING FACILITIES.

|                              |    |       |          |       |
|------------------------------|----|-------|----------|-------|
| Electric Service             | LS | --    | --       | (585) |
| 1) 25kVA Pad Mtd Transformer | EA | 20    | 5,720.00 | 114   |
| 2) 15kV Cable                | LF | 3,000 | 91.94    | 276   |
| 3) Electric Manhole          | EA | 7     | 7,800.00 | 55    |
| 4) LED Fixture & Pole        | EA | 10    | 5,512.00 | 55    |

Fort Buchanan  
 Puerto Rico

Family Housing Replacement Construction

78348

|                                   | Item                       | U/M | Qty    | Unit Cost | Cost (\$000) |
|-----------------------------------|----------------------------|-----|--------|-----------|--------------|
| 5)                                | Secondary Service          | EA  | 53     | 1,612.00  | 85           |
| Water, Sewer, and Gas             |                            | LS  | --     | --        | (1,222)      |
| 1)                                | 8" water main              | LF  | 3,400  | 45.52     | 155          |
| 2)                                | 8" San. Sewer Main         | LF  | 3,065  | 146.33    | 449          |
| 3)                                | Connect to Exist.          | EA  | 1      | 1,440.40  | 1            |
| 4)                                | 1" Domestic Service        | LF  | 2,968  | 9.84      | 29           |
| 5)                                | 48" D Manhole              | EA  | 22     | 2,747.00  | 60           |
| 6)                                | 6" Domestic Service        | LF  | 2,900  | 10.45     | 30           |
| 7)                                | Grade Cleanout             | EA  | 53     | 720.15    | 38           |
| 8)                                | Fire Hydrant Assy.         | EA  | 12     | 2,091.00  | 25           |
| 9)                                | 8"X 8" Tee                 | EA  | 5      | 1,646.00  | 8            |
| 10)                               | 8"X 6" Tee                 | EA  | 13     | 1,568.32  | 20           |
| 11)                               | 8" Gate Valve & Box        | EA  | 10     | 2,684.00  | 27           |
| 12)                               | 6" Gate Valve & Box        | EA  | 12     | 1,764.88  | 21           |
| 13)                               | Service Tap                | EA  | 53     | 1,388.40  | 74           |
| 14)                               | 6" Water Main              | LF  | 250    | 31.14     | 8            |
| 15)                               | LID - Rainwater Harvesting | EA  | 53     | 5,200.00  | 276          |
| Paving, Walks, Curbs, and Gutters |                            | LS  | --     | --        | (665)        |
| 1)                                | 6" Base Course             | SY  | 11,160 | 14.87     | 166          |
| 2)                                | 3" HMA (Roads)             | SY  | 8,160  | 32.71     | 267          |
| 3)                                | 4" Conc. (Walks)           | SF  | 19,602 | 4.98      | 98           |
| 4)                                | 1.5" HMA(Trails/Driveways) | SY  | 3,000  | 18.61     | 56           |
| 5)                                | Curb & Gutter              | LF  | 6,017  | 13.11     | 79           |
| Storm Drainage                    |                            | LS  | --     | --        | (592)        |
| 1)                                | 18" RCP                    | LF  | 1,200  | 71.71     | 86           |
| 2)                                | 24" RCP                    | LF  | 900    | 104.74    | 94           |
| 3)                                | 36" RCP                    | EA  | 300    | 226.72    | 68           |
| 4)                                | 48" D Manhole              | EA  | 2      | 2,747.00  | 5            |
| 5)                                | Catch Basin                | EA  | 20     | 5,405.00  | 108          |
| 6)                                | Headwall for 24"           | EA  | 4      | 3,352.00  | 13           |
| 7)                                | Headwall for 36"           | EA  | 2      | 4,104.00  | 8            |
| 8)                                | Bio-Retention Area         | SY  | 3,167  | 65.84     | 209          |
| Site Improvements                 |                            | LS  | --     | --        | (1,676)      |
| 1)                                | Clearing (Light)           | AC  | 20     | 191.28    | 4            |
| 2)                                | Grubbing                   | AC  | 20     | 1,281.00  | 26           |
| 3)                                | Rough Grading              | SY  | 96,800 | 0.38      | 37           |
| 4)                                | Fine Grade (Roads)         | SY  | 11,160 | 0.67      | 7            |
| 5)                                | Fine Grade (Structures)    | SY  | 20,611 | 0.84      | 17           |
| 6)                                | Storm W. Management        | SY  | 3,167  | 2.32      | 7            |
| 7)                                | Strip & Stockpile          | CY  | 10,755 | 3.44      | 37           |
| 8)                                | Haul-Off (Off-Post)        | CY  | 25,000 | 39.39     | 985          |
| 9)                                | Clean & Seed               | SY  | 62,850 | 3.99      | 251          |
| 10)                               | Shrubs(5 Gal)              | EA  | 300    | 62.40     | 19           |
| 11)                               | Trees(15 Gal)              | EA  | 300    | 305.76    | 92           |
| 12)                               | Mulch/Straw/Hay            | SY  | 12,000 | 4.32      | 52           |
| 13)                               | Sediment Fence             | LF  | 5,000  | 3.32      | 17           |

Fort Buchanan  
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78348

|                        | Item                         | U/M | Qty     | Unit Cost | Cost (\$000) |
|------------------------|------------------------------|-----|---------|-----------|--------------|
| 14)                    | Inlet Protection             | EA  | 20      | 316.00    | 6            |
| 15)                    | Construction Entrance        | EA  | 2       | 3,410.00  | 7            |
| 16)                    | Check Dam                    | LF  | 150     | 16.46     | 2            |
| 17)                    | Remove Roads/Driveways       | SY  | 11,165  | 3.96      | 44           |
| 18)                    | Remove S. Sewer Manhole      | EA  | 27      | 849.00    | 23           |
| 19)                    | Remove 8" Conc. Pipe         | LF  | 4,244   | 6.64      | 28           |
| 20)                    | Remove Water valve           | EA  | 9       | 119.60    | 1            |
| 21)                    | Remove Water Pipe            | LF  | 2,986   | 3.88      | 12           |
| 22)                    | Remove Conc. Headwall        | EA  | 8       | 373.00    | 3            |
| Demolition             |                              | LS  | --      | --        | (2,891)      |
| 1)                     | 00000 Remove 56 AFH Units    | SF  | 112,344 | 25.73     | 2,891        |
| Information Systems    |                              | LS  | --      | --        | (168)        |
| Antiterrorism Measures |                              | LS  | --      | --        | (163)        |
| 1)                     | 71113 Antiterrorism Measures | LS  | --      | --        | 163          |
| Other                  |                              | LS  | --      | --        | (670)        |
| 1)                     | School Bus Enclosure         | EA  | 1       | 20,800    | 21           |
| 2)                     | Play Lot(1-5 Yrs)            | EA  | 2       | 67,600    | 135          |
| 3)                     | Play Lot(5-9 Yrs)            | EA  | 2       | 72,800    | 146          |
| 4)                     | Picnic Area                  | EA  | 1       | 52,000    | 52           |
| 5)                     | Natural Landscape Area       | AC  | 1.50    | 42,640    | 64           |
| 6)                     | Common Open Area             | AC  | 0.75    | 31,200    | 23           |
| 7)                     | Basketball Court             | EA  | 1       | 41,600    | 42           |
| 8)                     | Asphalt bike/Jogging Path    | LF  | 4,000   | 35.10     | 140          |
| 9)                     | Play Area Fencing            | LF  | 1,000   | 46.80     | 47           |

PREP DATE: 14 JUL 2010

ACF=1.12

UM=E

FORM/PROJECT NUMBER: 78348

PROJECT TITLE: Family Housing Replacement Construction

INSTALLATION: Fort Buchanan

LOCATION: Puerto Rico

**TAB B - PLANNING AND DESIGN DATA (ESTIMATE)**

**1. Status**

|   |          |
|---|----------|
| A. Design Start Date, Estimated.....                      | MAY 2017 |
| B. Percent Complete as of 15 SEP 2017 (Design Year).....  |          |
| C. Percent Complete as of 01 JAN 2018 (Budget Year).....  | 15.00    |
| D. Percent Complete as of 01 OCT 2018 (Program Year)..... | 0.00     |
| E. Concept Complete Date.....                             | MAY 2018 |
| F. Design Complete Date.....                              | MAR 2019 |
| G. Type of Design Contract: Design-bid-build              |          |

**2. Basis**

- A. Standard or Definitive Design (yes/no) YES
- B. Where Design was Most Recently Used:

**3. Cost (Total \$000)**

|   |       |
|---|-------|
| A. Production of Plans and Specs.....   | 1,463 |
| B. All Other Design Cost.....   | 787   |
| C. Total Design Cost (C) = (A)+(B) OR (D)+(E).....  | 2,250 |
| D. Contract Architect-Engineer Design Cost, Estimated.....  | 1,800 |
| E. In-House Design Cost Plus Architect Engineer Contract<br>Supervision and Administration Cost Government Forces<br>Design Cost, Estimated | 450   |

4. Construction Contract Award..... JUL 2019

5. Construction Start Date (Planned)..... AUG 2019

6. Construction Completion Date..... SEP 2021

7. SPiRiT Rating (at Design).....

**8. Design Charrette**

A. Date of Design Charrette.....

**Energy/Life Cycle Statement**

FY 2019

78348I R

REVISION DATE: 12 JAN 2018

AFH (AS OF 06/22/2018 AT 14:46:17)

PREP DATE: 14 JUL 2010

ACF=1.12

UM=E

FORM/PROJECT NUMBER: 78348

PROJECT TITLE: Family Housing Replacement Construction

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**TAB C - QUANTITATIVE DATA**

**Type of Design:** This facility does not include unusual construction features that require extra design effort.

**Scope:** 53 FA

**Size:** 101,190 SF

**Unit of Measure:** FA

|                                 |            |        |
|---------------------------------|------------|--------|
| A. Total Requirement            | 56         |        |
| B. Existing Substandard         | 56         |        |
| C. Existing Adequate            |            |        |
| D. Funded, Not in Inventory     |            |        |
| E. Adequate Assets              |            |        |
|                                 | Authorized | Funded |
| F. Unfunded Prior Authorization |            |        |
| G. Included in FY Program       |            |        |
| H. Deficiency (A-E-F-G)         | 56         | 56     |



FY 2019

78348I R

REVISION DATE: 12 JAN 2018

AFH (AS OF 06/22/2018 AT 14:46:17)

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INSTALLATION: Fort Buchanan

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## **TAB C - GENERAL JUSTIFICATION DATA**

### **General**

This project is required as part of the Army efforts for replacing all 56 Q\$ Family Housing units at Fort Buchanan Built in 1948 and 1955 to conform with Army Standards for health, welfare, energy conservation, maintainability, comfort and convenience.

### **Determination and Certification of Actual Need**

The 2011 Housing Market Analysis establishes a requirement of 56 units for 2016.

### **Remarks and/or Preparer Notes for Standard Facilities**

A file containing guidance on public recreation facilities and site amenities for family housing has been attached to this form/project for your information.

**Installation Engineer:** Manuel Torres

**Phone Number:** 787-707-3117

FY 2019

78348I R

REVISION DATE: 12 JAN 2018

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PREP DATE: 14 JUL 2010

ACF=1.12

UM=E

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INSTALLATION: Fort Buchanan

LOCATION: Puerto Rico

## **TAB C - SITE INFORMATION**

**Site has been approved by the following:**

**Project-Level RPUID: 129838**

FY 2019

78348I R

REVISION DATE: 12 JAN 2018

AFH (AS OF 06/22/2018 AT 14:46:17)

PREP DATE: 14 JUL 2010

ACF=1.12

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**TAB C - PLANNING CHARRETTE VALIDATION**

**Region:** HQ IMCOM-AFH

**SPiRiT Rating (at Planning Charrette):**

**Planning Charrette Team Members:**

Members listed below participated and/or provided information to the planning charrette team. All requirements for development of the project have been met, environmental documentation has been started/completed or will be completed prior to budget year, all known costs have been identified and are included in the project estimate.

| Name | Title | Phone | Signed |
|------|-------|-------|--------|
|------|-------|-------|--------|

Master Planner Lead:

User/Project Sponsor Rep:

DPW OR Equivalent Rep:

Force Protection Officer:

Provost Marshal Officer:

Environmental Officer:

Info Systems Planner:

USACE Charrette Rep:

USACE PM:

USACE CX:

Installation PM:

Cost Engineer:

Economist:

Region Rep:

Command Rep:

FY 2019

78348I R

REVISION DATE: 12 JAN 2018

AFH (AS OF 06/22/2018 AT 14:46:17)

PREP DATE: 14 JUL 2010

ACF=1.12

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INSTALLATION: Fort Buchanan

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## TAB C - PLANNING CHARRETTE VALIDATION

### Project Description:

Construct twenty-six (26) replacement Family quarters: 2 four-bedroom Senior Officer (O6) quarters, 1 four-bedroom Company Grade Officer (O1-O3, W1-W3) quarters, 3 three-bedroom Senior Non-Commissioned Officer (E9, W4-W5) quarters, 4 four-bedroom Senior Non-Commissioned Officer (E9, W4-W5) quarters, 2 three-bedroom Senior Non-Commissioned Officer (E7-E8) quarters, 2 four-bedroom Senior Non-Commissioned Officer (E7-E8) quarters, 4 four-bedroom Senior Non-Commissioned Officer (E1-E6) quarters and 8 three-bedroom Junior Non-Commissioned Officer (E1-E6) quarters. Project includes storage, garages, patios, backyard fencing, landscaping, air conditioning, emergency lights, and private entrance. Supporting facilities include: site work, all required utility systems, storm drainage, street lighting, and information systems. Measures in accordance with the Department of Defense (DoD) Minimum Antiterrorism for Buildings standards will be provided. At least five percent of these units will be accessible and easily modifiable for use by persons with disabilities. Comprehensive building and furnishings related interior design services are required. This project will include home design features that will help lower energy consumption by reducing the heat gain load in homes. This includes Low-e glazing on windows, Insulation in roof/walls, and High-efficiency air conditioning units. Natural ventilation will be maximized through ceiling fans and operable windows. This project includes all equipment and appliances for fully functional residential living units. All major appliances refrigerator, oven, microwave, will meet Energy Star standards, and all new homes will be outfitted with solar water heaters and LED lights.

