



TUMWATER READINESS CENTER

PROJECT NO. 2013-007 (FEDERAL PROJECT NO. 530129)

Predesign Study

Revised April 20, 2015

WASHINGTON STATE MILITARY DEPARTMENT

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EXECUTIVE SUMMARY





SECTION 1.0 EXECUTIVE SUMMARY

Project Analysis

The germination of this project began with the desire to divest and replace the historic Olympia and Centralia readiness centers with a new combined facility for the Washington Army National Guard (WAARNG). Need was underscored with the 2004 WAARNG Facilities Stationing Plan undertaken by OFM which recommended consolidation of these two well-used but worn facilities to realize both operational and facilities savings. WAARNG's subsequent 2012 25-Year Statewide Facilities Plan recommended the Centralia Readiness Center be retained. This same Plan instead recommends the current Puyallup Readiness Center be divested and replaced, and that its functions be co-located with the Olympia Readiness Center still slated to be divested and replaced. Both Puyallup and Olympia facilities are obsolete, inefficient, insufficient to meet current and projected need, and display myriad age-related defects. The new combined facility would be named the Tumwater Readiness Center (TRC).

The proposed project provides a modern regional training center that meets the multi-level training and operational requirements for the assigned Army National Guard units. It will be an efficient, technology-driven training facility that affords highly standardized and cost-effective training for the State Military Department. As a secondary function, the proposed Tumwater Readiness Center would be available for community use and would function as an emergency response center and shelter.

Note: This document represents the second update of a predesign study published in July, 2006 under the title "Consolidated Olympia Readiness Center." The first update was published in December, 2013, and addressed a new assigned units mix, revised programming, and a new site, and was titled "Thurston County Readiness Center." The second update (this report) addresses minor re-programming and a new site.

Program Analysis

During the predesign process the design team met with the State Military Department Facilities Management Office and representatives of the assigned National Guard units. The focus of these meetings was to develop an understanding and definition of the functional and space needs of each assigned unit and to determine how the training and administrative space authorized by the Federal National Guard Bureau (NGB) could best be distributed, organized, and planned to facilitate use by both the National Guard and the general public.

The proposed Tumwater Readiness Center will house the main administrative, operational, and classroom functions of the Headquarters and Headquarters Battery of the Second Battalion of the 146th Field Artillery, A Battery 2/146th Field Artillery (both from the existing Olympia RC), and First Squadron of the 303d Cavalry Regiment (from Puyallup). The size of the building and the program functions housed were developed based on National Guard Bureau facilities allowances (ref. NG PAM 145-12) which call for an 84,638 gsf readiness center facility.



Site Analysis

The sites of the existing Olympia and Puyallup readiness centers are of insufficient size for current use and cannot be economically expanded. Neither satisfy key current site requirements mandated by the National Guard Bureau for projects suitable for federal funding.

In 2013 the Military Department undertook an extensive search for a suitable site for the Tumwater Readiness Center. This process involved the review of over a dozen properties, extensive analysis the two most desirable candidates, and final selection a 20-acre site owned by the Port of Olympia and located off the Tumwater/Interstate 5 interchange (Exit 101). Due to high groundwater and limited size, this property depended upon an off-site infiltration facility to be developed by the Port largely at its expense. However, the Port and Military Department were unable to reach mutually acceptable terms for development. Consequently the Military Department conducted a property search in late 2014 and early 2015, before locating a similar but much larger property just to the south of the Port of Olympia site. This new site, located in the City of Tumwater, lies immediately east of Interstate 5 and is accessed from Kimmie Road. While it too has high groundwater, its 53-acres size makes possible full development of a readiness center at reasonable cost and without reliance on a third party, and meets or exceeds all of the site selection criteria established by the National Guard Bureau and the Military Department. Additionally, it supports the location criteria necessary to serve WMD as one of its two proposed South Puget Sound Region readiness centers as defined by the 2012 25-Year Statewide Facilities Plan.

The site consists largely of undeveloped land which was selectively logged in the past and is now reforested. A trucking company occupied the north end of the property approximately 30 years ago, and several minor structures remain from that time. Topographically the site is generally flat, making it an excellent candidate for intended site development. There are no anticipated difficulties in meeting site ADA accessibility requirements. Groundwater is at its lowest in the center of the site, which corresponds to the preferred location for both site development and site access. A wetlands at the south end of the site is in an area unlikely to ever be developed. Preliminary investigations confirm that the site is underlain with soils characterized by good drainage and bearing capacity. There are no known hazardous materials on the proposed site and there have been no past uses which would potentially source hazardous materials on the site. A physical assessment of the site did not uncover any uncontrolled dumping. The site is not in an area known to have historic or archeological importance. The site is well-served by an existing road network and adequate utilities exist at the proposed site for the building.

Project Budget Analysis

The cost analysis provided herein details the estimated cost of the project based on quantities derived from the project MTOE and 1390/91 forms as well as on concept drawings and outline specifications. The estimated construction cost is **\$37,982,000** escalated to mid-point of construction (November 1, 2017). Of this cost, \$31,000,000 is anticipated to be sourced from the federal military construction budget and \$6,982,000 from state appropriations. Estimated escalated total project cost is \$44,588,000 including design fees, artwork, commissioning, FF&E, and information systems.



The construction type, systems, and quality proposed for the primary building are appropriate for a 50-year life institutional building. All costs are within the norms for similar projects in Thurston County.

As noted in the site analysis, the project costs anticipate building on a relatively flat site with adequate on-site staging and parking. The budget analysis also accounts for extension of utilities, the impact of LEED sustainability goals, and traditional Design-Bid-Build project delivery methodology.

Legislative Intent

In enacting Engrossed Substitute Senate Bill 5035 on July 1, 2013, the state government appropriated \$2,800,000 for site acquisition.

The proposed Governor, House, and Senate budgets for the 2015-17 biennium all include full design and construction funding for the TRC. As of the publication date of this predesign study, the requisite negotiations that will lead to an enacted 2015-17 budget are underway.

Master Plan and Policy Coordination

This project is an identified priority in the Washington Military Department's 2012 25-Year Statewide Facilities Plan and represents the WMD's commitment to its new regional training facility model. The facility proposed herein fully conforms to the policies, goals and objectives established by this long-range planning document.

Facility Operations Analysis

Operation and maintenance costs are expected to rise moderately above current expenditures at the existing Olympia and Puyallup readiness centers, largely as a result of increased facility size. The TRC will increase the WMD's gross building inventory by 36,155 square feet, but this new facility will be more energy efficient than the buildings it replaces. At the same time it will be far more capable facility, with more extensive and complex systems requiring operations and maintenance support.

The estimated cost to maintain and operate this building is **\$230,000** per year (in 2015-2017 biennium dollars) and will require an additional 1.75 FTE for facilities maintenance and operations staffing. Maintenance and operations costs were estimated based upon comparable state properties.

Project Diagrams and Drawings

Please see Section 8.0 for project diagrams and drawings

Acknowledgments

The development of this program and predesign has included many team meetings and programming sessions involving many of the key project stakeholders. It is the culmination of an intensely interactive and collaborative effort. The Planning Team wishes to acknowledge the core people for their cooperation, interest and participation. The following individuals served on the building committee and played critical roles in developing the needs and goals of the building users, and helped distill those goals and needs into a plan for the Tumwater Readiness Center that supports each constituency at the expense of none:



State of Washington Military Department
TUMWATER READINESS CENTER

PREDESIGN

Revised April 20, 2015

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PROJECT ANALYSIS





SECTION 2.0 PROJECT ANALYSIS

2.1 PROJECT DESCRIPTION

Agency Name: Military Department

Agency Code: 0245

Project Number: 2013-007 (Federal Project No. 530129)

Project Title: **Tumwater Readiness Center**
(formerly Consolidated Olympia Readiness Center & Thurston County Readiness Center)

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Project Mission: The primary mission of this project is to provide a cost-effective and operationally efficient specialized training facility for the assigned units of the Washington Army National Guard and their personnel located in the Washington Military Department's South Puget Sound Region.

Project Scope: This predesign proposes the replacement of two existing inadequate readiness centers, one located in Olympia and one in Puyallup, with a single 84,638 gross square feet facility located on a 53-acre site in the City of Tumwater west of the Olympia Regional Airport on Kimmie Road.

2.2 OPERATIONAL NEEDS

Program Requirements:

The underlying regulatory governance establishing the authorization for National Guard Readiness Centers is Title 10, U.S. Code, Chapter 1803 "Facilities for Reserve Components." Facility program standards and requirements for National Guard Readiness Centers are established by the U.S. Army National Guard Bureau and are published in the following Regulations and Guidelines:

- Army Regulation (AR) 405-70, Utilization of Real Property, 12 May 2006: Prescribes the Army's policies, criteria, responsibilities, and procedures for the use of real property.
- Army Regulation (AR) 380-5, Department of the Army Information Security Program; 31 October 2000.
- Army Regulation (AR) 25-2, Information Assurance; 23 March 2009.
- Department of the Army Pamphlet (DA PAM) 420-1-2, Army Military Construction and Nonappropriated-Funded Construction Program Development and Execution, 02 April 2009: Prescribes DOD DD Form 1390 and DD Form 1391 for



use by installation programmers in preparing and updating these forms. See Appendix C.

- Department of the Army Pamphlet (DA PAM) 420-11, Project Definition and Work Classification, 18 March 2010: Promotes Armywide uniform interpretation on classification by presenting examples of maintenance, repair, and minor construction projects and policy and guidance governing the classification of work.
- Department of the Army Pamphlet (DA PAM) 415-28, Guide to Army Real Property Category Codes, 11 April 2006: Implements a standard real property coding system on all installations to account for Army-owner and Army-planned facilities.
- Army National Guard Design Guide (DG) 415-1, Army National Guard Readiness Centers Design Guide; 01 June 2011: Provides minimum design standards for readiness centers. See Appendix F.
- Army National Guard Design Guide (DG) 415-4, Training Site Facilities Design Guide, 01 June 2011. Addresses the functions and the unique environmental considerations to address in construction documents development.
- Army National Guard Design Guide (DG) 415-5, General Facilities Design Guide, 01 June 2011. Addresses the functions and the unique environmental considerations to address in the design and construction documents for ARNG facilities that qualify for support from Federal funds.
- Army National Guard Pamphlet (NG PAM) 415-5, Army National Guard Military Construction Program Execution, 31 July 2003: Provides guidance to the CFMO on how to program, design, and execute the State's military construction program.
- Army National Guard Pamphlet (NG PAM) 420-10, Construction and Facilities Management Office Procedures, 18 July 2003: Provides guidance to the CFMO on how to organize, operate, and execute the Real Property Operations and Maintenance program.
- Army National Guard Pamphlet (NG PAM) 415-12, Army National Guard Facilities Allowances, Draft 26 November 2014: Establishes minimum/maximum space allowances for specific National Guard units. See Appendix F.
- National Guard Regulation (NGR) 5-1, National Guard Grants and Cooperative Agreements, 28 May 2010: Provides policy and procedural guidance to be followed in the administration and execution of cooperative agreements (CAs).
- National Guard Regulation (NGR) 415-5, Army National Guard Military Construction Program Development and Execution, 18 July 2003: Provides guidance for planning, programming, budgeting, and executing all Army National Guard military construction projects funded in whole or in part with military construction appropriation.
- National Guard Regulation (NGR) 415-10, Army National Guard Facilities Construction, 25 July 2003: Establishes policy concerning programming the military construction of those buildings and supporting items for Army National Guard readiness centers and logistics, aviation, and training facilities supportable with Federal funds.
- United Facilities Criteria (UFC) 1-200-02, High Performance and Sustainable Building Requirements; 1 March 2013: Provides minimum requirements and coordinating guidance for planning, designing, constructing, renovating, and



maintaining high performance and sustainable facilities that will enhance DOD mission capability by reducing total ownership costs.

- United Facilities Criteria (UFC) 3-701-01, Department of Defense Facilities Pricing Guide; March 2011, Change 5, August 2013: Provides cost and pricing data intended to support preparation of the DoD budget.
- United Facilities Criteria (UFC) 3-710-01A, Code 3 Design with Parametric Estimating; 01 March 2005: Describes intent of Code 3 design directives and provides design policy and technical guidance to the USACE for MILCON projects.
- United Facilities Criteria (UFC) 3-740-05, Handbook: Construction Cost Estimating; 08 November 2010, Change 1, June 2011: Establishes uniform guidance to describe methods, procedures, and formats for the preparation of construction cost estimates and construction contract modification estimates.
- United Facilities Criteria (UFC) 4-010-01, DoD Minimum Antiterrorism Standards for Buildings; 09 February 2012, Change 1, 01 October 2013: Defines ways of minimizing the likelihood of mass casualties from terrorist attacks against DoD personnel in the buildings in which they live and work.
- United Facilities Criteria (UFC) 4-010-02, DoD Minimum Antiterrorism Standoff Distances for Buildings; 09 February 2012: Defines building setbacks based on use, location, and construction materials, and building component requirements.
- United Facilities Criteria (UFC) 4-022-03, Security Fences and Gates; 01 October 2013: Provides a unified approach for the design, selection, and installation of security fences and gates.
- United Facilities Criteria (UFC) 4-023-03, Design of Buildings to Resist Progressive Collapse; 14 July 2009, Change 2, 01 June 2013: Provides design requirements necessary to reduce the potential of progressive collapse for new and existing facilities that experience localized structural damage through normally unforeseeable events.
- United Facilities Criteria (UFC) 4-030-01, Sustainable Development; 21 December 2007: Provides instruction, requirements, and references to reduce the total cost of ownership of DoD facilities while minimizing negative impacts on the environment, and promoting productivity, health, and comfort of building occupants by implementing sustainable development principles and strategies using an integrated approach.
- Modified Table of Organization & Equipment (MTOE): Establishes the specific organization of personnel and minimum equipment for each military unit including all units to be housed in the subject project. See Appendix C.
- Washington State Military Department Design Manual and Standard Specifications; May 2011.



Existing Facilities:

The 40,883 gsf Olympia Readiness Center was constructed in 1939. Located on only 2 acres of land in an urban site it serves the Headquarters and Headquarters Battery of the 2nd Battalion 146th Field Artillery. Although it received a minor upgrade in 1998, the Olympia RC was rated "poor" and was identified for replacement in the assessment performed as part of the 2012 WMD 25-Year Statewide Facilities Plan.



Exterior of Olympia Armory



Interior of Assembly Hall

The 7,600 gsf Puyallup Armory houses the First Squadron of the 303d Cavalry Regiment in a building built in 1954. Located on a 2-acre site adjacent to Kalles Junior High School, it has no opportunity for physical expansion. The building has enjoyed very little in the way of upgrades and is basically the same as when constructed 59 years ago. In the 2012 WMD 25-Year Statewide Facilities Plan this facility was rated "fair." Due to the inability to expand its site, poor flexibility and support spaces, and security deficiencies the Puyallup RC was identified as a candidate for replacement.



Exterior of Puyallup Readiness Center



Interior of Assembly Hall



Operational Shortfalls:

The existing facilities fall far short of the minimum standards for Readiness Centers in the following areas:

Site Area

Minimum: 15 acres (combined), or 10 acres in urban areas
Current: 4 acres (2 acres @ Olympia and 2 acres @ Puyallup)
Impact: *Inability to house all vehicles/large equipment on site*
Inability to service/support equipment of site
Non-compliance with AT/FP (anti-terrorism/force-protection) standards
Inability to expand site boundaries

Functional Area

Authorized: 84,638 gsf (see DD Form 1391 in appendix)
Current: 48,483 gsf
Impact: *Lack of instructional/classroom space*
Inability to effectively administer unit management
Inability to efficiently mobilize in response to activation
Ineffective shelter capability
Poor recruiting/retention and family support

While replacing existing facilities which do not meet established standards is not mandated by the National Guard Bureau, it is mandated that the various states take a proactive role in addressing facility shortfalls which negatively impact the military readiness of the housed units and their ability to respond quickly and rapidly to their civil mission as first responders in declared disasters or civil emergencies.

Proposed Response

This predesign proposes that the unmet operational need and resultant shortfalls be addressed by the construction of a single, 84,638 gross square foot consolidated facility located on a 53-acre largely undeveloped site on Kimmie Road west of the Olympia Regional Airport in the City of Tumwater. The large size of the site – well beyond the fifteen minimum required by NGB – allows for future flexibility and mitigates issues associated with high groundwater.

The proposed project will be directly used by the Washington Military Department. Its proximity to other state agencies (including those in Olympia) and to the general public will facilitate its use as a conference/training facility. Constructed to essential facility standards, its robust construction and the National Guard's mission assume its survivability for use as an emergency shelter.

Project Origination

The proposed Tumwater Readiness Center (TRC) originated through joint efforts of the Washington Military Department (WMD) and Office of Financial Management (OFM). The Consolidated Olympia Readiness Center proposed in the predesign study completed in July 2006 was envisioned in response to the recommended Strategic Stationing Plan developed in 2004 by MAKERS Architecture and Urban Design for OFM as part of its organizational and facilities assessment of the State Military Department. This report recommended consolidating the existing 33 readiness centers into 21 new or renovated/expanded existing facilities. The



Olympia and Centralia readiness centers were identified by the MAKERS study as uneconomical to upgrade or infeasible to expand and were targeted for divestiture.

Similar to the MAKERS study, the 25-Year Statewide Facilities Plan commissioned by the Washington Military Department, prepared by Terrie Martin Consulting/CNA Analysis and Solutions and published in March 2012 recommended a regional approach to planning which included consolidation of numerous facilities. This plan, however, recommended the Centralia Readiness Center remain in operation and instead proposed that the existing Olympia and Puyallup readiness centers be divested and replaced with a new combined facility. For clarity this revised facility concept was re-titled the Thurston County Readiness Center in the predesign study published on December 11, 2013, and now Tumwater Readiness Center in this further revised predesign document.

Compliance with the Agency's Strategic Plan:

The consolidation of the Olympia and Puyallup readiness centers into a new regional training facility is consistent with the established policies, goals and objectives of the 25-Year Statewide Facilities Plan of the State of Washington Military Department, prepared by Terrie Martin Consulting, Inc. and CAN Analysis and Solutions and dated March 2012.

Mission:

As stated in its 25-Year Statewide Facilities Plan, the Washington Military Department's mission is "to minimize the impact of emergencies and disasters on people, property, environment, and the economy of the State of Washington; provide trained and ready forces for state and federal missions; and provide structured education opportunities for at-risk youth."

The WMD achieves its mission through the following Divisions:

- Washington Youth Academy (WYA)
- Emergency Management Division
- Air National Guard
- Army National Guard

Strategic Plan Integration:

WMD's 25-Year Statewide Facilities Plan identifies a number of operational strategies for improving organizational effectiveness and efficiencies that the proposed Tumwater Readiness Center (TRC) will support. These include:

Consolidation

The primary goal of this project is to consolidate the command and training functions that are currently being housed in two small, aging, and inflexible facilities. Consolidation improves the communication between the housed units, improves operational efficiencies, and increases utilization of common equipment and resources.

Relieve Crowding

The size and mission of the units occupying the Olympia and Puyallup readiness centers have changed considerably since these buildings were constructed. Not only have the units increased in size, but the quantity, type, and size of their supporting equipment have also increased. Based upon the current NGB space standards, the supported units are authorized a combined readiness center of 84,638 gsf. The two



existing buildings total just 48,483 gsf. The delta between authorized and actual area is even more pronounced when considering in the combined facility that common spaces (assembly hall, kitchen, lobby, etc.) are shared.

Ensure Disaster Response

The Olympia and Puyallup readiness centers are 74- and 59-years-old, respectively, and have had no structural improvements. They both lack the structural integrity or load distribution systems required to meet even the minimum seismic survivability standards of current building codes. A new Tumwater Readiness Center will be constructed to current essential-facility standards and will be provided with a standby generator sized to assure 100% operational capability whether for military operations, disaster response, or for use as an emergency community shelter.

Improve Security

Both the Olympia and Puyallup readiness centers are located in urban areas and do not meet the minimum security or force protection standards for readiness centers. The new City of Tumwater site will greatly increase the physical security of the facility as it will facilitate full compliance with Department of Defense force protection standards and UFC anti-terrorism standards.

Provide Site Support

The Olympia Readiness Center is located in a dense urban site and the Puyallup Readiness Center is on a limited site in a residential neighborhood and directly adjacent to a junior high school. Both facilities lack in the extreme adequate site area to support the essential functions of military vehicle storage, vehicle training workbays, and vehicle fueling and cleaning. There is insufficient area for the units to stage, service, or train with field equipment and gear.

Foster Excellence

The existing facilities lack basic personnel support space spaces and as a result negatively impact unit morale and personal motivation. A new facility will enable personal excellence in the user through state-of-the-art equipment and training opportunities, provide family support functions, and increase recruiting and retention.

Reduce Operating Costs

The existing facilities are poorly insulated, have inefficient heating systems, and lack adequate cooling. Aging materials and systems require increased maintenance and repair. A single Tumwater Readiness Center, built to current standards including the Washington State Energy Code and certified LEED Silver, will reduce operating costs in all categories.

Support/Rental Opportunities

A readiness center contains classrooms and large flexible flat-floor training areas which typically have high use by the supported Guard Units only on weekends. By locating the Tumwater Readiness Center in close proximity to a high density of other state agencies, as well as within the Tumwater community, the facility would offer excellent meeting and conference facilities in support of multiple agencies as well as other public and community groups.



Government Priorities:

The proposed Tumwater Readiness Center meets the State of Washington OFM "Priorities of Government (POG)" initiative through its impact on the following priority-based benchmarks of the POG:

- Priority 2 - Improved value of postsecondary learning:
While not an institution dedicated to postsecondary education, many Washingtonians use National Guard training as a way to gain specialized training in a technical field. As nearly one-quarter of the program space in the TRC is devoted to classrooms and training bays, the new facility will contribute significantly to postsecondary learning of the unit members.
- Priority 3 - Improved security for the vulnerable:
As home base for one of the state's most capable first-responders, the new TRC will be designed to survive earthquakes, volcanic eruptions, and other natural disasters and remain 100% operational. The TRC will also provide critical shelter to the local population during disasters when they are at their most vulnerable.
- Priority 5 - Improve the safety of people and property:
By creating a new survivable TRC the safety of its occupants and the facility itself is greatly improved. As the TRC houses the first responders to declared disasters and also serves as a community shelter, the safety of the surrounding community will be greatly improved.
- Priority 6 - Improve the quality of natural resources:
The construction of the TRC as a LEED Silver-certified building will reduce the Guard's impact on the environment in the near and long-term. By using sustainable design principles materials will be regionally sourced to the benefit of local businesses, stormwater quality and quantity will be controlled, energy use will be reduced, and the indoor working environment will be markedly improved. Within the new building there will be extensive use of low-toxicity, renewable, and recycled materials.
- Priority 7 - Improve cultural and recreational resources:
Readiness centers have traditionally provided the only large-size meeting and assembly spaces in a community. Many community organizations take advantage of this role for both recreation and community meetings. National Guard readiness centers throughout the state have hosted car shows, basketball and volleyball tournaments, dances, concerts, and other similar public use functions. The Assembly Hall and adjacent classroom and food service spaces in the TRC will be made available to community groups for recreational and community use.
- Priority 8 - Economic vitality of business and individuals:
The National Guard is a critical component of the economic vitality of any community where it is based. Frequently the soldiers comprising the units live in the adjacent communities and use the Guard as a means of acquiring specialized training that increases their earning power in their non-Guard employment. Supplemental income earned through the Guard also impacts local economies.
- Priority 9 - Improve mobility of people, goods, and services:
By frequently locating its facilities within communities, the Guard provides its resident soldiers opportunities for work and training without the need for long-distance commutes. The benefit cannot be understated in an era when transportation and energy costs grow at a faster rate than median household income. By locating the TRC along the I-5 corridor and with direct access to the Olympia Regional Airport, the facility is not only situated for convenient access by



its soldiers, but is ideally situated for rapid emergency response without the need for any investment in transportation infrastructure.

- Priority 10 - Improve the efficiency of state government:
By consolidating two obsolete and under-sized readiness centers into a single facility, common support spaces can be shared and only one kitchen and assembly hall will be needed. By providing adequate office and classrooms space, the effectiveness and efficiency of the housed units will be greatly improved and the retention of key personnel assured. By locating the facility in proximity to other state facilities, the classroom and conference facilities in the TRC can be used by other state agencies.

A single new facility directly supports 80 percent of OFM's vision of effective government spending and indirectly achieves 90 percent alignment with its spending priorities. Without the new Tumwater Readiness Center, the Military Department's commitment to each priority may remain unchanged but its ability to impact and achieve each Priority will be compromised.

2.3 ALTERNATIVES CONSIDERED

In addition to the proposed solution, the following alternative solutions were considered:

Renovate/Expand at Existing Sites:

The size and configuration of the existing Olympia and Puyallup sites do not provide adequate space for expansion; in fact, at 2 acres in each case the sites offer a mere 13% of the *minimum* permitted site size for modern readiness centers (15 acres per site). Additionally the facilities themselves are inflexible and undersized. While complete replacement of all systems and finishes is desperately needed, it cannot be justified or even accomplished within such fundamentally inadequate structures. The inability to address operational needs in compliance with federal regulations and standards would result in loss of federal capital funding should this option be pursued.

Develop Separate Readiness Centers at Separate Sites:

This alternative was rejected as it will result in greater initial costs and greater operational costs. Separate facilities will require more land as each site will need to meet physical security requirements and the minimum 15-acres per site would require acquisition of 30 *usable* acres. If separate facilities were developed, general support spaces such as kitchens and the main assembly hall would be duplicated requiring an additional 12,000 to 15,000-sf of construction to support the same units. Lastly, the annual operations and maintenance costs of two facilities on larger sites with more building areas would be 20% greater than the costs of a single consolidated facility.

Leasing:

Site:

During analysis of potential sites in 2013, the property ultimately selected was first understood to be available for lease only. Differing requirements between federal and state authorities subsequently complicated analysis of leasing. Ultimately, the availability for outright purchase of a much larger site at much lower per-acre cost put to rest any further discussion of leasing.



Facility:

Federal and State regulations preclude permanent location of military operations in leased facilities therefore this option was not explored.

No Action: This alternative was rejected as it does not meet the Military Department's reasonable expectations to own only facilities meeting modern training and safety requirements, as well as modern expectations for energy efficiency and other sustainable design attributes. Also lost would be potential divestiture income of approximately \$6.2 million. Simply stated, the housed units' ability to meet their military and civil support mission will be adversely affected if they are not provided access to the training and support facilities needed to maintain readiness. The available facilities are undersized, inflexible, un-survivable, and economically infeasible to upgrade. Additionally, the ability of the units to recruit and retain quality people is directly affected by the facilities they can offer their personnel. Without the proposed new facility, the ability to assure emergency and disaster response/shelter will be impossible.

2.4 ISSUES IDENTIFICATION

Attention to and resolution of several issues is key to the Military Department's definition of project success. In addition to highlighting them herein, the budget (Section 5) includes reasonable costs for their implementation.

Life of Proposed Facility and Investments:

The proposed facility will be of permanent construction meeting all current codes and standards for essential facilities. It will have a minimum expected service life of 50 years.

Security Needs:

United Facilities Criteria (UFC) 4-010-01 and 4-010-02 anti-terrorism standards require extensive clear area and site setbacks impacting configuration of the site. Additionally UFC 4-023-03 mandates redundant structural capacity such that removal of a single column will not result in structural collapse. Blast protection of windows requires anchorage and glazing performance significantly greater than standard windows. Rather than meet UFC mailroom standards within the readiness center, incoming mail will be sorted at a remote guard shack at the public vehicular entrance to the facility.

The project contains weapons vaults which will be designed to NGB standards and provided with Class-V vault doors and intrusion detection systems. A secure IT facility similarly will be designed to DoD standards.

Facilitation of Use by Others:

The Tumwater Readiness Center will be dedicated for use by the assigned National Guard units. To accommodate use by other state agencies and the general public, it will have internal security zoning such that exclusively military functions are separate and secure from non-military/public functions.



Sustainability: The proposed facility will be designed to attain LEED Silver certification from the United States Green Building Council. An initial evaluation of likely LEED credits is included in Appendix B. The project's sustainable design goals will be established during the eco-charrette conducted during Schematic Design.

Information Technology & Telecommunications:

A prime function of the Readiness Center is training and instruction and the project seeks to improve the effectiveness of technology as an instructional tool. Information technology signal distribution will include accessible data pathways throughout the facility terminating at stacked secure data closets on each floor. Security of information systems and telecommunications will comply with military communications standards.

2.5 PRIOR PLANNING AND HISTORY

Previous Action:

Consolidation of the Olympia and Puyallup readiness centers into a new Tumwater Readiness Center is included in WMD's approved 25-Year Statewide Facilities Plan dated March 2012. Creation of a regional readiness center in Thurston County was also recommended in the WAARNG Readiness Center Comprehensive Plan undertaken by OFM in 2004.

Legislative Intent:

In passing the 2005-07 Supplemental Budget, the State of Washington legislature appropriated \$160,000 for predesign of the proposed facility with the intent to begin implementation of the Military Department facilities realignment. In the 2013-15 Budget the legislature appropriated \$2.8M for property acquisition. Design and construction funding is anticipated in the 2015-17 Budget. On the federal side, the Tumwater Readiness Center is included in the Fiscal Year 2017 Future Years Defense Plan (FYDP).

2.6 STAKEHOLDERS

While the Washington Military Department will be the primary user of the facility, its configuration and location will make the facility attractive for intermittent use by other state agencies and the public. The primary stakeholders of the TRC are:

Washington Army National Guard
Washington State Military Department
Headquarters and Headquarters Company, 2nd Battalion 146th Field Artillery
A Battery, 2-146th Field Artillery
1st Squadron 303d Cavalry Regiment

State of Washington Office of Financial Management
State of Washington Department of Enterprise Services

Thurston County
City of Tumwater
City of Olympia
City of Puyallup
Port of Olympia



2.7 IMPLEMENTATION APPROACH

We anticipate the project will be funded primarily by federal military construction appropriation with state appropriations funding site acquisition and development as well as any buildings elements not directly supported by the National Guard Bureau.

Methods of Accomplishment:

It is proposed that the traditional Design-Bid-Build method of project delivery be used. This has proven to be the most effective and economical delivery method for non-complex projects such as proposed herein. Alternative delivery strategies such as GC/CM and Design/Build were considered but were found to be of limited benefit to the project in relation to its cost and schedule. Because of the chosen delivery method, Value Engineering and Constructability consultants are required. In the construction phase, independent testing and commissioning agents are proposed. Costs for these consultants are included in the project budget.

Programs to be housed in the new facility are currently located in independent facilities separate from the project site, so construction phasing is not necessary. Construction will commence with site clearing and preparation. Once the new facility is complete, the supported units will relocate to the new facility and the vacated readiness centers in Olympia and Puyallup will be divested.

2.8 PROJECT MANAGEMENT

Organization: The State of Washington, Department of Enterprise Services, Division of Facilities, Engineering & Architectural Services will manage the design and construction of the TRC with the active participation of the Military Department Facilities Management Office. E&AS has successfully provided agency management and oversight for several recent WMD readiness centers (Yakima, Bremerton, Spokane) and other National Guard facilities throughout the state.

To assure vigilance over its construction projects the Military Department assigns a Senior Architect or Engineer management responsibilities overseeing technical aspects and cost management. The WMD project manager coupled with additional construction phase oversight by the design team will provide sufficient monitoring, management, and control during the construction phase. The costs of these services have been included in the project budget.

Strategy: The following are the primary duties/responsibilities of the primary participants in project management:

Programming: E & AS Project Manager:

- Directs consultant selection
- Manages consultant contract
- Assists agency in review and approval of programming and budgets



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Military Department:

- Assists in consultant selection
- Coordinates stakeholder participation
- Participates in detailed programming
- Reviews and approves detailed programming and budget

Design Consultant:

- Provides programming services per agreement

Design:

E & AS Project Manager:

- Coordinates selection of Value Engineering and Constructability consultants
- Manages consultant contract
- Assists agency in review and approval of programming and budgets

Military Department:

- Participates in periodic design meetings
- Provides design decisions including program adjustments to achieve budget
- Approves design and estimates at SD, DD, and CD

Design Consultant:

- Provides design services per agreement

Bidding:

E&AS Project Manager:

- Issues advertisement for bid
- Leads pre-bid conference
- Manages consultant contracts

E & A Project Manager:

- Assists in pre-bid conference

Design Consultant:

- Provides bid services per agreement

Construction:

E & A Project Manager:

- Manages consultant contracts
- Monitors quality and schedule
- Advises agency in all matters related to the construction

Military Department:

- Oversees construction activities
- Participates in periodic construction meetings
- Provides construction decisions including field adjustments and change orders

Design Consultant:

- Provides construction administration services per agreement

Commissioning:

E & A Project Manager:

- Coordinates selection and contracting of commissioning agent (during design phase as necessary to achieve LEED credits)
- Monitors both commissioning agent and design consultant
- Advises agency in all matters related to acceptance of systems

Military Department:

- Participates in system commissioning
- Attends operating instruction

Design Consultant:

- Provides support to the commissioning agent services per agreement



Warranty:

E & A Project Manager:

- Assists in obtaining warranty repairs

Military Department:

- Identifies warranty issues
- Notifies consultant of needed warranty repairs

Design Consultant:

- Notifies contractor of needed warranty repairs
- Monitors contractor warranty response

2.9 SCHEDULE

Risks:

Initial evaluation of the selected site has not identified unique risks to schedule accomplishment due to environmental or archeological sensitivity. To assure this a detailed assessment of these factors will occur in the Schematic Design phase. The north end of the site was once occupied by a trucking company, and was remediated of hazardous materials (e.g. fuel spills) in 1996 with the exception of any materials below the footprints of existing minor structures. WMD ENV considers the probability of hazardous materials being encountered upon demolition of these structures to be low, and at worst would require only minor costs.

The site falls within the City of Tumwater and is zoned Light Industrial. Adjacent properties to the east are zoned Single Family Low Density (central and southern portion) and Light Industrial (northern portion), to the south Light Industrial, and to the north Airport Related Industrial. The west property line abuts Interstate 5. While development adjacent to residential zones can carry risks of delay in project implementation (i.e. the NIMBY factor), the use of the site as a readiness center is permitted outright by the City of Tumwater.

The projected use of the site is in compliance with the regulatory land-use established by Thurston County and the City of Tumwater and there are no permitting or regulatory impediments to the projected development.

Site soils and groundwater characteristics require significant acreage be left undeveloped for stormwater infiltration purposes.

The project will be developed with the following schedule milestones:



Activity	Start	Complete	Duration
Predesign	September 1, 2005	June 30, 2006	9 months
Predesign Update	October 10, 2012	October 31, 2013	12 months
Predesign Update for Final Site	March 1, 2015	April 30, 2016	2 months
NEPA	April 1, 2015	December 31, 2016	22 months
Design and Permitting	July 1, 2015	October 31, 2016	16 months
• Schematic Design	July 1, 2015	September 30, 2015	3 months
Military Department Review	October 1, 2015	October 15, 2015	2 weeks
• Design Development	October 16, 2015	February 15, 2016	4 months
Value Engineering	January 16, 2016	January 31, 2016	2 weeks
Military Department Review	February 16, 2016	February 29, 2016	2 weeks
• Contract Documents	March 1, 2016	August 31, 2016	6 months
Constructability Review	June 1, 2016	June 15, 2016	2 weeks
Military Department Review	September 1, 2016	September 15, 2016	2 weeks
Incorporate Comments	September 16, 2016	September 30, 2016	2 weeks
• Plan Check/Building Permitting	July 1, 2016	September 30, 2016	3 months
• Design/Permitting Float	October 1, 2016	October 31, 2016	1 month
Bidding and Construction	November 1, 2016	October 31, 2018	24 months
• Bidding/Award	November 1, 2016	December 31, 2016	2 months
• Construction	January 1, 2017	August 31, 2018	20 months
<i>(Mid-point of construction for use in determining cost escalation: November 1, 2017)</i>			
• Substantial Completion	September 1, 2018		
• Start-up/Commissioning	September 1, 2018	October 31, 2018	2 months
Occupancy (FF&E Move-In)	December 1, 2018	January 31, 2019	2 months



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PROGRAM ANALYSIS





SECTION 3.0 PROGRAM ANALYSIS

3.1 PLANNING ASSUMPTIONS

Throughout the programming and planning process, the following assumptions have been made that directly impact the project development function, form, schedule, and costs:

1. The role of the National Guard in the military force structure has changed over the past decade with the Guard playing a more active role in the national defense mission. This is particularly true with the wars in Iraq and Afghanistan, where National Guard and Reserve units have made up nearly 28 percent of all deployed troops. Indeed, the recruiting slogan "one weekend a month, two weeks a year" was dropped during the Iraq War as it no longer described service expectations. More and more the National Guard will be relied upon as the Army enters a period of scaling back its full-time personnel. This reliance may include increasing annual training exercises from two weeks to up to seven weeks.
2. The building will be designed to comply with National Guard Bureau standards.
3. Administrative space authorized by regulation will be apportioned to the units and subordinate organization based upon a count of assigned personnel having a primary command/administrative function.
4. Administrative space allocation will be based upon the Washington State Space Standards published by the Department of Enterprise Services.
5. To maximum extent possible, open-plan workstations will be used for administrative space. Private offices will only be provided to command positions or staff/support positions requiring acoustic privacy for personnel or security reasons.
6. To the maximum extent possible, the facility will make flexible provisions for the use of current and future technology.
7. The building will have internal security zones to facilitate public use and use by other state agencies
8. The disaster response/shelter mission of the building is an important element in planning and the structure will be designed to the seismic standards for an "essential facility."
9. The site will have sufficient access to a municipal potable water source which will be capable of supporting both domestic and fire suppression use.
10. The site will have access to a municipal sanitary sewer system sufficient to support the volume required for full occupancy.
11. The site will be served by three-phase power.
12. The facility will include an emergency power generator with capacity adequate to support 35% of facility functions.



3.2 EXISTING FACILITIES INVENTORY

Minor derelict structures associated with a former trucking company exist on the north end of the site. These will be demolished prior to construction of the TRC.

3.3 SPACE REQUIREMENTS

Program Summary

The primary function of any readiness center is to provide an environment in which the assigned units can be administered, train for their assigned missions, and store the immediate equipment that they will require upon mobilization.

The following space allowances are set by Chapter 2 of the National Guard Pamphlet 415-12 (see Appendix G). The provisions of federal funding require that readiness centers contain the program functions designed within the area allowances contained therein.

Planned areas were based on the assigned strength of the housed units at a total of 302 personnel and the allowances of NG PAM 415-12. This document categorizes the housed functions into two groupings. Schedule-I space includes functions that are common to every readiness center. Schedule II space identifies space for functions that vary depending on the type and size of unit supported.

For the TRC, with 274 total authorized personnel per the MTOE, the authorized space per NG PAM 415-12 is:

<u>FUNCTION</u>	<u>Area Authorized (sf)</u>	
	<u>Area Proposed (sf)</u>	
Schedule I		
Assembly Hall	5,400	5,400
Classrooms	4,240	4,875
Learning Center	500	575
Multipurpose Training Area	1,500	1,750
Kitchen	2,200	2,200
Break/Vending	400	460
Toilets & Showers*	2,300	3,310
Lactation Area	80	90
Family Readiness Center	250	220
RAPIDS	150	170
Retention Office	330	330
Table & Chair Storage	300	300
Physical Fitness Area	800	805
Subtotal Schedule I	18,450	20,485
Schedule II		
Administrative Offices	16,520	16,785
Unit Storage (heated portion only)	11,901	12,350
Unheated Storage Space	449	450
Locker Room	5,132	5,665
Medical Section	400	460
General Purpose Training Bay	3,168	3168
Maintenance Supervisors Office		
Supply		
Tools		



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Battery		
Firefinder Radar Bay	1,600	1,640
Secure Area	240	350
Subtotal Schedule II	39,410	40,868
Facilities Maintenance/Storage	1,736	1,855
Mechanical/Electrical	2,893	2,595
Telecom	579	590
Circulation @ 15% - 22%	13,875	12,170
Walls @ 10%	7,695	6,075
TOTAL BUILDING GROSS	84,638	84,638

* *Overage is code-driven*

In addition the DD Form 1390/91 authorizes **200** gsf (205 sf proposed) for flammable materials storage, **300** gsf (300 sf proposed) for a controlled waste facility, and **29,701** gsf (29,701 proposed) for an unheated vehicle storage building.

Administrative Space

While National Guard Regulations specify overall quantity of space allocated, it does not provide a guide for distributing the administrative spaces that relate directly to how the housed units function. Accordingly when planning a new readiness center administrative space allowance must be further distributed to support the subordinate entities within the structure of the assigned units. For the TRC, this evaluation identified six groupings of administrative space as follows:

- 2/146th FA Battalion Headquarters (BNHQ)
 - Personnel (S-1)
 - Intelligence (S-2)
 - Operations and Fire Direction Center (S-3)
 - Supply (S-4)
 - Communications (S-6)
- Headquarters Battery (HHB)
- Medical Unit
- A Battery 2/146th FA
- A Company 1-303d Cavalry
- General (Shared) Administration

As command personnel frequently counsel soldiers one-on-one, enclosed offices are needed for the commanders, primary staff officers, executive officers, and senior non-commissioned officers. Security of material and financial documentation also require private offices for unit supply and maintenance personnel adjacent to their areas of control. In keeping with the goal of assuring maximum future flexibility, the balance of administrative space will be open-office configuration.

To facilitate allocation of administrative office space, the Space Standards published by the State DES were referenced. The following distribution of administrative office space identified the administrative position from the line item off the Unit MTOE (Appendix F) and the space type from the State Standards:



BNHQ UNIT

<i>Function</i>	<i>Space type</i>	<i>Net Area (sf)</i>
BN CMDR	Private Office	180
SMG	Private Office	180
XO	Private Office	140
S-1	Private Office	160
S-2	Private Office	160
S-3	Private Office	160
S-4	Private Office	160
S-6	Private Office	160
Chaplain	Private Office	140
Planning Room for 20 occupants	Enclosed	655
Open Office for 15 Occupants	Cubicle @ 64 sf/ea	960
General Use/Suite Circulation	Open	1,605
Total		4,660

HHB UNIT

<i>Function</i>	<i>Space type</i>	<i>Net Area (sf)</i>
CO CMDR	Private Office	140
1 st SGT	Private Office	140
RNCO	Private Office	140
Float Desk	Cubicle	64
TNCO	Cubicle	80
Supply SGT (Also space at Vault)	Cubicle	80
Radar Warrant Officer	Cubicle	64
Survey	Cubicle	64
Targeting Warrant Officer	Cubicle	64
Conference/Briefing Room	Enclosed	675
General Use/Suite Circulation	Open	194
Total		1,705

MEDICAL UNIT

<i>Function</i>	<i>Space type</i>	<i>Net Area (sf)</i>
PA w/ OPS NCO	Private Office	160
PMA	Private Office	120
Open Office	Open	180
Total		460

A BATT

<i>Function</i>	<i>Space type</i>	<i>Net Area (sf)</i>
Battery CMDR	Private Office	160
1 st SGT	Private Office	160
Det RNCO	Private Office	140
PLT LDR	Private Office	160
TNCO	Private Office	160
Supply SGT (Also space at Vault)	Cubicle	60
Supply SGT (Also space at Vault)	Cubicle	60
Gunnery SGT	Cubicle	60
Gunnery SGT	Cubicle	60
Training NCO	Cubicle	60
Section Chief	Cubicle	60
Section Chief	Cubicle	60
Section Chief	Cubicle	60



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Section Chief	Cubicle	60
General Use/Suite Circulation	Open	1,060
	Total	2,440

A 1-303d CAV

<i>Function</i>	<i>Space type</i>	<i>Net Area (sf)</i>
CO	Private Office	140
1 st SGT	Private Office	140
PLT Office*	Enclosed	400
*2 desks, conference table for 6, sand table		
PLT Office*	Enclosed	400
*2 desks, conference table for 6, sand table		
Open Office for 6 Occupants	Cubicle @ 64 sf/ea	384
General Use/Suite Circulation	Open	1,741
	Total	3,205

General Administration

<i>Function</i>	<i>Space type</i>	<i>Net Area (sf)</i>
Gatekeeper	Open	350
Open Office	Open	4,425
	Total	4,775



Functional Interrelationships

The National Guard Design Guide for Readiness Centers provides the following criteria for functional planning of readiness center functions/spaces: (the indoor range will not be included in the TRC)

Table 1. Proximity Requirements for Typical a Readiness Center

	Assembly Hall	Classrooms	Library / Classroom	Learning Center	Distance Learning Center	Indoor Firing Range	Training Device / Simulation Ctr.	Training Aid Storage	Kitchen	Break Room	Vending Area	Toilets / Shower	Flammable Materials Storage	Family Readiness Office	RADIDS Office	Recruiting / Retention Office	Audio / Visual Storage	Table / Chair Storage	Physical Fitness	Controlled Waste Handling	Unit Administration	Unit Storage (Heated)	Locker Rooms	Maintenance/Training Workbay	Supervisor's Office	Inspection and Library	Tool Room	Supply Room	Vault	SIPRNET Room
Assembly Hall		2	2	2	2	3	2	1	1	2	2	1	3	N	N	N	1	1	N	3	N	1	2	3	N	3	3	2	3	
Classrooms	2		1	1	1	3	1	1	N	2	2	2	3	N	N	N	1	2	3	3	N	3	3	3	3	3	3	3	3	
Library / Classroom	2	1		1	1	3	1	1	N	2	2	2	3	N	N	N	1	2	3	3	N	3	3	3	3	3	3	3	N	
Learning Center	2	1	1		1	3	2	1	N	2	2	3	3	N	N	N	2	N	3	3	N	3	3	3	3	3	3	3	N	
Distance Learning Ctr.	2	1	1	2		3	2	1	N	2	2	2	3	N	N	N	1	2	3	3	N	3	3	3	3	3	3	3	N	
Indoor Firing Range	3	3	3	3	3		3	3	N	2	2	1	3	3	3	3	3	3	3	3	3	2	3	N	3	3	3	3	N	
Train. Device/Simul.Ctr.	N	2	2	2	2	3		2	N	2	2	N	3	N	N	N	2	N	3	3	N	3	3	3	N	N	N	N	N	
Training Aid Storage	2	1	1	1	1	N	2		N	N	N	N	3	N	N	N	2	2	N	3	N	N	N	3	N	N	N	N	N	
Kitchen	1	N	N	N	N	N	N	N		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	3	
Break Room	2	2	2	2	2	2	N	N		1	N	N	2	2	2	N	N	N	N	N	2	N	N	N	N	N	N	N	3	
Vending Area	2	2	2	2	2	2	N	N	1		N	N	2	2	2	N	N	N	N	2	N	N	N	N	N	N	N	N	3	
Toilets / Shower	2	2	2	3	2	1	2	N	N	N	N		N	2	2	2	2	1	N	2	N	1	2	2	2	2	N	N	3	
Flammable Mtls. Stor.	3	3	3	3	3	3	3	3	3	3	3	3		3	3	3	3	3	3	3	3	3	3	2	3	3	3	3	3	
Family Readiness Office	N	N	N	N	N	N	N	N	N	N	N	2	3		2	2	N	N	3	2	N	N	3	3	3	3	3	N	N	
RADIDS Office	N	N	N	N	N	N	N	N	N	N	N	2	3	2		2	N	N	3	2	N	N	3	3	3	3	3	N	N	
Recruiting / Retent. Off.	N	N	N	N	N	N	N	N	N	N	N	2	3	2	2		N	N	3	2	N	N	3	3	3	3	3	N	N	
Audio/Visual Storage	1	1	1	2	1	N	2	1	N	N	N	N	3	N	N	N		N	N	3	N	N	N	N	N	N	N	N	N	
Table / Chair Storage	1	N	N	N	N	N	N	N	N	N	N	N	3	N	N	N		N	N	3	N	N	N	N	N	N	N	N	N	
Physical Fitness	N	3	3	N	3	N	3	N	N	N	N	1	3	3	3	3	N		N	3	3	N	1	N	N	N	N	N	3	
Controlled Waste Hand.	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		3	3	3	3	1	3	3	3	3	3	
Unit Administration	N	N	N	N	N	N	N	N	N	N	N	2	3	2	2	2	N	N	3		N	N	3	3	3	3	3	N	1	
Unit Storage (Heated)	1	N	N	N	N	N	N	N	N	N	N	N	3	N	N	N	N	3	N		N	N	N	N	N	N	N	N	1	
Locker Rooms	2	3	3	3	3	N	N	N	N	N	N	1	3	3	3	3	N	1	3	3	N		N	N	N	N	N	N	3	
Maint./Train. Workbay	3	3	3	3	3	N	N	N	N	N	N	N	2	3	3	3	N	N	1	3	N		N	1	1	1	1	N	3	
Supervisor's Office	N	N	N	N	N	3	N	N	N	N	N	N	3	N	N	N	N	3	N	N		N	N	1	1	1	1	1	3	
Inspection and Library	N	N	N	N	N	3	N	N	N	N	N	N	3	N	N	N	N	3	N	N		N	N	1	1	1	1	1	3	
Tool Room	N	N	N	N	N	N	N	N	N	N	N	N	3	3	3	3	N	N	3	3		N	1	1	1	1	1	1	3	
Supply Room	N	N	N	N	N	N	N	N	N	N	N	N	3	3	3	3	N	N	3	3		N	1	1	1	1	1	1	3	
Vault	N	N	N	N	N	N	N	N	N	N	N	N	3	N	N	N	N	3	N	1		N	N	N	N	N	N	N	N	
SIPRNET Room	3	3	N	N	3	N	N	3	3	3	3	3	3	N	N	N	N	3	3	1		3	3	3	3	3	3	3	N	

Functional Relationship Requirements 1 Immediate 2 Close 3 Isolated N Neutral

All designated areas are from NG PAM 415-12, Table 3-4

The table does not include building maintenance and support spaces.



Functional Planning

Training

Unit training is conducted on an individual and small group basis. Dedicated training spaces include classrooms, library/learning center, physical fitness room, a weapons simulation room, and vehicular training work bays. The primary large group training area is the assembly hall, a large high-ceiling multipurpose space.

Storage

Storage for both unit and individual equipment is required. Individual soldiers have lockers for their personal equipment storage while non-sensitive unit equipment is stored in an open area subdivided by wire mesh partitions. The secure material for each unit such as weapons and classified data is stored in a vault. For equipment that is not temperature sensitive, a separate storage building, provided with minimal heat is authorized and planned.

Common Use Space

Common use spaces include the building lobby and circulation, toilets, facilities maintenance, and mechanical/electrical rooms. The armory space allowance also includes a commercial-grade kitchen which, although primarily an armory function, will be used by all occupants. Toilet spaces will be sized as necessary to meet the IBC plumbing fixture requirements and accessibility codes. As Guard training requires bulky personnel equipment and rapid movement of material and gear, common corridors will be sized to permit unimpeded two-way traffic. This establishes a minimum of 7'-0" clear in major corridors and 5'-0" for minor hallways.

Mechanical and electrical areas will be sized to contain the planned equipment with sufficient area for maintenance and servicing. Adequate clearances to permit removal of large components will also be provided.

The kitchen is intended to exactly meet the NGB "Large Kitchen" standard both in terms of layout and equipment. It includes spaces for a serving corridor, food preparation, food storage, scullery, office, a unisex toilet, and a small janitor closet.

Functional Arrangement

The conceptual plans presented in this report were developed in direct response to both the internal functional requirements of the spaces contained in the building and as a response to the AT/FP (anti-terrorism/force-protection) conditions of the site. Initial planning included scaled "bubble diagrams" of all the functional areas. These diagrams were reviewed for operational function by all building users. Based on review of the diagrams, a number of plan options addressing functional interrelationships were developed.

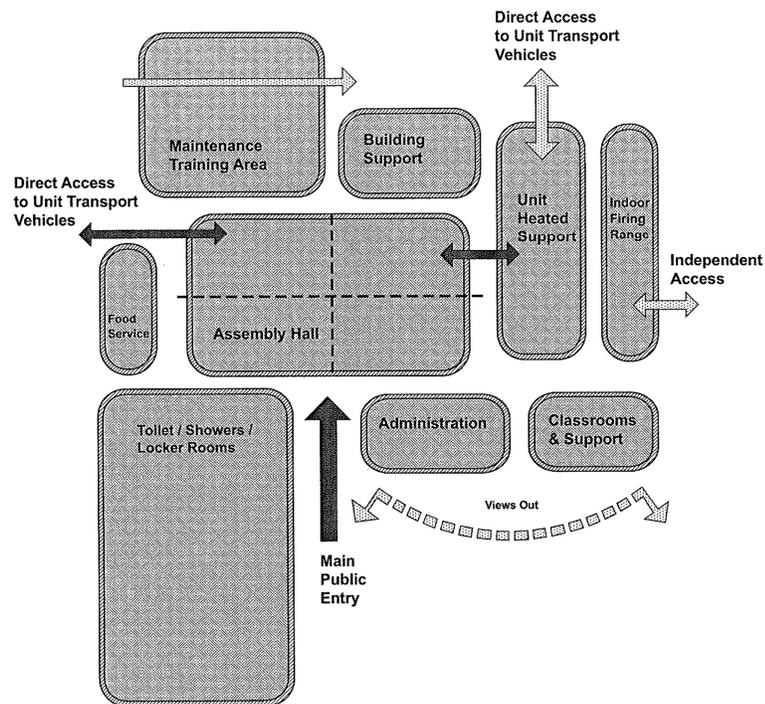
Some of the functional considerations necessary to arrive at the optimum functional configuration are:

- Orientation of the main public entry should be towards the adjacent public access in order to maximize the visual presence of the building for recruiting and community awareness. At this location AT/FP features must be effective yet visually subtle.
- The internal organization of the building should be organized to allow isolation of the public areas from the non-public.
- The plan organization shall reinforce AT/FP standards.

- All areas of potential expansion should be located along the perimeter of the building to permit ease of expansion.
- As the primary public use space is the Assembly Hall, it should be centrally located and the circulation from the main entrance lobby must be clear and obvious.
- Visual observation of the entrance lobby from the administrative and recruiting offices will permit these spaces to function as the building reception and security.
- The administrative space areas within the readiness center should maximize unit integrity and control with dedicated spaces.
- "Industrial" spaces such as the training workbays, unit storage, and assembly hall should be grouped together to permit easy access from military and service vehicles.
- Service areas such as toilets, mechanical, etc. should be stacked.
- Mechanical rooms should be located to permit effective zoning of like spaces.
- Rectilinear shapes have been used for the functional spaces within the building and from the building form itself to keep the building as compact as possible.
- To reduce energy use, the building should maximize the use of daylight. The depth of the building should be optimized for daylight at the interior and opportunities for clerestory lighting of high volume spaces should be explored. Daylighting should be filtered at the south and west elevations.

Component Configuration

The general configuration of the component spaces of the readiness center should confirm to the following diagram from DG-415-1:





During the PPDC (Planning Programming Design Charrette) attended by representatives of NGB and the assigned units, operational factors specific to artillery units were discussed in detail. As a result of this discussion, the proposed layout of the ground floor was modified to create a direct adjacency arrangement between the unit storage and personal equipment storage functions, with broad and redundant circulation pathways sized to readily accommodate mobilization events. While idealized for artillery this layout by no means inhibits future flexibility. Also as a result of the PPDC, the interior configuration of the Unit Storage spaces maximizes use of secure wire partitioning which can be easily repositioned as unit needs change. Similarly the administrative space makes maximum use of open-office systems furniture to provide flexibility for future change.

Room Data Sheets

Room data sheets and diagrams provided in Appendix E provide detailed program requirements for identified spaces.

3.4 FUTURE REQUIREMENTS

As the type and composition of units in the National Guard are subject to change, the readiness center must be designed to accommodate both the change in function of the units housed as well as accommodating expansion of up to 50 percent. Future growth needs are historically faced in unit storage, personal equipment storage, administrative office, and classroom functions. Growth is typically not accommodated in the general services spaces such as the assembly hall and the training workbays.

3.5 CODES AND REGULATIONS

The following building codes and regulations apply to this project. The code analysis and summary that are presented in this section are based on the latest adopted versions of these codes at the time of publication. Actual code compliance is based on versions of these codes in effect when building permits are obtained, so some modifications will likely be required.

- 2012 International Building Code with Tumwater Municipal Code (TMC) Amendments
- 2012 International Fire Code with TMC Amendments
- 2012 International Mechanical Code with TMC Amendments
- 2012 Uniform Plumbing Code with Washington State Amendments
- 2012 National Electrical Code with TMC Amendments
- 2012 International Fuel Gas Code
- ANSI A17.1 - Safety Code for Elevators and Escalators
- ICC/ANSI A117.1-2009 Accessible and Usable Buildings and Facilities
- 2009 Washington State Energy Code (WSEC)
- Washington State Ventilation and Indoor Air Quality Code
- 2005 Thurston County Comprehensive Plan

In addition, National Guard Bureau requires adherence to the Unified Facilities Criteria identified in Sections 2 and 5 as well as the following Department of the Army Technical Instructions:



- TI 809-01: Load Assumptions for Buildings
- TI 809-02: Structural Design Criteria for Buildings
- TI 809-04: Seismic Design for Buildings
- TI 809-29: Structural Considerations for Metal Buildings

3.6a Building Code Analysis

A full and complete code analysis will be required in the design phase of the project however, an initial code evaluation is critical in pre-design to determine if there are any significant regulatory impediments to the proposed project:

Governing Code

International Building Code, 2012 Edition

Occupancy Type (Chapter 3)

The Tumwater Readiness Center primary building will be a mixed occupancy (508) with the primary use being Business Group **B** (304.1). The Assembly Hall and adjacent kitchen will be classified Assembly Group **A-2** (303.3) due to its food service component. Personal Equipment Storage will be classified Assembly Group **A-3** (303.4). Unit Storage will be classified as Moderate-Hazard Storage Group **S-1** occupancy, as will the General Purpose Training Bays (311.2). Differing occupancies must be separated from adjacent uses per 508.4.4 (see Table 508.4) which requires a 1-hour separation between A-2 or A-3 and B or S-1 occupancies.

The Unheated Storage Building will be Moderate-Hazard Storage Group **S-1** occupancy (311.2).

Special Use (Chapter 4)

As the General Purpose Training Bays are used for light maintenance and repair they will be subject to the requirements for Repair Garages (406.8).

Building Construction Type (Chapter 6)

The readiness center will be constructed of non-combustible materials and will be classified as Type-II B construction (602.2). There are no specific fire-resistance rating requirements for building elements in this type of construction per Table 601.

The Unheated Vehicle Storage Building will be classified as Type V-B. There are no specific fire-resistance rating requirements for building elements in this type of construction per Table 601.

Allowable Building Height & Area (Table 503)

Type-II-B construction for the Group B occupancy allows up to 3 stories in height and, 23,000 sf per floor. Assembly A-2 and A-3 occupancies allow up to 2 stories in height and, 9,500 sf per floor. Storage S-1 occupancy allows up to 2 stories in height and 17,500 sf per floor. The occupancies are considered separated (508.4).

Equipping the building with an approved automatic sprinkler system allows for 1 additional story as well as an increase in maximum building height from 55 to 75 feet (504.2). A sprinkler system also allows increasing the building area 200 percent for buildings higher than one story and 300 percent for one story buildings (506.3).

With the allowed area well higher than requested and the proposed TRC height at 3 stories and the upper 2 floors solely classified as Group B occupancy, the structure satisfies table 503 limitations.



3.6a Zoning Code Analysis

The site is zoned Light Industrial by the City of Tumwater. The TRC is permitted outright in this classification.

The size of the site permits compliance with all underlying development standards and setbacks required under Sec 20.28.040 of the Land Use Code.

The Thurston County GIS Mapping system does not identify any hazards or critical areas which would indicate special processing for land use approval.

3.6b Sustainable Design and LEED

The Military Department and the National Guard is committed to creating high performance facilities that will ensure the optimal health and productivity of occupants and buildings users. They also support and will comply with all State of Washington LEED compliance mandates.

The Tumwater Readiness Center will be certified LEED Silver by the United States Green Building Council (USGBC) in accordance with Chapter 39.35d RCW "High Performance Public Buildings" and Department of Defense requirements. Sustainability was discussed during the PPDC and the resulting checklist of targeted credits is presented in Appendix B. A detailed eco-charrette will be conducted during Schematic Design to further explore sustainability goals and opportunities. As the building design progresses, additional credits may be identified for possible incorporation into the project. While not required, targeting LEED Gold certification may benefit the WMD in the long term provided it can be achieved without added cost; this is worthy of further discussion with the selected design and construction teams.



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SITE ANALYSIS





SECTION 4.0 SITE ANALYSIS

4.1 EVALUATION OF POTENTIAL SITES

Site Requirements and Support

The federal government will not provide funds for construction or site development at project locations that do not conform to the following specifications:

- Contain at least 15 acres in non-congested areas.
- Front on at least one public street or road, while ensuring adequate standoff to meet minimum anti-terrorism/force-protection requirements.
- Have adequate access roads from nearby population centers and from public highway networks. Preferably should be served by public transportation.
- Be free from low-lying areas, steep slopes, landfills, faults, and other prospective nuisances.
- Have uniformly contoured terrain that is either level or only slightly sloping (less than 4 percent).
- Have soil at the frost line depth for the locality with a bearing capacity of approximately 2,000 pounds per square foot on natural, undisturbed earth.
- Have accessible all public utilities necessary and required for successful operation of the facilities being constructed.
- Be protected by local zoning regulations so as to permit the construction and full use of a facility and to prohibit the establishment of any activities or industries that would adversely affect the operation of the facility.
- Be uncontaminated land, free from the prospect of hazardous substances that could subject the state or federal government to liability for response, clean-up, and health costs or for natural resource damage costs, and free from conditions that would prevent or affect the construction, occupancy, and future operation of the facility.
- Should not be located on a flood plain.

In addition to the above Federal site requirements; the WMD must locate its readiness centers in areas with positive demographics for the recruiting and retention of soldiers.

Site Alternatives

The Military Department and DES identified over a dozen possible sites and in 2013 studied the two most suitable candidates in detail. At that time, WMD ultimately selected a 20-acre undeveloped parcel subdivided from a much larger group of contiguous properties owned by the Port of Olympia, known collectively as the NewMarket Industrial Campus. Due to high groundwater and limited size, this property depended upon an off-site infiltration facility to be developed by the Port largely at its expense. In 2014, WMD and the Port were unable to reach a mutually acceptable agreement over this property.

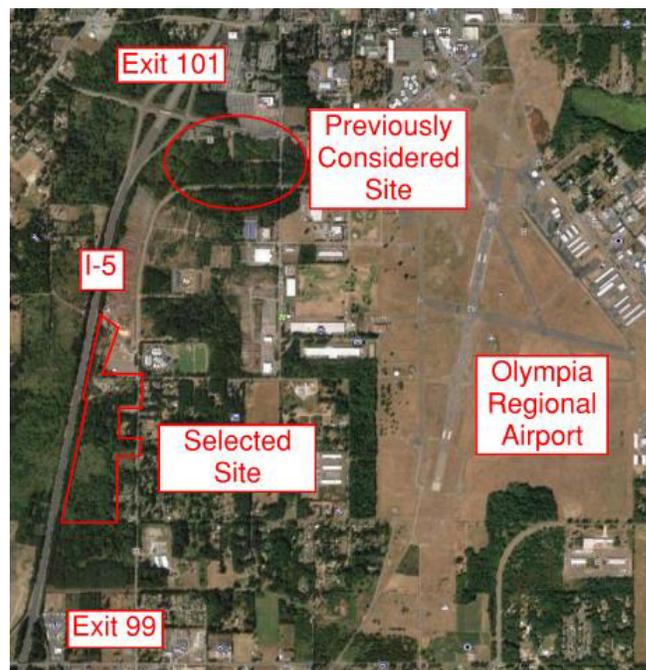
Starting in mid-2014 and continuing into 2015 the Military Department searched anew for properties within Thurston County that would meet all the siting criteria for a new readiness center. More than a dozen sites were evaluated, but most were quickly eliminated based on zoning, proximity to water and sewer service,

endangered species impacts, and/or access to transportation infrastructure. In March, 2015, the Military Department purchased from Dr. William Barnett a similar but much larger property south of the Port of Olympia properties. While it too has recorded high groundwater, its 53-acres size makes possible full development of a readiness center at reasonable cost and without reliance on a third party. In its due diligence investigation prior to purchase, WMD contracted with AHBL to perform a civil assessment, wetlands analysis and Mazama Pocket Gopher survey (by subconsultant Thersa Dusek Consulting), geotechnical analysis (by subconsultant South Sound Geotechnical Consulting), and transportation feasibility study (by subconsultant Transpo). See Appendix J for individual reports. WMD and its consultants in the due diligence process reviewed historical data (including past studies by Skillings Connolly and Robinson, Noble & Saltbush, a site survey, and well logs), performed land use code research, and met with officials of the City of Tumwater Community Development Department. As a result of this work the WMD concluded that development of the Barnett site was permissible, feasible, and achievable within the available project budget.

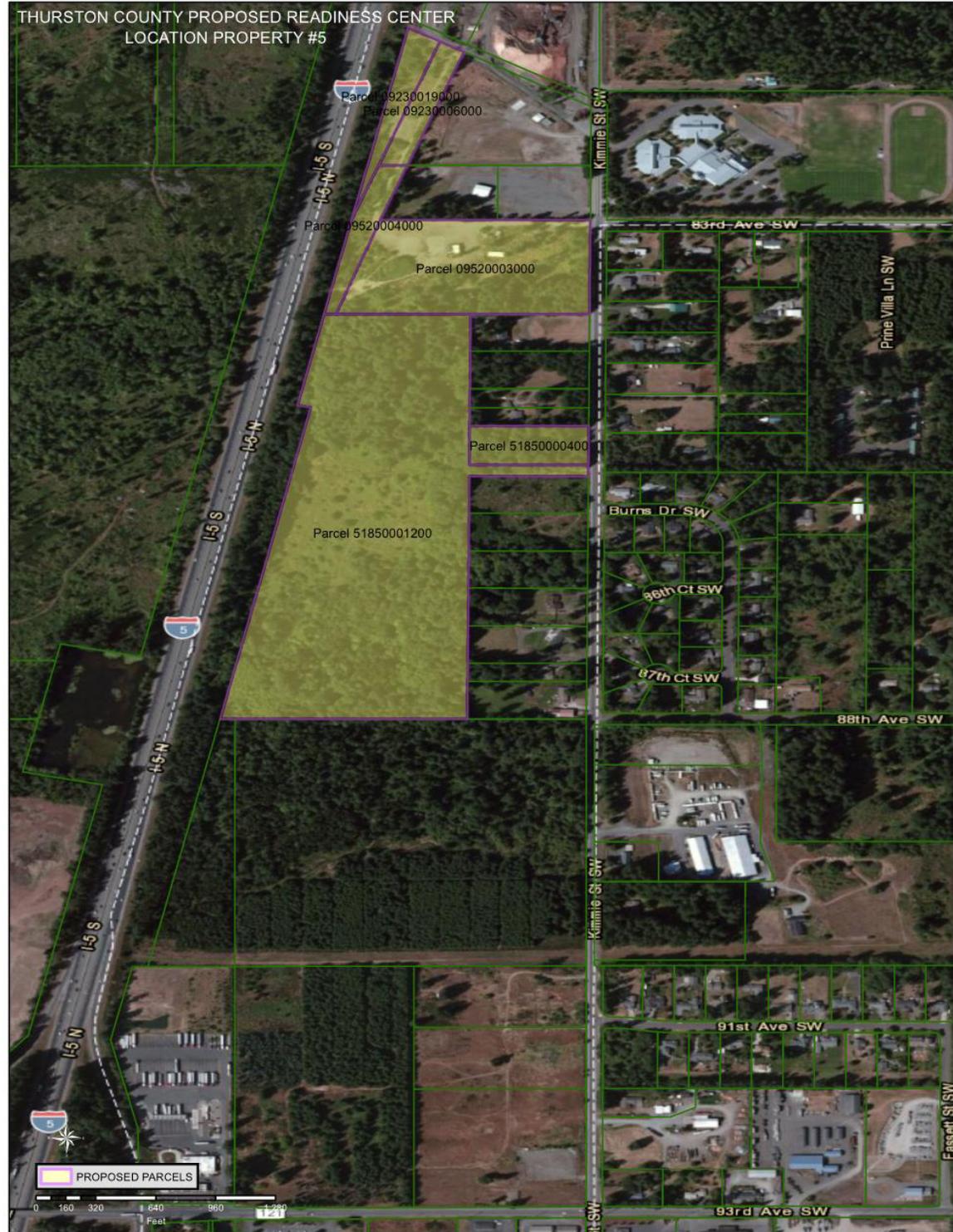
4.2 SITE ANALYSIS

4.2a Description/Location

The purchased site is located along Kimmie Road due west of the Olympia Regional Airport within the City of Tumwater, within Section 15 and a small portion of Section 9, Township 17 North, and Range 2 West and identified as Thurston County Parcels Nos. 51850000400, 51850001200, 09230006000, 09230019000, 09520004000, and 09520003000. It contains approximately 53 acres. It is bounded by Frontage Road to the north, Kimmie Road and a number of residential properties to the east, undeveloped land to the south, and Interstate 5 to the west.



Aerial view of site context.



Detailed aerial view by parcel.



View to anticipated site entrance from Kimmie Road.

4.2b Ownership/Acquisition

The site is owned by the State of Washington effective March, 2015. The legislature appropriated \$2.8M for land acquisition in its 2013-15 Budget. The purchase price was \$1,950,000 plus \$388,143.33 in late comer fees associated with previously-installed utilities extensions. The balance, \$461,858.67, should be sufficient to pay real estate transaction fees, cover the costs of demolition of derelict structures on the site, and cover the cost of structural fill that must be imported to provide the vertical separation needed during potential high ground water events.

4.2c Jurisdiction

The site is under the regulatory jurisdiction of Thurston County and the City of Tumwater. It does not conflict with any of the approved Growth Management plans for either jurisdiction.

Zoning

The site is zoned Light Industrial. Adjacent properties to the east are zoned Single Family Low Density (central and southern portion) and Light Industrial (northern portion), to the south Light Industrial, and to the north Airport Related Industrial. The west property line abuts Interstate 5. The City of Tumwater has confirmed that use of the site as a readiness center is permitted outright in Light Industrial zones. The City does impose additional setback restrictions on sites adjacent to residential zones; these do not impact the proposed development depicted in Section 8 and in any event are less restrictive than anti-terrorism/force-protection setbacks.

The project site includes one parcel zoned Single Family Low Density. This parcel, which fronts on Kimmie Road, is intended to serve as the vehicular entrance to the readiness center. The City of Tumwater views an access road as a "support facility" which is permitted outright. The City will, however, require frontage improvements at this location.



sand observed below the top layer of sand in the northern portions of the site. This soil type is characterized by good drainage and bearing capacity, and is reasonably expected to provide the minimum bearing capacity required by NGB.

Environmental

- Wetlands: There is a Category III wetlands at the south end of the site, in an area not required for development. The City requires an 80-foot buffer around this wetlands, a requirement that is easily achievable. A full wetlands delineation report will be required as part of the permitting process.
- Hazardous Materials: The north portion of the site was once occupied by a trucking company. Several minor structures, now in derelict condition, date from that former use. In 1996 all areas of the trucking site, except within the footprints of these structures, were remediated of hazardous materials (e.g. fuel spills). The WMD intends to demolish all remaining structures, and after study has concluded that the risk of encountering hazardous materials below these structures is low. Funds remaining from the land purchase appropriation would be used to remediate any hazardous materials found during demolition.

Other than this location, there are no other known hazardous materials on the proposed site and there have been no other known past uses which would potentially source hazardous materials on the site.

- Public Wells: The City regulates property use to protect the water quality of its well-based public water systems. Portions of the site wall within the Bush Wellhead Protection Area. Onsite fueling within the protected area will likely not be allowed.
- Protected Species: An onsite survey revealed no evidence of Mazama Pocket Gophers, which are protected at both the state and federal levels and are traditionally found in prairie ecosystems in Thurston County. Furthermore, the vegetation observed on site is not preferred by this species. No other threatened or endangered species or habitat were observed onsite or are mapped within 300 feet of the site. The City will require a gopher survey be provided during permitting, and it is possible state and federal authorities will require the same.

Easements

There are no recorded easements on the proposed site which would impact or otherwise restrict its use.

Historical/Cultural

The site is not in an area known to have historic or archeological importance. A Cultural Resource Review in accordance with Governor's Order 05-05 will be performed prior to initiation of design work.

4.2e Utilities

Adequate utilities exist at the proposed site for the building as programmed. The existing systems and the proposed modifications are described below, the cost for the modifications have been included in the project cost estimate (see Section 5, Budget Analysis).

Electrical Service:

Electrical power is available from overhead power distribution from Puget Sound Energy. It is anticipated that power for the proposed project will require 480-v 3-



phase. An underground feed from the utility will be included in site utility development.

Water Service:

The City of Tumwater provides water for the proposed site. A 16-inch PVC municipal water main is located in Kimmie Street SW. New 8-inch mains will need to be provided to serve the site.

Water for domestic use and fire protection must be provided in accordance with current City codes for new construction. Domestic use flow rate requirements are provided readily if fire flow is available (fire flow rates are significantly larger). Pressure for domestic use must provide adequate pressure to supply plumbing fixtures at the top floor of the proposed building. The City indicates that static pressure and flow at the site will be adequate for the proposed construction; this should be confirmed prior to design.

Water for fire protection is established in the International Building Code (IBC) by reference to National Fire Protection Association (NFPA) and International Fire Code (IFC). Fire flow is based on building size and construction type. The required fire flow rate must be provided for individual buildings. Greater flow for simultaneous fires in more than one building is not required.

Sanitary Sewer System

The City of Tumwater provides sanitary sewer service to the site from a 12-inch PVC sanitary main located along Kimmie Street SW. New 8-inch piping will need to be provided to serve the site. This main is approximately 12 feet deep at the likely point of connection – working upslope this suggests a finish ground floor elevation of 191.00 assuming the sewer at its shallowest point is 5 feet deep. Connection fees to this utility are anticipated and included in the cost estimate.

Storm Drainage:

There are no established stormwater utility services at the proposed site. The planned development includes creation of a large quantity of impervious area. The civil due diligence report recommends sheet flow dispersion of rainwater from pavements into native vegetated areas. While this is likely the most cost-effective strategy, the use of pervious paving for POV parking may be explored in the design phase as an alternate strategy and as a means of achieving LEED credits. Roof runoff will be directed to bio-retention ponds or swales for on-site infiltration.

The City of Tumwater has adopted the 2010 Drainage Design and Erosion Control Manual (DDECM). Development of the site will require that the stormwater be controlled and treated to meet water quality requirements. Flow control may be provided through detention and release to a downstream conveyance system or through infiltration to the site's subsoils. Because a conveyance system is not presently available near the project site, infiltration is the preferred method of disposal of stormwater. The design of these facilities will meet Tumwater's 2010 DDECM.

The site lies within the Salmon Creek Basin. Historical flooding within the Salmon Creek Basin has occurred due to high groundwater. Because of high groundwater, Tumwater has adopted stricter drainage requirements, categorized in Section 2.3.2, Volume III, of the 2010 DDECM. The 2010 DDECM prescribes minimum requirements for infiltration facilities. The requirements which apply to this site include:



- The base of all infiltration basins or trench systems shall be a minimum of 6 feet above known or estimated high groundwater levels. This elevation may be determined using groundwater monitoring data gathered through a minimum of one wet period (December through April).
- A mounding analysis is required to determine the impact of groundwater mounding on the estimated design infiltration rate, and the known or estimated high groundwater elevation at the property boundary and at any onsite or offsite features that might be impacted by groundwater mounding.
- The mounding analysis must demonstrate there will be no breakout of groundwater to the surface in the vicinity of the project.
- A minimum separation to groundwater from the building foundation will be at least 3 feet.
- The increase in groundwater level at the property boundary due to mounding is less than 1 foot.

High Groundwater: The SSGS geotechnical survey performed in 2015 recorded depth of groundwater in the magnitude of 11 feet in the south-central portion and 7 feet in the most northerly test pit. Much higher groundwater was recorded in 1999, coinciding with the highest recorded groundwater conditions in Thurston County. Because of known high groundwater, any development requires additional analysis including groundwater mounding, groundwater monitoring, and infiltration tests. A groundwater mounding and monitoring study (i.e. linear regression analysis) was performed by Robinson Noble in 2008 and is believed to be adequate for permitting the readiness center development. See Appendix J for detailed information.

Groundwater conditions are most favorable to development in the central portions of the site. In its report AHBL recommended that grade at building footprints be raised 4.5 to 6 feet above recorded high groundwater. If onsite soils are not suitable and this fill must be imported, AHBL estimated costs could reach \$260,000, which will be paid out of the State's land purchase funding.

The City will adopt a new drainage manual by 2016. Given that groundwater appears to be the most critical element affecting site development, and given the unknowns associated with any revisions to the manual, WMD would be best served permitting the TRC prior to 2016.

Natural Gas:

Natural gas is the desired fuel source for heating and cooling. Gas service is provided to the site by Puget Sound Energy (PSE) through a 4-inch main located in Kimmie Street SW. The Military Department will be responsible for construction and maintenance of the services downstream of the master meter to the building.

Telecommunications:

Telephone service is provided to the site by Century Link. On-site distribution will be the responsibility of the Military Department. Owing to the close proximity of the Olympia Regional Airport, any radio towers may require review and approval of the FAA.

The closest source of fiber optic cable is Kimmie Road. Fiber optic cable is required at the project site and will be extended to the TRC accordingly.



4.2f Vehicular Access

The project site is adequately served by a surface road network in uniformly good condition and capable of heavy vehicle traffic. The site is easily reached from the Olympia Regional Airport. Access to Interstate 5 to the north is from Exit 101 at Tumwater Boulevard and to the south from Exit 99 at 93rd Avenue SW (SR 121). WMD anticipates most soldiers will reach the readiness center from the north.

Recent large-scale industrial development proposals in the vicinity of the Interstate 5/93rd Avenue SW interchange have faced significant traffic mitigation costs through financial participation in the widening of the northbound on and off ramps and signalization. This stems from the significant increase in peak hour trips these developments are expected to generate. During the due diligence process The Transpo Group completed a transportation feasibility study which concluded that the project would likely be assessed mitigation fees up to \$217,366 but would not be expected to financially participate in the interchange improvement project. Transpo further stated that no offsite mitigation or impact fees would be required from Thurston County, and that the addition of a left turn lane at the site entrance – which had been discussed as part of the traffic study process – is not warranted. Transpo calculated that the TRC will generate 25 new weekday PM peak hour trips and 300 weekend inbound and outbound trips on training weekends.

This topic is addressed in detail in reports found in Appendix J.

4.2g Parking Requirements

Site development as currently envisioned would provide approximately 247 parking spaces for private vehicles (POV) at the front of the building. Parking for various military vehicles (MILV) in the secure (rear) part of the building totaling 2,337 square-yards in area. In accordance with National Guard Bureau standards, POV parking will be 4-inch asphalt paving while MILV parking will be 8-inch concrete.

4.2h Landscaping

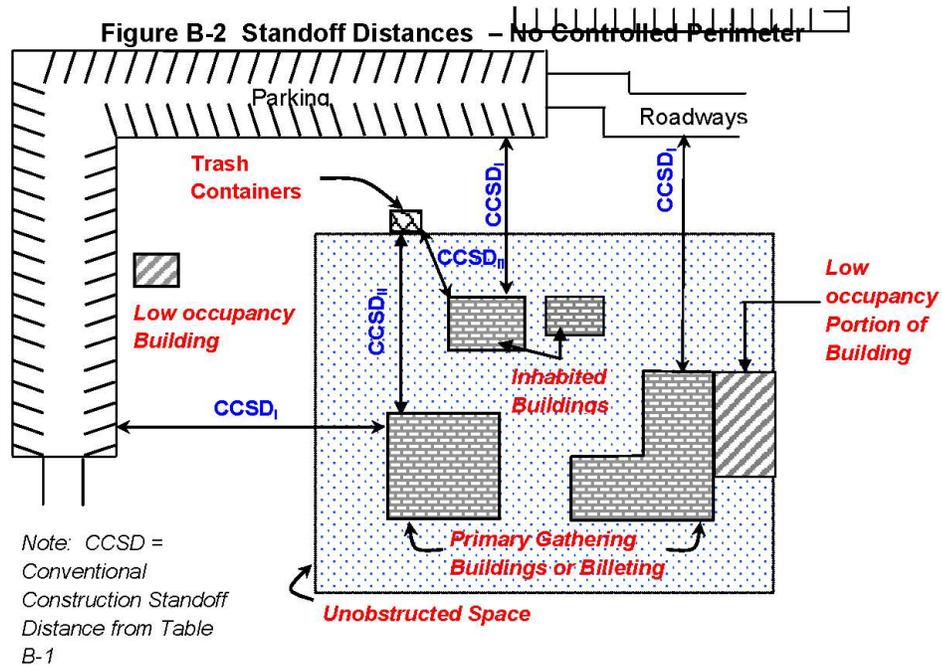
Landscape areas untouched by development will be left in native condition. New landscaping for the TRC will follow best practices for low-maintenance planting and the limits established in the UFC AT/FP requirements, as well as City of Tumwater standards. Drought tolerant, native species will be utilized to the greatest extent possible. The Military Department does not have regular landscape service and seek to minimize landscaping and irrigation for their new buildings. Landscape development will include a running path for physical training of soldiers.

4.3 SITE DEVELOPMENT

4.3a Physical Security

In large part due to terrorist actions against the Murrah Federal Building in Oklahoma City in 1995, and later the Pentagon and World Trade Center in 2001, the Department of Defense through UFC 4-010-01 established minimum anti-terrorism protection standards for its facilities. UFC 4-010-01 states that the most cost-effective solution for mitigating explosive effects on buildings is to keep explosives as far away as possible. Accordingly, its established minimum clear “standoff” distances which –coupled with building hardening – provide physical security for housed personnel. Standoff distance requirements, to a large degree, explain the minimum 15-acre site size for new readiness centers.

Standoff distance requirements are based on whether the building is housed on a site having a controlled or open perimeter, and by construction materials used in the building envelope. A controlled perimeter requires full site fencing with a manned control gate which is not typically provided at readiness centers. The TRC, being located within the City of Tumwater community, must adhere to the following standoff distances (CCSD or Conventional Standoff Distance) illustrated by the following UFC 4-010-01 diagram:





Revised April 20, 2015

For purposes of the previous diagram, the following table (also included in Appendix B of UFC 4-010-01) defines the applicable CCSDs:

Table B-2 Conventional Construction Standoff Distances

Wall Type ^{1/1 (1, 6) /1/}	Column Letter							
	Without Controlled Perimeter Applicable Explosive Weight I ⁽⁵⁾				Within Controlled Perimeter Applicable Explosive Weight II ^{1/1 (5) /1/}			
	Load Bearing Walls		Non-Load Bearing Walls		Load Bearing Walls		Non-Load Bearing Walls	
	A PG & BIL LLOP	B INHAB VLLOP	C PG & BIL LLOP	D INHAB VLLOP	E PG & BIL LLOP	F INHAB VLLOP	G PG & BIL LLOP	H INHAB VLLOP
Wood Studs – Brick Veneer	105 ft (32 m)	105 ft (32 m)	79 ft (24 m)	66 ft (20 m)	36 ft (11 m)	36 ft (11 m)	23 ft (7 m)	16 ft (5 m)
Wood Studs – EIFS	207 ft (63 m)	207 ft (63 m)	164 ft (50 m)	141 ft (43 m)	86 ft (26 m)	86 ft (26 m)	66 ft (20 m)	56 ft (17 m)
Metal Studs – Brick Veneer	187 ft (57 m)	187 ft (57 m)	207 ft ⁽³⁾ (63 m)	187 ft ⁽³⁾ (57 m)	75 ft (23 m)	75 ft (23 m)	82 ft ⁽³⁾ (25 m)	75 ft ⁽³⁾ (23 m)
Metal Studs – EIFS	361 ft (110 m)	361 ft (110 m)	420 ft ⁽³⁾ (128 m)	361 ft ⁽³⁾ (110 m)	151 ft (46 m)	151 ft (46 m)	167 ft ⁽³⁾ (51 m)	151 ft ⁽³⁾ (46 m)
Metal Panels	n/a ⁽²⁾	n/a ⁽²⁾	151 ft (46 m)	108 ft (33 m)	n/a ⁽²⁾	n/a ⁽²⁾	56 ft (17 m)	39 ft (12 m)
Girts	n/a ⁽²⁾	n/a ⁽²⁾	115 ft (35 m)	59 ft (18 m)	n/a ⁽²⁾	n/a ⁽²⁾	23 ft (7 m)	16 ft (5 m)
Reinforced Concrete	66 ft (20 m)	66 ft (20 m)	26 ft (8 m)	20 ft (6 m)	16 ft (5 m)	16 ft (5 m)	13 ft (4 m)	13 ft (4 m)
Unreinforced Masonry ⁽⁴⁾	262 ft (80 m)	262 ft (80 m)	125 ft (38 m)	33 ft (10 m)	80 ft (24 m)	80 ft (24 m)	26 ft (8 m)	16 ft (5 m)
Reinforced Masonry	86 ft (26 m)	86 ft (26 m)	30 ft (9 m)	20 ft (6 m)	30 ft (9 m)	30 ft (9 m)	13 ft (4 m)	13 ft (4 m)
European Block	164 ft (50 m)	164 ft (50 m)	59 ft (18 m)	30 ft (9 m)	39 ft (12 m)	39 ft (12 m)	23 ft (7 m)	16 ft (5 m)
1/1 Roof Construction in Table 2-3 /1/	20 ft (6 m)				13 ft (4 m)			

- Refer to Table 2-3 for details on the analysis assumptions and material properties for these wall types. 1/1 Note that window and door construction will need to be heavier and more expensive when standoff distances are less than 82 feet (25 meters) for Explosive Weight I and 33 feet (10 meters) for Explosive Weight II.
Where wall types include multiple cladding systems such as brick half way up the wall and EIFS above that, use the greater of the two applicable standoff distances /1/.
- Metal panels and girts are not considered primary structural members. 1/1 Where they are used in the same wall, use the applicable standoff that is the greatest of the two components /1/.
- Non-load bearing steel studs are assumed to have slip-track connections. Closer distances may be obtained through non-standard detailing and analysis.
- Only used for analysis of existing structures. Not allowed for new construction.
- 1/1 Note that standoff distances less than 43 feet (13 meters) for Explosive Weight I and 23 feet (7 meters) for Explosive Weight II will require dynamic analysis for windows because lesser distances are outside the range of ASTM F2248 /1/.
- 1/1 Note that all of the construction included in this table must also be checked for loading conditions specified by other applicable structural criteria/1/.



The generous size of the site readily allows for 86 foot setbacks from access roadways, as depicted in the site diagram found in Section 8. The project estimate (Appendix F) assumes the primary TRC building – which for purposes of the UFC is considered a Primary Gathering Building – has at minimum a reinforced masonry load-bearing perimeter structure (which is permitted with minimum 86-foot setbacks). If the perimeter were reinforced masonry but not load-bearing, the required standoff could be reduced to 30 feet. These figures assume the site is without controlled perimeter.

Note that setbacks of 187 feet are achievable on this site, which would allow the building envelope to be constructed of metal studs with masonry veneer. This would produce considerable cost savings but at the price of convenience to occupants. The best of both worlds – low construction costs and small setbacks – is possible were the site perimeter to be controlled. See Table B-2 for additional information on setbacks and wall types.

4.3b Site Components

The National Guard Design Guide for Readiness Centers establishes minimum site components that must be provided in a new facility. These include:

- POV (privately-owned vehicles) parking based on 90% of authorized strength of the housed units
- Expansion of the readiness center (up to 50% of Schedule II space)
- Military vehicle parking (with up to 50% expansion)
- Vehicle support including wash platform, fuel storage/dispensing, and a lubrication/inspection rack

The site planning for the TRC will comply with the basic configuration diagram provided in the DG-415-1:

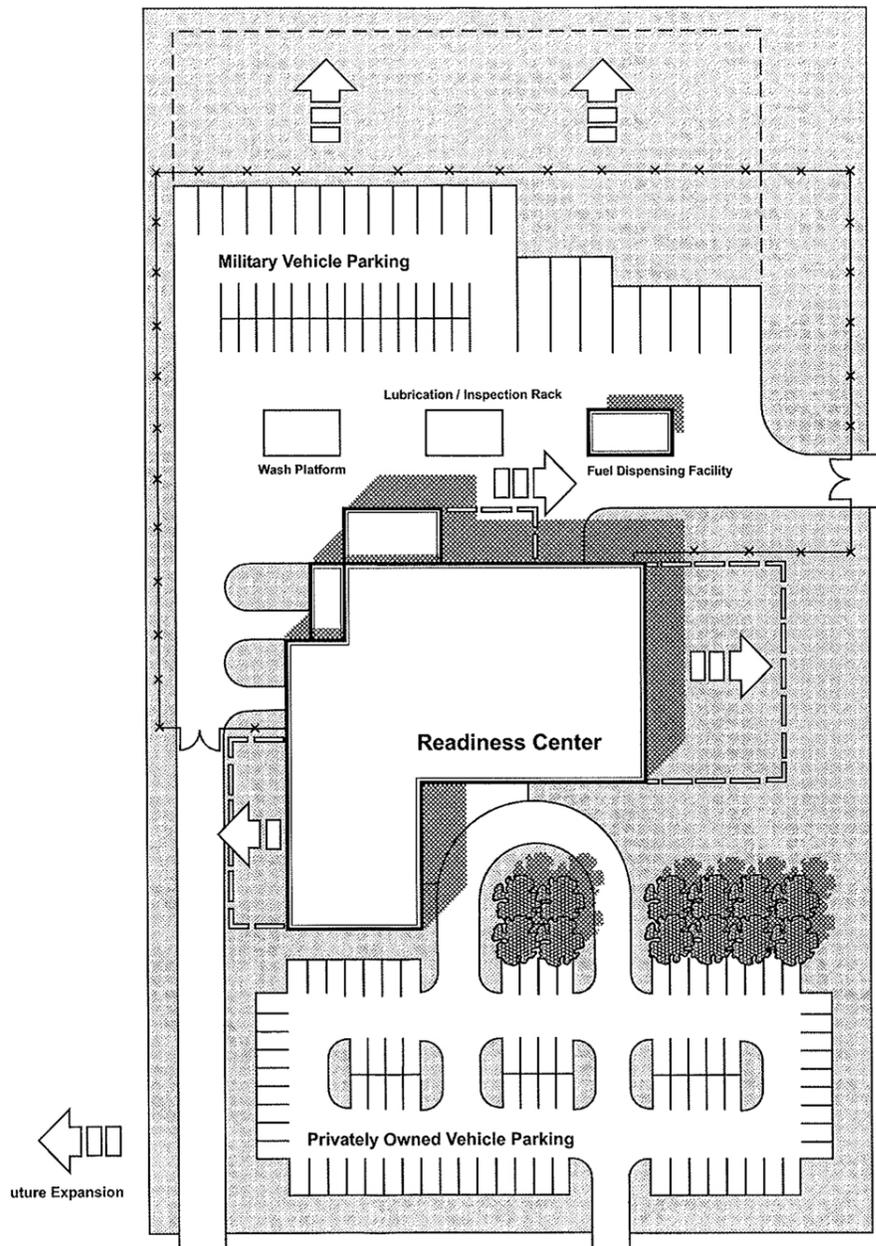


Figure 1. Basic Site Components



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BUDGET ANALYSIS





SECTION 5.0 PROJECT BUDGET ANALYSIS

5.1 SCOPE NARRATIVE

5.1.1 Basis of Estimate and Assumptions

The new Tumwater Readiness Center (TRC) will be of permanent construction in a three-story configuration meeting all codes and standards for essential facilities. It will allow the Washington Military Department (WMD) to realize significant energy, maintenance, and operational efficiencies through divestment of two obsolete facilities and consolidation of their functions into a single modern facility. Construction will be robust and of high quality, but at reasonable cost, with a projected life span exceeding 50 years. The TRC will be designed and constructed to achieve a LEED Silver sustainability certification. Outline specifications describing the general scope, quality, and character of the project are provided in Appendix D of this report.

The budgeting of the proposed TRC was prepared by measurement of approximate quantities based on site and building program analysis as provided herein (Sections 2 and 3). The following narratives describe the major building components assumed for the project for the basis of costing.

5.1.2 Civil/Site Improvements

Project Location:

The selected is located along Kimmie Road due west of the Olympia Regional Airport within the City of Tumwater. The west site boundary abuts Interstate 5.

Acquisition:

The site is owned by the State of Washington.

Soils:

A preliminary geotechnical analysis was prepared by South Sound Geotechnical Consulting (SSGC) on January 16, 2015. SSGC found that native soils consist of sand with variable silt, with coarser gravelly sand observed below the top layer of sand in the northern portions of the site. This soil type is characterized by good drainage and bearing capacity, and is reasonably expected to provide the minimum bearing capacity required by NGB.

Topography:

The site gently undulates, sloping south to north with grades ranging from 195.00 to 185.00. Based on recorded high groundwater as discussed in Section 4, imported fill will be required to elevate portions of the developed site. The site will be graded to direct runoff away from the buildings and paved areas to infiltrate on-site. The walkways will be graded to meet all necessary accessibility requirements. The design will balance the earthwork to the maximum extent feasible.



Erosion and Sedimentation Control:

Throughout construction, erosion and sedimentation control measures will comply with the 2010 Drainage Design and Erosion Control Manual (DDECM) adopted by the City of Tumwater. Sediment-laden water will be prevented from leaving the site. Currently, Best Management Practices are required for erosion control, perimeter protection, and sedimentation control. A Stormwater Pollution Prevention Plan (SWPPP) is required for the National Pollution Discharge Elimination System (NPDES) permit. The SWPPP will include a description of the site and construction activities, an explanation of the project's Best Management Practices, and a description of the pollution prevention team. A Notice of Intent (NOI) will be submitted to the Washington State Department of Ecology.

Typical erosion control consists of delineating clearing limits, covering disturbed areas, and controlling surface water. A perimeter filter fabric fence provides perimeter protection. A sedimentation pond or Baker tanks will provide sedimentation control.

Drainage & Wetlands:

There is a Category III wetlands at the south end of the site, in an area not required for development. The site lies within the Salmon Creek Basin. Historical flooding problems within the Salmon Creek Basin have occurred due to high groundwater. Because of high groundwater, Tumwater has adopted stricter drainage requirements, categorized in Section 2.3.2, Volume III, of the 2010 DDECM.

Stormwater detention and/or infiltration facilities will be required as the project adds considerable impervious surface to the site. Water quality facilities are required for flow from vehicle parking/storage areas which are considered pollution generating impervious surfaces.

Utilities:

Water:

The proposed site is located within the City of Tumwater water service area. Water will be drawn from a city-owned 16-inch municipal water main located in Kimmie Road SW. An 8-inch water main will serve the new building for both domestic use and fire protection. A connection fee will be required for connection to the city's service.

Fire Protection:

Fire truck access must be provided and a fire hydrant must be located within 150 feet of all points on the building.

Sanitary Sewer:

The City of Tumwater provides sanitary sewer service to the site from an 12-inch sanitary main located along Kimmie Road SW. Connection fees to this utility are anticipated and an 8-inch site sewer (6 inches for side sewers) is planned. The depth of the main is sufficient given that groundwater conditions already require the primary buildings to be constructed on elevated ground.

Gas:

Natural gas is the desired fuel source for heating and cooling. Gas service is provided to the site by Puget Sound Energy (PSE) from a 4-inch main located in Kimmie Road



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SW. New service will be provided to the TRC with a site use meter installed at the connection point.

Primary Power:

Electrical power is available from Puget Sound Energy. It is anticipated that power for the proposed project will require 480-v 3-phase and an on-site underground feed from the utility.

Signal and Telecommunications:

Telephone service is provided to the site by Century Link. On-site distribution will be the responsibility of the Military Department. Owing to the close proximity of the Olympia Regional Airport, any radio towers will require review and approval of the FAA.

The closest source of fiber optic cable is Kimmie Road. Fiber optic cable is required at the project site.

Roads and Parking:

Public roadways will be 4 inch medium-traffic asphalt and parking will be 4-in section. Paving at the military vehicle parking areas will be 8-inch concrete.

Sidewalks & Plaza:

An entry plaza into the building will be provided at the primary entrance on the north side of the building. It will consist of 4-inch-thick concrete over compacted native soils. New 6-foot-wide concrete sidewalks will be provided around the building to serve secondary entrances. Selected sidewalks may be thickened to support manlifts used for window cleaning.

Service Access:

Mail will be received at an outbuilding at the site public entrance, to eliminate any need for a mail facility constructed to anti-terrorism criteria within the primary facility. This outbuilding at times of mobilization will double as a guard shack.

Waste will be collected in containers located in the Military Vehicle area and screened with site walls and metal gates.

5.1.3 Landscape Criteria and Considerations

In general, landscape improvements will include native trees, shrubs, and ground cover at disturbed areas of the site, with focus around the public perimeter of the primary facility. Plantings will be drought tolerant and low-maintenance. Plantings within 30 feet of the readiness center will satisfy anti-terrorism requirements. Permanent irrigation systems, if employed, will be low-water-use-type and limited in scope to primary public areas.

Landscape work will include perimeter plantings meeting City of Tumwater standards.



5.1.4 Architectural Criteria and Considerations

Materials and Systems:

As the planned life of the building is 50+ years, proposed building materials and systems have been selected on the basis of durability, ease of maintenance, appropriateness, and initial cost. Materials and equipment will comply with NGB criteria and the WMD's "Design Standards and Material Specifications."

Exterior Walls:

The exterior wall materials for the building will be compatible with the context of a significant public building in the City of Tumwater. In no small part due to AT/FP setback requirements exterior walls will be of masonry bearing cavity wall construction with a brick and/or concrete block veneer on primary elevations. At areas of less prominence the masonry veneer may be substituted with other robust materials such as pre-finished metal panels with concealed fasteners.

Windows, storefront, and/or curtain wall will use thermally broken aluminum frames with color-anodized-aluminum finish and over-sized "bite" to meet UFC 4-010-01 blast requirements for glazing retention. Glazing will consist of clear or lightly tinted insulating glazing units with laminated inner lites and hard coat low emissivity (Low-E) coating.

Roofing:

The majority of the building area is proposed to have a low-slope single-ply membrane installed over rigid insulation attached to a noncombustible deck. In order to insure positive slope to drains, the low-slope roofing structure will be pitched at 1/2 inch per foot and insulation drainage crickets provided at all penetrations and between drains. The color of the roofing will be white to reflect heat gain to achieve LEED credit.

Within the limits of available funds and LEED criteria portions of the roof may have higher slopes and metal standing-seam-style roof panels.

Framed skylights will use thermally broken aluminum frames with color-anodized-aluminum finish and over-sized "bite" to meet UFC 4-010-01 blast requirements for glazing retention. Glazing will consist of clear or lightly tinted insulating glazing units with laminated inner lites and hard coat low emissivity (Low-E) coating. Skylights in industrial areas will be tubular-style units.

Interior Walls:

Interior bearing walls will typically be of 8- or 12-inch masonry construction. Walls at vaults and at below-grade areas will be cast-in-place concrete. Nonbearing interior walls not in industrial areas may be metal stud with gypsum wallboard. In large classrooms sound-rated operable partition walls (min. STC = 52) will be provided.

Interior Finishes:

All interior finishes will be based on the NGB design criteria except that carpet tile will be used in lieu of broadloom to permit ease of partial replacement.



Acoustics:

Primary acoustic attenuation in the building will be provided by acoustic ceilings and carpeting. Noise transmission in the open offices can be mitigated by the use of fabric panels associated with systems furniture. To minimize sound transmission at the offices, full height partitions with an STC rating of 45 will be provided between classrooms where acoustic isolation is desired, double offset studs with sound insulation will be used. In all cases, all walls will be full height to structure.

The assembly hall constitutes a primary internal noise source when fully occupied. To mitigate reflective noise, an acoustic profile metal deck will be used. Absorptive material on the walls will greatly aid in mitigating noise. In any space used for weapons simulation training, full-height masonry block with acoustic wall panels on the inside face will be used. Additionally, sound-rated doors will be provided.

As mechanical noise in the classrooms degrades the learning environment, all equipment will be isolated on vibration dampening bases and supports. Further, the ducts will have isolation connections.

Energy Conservation:

The project will make maximum use of available energy through passive design features, conservation, and low-use fixtures and equipment. Passive energy features include the use of entry vestibules at primary entrances, and orientation of the building to maximize daylight and minimize exposure to prevailing winds.

Building Services:

All deliveries to the building will be made from the service yard direct to the kitchen or to a loading dock with direct access to the unit storage facility. Waste will be collected in containers also located within the military vehicle parking area where they will be secure and contained. Building maintenance supplies will be stored in the facilities maintenance area.

5.1.5 Structural Criteria and Considerations

Design Criteria:

ACI 318-11	Building Code Requirements for Structural Concrete
ACI 530.1-11	Building Code Requirements for Masonry Structures
AISC 360-10	Manual of Steel Construction, Allowable Stress Design, 14 th edition
AISI/S100-07	North American Specification for the Design of Cold- Formed Steel Structural Members
AWS D1.1-04	Structural Welding Code-Steel
IBC 2012	International Building Code, 2012 Edition
ASCE 7-10,	Minimum Design Loads for Buildings and Other Structures
SJI	Steel Joist Institute Publications
SDI	Steel Deck Institute Publications
UFC 1-200-02	High Performance and Sustainable Building Requirements; 1 March 2013
UFC 4-010-01	United Facilities Criteria, Design: DoD Minimum Antiterrorism Standards for Buildings, 09 February 2012, Change 1, 01 October 2013



- UFC 4-010-02 DoD Minimum Antiterrorism Standoff Distances for Buildings; 09 February 2012
- UFC 4-011-01 DoD Security Engineering Planning Manual
- UFC 4-011-02 DoD Security Engineering Design Manual
- UFC 4-022-03 Security Fences and Gates; 01 October 2013
- UFC 4-023-03 Design of Buildings to Resist Progressive Collapse; 14 July 2009, Change 2, 01 June 2013
- UFC 4-030-01 Sustainable Development; 21 December 2007

Department of the Army Technical Instructions:

- TI 809-01 Load Assumptions for Buildings
- TI 809-02 Structural Design Criteria for Buildings
- TI 809-04 Seismic Design for Buildings
- TI 809-29 Structural Considerations for Metal Buildings

User and Design Requirements:

The structural design shall be in accordance with IBC 2012, ASCE 7-10, and TM 5-809-1 using criteria that include the following minimum loadings:

- a) Dead load consisting of the estimated actual weights of structure, coverings, and permanent contents, including equipment.
- b) Collateral load of 10 pounds per square foot on all roof and elevated floor framing, to account for suspended items such as ceilings, ductwork, piping and lights.
- c) Roof live load of 20 pounds per square foot, reducible for elements with tributary areas greater than 200 square feet.
- d) Ground snow load of 18 pounds per square foot, 5 psf rain on snow for qualifying flat roof locations, terrain category C, with considerations for drift and sliding snow.
- e) Minimum roof uniform snow load of 25 pounds per square foot (27.5 pounds per square foot with applied importance factor of 1.1).
- f) Floor live load
 - Classrooms / Office – 50 psf uniform load (reducible) + 20 psf partition and 2000 pound concentrated load
 - Mechanical rooms – 125 psf (reducible) and 2000 pound concentrated load + weight of any mechanical equipment
 - Upper corridors – 80 psf
 - Lower floor corridors – 100 psf
 - Stairs – 100 psf and 300 pound concentrated load on tread
 - Assembly Room – 100 psf
 - Storage Rooms – 125 psf
- g) Wind loads for an ultimate wind speed (Vult) of 115 miles per hour, exposure C, in accordance with IBC section 1609 and ASCE 7 chapters 26 through 30.
- h) Earthquake loads for maximum considered ground motions $S_s=1.290$ g and $S_1=0.510$ g, site class E, seismic design category D, importance factor = 1.25, and Risk Category IV (essential facility designation).

Foundations:

The foundation and floor slab design shall be based on geotechnical analysis. The bearing pressure shall be 3000 psf net allowable for spread footing design.



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The structures will be supported on reinforced concrete individual, continuous wall or combined spread footings. Exterior walls will be constructed on continuous foundation walls and spread footings and will bear at least 18 inches below grade for frost protection.

Interior slabs at grade will consist of conventional reinforced concrete slabs. Slabs will be reinforced for temperature and shrinkage effects and special point loads where required, and control and isolation joints will be placed to control cracking. Slabs will be placed over a vapor barrier and capillary water barrier consisting of a clean course aggregate. Slabs will be sloped to drain to individual floor drains or trench drains in the areas exposed to water. Typical slabs on grade shall be 4 inches thick, while the slab on grade at arms vaults and the exterior vehicle storage building shall be 6 inches thick.

Superstructure:

General:

The main building will be a three-story structure containing classrooms, office areas, assembly areas, storage, kitchen, and locker rooms. To the extent supported by budget there will also be a mechanical mezzanine floor above the third floor, under a pitched roof. The area of this mezzanine will be approximately one-third the area of the third floor. The structural system will be steel framed roof and floors with reinforced masonry or reinforced concrete bearing walls.

The unheated vehicle storage building shall be a one-story pre-engineered, pre-manufactured metal building unenclosed on its east elevation.

The structural systems will be required to support the roof live or snow loads, dead loads, floor live loads, wind loads and seismic loads in combinations established by 2012 IBC.

Roof:

The roof decking for the main building will be a galvanized steel deck welded to open web steel joists or wide flange steel beam joists. Continuous wide flange girders supported by square or rectangular steel tube columns will support the joists and trusses.

The roof will need to support the roof live load or snow load, dead load and any suspended collateral loads. Unbalanced snow and drift and sliding loads shall also need to be considered. For flat roofs, ponding and rain on snow loads shall need to be considered for certain conditions.

The roof will need to be designed as a diaphragm for lateral loads.

The roof deck for the pre-engineered vehicle storage building will be a light gage metal roof deck provided by the building manufacturer, and it will also serve as the finish roof material for the building. This deck will not be adequate to serve as a diaphragm for lateral loads, so the roof structure will require bracing, to be provided by the building manufacturer.

Elevated Floors:

The elevated floors in the main building will consist of concrete reinforced with welded wire mesh cast on composite metal deck. The composite metal deck will be welded to composite wide flange steel floor joists. The floor joists will be supported by continuous steel wide flanged girders supported by the tube columns.



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The floors will support the dead loads, any collateral loads and the live loads indicated above. They shall be designed as diaphragms for lateral forces.

Lateral Force Resisting System:

Lateral forces from wind and earthquake forces will be resisted by a continuous system from the roof down to the foundation. The forces at the floor and roof levels will be resisted by the floor and roof diaphragms, which will span horizontally between vertical masonry shear wall elements. These diaphragms will have continuous chords and collectors bounding the diaphragm perimeters. The collectors transfer the loads to the special reinforced masonry shear walls (or special concrete shear walls at the interior arms vault locations). The shear walls will then transfer the lateral forces to the foundation and then to the supporting soils. Shear walls will need to be detailed and designed as "special" to accommodate ductility requirements for seismic loads. Connections of roofs and floors to walls are a critical component of the system and shall require special designs.

At the vehicle storage building, the pre-engineered building designer is required to brace the roof structure to serve as a diaphragm to distribute lateral forces to the vertical lateral force resisting elements. The vertical lateral force resisting elements will consist primarily of moment-resisting frames throughout the building. Concentric braced frames may be utilized at some exterior walls that do not have large door openings.

Walls / Columns (Main Building):

Steel tube columns shall provide interior supports to the roof and floor framing. Reinforced masonry walls (or reinforced concrete walls at the interior arms vault locations) shall support the roof and floor framing on the exterior perimeter and where necessary on the interior supports. The walls shall also serve as shear wall in some areas. A brick, clay or concrete masonry veneer will be used in some areas. The reinforced masonry shall be comprised of hollow concrete masonry units. All cells shall be grouted for the reinforced masonry walls. These walls shall have reinforced vertical cells spaced at no greater than 4 feet. Bond beams oriented horizontally and spaced vertically at no greater than 4 feet shall be reinforced.

Serviceability:

Vertical deflection of framing members shall be limited to a maximum of 1/360th of the span under live load and 1/240th of the span length under the total load. A vibration analysis shall be required for members supporting rotating equipment such as ventilating fans and floor joists supporting walkable surfaces. Story drift shall be limited to values established by IBC or ASCE 7.

Anti-Terrorism / Force Protection (AT/FP):

The facility shall be designed to comply with referenced UFC standards. It is anticipated that the risk level for this structure will be categorized as "Low." This implies that the potential structural damage is repairable. Minor deformations of non-structural elements and secondary structural members and no permanent deformation in primary structural members are permitted. Hazards will be limited such that glazing will break, but will remain in the window frame. Doors will stay in frames, but will not be reusable.

The requirements of ATFP as it relates to the structural aspects include:

- a) The new facility will be a primary gathering building, not within a controlled perimeter. It is anticipated that the facility will have load bearing reinforced



- masonry exterior walls. Per the requirements of UFC 4-010-01 and UFC 4-010-02 the conventional construction standoff distance (CCSD) will be 86 ft. If nonloadbearing the CCSD would be reduced to 30 ft.
- b) Windows and doors will be designed in accordance with Standards 10 and 12 contained within UFC 4-010-01 (09 February 2012).
 - c) Progressive collapse is considered to be a significant risk for buildings of three or more stories. This building will be three stories tall; therefore, the requirements of UFC 4-023-03 shall be applied.
 - d) Building overhangs and breezeways with inhabited spaces above will be avoided where possible. Where unavoidable, the overhang will be designed to withstand an explosive weight placed below the overhang.

5.1.6 Mechanical Criteria and Considerations

Codes-References:

Codes and Standards shall be the most current issue as adopted by the Local Jurisdiction. In the event of a conflict of codes, the most stringent code will apply.

- International Building Code (IBC)
- Uniform Plumbing Code (UPC)
- International Mechanical Code (IMC)
- Washington State Energy Code
- SMACNA Duct Construction Standards, Metal and Flexible
- National Electrical Code (NEC)

Design Performance:

<u>Interior Conditions:</u>	<u>Heating</u>	<u>Cooling</u>
Occupied spaces	72°F	75°F
Mechanical/Support areas	65°F	80°F
Data/Communication Rooms	70°F	75°F
Electrical Rooms	55°-90°F	55°-90°F
	<u>Winter</u>	<u>Summer</u>
<u>Outside Conditions:</u>	<u>Design</u>	<u>Design</u>
Outdoor Temperatures (Design per WSEC)	29°F	82°F db
Record Temperatures	-8°F	104°F
Prevailing Winds	South, 9.31 mph	North mean speed

<u>Minimum Ventilation (Outdoor Air) Requirements:</u>	
Classrooms	10 cfm/person plus 0.12 cfm/sq.ft.
Shops	0.06 cfm/sq.ft.
Offices	5 cfm/person plus 0.6 cfm/sq.ft.
Data/Communications Rooms	5 cfm/person plus 0.6 cfm/sq.ft.
Conference Rooms	5 cfm/person plus 0.6 cfm/sq.ft.
Corridors/Unit Storage	0.06 cfm/sq. ft.
Restrooms	50 cfm exhaust per WC or urinal
Showers	10 air changes per hour
Assembly	7.5 cfm/person plus 0.6 cfm/sq.ft.
Lockers	0.25 cfm/sq.ft.



Utilities:

Gas will be used to generate domestic hot water. Locations and sizes of the supply lines entering the building will be determined during the schematic design phase and coordinated with the civil engineer.

Heating Ventilation & Air Conditioning

Spaces will be served by ductless and ducted split system heat pump systems using outdoor units with inverter-driven compressors. This system uses refrigerant as the cooling and heating medium. Ventilation air will be provided to the building using variable volume air handling units with plug fans, energy recovery cores with bypass, primary/secondary filters, and variable frequency drives. Duct systems will be insulated per the Washington State Energy Code. Demand controlled ventilation using CO₂ sensors and motorized dampers will be provided for all HVAC systems.

Gas unit and radiant heaters will serve the work bay, unit storage, lockers, showers, facility maintenance, vestibules, stairs, and mechanical rooms.

Exhaust for toilet rooms, janitor rooms, break room, unit storage, lockers, showers, facility maintenance, and mechanical rooms will be routed through the ventilation air handler energy recovery core(s).

A vehicle exhaust evacuation system, complete with exhaust fan and hose reels, will serve vehicle training workbays. Makeup air will be provided by the ventilation air handler(s).

A roof mounted indirect fired kitchen makeup air unit with an up-blast exhaust fan will serve the kitchen hood.

CO₂ sensors will be located throughout the building to control the minimum outside air ventilation. The outside air dampers will modulate from the minimum setting to 100 percent open as CO₂ levels rise.

Mechanical/Electrical Rooms:

Spaces will be served by ductless and ducted split system heat pump systems with ventilation supply air and exhaust air provided by the ventilation air handler(s).