Project includes individual unit metering of utilities, hard wired interconnected smoke detectors, and carbon monoxide detection. In addition, this project includes neighborhood amenities (tot lot, play lot, picnic area, benches, etc.), walkways, Utility Energy Monitoring and Control System (UEMCS), environmental measures required by law and associated supporting infrastructure. Project shall comply with the Army Standard for Family Housing and the Unified Facility Criteria 4-711-01.

This project will also include the installation of Photovoltaic (PV) Power Inverter System and Rainwater Harvesting System in accordance with the Energy Policy Act of 2005 (EPACT 2005) Section 203. Facilities will be designed to a minimum life of 40 years and energy efficiencies meeting, Leadership In Energy and Environmental Design for Housing at the silver certification level through improved building envelope and integrated building systems performance.

FY 2019

78348I R

REVISION DATE: 12 JAN 2018

AFH (AS OF 06/22/2018 AT 14:46:17)

PREP DATE: 14 JUL 2010

ACF=1.12

UM=E

FORM/PROJECT NUMBER: 78348

PROJECT TITLE: Family Housing Replacement Construction

INSTALLATION: Fort Buchanan

LOCATION: Puerto Rico

**TAB C - FUTURE OCCUPANT DATA**

**Future Occupant:** Garrison Commander

By signing below, you are indicating that you are in agreement with requirements of this facility and that the documentation includes the appropriate criteria to meet all current needs.

FY 2019

78348I R

REVISION DATE: 12 JAN 2018

AFH (AS OF 06/22/2018 AT 14:46:17)

PREP DATE: 14 JUL 2010

ACF=1.12

UM=E

FORM/PROJECT NUMBER: 78348

PROJECT TITLE: Family Housing Replacement Construction

INSTALLATION: Fort Buchanan

LOCATION: Puerto Rico

## TAB C - REGION CERTIFICATION

"All planning and coordination with the appropriate agencies has been accomplished and project documentation is available. The project is valid, and requirements and scope are in accordance with the Installation Real Property Master Plan. Environmental documentation, economic analysis, site approval, and ISEC certification are complete. No major problems exist that should defer the project from programming. The project documentation has been reviewed at a Planning Charrette or by other means and found adequate to begin design."

Certified by: Davis D. Tindoll, Jr.  
Atlantic Region Director  
IMCOM-Northeast Region  
15 Jan 2013

This certification based on FY 2017.

PREP DATE: 14 JUL 2010 ACF=1.20 UM=E  
FORM/PROJECT NUMBER: 78348  
PROJECT TITLE: Family Housing Replacement Construction  
INSTALLATION: Fort Buchanan  
LOCATION: Puerto Rico

**Tab D - Economic Analysis**

**PN 78348 Family Housing Replacement Construction  
Economic Analysis**

**Executive Summary Report**

**Project Title** : Family Housing Replacement Construction  
**Date Created** : 1/26/2017  
**Date Modified** : 02/20/2015  
**Type of Analysis** : Mission Requirement - Full  
**Discount Rate** : 3.9%  
**Period of Analysis** : 27 years  
**Start Year** : 2017  
**Base Year** : 2017  
**Dollar Analysis** : Current Dollars  
**Project Objective** : Fort Buchanan has an inventory of 56 Family Housing units. This project is required as part of the Army efforts for eliminating existing 56 Q4 Family Housing Units built in 1948 and 1955, with the construction of 53 Family Housing units to conform with Army Standards for health, welfare, energy conservation, maintainability, comfort and convenience. This project will provide adequate housing for 2 Senior Officer (06) with a Four-Bedroom requirement (Category Code 71112) , 2 Field Grade Officers (MAJ/LTC/W4/W5) with a Four-Bedroom requirement (Category Code 71113) , 18 Field Grade Officers (MAJ/LTC/W4/W5) with a Three-Bedroom requirement (Category Code 71113) , 10 Company Grade Officers(01-03, W1-W3) with a Three-Bedroom requirement (Category Code 71113) , 2 Senior Non-Commissioned Officer (E9) with a Three-Bedroom requirement (Category Code 71114) , 4 Senior Non-Commissioned Officer (E7-E8) with a Three-Bedroom requirement (Category Code 71115), 3 Senior Non-Commissioned Officer (E1-E6) with a Four-Bedroom requirement (Category Code 71115) and 12 Junior Non-Commissioned Officer (E1-E6) with a Three-Bedroom requirement (Category Code 71116) . Analysis is based on comparison of the existing 56 units for all viable alternatives.

**Background:**

This project is required as part of the Army efforts for eliminating existing 56 Q4 Family Housing units at Fort Buchanan, built in 1948 and 1955. PN 78348 will provide 53 family housing units (Category Code 71111-71112, 71113, 71114, 71115 and 71116) to improve existing Family housing conditions and conform to adequate standards of health, welfare, energy conservation, maintainability, comfort and convenience to conform with Army Standards.

## **Alternatives Considered for this Analysis:**

Status Quo (Current Operations) - Coconut Grove Housing Area consists of 27 Three-Bedroom with one bathroom dwelling units. Las Colinas Housing Area consists of 7 Two-Bedroom with two bathrooms, 20 Three-Bedroom with two bathrooms and 2 Four-Bedroom with two bathrooms dwelling units for a total of 29 dwelling units. Dwelling units are deteriorated and fail to meet current Army Family Housing standards. These units lack adequate laundry, kitchen, car port, storage space, bathrooms and bedrooms area. Some units have outdated electrical wiring system, energy inefficient and damaged windows. The existing 56 family Housing units cannot be renewed to meet current Army Family Housing standards. This alternative is nonviable. This alternative is nonviable.

New Construction - Construct 53 Family Housing Quarters. Project includes living area, kitchen, bathrooms, bedrooms, storage, garages, patios, backyard fencing, landscaping, air conditioning, emergency lights and private entrance. Supporting facilities include site work; all required utility systems; storm drainage; street lighting; and information systems. Measures in accordance with the Department of Defense (DOD) Minimum Antiterrorism for Buildings standards will be provided. At least five percent of these units will be accessible or readily and easily modifiable for use by persons with disabilities. Comprehensive building and furnishings related interior design services are required. This project will include home design features that will help lower energy consumption by reducing the heat gain load in homes: Low-e glazing on windows that reflects heat away from homes, Insulation in roof/walls, High efficiency air conditioning units inside the home, Natural ventilation will be maximized through ceiling fans and operable windows, allowing residents to take advantage of Puerto Rico tradewinds, LED lights have replaced traditional incandescent lighting because of their longer life, which reduces replacement and maintenance costs. In addition, this project includes all equipment and appliances for fully functional residential living units. In the kitchen, all major appliances refrigerator, oven, microwave, will meet Gold Energy standards, and all new homes will be outfitted with solar water heaters. Project includes individual unit metering of utilities, hard wired interconnected smoke detectors, and carbon monoxide detection. In addition, this project includes neighborhood amenities (Tot lot, Play lot, picnic area, benches, etc.), walkways, Utility Energy Monitoring and Control System (UEMCS), environmental measures required by law and associated supporting infrastructure. Project shall comply with the Army Standard for Family Housing and the Army Family Housing Standard Design Criteria. This project will also include the installation of Photovoltaic (PV) Power Inverter System and Rainwater Harvesting System in accordance with the Energy Policy Act of 2005 (EPACT 2005) Section 203. Facilities will be designed to a minimum life of 50 years and energy efficiencies meeting, on average, ASHRAE 189.1 standards through improved building envelop and integrated building systems performance. Demolish 56 buildings at Fort Buchanan, PR (112,344 Total SF). This is a viable alternative.

Leasing - Leasing Costs based on Overseas Housing Allowance (OHA). This is a viable alternative.

Contractor Owned Contractor Operated Facility (COCO) - The Assistant Secretary of the Army for Installations, Energy and Environment (ASA-IEE) Office conducted a Joint Housing Assessment at Fort Buchanan, to collect data to determine the feasibility of combined privatization of Army Family Housing and Coast Guard Family Housing. On 16 March 2012, the report results showed that the proposed RCI joint project is not financially feasible due to Coast Guard ESPC contracts and decreased on base housing requirements in Puerto Rico. ASA-IEE will not be pursuing a Puerto Rico project any further. This alternative is nonviable. This alternative is nonviable.

## **Assumptions of the Analysis:**

1. New construction alternatives will require ACSIM approval to demolish and replace existing housing.
2. New Construction of 53 Family Housing units will meet the requirements for Fort Buchanan in accordance with new Department of Army Design Criteria Standards.
3. In accordance with housing market analysis procedures, private rentals are



limited to within 20-30 minutes driving distance from the workplace and community support facilities. Private rentals are more manpower intensive as they require additional time for processing from the Soldier and Housing Referral Office for staff to search, assess, negotiate and contract with homeowners.

4. A Discount Rate of 3.9% is applied per OMB Circular Number A-94, Appendix C, dated December 2013.

5. Period of analysis is 27 years (25 year mission life + 2 year lead time).

6. Existing Family housing units can be utilized the New Construction and by phasing the construction contract.

7. All costs/benefits except the residuals occur throughout the year and will be discounted using the "middle-of-year" discounting convention.

8. Beneficial Occupancy Date (BOD) will be 2019 for each viable alternative.

9. Physical life of both the New Construction alternative is 27 years and the facilities will depreciate according to a straight-line schedule.

### **Economic Indicators:**

| <b>Alternative</b> | <b>NPV</b>   |
|--------------------|--------------|
| New Construction   | \$39,509,001 |
| Leasing            | \$2,583,300  |

### **Non-Monetary Considerations:**

New Construction

The advantages are:

- 1) Provides residences with Army standards for size and amenities including a garage.
- 2) Meets AT/FP requirements.
- 3) Maintains an identifiable, safe, community.
- 4) Co-locates Families and support facilities; accommodates quick response for mission readiness. Deployed Soldiers have peace of mind knowing their families are located on a secure military installation.
- 5) Provides higher quality of life and promotes a feeling of home ownership
- 6) Promotes compliance with Army energy conservation goals by mandatory compliance with current Army energy efficiency standards.

The disadvantages are:

- 1) Requires large upfront initial investment by USG.
- 2) USG long-term liability for maintenance and repair of buildings.
- 3) Increases USG disruption during construction (e.g., temporary relocations)
- 4) Provides less flexibility to respond to changes in housing demand.

Leasing (Private Rental)

The advantages are:

- 1) Requires no up-front USG investment.
- 2) Disrupts few USG activities.

The disadvantages are:

- 1) Army families often perceive they are less safe living on the economy.
- 1) Generally higher rental costs in communities
- 2) Lacks community definition and close proximity to community support facilities.
- 3) Potential landlord-tenant disputes.
- 4) Fort Buchanan neighborhoods have experienced an increase in crime rates.

### **Results and Recommendations:**

The results of the economic analysis demonstrate the New Construction is higher than the Leasing Off-Post. In accordance with housing market analysis procedures, private rentals are limited to within 20-30 minutes driving distance from the workplace and community support facilities. Private rentals are more manpower intensive as they require additional time for processing from the Soldier and Housing Referral Office for staff to search, assess, negotiate and contract with homeowners.