Data/Telecommunication Rooms:

Spaces will be served by ductless and ducted split system heat pump systems with ventilation supply air and exhaust air provided by the ventilation air handler(s). Equipment heat generation, temperature limits will be coordinated during design development.

Indoor Air Quality:

Outside air will be provided per Washington State Energy Code. In areas where the occupancy varies such as in conference rooms, CO₂ sensors will be provided.



Controls:

Direct Digital Controls (DDC) system shall be utilized and integrated with existing WAARNG-wide network. DDC system includes temperature, pressure controls, scheduling, and monitoring. Department wide integration requirements will be coordinated with DDC system manufacturer during the design phase.

Plumbing Fixtures:

Typical fixtures will be compatible with current water conservation standards and LEED standards. It is anticipated that 20 percent water reduction can be achieved through the use of controlled flow devices, and low flow water closets and urinals.

Domestic Cold Water System:

Domestic cold water will be distributed to all plumbing fixtures, wall hydrants, etc. A Washington State-approved backflow preventer will be provided for non-potable systems. Irrigation system requirements will be coordinated with landscape architect.

Domestic Hot Water System:

High-efficiency condensing gas-fired domestic water heating equipment and hot water maintenance system will be provided. Domestic hot water will be distributed to all plumbing fixtures within the building at 120°F supply temperature.

Waste and Vent System:

The plumbing fixtures will be tied into waste and vent systems designed and installed per the requirements of the Uniform Plumbing Code. Sand and oil separators will be provided for the training bay and maintenance as required. A grease interceptor will be provided for applicable waste from the kitchen.

Roof Drain System:

Roof drains, overflow drains and related appurtenances will be installed.

Fire Sprinkler System:

Fire sprinkler system performance specifications will be provided based on NFPA 13. A fire sprinkler riser will be located in the Mechanical room. Building water supply will be protected with a Washington State approved backflow preventer. Standpipes will be located in the stairwells. The fire suppression system will be supervised per the National Fire Code.

Miscellaneous:

Combination fire/smoke dampers will be installed in the ductwork at locations required by Code. Duct smoke detectors will be installed in all mechanical air systems supplying 2,000 CFM or more.

Acoustical:

The mechanical design will provide acceptable sound levels per input from the acoustical consultant. The design will include vibration isolators and sound attenuation.



5.1.7 Electrical Criteria and Considerations

Governing Codes, Ordinances, and References:

- NFPA 70, National Electrical Code
- Washington State Electrical Code
- International Building Code
- Uniform Fire Code
- NFPA 72 National Fire Alarm Code
- Washington State Energy Code, Chapter 51-11 WAC
- Washington State Building Code, WAC 51-20-3100, Chapter 31, Accessibility
- TIA 568 Commercial Building Telecommunications Wiring Standard

Service:

Puget Sound Energy has primary electrical service available at the site. Primary power will be extended from the site boundary to pad-mount transformers located near the major structure. The secondary service is anticipated to be run to 277/480 volt – 3 phase – 4 wire distribution gear and metering provisions in the electric room. A transformer will be provided in an electric room to serve 120 volt and 208 volt convenience outlets, fixtures, and equipment. Branch circuit panels will be surface mounted in dedicated electrical closets distributed throughout the building. Metering will be integral to each switchboard and individual panel boards. Technical information will be extrapolated via network infrastructure based on the native language of the National Guard.

Lighting:

Interior lighting fixtures will be specification grade fluorescent with triphosphor lamps similar to "Octron" for good color rendition. Ballasts will be electronic type to eliminate noise and lamp flicker, and to provide energy efficiency and minimum maintenance. Fixtures in administrative areas and classrooms will typically be recessed 2' x 4' fluorescent troffers with direct-indirect distribution to minimize glare. Rapid-start fixtures will be provided in the assembly hall. At all locations, substitution of specified fixtures with LED fixtures will be encouraged.

Exterior lighting will include pole-mounted luminaires in the vehicle area, and wall-mounted fixtures at the building perimeter. Solid Start LED lamps with integral drivers will be used to provide good color rendition and energy efficiency. Fixtures will be selected and oriented to minimize light intrusion on adjacent properties.

Egress lighting will be provided by integral emergency battery units installed in general lighting fixtures. Exit signs will be LED type with integral batteries.

Lighting fixtures and their control will comply with the Washington State Nonresidential Energy Code. Requirements include selection of energy efficient fixtures, local control for all lighting, arrangement of switching to maximize opportunities for use of daylight, and automatic control of exterior lighting. Compliance with these code requirements will ensure an energy efficient installation.



Fire Alarm:

A fire alarm system will be installed to meet current requirements of NFPA, the Uniform Fire Code, and any local codes/ordinances. It will also serve as a mass notification system. The fire alarm control panel will be located in the main electric room, and a remote annunciator will be provided at the main entrance. Requirements are expected to include manual and automatic features:

- Pull stations at exterior doors.
- Smoke detection in corridors, offices, and classrooms.
- Smoke detection in mechanical ducts over 2000-cfm.
- Speakers and strobes (amber and white) for audibility throughout and to meet ADA visible alarm requirements for the hearing impaired.
- Weatherproof speakers at building exterior.
- Connection to the fire sprinkler system.
- Central station reporting.
- Connections to the building EMCS allowing for HVAC shutdown.

Communications:

Telecommunications will be coordinated with the WAARNG standards. Jack-to-jack infrastructure will be provided for telephone and data systems. Telephone provisions will include wall jacks, cabling, and termination on punchdown blocks in the main telephone room. Data provisions will include Cat 6A wall jacks, cabling, and termination on rack mounted patch panels at the MDF (Main Distribution Frame), and IDFs (Intermediate Distribution Frames). Cable will be run exposed above accessible ceilings, and in conduit through inaccessible areas. Special communications circuits will require dedicated conduits and grounding.

Intrusion Detection System:

An empty conduit system will be provided for an intrusion detection system to be installed by the WAARNG security contractor.

5.2 DETAILED COST ESTIMATE

5.2.1 Overall project costs

We estimate that the project will have an overall escalated construction cost of \$31,027,576 with \$6,954,424 escalated soft costs for a total escalated project construction cost of \$37,982,000. Additional project costs for design, construction services, artwork, commissioning, FF&E, and information systems raise the total project costs including other appropriations to \$44,588,000. A separate site acquisition cost of \$2,800,000 was included in the 2013-2015 state budget. See Appendix F for a detailed cost description.

5.3 COST BENEFIT ANALYSIS/LIFE CYCLE COSTS

5.3.1 Existing Program and Facilities

Keeping the existing facilities will result in inadequate space to support the current program. The existing facilities have served well beyond their economic life and



renovation or partial expansion is not feasible from any program or economic sense. Additionally there is no ability to address site area shortfalls at the existing site as there are no adjacent site areas available for acquisition. Failure to replace these structures will result in increasingly higher operation and maintenance cost due to their poor condition and lack of energy efficient systems and building envelope.

5.3.2 Most Appropriate Solution

The proposed solution is to replace the two obsolete buildings suffering from limited functionality and deteriorated conditions with a single new 84,638 gross square foot readiness center. As the sites are separate, construction will occur with the housed programs remaining operational for the full duration of construction. Once these programs occupy the completed facility, the existing Olympia and Puyallup readiness centers will be divested.

5.3.3 Impact of No Action

Without the proposed project, the Military Department will not be able to meet the identified need of for current and emerging military and civil response missions nor will it be able to be provided minimum force-protection. The effect of taking no action will be:

- Training and mission response deficiencies present in the existing facilities will remain unaddressed.
- Lack of site setback and site circulation will continue to impact force protection as well as access, and safety.
- The ability of the Military Department to recruit and retain soldiers will continue to be impacted.
- Maintenance and operations costs will continue to increase
- The opportunity to realize operational costs savings from a consolidated project will be missed.

5.4 AGENCY PROJECT REQUEST FORMS

Once the replacement to OFM's C-100 form is available for use, cost data from the estimate included in Appendix F will be imported and distributed for review.

5.5 ANTICIPATED FUNDING SOURCES

Of the total escalated project construction cost of \$37,982,000, \$31,000,000 will be funded by the federal government, with the remaining 6,982,000 being the responsibility of the state.

MASTER PLAN & POLICY COORDINATION





SECTION 6.0 MASTER PLAN COORDINATION

6.1 CONFORMANCE WITH AGENCY MASTER PLAN

Planning History

The 2004 Comprehensive Stationing Plan prepared by OFM established as a primary planning goal that WAARNG's readiness centers must be modern and capable of meeting the strategic and operational needs of the state's National Guard soldiers and their communities. It states that with good business practices in mind, these facilities must also ensure the highest and best use of Military Department properties and responsible use of tax payers' dollars.

The Plan provided a baseline evaluation of all existing readiness centers, as well as a Strategic Stationing Plan that aligns readiness centers with Department of the Army requirements. This includes a strategic investment plan that begins to modernize facilities, while minimizing budget requests for State maintenance and construction dollars.

WMD's own 2012 25-Year Statewide Facilities Plan further explores and refines the themes of the 2004 OFM effort, in particular that WMD replace its small, aged and/or obsolete facilities with consolidated regional training centers. This plan defined six regions: North Puget Sound, South Puget Sound, Vancouver, Yakima, Tri-Cities, and Spokane. Within the South Puget Sound region the plan recommends divestment of the historic Tacoma (achieved in 2013), Olympia and Puyallup armories and construction of new regional training centers (i.e. readiness centers) serving Pierce and Thurston counties.

Planning Goals/Objectives

A principle goal of the Statewide Facilities Plan is to align WMD's "sites and facilities with need that will increase operational efficiency while leveraging relationships with other partners." To that end, the Adjutant General (TAG) established a clear vision:

"...in these austere times...provide the best possible facilities for our soldiers."

and provided the following goals (listed in summary form):

- Take Care of What We Have
- Reduce Energy Consumption
- Consolidate in Key regional Areas
- Reinvest in Current Infrastructure
- Modernize to Meet 21st Century Training Requirements
- Environmental Stewardship

Planning Assumptions

The Statewide Facilities Plan included the following assumptions supportive of development of the Tumwater Readiness Center:

- The I-5 corridor yields 2/3 of statewide recruits.
- The population of Thurston County will grow over the next 15-20 years.
- The TRC is a near-term priority of the WMD.
- The highest statewide threats (Tier 1) are found along the I-5 corridor.



Plan Recommendation

The adopted 2004 Comprehensive Stationing Plan by OFM, later validated by WMD's 2012 25-Year Statewide Facilities Plan, calls to reduce the number of readiness centers and divest facilities that cannot be economically upgraded. Of the three alternatives studied at the time, the adopted plan has the lowest overall cost, good operational strengths and flexibility, and the opportunity to provide maximum leveraging of divestiture funds. The life cycle cost analysis prepared during the plan evaluation shows that in comparison to the Existing Facilities Plan, the adopted Master Plan has the potential to:

- Save nearly \$50 million in state investment dollars.
- Save \$700,000 per year in state sustainment costs, or \$35 million over 50 years.
- Pay for approximately 55 percent of investment costs with land divestiture revenues. The Existing Facilities Plan would pay for approximately 1% of investment costs with land divestiture revenues.

Planning Compliance

As both the Olympia and Puyallup readiness centers have significant building and site deficiencies that preclude their economically viable upgrading, they were identified by the 2012 25-Year Statewide Facilities Plan as the initial candidates for replacement by a consolidated facility.

The proposed project in this predesign is in detailed compliance with the adopted 2012 25-Year Statewide Facilities Plan.

In terms of satisfying The Adjutant General's stated goals:

Take Care of What We Have

Divestment of the Olympia and Puyallup readiness centers cannot be responsibly avoided – The facilities are in such a state of disrepair and so unsuited to their mission as to unnecessarily drain WMD resources that could be more effectively applied to other WMD assets.

Reduce Energy Consumption

The TRC will at minimum achieve LEED Silver certification and fully comply with the Washington State Energy Code and new Governor Executive Order 13-03.

Consolidate in Key Regional Areas

The TRC fully complies with the WMD's efforts to concentrate development resources at regional facilities.

Reinvest in Current Infrastructure

Locating the TRC within an established road and utility network and along the Interstate 5 corridor effectively uses existing infrastructure.

Modernize to Meet 21st Century Training Requirements

The TRC will be a modern facility attuned to current military training requirements but with built-in flexibility to adapt to changing need.



Environmental Stewardship

LEED Silver certification, development on a previously-developed and centrally-located site well served by the existing road network assures minimal stress on the environment.

6.2 CONFORMANCE WITH STATE REQUIREMENTS

The Tumwater Readiness Center will further the following significant state policies:

Clean Air Act of 1991

In response to the Clean Air Act of 1991, the Military Department encourages carpooling by providing convenient dedicated spaces. It further encourages non-automobile commuting options by providing bicycle racks, lockers, and parking for motorcycles and scooters. HVAC requirements and material selection for this project will improve indoor air quality and reduce outdoor emissions.

Growth Management Act of 1990

The Growth Strategies legislation of 1991 requires all state agencies to comply with local land use regulations adopted pursuant to the Growth Management Act. This project is subject to the plan review and environmental mitigation process of Thurston County. No significant issues are anticipated, as the development proposed by this predesign document is in compliance with all major requirements.

Governor's Executive Order 90-94 for Protection of Wetlands

The Military Department has evaluated the proposed site for wetlands as required by the Growth Management Act and the Governor's Executive Order. The TRC project will not impact any wetland. No environmentally sensitive areas will be affected by this project.

Clean Water Act

The TRC project will include storm water, drainage and erosion control plan requirements into its construction documents. The National Pollutant Discharge System (NPDES) permit requirements will be implemented through the installation and maintenance of drainage systems.

Hazardous Substances

Prior to occupancy of any facilities, the Military Department engages an approved outside consultant and/or chemical hygiene expert to prepare an inventory of all hazardous substances to be utilized in, or removed from, the project. This consultant assists in developing a mitigation plan for removal and/or abatement and for adherence to notification requirements.

Executive Order 00-01 (Workforce Development)

The proposed project will comply with Executive Order 00-01 which requires a minimum level of apprenticeship participation in construction of state agency projects.

Wage Rates

The proposed project will comply with Prevailing Wage Rates regulations as administered by L & I.



Government Options to Landfill Disposal

The TRC project will include preparation of a Construction Waste Management Plan as established by E&A Services (2005). The project will require a Construction Waste Management Plan and reporting process.

Governor Executive Order 05-05

This Executive Order requires state agencies to review capital construction projects and land acquisitions with the Department of Archaeology and Historic Preservation (DAHP), to determine potential impacts on cultural resources. Initial review of the site would indicate that this site would not be impacted by this and as there are federal funds involved it is exempt from this order. However, the Military Department will participate in this process prior to design.

Engrossed Substitute Senate Bill 5509

With passage of this bill, State of Washington facilities are required to be designed and built to the U.S. Green Building Council Leadership in Energy and Environment Design (LEED) Silver standard. This requirement was carefully considered in the development of this predesign. For a detailed description of Military Department's commitment to environmental awareness and anticipated strategies for LEED Silver certification see Appendix B - LEED Analysis.

Governor Executive Order 13-03

This Executive Order requires state agencies to consider life cycle and operating costs in public works project at the beginning of the planning process, as a means of reducing energy and other operating costs. This order applies to all new buildings in excess of 5000 sf and demonstration of compliance must be provided to OFM prior to the start of construction. Benchmarks will be established in the design phases.

6.3 OTHER POLICY COORDINATION

Other policies affecting the General Classroom Building include:

- State of Washington Department of General Administration – Facilities Design Guidelines and Construction Standards.
- State of Washington Department of General Administration – Engineering and Architectural Services – Construction Waste Management Plan.
- State of Washington Department of General Administration – Leadership in Energy and Environmental Design (LEED) – Quality Assurance Process Guidelines for State Agency/College and University Facilities.
- Washington State Military Department Design Manual and Standard Specifications.

FACILITY OPERATION & MAINTENANCE REQMTS.





SECTION 7.0 FACILITY OPERATIONS & MAINTENANCE REQUIREMENTS

Increased operation and maintenance costs associated with the new facility will have an impact on the Military Departments operating budget. It should be noted that this cost is not an appreciable increase over the operating costs for the two existing readiness centers on a square foot basis, as efficiencies of new systems and consolidation will actually minimize the operational impact of this new facility.

7.1 OPERATING BUDGET IMPACTS

Project impact on the WMD's annual operating budgets is as follows:

Utilities

The new building will be designed as an energy efficient facility following the Leadership in Energy & Environmental Design (LEED) standards and achieving LEED Silver certification. We anticipate proportional utility costs compared with the existing Olympia and Puyallup readiness centers to provide an estimated savings of 10% below current average cost per square foot due to planned efficiencies.

Security

Currently, WMD provides security service personnel responsible for both the Olympia and Puyallup readiness centers. With consolidation, we estimate no increase in cost while providing similar level of physical security.

Grounds

These costs will be higher than the current costs at Olympia and Puyallup as the developed grounds will increase considerably. For grounds maintenance alone the facility will require an annual expenditure of 0.25/sf for planted areas.

Technology / Voice Data Video

These costs are expected to be unchanged due to the fact that all the housed units currently have all authorized computers and equipment.

Custodial:

Since the proposed project nearly doubles the building area provided at the Olympia and Puyallup readiness centers, a similar increase in custodial costs is expected.

Capital Maintenance, General Repair

Additional facility area will require an additional 0.25 FTE Maintenance Mechanic II, equating to approximately \$20,000 annual cost.

7.1a Operating Budget Impacts:

Using current (2013) annual authorizations for comparable state properties, the Tumwater Readiness Center will require at minimum \$2.72/sf/year to maintain and operate the facility inclusive of all functions listed above.

$$\$2.72/\text{gsf}/\text{year} \times 84,638 \text{ gsf} = \mathbf{\$230,000/\text{year}}$$
 (rounded to nearest \$1000)

Operating costs are anticipated to escalate 3 percent/year.



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PROJECT DIAGRAMS & DRAWINGS





SECTION 8.0 PROJECT DIAGRAMS AND DRAWINGS

The following diagrams illustrate the conceptual arrangement of the building and programmed spaces on the proposed site. They are not intended to represent building design, but rather a scaled organizational diagram suitable for evaluating development issues and costs.

8.1 SITE PLANS

Placement of the readiness center on the site is intended to accomplish several objectives:

- Take maximum advantage of the existing road network.
- Provide a public face commensurate with the stature of the National Guard.
- Comply with AT/FP (anti-terrorism/force-protection) standards.
- Minimize area of site disturbance and maintain maximum quantity of existing trees.
- Orient offices and classrooms to primary daylight.
- Maximize future flexibility, including reserve space for additional functions or future building expansion.

8.2 BUILDING PLANS

The TRC will be a flexible training center that meets the multi-level training and operational expectations of the National Guard. It will be a modern, technology-rich facility that affords highly standardized and cost-effective training to assure the mission effectiveness of the assigned units. It will be a facility that projects to the individual soldier the importance of their mission and the value that the Army places on their ability to accomplish it in the most effective manner.

To maximize inter-functional efficiencies the three-story building is conceptually organized with public, industrial, and site-access-dependent functions on the ground floor, classroom/training functions on the second floor, and administrative functions on the third floor. As an exception intended to equalize gross areas of the upper floors, administrative functions of the existing Puyallup readiness center are housed on the second floor.

8.3 ATTACHMENTS

Rendered Site Plan Diagram
First Floor Plan Diagram
Second Floor Plan Diagram
Third Floor Plan Diagram
Section/Massing Diagram



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Washington State
Military Dept.

Tumwater
Readiness
Center

Pre - Design

GROUND FLOOR
PLAN

PROJECT NO: 12008

DATE: April 23, 2015

SHEET: OF:

A3.1



2 REMOTE STORAGE BLDGS (SEE SITE PLAN)
A3.1 Scale: 1/16" = 1'-0"

1 GROUND FLOOR PLAN
A3.1 Scale: 1/16" = 1'-0"



Washington State
Military Dept.

Tumwater
Readiness
Center

Pre - Design

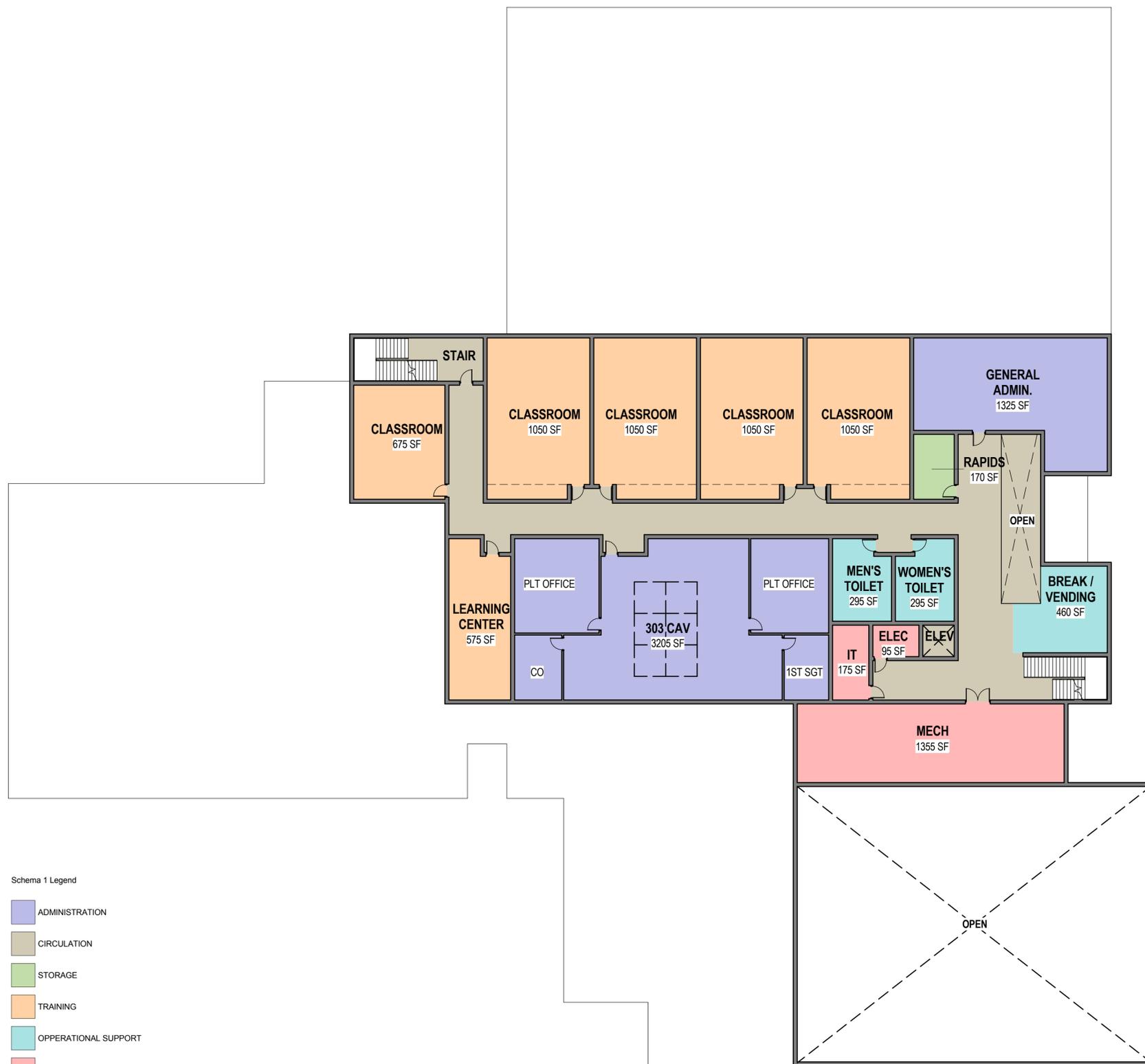
SECOND FLOOR
PLAN

PROJECT NO: 12008

DATE: April 23, 2015

SHEET: OF:

A3.2



Schema 1 Legend

ADMINISTRATION

CIRCULATION

STORAGE

TRAINING

OPERATIONAL SUPPORT

BUILDING SUPPORT



Washington State
Military Dept.

Tumwater
Readiness
Center

Pre - Design

THIRD FLOOR PLAN

PROJECT NO: 12008

DATE: April 23, 2015

SHEET: OF:

A3.3



Schema 1 Legend

- ADMINISTRATION
- CIRCULATION
- OPPERATIONAL SUPPORT
- BUILDING SUPPORT

Washington State
Military Dept.

Tumwater
Readiness
Center

Pre - Design

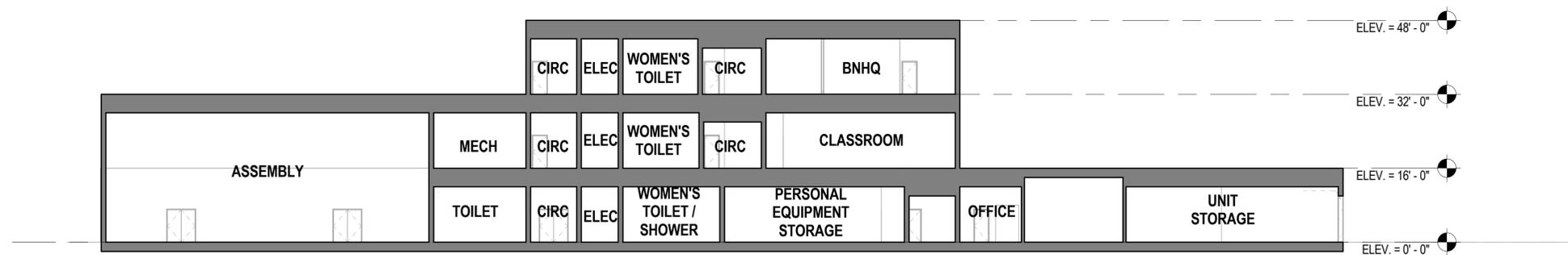
BUILDING SECTION
DIAGRAMS

PROJECT NO: 12008

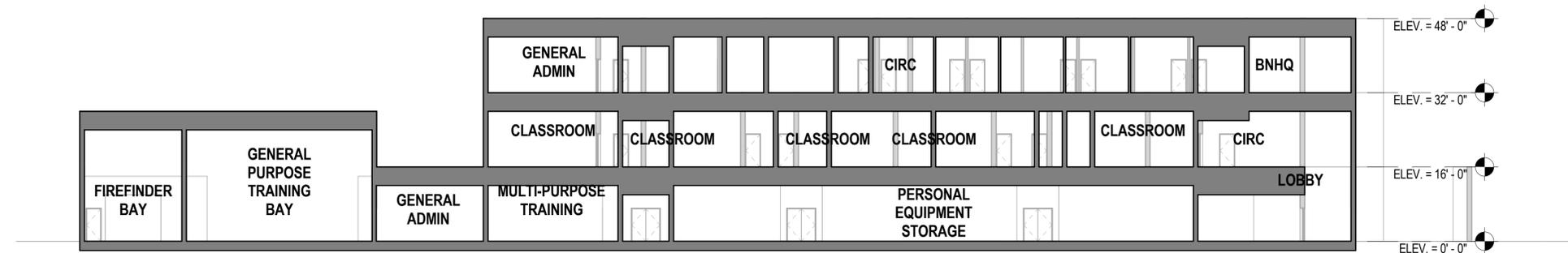
DATE: April 23, 2015

SHEET: OF:

A3.4



2 Section 2
A3.4 Scale: 1/16" = 1'-0"



1 Section 1
A3.4 Scale: 1/16" = 1'-0"

APPENDICES



APPENDIX A





APPENDIX A PREDESIGN CHECKLIST

- Executive Summary
- Project Analysis
 - Discussion of operational needs
 - Discussion of alternatives
 - Discussion of selected alternative
 - Identification of issues
 - Prior planning and history
 - Stakeholders
 - Project description
 - Implementation approach
 - Project management
 - Schedule
- Program Analysis
 - Assumptions
 - Functions and FTEs
 - Spatial Relationships between facility and site
 - Interrelationships and adjacencies of functions
 - Major equipment
 - Special systems such as environmental, information technology, etc.
 - Future needs and flexibility
 - Sustainability, energy use and greenhouse gas emission reduction
(See also Appendices B & I)
 - Applicable codes and regulations
- Site Analysis
 - Potential sites
 - Building footprint
 - Site considerations such as physical, regulatory, and access issues
 - Acquisition process
- Project Budget Analysis
 - Assumptions
 - Detailed estimates
 - Funding sources
 - Project cost estimate
 - Funding methods
 - Sign off by agency (See Appendix F)



Revised April 20, 2015

- Master Plan and Policy Coordination
 - Impacts to existing plans
 - Adherence to significant state policies
- Facility Operations and Maintenance Requirements
 - Assumptions
 - Operating costs in table form (*Expressed in total cost/sf*)
 - Staffing plan (capital and operating)
- Project Drawings/Diagrams
 - Site plans
 - Building plans
 - Building volumes
 - Elevations (*Not applicable*)
- Appendix
 - Predesign checklist
 - Project budget unit cost detail
 - Sustainable design charette summary
 - Copy of policies adopted in accordance with RCW 70.235.020 on the state's limits on the emissions of greenhouse gases
 - A letter from DAHP on the impact of potential sites on cultural resources
 - Additional information as needed

APPENDIX B





APPENDIX B SUSTAINABLE DESIGN APPROACH

Sustainable Concepts and LEED

The Department of Defense, like the State of Washington, requires use of the United States Green Building Council's LEED (Leadership in Energy & Environmental Design) third-party verification system to assure its facilities achieve sustainability benchmarks. At minimum this requires certification to LEED Silver. Moreover, the Washington Military Department views this project as an invaluable opportunity to establish agency standards for energy and asset conservation as well as to demonstrate how to build sustainable and responsibly.

A preliminary sustainability design "eco-charrette" was performed during the Project Planning Document Charrette (PPDC) held on July 30-31, 2013, and resulted in completion of a LEED scorecard (attached). This scorecard depicts the credits necessary to achieve each level of LEED certification (Certified, Silver, Gold, and Platinum). The credits assumed possible for the TRC total 50, the lowest possible score necessary for achieving LEED Silver. Minutes from the PPDC are attached. The eco-charrette discussion is found in Item 3.7.

The design team will also perform an eco-charrette during the design process. Additional opportunities and refinements will be considered at that time.

Sustainable Design Approach

The project will seek opportunities to apply innovative LEED principles of sustainability by selecting appropriate materials that are both durable and timeless. The Military Department conceives these sustainable principles not just as secondary add-ons but rather as strong design elements that reveal the agency's environmental commitment while creating aesthetic and operational efficiencies. Planting design, material usage, system selections, energy efficiency, and water use, are subsequently informed and made meaningful by the functional needs associated with ecological design principles.



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LEED 2009 for New Construction and Major Renovations

Project Checklist

Project Name

Date

7 3 4 Sustainable Sites Possible Points: 26

Y	?	N			
Y			Prereq 1	Construction Activity Pollution Prevention	
1			Credit 1	Site Selection	1
		1	Credit 2	Development Density and Community Connectivity	5
		1	Credit 3	Brownfield Redevelopment	1
		1	Credit 4.1	Alternative Transportation—Public Transportation Access	6
1			Credit 4.2	Alternative Transportation—Bicycle Storage and Changing Rooms	1
	1		Credit 4.3	Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	3
		1	Credit 4.4	Alternative Transportation—Parking Capacity	2
	1		Credit 5.1	Site Development—Protect or Restore Habitat	1
1			Credit 5.2	Site Development—Maximize Open Space	1
1			Credit 6.1	Stormwater Design—Quantity Control	1
1			Credit 6.2	Stormwater Design—Quality Control	1
1			Credit 7.1	Heat Island Effect—Non-roof	1
1			Credit 7.2	Heat Island Effect—Roof	1
1			Credit 8	Light Pollution Reduction	1

6 4 Water Efficiency Possible Points: 10

Y	?	N			
Y			Prereq 1	Water Use Reduction—20% Reduction	
2	2		Credit 1	Water Efficient Landscaping	2 to 4
2			Credit 2	Innovative Wastewater Technologies	2
2	2		Credit 3	Water Use Reduction	2 to 4

19 16 Energy and Atmosphere Possible Points: 35

Y	?	N			
Y			Prereq 1	Fundamental Commissioning of Building Energy Systems	
Y			Prereq 2	Minimum Energy Performance	
Y			Prereq 3	Fundamental Refrigerant Management	
10	9		Credit 1	Optimize Energy Performance	1 to 19
	7		Credit 2	On-Site Renewable Energy	1 to 7
2			Credit 3	Enhanced Commissioning	2
2			Credit 4	Enhanced Refrigerant Management	2
3			Credit 5	Measurement and Verification	3
2			Credit 6	Green Power	2

7 7 Materials and Resources Possible Points: 14

Y	?	N			
Y			Prereq 1	Storage and Collection of Recyclables	
		3	Credit 1.1	Building Reuse—Maintain Existing Walls, Floors, and Roof	1 to 3
		1	Credit 1.2	Building Reuse—Maintain 50% of Interior Non-Structural Elements	1
2			Credit 2	Construction Waste Management	1 to 2
		2	Credit 3	Materials Reuse	1 to 2

Materials and Resources, Continued

Y	?	N			
2			Credit 4	Recycled Content	1 to 2
2			Credit 5	Regional Materials	1 to 2
		1	Credit 6	Rapidly Renewable Materials	1
1			Credit 7	Certified Wood	1

10 4 1 Indoor Environmental Quality Possible Points: 15

Y	?	N			
Y			Prereq 1	Minimum Indoor Air Quality Performance	
Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control	
1			Credit 1	Outdoor Air Delivery Monitoring	1
1			Credit 2	Increased Ventilation	1
1			Credit 3.1	Construction IAQ Management Plan—During Construction	1
1			Credit 3.2	Construction IAQ Management Plan—Before Occupancy	1
1			Credit 4.1	Low-Emitting Materials—Adhesives and Sealants	1
1			Credit 4.2	Low-Emitting Materials—Paints and Coatings	1
1			Credit 4.3	Low-Emitting Materials—Flooring Systems	1
1			Credit 4.4	Low-Emitting Materials—Composite Wood and Agrifiber Products	1
1			Credit 5	Indoor Chemical and Pollutant Source Control	1
	1		Credit 6.1	Controllability of Systems—Lighting	1
		1	Credit 6.2	Controllability of Systems—Thermal Comfort	1
1			Credit 7.1	Thermal Comfort—Design	1
	1		Credit 7.2	Thermal Comfort—Verification	1
	1		Credit 8.1	Daylight and Views—Daylight	1
1			Credit 8.2	Daylight and Views—Views	1

1 Innovation and Design Process Possible Points: 6

Y	?	N			
			Credit 1.1	Innovation in Design: Specific Title	1
			Credit 1.2	Innovation in Design: Specific Title	1
			Credit 1.3	Innovation in Design: Specific Title	1
			Credit 1.4	Innovation in Design: Specific Title	1
			Credit 1.5	Innovation in Design: Specific Title	1
1			Credit 2	LEED Accredited Professional	1

Regional Priority Credits Possible Points: 4

Y	?	N			
			Credit 1.1	Regional Priority: Specific Credit	1
			Credit 1.2	Regional Priority: Specific Credit	1
			Credit 1.3	Regional Priority: Specific Credit	1
			Credit 1.4	Regional Priority: Specific Credit	1

50 11 28 Total Possible Points: 110

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110



PPDC (PROJECT MEETING No. 5) - MINUTES

PROJECT: Thurston County Readiness Center
 (Update Pre-Design for Olympia Area Readiness Center)
EA&S Project No.: 2013-007 A (1)
OWNER: State of Washington Military Department
ARCHITECT: Schreiber Starling & Lane Architects
LOCATION: Building 36
DATE/TIME: July 30-31, 2013 / 9:00 am

MEETING ATTENDEES:

Name:	Initials:	Title/Representing	email (or phone):
Dri Bunker	DB	WAARNG	adriana.bunker@mil.wa.gov 253-512-8456
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Keith Schreiber	KS	Principal, Schreiber Starling & Lane Architects	schreiber@sslarchitects.com 206-682-8300

1.0 – Previous Minutes		Action
1.1	None.	Info

2.0 – Project Timeline		Action
2.1	Updated Pre-Design submission is targeted for middle of September 2013 State funding projected for 2015-2017 biennium Construction - FY 2017 Project completion - 2018	Info

3.0 – Progress		Action
3.1	Project History Discussion: Review of project history to-date concluded with final site selection at Port property in Tumwater.	Info
3.2	Site Discussion: <ul style="list-style-type: none"> High water table and one-time high water event (approx. 1999) requires ground floor level of new building to be raised min. 3' above current grade. A minimal building footprint will minimize amount of structural fill needed. Port has agreed to provide its available structural fill from other sites; quantity unknown. High water table, flat site, large paved area, large roof area all increase issues associated with water run-off. As part of site selection, Port agrees to construct off-site retention system. 	Info
3.3	Unheated Enclosed Vehicle Storage Building Discussion: <ul style="list-style-type: none"> TL sees a "red flag" in the size of proposed Unheated Vehicle Storage Building 	MB, JW

	<p>(55,000 sf). What is the max. number of tracked vehicles to be stored at this facility? Are all those assigned to this facility?</p> <ul style="list-style-type: none"> • AI wants to maximize unheated vehicle storage for future usage / growth. Near future may bring Stryker to this facility and added size would be needed. Stryker would add 180 soldiers. Stryker would also add a lot of roll stock vehicles. • MB & JW to report back with required number of tracked vehicles. • Decision was made to reduce unheated vehicle storage from 55,000 sf to 38,000 sf . This 38,000 sf to be divided into 2 buildings: <ul style="list-style-type: none"> ○ 1- 30,000 sf metal building for vehicle storage. ○ 1- 8,000 sf masonry storage building. This building will be arranged on the site and designed for easy future conversion to FMS facility. ○ This change may require an Exception to Criteria. • Final unheated vehicle storage bldg. should be no more than 60' deep. 	
3.4	<p>ATFP Discussion:</p> <ul style="list-style-type: none"> • KF concerned with site security when metal out buildings are built at site perimeter and used in lieu of fencing to provide secure perimeter. <ul style="list-style-type: none"> ○ KF noted that low building can be easier to scale than fencing ○ KF prefers storage buildings be moved away from fence far enough as to not create hiding spots between building and fence. ○ RW noted that when low buildings do share fence line, heavier gauge metal siding must be used. ○ TL noted that fences are only expected to provide 2 minutes of protection. • KF expressed concern about safety of motor pool, as well as POV parking, from vandalism and large local homeless population. <ul style="list-style-type: none"> ○ TL said that unless threat assessment warrants, additional fencing for POV parking area could only be paid for with state funds. ○ TL suggested that better POV parking security can come from use of "dark lights" with rattle and thermal sensors. • KF concerned with vehicle entry drive's "straight shot" into building entry <ul style="list-style-type: none"> ○ Issue resolved with landscape / hardscape elements. • KF expressed special needs for mail intake, sorting and delivery. Agreed a separate building would be best solution. • TL raised the question of the need / desire for a guard shack & gate at vehicle entry drive. • All agreed that combining guard shack / entry gate and mail intake is solution. <ul style="list-style-type: none"> ○ Guard Shack / Mail Rm. comes out of Admin. allowance. ○ Guard Shack doesn't require building standoff distances. ○ Guard Shack is only used during troop occupancy. • KF raised requirement for 10' fire lane around building. All agree that it is preferable to drive along the building (within the motor pool fence) than to park against building. 	Info
3.5	<p>Plan Discussion:</p> <ul style="list-style-type: none"> • 1 Rapids office – for ID cards to be added. Authorized for 150 sf ea. • Currently, this is an all-male unit; this will change in 2 years. • Admin. for Corp Artillery & Batt. HA mutually exclusive? Drop 1500 sf. • Unit Storage to accommodate 3 full units (2700 sf each) in one large open 	Info

	<p>space.</p> <ul style="list-style-type: none"> • 3 weapons vaults. • TL likes 18' clg. ht. for Assembly Hall so they can be air conditioned. Conversely, 24' or greater clg. ht. wouldn't need to be sprinklered. Our climate doesn't dictate A/C. • POV parking based on 90% of unit strength; show wide spaces for count and restripe; don't show parking count on drawing. Can increase count if code requires. • TL noted that conference rooms shouldn't come out of classroom allowance; should come from Admin. • Firefinder Bay should be attached to General Purpose Training Bay and have same size and drive-thru configuration. • Preferred ground floor plan flow: <ul style="list-style-type: none"> ○ Assembly => Personal Equipment Storage => Unit Storage. ○ No Unit Storage on 2nd Flr. ○ Toilet / Shower don't necessarily need to have direct adjacency with Personal Equipment Storage. ○ Provide extra wide corridor between Assembly and Unit Storage for peak usage. Usually all 4 units drill on same weekend – this can create bottlenecks. • Classrooms OK located on 2nd flr. • Offices OK located on 3rd flr. • SIPRNET located on 3rd flr if possible. • CAV admin could go on 2nd flr. • Desirable to have Battalion HQ on 3rd flr. • DD stated that most food deliveries are by tractor trailer. Loading dock / overhead door would be preferable. • AI said that 2nd flr Break Room at 66th TAC RC was "great"! Similar arrangement will be included here. 	
--	--	--

3.6	Admin. Space Breakdown Discussion:	Info			
	HC Unit				
	BN CMDR	180 sf	Private office	w/ conf. table for 6	
	SMG	180 sf	Private office	w/ conf. table for 6	
	XO	140 sf	Private office		
	S-1	160 sf	Private office	+ 2 cubicles	
	S-2	160 sf	Private office	+ 2 cubicles	
	S-3	160 sf	Private office	+ 5 cubicles	
	S-4	160 sf	Private office	+ 3 cubicles	
	S-6	160 sf	Private office	+ 2 cubicles	
	Chaplin	140 sf	Private office	+ 1 cubicles	
	Conference Rm		enclosed	For 20 people	
	Admin.	36-64 sf	Office cubicles	For 15 people	

HHB Unit				
CO CMDR	140 sf	Private office		
1 st SGT	140 sf	Private office		
RNCO	140 sf	Private office		
Admin	64 sf	Office cubicle	float desk	
TNCO	80 sf	Office cubicle		
Supply SGT.	80 sf	Office cubicle		
Radar Warrant Officer	64 sf	Office cubicle		
Survey	64 sf	Office cubicle		
Targeting Warrant Officer	64 sf	Office cubicle	Located w/ S-3, in add'n to 5 cubicles	
Conference Rm	240 sf	enclosed		
Medical Unit				
PA w/ OPS NCO	160 sf	Private office	Acoustic privacy	
Open office	240 sf			
PMA	120 sf	Private office	Take sf from Admin.	
A BATT (this was originally only a DET; TL later suggested that program be expanded to include space for entire unit. This will be outlined in forthcoming revised 1390/91				
Battery CMDR	160 sf	Private office		
1 st SGT	160 sf	Private office		
Det RNCO	140 sf	Private office		
PLT LDR	160 sf	Private office		
PLT SGT	160 sf	Private office		
Supply SGT	2 * 60 sf	Office cubicle	2 people	
Gunnery SGT	2 * 60 sf	Office cubicle	2 people	
Training NCO	60 sf	Office cubicle		
Section Chiefs	4 * 60 sf	Office cubicle	4 people	
A 1-303 CAV				
CO	140 sf	Private office		
1 st SGT	140 sf	Private office		
PLT Office	2 * 400 sf	Private office	2 desks, conference table for 6, sand table	
Admin	6 * 60 sf	Office cubicle		
3.7	LEED / Green Discussion:			Info

	<ul style="list-style-type: none"> • Facility <u>has</u> to achieve LEED Silver (based on the LEED criteria at the time of application submission). • RW noted current preliminary LEED checklist tallies 48 points – LEED Silver requires 50-58 points. • During design, the project team needs to aim for mid 50’s w/ understanding that some potential credits will not be achieved. • RC “Green Power” will be used (add 2 points). • RC “User Thermal Controllability” will not be used (subtract 2 points). • KS suggested grey water could be stored in a cistern and re-used for toilets, plant irrigation, vehicle wash. <ul style="list-style-type: none"> ○ TL confirmed NGB will pay for cistern. • Any photovoltaics must be in initial design (usually as add alternate) and not added by change order. <ul style="list-style-type: none"> ○ TL confirmed NGB will pay for photovoltaics if life-cycle cost supports it. • TL confirmed NGB will pay for “advanced commissioning”. • KS suggested a VRF (variable refrigerant flow) heating / cooling system. This system very efficient and uses less duct work. This allows for greater ceiling heights and/or lower floor-to-floor heights. 	
3.8	<p>IT/Security Discussion:</p> <ul style="list-style-type: none"> • CC asked that 1 ½” conduit be run from each vault to closest telecom rm. Other cabling can run in cable trays. • Main telecom room should have raceway to exterior, but need not be located on outside wall. • Additional IT rooms should be stacked on floors above. • 2 IDS panels required each on dedicated 20 amp circuit. • Conduit required to guard shack for power, data, communication, CCTV, etc. • TL says NGB will pay for conduit for CCTV, if it’s in MILCON. State will have to pay for CCTV equipment. • SIPRNET - CC asked that ¾” conduit be run from main IT room to SIPRNET rm – no more than 500’ run. • SIPRNET should be on highest level possible (2nd or 3rd floor). • DD stated the need for data drop in Kitchen office. • JW stated HF antenna should be included on roof. • JW stated the need for exterior tactical set-up point – conduit for shore power, data, telecom, etc. on the training grounds. 	
3.9	<p>Misc. Discussions:</p> <ul style="list-style-type: none"> • 8.7% excise tax rate – OK for WA state per UFC of March 2013. • MB asked if running track/outdoor PT area could be included for PT testing and general unit fitness. <ul style="list-style-type: none"> ○ TL agreed that similar things had been done as part of landscaping plan. • Troop numbers and allowed square footage to be adjusted to include a full Battery Unit. • New (adjusted) 1390-1391 to be generated for use in pre-design submission. This to be completed within 2 weeks. • RW observes that revised 1391 may trigger delay in completing pre-design submission to late September. 	

	<ul style="list-style-type: none">• TL warns not to oversize back-up generator• At close of PPDC, TL provided a revised 1391. This addresses the program changes to Unheated Vehicle Storage building and rigid concrete paving; it does not address the agreed increase in A BATT from det to full unit. This 1391 is attached.	
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The foregoing comments represent our understanding of the items discussed and the decisions reached. Attendees are requested to respond in writing within one week of the date of issuance if their understanding of these items differs from those of the author

Issued by:



Scott Folts AIA LEED® AP
Schreiber Starling & Lane Architects

Issue Date: August 13, 2013

Attachments: SS&L's graphic presentation, Tibor's revised 1391

Distribution: Ron & Minh for further distribution, Dino.

APPENDIX C





APPENDIX C MILITARY FORMS

The following pages contain documents that identify the composition of the military units to be housed in the proposed readiness center and the federal funding documents prepared for the project by the Military Department

The first document is DD Form 1390/91 which is the primary authorization and funding request document prepared by the Military Department and submitted to the National Guard Bureau. It provides a summary of the project based upon the authorized strength of the units, the list of authorized spaces per the appropriate NGB Regulations, and a summary of the project costs. It is important to note that these costs do not directly coincide with those shown on C-2/C-100 forms as federal funding is not available for site acquisition, sales tax, and other similar costs which by regulation are the sole responsibility of the State.

The second set of documents are the Modified Table of Organization and Equipment (MTOE) which is the federal document establishing the organization and equipment lists for all military units.



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3. INSTALLATION AND LOCATION Tumwater, WA			4. PROJECT TITLE NATIONAL GUARD READINESS CENTER			
5. PROGRAM ELEMENT 0505896A		6. CATEGORY CODE 17180		7. PROJECT NUMBER 85651 530129		8. PROJECT COST (\$000) 31,000
9. COST ESTIMATES						
ITEM			U/M	QUANTITY	UNIT COST	COST (\$000)
Primary Facility Totals:				-	-	25412
17180 Readiness Center			SF	84,638	254.10	(21507)
44228 Controlled Waste Facility			SF	300	124.23	(37)
44240 Flammable Materials Facility			SF	200	130.15	(26)
44263 Unheated Encl/Shed-TP Vhcl Strg			SF	29,701	97.60	(2899)
81160 Backup/Emergency Generator			EA	1	187,900.00	(188)
85210 Rigid Pavement for MEP			SY	2,337	110.00	(257)
00005 Sustainability / Energy Measures			LS	-	-	(498)
Supporting Facility Totals:				-	-	8676
85225 Rigid Concrete Paving			SY	11,516	110.00	(1267)
85210 Flexible Paving			SY	8,645	75.00	(648)
87210 Security Fencing			LF	2,564	70.00	(179)
85215 Curbing (Rigid)			SY	1,800	45.00	(81)
85220 Sidewalks			SY	1,416	45.00	(64)
14955 Wash Platform			LS	-	-	(100)
12322 Fuel Strg & Disp System (7000 gal)			EA	1	150,000.00	(150)
81230 Exterior Security Lighting			LS	-	-	(280)
14970 Readiness Center Loading Dock			LS	-	-	(80)
14970 Loading Ramp			LS	-	-	(60)
69030 Detached Facility Sign			EA	1	6,000.00	(6)
84330 Exterior Fire Protection			LS	-	-	(250)
82410 Utilities: Gas			LS	-	-	(250)
81242 Utilities:Electric			LS	-	-	(227)
84210 Utilities: Water			LS	-	-	(250)
83210 Utilities: Waste Water/Sewer			LS	-	-	(250)
84330 Flagpoles			EA	2	8,700.00	(17)
87110 Stormwater Drainage			LS	-	-	(460)
00000 Refuse Collection Facility			EA	2	25,000.00	(50)
13260 Information Systems			LS	-	-	(48)
00000 Gross Excise Taxes			LS	-	-	(3069)

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93220 Site Improvement	LS	-	-	(762)
14915 Anti-Terrorism/Force Protection	LS	-	-	(128)
TOTAL CONSTRUCTION COST		-	-	<u>34088</u>
Contingencies (5.0%)		-	-	(1704)
Supervision, Inspection and Overhead (5.7%)		-	-	(2038)
Commissioning (0.6%)		-	-	(152)
TOTAL PROJECT COST		-	-	<u>37982</u>
State		-	-	(6982)
TOTAL FEDERAL COST		-	-	<u>31000</u>
TOTAL FEDERAL COST (ROUNDED)				31,000
Equipment Funded Other Appr (Non-Add)				(2432)

10. DESCRIPTION OF PROPOSED CONSTRUCTION

A specially designed National Guard Readiness Center of permanent construction. The National Guard Readiness Center includes the following items that are integral to the facility; Backup/Emergency Generator, Organizational Vehicle Parking (Paved), Controlled Waste Facility, and Flammable Materials Facility. This facility will be designed to meet Industry Standards as well as all local, State, and Federal building codes and as per Public Law 90-480. Construction will include all utility services, information systems, fire detection and alarm systems, roads, walks, curbs, gutters, storm drainage, parking areas and site improvements. The Fire Finder Radar Systems will need grounding and external power supply to operate. Facilities will be designed to a minimum life of 50 years in accordance with DoD's Unified Facilities Code (UFC 1-200-02) including energy efficiencies, building envelope and integrated building systems performance as per ASA(IE&E) Sustainable Design and Development Policy Update Dec 2013. Access for individuals with disabilities will be provided. Antiterrorism measures in accordance with the DoD Minimum Antiterrorism for building standards will be provided. This project will comply with the Army 1 SQFT for 1 SQFT disposal policy through the disposal of 115,784 SQFT.

MISSION: Current A/C TONNAGE: 281

11. REQUIREMENT:	114,839 SF	Adequate:	0 SF	Substandard:	0 SF
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Washington ARNG to recruit and/or retain soldiers from the third largest city and the capital in Washington is directly jeopardized by not having a modern Readiness Center.

The Safety Office conducted an inspection annotating safety violations at the Olympia Armory dated 3 June 2006 that include: unsafe POV access/egress & parking situation, outdated electrical system, safety hazards due to egress setup of doorways and stairwells, lead contamination that is likely due to a remediated indoor firing range's air handling ducts, and air quality/microbial growth due to mold growing in facility from water leaks. Both the Olympia Armory (1939) and the Puyallup Armory (1954) are not in compliance with current electrical, plumbing and structural codes.

Site Code	Site UID	Cat Code	FACNO	ISR-I Year	F Rating	Q Rating	C Rating	Local Name
53A85	6623	17180	00001	2104	F4	Q4	C4	Olympia Readiness Center
53B15	6905	17180	00001	2014	F4	Q4	C4	Puyallup Readiness Center

Both the Olympia Armory (1939) and the Puyallup Armory (1954) are not in compliance with current state electrical, plumbing and structural codes.

These facilities do not meet current Federal or State code for: fire, electrical, mechanical, energy or ADA. Per NG Pam 415-12 criteria the facility is lack adequate training areas, administrative space, supply space, arms vault, kitchen space, toilets/showers, physical fitness space, locker room space, privately owned vehicle parking, military parking and unheated storage space. Does not meet the Anti-Terrorism Force Protection standoff distance since the property has public streets on all four sides of the property in a residential area.

4. IMPACT IF NOT PROVIDED: If this project is not provided the facilities will continue to go beyond their useful life based on life cycle of 25 years. The current facilities were built in 1939 and 1954 with utilities and structural deterioration ongoing. The units' ability to meet its readiness, recruiting, retention, and training objectives will continue to be adversely affected if the personnel are not provided with the adequate facilities. Delays in the funding of this project will force the continued use of an inadequate and unsound facility and the present facility's deficiencies will continue to negatively impact troop readiness and morale. In addition the funding diverted to maintain and continuously repair the existing facility could be better spent in the construction of a new replacement facility.

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<p>The lack of proper and adequate training, storage and administrative areas will continue to impair the attainment of required mobilization readiness levels.</p> <p>5. ADDITIONAL: 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.</p> <p>6. PHYSICAL SECURITY: This project has been coordinated with the installation physical security plan, and all physical security measures are included.</p> <p>7. ANTITERRORISM/FORCE PROTECTION: This project has been coordinated with the installation antiterrorism plans. Risk and threat analyses have been performed in accordance with DA Pam 190-51 and TM 5-853-1, respectively. Protective measures required by regulation and additional protective measures, above the minimum required by UFC 4-010-01 (Department of Defense Minimum Antiterrorism Standards for Buildings), are needed to mitigate the threat. These requirements are included in the description of construction and cost estimate.</p> <p>8. ECONOMIC ANALYSIS: Alternative methods of meeting this requirement have been explored during project development. This project is the only feasible option to meet the requirement.</p> <p>9. JOINT USE CERTIFICATION: The Deputy Assistant Secretary of the Army (Installations and Housing) certifies that this project has been considered for joint use potential. This facility will be available for use by other components.</p>		
<hr/> <p style="text-align: center;">Date</p>		<hr/> <p style="text-align: center;">Bret D. Daugherty Major General The Adjutant General</p>
AT/FP POC: Ms. Karin Frinell/(253) 512-8159		CFMO: LTC Adam Iwaszuk/(253) 512-8702
12. SUPPLEMENTAL DATA a. Estimated design data :		

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12. SUPPLEMENTAL DATA (CONT)

- (1) Status:
- (a) Date Design Started.....Jun/2015
 - (b) Percent Complete as of January 2016.....65%
 - (c) Date Design 35% Complete.....Oct/2015
 - (d) Date Design Complete.....Oct/2016
 - (e) Parametric Cost Estimating Used to Develop Cost.....No
 - (f) Type of Design Contract.....Design - Bid - Build
- (g) An energy study and life cycle cost analysis will be documented during final design
- (2) Basis:
- (a) Standard or Definitive Design.....No
 - (b) Where Design Was Most Recently Used.....N/A
- (3) Total Cost (c)=(a)+(b) or (d)+(e):.....(\$000)
- (a) Production of Plans and Specifications.....2068
 - (b) All Other Design Costs.....1172
 - (c) Total.....3240
 - (d) Contract.....3240
 - (e) In-house.....0
- (4) Construction Award.....Mar/2017
- (5) Construction Start.....Apr/2017
- (6) Construction Completion.....Mar/2019

b. Equipment associated with this project which will be provided from other appropriations:

<u>Equipment Nomenclature</u>	<u>Procuring Appropriation</u>	<u>Fiscal Year Appropriated or Requested</u>	<u>Cost (\$000)</u>
NEPA	OMNG	2014	60
Art Work from State	State	2018	178
ISC Equipment	OPA	2018	472
ISCE Proponent	OMNG	2018	381
F F & E	OMNG	2018	1,271
Kitchen Equipment (Type C)	OMNG	2018	0
ESS (171R)	OPA	2018	50
SIPRNET Room ESS	OMNG	2018	20
		Total:	2432

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Point of Contact: CFMO WA, 253-512-8709

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Detailed Requirement Statements

1. GENERAL: This project is programmed to provide the full requirements at 114,839 SQFT.

This project provides the construction of a specially designed readiness center of permanent type construction. Outside supporting facilities include military and privately-owned vehicle parking, fencing, sidewalks, exterior fire protection, outside lighting, access roads, detached facility sign, wash platform, fuel storage & dispensing system, and flagpoles.