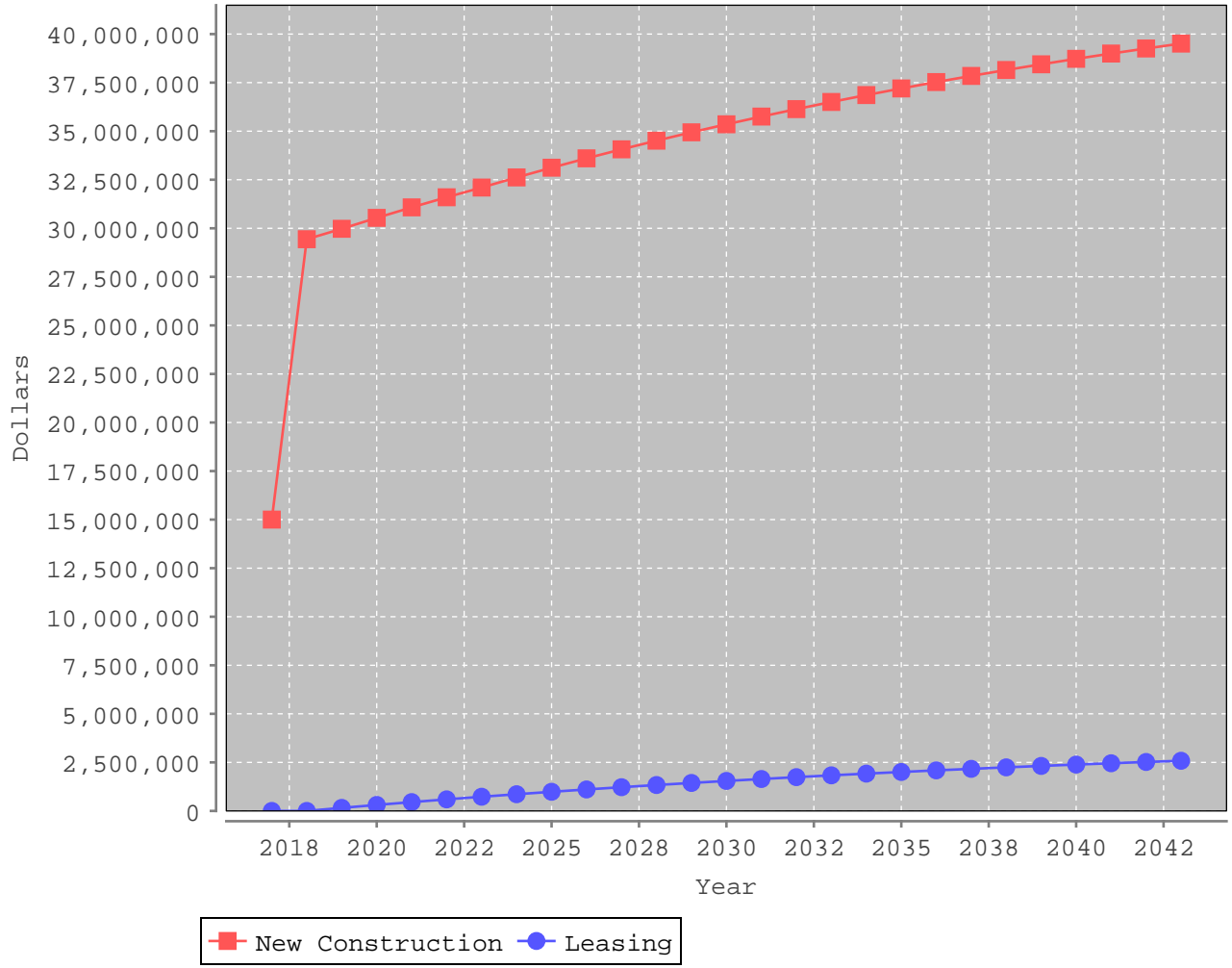
Currently, Fort Buchanan neighborhoods have experienced an increase in crime rates.

Although New Construction is not the least cost alternative, Army families are located on a secure military installation with higher quality of life and support facilities.

**Action Officer** :Manuel Torres  
**Phone Number** :787-707-3117  
**Email Address** :manuel.torres6.civ@mail.mil  
**Organization** :Directorate of Public Works, Fort Buchanan

# Economic Analysis Graph

## Net Present Value



# Life Cycle Cost Report

**Alternative: New Construction**

| Year                         | Construction        | Utilities       | Maintenance and Repair | Total Annual Outlays | Beginning of Year Discount Factor |
|------------------------------|---------------------|-----------------|------------------------|----------------------|-----------------------------------|
| 2017                         | \$15,000,000        | \$0             | \$0                    | \$15,000,000         | 1                                 |
| 2018                         | \$15,000,000        | \$0             | \$0                    | \$15,000,000         | 0.962                             |
| 2019                         | \$0                 | \$180,000       | \$400,000              | \$580,000            | 0.926                             |
| 2020                         | \$0                 | \$180,000       | \$450,000              | \$630,000            | 0.892                             |
| 2021                         | \$0                 | \$180,000       | \$450,000              | \$630,000            | 0.858                             |
| 2022                         | \$0                 | \$180,000       | \$450,000              | \$630,000            | 0.826                             |
| 2023                         | \$0                 | \$180,000       | \$450,000              | \$630,000            | 0.795                             |
| 2024                         | \$0                 | \$180,000       | \$500,000              | \$680,000            | 0.765                             |
| 2025                         | \$0                 | \$180,000       | \$500,000              | \$680,000            | 0.736                             |
| 2026                         | \$0                 | \$180,000       | \$500,000              | \$680,000            | 0.709                             |
| 2027                         | \$0                 | \$180,000       | \$500,000              | \$680,000            | 0.682                             |
| 2028                         | \$0                 | \$180,000       | \$500,000              | \$680,000            | 0.656                             |
| 2029                         | \$0                 | \$180,000       | \$500,000              | \$680,000            | 0.632                             |
| 2030                         | \$0                 | \$180,000       | \$500,000              | \$680,000            | 0.608                             |
| 2031                         | \$0                 | \$180,000       | \$500,000              | \$680,000            | 0.585                             |
| 2032                         | \$0                 | \$180,000       | \$500,000              | \$680,000            | 0.563                             |
| 2033                         | \$0                 | \$180,000       | \$500,000              | \$680,000            | 0.542                             |
| 2034                         | \$0                 | \$180,000       | \$500,000              | \$680,000            | 0.522                             |
| 2035                         | \$0                 | \$180,000       | \$500,000              | \$680,000            | 0.502                             |
| 2036                         | \$0                 | \$180,000       | \$500,000              | \$680,000            | 0.483                             |
| 2037                         | \$0                 | \$180,000       | \$500,000              | \$680,000            | 0.465                             |
| 2038                         | \$0                 | \$180,000       | \$500,000              | \$680,000            | 0.448                             |
| 2039                         | \$0                 | \$180,000       | \$500,000              | \$680,000            | 0.431                             |
| 2040                         | \$0                 | \$180,000       | \$500,000              | \$680,000            | 0.415                             |
| 2041                         | \$0                 | \$180,000       | \$500,000              | \$680,000            | 0.399                             |
| 2042                         | \$0                 | \$180,000       | \$500,000              | \$680,000            | 0.384                             |
| 2043                         | \$0                 | \$180,000       | \$500,000              | \$680,000            | 0.37                              |
| %NPV                         | 74.51%              | 6.92%           | 18.57%                 |                      |                                   |
|                              | \$29,436,959        | \$2,735,258     | \$7,336,784            |                      |                                   |
| Discounting Convention       | B-O-Y               | B-O-Y           | B-O-Y                  |                      |                                   |
| Inflation Schedule           | No Inflation        | No Inflation    | No Inflation           |                      |                                   |
| Category / Residual Schedule | Non-Recurring Costs | Recurring Costs | Recurring Costs        |                      |                                   |

# Life Cycle Cost Report

## Alternative: New Construction

| Year | Present Value | Cumulative Net Present Value |
|------|---------------|------------------------------|
| 2017 | \$15,000,000  | \$15,000,000                 |
| 2018 | \$14,436,959  | \$29,436,959                 |
| 2019 | \$537,275     | \$29,974,234                 |
| 2020 | \$561,686     | \$30,535,920                 |
| 2021 | \$540,603     | \$31,076,523                 |
| 2022 | \$520,311     | \$31,596,834                 |
| 2023 | \$500,780     | \$32,097,614                 |
| 2024 | \$520,236     | \$32,617,850                 |
| 2025 | \$500,708     | \$33,118,558                 |
| 2026 | \$481,913     | \$33,600,471                 |
| 2027 | \$463,824     | \$34,064,296                 |
| 2028 | \$446,414     | \$34,510,710                 |
| 2029 | \$429,657     | \$34,940,367                 |
| 2030 | \$413,530     | \$35,353,897                 |
| 2031 | \$398,007     | \$35,751,904                 |
| 2032 | \$383,068     | \$36,134,972                 |
| 2033 | \$368,689     | \$36,503,661                 |
| 2034 | \$354,850     | \$36,858,511                 |
| 2035 | \$341,530     | \$37,200,041                 |
| 2036 | \$328,710     | \$37,528,752                 |
| 2037 | \$316,372     | \$37,845,124                 |
| 2038 | \$304,497     | \$38,149,620                 |
| 2039 | \$293,067     | \$38,442,687                 |
| 2040 | \$282,066     | \$38,724,753                 |
| 2041 | \$271,479     | \$38,996,232                 |
| 2042 | \$261,288     | \$39,257,521                 |
| 2043 | \$251,481     | \$39,509,001                 |

%NPV

Discounting  
Convention

Inflation  
Schedule

Category /  
Residual  
Schedule

Discount Rate: 3.9%

Period of Analysis: 27 years

# Life Cycle Cost Report

**Alternative: Leasing**

| Year                         | Allowances      | Utilities       | Total Annual Outlays | Beginning of Year Discount Factor | Present Value |
|------------------------------|-----------------|-----------------|----------------------|-----------------------------------|---------------|
| 2017                         | \$0             | \$0             | \$0                  | 1                                 | \$0           |
| 2018                         | \$0             | \$0             | \$0                  | 0.962                             | \$0           |
| 2019                         | \$119,000       | \$51,000        | \$170,000            | 0.926                             | \$157,477     |
| 2020                         | \$119,000       | \$51,000        | \$170,000            | 0.892                             | \$151,566     |
| 2021                         | \$119,000       | \$51,000        | \$170,000            | 0.858                             | \$145,877     |
| 2022                         | \$119,000       | \$51,000        | \$170,000            | 0.826                             | \$140,401     |
| 2023                         | \$119,000       | \$51,000        | \$170,000            | 0.795                             | \$135,131     |
| 2024                         | \$119,000       | \$51,000        | \$170,000            | 0.765                             | \$130,059     |
| 2025                         | \$119,000       | \$51,000        | \$170,000            | 0.736                             | \$125,177     |
| 2026                         | \$119,000       | \$51,000        | \$170,000            | 0.709                             | \$120,478     |
| 2027                         | \$119,000       | \$51,000        | \$170,000            | 0.682                             | \$115,956     |
| 2028                         | \$119,000       | \$51,000        | \$170,000            | 0.656                             | \$111,604     |
| 2029                         | \$119,000       | \$51,000        | \$170,000            | 0.632                             | \$107,414     |
| 2030                         | \$119,000       | \$51,000        | \$170,000            | 0.608                             | \$103,382     |
| 2031                         | \$119,000       | \$51,000        | \$170,000            | 0.585                             | \$99,502      |
| 2032                         | \$119,000       | \$51,000        | \$170,000            | 0.563                             | \$95,767      |
| 2033                         | \$119,000       | \$51,000        | \$170,000            | 0.542                             | \$92,172      |
| 2034                         | \$119,000       | \$51,000        | \$170,000            | 0.522                             | \$88,712      |
| 2035                         | \$119,000       | \$51,000        | \$170,000            | 0.502                             | \$85,383      |
| 2036                         | \$119,000       | \$51,000        | \$170,000            | 0.483                             | \$82,178      |
| 2037                         | \$119,000       | \$51,000        | \$170,000            | 0.465                             | \$79,093      |
| 2038                         | \$119,000       | \$51,000        | \$170,000            | 0.448                             | \$76,124      |
| 2039                         | \$119,000       | \$51,000        | \$170,000            | 0.431                             | \$73,267      |
| 2040                         | \$119,000       | \$51,000        | \$170,000            | 0.415                             | \$70,517      |
| 2041                         | \$119,000       | \$51,000        | \$170,000            | 0.399                             | \$67,870      |
| 2042                         | \$119,000       | \$51,000        | \$170,000            | 0.384                             | \$65,322      |
| 2043                         | \$119,000       | \$51,000        | \$170,000            | 0.37                              | \$62,870      |
| %NPV                         | 70.00%          | 30.00%          |                      |                                   |               |
|                              | \$1,808,310     | \$774,990       |                      |                                   |               |
| Discounting Convention       | B-O-Y           | B-O-Y           |                      |                                   |               |
| Inflation Schedule           | No Inflation    | No Inflation    |                      |                                   |               |
| Category / Residual Schedule | Recurring Costs | Recurring Costs |                      |                                   |               |

# Life Cycle Cost Report

## Alternative: Leasing

| Year | Cumulative Net Present Value |
|------|------------------------------|
| 2017 | \$0                          |
| 2018 | \$0                          |
| 2019 | \$157,477                    |
| 2020 | \$309,043                    |
| 2021 | \$454,920                    |
| 2022 | \$595,322                    |
| 2023 | \$730,453                    |
| 2024 | \$860,512                    |
| 2025 | \$985,689                    |
| 2026 | \$1,106,167                  |
| 2027 | \$1,222,123                  |
| 2028 | \$1,333,727                  |
| 2029 | \$1,441,141                  |
| 2030 | \$1,544,524                  |
| 2031 | \$1,644,025                  |
| 2032 | \$1,739,792                  |
| 2033 | \$1,831,965                  |
| 2034 | \$1,920,677                  |
| 2035 | \$2,006,060                  |
| 2036 | \$2,088,237                  |
| 2037 | \$2,167,330                  |
| 2038 | \$2,243,454                  |
| 2039 | \$2,316,721                  |
| 2040 | \$2,387,238                  |
| 2041 | \$2,455,107                  |
| 2042 | \$2,520,429                  |
| 2043 | \$2,583,300                  |

%NPV

Discounting  
Convention

Inflation  
Schedule

Category /  
Residual  
Schedule

Discount Rate: 3.9%

Period of Analysis: 27 years

# Life Cycle Cost Report

## Sources and Derivations:

### 1. New Construction

#### a. Utilities

Current utilities cost are \$360,000 per year for 56 existing Family Housing Units. With the implementation of Energy efficient construction it is estimated that cost for utilities will be \$180,000 per year for 53 Family Housing Units.

#### b. Maintenance and Repair

Cost based on historical cost for Pest Control, refuse contract, grounds contract, maintenance & repair and custodial services.

#### c. Construction

CRITICAL DATA SHEET for FORM 78348

Fort Buchanan, Puerto Rico

FY: 2017 PNO: 78348 Cost Index: 2710 PGM TYP: AFH

Revision Date: 29 Sep 14 Exchange Rate: 1.0000 UM=English

Assumed Midpoint of Construction Date: Sep 2017

Form Completion Information

DD1391 Form (Tab A) is missing information: NO

This project incrementally funded: NO

IMCOM Region Director Site Approval: NO

Economic Analysis Present: NO

Cost Information

DD1391 Total Project Cost: \$30,000,000

ENG3086 Total Cost:

Installed Equipment - Other Appropriations:

Demolition Cost: \$2,246,880

Percent of Supporting Cost to Primary Costs: 29.39%

Design Information

Concept Complete Date:

Design Complete Date:

Percent of Plans/Specs Cost to Project Cost: 0.00%

Percent of Total Design Cost to Project Cost: 0.00%

Type of Design Contract:

Construction Start/Completion dates: MISMATCH with Tab A Dates

Key Revision Dates

ENG3086 Revision Date:

Information Systems Certification Date:

USACE Certification Date:

Region Certification Date: 15 Jan 13

MACOM Certification Date:

Planning Charrette Date:

Scheduled NEPA Start Date: Scheduled NEPA Comp Date:

Actual NEPA Start Date: Actual NEPA Comp Date:



# Life Cycle Cost Report

## Signature Information

IMCOM Regional Director Name:

Date of Site Approval:

Provost Marshal Signature:

Information Systems Signature:

Commander's Signature: Caryn S. Heard

Rank: COL, EN

Title: Commanding

Date Signed: 09 May 14

Future Occupant Signature:

Date Signed:

Environmental Officer:

## 2. Leasing

### a. Allowances

Private rental costs based on Overseas Housing Allowance (OHA).

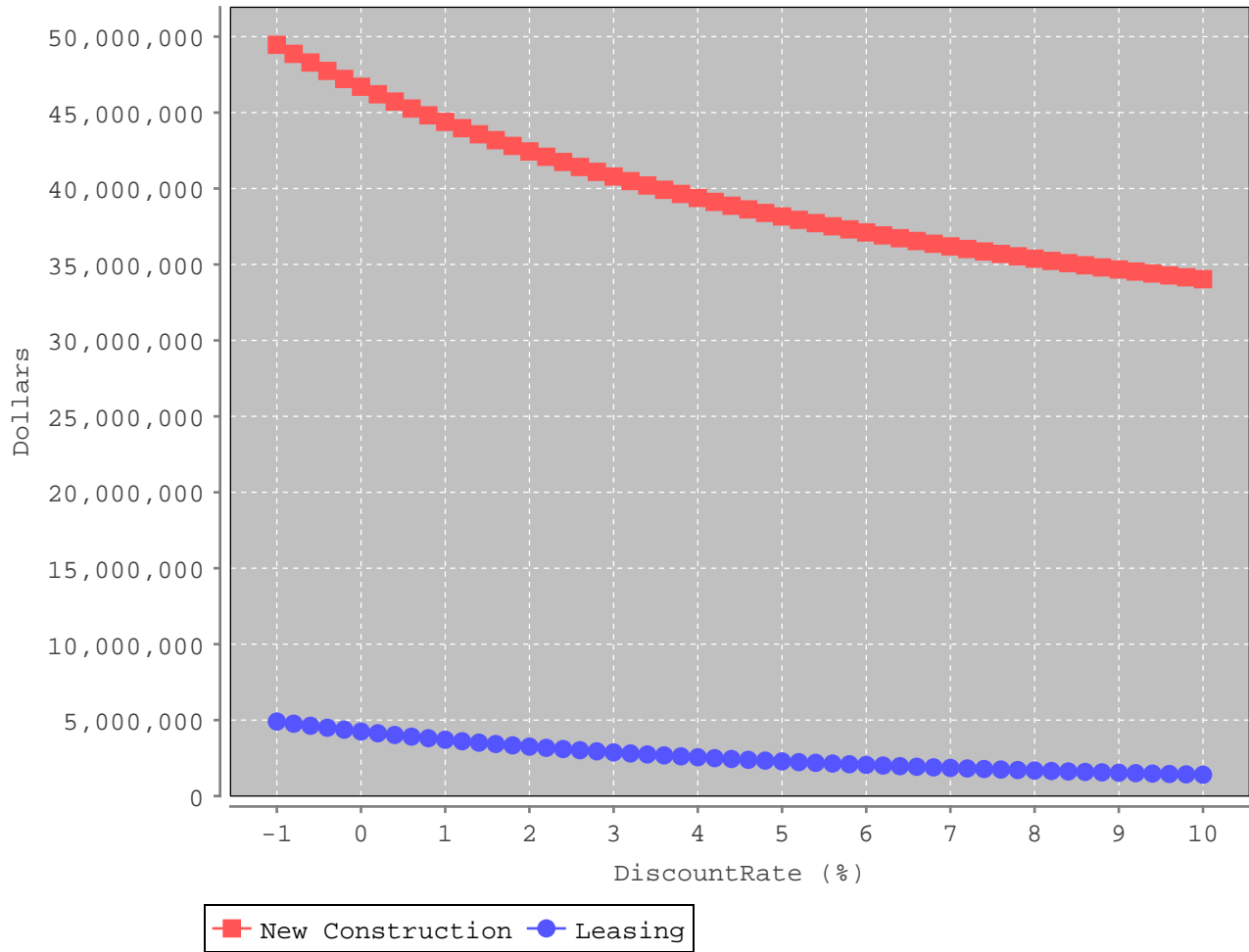
### b. Utilities

Private rental costs based on Overseas Housing Allowance (OHA).

# Discount Rate Sensitivity Analysis

NPV rankings change at the following discount rates: No Change

Graph of Net Present Value vs. Discount Rate



## Discount Rate Sensitivity Analysis

NPV rankings change at the following discount rates: No Change

Table of Net Present Values for each Discount Rate

|                       |              |                      |              |
|-----------------------|--------------|----------------------|--------------|
| Discount Rate = -1.0% |              | Discount Rate = 1.6% |              |
| Leasing               | \$4,904,968  | Leasing              | \$3,425,456  |
| New Construction      | \$49,460,090 | New Construction     | \$43,182,486 |
| Discount Rate = -0.8% |              | Discount Rate = 1.8% |              |
| Leasing               | \$4,763,803  | Leasing              | \$3,338,165  |
| New Construction      | \$48,867,190 | New Construction     | \$42,806,331 |
| Discount Rate = -0.6% |              | Discount Rate = 2.0% |              |
| Leasing               | \$4,627,947  | Leasing              | \$3,253,909  |
| New Construction      | \$48,295,627 | New Construction     | \$42,442,410 |
| Discount Rate = -0.4% |              | Discount Rate = 2.2% |              |
| Leasing               | \$4,497,173  | Leasing              | \$3,172,565  |
| New Construction      | \$47,744,485 | New Construction     | \$42,090,226 |
| Discount Rate = -0.2% |              | Discount Rate = 2.4% |              |
| Leasing               | \$4,371,260  | Leasing              | \$3,094,014  |
| New Construction      | \$47,212,887 | New Construction     | \$41,749,308 |
| Discount Rate = 0.0%  |              | Discount Rate = 2.6% |              |
| Leasing               | \$4,250,000  | Leasing              | \$3,018,143  |
| New Construction      | \$46,700,000 | New Construction     | \$41,419,202 |
| Discount Rate = 0.2%  |              | Discount Rate = 2.8% |              |
| Leasing               | \$4,133,195  | Leasing              | \$2,944,844  |
| New Construction      | \$46,205,029 | New Construction     | \$41,099,477 |
| Discount Rate = 0.4%  |              | Discount Rate = 3.0% |              |
| Leasing               | \$4,020,656  | Leasing              | \$2,874,015  |
| New Construction      | \$45,727,216 | New Construction     | \$40,789,720 |
| Discount Rate = 0.6%  |              | Discount Rate = 3.2% |              |
| Leasing               | \$3,912,201  | Leasing              | \$2,805,556  |
| New Construction      | \$45,265,839 | New Construction     | \$40,489,537 |
| Discount Rate = 0.8%  |              | Discount Rate = 3.4% |              |
| Leasing               | \$3,807,660  | Leasing              | \$2,739,374  |
| New Construction      | \$44,820,210 | New Construction     | \$40,198,551 |
| Discount Rate = 1.0%  |              | Discount Rate = 3.6% |              |
| Leasing               | \$3,706,868  | Leasing              | \$2,675,379  |
| New Construction      | \$44,389,673 | New Construction     | \$39,916,403 |
| Discount Rate = 1.2%  |              | Discount Rate = 3.8% |              |
| Leasing               | \$3,609,668  | Leasing              | \$2,613,485  |
| New Construction      | \$43,973,600 | New Construction     | \$39,642,748 |
| Discount Rate = 1.4%  |              | Discount Rate = 4.0% |              |
| Leasing               | \$3,515,912  | Leasing              | \$2,553,609  |
| New Construction      | \$43,571,394 | New Construction     | \$39,377,256 |

## Discount Rate Sensitivity Analysis

NPV rankings change at the following discount rates: No Change

Table of Net Present Values for each Discount Rate

|                      |              |                      |              |
|----------------------|--------------|----------------------|--------------|
| Discount Rate = 4.2% |              | Discount Rate = 6.8% |              |
| Leasing              | \$2,495,674  | Leasing              | \$1,888,877  |
| New Construction     | \$39,119,614 | New Construction     | \$36,363,627 |
| Discount Rate = 4.4% |              | Discount Rate = 7.0% |              |
| Leasing              | \$2,439,603  | Leasing              | \$1,851,504  |
| New Construction     | \$38,869,519 | New Construction     | \$36,189,437 |
| Discount Rate = 4.6% |              | Discount Rate = 7.2% |              |
| Leasing              | \$2,385,325  | Leasing              | \$1,815,225  |
| New Construction     | \$38,626,684 | New Construction     | \$36,019,707 |
| Discount Rate = 4.8% |              | Discount Rate = 7.4% |              |
| Leasing              | \$2,332,772  | Leasing              | \$1,780,001  |
| New Construction     | \$38,390,834 | New Construction     | \$35,854,280 |
| Discount Rate = 5.0% |              | Discount Rate = 7.6% |              |
| Leasing              | \$2,281,877  | Leasing              | \$1,745,794  |
| New Construction     | \$38,161,704 | New Construction     | \$35,693,004 |
| Discount Rate = 5.2% |              | Discount Rate = 7.8% |              |
| Leasing              | \$2,232,577  | Leasing              | \$1,712,568  |
| New Construction     | \$37,939,042 | New Construction     | \$35,535,734 |
| Discount Rate = 5.4% |              | Discount Rate = 8.0% |              |
| Leasing              | \$2,184,812  | Leasing              | \$1,680,289  |
| New Construction     | \$37,722,607 | New Construction     | \$35,382,330 |
| Discount Rate = 5.6% |              | Discount Rate = 8.2% |              |
| Leasing              | \$2,138,524  | Leasing              | \$1,648,922  |
| New Construction     | \$37,512,166 | New Construction     | \$35,232,658 |
| Discount Rate = 5.8% |              | Discount Rate = 8.4% |              |
| Leasing              | \$2,093,658  | Leasing              | \$1,618,436  |
| New Construction     | \$37,307,498 | New Construction     | \$35,086,591 |
| Discount Rate = 6.0% |              | Discount Rate = 8.6% |              |
| Leasing              | \$2,050,161  | Leasing              | \$1,588,800  |
| New Construction     | \$37,108,391 | New Construction     | \$34,944,005 |
| Discount Rate = 6.2% |              | Discount Rate = 8.8% |              |
| Leasing              | \$2,007,982  | Leasing              | \$1,559,985  |
| New Construction     | \$36,914,641 | New Construction     | \$34,804,782 |
| Discount Rate = 6.4% |              | Discount Rate = 9.0% |              |
| Leasing              | \$1,967,072  | Leasing              | \$1,531,962  |
| New Construction     | \$36,726,054 | New Construction     | \$34,668,807 |
| Discount Rate = 6.6% |              | Discount Rate = 9.2% |              |
| Leasing              | \$1,927,386  | Leasing              | \$1,504,704  |
| New Construction     | \$36,542,442 | New Construction     | \$34,535,973 |