Units to be stationed at this facility are transformation units: Headquarters and Headquarters Battery(HHB), 2nd Battalion 146th Field Artillery with an authorized strength of 126 (WPRGT0); Detachment 1, C Battery, 2nd Battalion 146th Field Artillery with an authorized strength of 42 (WPRGC1); and Troop A, 1-303 Armored Cavalry Regiment with an authorized strength of 93 (WPRVA0) and Det 1, F Co, 181 BSB with and authorized strength of 13 (WQYTF1).

2. ANALYSIS OF DEFICIENCY: The Assistant Adjutant General Army for the WAARNG has subjectively downgraded the Olympia & Puyallup Readiness Centers to a F4/Q4 based on the following information that is not addressed within Booklet 11 individual component ratings (facility footprint requirements, age of the facility, FMS support, TAG Priorities, and minimum square footage requirements for readiness centers).

The Olympia Readiness Center is 75 years old and is in extreme disrepair. In addition, this readiness center is located in an urban area and it is land locked with zero potential for future expansion(s). Additionally, ISR-I calculates F and Q ratings based on their component ratings and an established Plant Replacement Value (PRV) formula which is based on the fact that the readiness center would need to be replaced at the "same location". In this example, the Olympia Readiness Center is occupying a total of only 1.72 acres and has no required supporting Field Maintenance Shop (FMS) on site. Chapter 8, NG Pam 415-5 dtd 31Jul03, para 8-1 (b) states that "the minimum land for readiness center or maintenance facility projects is ten acres within densely populated areas and fifteen acres in non-congested areas." This facility could not be replaced within the current footprint.

Security at this site is nearly impossible.

-SITE. Dumpster is not shielded and next to bldg. Retaining walls on

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fence perimeter are failing. Footprint of this facility is too small an in the middle of a city environment.

- SITE ENERGY. No green criteria are met. Only one facility in the WAARNG meets this criteria.
- WALLS. Evidence of a lot of moisture seeping into the building through the walls.
- WALLS ENERGY. Unshaded and evidence of mold/mildew.
- WINDOWS. Single pane, several broken rusted shut, and lack of caulking.
- DOORS. Are all wood, hardware is original, rusted, and does not meet security standard.
- FOUNDATION. Serious substructure issues with the building. Rotting and substandard beams/footings.
- CORRIDORS: almost every interior door is an old wooden door with a knob only that is difficult to operate or does not open unless pulled or pushed very hard, all walls and floors have damage all conduits exposed.
- STAIRS: There is no no slip surface on the stairs. The walls and floor of the stairwells show signs of wear and water leakage at least in one area. Not wide enough to meet minimum standards
- SHOWERS. Womens showers show signs of water damage on the ceilings.
- ELECTRICAL. All should be re-done in the building to code. High levels of humming noise in upper hallway coming from breakers.
- SECURITY SYSTEM: Security lighting is minimal and insufficient (This is being worked on) . Although there is a cipher lock on the front door many civilian persons use the drill floor during the week and will let anyone in. The only security system is a cipher lock on the front doors and padlocks entering the Organizational parking area.
- AUDITORIUM/ CLASSROOM/ LEARNING CENTER: Does not meet size requirement for Battalion level. Does not have wireless computer connection for users.
- KITCHEN: Refrigerator and Freezer are not operating. Kitchen and serving areas are too small.

The Puyallup Readiness Center is 60 years old and is in extreme disrepair. In addition, this readiness center is located in an urban area and it is land locked with zero potential for future expansion(s). Additionally, ISR-I calculates F and Q ratings based on their component ratings and an established Plant Replacement Value (PRV) formula which is based on the fact that the readiness center would need to be replaced at the "same location". In this example, the Puyallup Readiness Center is occupying a total of only 1.35 acres and has no required supporting Field Maintenance Shop (FMS) on site.

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Detailed Requirement Statements

Chapter 8, NG Pam 415-5 dtd 31Jul03, para 8-1 (b) states that "the minimum land for readiness center or maintenance facility projects is ten acres within densely populated areas and fifteen acres in non-congested areas." This facility could not be replaced within the current footprint. Lastly, the size of the readiness center does not meet the established minimum square footage of 10,000 square feet recommend within the ISR community.

- Facility is located in housing area with no standoff from main road, houses, school grounds. Parking is severely restricted. No perimeter fencing to the building.
- Single pane windows need replacing, some are cracked.
- Foundation. Evidence of cracking on interior walls of facility.
- Foyer, none in building but is needed.
- Hallways in building were made to service temporary walls and are too narrow. Poor lighting, no exit lights, conduit is exposed and unpainted, corridor doors are old wooden doors with knobs only that are difficult to operate.
- Inadequate amount of administrative space for tenant unit.
- Bathrooms are small and inadequate for tenant unit. There is no locker room area. The overall amount of fixtures is insufficient. The latrine is poorly ventilated.
- Hot water takes an unreasonable amount of time to warm up.
- Heating units in auditorium/classroom is extremely noisy and makes formations/training sessions inaudible.
- The assembly hall floor needs replacement and has areas of rotting wood. Facility is in need of a separate classroom.
- Janitorial. Supplies are kept in one of the stalls in the latrine thereby limiting the use of the latrine. There is no other dedicated storage space available.
- Kitchen The facility has a very small and very limited kitchenette. There is little to no workspace or food preparation space. There is little to no food storage space with no hood over the cooking area, no mechanical dishwasher, no exit light, the floor is in need of replacement, there is a major crack in one corner of the wall and the door is missing.

3. ANALYSIS OF CRITERIA AND EXCEPTIONS FOR NEW CONSTRUCTION: The size and capacity is in accordance with NG Pam 415-12, dated 2015. The workload has been adequately defined. A definitive design is being used for this project because of the unique areas authorized for the assigned units.

Exceptions to Criteria:

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Detailed Requirement Statements

1. Request 29,701 SF of Unheated Enclosed Vehicle Storage Building.
2. Request 1,000 LF of additional Security Fencing.
3. Request of Loading Dock.

4. STATEMENT OF PROGRAM RELATED EQUIPMENT: Kitchen equipment, Furniture, ESS, and ISC (Data & Telcom) will be requested in Fiscal Year 2018.

5. DISPOSITION OF PRESENT ACCOMMODATIONS: This project is in compliance with the Stewart B. McKinney Homeless Assistance Act and does not include the disposal of a building eligible for or on the National Register of Historic Places.

Site Code	FACNO	Cat Code	Title	SF	Disposition	Cost (\$000)
53A85	00001	17180	Readiness Center - Oly	42001	Return to State	0
53A85	00002	44263	Vehicle Storage	6656	Return to State	0
53A85	00003	44240	Flamable Storage	200	Return to State	0
53B15	00002	44263	Vehicle Stroage	8500	Return to State	0
53B15	00004	44224	Organization Storage	1200	Return to State	0
53B15	00001	17180	Readiness Center Puy	7600	Return to State	0
53B80	00005	44224	Organizational Storage	3815	Return to State	0
53A90	RSB01	17123	Range Facility	5600	Return to State	0
53A95	00001	61050	General Admin	5850	Return to State	0
53A95	00004	61050	General Admin	1792	Return to State	0
53B25	00216	44220	GP Storage	8627	Return to State	0
53B50	02512	89131	Utility Building	280	Return to State	0
53B25	00218	44220	Covered Storage	3126	Return to State	0
53B25	00205	44220	Covered Storage	2275	Return to State	0
53B50	00500	61050	General Admin	4720	Return to State	0
53B35	00003	44240	Hazmat Storage	110	Return to State	0
53A50	00001	17180	Readiness Center	13432	Return to State	0

6. CONTRIBUTIONS TO READINESS: a. How will readiness be enhanced by construction of this project?

This project will provide training and operational spaces that are functional for the units leading to increased training time and readiness as they will be able to conduct business effectively and efficiently. In addition it will boost unit morale and provide a more conducive training environment for the Soldiers.

b. How will readiness be impaired by deferring this project to a future program year?

The current facilities have severe structural defects that cannot be economically repaired or mitigated. Delaying this project will continue to force soldiers into other facilities further cramping the

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spaces that exist for the other units, and degrading training and operations of all the units involved. It will also continually increase the replacement cost of the old facility in current dollars and continue to drive unit morale downward.

c. Why does this project contribute more than another project? This project will replace two outdated armories (Olympia and Puyallup) with a modern facility that will over time save taxpayer funds compared to continually repairing and mitigating problems in the old facilities. This project provides desperately needed Soldier training and unit operational spaces that will definitely increase training performance and unit morale. It also provides the ability to reduce future operating costs by utilizing modern technology to be more cost efficient in terms of energy usage and management

7. CLEAN AIR ACT: Permits and/or other procedural requirements mandated by state, interstate, and local air pollution control agencies have been compiled for this project. Copies of all federally required permits and/or registration applications and responses have been forwarded to the U.S. Army center for health promotion and preventive medicine, attn: MCHB-TS-EAP, Aberdeen Proving Ground, MD 21010-5422.

8. TELECOMMUNICATIONS: All telecommunications have been planned as per ISCE program/documentation and have been uploaded to Tab F of the DD1391 Processor in PAX.

9. ECONOMIC ANALYSIS: Documentation for an Economic Analysis conducted using ECONPAC software has been uploaded into TAB-D of the DD1390/91 Processor in PAX.

10. ANTITERRORISM/FORCE PROTECTION: a) A risk analysis for this project has been conducted on March 17, 2015 and coordinated with the installation AT/FP plan. Risk and threat analyses have been performed in accordance with DA Pam 190-51 and TM 5-853-1, respectively.

b) A threat analysis for this project has been conducted on March 17, 2015 and coordinated with the installation physical security plan.

c) The building design is to comply with standard design requirements per UFC 4-010-01 for Antiterrorism/Force Protection measures. All required physical security and antiterrorism/force protection measures are included.

d) This project is to be constructed within a Non-Controlled Perimeter.

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<p>e) This project meets conventional standoff as per UFC 4-010-01. Except where it will be near the new JFHQ, unless extend standoff between these two facilities.</p> <p>f) This project will be less than three stories of construction.</p> <p>Additional comments: This facility must have UFC 4-020-03 1 MAR 05 and UFC 4-021-01 18 Dec 2002 compliance.</p>		

1. COMPONENT ARNG	FY 2017 GUARD AND RESERVE MILITARY CONSTRUCTION			2. DATE 10 Apr 15																																											
3. INSTALLATION AND LOCATION Tumwater, WA				4. AREA CONSTR COST INDEX 1.13																																											
12. RESERVE UNIT DATA <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4"></th> <th colspan="2" style="text-align: center; border-bottom: 1px solid black;">STRENGTH</th> </tr> <tr> <th style="text-align: left;">UIC</th> <th style="text-align: left;">UNIT DESIGNATION</th> <th style="text-align: left;">TPSN</th> <th style="text-align: left;">MTOE/TDA</th> <th style="text-align: right;">AUTHORIZED</th> <th style="text-align: right;">ACTUAL</th> </tr> </thead> <tbody> <tr> <td>WPRVA0</td> <td>CO A (SQ RECONNAISSANCE SQU)</td> <td>12081</td> <td>17315RNG81</td> <td style="text-align: right;">93</td> <td style="text-align: right;">102</td> </tr> <tr> <td>WPRGT0</td> <td>HHB (BN FIRES BN, 155SP (A))</td> <td>12081</td> <td>06385RNG62</td> <td style="text-align: right;">126</td> <td style="text-align: right;">105</td> </tr> <tr> <td>WPRGC1</td> <td>BTRY C (BN FIRES BN, 155SP (A))</td> <td></td> <td>06385RNG62</td> <td style="text-align: right;">42</td> <td style="text-align: right;">42</td> </tr> <tr> <td>WQYTF1</td> <td>DET 1 (BN BDE SPT BN (HBCT))</td> <td>12081</td> <td>63025RNG62</td> <td style="text-align: right;">13</td> <td style="text-align: right;">13</td> </tr> <tr> <td colspan="4" style="text-align: left;">Totals</td> <td style="text-align: right; border-top: 1px solid black;">274</td> <td style="text-align: right; border-top: 1px solid black;">262</td> </tr> </tbody> </table>										STRENGTH		UIC	UNIT DESIGNATION	TPSN	MTOE/TDA	AUTHORIZED	ACTUAL	WPRVA0	CO A (SQ RECONNAISSANCE SQU)	12081	17315RNG81	93	102	WPRGT0	HHB (BN FIRES BN, 155SP (A))	12081	06385RNG62	126	105	WPRGC1	BTRY C (BN FIRES BN, 155SP (A))		06385RNG62	42	42	WQYTF1	DET 1 (BN BDE SPT BN (HBCT))	12081	63025RNG62	13	13	Totals				274	262
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Project Number : 530129
Project Title : NATIONAL GUARD READINESS CENTER
FACID : 53B70

Project Validation

The Reserve manpower potential to meet and maintain authorized strengths of all Reserve units in the area in which this facility is to be located has been reviewed in accordance with DOD Directive 1225.7. It has been determined, in coordination with all other Services having Reserve units in the area, that the number of units of the Reserve components of the Armed Forces presently located in the area and those which have been allocated to the area for future activation, is not and will not be larger than the number that reasonably can be expected to be maintained at authorized strength.

The proposed project is in compliance with the following acts, executive orders, laws, and rules:

NATIONAL ENVIRONMENTAL POLICY ACT: Project has been analyzed for potential environmental impact in accordance with Environmental Analysis of Army Actions (32 CFR Part 651).

SUSTAINABILITY: The design and execution of this project, where appropriate, will comply with Executive Orders (EOs) 13423 and 13514 with respect to reduction/elimination of hazardous materials and incorporation of sustainability and green building principles.

COASTAL ZONE PLAN: In accordance with the provisions of Section 102(2)(c) of the National Environmental Policy Act of 1969, the project has been reviewed, and it is determined to be in compliance with the State's Coastal Zone Plan.

ENDANGERED SPECIES ACT: Project must include a review of threatened and endangered species in accordance with Section 7 of the Endangered Species Act (ESA), 50 CFR 402.

FALLOUT PROTECTION: In accordance with Section 601 of Public Law 89-568, as amended, the design of this project has been prepared to maximize fallout protection. Fallout shelters have been excluded from any structure only for the following reason: (1) Adequate protection areas are available to fulfill a station's requirements; (2) The presence of personnel during a period of fallout radiation would impair facility operations; or (3) Economic limitations necessitated either deferral or accomplishment by some other means.

FLOOD HAZARD: Project has been evaluated for flood hazards in compliance with Executive Order 11988, and the facility is not sited in an area known to be subjected to flooding.

DESIGN FOR ACCESSIBILITY OF PHYSICALLY HANDICAPPED PERSONNEL: In accordance with Public Law 90-480, provisions for the physically handicapped personnel will be provided for, where appropriate, in the design of the facility.

VENDING FACILITIES FOR THE BLIND: Project has been evaluated for the provision of vending facilities to be operated by blind persons in compliance with DHEW Rule, 45 CFR-1369, and the State Licensing Board has not sanctioned operation of a blind vending concession at the proposed location.

NATIONAL HISTORIC PRESERVATION ACT OF 1966: This action has the potential to cause adverse effects to historic properties and tribal resources. The State ARNG will consult with the State Historic Preservation Officer (SHPO) and North American Tribes under NHPA prior to project initiation to determine the presence/absence of historic properties that might be adversely affected.

ENVIRONMENTAL CONDITION OF PROPERTY (ECOP): ECOP analysis is required for this project per the requirements of AR 200-1 (Chapter 15-6) and applicable ASTM standards.

AT/FP POC: Ms. Karin Frinell
AT/FP Phone: 253-512-8159-null

Bret D. Daugherty
Major General
The Adjutant General
Date: _____

Basic Project Data - Actual/ English

Project Number: 530129
 Project Title: NATIONAL GUARD READINESS CENTER
 Date: Apr 21, 2015
 Page: 1 / 13

Project Summary Information

Project Number	530129	Sponsoring Agency	WA
Project Title	NATIONAL GUARD READINESS CENTER		
Unit of Measure	English	State Facility Review Board:	
Preparation Date	10-APR-15	Recommendation	New Construction
Last Revision Date	21-APR-15	Date of Recommendation	16-JUL-14

Site Summary Information

Site Identifier: 53B70
 Site Name: THURSTON CO RC
 Address:
 Street: 8102 Kimmie Street SW
 City and Zip: Tumwater, 98512

Pattern of Facility Usage

Administration 5 days/week, with 2-day training assembly 2-3 times/month.

Reservist Weekends/Month	1	Winter Design Temperature	15
		Average Annual Snowfall	28

Projects Requested In this Program

Cat Code	Project Title	Scope (SF)	Cost (\$000)	Design Start	Design End	
17180	NATIONAL GUARD READINESS CENTER	114839	31000	01-JUN-15	01-OCT-16	2017

Additional Projects Planned in Next Four Years

PROJNO	Cat Code	Project Title	Scope (SF)	Cost (\$000)	FY
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No future projects identified.

Nearest Five Military Installations

Component	DoD Activity	Location	Distance			
AR	Olympia, WA	7	USAR Center	48857	SF	1938
ARNG	Centralia, WA	23	Readiness Center	37288	SF	1937
USA	JBLM, WA	31	Base	99999999	SF	1917
ARNG	Camp Murray, WA	33	Base	534738	SF	1916
USAF	McCord, WA	36	Base	99999999	SF	1930

Unit Summary Information

UIC	Reserve Strength			Full-Time Strength		
	Officers	WOF	Enlisted	Officers	Enlisted	Civ
WPRGC1	2	0	40	0	1	0
WPRGT0	13	3	110	2	15	0
WPRVA0	4	0	89	0	4	0
WQYTF1	0	0	13	0	0	0
Totals	19	3	252	2	20	0

Real Property Configuration

Category	Description	Existing SF	Requested SF
171R	ARNG - Readiness Center	0	57620
INFO	ARNG - Information Systems Worksheet	0	62252

Basic Project Data - Actual/ English

Project Number: 530129
 Project Title: NATIONAL GUARD READINESS CENTER
 Date: Apr 21, 2015
 Page: 2 / 13

Basic Information Report (Units)

General Information

Field	Value	Field	Value
UIC	WPRGC1	Last Updated	10-APR-15
Unit Name	BTRY C (BN FIRES BN, 155SP (A))	MTOE/TDA Markup Status	APPLIED
Parent UIC	WPRGC0	Source	ASIP
Unit Type	MTOE	Status	M
SRC		Admin Allowance	None
DRC	ARNG	Unit Level	CO
Field Agency	WA	Facility City, State	OLYMPIA, WA
FACID	53A85	Strength Count Ind (Project)	
Strength Count Ind	C		

Related Units

UIC	Unit Name	Type
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No maintenance shop units related to this unit.

Documentation Info

Configuration

Field	Value
Drill Weekend	1
Drill Weekend (Project)	
Auth Level of Org (AOL)	0

Force Program Action

Field	Value
Effective Date	30-SEP-15
Action Code	A

Mission Space Allowances

Field	Value	Field	Value
Unit Supply (ARNG & USAR)	0	Public Affairs Office (ARNG)	0
COMSEC (USAR)	0	Soil Testing Lab (USAR)	0
NG Weather Flight (ARNG)	0	Photo Lab (USAR)	0
Individual Weapons (USAR)	1	SCIF (USAR)	0
Maint Office (ARNG & USAR)	0	Medical Section (ARNG & USAR)	0
Band Room (ARNG & USAR)	0	Army Advisors Office (ARNG)	0
Weapons Simulator Rm (USAR)	0	Personnel Services CO/SCTN (ARNG)	0
Physical Exam Wing (ARNG & USAR)	0	State HQ (ARNG)	0
Physical Exams Per Yr. (ARNG)	0	State HQ Military Record Archive (ARNG)	0
Flight Eye Exam Room (ARNG)	0		

Strength Info

Reserve Personnel

Type Personnel	Officers	WOF	Enlisted	Total
Required	2	0	40	42
Authorized	2	0	40	42
Assigned	2	0	40	42
TAPDB-R	0	0	0	0

ASIP

FY-Type	Officers	WOF	Enlisted	Total	DA Civ	Oth Civ
2015-DWS			0	0	0	0

Basic Project Data - Actual/ English

Project Number: 530129
 Project Title: NATIONAL GUARD READINESS CENTER
 Date: Apr 21, 2015
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2015-DWS	0	0	0	0	0	0
2016-DWS	2	0	48	50	0	0
2017-DWS	2	0	48	50	0	0
2018-DWS	2	0	48	50	0	0
2019-DWS	2	0	48	50	0	0
2020-DWS	2	0	48	50	0	0
2021-DWS	2	0	48	50	0	0

Full-Time Personnel

Type Personnel	Officers	Enlisted	Civilian
Authorized	0	1	0
Assigned	0	0	0

Special Space Requirements

Exclusive Space

Field	Value	Commanders	Value
General Officers *	0	LTC *	0
Principal Staff *	2	MAJ or Below *	0
Colonel *	0		

Common-Use Space

Reserve Personnel

Field	Value
Administrative *	10
Cooks	0
Auto/Eng Mechanics	0
Maint Admin Personnel	0
Aviation Crew	0
Draftpersons *	0

Full-Time Personnel

Field	Value
Administrative *	1
Supply *	0
Auto/Eng Mechanics	0
Maint Admin Personnel *	0
Aviation Crew	0
Total Admin Pstn Count *	13

Equipment Info

Surface Equipment

Type Equipment	Authorized	Actual
Wheeled	3	3
Tracked	7	7
Trailers	9	9
Equipment 30 FT	3	3
Fuel Truck	0	0
HET	0	0

Special Equipment

Field	Value	Field	Value
Combat Vehicles (incl M2/M3s)	7	Missile Systems	0
M2/M3 Bradley	0	M1 Battle Tank Maint Req	0

Non-Vehicle Storage Metric

Field	Value
Equipment Cubage	531

Basic Project Data - Actual/ English

Project Number: 530129

Project Title: NATIONAL GUARD READINESS CENTER

Date: Apr 21, 2015

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Aircraft

Type Aircraft	Authorized	Actual	Type Aircraft	Authorized	Actual
C-12D/F/R	0	0	OH-58D	0	0
C12J	0	0	AH-64	0	0
C-23	0	0	UH-60	0	0
C-26	0	0	UH-72A	0	0
UC-35	0	0	CH-47	0	0
OH-58	0	0			

Basic Project Data - Actual/ English

Project Number: 530129
 Project Title: NATIONAL GUARD READINESS CENTER
 Date: Apr 21, 2015
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Basic Information Report (Units)

General Information

Field	Value	Field	Value
UIC	WPRGT0	Last Updated	10-APR-15
Unit Name	HNB (BN FIRES BN, 155SP (A))		
Parent UIC	WPRGAA	MTOE/TDA Markup Status	APPLIED
Unit Type	MTOE	Source	ASIP
SRC	06386R100100	Status	M
DRC	ARNG	Admin Allowance	Battalion HQ (HHC or HHD)
Field Agency	WA	Unit Level	BN
FACID	53A85	Facility City, State	OLYMPIA, WA
Strength Count Ind	C	Strength Count Ind (Project)	

Related Units

UIC	Unit Name	Type
W8T704	FMS 04 (EQP WA ARNG FLD MAINT)	Maintenance Shop

Documentation Info

Configuration

Field	Value
Drill Weekend	1
Drill Weekend (Project)	1.
Auth Level of Org (AOL)	1

Force Program Action

Field	Value
Effective Date	01-SEP-16
Action Code	

Mission Space Allowances

Field	Value	Field	Value
Unit Supply (ARNG & USAR)	1	Public Affairs Office (ARNG)	0
COMSEC (USAR)	0	Soil Testing Lab (USAR)	0
NG Weather Flight (ARNG)	0	Photo Lab (USAR)	0
Individual Weapons (USAR)	1	SCIF (USAR)	0
Maint Office (ARNG & USAR)	0	Medical Section (ARNG & USAR)	1
Band Room (ARNG & USAR)	0	Army Advisors Office (ARNG)	0
Weapons Simulator Rm (USAR)	0	Personnel Services CO/SCTN (ARNG)	0
Physical Exam Wing (ARNG & USAR)	0	State HQ (ARNG)	0
Physical Exams Per Yr. (ARNG)	0	State HQ Military Record Archive (ARNG)	0
Flight Eye Exam Room (ARNG)	0		

Strength Info

Reserve Personnel

Type Personnel	Officers	WOF	Enlisted	Total
Required	13	3	110	126
Authorized	13	3	110	126
Assigned	13	2	90	105
TAPDB-R	13	0	80	93

ASIP

FY-Type	Officers	WOF	Enlisted	Total	DA Civ	Oth Civ
2015-DWS			86	99	0	0

Basic Project Data - Actual/ English

Project Number: 530129
 Project Title: NATIONAL GUARD READINESS CENTER
 Date: Apr 21, 2015
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2015-DWS	10	3	86	99	0	0
2015-FTS	3	0	8	11	0	0
2016-DWS	13	3	110	126	0	0
2016-FTS	3	0	8	11	0	0
2017-DWS	14	2	110	126	0	0
2017-FTS	3	0	8	11	0	0
2018-DWS	14	2	110	126	0	0
2018-FTS	3	0	8	11	0	0
2019-DWS	14	2	110	126	0	0
2019-FTS	3	0	8	11	0	0
2020-DWS	14	2	110	126	0	0
2020-FTS	3	0	8	11	0	0
2021-DWS	14	2	110	126	0	0
2021-FTS	3	0	8	11	0	0

Full-Time Personnel

Type Personnel	Officers	Enlisted	Civilian
Authorized	2	15	0
Assigned	2	15	0

Special Space Requirements

Exclusive Space

Field	Value	Commanders	Value
General Officers *	0	LTC *	1
Principal Staff *	1	MAJ or Below *	5
Colonel *	1		

Common-Use Space

Reserve Personnel

Field	Value
Administrative *	12
Cooks	0
Auto/Eng Mechanics	0
Maint Admin Personnel	23
Aviation Crew	0
Draftpersons *	0

Full-Time Personnel

Field	Value
Administrative *	16
Supply *	1
Auto/Eng Mechanics	0
Maint Admin Personnel *	0
Aviation Crew	0
Total Admin Pstn Count *	60

Equipment Info

Surface Equipment

Type Equipment	Authorized	Actual
Wheeled	36	36
Tracked	3	3
Trailers	30	30
Equipment 30 FT	0	0
Fuel Truck	0	0
HET	0	0

Special Equipment

Basic Project Data - Actual/ English

Project Number: 530129

Project Title: NATIONAL GUARD READINESS CENTER

Date: Apr 21, 2015

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Field	Value	Field	Value
Combat Vehicles (incl M2/M3s)	3	Missile Systems	0
M2/M3 Bradley	0	M1 Battle Tank Maint Req	0

Non-Vehicle Storage Metric

Field	Value
Equipment Cubage	2161

Aircraft

Type Aircraft	Authorized	Actual	Type Aircraft	Authorized	Actual
C-12D/F/R	0	0	OH-58D	0	0
C12J	0	0	AH-64	0	0
C-23	0	0	UH-60	0	0
C-26	0	0	UH-72A	0	0
UC-35	0	0	CH-47	0	0
OH-58	0	0			

Basic Project Data - Actual/ English

Project Number: 530129
 Project Title: NATIONAL GUARD READINESS CENTER
 Date: Apr 21, 2015
 Page: 8 / 13

Basic Information Report (Units)

General Information

Field	Value	Field	Value
UIC	WPRVA0	Last Updated	10-APR-15
Unit Name	CO A (SQ RECONNAISSANCE SQU)		
Parent UIC	WPRVAA	MTOE/TDA Markup Status	APPLIED
Unit Type	MTOE	Source	ASIP
SRC	17207R000100	Status	M
DRC	ARNG	Admin Allowance	None
Field Agency	WA	Unit Level	CO
FACID	53B15	Facility City, State	PUYALLUP, WA
Strength Count Ind	C	Strength Count Ind (Project)	

Related Units

UIC	Unit Name	Type
WIWA1S	MATES 76S (FTS) (FTS WA JFHQ)	Maintenance Shop
W8XVAA	(EQP WA ARNG COMBINED)	Maintenance Shop

Documentation Info

Configuration

Field	Value
Drill Weekend	1
Drill Weekend (Project)	
Auth Level of Org (AOL)	1

Force Program Action

Field	Value
Effective Date	01-SEP-16
Action Code	

Mission Space Allowances

Field	Value	Field	Value
Unit Supply (ARNG & USAR)	0	Public Affairs Office (ARNG)	0
COMSEC (USAR)	0	Soil Testing Lab (USAR)	0
NG Weather Flight (ARNG)	0	Photo Lab (USAR)	0
Individual Weapons (USAR)	1	SCIF (USAR)	0
Maint Office (ARNG & USAR)	0	Medical Section (ARNG & USAR)	0
Band Room (ARNG & USAR)	0	Army Advisors Office (ARNG)	0
Weapons Simulator Rm (USAR)	0	Personnel Services CO/SCTN (ARNG)	0
Physical Exam Wing (ARNG & USAR)	0	State HQ (ARNG)	0
Physical Exams Per Yr. (ARNG)	0	State HQ Military Record Archive (ARNG)	0
Flight Eye Exam Room (ARNG)	0		

Strength Info

Reserve Personnel

Type Personnel	Officers	WOF	Enlisted	Total
Required	4	0	89	93
Authorized	4	0	89	93
Assigned	8	0	94	102
TAPDB-R	5	0	90	95

ASIP

FY-Type	Enlisted	Total	DA Civ	Oth Civ
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Basic Project Data - Actual/ English

Project Number: 530129
 Project Title: NATIONAL GUARD READINESS CENTER
 Date: Apr 21, 2015
 Page: 9 / 13

FY-Type	Officers	WOF	Enlisted	Total	DA Civ	Oth Civ
2015-DWS	4	0	89	93	0	0
2015-FTS	0	0	2	2	0	0
2016-DWS	4	0	89	93	0	0
2016-FTS	0	0	2	2	0	0
2017-DWS	4	0	89	93	0	0
2017-FTS	0	0	2	2	0	0
2018-DWS	4	0	89	93	0	0
2018-FTS	0	0	2	2	0	0
2019-DWS	4	0	89	93	0	0
2019-FTS	0	0	2	2	0	0
2020-DWS	4	0	89	93	0	0
2020-FTS	0	0	2	2	0	0
2021-DWS	4	0	89	93	0	0
2021-FTS	0	0	2	2	0	0

Full-Time Personnel

Type Personnel	Officers	Enlisted	Civilian
Authorized	0	4	0
Assigned	0	3	0

Special Space Requirements

Exclusive Space

Field	Value	Commanders	Value
General Officers *	0	LTC *	0
Principal Staff *	2	MAJ or Below *	2
Colonel *	0		

Common-Use Space

Reserve Personnel

Field	Value
Administrative *	42
Cooks	0
Auto/Eng Mechanics	0
Maint Admin Personnel	3
Aviation Crew	0
Draftpersons *	0

Full-Time Personnel

Field	Value
Administrative *	3
Supply *	1
Auto/Eng Mechanics	0
Maint Admin Personnel *	0
Aviation Crew	0
Total Admin Pstn Count *	53

Equipment Info

Surface Equipment

Type Equipment	Authorized	Actual
Wheeled	12	12
Tracked	4	4
Trailers	5	5
Equipment 30 FT	0	0
Fuel Truck	0	0
HET	0	0

Basic Project Data - Actual/ English

Project Number: 530129
Project Title: NATIONAL GUARD READINESS CENTER
Date: Apr 21, 2015
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Special Equipment

Field	Value	Field	Value
Combat Vehicles (incl M2/M3s)	4	Missile Systems	0
M2/M3 Bradley	0	M1 Battle Tank Maint Req	0

Non-Vehicle Storage Metric

Field	Value
Equipment Cubage	1367

Aircraft

Type Aircraft	Authorized	Actual	Type Aircraft	Authorized	Actual
C-12D/F/R	0	0	OH-58D	0	0
C12J	0	0	AH-64	0	0
C-23	0	0	UH-60	0	0
C-26	0	0	UH-72A	0	0
UC-35	0	0	CH-47	0	0
OH-58	0	0			

Basic Project Data - Actual/ English

Project Number: 530129
 Project Title: NATIONAL GUARD READINESS CENTER
 Date: Apr 21, 2015
 Page: 11 / 13

Basic Information Report (Units)

General Information

Field	Value	Field	Value
UIC	WQYTF1	Last Updated	07-APR-15
Unit Name	DET 1 (BN BDE SPT BN (HBCT))	MTOE/TDA Markup Status	APPLIED
Parent UIC	WQYTF0	Source	ASIP
Unit Type	MTOE	Status	M
SRC		Admin Allowance	None
DRC	ARNG	Unit Level	CO
Field Agency	CA	Facility City, State	BRAWLEY, CA
FACID	06A65	Strength Count Ind (Project)	
Strength Count Ind	C		

Related Units

UIC	Unit Name	Type
-----	-----------	------

No maintenance shop units related to this unit.

Documentation Info

Configuration

Field	Value
Drill Weekend	1
Drill Weekend (Project)	
Auth Level of Org (AOL)	0

Force Program Action

Field	Value
Effective Date	01-OCT-14
Action Code	

Mission Space Allowances

Field	Value	Field	Value
Unit Supply (ARNG & USAR)	0	Public Affairs Office (ARNG)	0
COMSEC (USAR)	0	Soil Testing Lab (USAR)	0
NG Weather Flight (ARNG)	0	Photo Lab (USAR)	0
Individual Weapons (USAR)	1	SCIF (USAR)	0
Maint Office (ARNG & USAR)	0	Medical Section (ARNG & USAR)	0
Band Room (ARNG & USAR)	0	Army Advisors Office (ARNG)	0
Weapons Simulator Rm (USAR)	0	Personnel Services CO/SCTN (ARNG)	0
Physical Exam Wing (ARNG & USAR)	0	State HQ (ARNG)	0
Physical Exams Per Yr. (ARNG)	0	State HQ Military Record Archive (ARNG)	0
Flight Eye Exam Room (ARNG)	0		

Strength Info

Reserve Personnel

Type Personnel	Officers	WOF	Enlisted	Total
Required	0	0	13	13
Authorized	0	0	13	13
Assigned	0	0	13	13
TAPDB-R	1	0	48	49

ASIP

FY-Type	Officers	WOF	Enlisted	Total	DA Civ	Oth Civ
2015-DWS			54	55	0	0

Basic Project Data - Actual/ English

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2015-DWS	1	0	54	55	0	0
2015-FTS	0	0	1	1	0	0
2016-DWS	0	0	0	0	0	0
2016-FTS	0	0	1	1	0	0
2017-DWS	0	0	0	0	0	0
2017-FTS	0	0	1	1	0	0
2018-DWS	0	0	0	0	0	0
2018-FTS	0	0	1	1	0	0
2019-DWS	0	0	0	0	0	0
2019-FTS	0	0	1	1	0	0
2020-DWS	0	0	0	0	0	0
2020-FTS	0	0	1	1	0	0
2021-DWS	0	0	0	0	0	0
2021-FTS	0	0	1	1	0	0

Full-Time Personnel

Type Personnel	Officers	Enlisted	Civilian
Authorized	0	0	0
Assigned	0	0	0

Special Space Requirements

Exclusive Space

Field	Value	Commanders	Value
General Officers *	0	LTC *	0
Principal Staff *	0	MAJ or Below *	0
Colonel *	0		

Common-Use Space

Reserve Personnel

Field	Value
Administrative *	0
Cooks	13
Auto/Eng Mechanics	0
Maint Admin Personnel	0
Aviation Crew	0
Draftpersons *	0

Full-Time Personnel

Field	Value
Administrative *	0
Supply *	0
Auto/Eng Mechanics	0
Maint Admin Personnel *	0
Aviation Crew	0
Total Admin Pstn Count *	0

Equipment Info

Surface Equipment

Type Equipment	Authorized	Actual
Wheeled	6	6
Tracked	0	0
Trailers	11	11
Equipment 30 FT	0	0
Fuel Truck	0	0
HET	0	0

Special Equipment

Basic Project Data - Actual/ English

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Field	Value	Field	Value
Combat Vehicles (incl M2/M3s)	0	Missile Systems	0
M2/M3 Bradley	0	M1 Battle Tank Maint Req	0

Non-Vehicle Storage Metric

Field	Value
Equipment Cubage	132

Aircraft

Type Aircraft	Authorized	Actual	Type Aircraft	Authorized	Actual
C-12D/F/R	0	0	OH-58D	0	0
C12J	0	0	AH-64	0	0
C-23	0	0	UH-60	0	0
C-26	0	0	UH-72A	0	0
UC-35	0	0	CH-47	0	0
OH-58	0	0			

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Functional Space Details - Actual/ English
171R: ARNG - Readiness Center

No. of Firefinder Radar Facilities:

Author's Memo

Justification: HHB contains a set of (vehicle & Trailer) one for survey, one for meteorological, two for radar(Q36 & Q37). Spacing for all sets are using this criteria listed in NG Pam 415-12, 3-7 a. For a total of 4 sets.

Proponent: (NGB) Lanczy, Tibor J Mr CTR NG NGB ARNG, MN 1390/91 Workshop.

Recommendation Date: 15-Aug-2011 Tibor Lanczy (NGB) MN 1390/91 Workshop.

Documentation Reference: NG Pam 415-12, 3-7 a. Firefinder Radar (AN/TPQ36/37) Facility. Space Criteria – each set is authorized a 20 ft x 40 ft net floor area as a speciality purpose readiness bay.

Reviewer's Memo

Feedback/Recommendation:

Proponent:

Recommendation Date:

Documentation Reference:

A1 Assembly Hall

Author's Memo

Reviewer's Memo

Feedback/Recommendation: Draft NG Pam 415-12

Proponent:

Recommendation Date: 22-Oct-2014

Documentation Reference:

Reduce to 6,300

A2a Auditorium

Author's Memo

Project Number : 530129
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Date : Apr 21, 2015

171R: ARNG - Readiness Center

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date:
Documentation Reference:

A0 Distance Learning Center (Removed)

Author's Memo

Reviewer's Memo

Feedback/Recommendation: Draft NG PAM 415-12 combines Library/classroom,
Learning Center and Distance Learning Center for a Max of 700 SF
Proponent:
Recommendation Date: 24-Oct-2014
Documentation Reference:

A4 MultiPurpose Training Area

Author's Memo

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date: 24-Oct-2014
Documentation Reference:

A5 Kitchen

Author's Memo

Reviewer's Memo

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Date : Apr 21, 2015

171R: ARNG - Readiness Center

Feedback/Recommendation:
Proponent:
Recommendation Date: 24-Oct-2014
Documentation Reference:

A6 Break / Vending

Author's Memo

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date: 24-Oct-2014
Documentation Reference:

A7a Toilets

Author's Memo

Reviewer's Memo

Feedback/Recommendation: $1,620 + 10\%$ of basic allowance (162)= 1782
Proponent:
Recommendation Date: 24-Oct-2014
Documentation Reference:

A7b Showers

Author's Memo

Reviewer's Memo

Feedback/Recommendation: $(369/15)*40=984$
Proponent:
Recommendation Date: 24-Oct-2014

Project Number : 530129
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Date : Apr 21, 2015

171R: ARNG - Readiness Center

Documentation Reference:

A8 Flammable Materials Storage

Author's Memo

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date: 24-Oct-2014
Documentation Reference:

A10 Family Readiness Office

Author's Memo

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date: 24-Oct-2014
Documentation Reference:

A12 Retention Office

Author's Memo

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date: 24-Oct-2014
Documentation Reference:

A13 Table/Chair Storage

Project Number : 530129
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171R: ARNG - Readiness Center

Author's Memo

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date: 24-Oct-2014
Documentation Reference:

A15 Controlled Waste Handling Facility (CWHF)

Author's Memo

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date: 24-Oct-2014
Documentation Reference:

B1b Office Allowance

Author's Memo

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date:
Documentation Reference:

B1c7 Troop Command

Author's Memo

Project Number : 530129
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171R: ARNG - Readiness Center

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date:
Documentation Reference:

B2e1 Units with Required Strength ≥ 55

Author's Memo

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date:
Documentation Reference:

B2e2 Units with Required Strength 10 - 55

Author's Memo

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date:
Documentation Reference:

B2f Unheated storage space

Author's Memo

Reviewer's Memo

Project Number : 530129
Project Title : NATIONAL GUARD READINESS CENTER
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171R: ARNG - Readiness Center

Feedback/Recommendation:
Proponent:
Recommendation Date:
Documentation Reference:

B3b Space per Authorized Position

Author's Memo

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date: 24-Oct-2014
Documentation Reference:

B4l2 Office Space

Author's Memo

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date:
Documentation Reference:

B4m Air/Army National Guard Weather Flight

Author's Memo

Reviewer's Memo

Feedback/Recommendation:
Proponent:

Project Number : 530129
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Date : Apr 21, 2015

171R: ARNG - Readiness Center

Recommendation Date:
Documentation Reference:

B5 Firefinder Radar Readiness Bay

Author's Memo

Justification: HHB contains a set of (vehicle & Trailer) one for survey, one for meteorological, two for radar(Q36 & Q37). Spacing for all sets are using this criteria listed in NG Pam 415-12, 3-7 a. For a total of 4 sets.

Proponent: (NGB) Lanczy, Tibor J Mr CTR NG NGB ARNG, MN 1390/91 Workshop.

Recommendation Date: 15-Aug-2011 Tibor Lanczy (NGB) MN 1390/91 Workshop.

Documentation Reference: NG Pam 415-12, 3-7 a. Firefinder Radar (AN/TPQ36/37) Facility. Space Criteria – each set is authorized a 20 ft x 40 ft net floor area as a speciality purpose readiness bay.

Reviewer's Memo

Feedback/Recommendation:

Proponent:

Recommendation Date:

Documentation Reference:

B6 Secure Area

Author's Memo

Justification: Facilities having BN size unit or higher will contain a SIPRNET area.

Proponent: Akinbohun, Ebenezer W Mr CIV NG NGB ARNG

Recommendation Date: 16-Aug-2011 Akinbohun, Ebenezer W Mr CIV NG NGB ARNG

Documentation Reference: Secretary of Defense Memo (????) and use of NG Pam 415-12 30 April 2007

Table 4-3 2. Operations c 8/ or NG Pam 415-12 01 June 2011, Table 4-3, Space Allowances for Personnel Support Areas, Functional Areas Allowance. 2.

Operations c 8/

Reviewer's Memo

Feedback/Recommendation:

Proponent:

Recommendation Date:

Documentation Reference:

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171R: ARNG - Readiness Center

B8a

Author's Memo

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date:
Documentation Reference:

Detached Controlled Waste Handling

Author's Memo

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date:
Documentation Reference:

Detached Unheated Storage Space

Author's Memo

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date:
Documentation Reference:

Detached Flammable Materials Storage

Author's Memo

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Date : Apr 21, 2015

171R: ARNG - Readiness Center

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date:
Documentation Reference:

CSPT: ARNG - Common Supporting Items

B2 Unheated Enclosed Vehicle Storage Shed (SF)

Author's Memo

ETC dated 30 July 2014. Plan to build remaining vehicle storage shed or exterior parking at a later time due to siting.

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date:
Documentation Reference:

C1 Readiness Center Loading Dock (LS)

Author's Memo

ETC dated 15 May 2014

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date:
Documentation Reference:

F1b Mltry Vhcl Loading Ramp Sprt (SY)

Author's Memo

Project Number : 530129
Project Title : NATIONAL GUARD READINESS CENTER
Date : Apr 21, 2015

CSPT: ARNG - Common Supporting Items

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date:
Documentation Reference:

F2i Firefinder Radar Readiness Bay Access

Author's Memo

Justification: HHB contains a set of (vehicle & Trailer) one for survey, one for meteorological, two for radar (Q36 & Q37). Spacing for all sets are using this criteria listed in Draft NG Pam 415-12 01 JUNE 2011. For a total of 4 sets at 4x150=600 SY.

Proponent: (NGB) Lanczy, Tibor J Mr CTR NG NGB ARNG, MN 1390/91 Workshop.

Recommendation Date: 15-Aug-2011 Tibor Lanczy (NGB) MN 1390/91 Workshop.

Documentation Reference: Draft NG Pam 415-12 01 JUNE 2011. 1-9. Common Supporting Items, Features, and Allowances for All ARNG Facilities - rigid concrete access maybe provided pavement to cover 150 SY for each vehicle entrance.

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date:
Documentation Reference:

F2I Vehicle Storage Shed Apron (SY)

Author's Memo

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date:
Documentation Reference:

Project Number : 530129
Project Title : NATIONAL GUARD READINESS CENTER
Date : Apr 21, 2015

CSPT: ARNG - Common Supporting Items

G1 Privately owned vehicle (POV) parking (SY)

Author's Memo

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date:
Documentation Reference:

J Security Fencing (LF)

Author's Memo

ETC dated 13 Aug 2013, additional 1000 SQFT

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date:
Documentation Reference:

L Exterior Fire Protection (LS)

Author's Memo

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date:
Documentation Reference:

O3 Chilled/Heated Water Dist System (LS)

Author's Memo

Project Number : 530129
Project Title : NATIONAL GUARD READINESS CENTER
Date : Apr 21, 2015

CSPT: ARNG - Common Supporting Items

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date:
Documentation Reference:

R1 3000 Gallons

Author's Memo

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date:
Documentation Reference:

R4 10000 Gallons

Author's Memo

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date:
Documentation Reference:

INFO: ARNG - Information Systems Worksheet

IB3 Multi-Line Phones

Author's Memo

Justification:

Project Number : 530129
Project Title : NATIONAL GUARD READINESS CENTER
Date : Apr 21, 2015

INFO: ARNG - Information Systems Worksheet

Proponent:
Recommendation Date: 27-Oct-2011
Documentation Reference:

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date:
Documentation Reference:

IC1 No. Persons to Use Facility Initially

Author's Memo

Justification: Unit manning is this many
Proponent:
Recommendation Date: 27-Oct-2011
Documentation Reference:

Reviewer's Memo

Feedback/Recommendation:
Proponent:
Recommendation Date:
Documentation Reference:

Project Number : 530129
Project Title : NATIONAL GUARD READINESS CENTER
Date: Apr 21, 2015

DD 1391 Cost Worksheet Memos Report
171R - ARNG - Readiness Center

Primary Facilities

Primary Facility Totals

Author Memo

Reviewer Memo

Readiness Center

Author Memo

Cost as per 2015 UFC:1 \$193.91 to \$267.78

Reviewer Memo

Feedback/Recommendation:
Proponent:
Recommendation Date: 04-Apr-14
Documentation Reference:

Unheated Encl/Shed-TP Vhcl Strg

Author Memo

Justification: Cost as per 2015 UFC:1 \$83 to \$256
Proponent:
Recommendation Date: 19-Feb-15
Documentation Reference:

Reviewer Memo

Feedback/Recommendation:
Proponent:
Recommendation Date:
Documentation Reference:

Project Number : 530129
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Date: Apr 21, 2015

DD 1391 Cost Worksheet Memos Report
171R - ARNG - Readiness Center

Supporting Facilities

Supporting Facility Totals

Author Memo

Reviewer Memo

Security Fencing

Author Memo

Justification: Additional security fence needed to secure building and motorpool area.
Facility is being built next to Interstate Highway 5 and near Olympia Airport.

Proponent:

Recommendation Date: 13-Aug-13

Documentation Reference:

Reviewer Memo

Feedback/Recommendation:

Proponent:

Recommendation Date: 01-Oct-13

Documentation Reference:

Wash Platform

Author Memo

Justification: Covered wash rack

Proponent:

Recommendation Date: 06-Aug-13

Documentation Reference: State stormwater regulation

Reviewer Memo

Feedback/Recommendation:

Proponent:

Recommendation Date:

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Date: Apr 21, 2015

DD 1391 Cost Worksheet Memos Report
171R - ARNG - Readiness Center

Documentation Reference:

Fuel Strg & Disp System (7000 gal)

Author Memo

Justification: Covered fuel storage
Proponent:
Recommendation Date: 06-Aug-13
Documentation Reference: State stormwater regulation

Reviewer Memo

Feedback/Recommendation:
Proponent:
Recommendation Date:
Documentation Reference:

Gross Excise Taxes

Author Memo

Justification: 9.9 of total project cost
Proponent:
Recommendation Date: 28-Nov-12
Documentation Reference:

Reviewer Memo

Feedback/Recommendation:
Proponent:
Recommendation Date:
Documentation Reference:

Site Improvement

Author Memo

Justification: Stringent municipal storm water requirements by City of Tumwater, WA
Proponent:
Recommendation Date: 07-Aug-13
Documentation Reference:

City of Tumwater, Drainage Design and Erosion Control
Manual,
<http://www.ci.tumwater.wa.us/home/showdocument?id=1522>

Reviewer Memo

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DD 1391 Cost Worksheet Memos Report
171R - ARNG - Readiness Center

Feedback/Recommendation:
Proponent:
Recommendation Date:
Documentation Reference:

TOTAL CONSTRUCTION COST

Author Memo

Reviewer Memo

Contingencies (5.0%)

Author Memo

Reviewer Memo

Cost W/Contingencies Subtotal

Author Memo

Reviewer Memo

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DD 1391 Cost Worksheet Memos Report
171R - ARNG - Readiness Center

Supervision, Inspection and Overhead (5.7%)

Author Memo

Reviewer Memo

Cost W/Overhead Subtotal

Author Memo

Reviewer Memo

Commissioning (0.6%)

Author Memo

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Date: Apr 21, 2015

DD 1391 Cost Worksheet Memos Report
171R - ARNG - Readiness Center

Reviewer Memo

TOTAL PROJECT COST

Author Memo

Reviewer Memo

Total for Other Sponsors

Author Memo

Reviewer Memo

TOTAL Allocated Costs

Author Memo

Project Number : 530129

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Date: Apr 21, 2015

DD 1391 Cost Worksheet Memos Report
171R - ARNG - Readiness Center

Reviewer Memo

Equipment

Kitchen Equipment (Type C)

Author Memo

50 Justification:

Proponent:

Recommendation Date: 11-Mar-15

Documentation Reference:

Reviewer Memo

Feedback/Recommendation:

Proponent:

Recommendation Date:

Documentation Reference:

Project Number : 530129

Project Title : NATIONAL GUARD READINESS CENTER

Date: Apr 21, 2015

Functional Space Details - Actual/ English

171R: ARNG - Readiness Center

	Authorized	Requested	Memo
ARNG - Readiness Center	0	0	
ARNG - Readiness Center	57,860	57860	
Readiness Center:	Yes	Yes	
Joint Forces Headquarters:	No	No	
Civil Support Team Ready Building:	No	No	
RAPIDS Office Assigned:	Yes	Yes	
Existing Physical Fitness Facility:	No	No	
Detached Controlled Waste Handling:	Yes	Yes	
Detached Unit Unheated Storage:	No	No	
Detached Flammable Materials Storage:	Yes	Yes	
No. of Firefinder Radar Facilities:	2	2	X
No. of Controlled Waste Barrels:	8	8	
No. of Arms Vaults:	4	4	
No. of Fed Reimbursed Admin State Employees:	1	1	
No. of Statewide Media Outlets for JFHQ Media Rm:	0	0	
A. Schedule 1 -- Common Use Areas	18,450	18450	
1. Assembly Hall	5,400	5400	
2a. Auditorium	0	0	
2b. Classrooms	4,240	4240	
0 Library/Classroom (Removed)	0	0	
3. Learning Center	500	500	
0 Distance Learning Center (Removed)	0	0	
0 Indoor Firing Range (Removed)	0	0	
4. MultiPurpose Training Area	1,500	1500	
0 Training Aid Storage (Removed)	0	0	

Project Number : 530129

Project Title : NATIONAL GUARD READINESS CENTER

Date: Apr 21, 2015

171R: ARNG - Readiness Center

	Authorized	Requested	Memo
5. Kitchen	2,200	2200	
6. Break / Vending	400	400	
0 Vending Area (Removed)	0	0	
7. Toilets/Shower	2,300	2300	
a. Toilets	1,540	1540	
b. Showers	760	760	X
8. Flammable Materials Storage	0	0	
9. Lactation Area	80	80	
10. Family Readiness Office	250	250	
11. RAPIDS Office	150	150	
12. Retention Office	330	330	
0 Audion/Visual Storage (Removed)	0	0	
13. Table/Chair Storage	300	300	
14. Physical Fitness	800	800	
15. Controlled Waste Handling Facility (CWHF)	0	0	
B. Schedule II -- Unit and Special Space Allowances	39,410	39410	
1. Administrative Office Space	16,520	16520	
a. Basic Space	2,400	2400	
b. Office Allowance	12,620	12620	
c. Special Administrative Allowances	1,500	1500	
(1) Division Headquarters	0	0	
0 Armored Cavalry Regiment HQ (Removed)	0	0	
(2) Brigade and Division Artillery Headquarters	0	0	
(3) Echelons above Brigade Units	0	0	
(4) Special Operations Groups	0	0	
(5) Battalion Headquarters and Headquarters (HHC or HHD)	1,500	1500	

Project Number : 530129

Project Title : NATIONAL GUARD READINESS CENTER

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171R: ARNG - Readiness Center

	Authorized	Requested	Memo
0 Rear Area Operations Center (RAOC) (Removed)	0	0	
0 Division Support Command (Removed)	0	0	
0 Supply and Transport BN (Division) (Removed)	0	0	
0 Support JFHQ (Separate BDE) (Removed)	0	0	
(6) State Headquarters (ARNG)	0	0	
(7) Troop Command	0	0	
(8) Army Advisors Office	0	0	
(9) Personnel Services Companies/Sections	0	0	
(10) State Headquarters military record archive	0	0	
(11) Training Support Brigade (TSB)	0	0	
0 WMD - CST Mission (Removed)	0	0	
0 CBRN and Explosive Team Facility (Removed)	0	0	
2. Unit Storage Space (Including Arms Vault)	12,350	12350	
a. Arms Vaults	2,400	2400	
b. Battalion Headquarters with Organic Subunits (per TOE)	1,000	1000	
c. Supply and Transportation Battalion (Division)	0	0	
d. Support Battalion (Separate Brigade)	0	0	
e. Heated Storage Space	8,501	8501	
(1) Units with Required Strength >= 55	5,400	5400	
(2) Units with Required Strength 10 - 55	3,101	3101	
f. Unheated storage space	449	449	
3. Locker Room Space	5,132	5132	
a. Basic Space (One per readiness center)	200	200	
b. Space per Authorized Position	4,932	4932	
4. Special Functions	3,568	3568	
a. JFHQ Joint Operations Center (JOC)	0	0	

Project Number : 530129

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Date: Apr 21, 2015

171R: ARNG - Readiness Center

	Authorized	Requested	Memo
b. JFHQ Secure Conference Center	0	0	
c. JFHQ Secure Commo Vehicle Ready Bay	0	0	
d. Public Affairs Detachment	0	0	
e. JFHQ Photographic Studio	0	0	
f. JFHQ Media Room	0	0	
g. Medical Section within a Headquarters Unit	400	400	
h. Physical Exam Space.	0	0	
i. Flight Eye Physical Exam Space	0	0	
j. COMSEC Material Direct Support Activities (CMDSA)	0	0	
k. Information Technology (IT) Support Activities	0	0	
l. General Purpose Training Bay (GPTB)	3,168	3168	
(1) Workbays	3,168	3168	
(2) Office Space	0	0	
m. Air/Army National Guard Weather Flight	0	0	
n. Band	0	0	
5. Firefinder Radar Readiness Bay	1,600	1600	X
6. Secure Area	240	240	X
7. Civil Support Team Ready Building	0	0	
a. Classrooms/Library	0	0	
b. Training Aid Storage	0	0	
c. Break Room (Area)	0	0	
d. Vending Area	0	0	
e. Toilets/Shower	0	0	
f. Flammable Materials Storage	0	0	
g. Table/Chair Storage	0	0	
h. Physical Fitness	0	0	

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171R: ARNG - Readiness Center

	Authorized	Requested	Memo
i. Ready Bays	0	0	
j. Operations Center	0	0	
k. Admin Space General	0	0	
l. Admin Space Special	0	0	
m. COMSEC	0	0	
n. Storage	0	0	
o. Lockers	0	0	
p. Laundry	0	0	
q. Medical Support/Storage	0	0	
r. Equipment Maintenance	0	0	
s. DECON Room	0	0	
8. Other Special Facilities	0	0	
a.	0	0	
b.	0	0	
c.	0	0	
d.	0	0	
e.	0	0	
Total Net Readiness Center Space	57,860	57860	
Maintenance and Storage (3% of Total Net Area)	1,736	1736	
Mechanical/Electrical Room (5% of Total Net Area)	2,893	2893	
Telecom/IT (1% of Total Net Area)	579	579	
Circulation Allowance (15% or 22% of Total Net Area)	13,875	13875	
Structural Allowance (10% of Total Net Area)	7,695	7695	
Total Gross Readiness Center Space	84,638	84638	
- Other Gross Readiness Center Space	0	0	
Total Readiness Center Space	84,638	84638	