## Discount Rate Sensitivity Analysis

NPV rankings change at the following discount rates: No Change

Table of Net Present Values for each Discount Rate

Discount Rate = 9.4%

|                  |              |
|------------------|--------------|
| Leasing          | \$1,478,185  |
| New Construction | \$34,406,173 |

Discount Rate = 9.6%

|                  |              |
|------------------|--------------|
| Leasing          | \$1,452,380  |
| New Construction | \$34,279,307 |

Discount Rate = 9.8%

|                  |              |
|------------------|--------------|
| Leasing          | \$1,427,264  |
| New Construction | \$34,155,278 |

Discount Rate = 10.0%

|                  |              |
|------------------|--------------|
| Leasing          | \$1,402,815  |
| New Construction | \$34,033,994 |

PREP DATE: 14 JUL 2010 ACF=1.12 UM=E  
 FORM/PROJECT NUMBER: 78348  
 PROJECT TITLE: Family Housing Replacement Construction  
 INSTALLATION: Fort Buchanan  
 LOCATION: Puerto Rico

**TAB E - FURNISHINGS AND EQUIPMENT**

**Furnishings and Equipment**

| Item Description  | Total Proc Cost (\$000) | Proc Appr FY | Proc Appr | Est Delivery Date | Proc Status | Est Instl Cost (\$000) | Instl FY | Instl Appr |
|---|-------------------------|--------------|-----------|-------------------|-------------|------------------------|----------|------------|
| 1 Refrigerator 26 ea<br>Footnote:<br>Furnishing and Equipment for 53 AFH Units. | 46,800                  | 2019         | AFH-O     | 02/2021           | TBD         | 0                      | 2021     |            |
| 2 Range 26 ea<br>Footnote:<br>Furnishing and Equipment for 53 AFH Units.        | 31,200                  | 2019         | AFH-O     | 02/2021           | TBD         | 0                      | 2021     |            |
| 3 Washer 26 ea<br>Footnote:<br>Furnishing and Equipment for 53 AFH Units.       | 26,000                  | 2019         | AFH-O     | 02/2021           | TBD         | 0                      | 2021     |            |
| 4 Dryer 26<br>Footnote:<br>Furnishing and Equipment for 53 AFH Units.           | 26,000                  | 2019         | AFH-O     | 02/2021           | TBD         | 0                      | 2021     |            |

**Information Systems Equipment**

| Item Description  | Total Proc Cost (\$000) | Proc Appr FY | Proc Appr | Est Delivery Date | Proc Status | Est Instl Cost (\$000) | Instl FY | Instl Appr |
|-------------------|-------------------------|--------------|-----------|-------------------|-------------|------------------------|----------|------------|
| 1 Info Sys - ISC  | 0                       | 2020         | OPA       |                   |             |                        |          | OPA        |
| 2 Info Sys - PROP | 0                       | 2020         | OPA       |                   |             |                        |          |            |

**Totals by Appropriation Type (\$000)**  
 Total OMA/OMN/3400/OM DHP: 0  
 Installed Equipment - Other Appropriations: 130,000  
 Total Related Furniture & Equipment Amount: 130,000

**Furnishings and Equipment Discussion**

Furnishings and Equipment for 53 AFH Units.

PREP DATE: 14 JUL 2010 ACF=1.12 UM=E  
 FORM/PROJECT NUMBER: 78348  
 PROJECT TITLE: Family Housing Replacement Construction  
 INSTALLATION: Fort Buchanan  
 LOCATION: Puerto Rico

**TAB F - INFORMATION SYSTEMS COST ESTIMATE (ISCE):**

INSTALLATION - Fort Buchanan YEAR - 2019 FNO - 78348  
 PROGRAM TYPE - AFH PROJECT NO. - 78348  
 USACE DISTRICT - Jacksonville District MACOM/Region - HQ IMCOM-AFH  
 PROJECT TITLE - Family Housing Replacement Construction  
 PRIMARY PROPONENT FUND - OPA  
 CONF Primary Facility costs transferred to Tab A/DD1391 Form? - No

**Section I - Primary Facility, Inside the 5 Foot Line -  
 Installed Equipment (See AR 420-1, Table 4-2)**

| Line Description                  | UM | Quantity | Unit Price | Total Cost | F S |
|-----------------------------------|----|----------|------------|------------|-----|
| 1 CABLE TRAY (24'' WIDE)          | LF | 5        | 36.27      | 181 C      |     |
| 2 EMT 3/4'' W/HDW (SGL RJ45 & TV) | LF | 7,875    | 5.59       | 44,021 C   |     |
| 3 EMT 1'' W/HDW (DUAL OUTLETS)    | LF | 225      | 6.72       | 1,512 C    |     |
| 4 BACKBOARD: 4 X 4 X 3/4''        | EA | 1        | 50.52      | 51 C       |     |
| <b>Total</b>                      |    |          |            | 45,765     |     |

**Section II - Primary Facility, Inside the 5 Foot Line -  
 Equipment in Place (See AR 420-1, Table 4-2)**

| Line Description                   | UM | Quantity | Unit Price | Total Cost | F S |
|------------------------------------|----|----------|------------|------------|-----|
| 1 SET, 2500 TYPE                   | EA | 35       | 83.98      | 2,939 C    |     |
| 2 FO SC PATCH PNL 24 SM W/CPLRS    | EA | 2        | 688.19     | 1,376 C    |     |
| 3 MDF CONN: 100 PR W/60 FT STUB    | EA | 1        | 2,002      | 2,002 C    |     |
| 4 MDF: STANDARD DBL-SIDED 8 VERT   | EA | 1        | 583.86     | 584 C      |     |
| 5 MDF JUMPER WIRE: WRAPPED         | EA | 70       | 4.36       | 305 C      |     |
| 6 OUTLET: DUAL RJ45 W/CBL          | EA | 5        | 207.49     | 1,037 C    |     |
| 7 OUTLET: SGL CATV, F-TYPE W/CBL   | EA | 175      | 137.77     | 24,110 C   |     |
| 8 PATCH PANEL, RJ45 CAT 6, 96 PORT | EA | 1        | 871.33     | 871 C      |     |
| 9 PATCH CORD, RJ45 CAT6, 7 FT      | EA | 35       | 8.56       | 300 C      |     |
| 10 EQUIP RACK&HWD                  | EA | 2        | 624.33     | 1,249 C    |     |
| 11 FO-SM DUPL CORD: SC, 5 FT       | LF | 24       | 235.07     | 5,642 C    |     |
| 12 PROTECTED TERM: 25 PR           | EA | 1        | 824.81     | 825 C      |     |
| <b>Total</b>                       |    |          |            | 41,240     |     |

**Section III - Supporting Facilities, Outside the 5 Foot Line -  
 Installed Equipment (See AR 420-1, Table 4-2)**

FY 2019

78348I R

REVISION DATE: 12 JAN 2018

AFH (AS OF 06/22/2018 AT 14:46:17)

PREP DATE: 14 JUL 2010

ACF=1.12

UM=E

FORM/PROJECT NUMBER: 78348

PROJECT TITLE: Family Housing Replacement Construction

INSTALLATION: Fort Buchanan

LOCATION: Puerto Rico

**TAB F - INFORMATION SYSTEMS COST ESTIMATE (ISCE):**

**Section III - Supporting Facilities, Outside the 5 Foot Line -  
Installed Equipment (See AR 420-1, Table 4-2)**

| Line Description                     | UM | Quantity | Unit Price | Total Cost | F S |
|--------------------------------------|----|----------|------------|------------|-----|
| 1 MANHOLE PRECAST: 6 X12 X7          | EA | 5        | 9,832      | 49,158     | C   |
| 2 UNDGRD DUCT: 2-WAY                 | LF | 2,255    | 7.54       | 17,003     | C   |
| 3 UNDGRD DUCT: 2-WAY CONC-ENC        | LF | 413      | 14.58      | 6,022      | C   |
| 4 INNERDUCT 4-1''                    | LF | 2,750    | 5.67       | 15,593     | C   |
| 5 GIP 4'' 2-WAY BORING/PUSHING       | LF | 150      | 82.06      | 12,309     | C   |
| 6 TRENCH: BACKHOE 24''X 36'' (DUCTS) | LF | 2,530    | 10.02      | 25,351     | C   |
| 7 TRENCH: HANDDIG 24''X 36'' (DUCTS) | LF | 138      | 28.07      | 3,874      | C   |
| 8 CUT & RESURFACE ASPHALT 4''        | SF | 563      | 10.89      | 6,131      | C   |
| 9 CUT & RESURFACE CONCRETE 4''       | SF | 281      | 13.33      | 3,746      | C   |
| 10 CONC CORE DRILL 4'' DIAMETER      | EA | 4        | 200.23     | 801        | C   |
| <b>Total</b>                         |    |          |            | 139,988    |     |

**Section IV - Supporting Facilities, Outside the 5 Foot Line -  
Equipment in Place (See AR 420-1, Table 4-2)**

| Line Description                   | UM | Quantity | Unit Price | Total Cost | F S |
|------------------------------------|----|----------|------------|------------|-----|
| 1 CARD: VOICE, 1 PORT              | EA | 35       | 229.47     | 8,031      | C   |
| 2 UNGRD: 25 PR, 24 AWG (B1)        | LF | 250      | 1.69       | 423        | C   |
| 3 UNDGRD: 25 PR, 24 AWG (OSP)      | LF | 2,500    | 1.69       | 4,225      | C   |
| 4 FO CBL DC DIELEC SM 24 STR (OSP) | LF | 2,750    | 5.61       | 15,428     | C   |
| <b>Total</b>                       |    |          |            | 28,107     |     |

**Section V - Mission Unique Equipment**

| Line Description | UM | Quantity | Unit Price | Total Cost | F S |
|------------------|----|----------|------------|------------|-----|
| <b>Total</b>     |    |          |            | 0          |     |

**Information Systems Cost Summary:**

|                          | CONF    | ISC | PROP | Total   |
|--------------------------|---------|-----|------|---------|
| Primary Facility         | 87,005  | 0   | 0    | 87,005  |
| Supporting Facility      | 168,095 | 0   | 0    | 168,095 |
| Mission Unique Equipment | 0       | 0   | 0    | 0       |
| <b>Total</b>             | 255,100 | 0   | 0    | 255,100 |



FY 2019

78348I R

REVISION DATE: 12 JAN 2018

AFH (AS OF 06/22/2018 AT 14:46:17)

PREP DATE: 14 JUL 2010

ACF=1.12

UM=E

FORM/PROJECT NUMBER: 78348

PROJECT TITLE: Family Housing Replacement Construction

INSTALLATION: Fort Buchanan

LOCATION: Puerto Rico

**TAB F - INFORMATION SYSTEMS COST ESTIMATE (ISCE):**

**Factors Applied to the Above Costs**

- X An Area Cost Factor of 1.1200 was applied to cost.
- X An Inflation Factor of 1.4317 was applied to cost.

/S/ Manuel Torres  
Chief, Master Planning and Real  
Estate  
DPW, Fort Buchanan  
10/08/2014

**Information Systems Certification:**

"This project has been reviewed by USAISEC to determine the adequacy of its Information Systems Cost Estimate." This project is certified "adequate as submitted".

**Certified by:** /S/ Tracy L Sebold  
IT Spec, Network  
USAISEC-FDED  
07/31/2015

Cost Model Project Information:

Square Footage

Project Fiscal Year: 2019

Estimate Name: 78348

| Square Footage     |         | Building Name |          |                     |                  |           |          | Bldg 1 (B1) |  |
|--------------------|---------|---------------|----------|---------------------|------------------|-----------|----------|-------------|--|
|                    | Admin   | Intermediate  | Barracks | Warehouse / Storage | Clinic / Medical | Classroom | Others   | Total       |  |
| (SF/Outlet)        | (80 SF) | (200 SF)      | (150 SF) | (5000 SF)           | (80 SF)          | (80 SF)   | (500 SF) |             |  |
| Basement           | 0       | 0             | 0        | 0                   | 0                | 0         | 2,500    | 2,500       |  |
| 1st Floor          | 0       | 0             | 0        | 0                   | 0                | 0         | 0        | 0           |  |
| 2nd Floor          | 0       | 0             | 0        | 0                   | 0                | 0         | 0        | 0           |  |
| 3rd Floor          | 0       | 0             | 0        | 0                   | 0                | 0         | 0        | 0           |  |
| 4th Floor          | 0       | 0             | 0        | 0                   | 0                | 0         | 0        | 0           |  |
| 5th Floor          | 0       | 0             | 0        | 0                   | 0                | 0         | 0        | 0           |  |
| 6th Floor          | 0       | 0             | 0        | 0                   | 0                | 0         | 0        | 0           |  |
| 7th Floor          | 0       | 0             | 0        | 0                   | 0                | 0         | 0        | 0           |  |
| 8th Floor          | 0       | 0             | 0        | 0                   | 0                | 0         | 0        | 0           |  |
| 9th Floor          | 0       | 0             | 0        | 0                   | 0                | 0         | 0        | 0           |  |
| 10th Floor         | 0       | 0             | 0        | 0                   | 0                | 0         | 0        | 0           |  |
| <b>Total</b>       | 0       | 0             | 0        | 0                   | 0                | 0         | 2,500    | 2,500       |  |
| <b>Outlet Type</b> | Dual    | Dual          | Dual     | Dual                | Medical          | Dual      | Dual     |             |  |
| <b># Outlets</b>   | 0       | 0             | 0        | 0                   | 0                | 0         | 5        |             |  |

Initial New Services Required

Project Fiscal Year: 2019

Estimate Name: 78348

| New Services                            | Building Name | Bldg 1   | (B1) |
|---|---------------|--|------|
|   | New           | Notes  |      |
| Single Line Phone                       | 35            | One per user.  |      |
| ISDN Sets                               | 0             | As required; user funded.                                      |      |
| Multi-Line Phones                       | 0             | One per secretary (not to exceed 10% of population).           |      |
| Weatherproof Phones                     | 0             | One per building (exterior unattended door).                   |      |
| Explosive Environment Phones            | 0             | HAZMAT facilities: i.e., paint/battery/chemical/etc.           |      |
| LAN Ports                               | 0             | One per authorized NIPRNET user.                               |      |
| Wall Phone Outlet w/ Telephone Set      | 35            | One per equipment room; plus safety and convenience locations. |      |
| Fiber Optic Outlets (2 RJ-45 w/Dual SC) | 0             | As required; replaces non-fiber outlets (special needs only).  |      |
| SIPRNET                                 |               | Select building type & size (BDE/REG/GRP/BN/SQD).              |      |
| TV Outlets - All Services               | 175           | 1.5 per barracks bed area (Round up to next whole number).     |      |

**Cable, Switching and Building Requirements**

**Project Fiscal Year:** 2019

**Estimate Name:** 78348

| <b>Cable, Switching, and Building</b>                                     |                                     | <b>Building Name</b>  | <b>Bldg 1</b> | <b>(B1)</b> |
|---|-------------------------------------|---|---------------|-------------|
| <b>Item</b>   | <b>Value</b>                        | <b>Notes</b>  |               |             |
| Initial # of Building Occupants   | 25                                  |   |               |             |
| Number of Ducts into Building   | Maximum Occupant Capacity - 1 to 99 |   |               |             |
| Type of Building  | Other                               | Other   |               |             |
| Building Entry Duct / System Length Underground (Distance in Linear Feet) | 250                                 | Generates a maintenance hole and duct system from the new building to the site's "local" IS node. |               |             |

**Outside Cable Plant**

**Project Fiscal Year:** 2019

**Estimate Name:** 78348

**Telephone Switching Requirements:**

**Existing DCO**

| <b>Outside Cable Plant</b> |                                 | Complex Serving DCO/RSU |              |  |
|----------------------------|---------------------------------|-------------------------|--------------|--|
|                            | <b>Existing/A<br/>available</b> | <b>Proposed</b>         | <b>Total</b> | <b>Notes</b>   |
| Aerial (Figure 8)          | 0                               | 0                       | 0            | Rarely used; self-supporting - cable and messenger in one.                 |
| Buried (Trenched)          | 0                               | 0                       | 0            | Rarely used; back-hoe and hand-dig trenching used.                         |
|                            | 0                               | 2,500                   | 2,500        |  |
| Underground                | 0                               | 2,500                   | 2,500        | I3A Standard Outside Plant Construction; maintenance hole and duct system. |
| <b>Total</b>               |                                 |                         |              | Should account for total OSP requirement.                                  |

\* Distance in Linear Feet

FY 2019

78348I R

REVISION DATE: 12 JAN 2018

AFH (AS OF 06/22/2018 AT 14:46:17)

PREP DATE: 14 JUL 2010

ACF=1.12

UM=E

FORM/PROJECT NUMBER: 78348

PROJECT TITLE: Family Housing Replacement Construction

INSTALLATION: Fort Buchanan

LOCATION: Puerto Rico

**TAB G - ANTITERRORISM PROTECTION**

**Parameters for Minimum AT Standards for Buildings**

| Building Type       | Building Category | Controlled Perimeter | Meets Conven Const Standoff | Building Three Stories or More |
|---------------------|-------------------|----------------------|-----------------------------|--------------------------------|
| Army Family Housing | Inhabited         | Y                    | Y                           | N                              |

**Antiterrorism Protection Measures**

This project has been coordinated with the installation's antiterrorism plans. Risk and threat analyses have been performed in accordance with DA PAM 190-51 and Unified Facilities Criteria (UFC) 4-020-01, respectively. Only protective measures required by regulation and the minimum standards as required by UFC 4-010-01 "Department of Defense Minimum Antiterrorism Standards for Buildings" are needed. These requirements are included in the description of construction and cost estimate.

**Risk Analysis** = NO

**Threat Analysis** = NO

**Summary of Risk and Threat Analyses and Description of any Protective Measures that are Required**

**Required Signatures:**

PREP DATE: 14 JUL 2010

ACF=1.12

UM=E

FORM/PROJECT NUMBER: 78348

PROJECT TITLE: Family Housing Replacement Construction

INSTALLATION: Fort Buchanan

LOCATION: Puerto Rico

**TAB H - DISPOSAL/DEMOLITION SUPPORT DATA**

**Disposal/Demolition Facility List**

| SUID | Installation       | Fac No | Catcode | T<br>C | Total<br>Quantity | UM | In<br>The Disposal<br>FP? | FY   |
|------|--------------------|--------|---------|--------|-------------------|----|---------------------------|------|
| 1    | 4988 Fort Buchanan | 00803  | 71113   | P      | 2,581             | SF | Y                         | 2017 |
| 2    | 4988 Fort Buchanan | 00804  | 71113   | P      | 2,448             | SF | Y                         | 2017 |
| 3    | 4988 Fort Buchanan | 00805  | 71113   | P      | 2,448             | SF | Y                         | 2017 |
| 4    | 4988 Fort Buchanan | 00806  | 71113   | P      | 2,569             | SF | Y                         | 2017 |
| 5    | 4988 Fort Buchanan | 00807  | 71113   | P      | 2,947             | SF | Y                         | 2017 |
| 6    | 4988 Fort Buchanan | 00808  | 71113   | P      | 2,826             | SF | Y                         | 2017 |
| 7    | 4988 Fort Buchanan | 00809  | 71112   | P      | 3,151             | SF | Y                         | 2017 |
| 8    | 4988 Fort Buchanan | 00810  | 71113   | P      | 2,428             | SF | Y                         | 2017 |
| 9    | 4988 Fort Buchanan | 00811  | 71113   | P      | 2,428             | SF | Y                         | 2017 |
| 10   | 4988 Fort Buchanan | 00812  | 71113   | P      | 2,428             | SF | Y                         | 2017 |
| 11   | 4988 Fort Buchanan | 00813  | 71113   | P      | 2,428             | SF | Y                         | 2017 |
| 12   | 4988 Fort Buchanan | 00814  | 71112   | P      | 2,448             | SF | Y                         | 2017 |
| 13   | 4988 Fort Buchanan | 00815  | 71113   | P      | 2,448             | SF | Y                         | 2017 |
| 14   | 4988 Fort Buchanan | 00816  | 71112   | P      | 2,448             | SF | Y                         | 2017 |
| 15   | 4988 Fort Buchanan | 00817  | 71113   | P      | 2,385             | SF | Y                         | 2017 |
| 16   | 4988 Fort Buchanan | 00818  | 71112   | P      | 2,596             | SF | Y                         | 2017 |
| 17   | 4988 Fort Buchanan | 00819  | 71113   | P      | 2,428             | SF | Y                         | 2017 |
| 18   | 4988 Fort Buchanan | 00820  | 71113   | P      | 2,693             | SF | Y                         | 2017 |
| 19   | 4988 Fort Buchanan | 00821  | 71113   | P      | 1,984             | SF | Y                         | 2017 |
| 20   | 4988 Fort Buchanan | 08822  | 71112   | P      | 2,569             | SF | Y                         | 2017 |
| 21   | 4988 Fort Buchanan | 00823  | 71113   | P      | 2,567             | SF | Y                         | 2017 |
| 22   | 4988 Fort Buchanan | 00824  | 71113   | P      | 2,951             | SF | Y                         | 2017 |
| 23   | 4988 Fort Buchanan | 00825  | 71112   | P      | 3,293             | SF | Y                         | 2017 |
| 24   | 4988 Fort Buchanan | 00826  | 71115   | P      | 2,963             | SF | Y                         | 2017 |
| 25   | 4988 Fort Buchanan | 00827  | 71113   | P      | 2,567             | SF | Y                         | 2017 |
| 26   | 4988 Fort Buchanan | 00828  | 71113   | P      | 2,951             | SF | Y                         | 2017 |
| 27   | 4988 Fort Buchanan | 00829  | 71113   | P      | 2,945             | SF | Y                         | 2017 |
| 28   | 4988 Fort Buchanan | 00830  | 71113   | P      | 2,448             | SF | Y                         | 2017 |
| 29   | 4988 Fort Buchanan | 00831  | 71113   | P      | 2,563             | SF | Y                         | 2017 |
| 30   | 4988 Fort Buchanan | 01127  | 71114   | P      | 1,330             | SF | Y                         | 2017 |
| 31   | 4988 Fort Buchanan | 01129  | 71114   | P      | 1,454             | SF | Y                         | 2017 |
| 32   | 4988 Fort Buchanan | 01132  | 71114   | P      | 1,330             | SF | Y                         | 2017 |
| 33   | 4988 Fort Buchanan | 01134  | 71114   | P      | 1,209             | SF | Y                         | 2017 |
| 34   | 4988 Fort Buchanan | 01135  | 71114   | P      | 1,330             | SF | Y                         | 2017 |
| 35   | 4988 Fort Buchanan | 01137  | 71114   | P      | 1,330             | SF | Y                         | 2017 |
| 36   | 4988 Fort Buchanan | 01138  | 71114   | P      | 1,330             | SF | Y                         | 2017 |
| 37   | 4988 Fort Buchanan | 01139  | 71114   | P      | 1,454             | SF | Y                         | 2017 |

FY 2019

78348I R

REVISION DATE: 12 JAN 2018

AFH (AS OF 06/22/2018 AT 14:46:17)

PREP DATE: 14 JUL 2010

ACF=1.12

UM=E

FORM/PROJECT NUMBER: 78348

PROJECT TITLE: Family Housing Replacement Construction

INSTALLATION: Fort Buchanan

LOCATION: Puerto Rico

**TAB H - DISPOSAL/DEMOLITION SUPPORT DATA**

**Disposal/Demolition Facility List**

| SUID | Installation       | Fac No | Catcode | T<br>C | Total<br>Quantity | UM | In<br>The Disposal<br>FP? FY |
|------|--------------------|--------|---------|--------|-------------------|----|------------------------------|
| 38   | 4988 Fort Buchanan | 01149  | 71114   | P      | 1,454             | SF | Y 2017                       |
| 39   | 4988 Fort Buchanan | 01152  | 71114   | P      | 1,330             | SF | Y 2017                       |
| 40   | 4988 Fort Buchanan | 01154  | 71114   | P      | 1,330             | SF | Y 2017                       |
| 41   | 4988 Fort Buchanan | 01155  | 71114   | P      | 1,330             | SF | Y 2017                       |
| 42   | 4988 Fort Buchanan | 01158  | 71114   | P      | 1,209             | SF | Y 2017                       |
| 43   | 4988 Fort Buchanan | 01161  | 71114   | P      | 1,330             | SF | Y 2017                       |
| 44   | 4988 Fort Buchanan | 01162  | 71114   | P      | 1,330             | SF | Y 2017                       |
| 45   | 4988 Fort Buchanan | 01163  | 71114   | P      | 1,330             | SF | Y 2017                       |
| 46   | 4988 Fort Buchanan | 01166  | 71114   | P      | 1,454             | SF | Y 2017                       |
| 47   | 4988 Fort Buchanan | 01167  | 71114   | P      | 1,454             | SF | Y 2017                       |
| 48   | 4988 Fort Buchanan | 01168  | 71114   | P      | 1,454             | SF | Y 2017                       |
| 49   | 4988 Fort Buchanan | 01170  | 71114   | P      | 1,330             | SF | Y 2017                       |
| 50   | 4988 Fort Buchanan | 01173  | 71114   | P      | 1,330             | SF | Y 2017                       |
| 51   | 4988 Fort Buchanan | 01229  | 71114   | P      | 1,330             | SF | Y 2017                       |
| 52   | 4988 Fort Buchanan | 01231  | 71114   | P      | 1,454             | SF | Y 2017                       |
| 53   | 4988 Fort Buchanan | 01234  | 71114   | P      | 1,330             | SF | Y 2017                       |
| 54   | 4988 Fort Buchanan | 01235  | 71114   | P      | 1,330             | SF | Y 2017                       |
| 55   | 4988 Fort Buchanan | 01237  | 71114   | P      | 1,209             | SF | Y 2017                       |
| 56   | 4988 Fort Buchanan | 01239  | 71114   | P      | 1,330             | SF | Y 2017                       |