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171R: ARNG - Readiness Center

Authorized Requested Memo

Detached Controlled Waste Handling	300	300	
Detached Unheated Storage Space	0	0	
Detached Flammable Materials Storage	200	200	

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Project Title : NATIONAL GUARD READINESS CENTER

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ARNG - Common Supporting Items

	Authorized	Requested	Existing	Memo
ARNG - Common Supporting Items				
Unheated Vehicle Strg Shed Needed:	Yes	Yes	0	
Wash Platform Required:	Yes	Yes	0	
Loading Ramp Required:	Yes	Yes	0	
MCOFT Type Simulator Required:	Yes	Yes	0	
Rigid Paving for Access Road:	Yes	Yes	0	
Access Road Length (LF)	1,116	1116	0	
No. of Controlled Waste Access Facilities:	1	1	0	
No. of Fuel Trucks/Trlr to be Parked with Fuel:	0	0	0	
No. of Trucks Simultaneously at Loading Dock:	1	1	0	
No. of Turning Pads:	5	5	0	
No. of Refuse Collection/Dumpster Sites:	2	2	0	
No. of Other Access Apron Service Sites:	0	0	0	
No. of Generator Pads	1	1	0	
Fuel Storage and Dispensing Systems (EA)				
A. Total Vehicles Requiring Support	73	73	0	
1. Vehicles Requiring MOGAS (EA)	0	0	0	
2. Vehicles Requiring Diesel Fuel (EA)	73	73	0	
3. Vehicles Requiring AVGAS (EA)	0	0	0	
4. Vehicles Requiring Other Fuel (EA)	0	0	0	
B. Organizational Vehicle Parking				
1. Other Functional Activities				
a. Authorized based on Vehicle Inventory	6,875	6875	0	
1) Wheeled vhcl and trlr/towed equip (SY)	5,600	5600	0	
2) Tracked/engr vehicle, and equip > 30 (SY)	1,275	1275	0	
3) Fuel Truck (SY)	0	0	0	

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ARNG - Common Supporting Items

	Authorized	Requested	Existing	Memo
4) HET vehicle (SY)	0	0	0	
2. Unheated Enclosed Vehicle Storage Shed (SF)	40,838	29701	X 0	
3. Total Exterior Organizational Vehicle Parking (SY)	2,337	2337	0	
C. Loading Docks				
1. Readiness Center Loading Dock (LS)	Yes	Yes	X 0	
D. Wash Platform (EA)	1	1	0	
E. Military Vehicle Loading Ramp (EA)	1	1	0	
F. Rigid Pavement Other Than Parking (SY)	10,916	11516	0	
1. Structures and Pads Supporting Operations (SY)	1,210	1210	0	
a. Fuel Truck Containment Area (SY)	0	0	0	
b. Mltry Vhcl Loading Ramp Sprt (SY)	160	160	0	
c. Turn Pads (SY)	500	500	0	
d. Helipads (SY)	0	0	0	
e. Parking Pad for MCOFT Type Simulators (SY)	400	400	0	
f. Generator Pad with Electrical Hookup (SY)	150	150	0	
g. Mobile Kitchen Trailer (MKT) Parking Pad (SY)	0	0	0	
2. Service and Access Aprons (SY)	5,738	6338	0	
a. Military Vehicle Loading Ramp (SY)	250	250	0	
b. Wash Platform Pad (SY)	115	115	0	
c. Wash Platform Access (SY)	250	250	0	
d. Refuse Collection/Dumpster Pad (SY)	300	300	0	
e. Controlled Waste Handling (SY)	0	0	0	
f. Fuel Pump Island (SY)	75	75	0	
g. Fuel Pump Access (SY)	250	250	0	
h. Loading Dock Access (SY)	150	150	0	
i. Firefinder Radar Readiness Bay Access	0	600	X 0	

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ARNG - Common Supporting Items

	Authorized	Requested	Existing	Memo
j. Other Service Area (SY)	0	0	0	
k. Readiness Center Workbay Access Apron (SY)	214	214	0	
l. Vehicle Storage Shed Apron (SY)	3,834	3834	0	
m. Drill Hall Door Access Apron (SY)	300	300	0	
3. Access Road and Entrance Throat (SY)	3,968	3968	0	
G. Flexible Pavement (SY)	8,645	8645	0	
1. Privately owned vehicle (POV) parking (SY)	8,645	8645	0	
2. Visitor/Customer Parking (SY)	0	0	0	
3. Access Road and Entrance Throat (SY)	0	0	0	
4. Helipad Clearance Area (SY)	0	0	0	
H. Sidewalks (SY)	1,416	1416	0	
I. Curbs (LF)	1,800	1800	0	
J. Security Fencing (LF)	1,564	2564	X 0	
K. Flagpole(s) (EA)	2	2	0	
L. Exterior Fire Protection (LS)	Yes	Yes	0	
M. Detached Facilities Sign/Static Display (EA)	1	1	0	
N. Outside Security Lighting (LS)	Yes	Yes	0	
O. Utilities (LS)				
1. Gas (LS)	Yes	Yes	0	
2. Electric (LS)	Yes	Yes	0	
3. Chilled/Heated Water Dist System (LS)	No	No	0	
4. Water (LS)	Yes	Yes	0	
5. Waste Water/Sewer (LS)	Yes	Yes	0	
P. Storm Water Drainage (LS)	Yes	Yes	0	
Q. Installed Equipment (EA)	3	3	0	
1. Stand-by Generator (prioritize for top 35% of load)	1	1	0	

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ARNG - Common Supporting Items

	Authorized	Requested	Existing	Memo
2. Refuse Collection Facilities	2	2	0	
3. Other Installed Equipment (LS)	0	0	0	
a.	No	No	0	
b.	No	No	0	
c.	No	No	0	
d.	No	No	0	
e.	No	No	0	
R. Fuel Storage and Dispensing Systems (EA)	1	1	0	
1. 3000 Gallons	0	0	0	
2. 5000 Gallons	0	0	0	
3. 7000 Gallons	1	1	0	
4. 10000 Gallons	0	0	0	
5. 20000 Gallons	0	0	0	
S. AC Tonnage (Total)	281	281	0	
1. AC Tonnage (Readiness Center)	281	281	0	

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INFO: ARNG - Information Systems Worksheet

Authorized Requested Memo

I ISCE Inputs:

A. Square Footage Tab

1 Admin	25,219	25219
2 Intermediate	483	483
3 Barracks	0	0
4 Warehouse/Storage	26,312	26312
5 Clinic/Medical	586	586
6 Class Rooms	9,652	9652
7 Others	26,108	26285

B. New Services Tab

1 Single Line Phone	127	127	
2 ISDN Sets	127	0	
3 Multi-Line Phones	13	13	X
4 Weatherproof Phones	1	1	
5 Explosive Environment Phones	2	2	
6 LAN Ports	248	369	
7 Wall/Payphone Outlet w/telephone set (additional)	11	11	
8 Fiber Optic Outlets (2RJ-45 wDual SC)	0	0	
9 SIPRNET	0	0	
10 TV Outlets -- All Services	0	0	

C. Cabling, Switching, and Building Tab

1 No. Persons to Use Facility Initially	274	274	X
2 No. Ducts into Bldg: 2, 4, 6, 9, 12-way	4	6	
3 Maximum Occupant Capacity	200	200	
4 Proposed Bldg Entry Duct/Sys Lngth - Underground	700	700	
5 Type of Building	4	4	

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INFO: ARNG - Information Systems Worksheet

Authorized Requested Memo

II ISCE Results:

A. Construction Primary Funded (\$000)	497	497
B. Construction Support Funded (\$000)	48	48
C. ISC Equipment (OPA \$000)	470	470
D. ISCE Proponent (OMNG \$000)	388	388

APPENDIX D





APPENDIX D OUTLINE SPECIFICATIONS

The following specification criteria are suggested to be used as framework for the building systems and design for the Tumwater Readiness Center. They establish the parameter for the various architectural and engineering systems to be built upon as further information for the new building is determined during the design phases. Additional information is contained in the systems narrative in Section 5 – Project Budget Analysis

01 Foundations

Concrete Requirements:

Location	Strength (psi)	Test Age (days)	Max. Agg. Size (inch)	Max. W/C Ratio	% Air Content	Slump (Inch)
Foundations	3000 - 4000	28	1	0.59	0	4

All reinforcing bars to be Grade 60 - Fy=60,000 psi

Exterior wall footings: Minimum 4-feet-wide when retaining, 2-feet-wide at all other locations, top of footing 18 inches below grade minimum.

Interior bearing walls footings: Minimum 2-feet-wide, top of footing 6 inches below the bottom of slab-on-grade.

Below grade stem wall: As required by wall assembly thickness.

Interior non-bearing walls: Provide 8-inch-thick reinforced concrete wall at elevator pit and below all interior CMU walls. Provide bituminous dampproofing with protection board and 4 inches minimum gravel backfill at unexposed wall surfaces.

02 Substructure

Concrete Requirements:

Location	Strength (psi)	Test Age (days)	Max. W/C Ratio	Slump (Inch)
Interior SOG	4000	28	0.44	4
Exterior Concrete Walls	4000	28	0.44	4
Elevated Slabs	4000	28	0.44	4

All reinforcing bars to be Grade 60 - Fy=60,000 psi

Slab-on-Grade:

General: All slabs to be poured over compacted subgrade or select fill with 6 inches gravel free-draining capillary break and 10 mil vapor barrier.

Edge of slab at exterior wall to be insulated with R-10 extruded polystyrene perimeter insulation to 2 feet inside exterior walls. The inside faces of foundation walls at building perimeter to be insulated with R-10 extruded polystyrene perimeter insulation to 2 feet below floor line.

Other locations: 4 to 5 inch concrete slab reinforced with steel over 4 inch gravel over 6 inch compacted fill. Possibly 1.5 ft spalls at areas of no previous development.



03 Superstructure

Design Criteria:

Vertical Loads: Classrooms / Offices: 50 psf uniform load (reducible) + 20 psf partition and 2000 pound concentrated load
 Mechanical Rooms: 125 psf (reducible) and 2000 pound concentrated load + weight of any mechanical equipment
 Upper Floors Corridors: 80 psf
 Lower Floor Corridors: 100 psf
 Stairs: 100 psf and 300 pound concentrated load on tread
 Assembly Hall: 100 psf
 Storage Rooms: 125 psf
 Roof Loads: 20 psf (reducible) + 25 psf snow load (27.5 psf w/ importance factor of 1.1)

Lateral Seismic: Earthquake loads for maximum considered ground motions $S_s=1.290$ g and $S_1=0.510$ g, site class E, seismic design category D, importance factor = 1.25, and Risk Category IV (essential facility designation).

Wind Exposure: Wind loads for an ultimate wind speed (Vult) of 115 miles per hour, exposure C, in accordance with IBC section 1609 and ASCE 7 chapters 26 through 30.

Exterior Bearing Walls: 8- or 12-inch-thick-nominal reinforced concrete masonry units, fully grouted.

Steel Framing Requirements:

Structural Steel (Wide Flange)	ASTM A992, GR 50
Connection Metal, embedded items	ASTM A-36
Structural Tubes	ASTM A-500, Grade B
Structural Framing Bolts	ASTM A-325
Anchor Bolts	ASTM A-307
Threaded Rods	ASTM A-36
Headed Shear Studs	ASTM A-108
Welding Electrodes	E70XX

04 Exterior Enclosure

Exterior Wall:

Primary Façade: 4-inch brick or concrete masonry unit veneer with 2-inch rigid polystyrene insulation.
Secondary Façade: Prefinished steel metal panels with Kynar coating and concealed fasteners screw-attached to 2-inch metal "Z" furring with voids filled with 2-inch rigid polystyrene insulation.

Soffits: Suspended 5/8-inch silicone-modified gypsum core board with veneer plaster at overhangs and vestibules.

Windows: Extruded aluminum thermally-broken frames, with fixed and operable sash sections. Extended flange for blast protection. Color-anodized aluminum finish. Clear insulated low-E glass, with laminated inner pane for blast protection.

Storefront/Curtain Wall: Extruded aluminum thermally-broken frames. Extended flange for blast protection. Color-anodized aluminum finish. Clear insulated low-E glass, with laminated inner pane for blast protection. Safety glazing where required. Main entrance doors at



storefront to be medium-stile standard aluminum with concealed closers and custom pulls glazed with low-E glass, with laminated inner pane for blast protection. ADA automatic push button operators are to be provided.

Hollow Metal Doors and Frames:

Typical exterior personnel doors to be 1-3/4 inches galvanized and painted 16-gauge insulated flush hollow metal with 14-gauge frames solid grouted. Frames and hinges wired for access control systems

Overhead Doors:

12 feet high x 12 feet wide motor-operated overhead sectional panels with insulated 16-gauge steel curtain. Finish to be painted.

Exterior Hardware:

Heavy-duty, commercial-grade, lever-handle cylindrical locksets, satin chrome finish, ADA compliant, with removable cores keyed to Military Department standard keying system. Exit devices on primary entrances and at all doors required by code. Integrated with access control system.

05 Roofing

Low Slope (1/2 inch/ft): 60 mil TPO single-ply membrane fully adhered to 1/4-inch silicone-modified gypsum core cover board (DensDeck or equal) over minimum R-30 polystyrene board insulation attached to the metal deck with screws. Control screw penetrations or adhere materials in interior public areas with exposed structure. Drainage crickets to perimeter roof drains connected to internal roof drain leaders. Overflow scuppers provided through parapets.

Pitched Roofs:

Standing seam, 20-gauge, 18 inch coverage, galvanized/aluminum metal roof on thermally broken "z" purlins on metal roof deck. Voids between purlins to be filled with minimum R-30 polystyrene insulation over 6 mil vapor barrier. Finish to be baked-on polyvinyl fluoride (Kynar 500).

Roof Scuttle:

Steel roof scuttle and ships ladder stairs to the roof for access to service rooftop equipment.

Skylights:

Aluminum-framed skylights or monitors. Clear insulated low-E glass, with laminated inner pane for blast protection. Locate to minimize energy use.

To reduce dependence on electric lighting, provide factory-assembled commercial-quality tubular skylight assemblies, Solatube or equal, in select spaces not adequately served by natural light.

06 Interior Construction

Partitions:

Bearing walls and non-bearing walls requiring abuse resistance or security will be grouted concrete masonry.

Non bearing walls to be metal stud framed with 5/8-inch Type X gypsum wallboard. Acoustic batt insulation and acoustic resilient channels to meet acoustic specification. Provide veneer plaster at all exposed framed wall surfaces in toilet and shower rooms and corridors. Provide fiberglass-mat-faced gypsum wallboard with water-resistant core at wall surfaces receiving ceramic tile.



Vaults will be 8-in cast-in-place concrete with double-mat reinforcing steel per NGB criteria.

Interior Doors: 1-3/4 inches 18-gauge full flush hollow metal painted door in 16-gauge welded solid-grouted hollow metal frame. Include transom or sidelights as indicated.

Vault doors to be Class-V security type.

Interior Hardware: Heavy-duty, commercial-grade, lever-handle cylindrical locksets, satin chrome finish, ADA compliant, with removable cores keyed to Military Department standard keying system. Exit devices and surface-mounted closers at all doors required by code. Integrate exterior doors with access control system. Kick plates at all doors with closers. Low energy automatic operators on all doors to high-traffic public spaces.

Interior Glazing: Fire-rated glass or safety glazing in hollow metal frames with steel stops at rated walls.

Floor Finishes

Exposed Concrete: Exposed slab with clear liquid hardener/sealer at most locations. Provide pigmented dry-shake floor hardener at assembly hall and vehicle training workbays.

Terrazzo: Precast terrazzo tiles at primary lobby.

Carpet: 2-foot-square-nominal carpet tile with recycled-content backing in offices and classrooms.

Sheet Linoleum: At support spaces and upper level corridors, with heat-welded seams. No vinyl permitted.

Ceramic Tile: 2-inch-square thin-set unglazed mosaic in toilet rooms.

Epoxy: Liquid-applied, at kitchen and kitchen support spaces. Provide embedded quartz granules for slip-resistance.

Base: Rubber: 4-inch rubber top set at all non-tile floors. Terrazzo base at terrazzo flooring.

Ceramic Tile Base: Coved 2-inch-square to match flooring. Use at all ceramic tile floors.

Wall Finishes:

Painted: 2-coats over primer or block filler. Provide architectural best grade satin-sheen acrylic enamel except semi-gloss at toilet rooms and building maintenance rooms.

Ceramic Tile: Glazed tile to 5 feet at all toilet rooms, full height at showers.

Stairs and Railings:

Stairs: Bidder design steel stairs system, with sealed precast concrete treads/risers with anti-slip inserts.

Railings: Painted built-up steel handrails and railings.



Ceilings:

Acoustic Tile: At administrative office spaces and classrooms, 2-foot-square non-rated fine-textured acoustical tile with a tegular edge in a 9/16-inch suspended metal grid. Mylar-coated scrubbable acoustical tile on 15/16-inch grid in kitchen and associated support spaces.

Gypsum Wallboard: Water-resistant horizontal-grade gypsum wallboard on suspended metal framing at toilet and shower rooms.

Exposed Structure: Where no ceiling is provided, paint exposed steel structure, ducts and conduit.

Specialties:

Toilet Accessories: Surface-mounted, stainless steel accessories consisting of dispensers for soap (one per lavatory), toilet seat covers; receptacles for paper towels and napkins; grab bars (one set per accessible toilet); and one mirror (24 inches x 48 inches) per lavatory. Provide hot air hand dryers. Provide two large capacity toilet paper dispensers for each toilet

Toilet Partitions: Ceiling-mounted HDPE, with one coat hook per door.

Signage: Plastic interior signage with room names and numbers with raised letters, numbers, and Braille. Signage system includes: Building directory and maps with removable inserts, room identification, and dedication.

Fire Extinguisher Cabinets:

Recessed cabinets with stainless steel finish, glass doors, and cast "Fire" handle at 100 feet maximum spacing.

Casework: All casework to be modular. At each classroom provide podium for instructional media. At workrooms and coffee stations provide upper and lower cabinets.

Architectural Casework:

Architectural casework to be utilized for reception desks, trash and recycling collection stations, display cases, and shelving.

Marker boards: Dry-erase marker board with lifetime porcelain enamel finish, cork map rail, map hooks and chalk tray. Marker boards to have 4-feet by 8 feet module.

Tack boards: Tackable linoleum surface, 4 feet by 4 feet, at each classroom. Provide 8 feet by 4 feet in workrooms and corridors.

Projection Screens: Motor-operated, 8-foot wide tensioned screen format. Provide one per classroom and conference room unless otherwise indicated. Integrate into framed ceiling soffit.

Window Treatment: Manual roller shades in the offices and classrooms. 90 percent shade except 95 percent at classrooms. Provide complete valence or pockets.

Acoustic Panels: Wall upholstery system with 5/8-inch-deep extruded vinyl track and commercial wall panel fabric, Class A fire-rated. Medium density fiberboard infill at locations up to 8 feet above floor; fiberglass acoustical batt infill above. Provide at all classrooms and assembly hall.



- Entrance Mats:* Minimum two-zone system comprised of exterior recessed slip-resistant stainless steel foot grilles and interior recessed walk-off mats. 12 lineal feet path of travel minimum.
- Corner Guards:* Stainless steel, for use at all outside corners in kitchen and associated support spaces.
- Lockers:* Large lockable, all-welded, ventilating lockers sized for storage of personnel equipment, field gear, etc.

07 Conveying Systems

- Elevator:* 2,500-lb telescoping holeless hydraulic automatic elevator with standard cab finishes, and separate equipment room.

08 Mechanical

- Motors:* Motor efficiencies shall meet requirements of the 2012 Washington State Energy Code.
- Supports, Anchors:* All mechanical equipment and materials shall be adequately supported and braced in accordance with current seismic standards.
- Mechanical ID:* Mechanical equipment and piping shall have identifying labels.
- Vibration Isolation:* Entire mechanical system shall be isolated from building structure to control noise and vibration.
- Fire Protection:* The building will be fully sprinklered. Additionally the air distribution system shall include controls to shut down all air handling equipment with capacities of 2000 CFM or more during fire alarm conditions.
- Plumbing:*
- Water Piping:* Domestic water piping shall be Type L, or better, copper water tube with lead-free soldered joints. All water piping shall have fiberglass insulation with All Service Jacket. Hose bibs will be provided on the building exterior every 100 feet, as well as in trash area.
 - Waste, Vent, Rain Leader Piping:* Cast iron "no-hub" with stainless steel couplings and neoprene gaskets. Roof drain bowls and rain leaders inside building shall be insulated.
 - Gas Piping:* Gas piping shall be black steel with threaded or approved press-fit fittings. Gas piping and fittings below grade shall have mastic coating.
 - Hydronic Piping:* Copper type L or M with fiberglass insulation.
 - Valving:* Full port ball valves up to 2", butterfly valves over 2". Backflow preventer for main service shall be equal to Ames. Safety relief valves shall be equal to Watts.
 - Refrigerant Piping:* Hard-drawn copper tubing with brazed fittings, or seamless aluminum tubing with press fittings. Piping shall be insulated.



Plumbing Fixtures:

- Water closets:* Wall-hung, vitreous china elongated bowl with 1.1 gallon-per-flush sensor-operated flush valve. Water closets equal to American Standard.
- Urinals:* Wall-hung, 1/8 gallon flush. Equal to American Standard.
- Lavatories:* Wall-hung (no counter-mount), vitreous china. Sensor-operated faucets. Lavatories equal to American Standard. Faucets equal to Chicago Faucets.
- Kitchen Sinks:* Stainless steel sinks, equal to Just or Elkay. Faucets equal to Chicago Faucets.
- Service Sinks:* Floor-mounted molded-stone basin, equal to Fiat. Faucet equal to Chicago Faucets.
- Water Heater:* Water heaters shall be high-efficiency condensing gas-fired units. Storage temperature shall be 140°F. Thermostatic mixing valve will reduce temperature to 120°F for building distribution. Equal to Aerco and Burnham.
- Wall Hydrants:* Freezeless wall hydrants with vacuum breakers and loose-key handles shall be provided on exterior of building at intervals not to exceed 100 feet. Hydrants will also be provided at trash/recycling enclosures and at all outdoor work areas.
- Hose Bibbs:* Interior hose bibs with vacuum breakers will be provided in restrooms that have more than one water closet and/or urinal.
- Floor Drains:* Galvanized cast iron two-piece body with double drainage flange, weep holes, reversible clamping collar, and round, adjustable nickel-bronze strainer.
- Shop Floor Drains:* Galvanized cast iron two-piece body with double drainage flange, weep holes, reversible clamping collar, and adjustable round nickel bronze strainer with removable perforated sediment bucket.
- Grease Interceptor:* Concrete, multi-compartment below-ground tank, sized to requirements of authorities having jurisdiction.
- Water Coolers:* Stainless steel dual-height refrigerated drinking fountains, equal to Halsey Taylor model HAC 8FS.
- Shower Bases:* Individual showers shall be provided a 40" x 40" one-piece cast terrazzo receptor equal to Florestone 400 series set in recessed slabs, and pressure balancing shower valve with cast wall flange and ADA-complaint handle equal to Leonard Model PAM II-ST. Additional hand held shower required in accessible shower stalls equal to Leonard Model 515P.

Heating & Cooling:

- General:* Demand controlled ventilation is required at all HVAC systems.
- Dedicated Outside Air Heat Recovery Units:* Double-wall custom air handling units, consisting of high efficiency plenum fans, variable speed drives, 2-stage filter section, and high efficiency heat exchanger.



Variable Refrigerant Flow System:

Ductless and ducted split system heat pump system, using outdoor units with inverter-driven compressors. System uses refrigerant as the cooling and heating medium. Equal to Mitsubishi.

Gas-fired Unit Heaters:

Indirect gas-fired heating units.

Exhaust Fans:

Spun aluminum rooftop ventilator with ductwork. Equal to Greenheck.

Air Distribution:

Insulated sheet metal supply ductwork with plenum return and exposed sound lined galvanized sheet metal.

Controls:

Central DDC control system compatible with and connected to existing Military Department control system via modem.

Shop Equipment:

Exhaust evacuation system and air compressor in vehicle training workbays.

Kitchen Equipment:

Plumbing and rough-in and connections to kitchen equipment.

09 Electrical

Design Electrical Capacity:

The following is the minimum power density for the building. Actual electrical loads will be applied as the design is developed:

- Lighting 3.0 watts per SF
- Receptacles 3.0 watts per SF
- Appliance Plug Load 2.0 watts per SF
- Kitchen Equipment 2.0 watts per SF
- HVAC 12.0 watts per SF
- Basic Minimum Load Capacity: 22 watts per SF

Electrical Site Utilities:

The electrical site utility work includes underground services for power and data, phone and communication systems.

Electrical Service:

Underground secondary service from utility padmount transformer outside building. Building electrical service System will be single 277/480V with GFI main breaker. (Dual 480/277v and 208/120v entrance services can be used for service capacity over 2000A). Provide step-down transformers for 120/208V and 240V system. System Configuration to follow energy codes metering requirement.

Power Distribution:

Provide full rated and coordinated electrical system. The distribution equipment shall be molded case circuit breaker type, integral with the service equipment. Feeders will extend from the distribution equipment to branch circuit panelboards. Equipment interrupting ratings shall be minimum 22,000 AIC.

Building service feeder/main disconnect, feeders, and branch circuit panels will be sized in accordance with the National Electrical Code plus 25% spare capacity.

Provide isolation transformers.

Provide 200% neutral for lighting panel.

Provide 200% neutral for computer load panel.



Revised April 20, 2015

Manufacturer for panels and transformers to be Square D or Siemens.

Lighting will be 277V.

480V 3-phase will be available for HVAC and shop equipment.

Branch circuit panels to have minimum 60-circuits. Panels to be surface mounted throughout the building or flush mounted in office areas. Electrical panels will be bolt-on type constructed with "door-in-door" design. Each panel will contain 6 unused ¾" knockouts. Each panel will contain minimum (12) spare 20amp 1 pole circuit breakers and (6) 1 pole spare spaces.

Outlets in hallways to be located a minimum of every 50 lineal feet. Floor boxes or access flooring for computer and equipment layout flexibility.

- Emergency Power: Provide emergency generator and transfer switches to provide back-up power for emergency load, legally required emergency load, and selected optional standard by load. A portable generator connection receptacle will be located for redundant back-up generator power.
- Surge Protection: Provide surge suppression at the main switchboard.
Provide surge suppression at major distribution panels and branch panels.
- Wiring Methods: General wiring methods are to be in conduit. Electrical Metallic Tubing will be used in indoor locations. Underground conduit will be PVC schedule 40 with Galvanized Rigid Steel bends. Exposed exterior conduit will be Galvanized Rigid Steel.
Wire for power and lighting will be solid and stranded copper conductor with thermoplastic THHN/THWN, 75°C insulation
- Basic Materials: Conduits exiting the electrical closets will be a minimum size of 3/4".
J-Box mounted in ceiling or exposed will be a minimum of 1-1/16" deep and 4" square.
J-Box and cover will be color coded for dedicated system (Fire Alarm, Security, Clocks, Emergency Power).
J-Box housing distribution power will be identified as to the voltage/electrical panel/circuit number of origin.
Branch circuit wiring will be No. 12 AWG copper minimum. Feeder conductor will be stranded copper.
Switches will be AC quiet type rated 20A, 277V, specification grade.
Receptacles will be specification grade, 15A rated with 20A interior and for dedicated circuit.
Wiring devices finish plates will be brushed-satin stainless steel.
All safety disconnect switches will be heavy-duty rated with voltage rating and ampacity required for equipment served.



Grounding: Grounding for the building will be in compliance with Article 250 of the National Electrical Code. All electrical power and communication systems shall be bonded to the equipment grounding system for both safety and ground potential differences. All branch circuit conduits will contain an equipment ground conductor from panel ground bus to the devices and equipment served.

Lighting:
General: General lighting throughout the building will utilize fluorescent, LEDs and metal halide lamp/fixtures. Fluorescent lamps shall be warm white. Four-foot fixtures shall be provided with fluorescent T-5, T-5/HO or T-8 lamps. LED lamps are to be used in down-lights and 2x4 troffers fixtures. LED fixtures shall have dimming electronic drivers, Fluorescent ballasts and HID ballasts shall be electronic type. Illumination levels will be provided to meet the requirements of the Illuminating Engineering Society Standards. All stated illumination levels are average maintained levels, calculated at the work surface using an 80% maintenance factor.

Office and general working area will be illuminated with LED lighting fixtures. High bay will be equipped with high output T-5 fluorescent. Corridor will contain dimmable LED down light to provide lower illumination level for nighttime operation.

Luminance: Average levels to be minimum levels per State Health codes, IES recommended illumination levels are as follows:

<u>Activity/Location</u>	<u>Illumination Level</u>
Classroom	50 foot-candles
Office / Meeting Room	40 foot-candles
Day Room / Kitchen	30 foot-candles
Commons	25 foot-candles
Corridors	10 foot-candles

Shop/Storage: Suspended industrial fluorescent with electronic ballasts and multi-level switching, or metal halide. (minimum Color Rendering Index: 60)

Office: Indirect,/direct LED fixtures, either recessed or pendant-mounted fixtures.

Classroom: Indirect/direct LED fixtures either recessed or pendant-mounted fixtures. Classrooms to have multi-setting lighting control system for teaching wall.

Emergency: LED fixtures with battery packs.

Exit Lights: LED exit lights with battery backup.

Security Building Lighting:
 Wall mounted LED fixtures.

Site Lighting: Pole mounted LED fixtures, with wireless motion, dimming, photo cell controlled.

Lighting Controls Interior fixtures will be controlled with local switches and occupancy sensor controls with automatic dimming for fixtures located in classroom area day-light zone as required by Washington State Energy Code. Fluorescent fixtures will have multi-level



switching. Control of corridor and exterior fixtures will be by a combination of photocell and time clock control devices.

The lighting system design will comply with Washington State Energy Codes and LEED Certifications requirements.

Communications:

Computer Data

Network:

The computer data networking will be a Category 6 from work station to rack and. fiberoptic cabling between data racks. The networking platform will consist in part of jacks, cable, and patch panels. Cable will run in accordance with EIA/TIA/13A standards from point of use to a main patch panel where it terminates in 110 style panel downblocks.

The system will have field testing and documentation prior to use by owner.

Operating equipment and computer riser stations will be provided by owner.

Phone/Data:

Raceway, cable, outlet jacks, rack and patch panels per Owner request. Floor boxes or access flooring for computer and equipment layout flexibility.

The telephone system shall consist of telephone jacks and Category 6 shielded twisted pair voice-rated cable from each user station to a common punch down station.

Wireless:

Empty conduit and power provide to wireless emitter locations. Provide one location at each classroom.

PA:

It is anticipated that any intercom or paging will be handled through the phone system.

Video:

Provide raceways and boxes to serve video projectors and cable TV outlets as directed by the Owner.

Antenna Distribution System:

Provide distributed antenna cabling and conduits system for emergency radio, first alert communications.

Security Systems:

Intrusion alarm System:

Security intrusion system to provide intrusion detection with motion detectors, door switches and access controls.

CCTV Security System:

Security camera system covering accessible site perimeter. Military Department standard design guidance.

Access Control:

High security restricted key system. Doors to classrooms, labs, administrative areas, and main entries, are to be provided with card reader access. (DSX Access Control System)



Fire Alarm: Intelligent analog addressable fire alarm system with mass notification functions. Devices to consist of manual pull stations, speakers with strobes (amber and white), strobes in the rest rooms, heat detectors in unoccupied service areas, duct detectors, with a main control panel located in the mechanical/electrical room and an annunciator located at the main building entrance. The exterior of building will be provided with weatherproof speakers. The FACP will have the ability to make voice instructions during an emergency. The system shall allow for manual fire fighter override and connections to the building EMCS allowing for HVAC shutdown. The system shall be equipped to report alarms remotely.

10 Fixtures, Furnishings and Equipment (FF&E)

Storage Shelving: Industrial heavy-duty 3-tier metal storage shelving where freestanding shelving is indicated on room data sheets.

11 Fixed Equipment

Shop Equipment: The general construction contract will include vehicle exhaust evacuation system and air compressor in vehicle training workbays

Kitchen Equipment: Contractor is responsible for all fixed and direct-connected kitchen equipment (exhaust hoods, make-up air, sinks and counters, etc.) per NGB criteria. All other (i.e. loose) equipment will be provided by the Government for installation by contractor.

Fire Extinguishers: 10 lb. multipurpose dry chemical.

12 Sitework

Preparation:

Clearing: Removal, clearing, grubbing, and legal disposal of landscape.

Control: Provide temporary erosion, sedimentation, silt, and dust control during construction. Provide pollution source control.

Earthwork:

Work includes but is not limited to:

Required excavation, shoring, embankment construction, backfilling, compaction, sub-grade preparation, rough and finish grading.

Removing materials from the site which are either not approved for use, or are in excess of that required.

Importing any additional required materials.

Utility trenching.

Stockpiling, protecting and conditioning of native materials for reuse as indicated.

Coordinating of installation of electrical, telephone, communication, and power conduits, water, gas, and sewage lines.

Coordination of sleeving installations for irrigation lines.

Coordinating these earthwork operations with other work of the project.



Temporary erosion control hydro-seeding.

Cut and Fill: Remove and export top soil under building pad and adjacent parking areas and import select fill. Excavate all footings, slabs-on-grade, and pavement to 24 inches below finish grade and backfill with select fill. Fill to have no more than 5 percent passing 200 sieve and no material over 6 inches in diameter. Compact to 95 percent proctor.

Pipe Bedding: Gravel per Section 9-03.12(3) of WSDOT standards.

Topsoil: Import 8-12 inches topsoil for planting or stockpile and amend existing soil to be reused on site.

Improvements:

Asphalt Paving: Do not provide soil sterilant under paving. Base course consisting of crushed surfacing top course per Section 9-03.9(3) of WSDOT standards, 4 inches thick in parking areas and 6 inches Class B asphalt in driveways and truck traffic areas. Pavement and parking striping to be white with blue/white international symbol of access. Precast wheel stops 1 per space.

Concrete Paving: 8 inches thick (6 inches with favorable subgrade), 3,000 psi with WWF over 8 inch aggregate base, light broom finish, and tooled joints and edges.

Landscaping: Trees, shrubs, ground cover, and seeding over all unpaved surfaces disturbed by construction. Plant selection shall be native or adaptive to the Puget Sound region, drought-tolerant and low-maintenance varieties to the greatest extent possible. Provide 3-inch depth of recycled organic mulch at all planting beds.

Automatic irrigation system, zoned based on water needs and microclimate conditions to allow system to be turned off where drought-tolerant planting is used and remain active long-term for all lawn areas.

Site Furnishings: Flagpole, steel benches, bike racks, trash/recycling receptacles, locking butt receptacles. Wall enclosure with security gates for all trash and recycling locations.

Exterior Signage: Exterior building signage as authorized.

Utilities:

Water Supply: Pipe 4 inches or larger to be cement mortar lined ductile iron. Pipe 2 inches or smaller to be copper Type K or high density polyethylene (HDPE). Fittings to be same material as pipe. Valves, valve boxes, and hydrants shall be in accordance with Thurston County standards. Provide complete with 14 gauge neoprene-coated copper locating wire and poured in place concrete thrust blocks.

Fire Hydrants: Fire hydrants shall conform to the Thurston County standards.

Foundation Drains: 4-inch perimeter foundation drains to be perforated Schedule 40 PVC (DWV) surrounded by 6 inches gravel backfill for drains per Section 9-03.12(4) of WSDOT standards. Gravel backfill for drains to be wrapped in filter fabric, Mirafi 140N or approved equal.



Storm Drains, Culverts, and Outfalls:

10-inch pipe or smaller to be PVC. Provide 3 feet minimum cover over PVC. Pipes 12 inches diameter or larger to be HDPE or PVC. Provide underground storm water detention pipe (i.e. infiltration system) with pretreatment vault. Connect to existing sewer and infiltration system on-site.

Ductile Iron Pipe: Ductile iron pipe shall be per ANSI A21.51 Class 50 with push-on joints. Connections to structures shall be by an AC or GPK manhole adapter.

Corrugated Pipe: Corrugated polyethylene pipe (CPEP) shall be smooth wall interior or corrugated interior pipe. Conforming to AASHTO M252 or M294 with water-tight joints. Fittings and couplings shall be per manufacturer's recommendations. Beveled end shall be manufactured.

Catch Basins, Manholes, and Control Structures:

Concrete conforming to WSDOT-APWA, Section 9-05. Catch basins to have a minimum 24-inch sump. Flow control structure riser assemblies shall consist of PVC pipe or shop-fabricated aluminum pipe.

Detention Vault: Underground detention vaults shall be precast concrete. Utility Vault or approved equal.

Sanitary Sewer: Pipe to be PVC (SDR 35) with rubber gasket joints or ductile iron (Class 50). Connect to existing combined sewer on-site.

Natural Gas: Piping by supplying utility.

Electrical and Telephone:

Underground in concrete-encased conduit.

APPENDIX E





APPENDIX E ROOM DATA SHEETS

The attached data sheets summarize physical requirements for each room identified in the Program Area Tabulation in Section 3 and indicated on the plan in Section 8.



Room Name:	Lobby
Target Area:	2100 sf
Function:	Provides area for security control, public reception, pre-function assembly and circulation
Fenestration:	Natural light, including skylights
Adjacencies:	
Direct:	Recruiting Family Readiness Assembly
Adjacent:	Vertical circulation Public toilets
Separation:	Training Workbays Firefinder
Finishes:	
Floor:	Terrazzo with walk-off mats/grilles at entry
Walls:	CMU/GWB – integral color and/or paint; Acoustic panels
Base:	Terrazzo
Ceiling:	Acoustic tile/GWB - paint
Doors:	Per code for exiting Storefront with energy vestibule Handicapped assisted door operators Security devices
Special Loading:	None
Plumbing:	None
HVAC:	Per code; Heat in vestibule
Lighting:	50fc
Power:	110V duplex receptacles at 20' o.c.
Communications:	Doorbell; security camera
Fixed Equipment:	None
Furnishings:	Directional signage Building directory Display case
Remarks:	Internal security between public/military functions



Room Name:	Retention Office
Target Area:	330 sf
Function:	Administrative office for unit recruiting and retention
Fenestration:	Natural light
Adjacencies:	
Direct:	Lobby
Adjacent:	Gatekeeper Family Readiness Center Assembly
Separation:	Training Workbays Firefinder
Finishes:	
Floor:	Carpet tile
Walls:	GWB/CMU - paint
Base:	Rubber
Ceiling:	Acoustic tile
Doors:	Standard doors as required for exiting; relites to lobby
Special Loading:	None
Plumbing:	None
HVAC:	Per code
Lighting:	50fc
Power:	110V duplex wall receptacles per code
Communications:	4 voice/data outlets
Fixed Equipment:	None
Furnishings:	Waiting room type with adjacent table and chairs for conferencing; roller shades
Remarks:	Emphasis on public accessibility



Room Name:	Family Readiness Center
Target Area:	220 sf
Function:	Support for family members of deployed personnel
Fenestration:	Natural light
Adjacencies:	
Direct:	Lobby
Adjacent:	Gatekeeper Recruiting Office Assembly
Separation:	Training Workbays Firefinder
Finishes:	
Floor:	Carpet tile
Walls:	GWB/CMU - paint
Base:	Rubber
Ceiling:	Acoustic Tile
Doors:	Standard doors as required for exiting; relites to lobby
Special Loading:	None
Plumbing:	None
HVAC:	Per code
Lighting:	50fc
Power:	110V duplex wall receptacles per code
Communications:	4 Voice/Data outlets
Fixed Equipment:	None
Furnishings:	Waiting room type with adjacent table and chairs for conferencing; roller shades
Remarks:	Emphasis on public accessibility



Room Name:	Administrative Offices (open cubicle)
Target Area:	Varies - See Section 3
Function:	Administrative office for the command and control of the assigned units; for personnel who do not routinely handle or store classified documents and/or where conversational privacy is not routinely required
Fenestration:	Natural light
Adjacencies:	
Direct:	Circulation
Adjacent:	Private Offices Classrooms Break/Vending Area Toilets
Separation:	Training Workbays Firefinder
Finishes:	
Floor:	Carpet tile
Walls:	GWB/CMU - paint
Base:	Rubber
Ceiling:	Acoustic tile
Doors:	Standard doors as required for exiting; relites to corridor
Special Loading:	None
Plumbing:	None
HVAC:	Per code
Lighting:	50fc
Power:	1 - 110V quad receptacles per cubicle; duplex wall-mounted receptacles at 8' o.c.
Communications:	4 - voice/data outlets per cubicle; 2- wall-mounted voice/data outlets at 8' o.c.
Fixed Equipment:	Reception counter, copier/supply counter
Furnishings:	Modular office furniture; roller shades



Room Name:	Private Offices
Target Area:	Varies, See Section 3
Function:	Administrative office for personnel that routinely handles or stores classified documents and/or where conversational privacy is routinely required
Fenestration:	Natural light
Adjacencies:	
Direct:	Administrative Offices
Adjacent:	Other command/staff offices Classrooms Break/Vending Area Toilets
Separation:	Training Workbays Firefinder
Finishes:	
Floor:	Carpet Tile
Walls:	GWB/CMU - paint
Base:	Rubber
Ceiling:	Acoustic Tile
Doors:	Standard door with vision lite
Special Loading:	None
Plumbing:	None
HVAC:	Per code
Lighting:	50fc
Power:	110V duplex wall receptacles per code
Communications:	2 - voice/data outlets
Fixed Equipment:	None
Furnishings:	Varies but typically contain desk, chair, bookcase, locker, credenza, and side chairs; roller shades



Room Name:	Assembly Hall
Target Area:	5,400 sf
Function:	Area for troop assembly, inspections, formations, large group training. Also serves as dining, public assembly, emergency and disaster service operations and refuge.
Fenestration:	Natural light
Adjacencies:	
Direct:	Lobby Kitchen Table/Chair Storage Training Aid Storage Physical Fitness
Adjacent:	Toilets/Showers Public Toilets Lockers Loading Dock Unit Storage
Separation:	Firefinder
Finishes:	
Floor:	Concrete with pigmented hardener/sealer
Walls:	CMU - paint w/ epoxy wainscot to 5'; Acoustic wall panels
Base:	Rubber or glazed CMU
Ceiling:	Exposed acoustic decking - Paint
Doors:	Personnel doors as required for exiting and fire-ratings; motorized sectional vehicle door
Special Loading:	150 psf, 6 inch slab. Provide 8 inch concrete turning pad for tracked vehicles
Plumbing:	None
HVAC:	Heating and ventilation per State Energy Code; Air conditioning provided under state funds
Lighting:	40 fc. Rapid start fluorescents
Power:	6 - 110V duplex wall receptacles per wall Designated power for equipment
Communications:	Provide power, conduit, boxes, and panel for OF/OI PA system. 4 voice/data/video outlets per wall
Fixed Equipment:	2x4 tackboard near kitchen for posting menu
Furnishings:	Owner-furnished folding tables and stacking chairs
Remarks:	Direct access to military vehicle parking



Room Name:	Break/Vending Area
Target Area:	460 sf
Function:	Provides area for informal breaks and vending of refreshments
Fenestration:	Natural light
Adjacencies:	
Direct:	Corridor
Adjacent:	Classrooms Vertical circulation Toilets Lobby (visual connection)
Separation:	Training Workbays Firefinder
Finishes:	
Floor:	Linoleum
Walls:	Paint
Base:	Rubber
Ceiling:	Acoustic tile
Doors:	No doors, area open to circulation
Special Loading:	None
Plumbing:	Counter sink
HVAC:	Per code. Exhaust vent at counter
Lighting:	50fc
Power:	Standard 110v power for microwave, coffeepot, 3 vending machines, and one refrigerator 3- 110V duplex wall convenience receptacles
Communications:	None
Fixed Equipment:	Counter for sink, coffee pot with storage under and shelving over with room for microwave
Furnishings:	4 tables with 4 chairs/each OF/OI vending machines OF/OI refrigerator



Room Name:	Physical Fitness Room
Target Area:	805 sf
Function:	Physical training of National Guard personnel
Fenestration:	Natural light (maximum possible)
Adjacencies:	
Direct:	Assembly
Adjacent:	Lockers Toilet>Showers
Separation:	Offices
Finishes:	
Floor:	Rubber tile matting
Walls:	GWB/CMU - paint
Base:	Rubber
Ceiling:	Acoustic tile
Doors:	Standard doors as required for exiting
Special Loading:	None
Plumbing:	Water cooler
HVAC:	Per code
Lighting:	30fc
Power:	110V duplex wall receptacles at 6' o.c.
Communications:	None
Fixed Equipment:	None
Furnishings:	Exercise equipment OF/OI



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Room Name:	Kitchen
Target Area:	2,200 sf
Function:	Provides for food service planning and management, food storage, food preparation and service, and scullery clean-up
Fenestration:	Natural light (at office, minimum)
Adjacencies:	Direct: Assembly Adjacent: Loading Dock Separation: Training Workbays Firefinder
Finishes:	Floor: Liquid-applied epoxy Walls: Ceramic Tile/FRP; CMU - epoxy paint Base: Liquid-applied epoxy cove Ceiling: Sanitary acoustic tile
Doors:	Standard doors as required for exiting
Special Loading:	None
Plumbing:	Hot and cold domestic water to lavatories, special sinks, and equipment requiring direct hook-up. Floor drains and floor sinks. Exterior can wash wall hydrant with hot/cold. Grease interceptor.
HVAC:	Per code with exhaust hoods at high moisture equipment and range hoods/make-up air with fire suppression at ranges, ovens, and grills.
Lighting:	70fc in food prep area, 50fc in service and scullery, 30 fc in general areas, and 20 fc in storage.
Power:	Standard 208/110V as required by equipment and per code; All power GFCI protected
Communications:	Voice/data in office
Fixed Equipment:	OF/CI kitchen equipment per NGB small kitchen design standards; 4x4 marker board with tray and tack strip
Furnishings:	Single pedestal desk with chair, side chair, and file drawer in office
Remarks:	Service counter with roll-up door into Assembly; direct access between serving line and Assembly



Room Name:	Locker Room (Personnel Equipment Storage)
Target Area:	5,665 sf
Function:	Secure storage of individual National Guard personnel equipment, field gear, uniforms
Fenestration:	Clerestory for natural lighting
Adjacencies:	Direct: Toilet/showers Adjacent: Unit Storage Separation: Firefinder
Finishes:	Floor: Concrete with hardener/sealer Liquid-applied epoxy as state-funded alternate Walls: CMU - paint Base: Rubber Ceiling: Exposed - paint
Doors:	Standard as required for exiting
Special Loading:	None
Plumbing:	None
HVAC:	Per code
Lighting:	20fc
Power:	110V duplex wall receptacles at 30' o.c.
Communications:	None
Fixed Equipment:	Benches
Furnishings:	Lockers - 18 inches wide, 24 inches deep
Remarks:	No subdivision between male/female personnel



Room Name:	Unit Storage
Target Area:	12,350 sf (subdivides into 4 areas: HHB, 303 CAV, HC, A BATT)
Function:	Secure, heated storage for unit equipment
Fenestration:	Natural light with security bars and etched glass; additional light from tubular skylights
Adjacencies:	
Direct:	Supply Office / Arms Vault Loading Dock
Adjacent:	Lockers
Separation:	Firefinder
Finishes:	
Floor:	Concrete with hardener/sealer
Walls:	CMU - paint
Base:	Rubber
Ceiling:	Exposed - paint
Doors:	16 gauge steel doors with 14 gauge frames. OH doors opening to loading area
Special Loading:	None
Plumbing:	None
HVAC:	Per code (no air conditioning)
Lighting:	20fc
Power:	110V duplex wall receptacles at 50' o.c.
Communications:	None
Fixed Equipment:	Full-height wire mesh cages with 4 ft swinging or sliding doors; Vehicle bumpers at loading dock
Furnishings:	Industrial-duty three-tier storage shelving
Remarks:	Subdivide to provide security of subordinate unit equipment



Room Name:	Supply Office
Target Area:	120 sf (x4) (included in Unit Storage total)
Function:	Administrative office and secure storage for unit supply sergeant
Fenestration:	Natural light from tubular skylights
Adjacencies:	
Direct:	Unit Storage Vault
Adjacent:	Lockers
Separation:	Firefinder
Finishes:	
Floor:	Linoleum
Walls:	GWB/CMU - paint
Base:	Rubber
Ceiling:	Acoustic tile
Doors:	Service window with rolling shutter and counter
Special Loading:	None
Plumbing:	None
HVAC:	Per code
Lighting:	50fc
Power:	1 - 110V duplex wall receptacles per wall
Communications:	2 voice/data outlets, Intrusion detection on door and counter shutter
Fixed Equipment:	None
Furnishings:	1 desk, 2 chairs, file cabinet, supply cabinet, key safe



Room Name:	Arms Vaults
Target Area:	600 sf (x4) (included in Unit Storage total)
Function:	Secure storage for unit weapons, high-value items, and security ammunition
Fenestration:	None
Adjacencies:	
Direct:	Supply Office
Adjacent:	Unit Storage
Separation:	Firefinder
Finishes:	
Floor:	Concrete with hardener/sealer
Walls:	Concrete -paint
Base:	Rubber
Ceiling:	Concrete - paint
Doors:	Class-5 vault door with IDS
Special Loading:	None
Plumbing:	Floor drain for dehumidifer condensate (in Supply Office)
HVAC:	"Z" vent; dehumidifier
Lighting:	30fc
Power:	110V duplex receptacles per code and for IDS system
Communications:	Dedicated conduit to TER
Fixed Equipment:	Steel anchor rings
Furnishings:	OF/OI rifle racks, safe, and cabinets



Room Name:	General Purpose Training Bay
Target Area:	3,168 sf (2 @ 32' x 32' w/ 4' perimeter pathways)
Function:	Training of personnel in unit-level and operator maintenance of tracked and wheeled vehicles. Conduct unit-level PM on assigned wheeled vehicles
Fenestration:	Clerestory for natural daylight
Adjacencies:	
Direct:	Maintenance Office Tools Supply Battery
Adjacent:	Controlled Waste Flammable Materials Storage
Separation:	Classrooms Offices Firefinder
Finishes:	
Floor:	Concrete with pigmented hardener/sealer
Walls:	CMU - paint w/ epoxy wainscot to 5'
Base:	Rubber
Ceiling:	Exposed - paint
Doors:	16 gauge steel doors with 14 gauge frames, vision lites 2 - 16w x 14h motorized vehicle doors each end
Special Loading:	150 psf slab (8 inches) for tracked vehicles
Plumbing:	1 hose bib with hot and cold water and trench drain per bay to oil/water separator
HVAC:	Gas-fired radiant or air heaters Vehicle exhaust systems with 2 drops
Lighting:	50fc
Power:	4 - 110V and 1 - 220V grounded outlets per bay 1 - 28V DC outlet per bay
Communications:	Wall phone and voice/data outlet
Fixed Equipment:	None
Furnishings:	None
Remarks:	Configuration must be end-to-end to permit drive through of vehicles. Additionally, space must allow for storage and disposal of weapons cleaning solvents



Room Name:	Firefinder Bays
Target Area:	1,640 sf (2 @ 20' x 40')
Function:	Storage and operation of Firefinder radar equipment
Fenestration:	Clerestory for natural daylight
Adjacencies:	
Direct:	None
Adjacent:	Training Workbays
Separation:	Classrooms Offices
Finishes:	
Floor:	Concrete with hardener/sealer
Walls:	CMU - paint
Base:	Rubber
Ceiling:	Exposed - paint
Doors:	16 gauge steel doors with 14 gauge frames, vision lites 2 - 16w x 14h motorized vehicle doors
Special Loading:	150 psf slab (8 inches) for tracked vehicles
Plumbing:	None
HVAC:	Gas-fired radiant or air heaters
Lighting:	50fc
Power:	4 - 110V and one 220V grounded outlets per bay 1 - 28V DC outlet per bay
Communications:	Wall phone and voice/data outlet
Fixed Equipment:	None
Furnishings:	None
Remarks:	Configuration must be end-to-end to permit drive through of vehicles



Room Name:	Flammable Materials
Target Area:	205 sf
Function:	Used for temporary storage of flammable materials including small quantities of petroleum-based lubricants, solvents, and paint
Fenestration:	Gravity venting to the exterior to prevent accumulation of vapors
Adjacencies:	
Direct:	Exterior
Adjacent:	Training Workbays Maintenance Office Tool Room Maintenance Supply Room
Separation:	Classrooms Offices
Finishes:	
Floor:	Concrete with hardener/sealer
Walls:	CMU - paint
Base:	Rubber
Ceiling:	Exposed - paint
Doors:	16 gauge steel door with 14 gauge frame to exterior. 4in high curb or depression at threshold for spill containment
Special Loading:	None
Plumbing:	None
HVAC:	Tempering heat only
Lighting:	Class 1, Division 1, explosion-proof, 20fc
Power:	None
Communications:	None
Fixed Equipment:	None
Furnishings:	Shelving, cabinet



Room Name: Controlled Waste

Target Area: 300 sf

Function: Storage of waste material that for safety or security must be secured

Fenestration: None

Adjacencies:
Direct: Training Workbays
Adjacent: Maintenance Office
Supply
Battery
Separation: Classrooms
Offices

Finishes:
Floor: Concrete with hardener/sealer
Epoxy coating as state-funded alternate
Walls: None/Fencing/CMU - paint
Base: None
Ceiling: Exposed -paint

Doors: Galvanized steel gates

Special Loading: None

Plumbing: None

HVAC: None

Lighting: 20fc

Power: None

Communications: None

Fixed Equipment: None

Furnishings: None

Remarks: May be either attached to the Readiness Center or a free-standing element



Room Name:	Lactation
Target Area:	90 sf
Function:	Accommodates single-occupant private functions
Fenestration:	Natural light
Adjacencies:	
Direct:	Lobby
Adjacent:	Public functions
Separation:	Noise-producing functions
Finishes:	
Floor:	Carpet tile
Walls:	GWB - paint
Base:	Rubber
Ceiling:	Acoustic tile
Doors:	Standard door, no fenestration
Special Loading:	None
Plumbing:	None
HVAC:	Per code
Lighting:	20fc
Power:	2 - 110V duplex receptacles on opposite walls
Communications:	2 - voice/data outlet on opposite walls
Fixed Equipment:	None
Furnishings:	2 chairs & small table; roller shades
Remarks:	-



Room Name:	Learning Center
Target Area:	575 sf
Function:	Accommodates NG training publications, reference material, and provides a small individual study area
Fenestration:	Natural light
Adjacencies:	Direct: Library (see Remarks) Adjacent: Other Classrooms Separation: Training Workbays
Finishes:	Floor: Carpet tile Walls: GWB - paint Base: Rubber Ceiling: Acoustic tile; GWB soffit - paint
Doors:	Standard doors with vision lite/relite
Special Loading:	None
Plumbing:	None
HVAC:	Per code
Lighting:	50fc
Power:	Per code; 1 - 110V duplex receptacles per carrel
Communications:	One voice/data outlet per carrel
Fixed Equipment:	4x4 marker board with tray and tack strip; shelving units as required
Furnishings:	4 individual pre-wired MOS study carrels with chair; roller shades
Remarks:	Ideally contiguous with Library/Classroom



Room Name:	Classroom: Small
Target Area:	675 sf ea
Function:	Instructional training of personnel, small group meetings and conferences
Fenestration:	Natural light
Adjacencies:	
Direct:	Circulation
Adjacent:	Administration Break/Vending Other Classrooms
Separation:	Training Workbays
Finishes:	
Floor:	Carpet tile
Walls:	GWB/CMU - paint
Base:	Rubber
Ceiling:	Acoustic tile; GWB soffit - paint
Doors:	Standard door; relite to corridor to indicate occupancy
Special Loading:	None
Plumbing:	None
HVAC:	Per code
Lighting:	2-level general fluorescent lighting @ 70fc/35fc; separately switched wall-wash lighting on focus wall
Power:	Per code; Power for AV in addition to 2 - wall-mounted 110V quad receptacles per row of student tables.
Communications:	4 - voice/data outlets in floor per row of student tables.
Fixed Equipment:	4x16 marker board with tray and tack strip; 4 x 4 tack board; projection screen; ceiling-mounted projector
Furnishings:	Tables with 24 chairs; roller shades