**Total Number of Buildings for Disposal/Demo (funded by this project) = 56**

**Total Area of Buildings for Disposal/Demo (funded by this project) = 112,344 SF**



FY 2019

78348I R

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PROJECT TITLE: Family Housing Replacement Construction

INSTALLATION: Fort Buchanan

LOCATION: Puerto Rico

**TAB I - REAL PROPERTY MAINTENANCE ACTIVITY AND ENVIRONMENTAL COMPLIANCE**

**RPMA Discussion**

1299949-1267; 1299955-1268; 1299947-1265; 1299958-1269; 1299938-1264; 1299948-1266;  
1299962-1270; 1299965-1271; 12999920-1251; 1299942-1264; 1299936-1262; 1299931-1260;  
1299935-1261; 1299926-1259; 1299924-1258; 1298380-1250; 1299967-1272; 1299968-1273;  
1299971-1292; 1299975-1249

FY 2019

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INSTALLATION: Fort Buchanan

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## **TAB J - ENVIRONMENTAL ANALYSIS**

### **Environmental Documentation**

An EA and FONSI was completed on 14 August 2009 for the Real Property Master Plan. The National Keeper for Historic Places completed a Determination of Eligibility on 24 December 2009. An Section 106 Consultation was completed in 2013 with no Adverse Effect. A Section 110 (HAPPS and Inventory) was completed in 1997.

### **Summary of Environmental Consequences**

To execute the Proposed Action the Environmental Requirements are; Lead & Asbestos Survey and Abatement/Disposal by an State EQB Certified Contractor only; US EPA Storm Water Erosion Control Permit; State EQB Consolidated Permit (for Waste, Emissions, Abatement, and Erosion Control), Section 106 and Section 7 Consultations.

### **Environmental Standard Text**

This project has been assessed. A copy of the draft finding of No Significant Impact, published on 08/14/2009, is included. A copy of the environmental assessment is available upon request.

### **Environmental Officer**

/S/ Mr. Anibal Negrón  
GS-13  
Chief Environmental Division  
14 Aug 2009

### **Director of Public Works**

/S/ Mr. Pascual A. Quiñones  
GS-14  
DPW Director  
14 Aug 2009

PREP DATE: 14 JUL 2010 ACF=1.12 UM=E  
FORM/PROJECT NUMBER: 78348  
PROJECT TITLE: Family Housing Replacement Construction  
INSTALLATION: Fort Buchanan  
LOCATION: Puerto Rico

**TAB J - NEPA DOCUMENTATION STATUS**

NEPA Document Type: EA  
Performed by: Contract  
Cost to Prepare Documentation (\$000): 0

NEPA Timelines:

Scheduled NEPA Start Date:  
Scheduled NEPA Completion Date:  
  
Actual NEPA Start Date: 06 Oct 2008  
Actual NEPA Completion Date: 14 Aug 2009

The Following Items Pertain to this Project:

|                               | Scheduled   |          | Actual      |             |
|-------------------------------|-------------|----------|-------------|-------------|
|                               | Start       | Complete | Start       | Complete    |
| NHPA Section 106 Consultation | 14 Jan 2013 |          | 14 Jan 2013 | 09 Sep 2013 |
| NHPA Agreement Document       | 06 Jul 2001 |          | 06 Jul 2001 | 24 Dec 2009 |
| ESA Section 7 Consultation    | N/A         | N/A      |             |             |
| Wetlands Permitting           | N/A         | N/A      |             |             |
| UXO                           | N/A         | N/A      |             |             |

Earliest Contract Award Date: 10 Sep 2013  
Various Dates last modified on: 08 Oct 2014

**Point of Contact**

Name: Mr. Anibal Negrón  
Title: DPW Environmental Chief  
Phone Number: 787-707-3575

**Remarks/Explanation**

Both an EA and FONSI was completed on 14 August 2009.

FY 2019

78348I R

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FORM/PROJECT NUMBER: 78348

PROJECT TITLE: Family Housing Replacement Construction

INSTALLATION: Fort Buchanan

LOCATION: Puerto Rico

## **TAB J - PROTECTION OF HISTORIC PROPERTIES**

### **Historic and Archeological Sites (Standard Text)**

Review procedures have been implemented for this project in accordance with 36 CFR 800. The review has established that there will be no adverse effect. The State Historic Preservation Officer (SHPO) concurrence has been granted.

### **Detailed Statement of Review Findings**

National Keeper determined that the Housing Areas are eligible under the Criterion A and C. However mitigation, inventory, and consultation have been performed.

### **SHPO Statement of Concurrence**

No adverse effect. A Section 106 and Section 110 were completed.

### **SHPO Statement of Non-Concurrence**

### **Request to ACHP**

### **Memorandum of Agreement**

FY 2019

78348I R

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PROJECT TITLE: Family Housing Replacement Construction

INSTALLATION: Fort Buchanan

LOCATION: Puerto Rico

## **TAB J - EVALUATION OF FLOOD HAZARDS AND ENCROACHMENT ON WETLANDS**

### **Evaluation of Flood Hazards and Encroachment**

NA

### **Evaluation of Flood Hazards (Standard Text)**

This project is not sited in a floodplain or wetlands.

FY 2019

78348I R

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PROJECT TITLE: Family Housing Replacement Construction

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## **TAB J - ACCESSIBILITY STANDARDS**

### **Accessibility Standards**

This project will not be designed for accessibility and usability by those with disabilities as the facility will be used and operated solely by military personnel without disabilities.

### **Hazards to Individuals with Disabilities**

#### **Accessibility Standards (Standard Text)**

At least five percent of these units will be accessible or readily and easily modifiable for use by persons with disabilities.

FY 2019

78348I R

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FORM/PROJECT NUMBER: 78348

PROJECT TITLE: Family Housing Replacement Construction

INSTALLATION: Fort Buchanan

LOCATION: Puerto Rico

## **TAB J - ENERGY AND UTILITY REQUIREMENTS**

### **Summary of Energy Requirements**

EPACT Policy Act 2005, AR 420-1 Chapter 22, LEED Silver, ASHRAE, low impact development, Net Zero Strategy, Renewable Energy Initiatives, EPA Water Sense, and LED Lighting, Solar Water Heaters, Rain Water Harvesting.

### **Summary of Utility Support**

Fort Buchanan existing infrastructure will support this new development.

### **User Discretionary Block**

**CRITICAL DATA SHEET for FORM 78348**

Fort Buchanan, Puerto Rico

FY: 2019 PNO: 78348

Cost Index: 2710

PGM TYP: AFH

Revision Date: 12 Jan 18

Exchange Rate: 1.0000

UM=English

Assumed Midpoint of Construction Date: Dec 2019

**Form Completion Information**

DD1391 Form (Tab A) is missing information: NO

This project incrementally funded: NO

Economic Analysis Present: YES

Real Property UID (RPUID): 129838

**Cost Information**

DD1391 Total Project Cost: \$26,000,000

ENG3086 Total Cost: \$26,000,000

Installed Equipment - Other Appropriations: \$130,000,000

Demolition Cost: \$2,890,611

Percent of Supporting Cost to Primary Costs: 60.61%

**Design Information**

Concept Complete Date: May 2018

Design Complete Date: Mar 2019

Percent of Plans/Specs Cost to Project Cost: 5.72%

Percent of Total Design Cost to Project Cost: 8.80%

Type of Design Contract: Design-bid-build

Construction Start/Completion dates: MISMATCH with Tab A Dates

**Key Revision Dates**

ENG3086 Revision Date: 26 Aug 17

Information Systems Certification Date: 31 Jul 15

Planning Charrette Date:

Scheduled NEPA Start Date:

Scheduled NEPA Comp Date:

Actual NEPA Start Date: 06 Oct 08

Actual NEPA Comp Date: 14 Aug 09

**Signature Information**

Date of Site Approval:

Provost Marshal Signature:

Information Systems Signature: Manuel Torres

Commander's Signature: Caryn S. Heard

Rank: COL, EN

Title: Commanding

Date Signed: 09 May 14

Future Occupant Signature:

Date Signed:

EA Certification Name:

EA Certification Date:

Environmental Officer: Mr. Anibal Negrón



DD1391 FORM: 78348    DATE REVISED: 08/26/2017    DATE PRINTED: 06/22/2018  
 PERM PROJNO: 78348    DATE LAST SUBMITTED: 08/26/2017    RFC DATE:  
 Fort Buchanan    Family Housing Replacement Construction  
 Puerto Rico    ACF = 1.12    TYPE OF CONSTRUCTION: P

BASIS OF ESTIMATE:    NAME AND ADDRESS OF AE:  
 PDR-Lite    CESAS-EN-D  
 STATUS OF DESIGN:    100 W Oglethorpe Ave  
 CONCEPT    14.29%    FINAL    5.00%    Savannah, GA 31401

PREP BY: P. R. Vaidya P. E.  
 OFF: CESAS-EN-ET    PH: 912-652-5562

| CONST<br>CAT<br>CODE | DESCRIPTION                   | UM | QUANTITY | UNIT<br>COST | TOTAL<br>COST<br>(\$000) |
|----------------------|-------------------------------|----|----------|--------------|--------------------------|
| PRIMARY FACILITIES   |                               |    |          |              | 14,241                   |
| 71112                | F. Hsg, Colonel, O6, 4 BR, OC | FA | 2        | 577,937.00   | (1,156)                  |
|                      | F. Hsg, Colonel, O6, 4 BR, O  | SF | 5,040    | 229.34       | 1155.9                   |
| 71113                | W. Officer, W4-W5, 4 BR, OCON | FA | 3        | 537,028.67   | (1,611)                  |
|                      | W. Officer, W4-W5, 4 BR, OCO  | SF | 6,930    | 232.48       | 1611.1                   |
| 71113                | W. Officer, W4-W5, 3 BR, OCON | FA | 3        | 472,154.67   | (1,416)                  |
|                      | W. Officer, W4-W5, 3 BR, OCO  | SF | 6,060    | 233.74       | 1416.5                   |
| 71114                | CO Grade Officer, O1-O3, 4 BR | FA | 1        | 455,241.00   | (455)                    |
|                      | CO Grade Officer, O1-O3, 4 B  | SF | 2,150    | 211.74       | 455.2                    |
| 71115                | Senior NCO, E9 4 BR, OCONUS   | FA | 1        | 537,029.00   | (537)                    |
|                      | Senior NCO, E9 4 BR, OCONUS   | SF | 2,310    | 232.48       | 537.0                    |
| 71115                | Senior NCO, E7-E8, 4 BR, OCON | FA | 2        | 455,241.00   | (910)                    |
|                      | Senior NCO, E7-E8, 4 BR, OCO  | SF | 4,300    | 211.74       | 910.5                    |
| 71115                | Senior NCO, E7-E8, 3 BR, OCON | FA | 2        | 399,695.50   | (799)                    |
|                      | Senior NCO, E7-E8, 3 BR, OCO  | SF | 3,720    | 214.89       | 799.4                    |
| 71116                | Jr NCO E1-E6, 4 BR, OCONUS    | FA | 4        | 367,575.00   | (1,470)                  |
|                      | Jr NCO E1-E6, 4 BR, OCONUS    | SF | 7,800    | 188.50       | 1470.3                   |
| 71116                | Jr NCO E1-E6, 3 BR, OCONUS    | FA | 8        | 357,426.38   | (2,859)                  |
|                      | Jr NCO E1-E6, 3 BR, OCONUS    | SF | 13,040   | 219.28       | 2859.4                   |
| 00000                | Hurricane Measures            | LS |          |              | (1,681)                  |
|                      | Hurricane Measures            | SF | 26       | 64,658.00    | 1681.1                   |
| 00000                | Cyber Security                | LS |          |              | (250)                    |
|                      | Cyber Security - EMCS         | LS |          |              | 250.0                    |
| 89220                | EMCS Connection               | LS |          |              | (135)                    |
|                      | EMCS Connection               | EA | 26       | 5,200.00     | 135.2                    |
| 00005                | Sustainability/Energy Measure | LS |          |              | (962)                    |
|                      | SDD and EPAAct05              | LS |          |              | 240.0                    |
|                      | Electric Power, Photovoltaic  | KW | 130      | 3,540.00     | 460.2                    |
|                      | Solar Water Heating           | EA | 26       | 10,077.00    | 262.0                    |
| 80800                | Building Information Systems  | LS |          |              | (0)                      |
| SUPPORT FACILITIES   |                               |    |          |              | 8,632                    |