Room Name:	Classroom: Large
Target Area:	1,050 sf ea
Function:	Instructional training of personnel, large group meetings and conferences
Fenestration:	Natural light
Adjacencies:	
Direct:	Storage
Adjacent:	Other Classrooms Administration Break/Vending
Separation:	Training Workbays
Finishes:	
Floor:	Carpet tile
Walls:	GWB/CMU - paint
Base:	Rubber
Ceiling:	Acoustic tile
Doors:	Standard door. A relite to the corridor is desired to indicate occupancy.
Special Loading:	None
Plumbing:	None
HVAC:	Per code
Lighting:	2-level general fluorescent lighting @ 70fc/35fc; separately switched wall-wash lighting on focus wall
Power:	48 double duplex 110V conditioned power in floor Dedicated power for AV equipment 110V per code in walls; 110V quad receptacle at podium
Communications:	48 voice/data outlets in floor Voice/data at podium
Fixed Equipment:	4x16 marker board with tray and tack strip; 4 x 4 tack board; projection screen; ceiling-mounted projector; 1 instructor's podium with camera, 2 ceiling-mount video projectors, 2- projection screens, audio speaker system, IR assisted listening; folding partition (STC = 52)
Furnishings:	Low-profile raised access flooring; tables with 32 chairs; roller shades
Remarks:	Recess floor for low-profile access flooring



Room Name:	Table & Chair Storage
Target Area:	300 sf
Function:	Storage of student tables and chairs
Fenestration:	None
Adjacencies:	
Direct:	Assembly
Finishes:	
Floor:	Concrete with hardener/sealer
Walls:	GWB - paint
Base:	Rubber
Ceiling:	Exposed - paint
Doors:	Standard double
Special Loading:	None
Plumbing:	None
HVAC:	Per Code
Lighting:	20 fc
Power:	None
Communications:	None
Fixed Equipment:	None
Furnishings:	None
Remarks:	None



Room Name:	Facilities Maintenance & Storage
Target Area:	1,855 sf
Function:	Storage of janitorial equipment, supplies, and building maintenance equipment
Fenestration:	Natural light from tubular skylights
Adjacencies:	Direct: Exterior Adjacent: Mechanical Loading Dock Separation: Classrooms Offices
Finishes:	Floor: Concrete with hardener/sealer Walls: GWB - paint Base: Rubber Ceiling: Exposed - paint
Doors:	16 gauge steel doors with 14 gauge frames. OH doors opening to loading area
Special Loading:	None
Plumbing:	None
HVAC:	Per code
Lighting:	20 fc
Power:	1 - 110V duplex receptacle per wall; 2 - 110V duplex receptacles at DDC station
Communications:	Dedicated voice/data for DDC station
Fixed Equipment:	None
Furnishings:	None
Remarks:	None



Room Name:	Toilets
Target Area:	Varies
Function:	Personal hygiene
Fenestration:	Potentially clerestory for natural lighting, w/ etched glass
Adjacencies:	
Direct:	Corridor
Adjacent:	Assembly Classrooms Offices Break/Vending
Finishes:	
Floor:	Ceramic tile
Walls:	Ceramic tile wainscot to 5'; Veneer Plaster - paint
Base:	Ceramic tile
Ceiling:	Veneer Plaster - paint
Doors:	Standard required for exiting
Special Loading:	None
Plumbing:	Wall-hung water closets, countertop lavatories, and urinals per UPC
HVAC:	Per code
Lighting:	20fc
Power:	Per code
Communications:	None
Fixed Equipment:	Partitions, toilet accessories
Furnishings:	Supply cabinet



Room Name:	Toilet/Showers
Target Area:	Varies
Function:	Personal hygiene with individual showers
Fenestration:	None
Adjacencies:	
Direct:	Lockers
Adjacent:	Training Workbays Unit Storage
Finishes:	
Floor:	Ceramic tile
Walls:	Ceramic tile wainscot to 5' (full height in showers); Veneer Plaster - paint
Base:	Ceramic tile
Ceiling:	Veneer Plaster - paint
Doors:	Standard for exiting
Special Loading:	None
Plumbing:	Wall-hung water closets, countertop lavatories, and urinals, wall showers per UPC
HVAC:	Per code
Lighting:	20fc, moisture-proof in showers
Power:	Per code
Communications:	One voice outlet
Fixed Equipment:	Partitions, toilet accessories
Furnishings:	Drying benches



Room Name:	Mechanical/Electrical
Target Area:	Varies
Function:	Enclosed area housing building systems. Separate space provided for electrical closets and communications closets
Fenestration:	Louvers/venting for HVAC and exhaust
Adjacencies:	
Direct:	Exterior
Finishes:	
Floor:	Concrete with hardener/sealer
Walls:	CMU/GWB - paint
Base:	Rubber
Ceiling:	Exposed - paint
Doors:	Standard double
Special Loading:	HVAC equipment
Plumbing:	As required for domestic water service and hydronic boilers
HVAC:	Vented per code; combustion air louvers at boilers
Lighting:	20fc
Power:	As necessary for systems/equipment. 110V for housekeeping
Communications:	Dedicated DDC connections
Fixed Equipment:	As required for system design
Furnishings:	None
Remarks:	Stacked over/under if multiple story



Room Name:	Secure IT
Target Area:	275 sf
Function:	Administrative office for use of secure / classified computer network
Fenestration:	Natural lighting with visual and radiation protection
Adjacencies:	
Direct:	-
Adjacent:	Administrative Offices
Separation:	Training Workbays
Finishes:	
Floor:	Carpet tile
Walls:	GWB/CMU - paint
Base:	Rubber
Ceiling:	Acoustic tile
Doors:	Standard double door to accommodate equipment / safe
Special Loading:	None
Plumbing:	None
HVAC:	Per code; security bars within ductwork
Lighting:	50fc
Power:	Per code and as required for equipment and networking
Communications:	As required for equipment and networking
Fixed Equipment:	None
Furnishings:	900 lb safe; computer racks / shelving; wire mesh behind wall and ceiling surfaces



Room Name:	RAPIDS
Area Proposed:	170 sf
Function:	Administrative offices for the processing of military ID cards and documentation
Fenestration:	Natural light
Adjacencies:	
Direct:	Administrative Offices
Adjacent:	Other command/staff offices
Separation:	Training Workbays Firefinder
Finishes:	
Floor:	Carpet tile
Walls:	GWB/CMU - paint
Base:	Rubber
Ceiling:	Acoustic tile
Doors:	Standard doors as required for exiting; relites to circulation
Special Loading:	None
Plumbing:	None
HVAC:	Per code
Lighting:	50fc
Power:	110V duplex receptacles per code
Communications:	2 - voice/data outlets per wall
Fixed Equipment:	None
Furnishings:	Reception counter, desk, chair, bookcase and side chairs



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APPENDIX F





TUMWATER READINESS CENTER PREDESIGN ESTIMATE

Revised 3/1/2015

CONSTRUCTION COST

New Building	\$ 20,654,716
Site Development	\$ 6,057,743
Vehicle Storage Building (Premanufactured)	\$ 1,961,024

Sub-Total	\$ 28,673,483
Escalation March 2015 - November 2017 @ 8.21% (3.08%/Yr)	\$ 2,354,093

TOTAL CONSTRUCTION COST (November 2017) \$ 31,027,576

Construction Contingency	5.00%	\$ 1,551,379
WSST (Construction + Contingency)	8.70%	\$ 2,834,369
Testing and Inspections	1.00%	\$ 310,276
Permits/Plan Check	1.50%	\$ 465,418
Builders Risk Insurance	0.75%	\$ 232,707
Owner Consultants (Geotech/Soils/Survey)	1.00%	\$ 310,276
Construction Administration/Mgmt (DES Mgmt)		\$ 600,000
Utility Fees/Connections/Charges		\$ 650,000

TOTAL PROJECT DEVELOPMENT (SOFT) COSTS \$ 6,954,424

TOTAL PROJECT COST \$ 37,982,000

Architectural/Engineering Fees (Basic + Add'l)	9.00%	\$ 2,792,500
Construction Services (SIOH)		\$ 984,500
Art Work		\$ 178,000
Commissioning		\$ 153,000

ADDITIONAL PROJECT COSTS \$ 4,108,000

FF&E + Information Systems (Other Appropriation, Federal Only) \$ 2,498,000

TOTAL PROJECT COSTS W/ OTHER APPROPRIATIONS \$ 44,588,000

EXCLUSIONS:

Toxic/Hazardous Materials Removal



PROJECT: TUMWATER READINESS CENTER - BUILDING
LOCATION: TUMWATER, WA
BLDG SF: 84,638
ESTIMATE: 2013179
EST TYPE:

DIVISION	DESCRIPTION	TOTAL	\$/SF
A10	FOUNDATIONS	951,143	11.24
B10	SUPERSTRUCTURE	1,885,341	22.28
B20	EXTERIOR CLOSURE	1,970,103	23.28
B30	ROOFING	846,295	10.00
C10	INTERIOR CONSTRUCTION	1,659,589	19.61
C20	STAIRS	71,625	0.85
C30	INTERIOR FINISHES	1,264,946	14.95
D10	CONVEYING SYSTEMS	80,500	0.95
D20	PLUMBING	888,699	10.50
D30	HVAC	4,040,305	47.74
D40	FIRE PROTECTION	465,509	5.50
D50	ELECTRICAL	2,644,938	31.25
E10	EQUIPMENT	171,160	2.02
E20	FURNISHINGS	101,566	1.20
G20	SITE IMPROVEMENTS	35,000	0.41
Z10	GENERAL REQUIREMENTS	880,000	10.40
ESTIMATE SUBTOTAL		17,956,719	212.16
	DESIGN CONTINGENCY @	7.00%	1,256,970
	SUBTOTAL		19,213,689
	GENERAL CONTRACTOR'S OH & P @	7.50%	1,441,027
	SUBTOTAL		20,654,716
	ESCALATION TO 01-NOV-17 (3.08%/YR) @	8.21%	1,695,752
TOTAL		22,350,468	264.07

EXCLUSIONS:

SEE ESTIMATE SUMMARY

PROJECT: TUMWATER READINESS CENTER - BUILDING
LOCATION: TUMWATER, WA
BLDG SF: 84,638
ESTIMATE: 2013179
EST TYPE:

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	\$/SF
A10 FOUNDATIONS						
02000	IMPORT FILL AT RAISED BLDG PAD 3'		CY			
						SEE SITE ESTIMATE
03000	ELEVATOR PIT	1	LS	7,500	7,500	
03000	PREM. FOXHOLE PIT AT SIMULATION	1	LS	7,500	7,500	
03000	PREM. RECESSED SLAB AT SIMULATION	1,890	SF	2.50	4,725	
03000	SLAB ON GRADE/GRAVEL/VP/INSUL	47,765	SF	8.00	382,120	
03000	STANDARD FOUNDATIONS	47,765	SF	11.50	549,298	
A10	FOUNDATIONS			DIVISION TOTAL	951,143	11.24
B10 SUPERSTRUCTURE						
01000	MEZZANINE FLOOR STRUCTURE	8,500	SF	15.55	132,175	
01000	PREM. ACOUSTIC DECK AT ASSEMBLY	6,300	SF	6.50	40,950	
05120	FLOOR STRUCTURE	36,223	SFA	15.55	563,268	
05120	ROOF CONSTRUCTION	47,765	SFA	14.50	692,593	
						7.5 LBS/SF
05300	METAL DECK AND CONCRETE TOPPING	8,500	SFA	7.00	59,500	
						MEZZANINE
05300	METAL DECK AND CONCRETE TOPPING	36,223	SFA	7.00	253,561	
						FLOOR
05300	METAL DECKING	47,765	SF	3.00	143,295	
B10	SUPERSTRUCTURE			DIVISION TOTAL	1,885,341	22.28
B20 EXTERIOR CLOSURE						
01000	EXERIOR LOUVERS	800	SF	48.00	38,400	
03400	PRECAST BANDS/SILLS	1,800	LF	45.00	81,000	
05450	BOLLARDS	12	EA	950	11,400	
07000	EXTERIOR WALLS CMU W/MASONRY VENEER	12,158	SF	44.75	544,071	
07000	EXTERIOR WALLS FRAMED/METAL PANEL	24,689	SF	26.50	654,259	
08000	EXTERIOR DOOR/FRAME/HARDWARE	24	LVS	1,800	43,200	
08360	OVERHEAD DOORS (MOTOR OPERATED)	4	EA	8,500	34,000	
08500	ALUM WINDOWS - TEMPERED/LAMINATED	5,527	SF	102	563,774	
						15% EXTERIOR WALL AREA
B20	EXTERIOR CLOSURE			DIVISION TOTAL	1,970,103	23.28
B30 ROOFING						
01000	CANOPIES	1,500	SF	45.00	67,500	
07410	METAL ROOFING/INSUL/SHEETMETAL	8,500	SF	20.09	170,765	
07500	MEMBRANE ROOFING/INSUL/SHEETMETAL	35,224	SF	15.09	531,530	
08600	SKYLIGHTS	900	SF	85.00	76,500	
B30	ROOFING			DIVISION TOTAL	846,295	10.00
C10 INTERIOR CONSTRUCTION						

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	\$/SF
08000	COILING COUNTER DOORS	2	EA	2,200	4,400	
08000	INTERIOR DOORS/FRAME/HARDWARE	108	LVS	1,250	135,000	
08000	PREM. SECURITY/KEY CARD/ACCESS HDWRE	1	LS	17,500	17,500	
08000	VAULT DOORS - CLASS V NO DAY SCREEN	4	EA	7,500	30,000	
08500	INTERIOR RELITES/GLAZING	1,200	SF	55.00	66,000	
08500	SLIDING COUNTER WINDOWS	4	EA	1,825	7,300	
09250	INT CMU WALLS	31,358	SF	15.50	486,049	
09250	INT FRAMED WALLS	32,830	SF	11.50	377,545	
09250	STAINLESS STEEL MESH @ SIPRNET	1	LS	20,000	20,000	
09250	VAULT WALLS - CONCRETE	2,988	SF	36.00	107,568	
10000	FITTINGS/MISC SPECIALTIES	84,638	SFA	2.75	232,755	
10000	OPERABLE WALLS	576	SF	52.00	29,952	
10500	LOCKERS	302	OPG	225	67,950	
10605	WIRE MESH PARTITION	7,757	SF	10.00	77,570	
C10	INTERIOR CONSTRUCTION			DIVISION TOTAL	1,659,589	19.61
C20	STAIRS					
05510	INTERIOR STAIRS W/RAILS	4	FLT	12,500	50,000	
05510	MEZZANINE ACCESS	1	FLT	9,500	9,500	
05700	RAILINGS AT OPEN TO BELOW	97	LF	125	12,125	
C20	STAIRS			DIVISION TOTAL	71,625	0.85
C30	INTERIOR FINISHES					
09000	ACCESS FLOOR - LOW PROFILE	1,500	SF	12.50	18,750	
09000	FLOOR FINISHES	84,638	SFA	6.10	516,292	
09000	INTERIOR WALL FINISHES	84,638	SFA	4.40	372,407	
09500	CEILING FINISHES	84,638	SFA	3.60	304,697	
09500	VAULT LID - CONCRETE	2,400	SF	22.00	52,800	
C30	INTERIOR FINISHES			DIVISION TOTAL	1,264,946	14.95
D10	CONVEYING SYSTEMS					
14240	ELEVATOR/3 STOP	1	EA	80,500	80,500	
D10	CONVEYING SYSTEMS			DIVISION TOTAL	80,500	0.95
D20	PLUMBING					
15000	PLUMBING	84,638	SFA	10.50	888,699	
D20	PLUMBING			DIVISION TOTAL	888,699	10.50
D30	HVAC					
15500	HVAC	84,638	SFA	47.50	4,020,305	
15500	VEHICLE EXHAUST SYSTEM	1	LS	20,000	20,000	
D30	HVAC			DIVISION TOTAL	4,040,305	47.74
D40	FIRE PROTECTION					
15000	FIRE PROTECTION SYSTEM	84,638	SFA	5.50	465,509	
D40	FIRE PROTECTION			DIVISION TOTAL	465,509	5.50

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	\$/SF
D50	ELECTRICAL					
16000	ELECTRICAL	84,638	SFA	31.25	2,644,938	
D50	ELECTRICAL			DIVISION TOTAL	2,644,938	31.25
E10	EQUIPMENT					
11000	BUILDING EQUIPMENT	84,638	SFA	0.25	21,160	
11000	KITCHEN EQUIPMENT	1	LS	150,000	150,000	
E10	EQUIPMENT			DIVISION TOTAL	171,160	2.02
E20	FURNISHINGS					
12000	CASEWORK	84,638	SFA	1.20	101,566	
E20	FURNISHINGS			DIVISION TOTAL	101,566	1.20
G20	SITE IMPROVEMENTS					
01000	LOADING DOCK/RAMPS/STAIRS/WALLS	1	LS	35,000	35,000	
G20	SITE IMPROVEMENTS			DIVISION TOTAL	35,000	0.41
Z10	GENERAL REQUIREMENTS					
01000	BUILDING SQUARE FOOTAGE	84,638	SF			
01000	GENERAL CONDITIONS	16	MO	55,000	880,000	
Z10	GENERAL REQUIREMENTS			DIVISION TOTAL	880,000	10.40
ESTIMATE SUBTOTAL					17,956,717	212.16



PROJECT: TUMWATER READINESS CENTER - SITEWORK
LOCATION: TUMWATER, WA
BLDG SF:
ESTIMATE: 2013179
EST TYPE:

DIVISION	DESCRIPTION		TOTAL	\$/SF
G10	SITE PREPARATION		1,085,304	
G20	SITE IMPROVEMENTS		2,872,974	
G30	SITE CIVIL / MECHANICAL UTILITIES		715,500	
G40	SITE ELECTRICAL UTILITIES		482,680	
Z10	GENERAL REQUIREMENTS		110,000	
ESTIMATE SUBTOTAL			5,266,458	
	DESIGN CONTINGENCY @	7.00%	368,652	
	SUBTOTAL		5,635,110	
	GENERAL CONTRACTOR'S OH & P @	7.50%	422,633	
	SUBTOTAL		6,057,743	
	ESCALATION TO 01-NOV-17 (3.08%/YR) @	8.21%	497,341	
TOTAL			6,555,084	

EXCLUSIONS:
 SEE ESTIMATE SUMMARY

PROJECT: TUMWATER READINESS CENTER - SITEWORK
LOCATION: TUMWATER, WA
BLDG SF:
ESTIMATE: 2013179
EST TYPE:

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	\$/SF
G10 SITE PREPARATION						
02000	SITE AREA - AFFECTED	14	AC			
02000	SITE AREA - OVERALL	20	AC			
02000	SITE CLEARING-FORESTRY BY OTHERS	14	AC	3,000	42,000	
02200	EARTHWORK/GRADING/SHAPING	575,000	SF	0.15	86,250	
02200	RAISED SITE/BLDG PADS (PAID FROM LAND PURCHASE APPROPRIATION)		CY	0.00		
						ALLOWANCE PER A/E
02220	SITE MOBILIZATION	1	LS	270,000	270,000	
02310	STRIP TOPSOIL AND HAUL	28,932	CY	14.00	405,054	
						ASSUME 1'
02370	BAKER TANKS-ASSUME 12 MONTHS EA TANK	6	EA	32,000	192,000	
02370	EROSION CONTROL	1	LS	90,000	90,000	
G10	SITE PREPARATION			DIVISION TOTAL	1,085,304	
G20 SITE IMPROVEMENTS						
02740	POV PARKING/DRIVES	112,710	SF	7.50	845,325	
						PERVIOUS CONCRETE
02750	CONCRETE DRIVE ENTRY	10,000	SF	8.50	85,000	
02750	CONCRETE VEHICLE PAVEMENT	124,677	SF	8.50	1,059,755	
						IMPERVIOUS
02750	UTILITY/DUMPSTER PADS	331	SF	10.00	3,310	
02770	CURBING/STRIPPING/SIGNAGE	263,280	SFA	1.25	329,100	
02775	CONCRETE SIDEWALK	5,400	SF	5.50	29,700	
02775	GRAVEL PATH	12,328	SF	0.85	10,479	
02800	MISC SITE IMPROVEMENTS/FURNISHINGS	1	LS	15,000	15,000	
02820	FENCING/GATES	1,128	LF	52.00	58,656	
02900	BUFFER LANDSCAPING	10,000	SF	6.50	65,000	
02900	BUFFER TREES	40	EA	450	18,000	
02900	LANDSCAPE RESTORATION/SEEDED LAWNS	200,000	SF	0.85	170,000	
02900	LANDSCAPE/IRRIGATION	16,400	SFA	4.50	73,800	
02900	PARKING LOT LANDSCAPING	16,900	SF	6.50	109,850	
G20	SITE IMPROVEMENTS			DIVISION TOTAL	2,872,974	
G30 SITE CIVIL / MECHANICAL UTILITIES						
02510	FIRE HYDRANTS	6	EA	3,500	21,000	
02510	FIRE SERVICE/LOOP	2,300	LF	60.00	138,000	
02510	FIRE/DOMESTIC LINES TO BLDG	340	LF	83.00	28,220	
02530	SANITARY MAIN	850	LF	54.00	45,900	
02530	SANITARY PIPING TO BLDG	340	LF	32.00	10,880	
02530	SEWER MANHOLES	3	EA	5,500	16,500	
02630	INFILTRATION POND/PLANTED	90,000	SF	4.50	405,000	
02630	WATER QUALITY - LINED WETPOND	1	LS	50,000	50,000	
G30	SITE CIVIL / MECHANICAL UTILITIES			DIVISION TOTAL	715,500	

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	\$/SF
G40	SITE ELECTRICAL UTILITIES					
16000	EMERGENCY GENERATOR 500 KW	1	LS	150,000	150,000	
16000	FIBER OPTIC	1,080	LF	55.00	59,400	
16000	SITE ELECTRICAL/LIGHTING	273,280	SFA	1.00	273,280	
G40	SITE ELECTRICAL UTILITIES			DIVISION TOTAL	482,680	
Z10	GENERAL REQUIREMENTS					
01000	GENERAL CONDITIONS	2	MO	55,000	110,000	
Z10	GENERAL REQUIREMENTS			DIVISION TOTAL	110,000	
ESTIMATE SUBTOTAL					5,266,458	



PROJECT: TUMWATER READINESS CENTER - PREMANUFACTURED VEH STORAGE BLDG
LOCATION: TUMWATER, WA
BLDG SF: 29,701
ESTIMATE: 2013179
EST TYPE:

DIVISION	DESCRIPTION	TOTAL	\$/SF
A10	FOUNDATIONS	365,322	12.30
B10	SUPERSTRUCTURE	27,473	0.92
B20	EXTERIOR CLOSURE	58,000	1.95
B30	ROOFING	16,550	0.56
C10	INTERIOR CONSTRUCTION	22,986	0.77
C30	INTERIOR FINISHES	46,622	1.57
D20	PLUMBING	44,552	1.50
D30	HVAC	14,851	0.50
D40	FIRE PROTECTION	74,253	2.50
D50	ELECTRICAL	237,608	8.00
F10	SPECIAL CONSTRUCTION	623,721	21.00
Z10	GENERAL REQUIREMENTS	165,000	5.56
ESTIMATE SUBTOTAL		1,696,938	57.13
	DESIGN CONTINGENCY @	7.50%	127,270
	SUBTOTAL		1,824,208
	GENERAL CONTRACTOR'S OH & P @	7.50%	136,816
	SUBTOTAL		1,961,024
	ESCALATION TO 01-NOV-17 (3.08%/YR) @	8.21%	161,000
TOTAL		2,122,024	71.45

EXCLUSIONS:
 SEE ESTIMATE SUMMARY

PROJECT: TUMWATER READINESS CENTER - PREMANUFACTURED VEH STORAGE BLDG
LOCATION: TUMWATER, WA
BLDG SF: 29,701
ESTIMATE: 2013179
EST TYPE:

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	\$/SF
A10 FOUNDATIONS						
03300	SLAB ON GRADE/GRAVE/VB	29,701	SFA	7.85	233,153	
03300	STANDARD FOUNDATIONS	29,701	SFA	4.45	132,169	
A10	FOUNDATIONS			DIVISION TOTAL	365,322	12.30
B10 SUPERSTRUCTURE						
05120	MISC STEEL/EMBEDS ALLOWANCE	14,850	LBS	1.85	27,473	
B10	SUPERSTRUCTURE			DIVISION TOTAL	27,473	0.92
B20 EXTERIOR CLOSURE						
05450	BOLLARDS	40	EA	950	38,000	
08100	EXTERIOR DOOR/FRAME/HARDWARE	2	EA	1,500	3,000	
08100	OVERHEAD DOOR	2	EA	8,500	17,000	
B20	EXTERIOR CLOSURE			DIVISION TOTAL	58,000	1.95
B30 ROOFING						
07620	DOWNSPOUTS/MISC SHEETMETAL	1,324	LF	12.50	16,550	
B30	ROOFING			DIVISION TOTAL	16,550	0.56
C10 INTERIOR CONSTRUCTION						
09250	INTERIOR PLYWOOD PARTITIONS	60	LF	81.60	4,896	
10000	WIRE MESH CAGING	1,809	SF	10.00	18,090	
C10	INTERIOR CONSTRUCTION			DIVISION TOTAL	22,986	0.77
C30 INTERIOR FINISHES						
06250	MDF/PLYWOOD WAINSCOTE	920	SF	2.25	2,070	
09900	MISC PAINTING	29,701	SFA	1.50	44,552	
C30	INTERIOR FINISHES			DIVISION TOTAL	46,622	1.57
D20 PLUMBING						
15400	MISC PLUMBING/DRAINAGE	29,701	SF	1.50	44,552	
D20	PLUMBING			DIVISION TOTAL	44,552	1.50
D30 HVAC						
15500	HEAT/VENT	29,701	SF	0.50	14,851	
EXCLUDED						
D30	HVAC			DIVISION TOTAL	14,851	0.50

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	\$/SF
D40	FIRE PROTECTION					
15300	FIRE PROTECTION	29,701	SF	2.50	74,253	
D40	FIRE PROTECTION			DIVISION TOTAL	74,253	2.50
D50	ELECTRICAL					
16000	ELECTRICAL	29,701	SF	8.00	237,608	
D50	ELECTRICAL			DIVISION TOTAL	237,608	8.00
F10	SPECIAL CONSTRUCTION					
13120	PRE-ENG'D BLDG	29,701	SF	21.00	623,721	
F10	SPECIAL CONSTRUCTION			DIVISION TOTAL	623,721	21.00
Z10	GENERAL REQUIREMENTS					
01000	GENERAL CONDITIONS-PRORATED	3	MO	55,000	165,000	
Z10	GENERAL REQUIREMENTS			DIVISION TOTAL	165,000	5.56
ESTIMATE SUBTOTAL					1,696,936	57.13

APPENDIX G



**ARMY NATIONAL GUARD
DG 415-1
READINESS CENTERS
DESIGN GUIDE**



**NATIONAL GUARD BUREAU
INSTALLATIONS DIVISION
111 SOUTH GEORGE MASON DRIVE
ARLINGTON, VA 22204-1382**

FOREWORD

This Readiness Centers Design Guide (DG 415-1) was published by the National Guard Bureau, Army Installations Division (ARNG-ILI). DG 415-1 applies to all projects for new construction (including additions) as well as alterations to and rehabilitation and conversion of existing facilities. It is intended to assist the States, Territories, the District of Columbia and design professionals in gaining an understanding of the functions and the unique environmental considerations to address in the construction documents development. This design guide does not contain criteria but refers readers to sources of criteria in other publications that relate directly to the specific technical design requirements.

This Readiness Centers Design Guide should be used in conjunction with the General Facilities Information Design Guide (DG 415-5) to develop the final project design.

Distribution is limited. However, authorized users of the NGB Guard Knowledge Online (GKO), can obtain an electronic copy at <https://gkoportal.ngb.army.mil/sites/ARI-HQ/default.aspx>, Design, Guide Library site. All users are encouraged to submit comments and suggestions to improve this document by completing DA Form 2028, "Recommended Changes to Publications and Blank Forms," and sending it directly to:

National Guard Bureau
Installations Division
ARNG Readiness Center
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Arlington, VA 22204-1382

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CHAPTER 1

GENERAL INFORMATION

1-1 PURPOSE: PERFORMANCE DESIGN GUIDE

This Readiness Centers Design Guide (DG 415-1) contains design and functional planning guidance information for the design architect-engineer (A-E) to use in developing the design and the construction contract documents for Army National Guard (ARNG) readiness centers projects that qualify for support, totally or in part, from Federal funds. Readiness centers projects include Readiness Centers (Armory), Civil Support Team/Weapons of Mass Destruction (CST-WMD)-Ready Buildings, and joint-use Armed Forces Reserve Centers (AFRC). This design guide is applicable to all construction projects, including new construction, major alterations, rehabilitation and adaptive reuse of existing facilities. All ARNG facilities must be designed and constructed using the principles and practices of sustainable design and development using the latest version of the U.S. Green Building Council Leadership in Environmental and Energy Design (LEED) Green Building Rating System to achieve a “Silver” rating.

DG 415-1 addresses the unique functional design requirements for specific types of buildings. It should be used in conjunction with the General Facilities Information Design Guide (DG 415-5), which contains technical design guidance common to all Army National Guard building types. Together, the two design guides provide the functional performance information necessary to assist in developing the facility design.

To aid the reader in using this design guide, the following are included:

- Appendix A, Unique References, lists reference documents that pertain specifically to this building type; other references cited in this design guide are included in the References in DG 415-5.
- Appendix B, Glossary, defines the acronyms and abbreviations used in this design guide as well as specialized terms that are unique to this design guide.
- Appendix C contains several tables of requirements.
- Appendix D contains the figures that illustrate the explanations in the text.

1-2 FUNCTIONS AND OPERATIONS OF READINESS CENTERS

A readiness center is defined as a facility that houses one or more units of the State Army National Guard.

1-2.1 Primary Function

Readiness centers provide administrative, training, and material storage areas for the assigned military unit(s). Generally, full-time operations are limited to those personnel required to provide continuous support in unit administration plus preparation and planning for unit training, supply, administration, and recruiting. The administrative sector of the building should be designed to allow independent operational shutdown when other functions remain active.

1-2.2 Secondary Function

Readiness centers are also utilized to support State functions such as disaster relief and policing actions in case of civil disturbance.

1-2.3 Tertiary Functions

In addition, readiness centers provide for military and public social functions (the latter generally on a rental basis), and shelters during emergency or natural disasters. Public access to functional spaces is normally limited to the assembly hall, indoor firing range (used by authorized local organizations), lobby, toilet, classroom, and food preparation and scullery areas. The functional layout should appropriately compartmentalize all areas to support these uses.

1-2.4 Part-Time Functions

Part-time functions are unit training assemblies, meetings, and special training classes, described below.

1-2.4.1 Part-Time Unit Training Assemblies

Unit training assemblies are normally conducted on one weekend per month per unit. Several units may train on the same weekend. The number of weekends on which these assemblies take place depends on individual unit situations and scheduling; however, common practice is to alternate weekends. All unit personnel, both part time and full time, normally attend such assemblies.

1-2.4.2 Part-Time Meetings

Administration and training meetings may be conducted on one or more nights per month.

1-2.4.3 Part-Time Special Training Classes

Classes may be conducted at night during the week or on a weekend, as circumstances dictate.

CHAPTER 2

READINESS CENTER FUNCTIONAL DESIGN GUIDANCE

2-1 ARRANGEMENT AND ACCOMMODATION OF BASIC SITE COMPONENTS

The primary purpose of every readiness center is to provide an environment for administering the assigned unit or units, training for their mobilization mission, and storing the immediate equipment that they would take to their mobilization station. In addition to the functional space that is authorized every unit for this purpose, space for certain special units and activities not present at every readiness center may be authorized in accordance with guidance in NG PAM 415-12. For this reason, a careful study of the space authorizations in the DD Form 1390/91 approved program documents is essential to understanding how best to arrange the various functional groups in any given case. A further complication arises from the fact that certain functional spaces are set aside as common-use areas for all personnel in multi-unit readiness centers, whereas other functional areas are dedicated to sole use by a single unit, even at multi-unit readiness centers.

The main readiness center building should be located to maximize its visual presence in the community and to facilitate accessibility from the public thoroughfare, subject to any constraints imposed by antiterrorism/force protection (UFC 4-010-01/02), soil conditions and topography of the site. The military vehicle storage compound and supporting structures, such as the unheated unit storage building, should be located at the rear to minimize visual impact. Functional areas within the complex that have the greatest potential for expansion shall be placed with adequate site space to grow. Future expansion of the building and parking should be shown on the plans and considered in the layout to eliminate the need to remove and relocate paved areas and utilities. (See Figure 1, Basic Site Components.)

2-2 FUNDAMENTAL PLANNING FOR THE BASIC READINESS CENTER

To provide the design A-E with an understanding of important planning relationships within a readiness center, several diagrams in Appendix D address the fundamental activities and functional dependencies that have a significant impact on the building design. In addition, Table 1 in Appendix C addresses proximity requirements between each program function listed in NG PAM 415-12, Chapter 2, Readiness Centers.

2-2.1 Basic Components

Basic program components, which may consist of several individual dependent spaces and their fundamental interrelationships, are illustrated in Appendix D, Figures 1- 5.

All the basic functional relationships for individual program spaces to support one unit accommodating 250 to 300 troops are shown in Figure 3. This arrangement demonstrates one of many configurations possible to satisfy basic requirements. It is

provided to illustrate the many important interdependencies between the program spaces within a typical Readiness Center. One of the main planning goals is to maximize the flexibility of use of the assembly hall.

2-2.2 Varying Operational Requirements

Figure 4, Accommodation of Unit Deployment, in Appendix D illustrates those essential functions that actively support unit deployment and those that can be locked down. Figure 5, Accommodation of Community Functions, in Appendix D indicates those functions supporting a typical community activity. When allowing access to the public, some of the challenges of the facility design are maintaining the security of unit and basic National Guard functions and providing emergency egress for large groups. Another very important element of the design is effective and efficient zoning of internal environmental systems to accommodate flexibility of use.

2-2.3 Accommodating Incompatible Functions

Two functions that are included in a typical readiness center but are incompatible with most of the other functions because of noise and vibration are the maintenance area and the indoor firing range. Figure 6, Acoustic and Vibration Buffers, in Appendix D, illustrates one solution that provides neutral spaces between the noise- and vibration-sensitive areas of the building. In this case, it is suggested to use storage components and the break room to provide the buffer.

2-2.4 Plan for Potential Growth

In the future, it is possible for additional units to be housed at the readiness center. Therefore, the initial design should provide for orderly expansion related to both the facility site plan and the arrangement of functions within the building. Figure 7, Additional Units Expansion, in Appendix D, shows the incremental growth to accommodate requirements for new units assigned to the readiness center, which include storage of equipment and supplies plus administrative support. With the incorporation of additional units at a facility, incremental growth of the major readiness center support program spaces should also be expected to occur.

2-3 DESIGN GUIDANCE FOR PROGRAM SPACES

2-3.1 Assembly Hall

The primary function of the assembly hall is to provide space for troop formations, inspections, dining, and large group assemblies for training. The assembly hall also serves the neighboring community as a place of public assembly and as a refuge in case of natural disaster. The assembly hall must accommodate direct access for loading and off-loading supplies and equipment from unit vehicles. Therefore, a loading dock is required adjacent to this space. The food service must also be adjacent to this space because food service will be provided for both the unit and local civic and private functions using the assembly hall. Heated unit storage must be in very close proximity to the assembly hall to allow efficient organization of equipment for deployment.

2-3.1.1 Flexibility of Use

Flexibility is the key design issue related to the assembly hall. To accommodate the various uses planned for this space, the most versatile approach is division by flexible partitions that are appropriately detailed at the top and bottom plus panel composition to provide maximum acoustic separation. Acoustical treatment should be also provided above the ceiling to the underside of the roof deck or at the floor under folding partitions to attain a proper sound transmission coefficient (STC) rating within each subdivided space.

Multiple entry points should be aligned with each space compartment when all flexible partitions are fully deployed. This arrangement allows most of the support storage to be located outside of the assembly hall and the stored materials to be easily taken around the perimeter to any one of the compartmentalized areas. (See Figure 8, Assembly Hall and Adjacent Support Functions, in Appendix D.)

2-3.1.2 Placement within the Facility

Placement of the assembly hall should allow the public direct access off the main lobby. Important support functions that should be located in close proximity include storage for chairs, tables, and audio/visual (AV) equipment plus toilet facilities of adequate size to support the largest group activities anticipated. In addition, food preparation and serving facilities should be located immediately adjacent to the assembly hall. The feasibility of locating the food serving area off the corridor adjacent to the assembly hall, with adequate queuing space, should be considered because of the acoustical isolation provided from the activities in the hall space. (See Figure 9, Food Service/Transfer of Equipment in Relationship to Assembly Hall, in Appendix D.)

2-3.1.3 Support for Presentations

An adequate power supply for all anticipated functions is critical to flexible use. Connections to the Internet and other data systems should be provided at multiple locations and aligned with the maximum subdivision arrangements. A ceiling-mounted projection system may be beneficial for large group meetings.

2-3.1.4 Direct Vehicle Access

The assembly hall should be located for direct access to unit support vehicles that carry supplies and equipment. This can be accomplished by providing a loading dock with overhead coiling doors adjacent to the perimeter of the space. (The vehicles do not come into the assembly hall.) The loading dock should also accommodate food service supplies. See Figure 9, Food Service/Transfer of Equipment in Relationship with Assembly Hall, in Appendix D.

2-3.1.5 Air Conditioning Policy

The Assembly Hall maybe environmental controlled with a mechanical air conditioning system to maintain 78 degrees F and 50% RH. The space must be heated and ventilated by a central station air handling unit (AHU) with an 85% efficiency filter bank base on ASHRAE Standard 52.1-1992 Atmospheric Dust-Spot Efficiency rating.

2-3.2 Classrooms

The classroom area is subdivided as described below.

2-3.2.1 Classrooms/Meeting Rooms

Classrooms are used for instructional training of unit personnel and for unit meetings. They may also be used by the public. The classrooms/meeting rooms and their related support components are illustrated in Figure 10, Classrooms/Meeting Room Spaces, in Appendix D. If classrooms are to be provided independently of the assembly hall, the following applies:

- The space authorized in the approved program documents should be used for the design.
- Classrooms that are 900 ft² or larger may be provided with an accordion or folding partition to divide the classroom area into two smaller rooms.
- Acoustical treatment should be provided above the ceiling to the underside of the roof deck or at the floor under the acoustically insulated folding partition(s) to attain an STC of 40.
- Lighting controls for each individual classroom and subdivision should be located at a point convenient to the speaker and at the door.
- Fixed speaker's platforms, chalkboards or marker boards with map rails, and electrical outlets for AV equipment should be provided.
- A portion of the authorized classroom space may be designed as an auditorium with an inclined floor and installed seats plus a raised platform at the front.

2-3.2.2 Library/Classroom

The library/classroom accommodates a reading area with training publications and other reading material. This space may be combined with the learning center. A chalkboard with map rails as well as electrical convenience outlets should be provided.

2-3.2.3 Learning Center

The learning center should be adjacent to, or combined with, the library/classroom. This space should be equipped with individual pre-wired study carrels for military occupational skills (MOS) training. The learning center should have built-in shelving or racks and a chalkboard as well as electrical outlets to accommodate AV equipment in the study carrels.

2-3.2.4 Distance Learning Center

The distance learning center provides space for delivery of remote training and educational resources. It requires accommodation of voice and data links.

2-3.2.5 Audio/Visual and Training Aid Storage

Storage rooms for AV equipment and training aids should be adjacent to, and preferably have direct access to, the library/classroom and the learning center. The storage rooms should be designed to maximize wall space. Each room should have built-in shelving or racks, or both.

2-3.3 Indoor Firing Range

The indoor firing range is used for marksmanship practice and qualification. Spatial requirements include a storage room and a small toilet. (See Figure 11, Plan of Indoor Firing Range Components, in Appendix D.)

2-3.3.1 Design Guidance

The environment of the actual range area is unique both in the construction materials and the ventilation requirements. Materials used in the exposed construction, including baffled elements, must be able to deflect projectiles toward the target with no possibility of ricochet in the shooter's direction. The materials must also be substantial enough to prevent any rounds fired from any location or direction from escaping the immediate environment.

Horizontal safety ceilings, ceiling baffles, deflectors, and shields (sheathing) provide safe ballistic conditions above the firing line and down range of the shooters. All non-bullet-proof walls and ceilings down range must be either sheathed with round-absorbing material or baffled to divert stray bullets back into the range. Ceiling or sidewall-supported deflection baffles should be located close to the bullet trap to redirect stray rounds to the primary impact plates of the bullet trap.

Bullet traps and baffles must extend the full width and height of the back wall of the range and have a profile that directs all bullets into the deceleration chamber of the bullet trap.

Air ventilation pressure in the range area must always be negative with regard to the direction of the bullet trap to avoid contamination by bullet backspatter.

Supply air should be filtered at 35% efficiency and 60 degrees F minimum through a perforated wall at the face of the air plenum behind the firing line. Exhaust air final filter be HEPA Type w/85% efficiency pre-filter or as required by the U.S. Environmental Protection Agency.

For the design criteria, refer to UFC 4-160-01, AR 210–21, ER 210-3-2, and the American Conference of Governmental Industrial Hygienists (ACGIH) Industrial Ventilation Manual and U S Navy Environmental Health Center TM 6290.99-10. (See Range Detail Diagrams, in Appendix D, Figures 11, 12, 13 & 14.)

2-3.3.2 Independent Access

A means of access that is independent from the remainder of the facility functions should be provided to allow community shooting groups and law enforcement agencies to utilize the range.

2-3.3.3 Ventilation Testing

The contract documents should stipulate that the construction contractor is to hire a qualified independent testing firm to evaluate the ventilation system in the completed range. The evaluation should ensure that the air flow at the firing line is uniformly distributed over the room cross section to achieve 75 FPM minimum velocity with laminar flow down range.

2-3.4 Exterior Space Requirements

The facility should have a garbage can wash area that includes a source of hot and cold water and a drain with a grease separator. Garbage can storage should be adjacent to the building and screened from sight.

2-3.5 Break Room and Vending Area

For the size requirements for the break room and vending area, refer to NG PAM 415-12, Chapter 2; and for design guidance, refer to the discussion of common facility functional areas in DG 415-5, Chapter 5, Common Functional Planning and Building Design Guidelines.

2-3.6 Toilets and Showers

The majority of the toilets should be concentrated with, but separated from, the shower facilities that accommodate cleanup after unit training activities. Toilets should also be easily accessible to those attending public functions. Refer to the general design guidance included in DG 415-5, Chapter 5. For size requirements, refer to NG PAM 415-12, Chapter 2.

2-3.7 Table/Chair Storage

Areas for table and chair storage should be located on the perimeter of the assembly hall. They should be accessible from both the assembly hall and the corridor to promote optimum flexibility in the use and configuration of the assembly hall space. (See Figure 8, Assembly Hall and Adjacent Support Functions, in Appendix D.)

2-3.8 Physical Fitness Area

For design guidance regarding the physical fitness area, refer to DG 415-5, Chapter 5; and for size requirements, refer to NG PAM 415-12, Chapter 2.

2-3.9 Nursing Mothers Room

Any ARNG facility that include an Administrative Area is authorized a net area of 80-square feet enclosed room with complete environmental systems and one cabinet/counter mounted 16"x16" sink to support this effort.

2-4 EXCLUSIVE USE AREAS

2-4.1 Unit Administration

The allocated net square footage for each administrative component is determined from NG PAM 415-12 and specifically indicated in the approved program documents for the project. The actual number of administrative personnel and their office or workstation requirements as well as assigned equipment such as file cabinets, desks, chairs, and personal computers should be determined at the pre-design conference. At a minimum, the unit commander, executive officer, and a senior non-commissioned officer should have private offices.

The layout of the unit administrative space must take into account the need to locate full-time administrative personnel adjacent to the main entrance and lobby for visitor control. A viewing window should be provided in an adjacent lobby so that the entrance can be kept under observation from both a standing and seated position at the reception area. Office furniture consisting of modularly dimensioned components

should be a strong consideration when laying out the open administrative areas because modular furniture allows flexibility for rearrangement in the future.

2-4.2 Heated Unit Storage

Heated and ventilated unit storage is authorized for each assigned unit to provide a secure area for storing, issuing, and returning organizational equipment and clothing. The H/V Unit serving this area must be provided with a 35% efficiency filter bank. The walls of the authorized heated storage space for each unit should extend from the floor to the bottom of the roof deck or floor structure above. Supply and return air diffusers and grilles should be security type. A Dutch door could be used in place of a standard door if desired by the unit. The active leaf of the Dutch door should be solid, allowing the best functional use of the door and optimal performance of the magnetic switches. A double-door arrangement should be provided so that heavy or bulky equipment can be moved directly between the storage area, the assembly hall, or the transporter. Physical security standards should be as stipulated in AR 190-51 Security Of Unclassified Army Property. This area should have direct access from the loading docks. (See Appendix D Figure 15 for Vault and Unit Storage)

2-4.3 Vault

The vault should be immediately adjacent to the unit storage area. Design guidance Vaults construction, and intrusion detection systems can be found in AR 190-11 Physical Security of Arms, Ammunition And Explosives. Vault design criteria must be as indicated in NG PAM 415-12. (See Figure 15, Vault and Unit Storage, in Appendix D of this document)

2-4.4 Locker Rooms

The locker room is intended for storage of individual equipment. The total authorization of the size, type, and number of lockers for each readiness center is identified by the State construction and facilities management officer (CFMO) or obtained from the approved program documents.

2-4.5 Recruiting/Retention Office

The recruiting/retention office should be located as near to the main entrance as possible, preferably adjacent to the lobby. It should have a viewing/pass-through window or some other appropriate means of emphasizing public accessibility.

2-4.6 Family Readiness Office

The ARNG Family Readiness Program supports the soldier's family members well being through communication, involvement, support, recognition and assistance during deployments and other times of needs.

2-4.7 Rapids Office

Real-Time Automated Personnel Identification System requires general office space for supporting unit human resource and administration matters.

2-4.8 Communications Security Areas

Communications security (COMSEC) areas contain the communication gear and Army cryptography (crypto) devices for command and control operations. These areas should not be located adjacent to an exterior wall. The following are design

requirements for storage of the communication gear and the crypto devices and for work space to service and repair them:

2-4.8.1 Storage Areas

Storage areas for the crypto equipment should be identified as "Restricted Areas" and should have walls extending from the floor to the underside of the floor above or to the roof structure. The walls and door should have a 1-hour fire rating. When organizational maintenance is to be performed on the equipment, no visibility from the outside of the COMSEC room can be tolerated.

2-4.8.2 Training Device/Simulation Center

The training area is dedicated to continual specialized use for tactical fire direction (TACFIRE) systems. The construction of the center should follow the same procedures as for the crypto equipment storage areas except that, during non-use periods, the crypto keys should be secured in the unit crypto security containers. The door to the center should be equipped with both three-position tumbler and cipher locks for non-duty and duty hour control. Simulation Device Vendor Data must be provided to the designer.

2-4.8.3 Secret Internet Protocol Router Network Room

The room is needed to securely house the Secret Internet Protocol Router Network (SIPRNET) equipment and those individuals operating the equipment where required.

2-4.9 Maintenance/Training Area

The operations and space requirements to support unit-level maintenance and training include the components described below (see Figure 16, Maintenance Training Area, in Appendix D).

2-4.9.1 Supervisor's Office

The supervisor oversees the operations of the shop in performing organizational-level maintenance.

2-4.9.2 Supply and Tool Rooms

The supply and tool room technician is responsible for requisitioning and issuing repair parts, supplies, and special tools. The supply and tool rooms should be adjacent to or contiguous with each other for convenient operation.

2-4.9.3 Battery Room

Battery room is not authorized for Maintenance/Training Area.

2-4.9.4 Bulk POL Storage

This area is used to store bulk POL products such as grease and oils that will transport these products to delivery reels located adjacent to the general purpose and special purpose work bays. This area should be heated to a minimum of 50 degrees Fahrenheit to maintain fluid viscosity. This area should have exterior door access that will accommodate forklift or pallet jacks for moving POL containers into or out from the area.

2-4.9.5 Inspection and Library Area

The inspection and library area is an office used by a mechanic responsible for inspecting work done on all table of organization and equipment (TOE) maintained in the maintenance training work bays. The mechanic inspector also maintains a library that includes technical manuals, technical bulletins, and work order modifications used by the inspector and other mechanics.

2-4.9.6 Maintenance/Training Work Bays

When authorized, the facility may have a General Purpose Training Bay (GPTB) IAW NG PAM 415-12, Table 2-2, Item L and associated note 19.. The GPTBs are used to train mechanics for field-level maintenance. These work bays are used for activities such as training in removal and replacement of equipment components such as engines and transmissions. Readiness Centers with authorized A validated and approved GPTB (as outlined in NG PAM 415-12) may be used for vehicle maintenance and minor repairs. All work bays and the associated equipment must comply with applicable OSHA and EPA requirements. The work bay will be designed to have a vehicle tailpipe exhaust system, emergency eyewash, and a trench/floor drain connected to an oil-water separator. Additionally, the followings items should be included in the GPTB air compressor; electrical and IT Ports. Associated with the MTWB are a supervisor's office, inspection and library, waste oil/hazardous materials storage area, tool room, and supply room.

2-4.10 Special-Purpose Areas

The special-purpose areas that could be required at a readiness center, listed under Schedule I of the program documents, include those described below.

2-4.10.1 Headquarters Functions

The headquarters functions could be State, division, brigade, battalion, or other headquarters components. A mix of full-time and inactive duty training personnel will occupy the authorized space to perform the administrative-type work associated with operation of the headquarters.

2-4.10.2 Army Advisor's Office

The Army advisor's office is administrative space that is occupied full time.

2-4.10.3 Band Facilities

Band training facilities shall be designed and constructed in accordance with UFC 4-171-04AN, Band Training Facilities. When a band is authorized at the readiness center, allowances listed under Schedule II of the program documents should be used for BTF space allowance.

2-5 BASIC FACILITY FUNCTIONS

2-5.1 Facility Maintenance Storage

The facility maintenance storage space accommodates the storage of supplies and equipment used in the day-to-day operation and maintenance of the facility.

2-5.2 Mechanical, Electrical, and Telecommunications Rooms

Refer to DG 415-5, Chapter 5.

2-5.3 Facility Maintenance and Custodial Area

Refer to DG 415-5, Chapter 5.

2-5.4 Flammable Materials Storage Building

Refer to DG 415-5, Chapter 4, Common Functional Site Design Guidelines.

2-5.5 Controlled Waste Handling

Refer to DG 415-5, Chapter 4.

2-5.6 Wash Platforms for Vehicles and Equipment

Refer to DG 415-5, Chapter 4.

2-5.7 Fuel Storage and Dispensing System

Refer to DG 415-5, Chapter 4.

2-5.8 Exterior Lubrication and Inspection Rack

The exterior and inspection rack should be designed for the maximum anticipated vehicle weights and tread widths. It should include a suitable walkway (platform) with safety railings and steps to grade, allowing the vehicle operator to dismount safely after positioning the vehicle on the rack. The rack should generally be located within or adjacent to the military vehicle parking area and allow for easy access without conflicting with traffic flow. Inspection rack should be located in close proximity to reduce cost of common utility runs.

2-5.9 Recycling Area

This area should be adjacent to the shipping/receiving area where recyclables from the building can be consolidated and stored for pickup.

CHAPTER 3

FOOD SERVICE AREA:

3-1 PURPOSE

The primary purpose of this chapter is to provide information about the Food Service Area and updates. Currently, there are two kitchen layouts for the readiness center; small and large kitchen with 1,300 square feet and 1,875 square feet, respectively. There will be only one kitchen layout for every readiness center at 2200 square feet. The kitchen layout and equipment has been included in this chapter instead of Appendix D of DG 415-5. Also, on the equipment list, there is no longer item 51 Condensation Hood (at Kettle & Ovens).

3-2 FOOD SERVICE AREA

The food service area should be adjacent to the assembly hall and have direct access to the building exterior service area for deliveries and for trash and garbage removal.

3-2.1 Kitchen

The contract documents for the kitchen area should include the following:

- Kitchen design in accordance with the latest published criteria from the U.S. Army Quartermaster Center and School (USAQMC&S)
- Federal government-furnished, contractor-installed equipment
- Contractor-furnished equipment
- Required utilities

Additional guidance concerning the spaces in the kitchen area is as follows:

3-2.2 Food Storage Area

The food storage area is intended for storing food items in a dry, refrigerated, or frozen state. Mobile storage cabinets should be provided for dry bulk staple food items. Individual mobile cabinets should be assigned to, and under control of, the various military units at the readiness center. Refrigerator and freezer units must be provided for storing refrigerated and frozen foods.

3-2.3 Food Preparation Area

The food preparation area is the central function within the kitchen. It requires all utilities, plumbing, counter space, and shelving at a scale to meet the needs of authorized troop capacity within the readiness center.

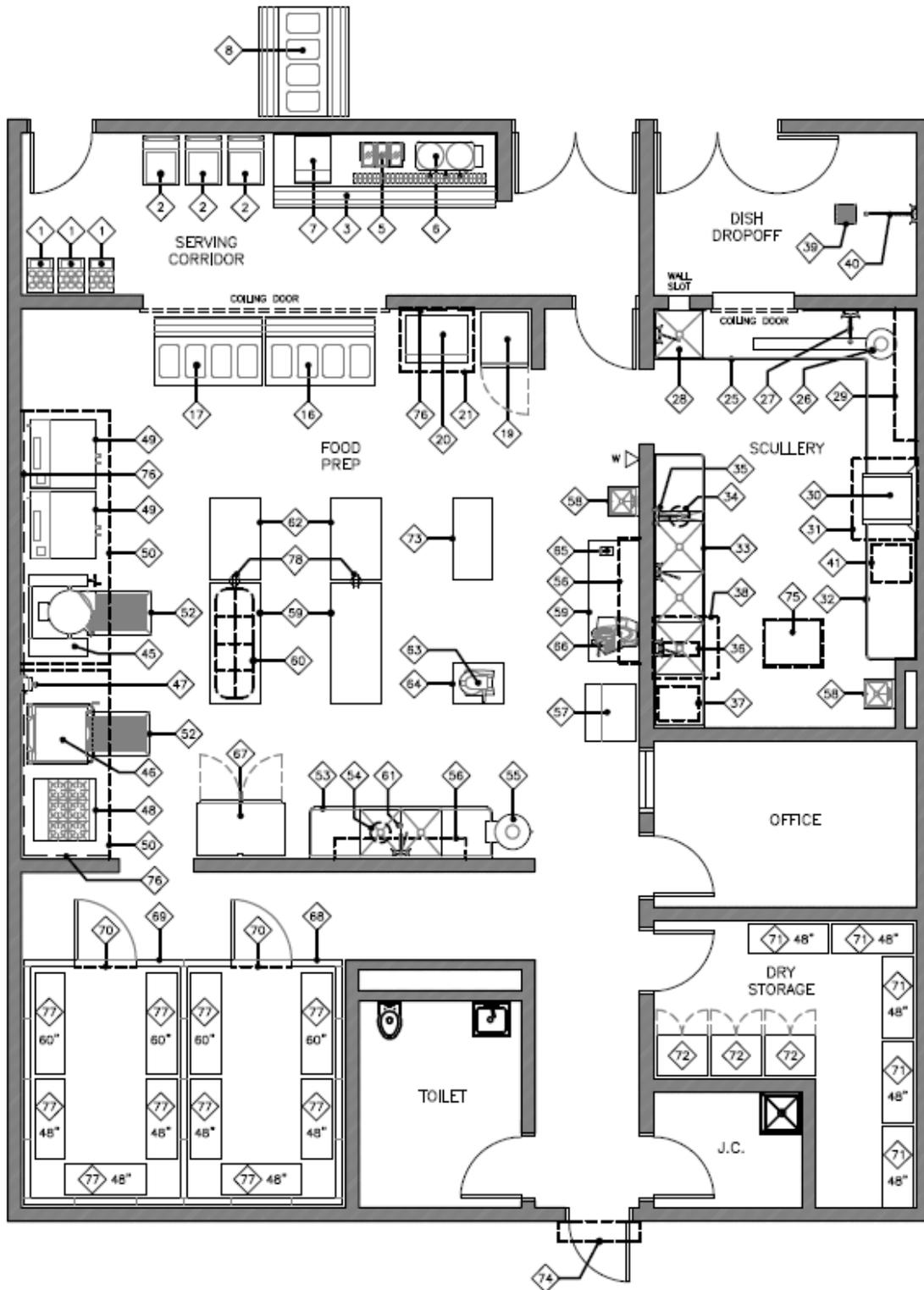
3-2.4 Serving Area

The serving area is intended for dispensing drinks, dishes, and eating utensils as well as facilitating the orderly movement of diners.

3-2.5 Scullery

The scullery area is used for cleaning all food preparation pots and pans as well as dining utensils.

KITCHEN LAYOUT AND EQUIPMENT LIST



ARMY NATIONAL GUARD KITCHEN EQUIPMENT LAYOUT
(NOT TO SCALE)

ARMY NATIONAL GUARD KITCHEN EQUIPMENT SCHEDULE

ITEM NO	QTY	ITEM NAME	GF/CI	CF/CI
1	3	Tray Dispenser w/ Silverware Holder		
2	3	Tableware Dispenser		
3	1	Beverage Counter		
4		Open Number		
5	1	Juice Dispenser		
6	1	Coffee Um		
7	1	Ice/Water Dispenser		
8	1	Cold Food Counter		
9		Open Number		
10		Open Number		
11		Open Number		
12		Open Number		
13		Open Number		
14		Open Number		
15		Open Number		
16	1	Mobile Cold Food Counter		
17	1	Mobile Hot Food Counter		
18		Open Number		
19	1	Food Warming Cabinet		
20	1	Griddle		
21	1	Exhaust Hood (at Griddle)		
22		Open Number		
23		Open Number		
24		Open Number		
25	1	Soiled Dish Table		
26	1	Garbage Disposal		
27	1	Spray Assembly		
28	1	Silver Soak Sink		
29	1	Wall-Mounted Shelf		
30	1	Dishwasher		
31	1	Condensate Hood (at Dishwasher)		
32	1	Clean Dish Table		
33	1	Pot and Pan Sink		
34	1	Garbage Disposal		
35	1	Spray Assembly		
36	1	Sink Heater/Sanitizer		
37	1	Booster Heater (for Final Rinse Faucet)		
38	1	Condensate Hood (at Final Rinse Compartment)		
39	1	Floor Trough		

ITEM NO	QTY	ITEM NAME	GF/CI	CF/CI
40	1	Spray Assembly		
41	1	Booster Heater (for Dishwasher)		
42		Open Number		
43		Open Number		
44		Open Number		
45	1	Tilting Kettle		
46	1	Tilting Skillet		
47	1	Pot Filler		
48	1	Range		
49	2	Convection Oven		
50		Open Number		
51	1	Condensate Hood (at Kettle & Ovens)- See Note 1		
52	2	Floor Trough (at Skillet & Kettle)- See Note 2		
53	1	Vegetable Prep Sink		
54	1	Garbage Disposal		
55	1	Vegetable Peeler		
56	2	Wall-Mounted Shelf		
57	1	Ice Maker		
58	2	Hand Sink		
59	3	Worktable		
60	1	Utensil Rack		
61	1	Spray Assembly		
62	2	Mobile Worktable		
63	1	Mixer		
64	1	Mixer Stand		
65	1	Can Opener		
66	1	Meat Slicer		
67	1	Reach-In Freezer		
68	1	Walk-In Refrigerator (Dairy)		
69	1	Walk-In Refrigerator (Vegetables)		
70	2	Plastic Strip Curtain		
71	5	Mobile Shelving (Dry Storage) - See Note 3		
72	3	Security Unit		
73	1	Dolly Truck		
74	1	Air Curtain		
75	1	Grease Interceptor		
76	2	Stainless Steel Wall Covering		
77	10	Mobile Shelving (Walk-In Refrig.) - See Note 3		
78	2	Cord Drop Receptacle		

Note 1: The condensate hood at the Tilting Kettle and ovens may be eliminated if these pieces of equipment are located adjacent to the Tilting Skillet and Range and the Grease Exhaust Hood extends over all equipment.

Note 2: Contractor to verify exact final location and orientation of the Floor Trough; coordinate with the pour path of the specific model of Tilting Skillet and Tilting Kettle provided.

Note 3: The number and length of Mobile Shelving units may vary with the Kitchen layout. Maximize the amount of shelving to the extent feasible. Verify final quantities and sizes with Owner.

GF/CI = Government Furnished/Contractor Installed
CF/CI = Contractor Furnished/Contractor Installed

26 August 2010

Arlington VA 22202-1373
26 November 2014

ARMY NATIONAL GUARD FACILITIES ALLOWANCES

By Order of the Secretary of the Army:

JUDD H. LYONS
General, USA
Acting Director, Army National Guard

Official:
SCOTT C. SHARP
Colonel, Infantry
Chief, Strategic Plans and Policy

History: All Common Supporting Items have been included in Chapter 1. This revision also includes technical corrections to the 01 June 2011 version which is hereby superseded.

Summary: This pamphlet establishes allowances and provides guidance to the States for building space and supporting items used for programming the construction of Army National Guard facilities.

Applicability: These standards apply to all federally funded Army National Guard construction.

Proponent and Exception Authority: The proponent of this pamphlet is the Chief of Installations, National Guard Bureau, Army Installations Division (ARNG-ILI). Exceptions to criteria will be reviewed by the ARNG staff proponents for recommendations of concurrence or non-concurrence. The Chief of Installations has the sole authority to approve exceptions to the criteria presented in this document that are consistent with applicable laws and regulations. This authority may not be delegated.

Suggested Improvements: Users of this pamphlet are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to the National Guard Bureau, Army Installations Division, ARNG-ILI, 111 South George Mason Drive, Arlington, VA 22204-1382.

Distribution: B

* This pamphlet supersedes NG Pam 415-12, 01 June 2011

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Chapter 1

General

1-1. Purpose

This pamphlet identifies the allowable space criteria for facilities supported by Federal contributions to the State, either totally or in part. It gives information on general construction standards, materials, space allowances, building circulation, and other requirements directly related to programming military construction projects. As such, it is the major reference document required for preparing DD Forms 1390/1391.

1-2. References

Required and related publications are listed in Appendix A.

1-3. Explanation of Abbreviations and Terms

Abbreviations and special terms used in this pamphlet are explained in the glossary.

1-4. Applicability

The formats, processes and tables of this pamphlet are designed to cover most circumstances commonly met during preparation of military construction programming documents. However, unusual project circumstances may dictate that the State justify and request an exception to criteria (ETC). Exceptions to criteria are recommended by ARNG proponent and approved by ARNG-ILI.

1-5. Common Standards

States shall incorporate into programming documents the construction standards identified in special DoD publications, such as Unified Facility Criteria (UFC) for antiterrorism/force protection, and all environmental protection and safety measures required by Federal, State, and local codes and regulations.

1-6. General Construction of Buildings

a. Buildings shall be constructed of materials rated as non-combustible. The exterior walls may be brick with concrete masonry unit backup or other suitable systems. In certain instances pre-fabricated metal buildings may be used where allowed by codes and it is economically feasible. In those cases, exterior walls may be veneered with brick when co-located with a readiness center or when justified by environmental and aesthetic considerations of the surrounding facilities and communities.

b. Roof systems, either of low slope or hip/gable type construction, normally consist of lightweight joists, non-combustible decking, and insulation above the decking. If the roof is a low slope type, the final layer shall be built-up bituminous material, a single ply membrane, or standing seam metal. However, if the roof is hip or gable type construction, it shall be a standing seam metal roof, or covered with asphalt, or fiberglass shingles.

c. Walls and partitions may be drywall, CMU block, or other economically suitable material that will provide a durable structure.

d. Floors are normally constructed with concrete.

e. Design shall incorporate the use of space saving, energy-saving, alternative energy options (i.e., Geothermal, Radiant Heat, Solar Electric), as well as other sustainable design features wherever justified by Life-Cycle Cost Analysis (LCCA). ARNG MILCON projects are required to achieve, at a minimum, a certification of silver based on the latest edition of US Green Building Council's Leadership in Energy and Environmental Design (LEED) standards and the Sustainable Design and Development Policy Update 13 December 2014.

f. Mechanical ventilation shall be provided for administrative, surface equipment maintenance, aviation maintenance, billeting, latrine, dining, and training facilities in accordance with UFC 1-200-02.

g. Air conditioning requirements for comfort cooling will be evaluated and approved by the Adjutant General based on local conditions. The Adjutant General's justification (based on Unified Facilities Criteria (UFC) 3-400-02, Design: Engineering Weather Data) shall be enclosed with the DD Forms 1390/1391. As a general rule, and for planning and programming purposes, the tonnage of air conditioning required to cool an authorized space may be estimated by dividing the total floor area (in square feet) of the space by 300.

h. Sustainability/Energy Measures. Sustainable design and construction features mandated since September 2011 are authorized for the primary facility. For programming purposes, enter a separate line on the DD Form 1391

and compute the requirement at 2% of the cost of the primary facility.

i. Emergency power generator pad and house connection/hook-up:

(1) National Guard Readiness centers, aviation maintenance facilities, and USPFO administrative offices (as per AR 420-1 (4-67)) are authorized stand-by power generator sets and pertinent functional components, such as an automatic transfer switch, fuel storage tank, and associated conduit and wiring to electrical power circuits, to ensure continuous operation. These are to support environmental, health, and safety equipment requirements essential to Army National Guard (ARNG) missions during a prolonged (four hours duration) power outage. Power generator sets and pertinent functional components may be acquired with funds from the military construction appropriation. The generator may be installed inside the mechanical room or outside with factory design housing. Generator sets are authorized to power up to 35% of the facility's electricity load requirements. Generator sets should be added as a line item in primary facilities of Block 9 of the DD Form 1391. The priority for emergency power generator supply shall be as follows in descending order:

- (a). Fire protection and detection
- (b). Access control
- (c). Communications and Automation Operations (G6), IT DEMARK Rooms, and Range Control Operations Building
- (d). Lighting (up to 20% of the facility lighting)
- (e). Elevators (Maximum of one elevator at each entrance)
- (f). Administrative Offices (office equipment), including Post Headquarters Facilities at the Training Centers
- (g). Heating, ventilation and air conditioning (HVAC)

(2) For all other facilities, only a 150SY emergency power ridged generator pad and house connections/hook-up are authorized. This requirement is limited to a 6-inch thick concrete mounting pad with a house connection/hook-up outlet necessary to provide temporary mission but essential electricity during emergency operation of the facility. The emergency generator itself is considered portable equipment and must be obtained with funds other than from the military construction appropriation.

1-7. Flexibility

The space allowance for any functional area (except the readiness center assembly hall, maintenance training work bays, indoor rifle range (if approved by ETC), training device/simulations center, general purpose and special purpose maintenance work bays, unheated storage, and hangar floor) may be increased by up to 15 percent, provided that the total allowable functional net area is not increased as a result. In order to provide the necessary off-setting reduction for these space increases, any functional space (except a work bay, indoor rifle range, training device/simulations center, unheated unit storage area, or hangar floor) may be reduced by a maximum of 15 percent. Functional areas may be completely removed from a facility if they are not needed. However, in that case, the total allowable net space must be reduced by a like amount.

1-8. Restrictions to Support by Federal Funding

a. Real estate. Sites for the construction of ARNG facilities shall generally be owned or leased by the State and procured without federal reimbursement. This does not, however, preclude the construction of new ARNG facilities or the rehabilitation of existing buildings on federally owned land licensed to the State for ARNG facility use.

b. Prewired work stations. Prewired workstations are not authorized to be funded through the military construction appropriation. They are not to be classified as installed building equipment and are to be included in the programming documents as equipment associated with the project that will be provided from other appropriations.

c. Future improvements. Designing in capacities for future improvements to a specific project is prohibited unless fully justified as an exception to criteria and clearly described in the narrative portion of the programming documents (DD Form 1391). Providing additional capacity for utilities adjacent to contiguous unheated storage with the intent to provide heating and/or cooling of that unheated space in the future is strictly prohibited without exception.

1-9. Common Supporting Items, Features, and Allowances for All ARNG Facilities

In planning the functional arrangement of facilities, the State shall give appropriate consideration to the existing site conditions, layout, and materials of construction in order to achieve maximum operating efficiency, cost effectiveness, and flexibility. The support items include:

a. Site preparation. The work of clearing, grubbing, stripping, and stockpiling topsoil, excavating embankment, and rough grading required to develop the project site to sub grade levels and elevations for proper siting and drainage of facilities (including culverts, head walls, retaining walls, retention ponds etc.). The State must use its own funds for the special handling/remediation/disposal of contaminated soil excavated from a non-federally owned or leased project site.

(1) Rock excavation and correction of unsatisfactory soil conditions is authorized only if the state has submitted adequate supporting documentation such as an economic or master planning analysis that demonstrates that the positive impacts on readiness strongly outweigh the increased construction costs at that site.

(2) Culverts, retaining walls (installed in lieu of sloping the ground to achieve grade differentials), drainage systems, or other similar construction required for controlling surface water runoff will be approved on an individual site basis if the State justifies these items. The State, however, must consider the cost of these items during the site selection process and submit an exception to criteria for approval.

(3) A storm water pollution prevention plan must be implemented during construction to prevent soil erosion. The plan must be written and implemented in accordance with federal, state, and local regulations.

b. Fine grading and seeding.

(1) The state may program for fine grading and seeding to provide proper site drainage and control of erosion on those parts of the project site where the previously existing surface cover has been destroyed or buried beneath redistributed soil.

(2) Sodding or sprigging is authorized for critical areas subject to erosion.

(3) Importing topsoil is authorized if the natural topsoil on the site, stockpiled at the beginning of construction, is inadequate to provide a finished depth of approximately four inches.

c. Landscaping. This shall be included as an integral part of the planning of the project to produce an aesthetically pleasing final site that consists of natural (native) species or non-native varieties which are non invasive to the surrounding landscape.

(1) The state may program up to three percent of the basic building cost for planting trees, shrubs, and vines (exclusive of grading and seeding or sprigging and sodding for erosion control). In those locations that are considered to have an arid climate, the state may program up to four percent of the basic building cost and may use xeriscaping.

(2) Additional planting for energy conserving landscaping may be authorized if the state justifies it on a life cycle cost basis.

(3) An installed watering system (sprinkler) is authorized. The sprinkler must be designed in accordance with Federal Water Efficiency Requirements. Refer to ARNG DG 415-5 Chapter 3, 3-2.2 - Water Efficiency, and Chapter 6, Section 2 - Exterior Improvements for guidance on Irrigation Systems.

d. Parking: All parking areas must be designed in accordance with the requirements of UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings and UFC 4-010-02, DoD Minimum Antiterrorism Standoff Distances for Buildings.

(1) Military Vehicle Parking (MVP) (Organizational Vehicle Parking, Paved CATCODE 85210). Rigid concrete or gravel is authorized for paving those areas designated for the parking of military vehicles. For programming purposes the concrete shall be eight inches in depth. Actual depth should be determined during design based on soil conditions and loading requirements.

(i) Parking is authorized for all vehicles, trailers, equipment, etc (including GSA and other Non-Tactical Vehicles (NTV)), that are permanently stationed at each facility type. This includes equipment hand receipted from units exclusively for facility operating requirements.

(ii) Parking is also authorized at a Combined Support Maintenance Shop (CSMS), Maneuver Area Training Equipment Site (MATES), Unit Training and Equipment Site (UTES), and Field Maintenance Shop (FMS) for 10 percent of the vehicles, trailers, equipment, etc., authorized to receive maintenance at that facility but not permanently stationed at the facility and for prepositioned equipment at Training Centers.

(iii) See Military Vehicle Parking allowances shown in Table 1-1. This area includes an allowance for circulation lanes within the parking area in addition to any required access roads.

TABLE 1-1. Military Vehicle Parking

Type of Equipment	Per Vehicle Allowance
Wheeled Vehicles/Trailers/Other Wheeled/Towed Equipment <30' in length	50 SY
Equipment > 30' in length, including PLS Trailer	75 SY
Tracked Vehicles, Engineer Vehicles	75 SY
Fuel Trucks	175 SY
HETs	275 SY

(iv) For other unique equipment that must be stored within the military vehicle parking area, such as skid-mounted generators, snowmobiles, and transportable containers organic to the assigned units, the State may program an appropriate amount of space as an exception to criteria. Documentation to support this request must be provided along with the project programming documents.

(v) Unheated Enclosed or Shed-Type Vehicle Storage Space

a. Federal support for enclosed or shed-type storage is authorized IAW NGR 415-10. This vehicle storage space may be constructed as a 'pole barn-type' structure with a shed roof and open sides or it may be constructed with enclosed sides and fitted with vehicle access doors. When storing more than five vehicles, the space must be designed to conform with all applicable codes, standards and dry pipe sprinkler system (reference NFPA standards) protected.

b. When enclosed or shed-type storage is provided, the amount of open air paved area authorized for parking of military vehicles at the site shall be reduced by the area of the covered/enclosed space.. (Refer to paragraph 3-4.) Vehicle storage space shall be unheated and shall not exceed 66% of the normally authorized open-air military parking area. The remaining paved area is to be used for circulation and access to and from the covered or enclosed storage structure; as well as for the parking remaining vehicles. For example, if a SEMF is authorized 100,000 SY for open air military vehicle parking and the NGR 415-10 requirements are met for enclosed or shed-type vehicle storage, then up to 66,667 SY could be used for enclosed parking. The remaining 33,333 SY would then be authorized for the circulation and access to and from the parking structure and parking remaining vehicles.

c. Vehicle spacing must be tightly controlled. Vehicles should be parked nose to tail with only the minimum space required for personnel to maneuver between the vehicles to access operator or driver access doors on the vehicles. There would not be any 'drive-through' vehicle lanes.

d. Overhead or rollup doors at approximately 25 feet on centers are authorized on two sides of enclosed structures at the rate of one for each 1800 square feet of floor area to provide for mass parking of vehicles without the need for internal circulation lanes.

e. A 60 foot deep concrete apron is authorized for each side of the facility with vehicle entrances.

(2) POV Parking (Non-organizational Vehicle Parking, Paved CATCODE 85215)

(i) This area includes an allowance for circulation lanes within the parking areas (Note: this does not include the access road). For programming purposes, flexible pavement (or concrete if supported by an Economic Analysis) shall consist of six inches of bituminous material placed over an installed, appropriate aggregate base. Rigid concrete or flexible pavement curbs may be installed along pavement edges to comply with the site's approved storm water management plan or to preclude soil erosion.

(ii) See POV Parking allowances shown in Table 1-2:

TABLE 1-2. POV Parking*

Facility Type	Allowance
Readiness Center	35 SY times 90% of the authorized strength of the assigned units required to train simultaneously. The 90% ratio of authorized strength depends on the adequacy of public transportation serving the site (TBD by Design).
Logistics Facility	35 SY per required full-time staff of the facility, including contract personnel.
Aviation Facility	35 SY times the required full-time staff of the facility, including contract personnel, or, if larger, 35 square yards times 90% of the authorized strength of the non co-located units required to train simultaneously.
Training Facility	35 SY times the sum of the full-time staff (including permanently assigned Federally reimbursed State employees) and 50 % of the billeting capacity of the training center.
Educational Facility	35 SY times the sum of the ARNG-TR validated maximum student load and the full-time staff (including instructors).

Notes:

1/ 35 SY is factored on a 10 FT by 20 FT parking space with a 10 FT by 12 FT circulation aisle included.

(3) Visitor/Customer Parking (Nonorganizational Vehicle Parking, Paved CATCD 85215)

(i) Visitor/customer parking spaces are authorized as indicated in Table 1-3- Visitor/Customer Parking based on the number of required full time employees including permanently assigned federally reimbursed State employees. The allowance includes circulation lanes, required access roads are an additional allowance.

(ii) In addition to the number of spaces shown below, for every 50 (or fraction thereof) authorized spaces, an additional 60 square yards is authorized for a handicapped parking space.

(iii) For programming purposes, flexible pavement or concrete (if supported by an Economic Analysis) shall consist of six inches of bituminous material placed over an installed, appropriate aggregate base. Rigid concrete, granite or flexible pavement curbs may be installed around pavement edges if required to control storm water per the site’s approved storm water management plan.

TABLE 1-3. Visitor/Customer Parking

Facility Type	Allowance	# of Employees	# of Parking Spaces
Readiness Center	35 SY	N/A	To be designed by the A-E for specific location and approved by ARNG-ILI
Logistics Facility	35 SY	5-15	4
		16-25	7
		26 & over	9 (plus one additional parking space for every 10 employees or major fraction thereof > 26)
Aviation Facility	35 SY	N/A	12
Training Center Facility	35 SY	5-15	4
		16-25	7
		26 & over	9 (plus one additional parking space for every 10 employees or major fraction thereof > 26)
Educational Facility	35 SY	5-15	4
		16-25	7
		26 & over	9 (plus one additional parking space for every 10 employees or major fraction thereof > 26)

(4) Fuel Truck Containment Area. In addition to the parking allowances above, a minimum of 75 square yards of rigid concrete is authorized to construct a containment area for each fuel truck or trailer that stores POL on board. In accordance with applicable environmental, safety and fire protection regulations, each containment area is to be designed and sized so that it is capable of capturing and retaining 110% of the POL volume stored in or on the fuel storage truck/trailer/tank positioned within that area along with sufficient freeboard to contain precipitation. A roof type cover will be provided, and designed in accordance with UFC 3-110-03 if required by local code or local climatic conditions (e.g., excessive heat or snow), to prevent overheating of fuel and/or to preclude the introduction

of storm water runoff into the sump of the containment area. The local climatic condition can be determined by contacting the National Climatic Data Center, or from historical data presented in US Army TM 5-785 Facility Design and Planning, Engineering Weather Data.

e. Loading Dock. For facilities that receive/ship products in large bulk (e.g. USPFO warehouse, CIF, etc.), a four foot high, covered loading dock fitted with a dock leveler for each truck docking space shall be provided in the receiving and shipping areas. A basic length of 22 feet to accommodate one truck plus 10 feet for each additional truck space is authorized. Thus, a loading dock to accommodate three trucks would be 42 feet in length. Docks should be 15 feet in width from face of building to edge of loading dock. The dock shall also have an access ramp 10 feet wide (not to exceed a 12 degree incline) to provide forklift access.

(1) Logistics facilities, including Basic Issue Item (BII) warehouses located at MATES/UTES, are authorized loading docks that accommodate a maximum of three trucks simultaneously.

(2) Aviation facilities are authorized loading docks that accommodate a minimum of two trucks simultaneously.

(3) Any other loading dock requirements will be addressed as exceptions to criteria. (4) Final design plans will dictate the actual loading dock length.

f. Military Vehicle Loading Ramps. Military vehicle loading ramps may be constructed to assist in loading and off-loading military vehicles (wheel and track) from equipment transporters that do not have loading ramps as an integral part of the vehicle trailer. A multi-level loading ramp not to exceed a footprint of 160 SY is authorized. The maximum ramp incline will not exceed 12 degrees. Sufficient area should be allocated to accommodate the vehicle turning radius for loading/off loading equipment.

g. Turn Pads. For facilities supporting tracked vehicles, rigid concrete turn pads are authorized where frequent turning of tracked vehicles is required on flexible pavement. The facility design shall limit the number of pads to the minimum required to preclude damaging flexible pavement. Pads should each be 30 feet by 30 feet (100 square yards). Three hundred square yards of concrete (three turn pads) shall be used for programming purposes. However, the exact number of turn pads will be determined during the design review based on an economical and practical facility site layout.

h. Service and Access Aprons. Rigid concrete paving may be provided for access to each dumpster, controlled waste handling facility, and any other facility requiring outside access by forklifts or large, heavy vehicles. Allowances for service and access aprons are indicated by an "X", "N/A" means aprons are not authorized for that function – See Service and Access Apron allowances shown in Table 1-4:

TABLE 1-4. Service and Access Aprons

Apron/Access	Allowance	Readiness Center	Logistics Facility	Aviation Facility	Training Facility	Educational Facility
Firefinder Radar	150 SY	X	X	N/A	N/A	N/A
Refuse Coll Fac	150 SY	X	X	X	X	X
Controlled Waste	150 SY	X	X	X	X	X
Loading Dock	150 SY	X	X	X	X	N/A
Military Veh Loading Ramp	250 SY	X	X	X	X	X
Fuel Storage & Dispensing System	250 SY	X	X	X	X	X
Wash Platform	250 SY	X	X	X	X	N/A
Maintenance & Training Bay Doors	60' deep <u>1/</u>	X	X	X	N/A	N/A
USPFO Warehouse Service Apron	60' deep x loading dock length	N/A	X	N/A	N/A	N/A
Aviation Hangars	100' Deep(120' for CH47) x hanger door width	N/A	N/A	X	N/A	N/A

Notes:

1/ A 60 foot deep, as measured from the maintenance bay doors, concrete apron may be installed to provide a paved access to general, special purpose, and maintenance training work bays. Where work bays are adjacent to each other, the aprons should be contiguous.

i. Access road and entrance throat. The primary entrances and access roads are authorized a width of 32 feet.

More than one entrance may be authorized based on a demonstrated requirement to separate military and civilian vehicle traffic and to satisfy access requirements for fire and emergency vehicles. For programming purposes, the access road shall consist of 5000 square yards of flexible or rigid pavement, unless a greater amount is justified by a detailed site plan. However, the exact amount and type of pavement will be determined at the concept/preliminary design review based on an economical and practical site facility layout and code considerations.

j. Curbs. Rigid concrete, cut stone, or flexible pavement may be used for curbing along the edges of the roads and parking areas to comply with code, to control traffic, or to control storm water per the site's approved storm water management plan.

k. Security Fencing. Security fencing shall be constructed IAW guidance in Army Techniques Publication (ATP) 3-39.32. For planning purposes, a fence consisting of a six foot high chain-link-type metal fabric, with a barbed wire top guard facing upward and outward at a 45 degree angle extending the fence height by at least one foot, shall enclose the military vehicle parking, service and access areas, and ancillary facilities. Fencing shall include vehicle and personnel gates, which may be electronically controlled. The fencing shall be located IAW Army security regulations and Anti-Terrorism/Force Protection (AT/FP) requirements. The area between the edge of pavement and the fence may be seeded with grass, or a well-designed non vegetative cover (not to exceed four inches of rigid pavement) may be substituted. For aviation facilities, the following applies:

(1) Additional fencing may be authorized at stand-alone facilities when approved as an exception by ARNG Aviation and Safety Division (ARNG-AV).

(2) The fence shall be located so as to enclose the aircraft parking area and shall be equipped with gates of sufficient width to permit ingress/egress from the area to existing runways, taxiways, etc., at the airport. Air safety must be considered in the design of both fencing and security lighting.

(3) Where feasible the fence shall connect to the existing airport boundary security fence, if the boundary fence meets NGB requirements.

l. Site AT/FP Measures. A separate fence, wall, passive vehicle barrier, landform, or line of vegetation shall be applied along the exterior perimeter of the site to create a protective standoff and obscure vision, hinder personnel access, and hinder or prevent unauthorized vehicle access. In addition, a guard house/access control facility not to exceed 550 square feet is authorized when determined to be appropriate following completion of an AR 190-51 security risk assessment. Such a facility may be equipped with an environmental control system, electric service, latrine, and voice, video, and data communication links. The requirements of Unified Facilities Criteria (UFC) 4-010-01 must be met.

m. Sidewalks. For programming purposes, sidewalks shall be 15% of the building footprint. However, the exact amount of sidewalk area will be determined at the concept design review based on an economical and practical site layout of the facilities.

n. Flagpoles: ARNG facilities are authorized flagpoles per Table 1-5.

TABLE 1-5. Flagpoles 1/

Facility Type	Allowance
Readiness Center	Two ground-set flagpoles (three for general officer commands) with illumination.
Logistics Facilities	Two ground-set flagpoles with illumination, unless the facility is collocated with a readiness center or another ARNG facility with flagpoles or is on a military installation that already has or will have flagpoles
Aviation Facilities	
Training Center Facilities	
Educational Facilities	The educational complex is authorized two ground-set flagpoles with illumination, but only if the installation on which it is located does not already have one.

Notes:

1/There shall only be 1 American flag per site, if one exists already on site, then the authorized number will be reduced by 1

o. Exterior Fire Protection. Consideration shall be given to the size of the structure, the type of construction, and the exposure to fire hazard that it creates for or receives from nearby buildings. Except in cases of conflict with state requirements, exterior fire protection should be in conformance with National Fire Protection Association requirements. Extension of water mains for fire protection is limited to that needed to ensure that an adequate number of fire hydrants can be located between 50 and 400 feet of any building. No more than 300

linear feet of pipe per water line required by code may be outside the property line.

p. **Detached Facilities Sign/Static Display.** In addition to the authorized building-mounted facilities sign, a free-standing sign is authorized identifying the facility name and type, street name, the State, and Army National Guard/Joint Facility Identity. Lighting to illuminate the sign continuously during hours of darkness may be provided. Provisions may also be made at this facility for a static display, including a concrete slab or mounting pedestal.

q. **Outside Security Lighting.** Security lighting of military vehicle/equipment storage and other outside area lighting should be in keeping with minimum needs for personnel safety and security or as required by physical security regulations. Lighting of fuel islands is authorized. A security lighting system is authorized that permits ample lighting to conduct safe after hour training and is designed to illuminate continuously during the hours of darkness or equipped with sensors which when activated by movement within the designated area will cause the lights to illuminate. After discontinuance of movement within the designated area, the lights should remain lit for a time determined to be appropriate for the specific situation by the security manager. Vandal resistant lenses should be provided where appropriate. Wherever possible, security lighting shall be provided from building-mounted fixtures. Pole-mounted fixtures may be used to supplement the building-mounted fixtures and where building-mounted fixtures are inadequate.

r. **Interior Space Lighting.** Along with day lighting techniques, the use of innovative, energy conserving interior lighting concepts, such as low- voltage; high lumen output fixtures, LED lamps and high bay; fluorescent illumination is encouraged whenever a cost-benefit analysis indicates that it is prudent based upon a comparison of the savings derived when the estimated installation cost plus the cost of maintenance over the expected life-span of the product are compared with like costs for a more conventional lighting technique.

s. **Fuel Storage and Dispensing Systems** are authorized provided that:

(1) The State’s surface vehicle fuel management plan justifies the use of a fuel storage and dispensing system at this location because of a lack of nearby military facilities, an agreement with other state facilities, or local private sources (using credit/debit cards).

(2) The facility is not located within a mile of a surface maintenance facility with fuel storage and dispensing capability,

(3) There are at least 15 vehicles using each type of fuel assigned to the facility,

(4) The storage facilities shall be built to nationally recognized environmental standards and IAW local ordinances,

(5) A roof type cover will be provided, and designed in accordance with UFC 3-110-03 if required by local code or local climatic conditions (e.g., excessive heat or snow), to prevent overheating of fuel and/or to preclude the introduction of storm water runoff into the sump of the containment area. Local climatic condition can be determined by contacting the National Climatic Data Center, or from historical data presented in US Army TM 5-785 - Facility Design and Planning, Engineering Weather Data.

(6) For Readiness Centers, Logistics Facilities, and Educational Facilities, the system capacity shall not exceed the quantities in Table 1-6 below:

TABLE 1-6. Fuel Storage and Dispensing Systems

No. of Vehicles Using Type of Fuel	Capacity Per Type of Fuel
0 – 14	N/A
15 – 39	3,000 Gallons
40 – 69	5,000 Gallons
70 – 100	7,000 Gallons
101 – 250	10,000 Gallons
Over 250	20,000 Gallons

(7) **Aviation Facilities:** Aircraft fuel storage and dispensing system is authorized in accordance with UFC 3-460-01 16 August 2010, with direct fuel truck access to the aircraft parking apron.

(8) **Training Sites:** Fuel storage and dispensing systems are authorized at an amount not to exceed a 15 day supply based on the largest 15 day requirement during the training year.

t. **Wash Platforms** for all facilities are authorized as follows:

(1) Unless otherwise noted below, one concrete wash platform, not to exceed 115 SY, is authorized when

10 or more motor vehicles are authorized to be physically located at the facility and if the facility will not be located within a mile of a surface equipment maintenance facility with vehicle washing capability.

(2) A roof type cover will be provided if required by local code to prevent storm water from draining into the sanitary or storm water sewer system. This structure shall be listed as a separate primary facility line item in block 9 of the DD Form 1391.

(3) An exterior wash platform may be enclosed by a heated shed-type structure and a heated aviation wash-rack may be constructed when the heating design temperature, as designated in UFC 3-400-02, is minus (-) 10 degrees Fahrenheit or lower, or the annual snowfall exceeds 30 inches. This structure shall be listed as a separate primary facility line item in Block 9 of the DD Form 1391.

(4) SEMF:

(i) One wash platform, not to exceed 115 SY, is authorized at each SEMF.

(ii) Additional wash platforms are authorized for each 100 vehicles, or major fraction thereof, in excess of the initial 100 vehicles authorized to receive maintenance at the facility.

(iii) An interior wash bay as authorized in Table 3-4 shall count as one wash platform.

(iv) When it can be justified, a centralized wash facility (birdbath type) may be authorized as an exception to criteria at a UTES or MATES. The use of a closed-loop watercirculation system with replenishment to make-up any water lost through evaporation is preferred as environmentally prudent.

(5) Aviation Facility:

(i) In addition to the vehicle wash platform authorized above, one aircraft wash area (washing apron), category code 11370, is authorized at each aviation facility to be constructed of rigid concrete according to UFC 3-260-1.

(ii) Maximum allowance is 118 feet by 74 feet (140 feet by 110 feet for CH-47s).

(6) Training Facilities:

(i) The number of wash platforms authorized at a training center is in addition to those authorized for a MATES located on the training center but does not include any wash platforms at other DoD component facilities on the training center that are available for ARNG use.

(ii) Size and design of wash facilities shall be IAW TM 5-814-9.

(iii) Other environmental measures required by federal, state and local codes shall be included.

Central birdbath wash facilities must be justified on a case-by-case basis.

(iv) An exterior wash rack may be enclosed by a heated shed-type structure when the heating design temperature, as designated in UFC 3-400-02, is minus (-) 10 degrees Fahrenheit or lower, or the annual snowfall exceeds 30 inches.

u. Utilities: All building utility service connections shall be underground. The length of service for each utility is limited to the distance of the shortest run from the building to the property line adjacent to the public right-of-way providing ingress and egress for the site plus up to an additional 300 linear feet for connection to the existing utility system. The state is responsible for any additional utilities beyond the 300 FT. Direct-burial of cable for telephone, data, and electric service connections is authorized. This includes conduit where the service connection(s) must pass under a paved area.

(1) Construction of an on-site water well, a cistern with a chlorination system, a sanitary waste water treatment system, or tanks for the storage of heating fuels, such as liquid petroleum gas or number two oil, as well as delivery piping is authorized if like public services are not available. Such systems must conform to the requirements of the local approval authority and all applicable federal, state, and local environmental laws and regulations.

(2) The installation of any renewable energy system, either active or passive, to provide supplemental space heating or electric service is authorized when it can be demonstrated that the projected conventional energy cost savings will equal or exceed the installation costs during the projected service life of the alternative energy system. All projects that use alternative energy sources are required to conduct a cost benefits economic analysis in BLCC regardless of cost. Line will show as follows:

(i) Heating Plant, Geothermal: FCC 82187, U/M: EA, Quantity: Number of well farms.

(ii) Heating Plant, Solar: FCC 82182, U/M: EA, Quantity: Number of Solar Arrays

(iii) Wind Turbine: FCC 81146, U/M: EA, Quantity: Number of Wind Farms.

(iv) Electric Power, Photovoltaic: FCC 81122, U/M: EA, Quantity: Number of Solar Arrays

When an alternative energy source is used, each type will be a separate primary facility line item. As of FY16, every project is required to have an analysis conducted on whether renewable energy sources are cost beneficial or not. Life cycle cost effectiveness as defined in 10 CFR 433.2, applies to this entire document unless otherwise stated. All Life Cycle Cost Analyses (LCCA) performed must be prepared in accordance with 10 CFR Part 436, Subpart A and NIST Handbook 135 "Life-Cycle Costing Manual for the Federal Energy Management Program". LCCA must be prepared

using the Building Life Cycle Costing (BLCC) program, available from the National Institute of Standards and Technology (<http://www.nist.gov/el/buildeconomic.cfm>). A link to BLCC may also be found at the Department of Energy’s building energy tools web site, http://www1.eere.energy.gov/femp/information/download_blcc.html. When needed, use weather data obtained from UFC 3-400-02.

(3) Energy Policy Act 2005 (EPAct 2005): Section 103 of EPAct 2005 requires that “all Federal buildings shall, for the purposes of efficient use of energy and reduction in the cost of electricity used in such buildings be metered to the maximum extent practicable.” Therefore, the installation and use of individual meters or advanced metering devices and smart metering that provide data at least daily and that measure at least hourly consumption of electricity should be examined or evaluated.

v. Storm Water Drainage: The State may program up to three percent of the basic building cost for retention ponds as part of a storm water pollution prevention program. The storm water pollution prevention program and retention ponds must be implemented and constructed in accordance with federal, state, and local regulations. These ponds may include bio-retention capabilities if required by local codes and/or best management practices.

w. Facility Support Space. All facilities are authorized support space allowances as shown in Table 1-7:

Table 1-7: Facility Support Space Allowances

Facility Maintenance and Storage Space(s)	3% of the Total Net Area
Mechanical/Electrical Room (s)	5% of the Total Net Area <u>1/</u> <u>2/</u> <u>3/</u>
Telecommunications/Information Technology	1% of the Total Net Area <u>1/</u>

Notes:

1/ Mechanical/Electrical and Telecommunications/Information Technology rooms may be increased or decreased based on actual design requirements or to provide sufficient space for required secure information technology systems.

2/ Mechanical space includes pipe and duct shafts and perimeter heating units. Additional mechanical equipment space is authorized for multiple story facilities to accommodate vertical duct requirements. This space is understood to include space for computerized controls and equipment for all facility related systems. The percentage indicated is intended as a planning guide. Final determination will be approved during the design review process.

3/ Exclusive of facility maintenance and storage space allocation

x. Inter-functional Circulation Space. Facilities are authorized space for inter-functional circulation as shown in Table 1-8:

Table 1-8 Inter-functional Circulation

Facility Type	Allowance
Readiness Center	15 % (22 % for multiple-story facilities) of the total net floor area (excluding unheated unit storage, unless it is incorporated within the readiness center) <u>1/</u>
Logistics Facility USPFO Admin Offices USPFO Warehouse Office/Shop Areas in SEMF Unheated Vehicle Storage BII Warehouse Firefinder Radar Facility Controlled Humidity Preservation (CHP)	15% (22% for multiple-story facilities) <u>1/</u> None (already included in base allocation) 15% (22% for multiple-story facilities) <u>1/</u> <u>2/</u> None None Based on A-E design and ARNG-ILI/ILS Approval. None
Aviation Facility	15% (22% for multiple-story facilities) of the total net floor area (excluding unheated unit storage, unless it is incorporated within aviation facility) <u>1/</u> <u>3/</u>
Training Center Facility	15% (22% for multiple-story facilities) of the total net floor area (excluding unheated unit storage, unless it is incorporated within heated buildings) <u>1/</u> <u>4/</u>
Educational Facility	22% (29% for multiple-story facilities) of the total net floor area (excluding unheated unit storage, unless it is incorporated within heated buildings) <u>1/</u> <u>4/</u> <u>5/</u>

Notes:

1/ This allowance includes corridors, staircases, entrances, and a lobby. This percentage is a planning figure, and final determination will be approved during the design review process based upon what is required for a well planned functional layout.

2/ This allowance does not include egress for maintenance bay areas (see paragraph 3-3.d. (5)).

3/ Inter-functional circulation for unheated aircraft storage hangars does not fall under this authorization. The total floor area may be increased by 15% for unheated aircraft storage hangars to provide for egress, interior aisles, hangar doors, walls and interior partition walls

(if required). The 15% figure is intended as a planning guide. Final determination will be made during the design review process.

4/ Circulation is 22% (27% for multiple story buildings) for billeting facilities.

5/ Circulation is 29% (36% for multiple story buildings) for billeting facilities.

y. Walls. Facility allowances for wall space are as shown in Table 1-9:

Table 1-9 Walls

Walls	10 percent of total net floor area, including circulation <u>1/</u> <u>2/</u> <u>3/</u>
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Notes:

1/ The total floor area may be increased by 10 percent to provide for interior and exterior walls and partitions. The 10 percent figure is intended as a planning guide. Final determination will be approved during the design review process.

2/ For Aviation Facilities, the total floor area may be increased by 10 percent (15 percent for stand-alone fixed wing facilities) to provide for interior and exterior walls and partitions. The 10 percent (15 percent for stand-alone fixed wing facilities) is intended as a planning guide. Final determination will be made during the design review process.

3/ For Aviation Facilities, the total floor area may be increased by 15 percent for unheated aircraft storage hangars to provide for egress, interior aisles, hangar doors, walls and interior partition walls (if required). The 15 percent figure is intended as a planning guide. Final determination will be made during the design review process.

z. Controlled Waste Handling Facility (CWHF).

(1) A prefabricated metal or concrete masonry building with a concrete floor or building of equivalent or less cost of a size shown in Table 1-10 below is authorized for all facilities. The basic allowance is the gross area

including intracirculation. Intercirculation space has to be justified as an exception to criteria.

(2) The building shall be designed to allow wastes to be conveniently stored inside each cell in drums, metal boxes, on pallets, and easily loaded/unloaded using a forklift or manual means. Partitioning of individual storage cells shall be designed to provide secondary spill containment within each cell.

(3) 150 square yards of rigid concrete access paving may be provided for access. All Facilities are authorized space for a CWHF as shown in Table 1-10:

Table 1-10 Controlled Waste Handling Facilities

Facility	Barrels stored	Basic Allowance <u>1/</u>
Readiness Centers <u>1/</u>	1-40	300
USPFO <u>2/</u>		
SEMF <u>2/</u>		
Aviation Facilities <u>3/</u>	41 & Over	500
Training Center		
Facilities		
Educational Facilities		

Notes:

1/ At its option the State may include this authorized space within the readiness center or another adjacent facility.

2/ At its option the State may include this authorized space within the logistics facility or another adjacent facility. It is additive to any allowances authorized for Surface Equipment Maintenance Facilities (SEMF).

3/ At its option the State may include this authorized space within the aviation facility or another adjacent facility.

Chapter 2

Readiness Centers

2-1. General

Readiness Centers are facilities constructed to support individual and collective training, administrative, automation and communications, and logistical requirements for the ARNG. Functional areas included in this building are assembly space, classrooms, distance learning centers, locker rooms, physical fitness area, kitchen, weapons and protective masks storage, other storage, enclosed areas to support training with simulation, operator-level maintenance shop for assigned equipment, and use of NBC equipment.

2-2. Standards

This chapter establishes the space allowances for National Guard Readiness Centers (CATCD 17180), National Guard/Reserve Centers (CATCD 17142) which includes Joint Force Headquarters (JFHQ), sole use ARNG space in Armed Forces Reserve Centers (AFRC) (CATCD 17141), and Civil Support Team (CST) Ready Buildings (CATCD 14132). Below are the descriptions of the facilities reference above:

- (1) A National Guard Readiness Center is a readiness center facility constructed for sole-use of ARNG.
- (2) A National Guard/Reserve Center is a readiness center constructed as a joint-use facility with another reserve component element (including the Air National Guard) where the ARNG is the lead agency (Host). A National Guard/Reserve Center must provide space for at least 20 members from each of one or more reserve component units in addition to the ARNG.
- (3) A JFHQ is specific type of National Guard/Reserve Center constructed as a joint-use facility for ARNG and ANG federal elements of the Joint Force Headquarters-State and associated State elements as allowed by State statute. There is only one JFHQ per State/Territory/District of Columbia (54 total).
- (4) An AFRC is a reserve center constructed as a joint-use facility with the US Army Reserve where the USAR is the lead agency (Host) and where the ARNG is a tenant of the facility.
- (5) A Ready Building is a building used by a CST Team. The building provides billeting and/or operational areas for civil support teams, missile site crews, units on standby for rapid deployment, or security forces not permanently stationed at the site

2-3. Standard Space Allowances

- (1) Refer to Table 2-1 for standard space allowances.
- (2) Refer to Table 2-2 for unit specific space allowances.
- (3) Refer to Table 2-4 for Civil Support Team facility allowances.
- (4) Refer to Table 1-5 for allowances for Flagpoles.
- (5) Refer to Table 1-7 for Facility Support Space allowances.
- (6) Refer to Table 1-8 for Circulation allowances.
- (7) Refer to Table 1-9 for Walls allowance.
- (8) Refer to Table 1-10 for Space allowances for Controlled Waste Handling Facilities (CWHF)
- (9) All other space requirements not specifically indicated in the referenced tables will be treated as exceptions to criteria. The State must fully justify such requests and the NGB proponent must concur with them before ARNG-ILI will approve including them in the programming documents and the final design of the project.

2-4. Non-Standard Supporting Items

In planning the functional arrangement of facilities, the State shall give appropriate consideration to the existing site conditions, layout, and materials of construction in order to achieve maximum operating efficiency, cost effectiveness, and flexibility. The following exterior Non-Standard Supporting Items are authorized for Federal reimbursement in readiness center projects:

(1) Parking pad for Mobile Conduct of Fire Trainer (MCOFT) and similar simulators

Federal support is authorized for construction of a 60 x 60 square feet rigid concrete parking pad, with electrical power and telephone service, at each Army Training Division (ARNG-TR) approved MCOFT or similar simulation device site. A roof-type cover may be provided if required by local climatic conditions (e.g., excessive heat, snow, rain).

(2) Helipad.

Federal support is authorized for construction of a helipad at the Joint Force Headquarters (JFHQ) or at a readiness center that has a Colonel or higher level command. Constructed of reinforced concrete, the limited use pad shall be 100 x 100 square feet with 25 foot wide shoulders of flexible pavement. Lighting and markings shall conform to the requirements of TM 5-811-5.

2-5. Unheated Enclosed or Shed-Type Vehicle Storage Space

Refer to section 1-9b.

2-6. Civil Support Team Facilities

These facilities are classified as ready buildings and the space allowances are authorized as shown in Table 2-4. Critical to these teams are the operations center/crew room and vehicle storage/ready bays for the loading and pre-staging of sensitive equipment on the unit’s primary vehicles.

2-7. Sensitive Compartmented Information Facilities (SCIFs)

SCIFs are only authorized by an Exception to Criteria (ETC). The State must request authorization for a SCIF from the ARNG-G2. The ARNG-G2 will determine if the State has a valid requirement for a SCIF and, if so, will define the authorized space according to the mission. The State will then provide the ARNG-G2 approval documents to ARNG-ILI-R as supporting documentation with the request for ETC. Contact ARNG-ILI-C for specific construction issues and sample SCIF design layouts. Refer to UFC 4-010-05, Sensitive Compartmented Information Facilities Planning, Design, and Construction for more information.

Table 2-1. Schedule I, Readiness Center Space Allowances

Allowances Based on Readiness Center Capacity (Allowance in net square feet, exclusive of interior and exterior walls)							
(Required Strength) <u>1/</u>							
Functional Areas <u>2/</u>	55-99	100-175	176-350	351-650	651-950	951-1,200	
1 Assembly Hall	5,400	5,400	5,400	6,300	6,300	6,300	
2 Classrooms <u>3/</u>	800	1,000	1,500	2,400	2,700	3,000	
3 Learning Center <u>4/</u>	500	500	500	700	700	700	
4 Multipurpose Training Area <u>5/</u>	1,500	1,500	1,500	1,500	1,500	1,500	
5 Kitchen <u>6/</u>	1,500	1,500	2,200	2,200	2,200	2,200	
6 Break/ Vending	<u>7/</u>						
7 Toilets/Shower <u>8/</u>	1,220	1,300	1,400	1,620	1,860	2,060	
8 Flam Mats. Storage	100	100	200	200	350	400	
9 Lactation Area/Room	80	80	80	80	120	160	
10 Family Readiness Office	250	250	250	400	400	400	
11 RAPIDS Office <u>9/</u>	150	150	150	150	150	150	
12 Retention Office <u>10/</u>	110	110	110	110	110	110	
13 Table/Chair Storage	300	300	300	550	550	550	
14 Physical Fitness <u>11/</u>	600	700	800	1,000	1,225	1,600	
15 Controlled Waste Handling Facility (CWHF)	<u>12/</u>						

Notes:

1/ The required strength of a Readiness Center is the sum of the authorized strengths of all assigned units. Units with required strength(s) of fewer than 55 are not authorized a separate facility and must be programmed as part of a multiple-unit readiness center, unless approved as an exception to criteria. Multiple-unit readiness centers do not require a single unit with a required strength of 55, rather a combined total required strength of 55. Exclusive use

space for such units will be according to Table 2-2.

2/ All functional areas listed in Table 2-1 are for the common use of all the units assigned to the Readiness Center.

3/ Classroom space is authorized using the formula 10 square feet per person based on the combined required strengths of the assigned unit(s) (including units with a strength less than 55) that are required to train simultaneously, plus the basic space from the table. An auditorium with inclined floor and installed seats is authorized for battalion or higher level headquarters. Auditorium space is subtracted from the authorized classroom space. All audio/visual equipment will be stored in this area

4/ The Learning Center is a combined space consisting of the library, learning center, and Distance Learning Center (DLC). If a DLC is validated and approved by the ARNG-TR-, it will be installed within this space. No additional space will be authorized for the DLC. Learning Center space is in addition to any classroom space otherwise authorized.

5/ Space authorization will accommodate marksmanship trainers, combative rooms, and any other special trainers required by unit(s). This space will also accommodate all training aid storage requirements for the facility.

6/ Units that do not have a cook section will be allowed to build an 800 SF serving/catering kitchen. A 150 SY concrete pad located in the vicinity of the kitchen is authorized for a Mobile Kitchen Trailer (MKT). NGB DG 415-1, Appendix B lists approved layout drawings and equipment.

7/ Break and Vending areas are now combined spaces with a minimum allowance of 300 square feet for up to 8 full-time support personnel and 400 SF for support personnel of 9 and above. Break and vending areas can be disbursed through the facility.

8/ In addition to the basic toilet area, shower space is also authorized. Shower area shall be determined using the largest number of soldiers required to train simultaneously at the readiness center. This number shall be divided by 15 and the result multiplied by 40 square feet. This figure should then be added to the basic allowance in Table 2-1. The toilet/shower allowance is to be split into appropriate facilities to support both males and females. The split should account for both minimum code requirements and anticipated building usage. The basic allowance may be increased by ten percent (10%), if the facility has two or more floors, in order to allow a toilet area to be installed on each floor.

9/ Space authorized only if Real-Time Automated Personnel Identification System (RAPIDS) office assigned to the readiness center. Only one RAPIDS office is authorized per campus/training site.

10/ Retention office SF is based on a AR 405-70 category P5 at 110 SQFT is authorized at one per facility, plus an additional 110 SQFT office per unit over 55.

11/ Physical Fitness area is not authorized if a campus/training site physical fitness facility exists and a Memorandum of Agreement (MOA) between the installation commanders and unit exist.

12/ See Table 1-9 - CWHF.

Table 2-2. Schedule II, Unit and Special Space Allowances 1/

(Allowance in net square feet, exclusive of interior and exterior walls)

1. Administrative Office Space: 2/

Functional Area	Allowance
a. Basic Allowance	
(1) Unit with strength of 75 and less	400
(2) Unit with strength over 75	800
b. Office Allowance 3/	
c. Special Administrative Allowances: 4/	
(1) Division Headquarters	5,850
(2) Brigade Headquarters	3,300
(3) Echelons above Brigade Units	2,850
(4) Special Operation Groups	1,950
(6) Battalion Headquarters and Headquarters Company (HHC or HHD)	1,500
(7) State Headquarters (Army National Guard)	5/
Under 4,000 Strength	2,970
4,000 to 7,500 Strength	3,570
7,500 to 10,000 Strength	4,020

10,000 to 15,000 Strength	4,470
15,000 to 20,000 Strength	4,920
Over 20,000 Strength	5,670
(8) Troop Command	
54 or Less Strength	1,950
55 to 99	2,850
100 and Over	3,300
(9) Army Advisor's office for advisors (officers and enlisted) authorized to specific units)	130 each
(10) Personnel Services Companies/Sections	<u>6/</u>
(11) State Headquarters military record archives	<u>7/</u>
(12) Training Support Brigade (TSB) personnel authorized to specific units	130 each

2. Unit Storage Space (minus Arms Vault) 8.1.a/

Functional Area	Allowance
a. Arms Vaults	<u>8.1.b/</u>
b. Battalion Headquarters with Organic Subunits (Per Table of Organization and equipment (TOE) <u>9/</u>)	1,000
c. Supply and Transportation Battalion (Division) <u>9/</u>	1,000
d. Support Battalion (Separate Brigade) <u>9/</u>	1,000

3. Locker Room Space 10/

Functional Area	Allowance
a. Basic Space (one per readiness center)	200
b. Space per each individual authorized in the readiness center	18

4. Special Functions:

Functional Area	Allowance
a. JFHQ Joint Operations Center (JOC)	1,200
b. JFHQ Secure Video Conference Center	500
c. Ready Bay for JFHQ Secure Communications Vehicle	1,500
d. Public Affairs Detachment (Specialized functions are allowed space for workroom, recording studio, edit studio, broadcasting studio, finishing room, print room, negative room (dark room), etc.)	1,020
e. JFHQ Photographic Studio <u>11/</u>	500
f. JFHQ Media Room <u>12/</u>	820
g. Medical Section within a Headquarters unit	400
h. Physical Exam/Flight Surgeon Space for 10-160 Exams per Year <u>13/</u>	500
i. Communications Security (COMSEC) Material	<u>14/</u>
j. Information Technology (IT) Support Activities	<u>14/</u>
k. General Purpose Training Bay (GPTB)	<u>15/</u>
l. Air/Army National Guard Weather Flight <u>16/</u>	1,500
m. Band	<u>17/</u>
(1) Main Rehearsal Studio <u>18/</u>	1,700
(2) Large Group Rehearsal Studio <u>19/</u>	700
(3) Small Rehearsal Studio <u>20/</u>	350

(4) Music Library	500
(5) Individual Instrument Storage <u>21/</u>	520
(6) Recording Studio <u>22/</u>	250
(7) Bulky Instrument Storage/Instrument Cleaning and Repair <u>23/</u>	1,200
(8) Individual Practice Rooms <u>24/</u> , <u>25/</u>	870

Notes:

1/ The appropriate space for each unit is to be selected from below and subtotaled by unit per each function. Space for headquarters, special units, or other elements having special requirements not specifically established in this schedule may be submitted to ARNG-ILI for approval as an exception to criteria if supported by a clearly stated justification that is backed up by actual data (if appropriate). The word unit, when not further modified, is intended to represent MTOE units, Table of Distribution and Allowances (TDA) units, split units, and detachments.

2/ The State uses the sum of total of all administrative space authorized for the units and lays out the work areas according to accepted guidelines.

3/ Refer to Army Regulation (AR) 405-70, Table D-1 and D-2 for private and open office space allowances.

4/ Special administrative allowances include a secure planning/briefing room, conference/meeting rooms, operations center, files/supplies storage, etc.

5/ The allowance shown in the table for JFHQ space already includes the following: 100 square feet for COMSEC supplies/equipment; 120 square feet for a terminal room for the Worldwide Military Command and Control System (WWMCCS); and 200 square feet for the terminal room for on-line secure interactive system support.

6/ For a records storage area, you are authorized in square feet the total required strength for all assigned units divided by 20.

7/ For military records archives storage area, you are authorized in square feet the total required strength for all assigned units in the state divided by 4.

8/ Unit storage space shall be computed based on authorized strength of, and cubage of the equipment (excluding vehicles/equipment provided space under military equipment parking, other items normally stored outside and provided space elsewhere, and individual clothing and equipment) authorized to the unit(s) assigned to the facility.

a. Each unit or detachment with a required strength of 55 or more is authorized:

(1a) Heated storage space. A net area of 2,700 square feet within the readiness center facility is authorized for an equipment cubage of 0 to 4,000 cubic feet.

(1b) Arms Vaults. One vault (600 square feet) for every unit greater than 12.

(2) Unheated storage space. If total equipment cubage exceeds 4,000 cubic feet, a detached building or an equivalent area incorporated within the readiness center facility is authorized based on one of the following applicable categories:

Total Cubage In Cubic Feet	Net Square Feet (NSF) Authorized
4,001 to 8,000 NSF	= 0.6 x (Total Cubage minus 4,000)
Exceeds 8,000 NSF	= 2,400 + [0.2 x (Total Cubage minus 8,000)]

b. Each unit or detachment with a required strength of less than 55 but greater than 10 is authorized:

(1) Heated storage space. A net area (minimum of 1,300 square feet) within the readiness center facility for an equipment cubage of 0 to 4,000 cubic feet as determined by the formula listed below.

$$\text{Heated Storage} = 0.6 \times \text{Total Cubage}$$

(2) Unheated storage space. If total cubage exceeds 4,000 cubic feet, use the appropriate applicable category referenced above in Note 8a (2).

9/ This 1,000 square feet authorized for the battalion supply area is intended for a temporary storage area of supplies in transit to and from organic subunits. Shelving for this area is authorized. Vaults or improved office space are not authorized. However, a wire cage partition may be erected to give security to more sensitive supplies. For the Supply and Transport Battalion (Divisional) and the Support Battalion (Separate Brigade) this 1,000 square feet is only authorized for units that have a fulltime functioning supply support activity (SSA) and is intended for a temporary storage area of supplies in transit to and from organic units within the Division or Separate Brigade.

10/ Space may be divided, provided that the total of the separate space allocated to men and women is within

the total space authorized. Also, a part or the total area may be used as unit storage space.

11/ A photographic studio (20' x 25' with an approximate 10 foot ceiling height) is authorized in JFHQ readiness centers that do not have a collocated Public Affairs Detachment with a video mission.

12/ In addition to the basic allowance, an additional 60 square feet is authorized for each statewide media outlet in excess of 12. In addition, the JFHQ assembly hall is authorized additional electrical, phone, and data outlets, air conditioning, and special acoustical treatment to make it conducive for use as a media room in case a briefing exceeds the size of the regular media room.

13/ Not more than one examination facility shall be authorized in a single readiness center.

14/ This item refers to communications security and other information technology items (e.g., computer hardware) unique to specific units. IT space allowance to be determined in coordination with State J-6 and the Army National Guard Information Technology Plans, Policy, and Resource Division, Governance and Policy Branch (ARNG-IMG-G) prior to the submission of programming documents. Joint Force Headquarters are authorized 175 square feet for a vault to store cryptographic, encryption, tape backups, and other secure J-6 materials. Joint Force Headquarters also require sufficient space to run the communications hub for the State, a help desk for the State, and to do IT repair. For planning purposes this will probably be at least 7,000 square feet, but the exact amount must be coordinated between the State J-6 and ARNG-IMG-G prior to the completion of the DD Forms 1390/1391 during the charrette process.

15/ Readiness Centers: For Readiness Centers that are not in a Complex or are located more than a mile radius to a Surface Equipment Maintenance Facility (SEMF), such as Field Maintenance Facility (FMS), the RC projects are authorized one General Purpose Training Bay (GPTB). The GPTB is configured the same as a SEMF General Purpose Work Bay (GPWB) plus egress aisles. Paragraph 3-3.d. describes a GPWB. Paragraph 3-3.d. (5) describes egress aisles.

For Readiness Centers located within a Complex or within a distance less than 1 mile radius to a SEMF, the adjoining SEMF will be modified to add an (attached or unattached) GPTB.

The GPTB designated for a Readiness Centers that supporting units with a MTOE maintenance section or personnel is authorized the following if validated and approved by ARNG-ILI:

- Compressed air delivery system
- Vehicle exhausts evacuation system
- Electrical and IT Ports
- A trench/floor drain connected to an oil-water separator
- Waste oil/hazardous materials storage as required but not to exceed 100 sf.
- Required safety and/or hygiene equipment (i.e. emergency eyewash stations, hand wash facility, etc.)
- A 15-ton traveling bridge crane may be authorized based on unit mission.
- In addition, each unit with a MTOE maintenance section or maintenance personnel of 4 or greater stationed at the Readiness Center in ASIP are authorized:
 - Supervisor's office: 100 square feet.
 - Inspections and library: 110 square feet.
 - Tool room: 300 square feet.
 - Supply room: 300 square feet.
- Any other areas required by the unit's mission must be justified as exceptions to criteria.

16/ Add 200 square feet for: a Representative Weather Observation Station (RWOS). See UFC 3-260-01.

17/ All spaces are required in the dimensions shown. If any spaces are omitted, corresponding adjustments to other spaces will be required to accommodate personnel and equipment required for mission capability.

18/ Average ceiling height of 20 feet to 30 feet is recommended, with 18 feet as a minimum. Minimum wall length is 30 feet.

19/ Average ceiling height of 18 feet recommended, with 15 feet as a minimum. Room should not be square.

20/ Minimum wall length is 15 feet, to allow for work space and storage.

21/ Requires 65 feet of linear storage for: instrument lockers. If this space is omitted, main rehearsal studio must be increased in size by 520 net square feet.

22/ Minimum width is 10 feet. The recording studio must have visual contact by means of soundproof glass or video camera with the main rehearsal studio. Visual contact with the large group rehearsal studio is highly desired.

23/ This area may be combined with individual instrument storage.

24/ In combination of large (80-125 net square feet) and small (55-65 net square feet) individual soundproofed rooms.

25/ Commercially available soundproofed prefabricated modules may be used, particularly in cases of renovation/renewals.

**Table 2-3. Schedule II, Physical Exam/Flight Surgeon Space Allowances
(Allowance in net square feet, exclusive of interior and exterior walls) Functional Area 1/**

Functional Area	161-320	321-640	641-1280
1. Reception, Waiting and Form writing	210	280	350
2. Doctor's Office <u>2/</u>	80	80	160
3. Exam Room <u>3/</u>	220	330	550
4. History Station	70	70	105
5. Height & Weight	70	70	70
6. Blood Pressure and Pulse Station	70	70	70
7. Electronic Consult System	4/	110	110
8. Lab	70	70	70
9. Blood Specimen Collection	70	70	70
10. Specimen Toilet	36	36	60
11. Vision Test <u>5/</u>	70	70	70
12. Hearing Test	90	150	210
13. Dental Check <u>6/</u>	100	100	200

Notes:

1/ These functional areas are based on exams per year. These facilities shall not be authorized unless establishment of examination facilities has been approved by the Office of Chief Surgeon (ARNG-CSG). (See UFC 4-510-01) Not more than one examination facility shall be authorized in a single readiness center. Sizes are based on operation of the facility at least 15 days per year.

2/ 80 square feet for each doctor.

3/ 110 square foot room minimum. One room may be used for consulting, review of completed physical examination paperwork, weight control counseling or similar purposes.

4/ Electronic Consult System (ECS) and Tonometry Station will be in the Exam Room when under 320 exams per year

5/ An additional 140 square feet is authorized to accommodate eye examinations if the facility is authorized to conduct flight physical examinations. The circulation space should then be increased by 20 square feet because of the additional 140 square feet for the eye examinations.

6/ 100 square feet minimum per area.

**Table 2-4. Civil Support Team Facility Allowances
(Allowance in net square feet, exclusive of interior and exterior walls)**

Functional Area	Allowances
1. Classrooms/Library <u>2/ 3/</u>	1,050
2. Training Aid Storage <u>2/</u>	80
3. Break Room (Area) <u>2/ 3/</u>	662
4. Vending Area <u>2/ 3/</u>	75
5. Toilets/Shower <u>1/</u>	600
6. Flammable Materials Storage <u>2/</u>	100
7. Table/Chair Storage <u>2/</u>	80
8. Physical Fitness <u>2/ 3/ 4/</u>	600
9. Ready Bays	6,200
10. Ops Center <u>2/</u>	680
11. Admin Space General <u>2/</u>	<u>5/</u>
12. Admin Space Special <u>2/</u>	650
13. COMSEC <u>2/</u>	420
14. Storage <u>2/</u>	2,400
15. Lockers <u>2/</u>	992
16. Laundry <u>2/</u>	120
17. Medical Support/Storage <u>2/</u>	200
18. Equipment Maintenance <u>2/</u>	1,000
19. DECON Room <u>2/</u>	100

Notes:

1/The toilet/shower allowance is to be split into appropriate facilities to support both males and females. The split should account for both minimum code requirements and anticipated building usage. The basic allowance may be increased by 10%, if the facility has two or more floors, in order to allow a toilet area to be installed on each floor.

2/All equipment, furniture and pre-wired workstations must be obtained with other than Federal construction funds.

3/ If CST is collocated with a Readiness Center, the Classroom, Library, Break Room, Vending Area, and Physical Fitness will not be included as part of the CST portion of the building, but rather will be located in the readiness center.

4/ Physical Fitness area is not authorized if a campus/training site physical fitness facility exists and a Memorandum of Agreement (MOA) between the installation commanders and unit exist.

5/ Refer to Army Regulation (AR) 405-70, Table D-1 and D-2 for Private and Open office space allowances. All 22 members of the CST DO NOT each get 130 SF office space.

APPENDIX H





APPENDIX H CULTURAL RESOURCES

As part of its due diligence process, and in accordance with Governor's Executive Order 05-05, the WMD intends to perform an archaeological survey of the site prior design work.



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APPENDIX I





APPENDIX I GREENHOUSE GAS EMISSIONS

The design and construction of the Tumwater Readiness Center will support the WMD's responsibilities toward implementation of RCW 70.235.020, which states:

RCW 70.035.020 - Greenhouse gas emissions reductions - Reporting Requirements.

- (1) (a) *The state shall limit emissions of greenhouse gases to achieve the following emission reductions for Washington state:*
 - (i) *By 2020, reduce overall emissions of greenhouse gases in the state to 1990 levels;*
 - (ii) *By 2035, reduce overall emissions of greenhouse gases in the state to twenty-five percent below 1990 levels;*
 - (iii) *By 2050, the state will do its part to reach global climate stabilization levels by reducing overall emissions to fifty percent below 1990 levels, or seventy percent below the state's expected emissions that year.*
 - (b) *By December 1, 2008, the department shall submit a greenhouse gas reduction plan for review and approval to the legislature, describing those actions necessary to achieve the emission reductions in (a) of this subsection by using existing statutory authority and any additional authority granted by the legislature. Actions taken using existing statutory authority may proceed prior to approval of the greenhouse gas reduction plan.*
 - (c) *Except where explicitly stated otherwise, nothing in chapter 14, Laws of 2008 limits any state agency authorities as they existed prior to June 12, 2008.*
 - (d) *Consistent with this directive, the department shall take the following actions:*
 - (i) *Develop and implement a system for monitoring and reporting emissions of greenhouse gases as required under RCW 70.94.151; and*
 - (ii) *Track progress toward meeting the emission reductions established in this subsection, including the results from policies currently in effect that have been previously adopted by the state and policies adopted in the future, and report on that progress.*
- (2) *By December 31st of each even-numbered year beginning in 2010, the department and the *department of community, trade, and economic development shall report to the governor and the appropriate committees of the senate and house of representatives the total emissions of greenhouse gases for the preceding two years, and totals in each major source sector. The department shall ensure the reporting rules adopted under RCW 70.94.151 allow it to develop a comprehensive inventory of emissions of greenhouse gases from all significant sectors of the Washington economy.*
 - (3) *Except for purposes of reporting, emissions of carbon dioxide from industrial combustion of biomass in the form of fuel wood, wood waste, wood by-products, and wood residuals shall not be considered a greenhouse gas as long as the region's silvicultural sequestration capacity is maintained or increased.*

[2008 c 14 § 3.]

Notes:

***Reviser's note:** The "department of community, trade, and economic development" was renamed the "department of commerce" by 2009 c 565



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APPENDIX J



PROJECT MEMO



TO: Thomas Skjervold
Washington Military Department

DATE: March 3, 2015

FROM: Lisa Klein, AICPMatt Weber, PE
Tacoma - (253) 383-2422

PROJECT NO.: 2140515.10/.30

PROJECT NAME: Thurston County Readiness Center

SUBJECT: Rapid Site Assessment, 83rd Avenue & Kimmie Street Site

AHBL has evaluated property located at 83rd Avenue SW & Kimmie Street SW in Tumwater, Washington for its potential for a future Thurston County Readiness Center. This Rapid Site Assessment was focused on identifying any potential fatal flaws with the property prior to its purchase. The following is a summary of the physical and regulatory features and requirements affecting site design and site development. The evaluation included research, a site visit, correspondence, and a meeting with City of Tumwater staff. Historical plans and documents made available to us for this study include the following:

- Figure 1 Depth to Groundwater, prepared by Pacific Groundwater Group in 1999
- Linear Regression Analysis, prepared by Robinson Noble, dated May 16, 2008
- Well Logs for Regression Analysis, dated January 2008
- Wetland Determination prepared by Skillings Connolly, dated April 2008
- Wetland Reconnaissance prepared by Skillings Connolly, dated April 2007

Note that a review of the title report and underlying documents was not requested. AHBL subcontracted to obtain additional environmental information about the property's development potential, including the following:

- Wetlands and pocket gopher habitat evaluation by Theresa Dusek Consulting, dated October 22, 2014
- Preliminary Geotechnical Analysis prepared by South Sound Geotechnical Consulting, dated January 16, 2015
- Transportation Feasibility Study prepared by The Transpo Group, Inc., dated February 25, 2015

Executive Summary

The proposed use is allowed outright in the property's zoning. The property is adjacent to residential uses, and there is an organized and active neighborhood group. Primary access will likely occur from Kimmie Street SW in the vicinity of 85th Avenue SW. The City will allow the access to be designed to private road standards and will accept a higher level standard, if preferred. The development is expected to be located in the central portion of the site, and will likely use approximately 10 out of the available 53 acres. The remainder of the property can be used for stormwater infiltration, tree retention, and future maintenance facility, if desired.

The primary issues associated with site development are twofold: high groundwater and offsite roadway improvements. AHBL evaluated how stormwater would be managed, given the high groundwater, and determined that it was feasible through stormwater dispersion. Under Tumwater's code for dispersion, 65 percent of the site must remain as native vegetation, which would correlate to a maximum developable area of 18.5 acres. Note that with final design, and if different stormwater techniques are determined to be feasible, the developable area may be able to be increased.

The Transpo Group completed an analysis of the potential offsite impacts and required roadway improvements and/or mitigation. Their analysis concluded that offsite roadway improvements should be limited to the payment of impact fees estimated to be \$217,366. It is also their opinion that a left-turn lane at the property access point should not be required.



Property

The subject property is located at 83rd Avenue SW and Kimmie Street SW in Tumwater, Thurston County. The site comprises the following tax parcel numbers: 5185000400, 51850001200, 09230006000, 09230019000, 0952004000, and 09520003000. The property is approximately 53 acres in size and is bordered by Interstate 5 on the west, Kimmie Street SW and a number of residential properties on the east, undeveloped land to the south, and Frontage Road to the north.



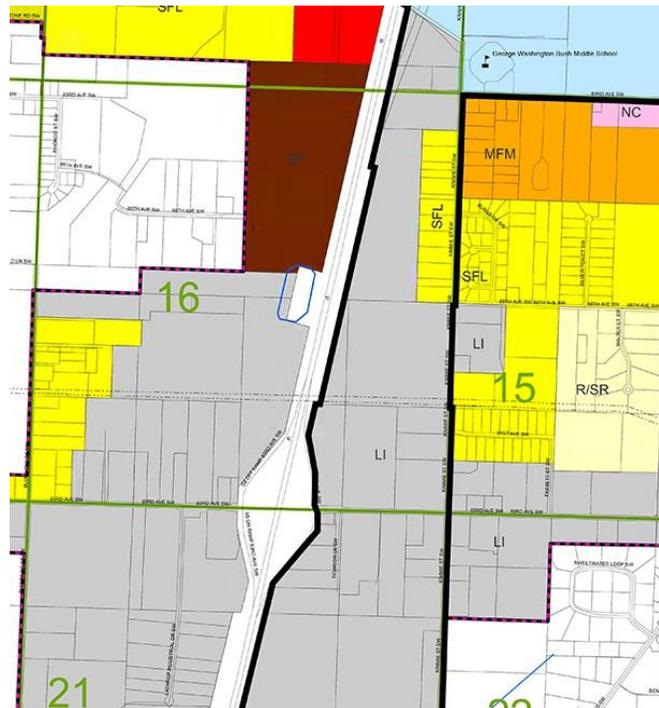
Land Use and Zoning

The City's Comprehensive Plan land use designation for the property is Light Industrial, with the exception of two parcels adjacent to Kimmie Street SW that are designated Single Family Low Density. The designations are consistent with the property zoning described below.



Zoning

As shown on the zoning map below, the property is zoned Light Industrial (LI), with the exception of about 2.7 acres that extend to Kimmie Street SW, which is zoned Single Family Low Density (SFL).



Light Industrial Zone Uses and Requirements

LI zoning is intended to establish and preserve areas for industrial and other uses of such a nature that they do not create serious problems of compatibility with other kinds of land uses. Although a Readiness Center is not a type of use listed in the LI zone, in our meeting with City staff, they stated the use is permitted outright. It is their interpretation that the use is a compilation of several allowed uses, such as warehousing, storage, office, etc., all of which are allowed. The following summarizes the bulk dimension and zoning requirements of the LI Zone.

Light Industrial (LI) Zone	
Regulation	Bulk & Dimensional Requirements
Minimum lot area	No minimum
Minimum lot width	
Minimum lot depth	
Front yard setback	20 feet on all street frontages
Minimum interior yard setback	10 feet
Rear yard setback	10 feet
Setback adjacent to residential zone	20 feet*
Required landscaped setback along any common boundary with residential-zoned property	20 feet
Maximum lot coverage (buildings)	No maximum
Maximum building height	50 feet*

**Where structures are constructed over 25 feet, the setback of the structure from the adjacent property lines shall be increased by 1 foot for each additional foot in height above 25 feet in height of the proposed new building, and shall have screening in accordance with Tumwater Municipal Code (TMC) Chapter [18.47](#).*



Single Family Low Density

The SFL zone is intended to provide single-family residential use at a density of four to seven units per acre. In our meeting with City staff, it was determined that installation of a roadway for access to the future Readiness Center would be defined as a “support facility,” which is outright permitted in the zone, so the use of this property for building an entrance roadway to the new Readiness Center would be permissible.

Support facilities are defined as facilities such as “streets, roads, highways, sidewalks, street lighting systems, traffic signals, fire stations, electrical switching substations, electrical power transmission towers, natural gas pipelines, telephone exchanges, natural gas gate stations and regulating stations, domestic water systems, storm and sanitary sewer systems, park and ride facilities and wells or well fields, all of which are continuously related to public (or private) services.”

The following are the bulk and dimensional requirements for the SFL Zone:

Single Family Low Density (SFL) Zone	
Regulation	Bulk & Dimensional Requirements
Minimum lot area	4,000 SF or 3,200 SF if clustering
Maximum lot area	None
Minimum lot width	50 feet or 40 feet if alley access
Minimum lot depth	
Front yard setback	10 feet from front property line
Minimum interior yard setback	5 feet
Rear yard setback	5 feet
Required landscaped setback along any common boundary with residential-zoned property	10 feet of Type 1 landscaping (sight barrier buffer) will be required adjacent to single-family residential zoned property and 8 feet of Type 2 landscaping (visual separation buffer) adjacent to other zones.
Maximum lot coverage (buildings)	60 percent
Maximum building height	35 feet
Noise, TMC 18.40.030	Maximum levels are as set forth in Chapter 173-60 WAC.
Light Trespass, TMC 18.40.035.D	Light trespass of no more than 0.1 foot candle (fc) to residential-zoned property or 0.5 fc to business-zoned property or public rights-of-way is allowed.
Landscaping, TMC 18.47.H	Landscaping planted in setback areas and around the perimeter of stormwater retention areas can be applied to the required landscaping amounts.
Landscaping, TMC 18.47.I	Natural vegetation or stands of trees existing prior to site development may be used toward meeting all or part of the landscaping requirements.
Tree Protection, TMC 16.08.R	No less than 20 percent of the trees, or not less than 12 trees per acre (whichever is greater), shall be retained. The City provides credit for larger trees and standards for counting other tree types based on size and health. The standards may be waived or modified by the code administrator if strict compliance is unreasonable due to certain factors listed in 16.08.070.R.2. When the standard is waived, tree replacement is required at no less than three trees for each tree cleared in excess of the standard.



Access

The property is located on Kimmie Street SW between two Interstate 5 interchanges: Tumwater Boulevard, located approximately two miles to the north, and 93rd Avenue SW (SR 121), located approximately one mile to the south.





The property has three potential access points: one from the SFL-zoned property that abuts Kimmie Street SW (in the vicinity of 85th Avenue SW), one from Kimmie Street SW at 83rd Avenue SW, and a potential third access could be obtained from Frontage Road, located at the northern property boundary. It is our understanding that Washington Military Department (WMD) would prefer to use a single access point at 85th Avenue SW for the proposed Readiness Center development, but also needs to understand how other access could be used for future needs.

The City will require the access road to be built to private street requirements. It requires 26 feet of pavement and sidewalk on one side. The City will allow WMD to improve the road to a higher standard, if desired. The City will not require more than one access to serve the Readiness Center. The City would be supportive if WMD desired to provide a secondary access; however, it would likely trigger additional frontage improvements in the area of the secondary access that may not otherwise be required.

Frontage Improvements

Frontage Improvements will be required along Kimmie Street SW for the portion of the property that is used for the project. For example, if a single access is proposed in the vicinity of 85th Avenue SW, the City will require frontage improvements be made to the parcel used for the access, but not to other property owned by WMD that is not used for development of the Readiness Center. The City will require that Kimmie Street SW be widened to accommodate an ultimate three-lane section with bike lane, streetlights, and provisions for storm drainage. The Transpo Group Transportation Feasibility Study indicates that a left-turn lane will likely not be warranted at the proposed property entrance. Minor dedication of right-of-way may be required for needed frontage improvements.

Potential Offsite Road Improvements

There are several large industrial projects that have received land use approvals by the City of Tumwater that are located in the vicinity of the Interstate 5/93rd Avenue SW interchange. These include a large industrial park project proposed by Puget Western, located contiguous to the south of 93rd Avenue SW, and Tumwater Corporate Park, also a large industrial project, located contiguous to the north of 93rd Avenue SW. The requirements for offsite roadway improvements imposed on these projects are quite significant and include improvements to the interchange and signalization. In our meeting with City staff, they indicated that a traffic study would be required to fully evaluate and determine the impacts caused by the future Readiness Center and any potential mitigation requirements.

City staff referenced a letter received by Dale Severson of Washington State Department of Transportation (WSDOT), dated November 8, 2008, describing the 93rd Street SE (SR 121) interchange deficiencies (enclosed). It describes the need for widening of the northbound on ramp and off ramp, as well as a new signal at the interchange intersection. (The letter also discusses southbound ramp improvements, but it is our understanding that those improvements have been completed). These improvements were described in the letter as a requirement for the development planned for the area, which proposed a significant number of peak hour trips. Mr. Severson recommended that the developers in the area work cooperatively to design and construct the improvements or contribute their pro rata share toward the improvements.

Tumwater Municipal Code (TMC) Chapter 15.48, Transportation Concurrency, describes how development shall contribute and/or fund offsite roadway improvements when capacity is below the established level of service standard. TMC 15.48.090 requires that roadway improvements caused by new development be made at the time of building permit issuance, or that the financial commitment be in place to complete the improvements within six years. The City of Tumwater 2014-2019 Capital Facilities Plan states:

When concurrency cannot be achieved because of lack of financial resources, then the specific development upon which the concurrency test was applied will not be certified for construction or occupancy. It is also noted that a developer of a project is required to only pay for improvements



associated with fair share, growth-related impacts identified. However, if the City or other parties do not have adequate funding available to match funds to construct the necessary infrastructure, the developer may voluntarily finance the construction with a recourse of remuneration through financing techniques such as a traditional latecomers process of future development.

Based on the level of potential risk associated with the cost of the offsite improvements, The Transpo Group was engaged to complete a transportation feasibility study so that the mitigation costs are known prior to purchasing the property. The study concluded the following:

- The Readiness Center is anticipated to generate 25 new weekday PM peak hour trips and 300 weekend inbound and outbound trips on each monthly training weekend.
- The project is anticipated to be assessed mitigation fees up to \$217,366. This could potentially be reduced by conducting a trip generation study of the existing Olympia and Puyallup Armories.
- No mitigation or proportionate improvement cost is anticipated toward improvement at the 93rd Avenue SW interchange.
- No offsite mitigation or impact fees are anticipated to be required by Thurston County.
- In their opinion, a new left-turn lane at the proposed access in the vicinity of 85th Avenue SW should not be warranted.

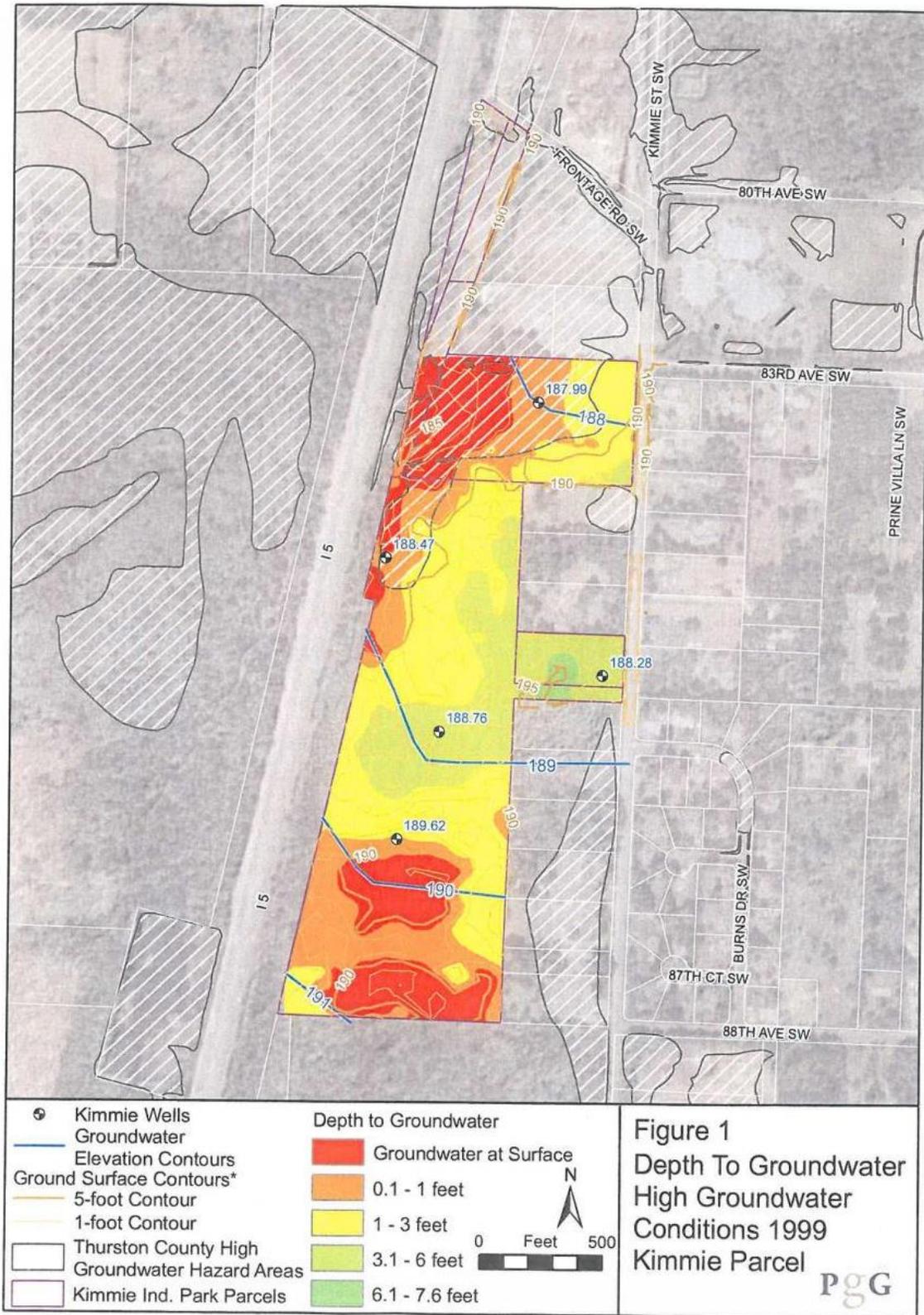
Geotechnical/Soils Conditions

A preliminary geotechnical analysis was completed for the property by South Sound Geotechnical Consulting (SSGC), dated January 16, 2015. SSGC found that native soils consist of sand with variable silt. Coarser gravelly sand was observed below the top layer of sand in the northern portions of the site. The study concluded that most of the site is considered feasible for development from a geotechnical perspective. Groundwater was observed in two test pits at the time of excavation. Depth to groundwater was in the order of magnitude of 11 feet in the south-central portion and 7 feet in the most northerly test pit. See the enclosed geotechnical study for more detailed information.

High Groundwater

The property is located within the Salmon Creek Basin and within an area of known high groundwater, which typically requires additional analysis including groundwater mounding, groundwater monitoring, and infiltration tests. A groundwater mounding and monitoring study was previously completed on the site by Robinson Noble. Our initial evaluation of that study has confirmed that the previous monitoring completed should be adequate for permitting of the proposed development.

The regression analysis suggests the high groundwater elevation across the site ranges from elevation 191 in the southwest corner to elevation 188 in the northeast corner. The ground surface on the parcel, based on 2-foot contour intervals, ranges from a high of 194 in the west-central portion of the site to 185 in the northwest corner of the site. During a high groundwater event, the groundwater may be at the surface in the northwest corner and at the south end of the property. The south end of the parcel is also encumbered with a wetland.





In our opinion, the parcel can be developed with the following considerations for stormwater and high groundwater:

1. Locate the buildings and parking areas in the central parcel of the site.
2. Minimize the extent of tree removal.
3. Elevate the buildings so they are a minimum of 3 feet above the high groundwater; 6 feet above the groundwater elevation is preferred. This would place the building at approximately elevation 195.
4. Utilize rain gardens to control and infiltrate stormwater runoff. The bottom of the rain garden soil can be 1 foot above the high groundwater elevation. The bottom of an infiltration pond should be 3 feet above the high groundwater elevation and should be assessed through a groundwater mounding analysis to confirm that this project does not cause a breakout of groundwater to the surface and that the increase in groundwater elevation at the property boundaries are less than 1 foot due to mounding from infiltration.
5. Grade the site to disperse stormwater from parking areas to the west and north, away from adjacent properties.
6. Large areas of undisturbed ground area will be required to remain undisturbed in order to disperse the stormwater into the existing forest.
7. Rain gardens and shallow infiltration ponds may be used to infiltrate the stormwater from building roofs.
8. The project should disturb 35 percent or less of the site.

While the site can be developed, when compared to a site without high groundwater, it will require additional construction cost. The additional construction expense will be for imported fill material to elevate the building, roadways, and stormwater facilities. Additionally, the project could not expand beyond approximately 18.5 acres of developed site with the full dispersion stormwater scenario.

Additional Considerations:

- The City of Tumwater will adopt a new drainage manual by 2016. They have not yet started on its development. We recommend design, review, and permitting under the current drainage manual, prior to 2016.
- A topographic survey of the site will be required to determine the best location for placement of the building and the extent and volume of imported fill.
- This opinion is based on a limited review of the above referenced documents, and was limited to the high groundwater impacts on the development of this total 53-acre property area.

Stormwater and Fill Quantities

We have prepared an initial review of the stormwater requirements. Attached is a summary of that analysis, dated December 11, 2014.



Wetlands

The property was evaluated for the presence of wetlands on October 20 and 21, 2014, by Theresa Dusek Consulting. Ms. Dusek found a Category III system located in the south portion of the site, which likely extends offsite to the south. The wetland is in an area that is not intended for development of the Readiness Center, and is likely not developable due to high groundwater. The City requires an 80-foot buffer. The City will require a full wetland delineation report with development applications.

Mazama Pocket Gophers

Ms. Dusek evaluated the site for presence of Mazama pocket gophers, a federal and state protected species. Prairie soils are mapped over the central portion of the site; however, these areas are dominated by existing buildings or shrub habitat, including snowberry, hazelnut, and rose species. Pocket gopher mounds were not observed on the site. A survey with the federal/state agency team may be required, but is unlikely due to the vegetation conditions. No other threatened or endangered species or habitat were observed or are mapped within 300 feet of the site. The City will require that a pocket gopher survey be provided for project approvals.

Other Critical Areas

The property is located in a Wellhead Protection Area. A Wellhead Protection Area is the surface and subsurface area surrounding the water well or well field of a public water system. Contaminants may move toward the well or well field from this surrounding area over a period of time; accordingly, the City regulates property use to protect water quality.

Portions of the property are located in the 6-month, 1-year, and 5-year Time of Travel zone. For the new Readiness Center, this means that onsite fueling will likely not be allowed.



Water

Water Mains were installed in Kimmie Street SW in 2007. The water main is 16-inch PVC. New 8-inch water mains will need to be extended to the development and likely looped around the development area for hydrant coverage to the building.

Development of the site will be subject to a latecomer fee for the previous water extension in Kimmie Street SW. The latecomer fee will be approximately \$104,253.32

Sewer

Gravity sewer mains were installed in Kimmie Street SW in 2007. The sewer main is 12-inch PVC. The sewer main adjacent to the subject parcel (51650001200) at Kimmie Street SW is approximately 12 feet deep. The project will require approximately 900 LF of 8-inch sewer main extension to service the proposed Readiness Center Building.

The minimum building finish floor elevation required to maintain sewer 5 feet deep at the assumed Readiness Center location would be elevation 191 (using NGVD 1929 Datum). It appears that groundwater will be the controlling factor for building finish floor.

Black Hills High School had a lift station with a latecomer's agreement requirement, but that is no longer in operation or valid.

Development of the site will be subject to a latecomer fee for the previous sewer extension in Kimmie Street SW. The latecomer fee will be approximately \$246,707.20.

Permits and Approvals

The development of a new Thurston County Readiness Center is allowed outright in the property zone. The permitting process will require the following approvals:

- SEPA Environmental Review
- NEPA Environmental Assessment
- Critical Areas Review
- Site Design Review, including approval from the Design Commission
- National Pollutant Discharge Elimination System (NPDES) permit from Washington Department of Ecology
- Building Permit
- Site Development Permit

Additional environmental studies required for permitting and design include:

- Wetland Report and Buffer Enhancement Plan
- Geotechnical Engineering Study
- Traffic Impact Study
- Technical Information Report
- Forester's Report
- Tree Protection Plan
- Noise Study
- Pocket Gopher Survey



Recommendations and Next Steps

The property appears feasible for development as the future Readiness Center. We recommend that the following additional steps be taken to reduce risk and costs for development:

- Submit a formal Transportation Impact Study to the City of Tumwater and WSDOT for confirmation of The Transpo Groups findings.
- Prior to project permitting, complete a trip generation study to potentially reduce forecasted trip generation and resulting mitigation fees.
- Recommend demolition and removal of existing structures on the site.

Note: The information provided herein is based on a limited feasibility study for the purposes requested. Additional site-specific evaluation may be needed to confirm/verify information.

LK/MW/lsk

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December 11, 2014
Revised March 6, 2015

Mr. Thomas Skjervold
Environmental Programs Manager
Washington Military Department
Building 36, Quartermaster Road
Camp Murray, WA 98430-5050

Civil Engineers

Structural Engineers

Project: Thurston County Readiness Center Site Feasibility Study, AHBL No. 2140515.10
Subject: Schematic Stormwater Design and Site Grading

Landscape Architects

Dear Tom:

Community Planners

We are pleased to provide you with this schematic grading and drainage plan and summary letter for the Thurston County Readiness Center Site located at Kimmie St SW and 83rd Avenue SW. Our schematic design and analysis presents data and findings relative to the physical and regulatory opportunities and constraints affecting development.

Land Surveyors

Neighbors

The focus of this analysis is on the high groundwater conditions and their impact on stormwater management facilities and site grading. The methodology used to complete the study included review of projects in the vicinity, correspondence with the City of Tumwater review engineer, review of stormwater drainage requirements for areas with seasonally high groundwater, GIS topography, and other research as necessary.

The factors influencing final development potential are provided below.

Site Description

The subject property is located in the City of Tumwater in a portion of Section 16, Township 17 North, and Range 2 West. The project site is identified as Thurston County Parcel Nos. 5185001200, 09520003000, and 09520004000. The parcels are situated between Interstate 5 and Kimmie Street SW.

The 3 parcel areas are 35.97 acres, 9.71 acres, and 1.57 acres for a total site area of 47.25 acres. The residential parcel was neglected in this analysis. The subject parcels of land are predominantly undeveloped and forested.

The northern parcel 09520003000 has access to the intersection of Kimmie St and 83rd Avenue SW. The Large parcel 5185001200 has access to Kimmie St south of the intersection with Burns Dr SW.

TACOMA

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www.ahbl.com



Proposed Project

The proposed project is to develop the site with two buildings consisting of a Readiness Center and a vehicle storage shed. A conceptual plan of the site has been prepared depicting the location of the two buildings, driveways, privately owned vehicle (POV) parking lot, and Military Vehicle Parking. The conceptual property site plan and enlarged site plan are included as Figures C-1 and C-2. The proposed development includes a two-story Readiness Center with a footprint of 56,650 SF, a 55,094 SF vehicle storage shed, and an 18,834 SY Military Vehicle Parking area. There are a total of 242 parking spaces proposed for POV parking in a 9,100 SY lot. A single-access driveway to the site is provided at the east side of the parcel at to Kimmie Street SW. This analysis does not consider impervious areas from future developments.

Topography

The site is undulating and gently slopes from south to north; existing grades range between ± 195.00 and ± 185.00 .

Soils

Well logs were dug by Arcadia Drilling Inc. in 2008 for ground water monitoring at the project site. The well logs encounter brown silty sands in the top 24 inches overlaying sandy gravels.

Storm Drainage

The City of Tumwater has adopted the *2010 Drainage Design and Erosion Control Manual (DDECM)*. Development of the site will require that the stormwater be controlled and treated to meet water quality requirements. Flow control options include detention and release to a downstream conveyance system, flow dispersion, and infiltration to the site's subsoils.

A conveyance system is not available near the project site; therefore a combination of flow dispersion and infiltration is the preferred method of disposal of stormwater. The design of these facilities will meet minimum requirements in Tumwater's *2010 DDECM*. The requirements which apply to this site include:

Regulatory Requirements for Full Dispersion: Tumwater has adopted LID stormwater management requirements, prescribed in section 2.2.8, Volume V, of the 2010 DDECM.

- Retain 65% of site as native vegetation (approximately 31 acres of 47 acre site).
- Only 10% of site impervious can be dispersed (maximum 4.5 acres of approximately 8.5 acres of proposed impervious surfaces)
- Dispersion shall follow design guidelines for roof downspouts (LID.04) and driveway dispersion (LID.06 and LID .07).

Regulatory Requirements for Infiltration: The site lies to the north of the Salmon Creek Basin. Historical flooding problems within the Salmon Creek Basin have occurred due to high groundwater. Because of high groundwater, Tumwater has adopted stricter drainage requirements, categorized in Section 2.3.2, Volume III, of the *2010 DDECM*.



- The base of all infiltration basins or trench systems shall be a minimum of 6 feet above known or estimated high groundwater levels. This elevation may be determined using groundwater monitoring data gathered through a minimum of one wet period (December through April). Per conversations with the city 3.0' separation is allowed with a mounding analysis.
- A mounding analysis is required to determine the impact of groundwater mounding on the estimated design infiltration rate, and the known or estimated high groundwater elevation at the property boundary and at any onsite or offsite features that might be impacted by groundwater mounding.
- The mounding analysis must demonstrate there will be no breakout of groundwater to the surface in the vicinity of the project.
- A minimum separation to groundwater from the building foundation will be at least 3 feet.
- The increase in groundwater level at the property boundary due to mounding is less than 1 foot.

High Groundwater: A groundwater regression analysis was prepared by Robinson, Noble & Saltbush, Inc in 2008 at the project site. A color Map, "Depth to High Groundwater Conditions" was prepared indicating groundwater levels sloping from south to north from elevation 191 to elevation 188. The preliminary study concluded that additional analysis should be performed to achieve a "finite-difference numerical model of the site and surrounding area".

Analysis of High Groundwater Impacts: The development scenario has established minimum design grades for finish floor elevations, paving elevations, and storm pond bottom elevations to maintain separation from high groundwater. Refer to Figure C-3 for a schematic stormwater basin map.

The maximum separation from groundwater occurs near the central portion of the site. This area is also the least wooded area of the site. This is the recommended location for this development. The existing grades range between elevation 191 and 194 and groundwater is assumed to be at elevation 189. This location also minimizes the length of access road required to connect to Kimmie Avenue.

Full Dispersion and Infiltration Systems: Based on preliminary review of the dispersion BMP's we have assumed that 150LF of paved surfaces on the north and south side of the site can sheet flow to native vegetation and will not require additional stormwater management. Stormwater retention basins have been located as close to the source of runoff as practical to minimize facility depth for the remaining development area. We have assumed a minimum depth to finish floor of 4.25' will be required to drain to the stormwater retention facilities. Factors during design may require additional system depth which would require the site to be raised. We anticipate that finish floors of 6' above high groundwater should accommodate the unknowns.



Building Finish Floors: Two structures are proposed with this development. A vehicle storage shed and the readiness center building. Sewer is sometimes a controlling factor for building finish floor elevation. AHBL has reviewed as-builts for the sanitary sewer within Kimmie St. Sewer is of sufficient depth to accommodate a gravity service therefore the building finish floor will be controlled by groundwater levels for this site.

The minimum finish floor elevation for these buildings per Tumwater requirements is 3 feet above the assumed or known high groundwater elevation. Based on our schematic stormwater concept the finish floors must be at least 4.25' above the assumed high groundwater elevation and may be up to 6.0' above groundwater.

	READINESS CENTER	VEHICLE SHED	TOTAL FILL	IMPORTED FILL (\$20)	BORROW PIT FILL (\$6)
FF = 4.25' ABOVE G.W.	BALANCE	3,000 CY FILL	3,000 CY	\$60,000	\$18,000
FF = 6.0' ABOVE G.W.	3,000 CY FILL	7,000 CY FILL	10,000 CY	\$200,000	\$60,000

We have evaluated a range of fill scenarios using the minimum 4.25' separation and a preferred 6' separation. Fill costs may be mitigated by creating an onsite borrow pit for use as structural fill. A geotechnical engineer will need to review the site soils and provide recommendations for suitability of onsite soils for structural fill. Assuming onsite soils are not suitable the import costs for buildings could be approximately \$260,000.00.

Conclusion

The city of Tumwater requires building finish floors to maintain 3.0' minimum separation from high groundwater elevation. Buildings will be impacted by groundwater regardless of their location on this site. To minimize the impact of groundwater we recommend locating the buildings at the high point of the site where the separation between existing ground and groundwater is maximized. This will reduce the amount of filling necessary to meet this minimum separation.

Stormwater dispersion is the preferred method of stormwater management for this site due to the existing high groundwater. Areas that utilize full dispersion will not require a minimum separation from the groundwater elevation. We recommend that site planning and layout take into consideration the use of flow dispersion techniques in order to capitalize on the use of flow dispersion techniques for this property.

Due to the anticipated size of this development some impervious areas will still require stormwater infiltration using ponds or trenches. Since buildings are already required to be a minimum of 3' above groundwater these areas should be connected to the infiltration facilities. Based on our review of the site we anticipate that storm ponds will require the building finish floors to be between 4.25' and 6.0' above the high groundwater level. We anticipate that imported fill costs for the buildings could range between \$60,000 to \$260,000.00.



If you have any questions regarding this report, please do not hesitate to contact me at (253) 383-2422.

Sincerely,

A handwritten signature in black ink that reads "J. Matthew Weber".

J. Matthew Weber, PE
Principal

STK/lsk

Enclosures:

- Figure C-1 – Property Site Plan
- Figure C-2 – Enlarged Site Plan
- Figure C-3 – Schematic Stormwater Basin Map
- Figure C-4 - Calculations

This study is limited in scope. The statements and observations were derived from secondary information provided by local service providers. There may be additional information, records, or legal documents pertaining to the subject property that were not available to us during this feasibility assessment.

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83RD AVE. SW

88TH AVE. SW

KIMMIE STREET SW

ACCESS ROAD

VEHICLE STORAGE SHED

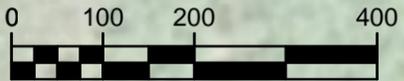
MILITARY VEHICLE PARKING

POV PARKING

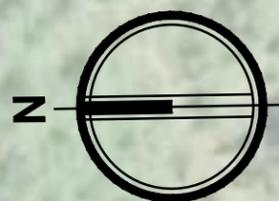
READINESS CENTER

INTERSTATE 5

GRAPHIC SCALE



1" = 200 FEET



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 1200 6th Avenue, Suite 1620, Seattle, WA 98101

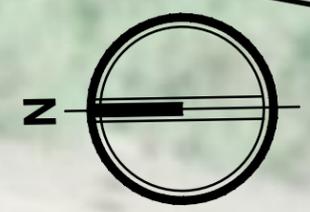
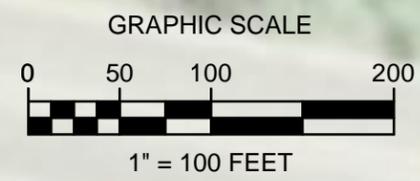
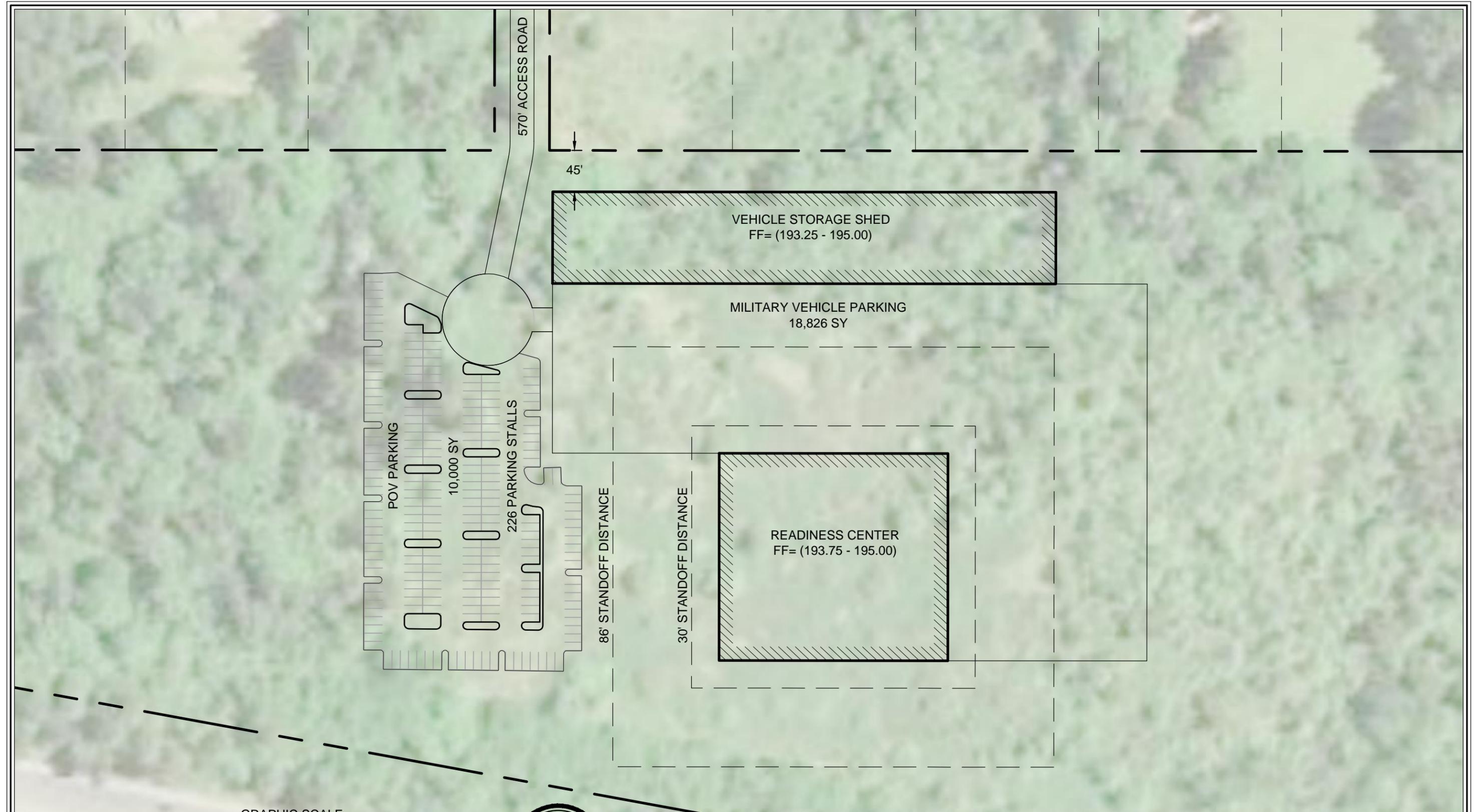
Civil Engineers
 Structural Engineers
 Landscape Architects
 Community Planners
 Land Surveyors
 Neighbors

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KIMMIE ST SW & 83RD ST
 TUMWATER WASHINGTON

**PROPERTY
 SITE PLAN**

C-1



AHBL

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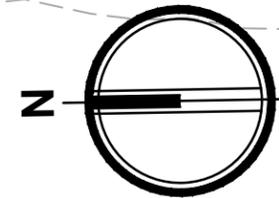
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Civil Engineers
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KIMMIE ST SW & 83RD ST
TUMWATER WASHINGTON

**ENLARGED
SITE PLAN**

C-2



PROPOSE BIO-RETENTION
SWALES ALONG ACCESS ROAD
FOR 100% INFILTRATION

RETENTION SWALE FOR SHED,
100% INFILTRATION
AREA = 10' x 560'

VEHICLE STORAGE SHED
FF= (193.25 - 195.00)

MILITARY VEHICLE PARKING

READINESS CENTER
FF= (193.75 - 195.00)

NATIVE
VEGETATION
RETENTION
AREA

FULL
DISPERSION
SHEET FLOW
DISPERSION

POV PARKING

FULL
DISPERSION
SHEET FLOW
DISPERSION

NATIVE
VEGETATION
RETENTION
AREA

PRIMARY BIO-RETENTION
POND 100% INFILTRATION
AREA = 18,000 SF

POTENTIAL POND AREA TO
KEEP STORM SHALLOW
AREA = 2,000 SF



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KIMMIE ST SW & 83RD ST
TUMWATER WASHINGTON

**SCHEMATIC STORMWATER
BASIN MAP**

C-3

November 5, 2008

Christopher Carlson
Planning Manager
City of Tumwater
555 Israel Road SW
Tumwater, WA 98501

Re: SR 121, MP 7.38 Right Vicinity
Tumwater Corporate Park
SEPA Comments to City of Tumwater
DS File No. 2008-207-T

Dear Mr. Carlson,

The Washington State Department of Transportation (WSDOT) has completed our review of the traffic Impact Analysis (TIA) dated June 19, 2008 prepared for the Tumwater Corporate Park development. This development is located on the north side of 93rd Avenue SE (SR 121) between the Pilot Travel Center and Kimmie Street. The project encompasses six major industrial warehouse buildings that overall total 1,716,087 square feet, with parking for 1450 vehicles and 99 trailers. One direct access to 93rd Avenue SE is being proposed along with four other accesses to Kimmie Street.

This is a large development that based on industrial park uses will generate 1363 new PM peak hour trips of which 885 of those trips will enter the I-5 northbound ramp intersection with 93rd Avenue SE and 317 of those trips will enter the I-5 southbound ramp intersection. Therefore this development will have significant adverse transportation impacts to the state highway system.

In order for the Tumwater Corporate Park development to adequately mitigate for these significant adverse transportation impacts, WSDOT requests the following mitigations be made a condition of the first building permit issued for this development.

I-5 Southbound Ramp Intersection with 93rd Avenue SE (SR 121)

As noted in the TIA, WSDOT is collecting Pro Rata Share contributions toward a planned WSDOT project at this location. However, at this time WSDOT has not begun that design because another nearby development has been SEPA conditioned by Thurston County to design and build those same improvements. The highway

improvements needed are widening the southbound off-ramp to two lanes, install a westbound to southbound left turn lane, and install a new traffic signal, all of which must be to WSDOT standards which includes illumination. That other nearby development has stated their planned goal is to build those improvements during the 2009 construction season, with their design currently being about 95% completed. Should that construction occur as anticipated, WSDOT will then use the funds collected to date toward that developer project.

Therefore WSDOT strongly recommends the Tumwater Corporate Park partner with this other nearby development by financially contributing an appropriate amount to that development's planned highway improvement. To satisfy WSDOT that this partnership opportunity meets our requirements and is built in a timely manner, WSDOT would need written confirmation by both parties that they are in agreement and are partnering with each other. Should that partnership opportunity not work out or that other development postpone their project, then WSDOT will require that the Tumwater Corporate Park either design and build that same project and have it operational as a condition of the first building permit, or contribute a pro rata share contribution to WSDOT.

The TIA states a contribution to WSDOT of \$1,003,305 is required. WSDOT has already collected about \$183,000 toward this WSDOT estimated \$950,000 project. Therefore WSDOT will only require a contribution of \$767,000. Please note this is based on 2008 dollars and should this payment be received after 2010 then WSDOT will request the total include inflation as well as be based on the then current WSDOT project cost of the project minus any other payments received. Please note that due to the significant adverse transportation impacts this large development will have at this intersection, WSDOT will request that the City of Tumwater condition that no building occupancy permits be issued until such time that WSDOT has designed and built these improvements. At this time this project is not being designed by WSDOT due to the hope that that other nearby development stated above proceeds with completing the project. Therefore the other two options described above (i.e. partner with others or build it themselves) would probably result in a much faster process to obtain the required improvements than if WSDOT were to move forward with a project at a later date.

I-5 northbound Ramp Intersection with 93rd Avenue SE (SR 121)

As noted above, that other nearby development has been SEPA conditioned by Thurston County to build improvements at the southbound ramp intersection. They have also been SEPA conditioned to build similar improvements at the northbound ramp intersection. Those improvements are widen the northbound off-ramp to two lanes, widen the northbound on-ramp to two lanes including a free flowing westbound to northbound movement, and install a new traffic signal all to WSDOT standards which includes illumination.

Therefore WSDOT will require the Tumwater Corporate Park development to either partner with this other development or build those same improvements themselves.

Because that other nearby development is designing both ramp intersection improvements simultaneously, this intersection's design is also about 95% completed with a stated goal of that other nearby development building those improvements in the 2009 construction season.

Therefore WSDOT strongly recommends that the Tumwater Corporate Park partner with this other development by financially contributing an appropriate amount to that development's planned project, with the project still being built prior to any building permit being issued. To satisfy WSDOT that this partnership opportunity meets our requirements and is built in a timely manner, WSDOT would need written confirmation by both parties that they are in agreement and are partnering with each other.

Should that partnership opportunity not work out or that other nearby development postpone their project, then WSDOT will require that the Tumwater Corporate Park either design and build that same project and have it operational as a condition of the first building permit, or contribute a pro rata share contribution to WSDOT.

93rd Avenue SE (SR 121) between I-5 and Kimmie Street

WSDOT concurs with the City of Tumwater and their requirement that the Tumwater Corporate Park widen this stretch of 93rd Avenue SE to four lanes. That will include two westbound lanes, a Two Way Left Turn Lane (TWLTL), and one eastbound lane. WSDOT also supports the city's requirement that sidewalk, landscaping, and illumination is installed along the Tumwater Corporate Park's frontage on 93rd Avenue SE.

93rd Avenue SE (SR 121) and Kimmie Street Intersection

WSDOT concurs with the TIA that each leg of this intersection is widened to a minimum of three lanes and a new traffic signal is installed. Each leg will have a separate left turn lane with the west leg having four lanes as noted above. WSDOT also recommends the City of Tumwater consider requiring the north leg to also be four lanes with a separate southbound to westbound right turn lane due to the large number of trucks that will be using this movement.

The signal will need to be designed to WSDOT standards and shall include illumination as all signals and turns lanes on a state highway require illumination. WSDOT also strongly recommends this signal be designed and constructed to the ultimate intersection configuration if at all possible.

Mr. Christopher Carlson
November 5, 2008
Page 4

93rd Avenue SE (SR 121) and Case Road intersection

Since this TIA was published, the City of Tumwater has created a project at this location. Therefore, WSDOT will request the Tumwater Corporate Park contribute to that project as required by the City of Tumwater.

Summary

As noted above this is a large development that will have significant adverse transportation impacts to the state highway system. Also noted above there is an opportunity for this development to partner with that other nearby development that is currently designing ramp intersection improvements at the I-5 / 93rd Avenue SE interchange. It our desire and hope the Tumwater Corporate Park is able to partner with this other development and to get those improvements built as we feel this opportunity would be beneficial for all parties, including the City of Tumwater and WSDOT.

Thank you for the opportunity to review and comment on the Tumwater Corporate Park. If you have any questions please contact me at (360) 357-2736 or at email at seversd@wsdot.wa.gov.

Sincerely,

Dale C. Severson, P.E.
Development Services Engineer
WSDOT – Olympic region

DS:pr

cc: Arthur Saint – Thurston County
Steve Kim – WSDOT
JoAnn Schueler - WSDOT
Kathy Johnson - WSDOT