DD1391 FORM: 78348    DATE REVISED: 08/26/2017    DATE PRINTED: 06/22/2018  
 PERM PROJNO: 78348    DATE LAST SUBMITTED: 08/26/2017    RFC DATE:  
 Fort Buchanan    Family Housing Replacement Construction  
 Puerto Rico    ACF = 1.12    TYPE OF CONSTRUCTION: P

| CONST<br>CAT<br>CODE | DESCRIPTION                   | UM | QUANTITY | UNIT<br>COST | TOTAL<br>COST<br>(\$000) |
|----------------------|-------------------------------|----|----------|--------------|--------------------------|
|                      | Electric Service              | LS |          |              | (585)                    |
|                      | 25kVA Pad Mtd Transformer     | EA | 20       | 5,720.00     | 114.4                    |
|                      | 15kV Cable                    | LF | 3,000    | 91.94        | 275.8                    |
|                      | Electric Manhole              | EA | 7        | 7,800.00     | 54.6                     |
|                      | LED Fixture & Pole            | EA | 10       | 5,512.00     | 55.1                     |
|                      | Secondary Service             | EA | 53       | 1,612.00     | 85.4                     |
|                      | Water, Sewer, and Gas         | LS |          |              | (1,222)                  |
|                      | 8" water main                 | LF | 3,400    | 45.52        | 154.8                    |
|                      | 8" San. Sewer Main            | LF | 3,065    | 146.33       | 448.5                    |
|                      | Connect to Exist.             | EA | 1        | 1,440.40     | 1.4                      |
|                      | 1" Domestic Service           | LF | 2,968    | 9.84         | 29.2                     |
|                      | 48" D Manhole                 | EA | 22       | 2,747.00     | 60.4                     |
|                      | 6" Domestic Service           | LF | 2,900    | 10.45        | 30.3                     |
|                      | Grade Cleanout                | EA | 53       | 720.15       | 38.2                     |
|                      | Fire Hydrant Assy.            | EA | 12       | 2,091.00     | 25.1                     |
|                      | 8"X 8" Tee                    | EA | 5        | 1,646.00     | 8.2                      |
|                      | 8"X 6" Tee                    | EA | 13       | 1,568.32     | 20.4                     |
|                      | 8" Gate Valve & Box           | EA | 10       | 2,684.00     | 26.8                     |
|                      | 6" Gate Valve & Box           | EA | 12       | 1,764.88     | 21.2                     |
|                      | Service Tap                   | EA | 53       | 1,388.40     | 73.6                     |
|                      | 6" Water Main                 | LF | 250      | 31.14        | 7.8                      |
|                      | LID - Rainwater Harvesting    | EA | 53       | 5,200.00     | 275.6                    |
|                      | Paving, Walks, Curbs, and Gut | LS |          |              | (665)                    |
|                      | 6" Base Course                | SY | 11,160   | 14.87        | 165.9                    |
|                      | 3" HMA (Roads)                | SY | 8,160    | 32.71        | 266.9                    |
|                      | 4" Conc. (Walks)              | SF | 19,602   | 4.98         | 97.6                     |
|                      | 1.5" HMA(Trails/Driveways)    | SY | 3,000    | 18.61        | 55.8                     |
|                      | Curb & Gutter                 | LF | 6,017    | 13.11        | 78.9                     |
|                      | Storm Drainage                | LS |          |              | (592)                    |
|                      | 18" RCP                       | LF | 1,200    | 71.71        | 86.1                     |
|                      | 24" RCP                       | LF | 900      | 104.74       | 94.3                     |
|                      | 36" RCP                       | EA | 300      | 226.72       | 68.0                     |
|                      | 48" D Manhole                 | EA | 2        | 2,747.00     | 5.5                      |
|                      | Catch Basin                   | EA | 20       | 5,405.00     | 108.1                    |
|                      | Headwall for 24"              | EA | 4        | 3,352.00     | 13.4                     |
|                      | Headwall for 36"              | EA | 2        | 4,104.00     | 8.2                      |
|                      | Bio-Retention Area            | SY | 3,167    | 65.84        | 208.5                    |
|                      | Site Improvements             | LS |          |              | (1,676)                  |
|                      | Clearing (Light)              | AC | 20       | 191.28       | 3.8                      |
|                      | Grubbing                      | AC | 20       | 1,281.00     | 25.6                     |
|                      | Rough Grading                 | SY | 96,800   | 0.38         | 36.8                     |
|                      | Fine Grade (Roads)            | SY | 11,160   | 0.67         | 7.5                      |
|                      | Fine Grade (Structures)       | SY | 20,611   | 0.84         | 17.3                     |
|                      | Storm W. Management           | SY | 3,167    | 2.32         | 7.3                      |
|                      | Strip & Stockpile             | CY | 10,755   | 3.44         | 37.0                     |
|                      | Haul-Off (Off-Post)           | CY | 25,000   | 39.39        | 984.8                    |
|                      | Clean & Seed                  | SY | 62,850   | 3.99         | 250.8                    |
|                      | Shrubs(5 Gal)                 | EA | 300      | 62.40        | 18.7                     |

DD1391 FORM: 78348    DATE REVISED: 08/26/2017    DATE PRINTED: 06/22/2018  
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 Puerto Rico    ACF = 1.12    TYPE OF CONSTRUCTION: P

| CONST<br>CAT<br>CODE | DESCRIPTION               | UM | QUANTITY | UNIT<br>COST | TOTAL<br>COST<br>(\$000) |
|----------------------|---------------------------|----|----------|--------------|--------------------------|
|                      | Trees(15 Gal)             | EA | 300      | 305.76       | 91.7                     |
|                      | Mulch/Straw/Hay           | SY | 12,000   | 4.32         | 51.8                     |
|                      | Sediment Fence            | LF | 5,000    | 3.32         | 16.6                     |
|                      | Inlet Protection          | EA | 20       | 316.00       | 6.3                      |
|                      | Construction Entrance     | EA | 2        | 3,410.00     | 6.8                      |
|                      | Check Dam                 | LF | 150      | 16.46        | 2.5                      |
|                      | Remove Roads/Driveways    | SY | 11,165   | 3.96         | 44.2                     |
|                      | Remove S. Sewer Manhole   | EA | 27       | 849.00       | 22.9                     |
|                      | Remove 8" Conc. Pipe      | LF | 4,244    | 6.64         | 28.2                     |
|                      | Remove Water valve        | EA | 9        | 119.60       | 1.1                      |
|                      | Remove Water Pipe         | LF | 2,986    | 3.88         | 11.6                     |
|                      | Remove Conc. Headwall     | EA | 8        | 373.00       | 3.0                      |
|                      | Demolition                | LS |          |              | (2,891)                  |
| 00000                | Remove 56 AFH Units       | SF | 112,344  | 25.73        | 2890.6                   |
|                      | Information Systems       | LS |          |              | (168)    [173]           |
|                      | Antiterrorism Measures    | LS |          |              | (163)                    |
| 71113                | Antiterrorism Measures    | LS |          |              | 163.3                    |
|                      | Other                     | LS |          |              | (670)                    |
|                      | School Bus Enclosure      | EA | 1        | 20,800.00    | 20.8                     |
|                      | Play Lot(1-5 Yrs)         | EA | 2        | 67,600.00    | 135.2                    |
|                      | Play Lot(5-9 Yrs)         | EA | 2        | 72,800.00    | 145.6                    |
|                      | Picnic Area               | EA | 1        | 52,000.00    | 52.0                     |
|                      | Natural Landscape Area    | AC | 1.5      | 42,640.00    | 64.0                     |
|                      | Common Open Area          | AC | 0.75     | 31,200.00    | 23.4                     |
|                      | Basketball Court          | EA | 1        | 41,600.00    | 41.6                     |
|                      | Asphalt bike/Jogging Path | LF | 4,000    | 35.10        | 140.4                    |
|                      | Play Area Fencing         | LF | 1,000    | 46.80        | 46.8                     |

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 PERM PROJNO: 78348    DATE LAST SUBMITTED: 08/26/2017    RFC DATE:  
 Fort Buchanan    Family Housing Replacement Construction  
 Puerto Rico    ACF = 1.12    TYPE OF CONSTRUCTION: P

| CONST<br>CAT<br>CODE | DESCRIPTION                         | UM         | QUANTITY | UNIT<br>COST | TOTAL<br>COST<br>(\$000) |
|----------------------|-------------------------------------|------------|----------|--------------|--------------------------|
|                      | ESTIMATED CONTRACT COST             |            |          |              | 22,873                   |
|                      | CONTINGENCIES    5.00%              |            |          |              | 1,144                    |
|                      | SUBTOTAL                            |            |          |              | 24,017                   |
|                      | SIOH PERCENT    6.50%               |            |          |              | 1,561                    |
|                      | DESIGN/BUILD - DESIGN COST    0.00% |            |          |              | 0                        |
|                      | PROJECT COST                        |            |          |              | 25,578    [25,583]       |
|                      | PROJECT COST (ROUNDED)              |            |          |              | 26,000    [26,000]       |
|                      | COST GROWTH                         |            |          |              |                          |
|                      | CONSTRUCTION START DATE             | 1 Mar 2019 | 2845     |              |                          |
|                      | CONSTRUCTION MIDPOINT               | 1 Dec 2019 | 2991     |              |                          |
|                      | CONSTRUCTION COMPLETE               | 1 Sep 2020 | 3036     |              |                          |

EXPLANATION OF DATA DEVELOPMENT

1) Scope of project matches w/ approved PDR. PDR approval was received 07/28/15  
 2) This ENG 3086 has been reviewed & certified by the District Chief of Cost Engineering IAW ER 1110-3-1300.

3) The project is anticipated to meet LEED Silver.

4) Building SF cost is derived from PC Cost w/ latest updates from PAX System.

5) Hurricane Measures Cost is calculated as follows- Conc. Attic Slab 101,510

SF @ \$8.60 = \$872,986.00, Masonary vs Stud Wall 95,400 SF @ \$14.00 =

\$1,335,600.00, 600 Gal Tank 53 Ea @\$1,800.00 = \$95,400.00 & Hurricane Shutters

585 @ \$1,700.00 = \$991,100.00 All these Items together resulted to

\$3,295,086.00 total cost for 53 Units.

6) Solar Water Heating & Photovoltaic Costs are from LCCA analysis of the systems.

7) Tab "H" of 1391 and this 3086 have demolition qty as 112,344 SF(Exist. 56 Housing Units) New Construction SF is 117,410 SF(New 53 Housing Units) Based on SF qty. this project does not meet 1 to 1 Demo. requirements.

PN 78348 FY17 ENG3086 Approved and Family Housing Replacement Construction at Ft Buchanan, Puerto Rico

HNC has approved the FY17 ENG3086 today: 31 July 2015

ENG3086 Last Revision Date: 31 July 2015

ENG3086 Total: \$24.0M

HNC is freezing Tab A of the DD1391.

The scope was revised as directed by OACSIM during conference call on 31 July 2015 in accordance with the email attachment provided by Mr. Danny Brannon of OACSIM on 30 July 2015.

Kelton Pankey

CEHNC-EDS-C

256-895-1858

DD1391 FORM: 78348    DATE REVISED: 08/26/2017    DATE PRINTED: 06/22/2018  
 PERM PROJNO: 78348    DATE LAST SUBMITTED: 08/26/2017    RFC DATE:  
 Fort Buchanan    Family Housing Replacement Construction  
 Puerto Rico    ACF = 1.12    TYPE OF CONSTRUCTION: P

| CONST<br>CAT<br>CODE | DESCRIPTION | UM | QUANTITY | UNIT<br>COST | TOTAL<br>COST<br>(\$000) |
|----------------------|-------------|----|----------|--------------|--------------------------|
|----------------------|-------------|----|----------|--------------|--------------------------|

7-12-17

PN7348

As directed by HQUSACE, I have updated this FY17 ENG3086 to FY19 costs.

I incorporated the house sizes (SF) provided by the Norfolk AFH COS on 7-11-17.

Brad Wilkes / CEHNC  
 256 895 1855

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COMMENTS

REVIEW AGENCY: