Volume II -HEALTH CARE FACILITIES PLANNING

PART 13 -PLANNING DOCUMENTS AND REPORTS

CHAPTER 13-4 - SITE SELECTION AND EVALUATION PROCESS (SSER)

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TRANSMITTAL NOTICE (01/03/2022) BACKGROUND:

This issuance updates and revises Chapter 13-4 "SITE SELECTION AND EVALUATION PROCESS" of Part 13 "Planning Documents and Reports" in Volume II "Health Care Facilities Planning" of the Indian Health Service, Technical Handbook for Environmental Health and Engineering.

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MATERIAL TRANSMITTED

1. Volume II, Chapter 13-4

HANDBOOK MAINTENANCE

1. Replace Chapter 13-4 of Volume II on the website (IHS.gov - OEHE - handbook - volume2 Part 13 Planning Documents and Reports – 13-4 SITE SELECTION AND EVALUATION PROCESS) with the pages below.

Chapter 13.4 Site Selection and Evaluation Process

13.4.1 Introduction. This chapter of the Technical Handbook describes the Indian Health Service (IHS) health care facility Site Selection and Evaluation Report (SSER) process and requirements, including delineation of the responsibilities of the preparing and approving parties. The site selection process is a cooperative effort involving the approving party, preparing party, the Integrated Project Team/Project Leadership Team and a steering committee representing the affected tribes. Generally, for each new, replacement, or expansion health care facility construction project, the process consists of identifying available sites, and ranking the sites based on key features. In the Phase I SSER, three or more alternative sites are evaluated and one site is selected that is mutually acceptable to IHS and the steering committee. In the Phase II SSER, the phase I report conclusions and information on the recommended site are validated, updated, developed and documented for inclusion in the final planning documents and use in the project design phase.

13.4.1.1 Purpose. The site selection process is intended to identify the qualifying top site based on numerous criteria, resulting in a balance of accessibility by the user population and cost to develop the site for its intended purpose.

13.4.1.2 Applicability. The information found herein is applicable to all IHS new construction, major renovation, joint venture, small ambulatory, maintenance and improvement projects, and facility operations, unless otherwise noted.

13.4.1.3 Background. Each IHS project that involves new construction or replacement and/or expansion of existing health care facilities, including quarters units in some cases, requires:

- Program Justification Document (PJD)
- Program Justification Document for Staff Quarters (PJDQ)
- Phase I SSER to support the PJD (for all new and replacement facilities)
- Program of Requirements (POR)
- Facility Budget Estimate (FBE)
- Phase II SSER to support the POR and FBE

The SSERs for Joint Venture Projects are funded by the applicable Tribe. For IHS funded projects, the IHS funds the SSER. On a direct federal project, planning funds are typically not required or available until the Phase II SSER. In the case of a Title I or Title V P.L. 93-638 project, this may not be the case, since the Tribe may opt to conduct studies under the 638 agreement and may contract with the consultants for the planning documents.

The IHS requires all engineering and architectural services provided to be completed directly by or under the direct supervision of Professional Engineer or Registered Architect. Those professional services as defined in 40 U.S.C. 541 include SSERs and their associated studies, investigations, surveying, mapping, tests, evaluations, consultations, comprehensive planning, conceptual designs, soils engineering, and other related services.

13.4.1.3.1 General. The Phase I site selection process is initiated in conjunction with the PJD. Planning funds are typically not required or available for the Phase I SSER. Any engineering studies

associated with site selection are scheduled with the Phase II SSER. The formal site selection process intensifies when the IHS Headquarters Division of Facilities Planning and Construction (DFPC) indicates that the PJD can be finalized. The Phase I SSER process and the finalization of the PJD will track concurrently with the Phase I SSER typically included as an appendix to the PJD.

The Phase II SSER validates updates, further develops and documents the Phase I Report. The Phase II SSER formally begins after the PJD and Phase I SSER have been approved, and funding for the Phase II SSER becomes available. The Phase II SSER effort includes a validation that the top site is still available and preferred detailed technical analysis, and an update and/or validation of any information appearing in a Phase I SSER. Funding is provided by the IHS Headquarters for the Phase II SSER, including site surveys, explanatory drawings/plans, environmental determination, geotechnical investigation, title/ownership research, and appraisal (if land is to be purchased), accessibility verification, confirmation of adequacy of support services, examination of existing utility and road infrastructure, along with associated estimates of additional project costs.

13.4.1.3.2 Approval. The SSER approving official is the Associate Director, Office of Environmental Health and Engineering at the applicable IHS Area. After each SSER is approved, the original (w/original signatures) is to be provided to the respective DES or Tribally Operated Program (TOP) representative (Title I/V tribal architect/engineering firm (A/E)) and a copy to the Director DFPC at IHS Headquarters. IHS Headquarters must concur with the approved Phase I SSER. The IHS Headquarters approval of the POR will also serve as concurrence of the Phase II SSER. As desired, the responsible IHS Area office can retain the services of the DES to assist with the preparation of any aspect of the SSER.

13.4.2 Definitions.

(1) Integrated Project Team (IPT). A team of individuals with an interest in identifying and accomplishing the sustainability-related tasks required to complete a project. It is a component of the Indian Health Service's Project Leadership Team (PLT) and may include members outside of the PLT including the A/E, Commissioning Agent, etc. The IPT is formed during the planning phase and lasts throughout the life of the project. Membership may change to meet requirements of the project phase.

13.4.3 Phase I Site Selection Process. The Phase I Site Selection Evaluation reviews potential sites for a proposed construction project. The intent is to make a determination as to which of the proposed sites is best suited to the requirements of the project and move that site forward for more rigorous evaluation during Phase II. A Phase I SSER is typically not necessary if the proposed project is limited to modernization/expansion of an existing facility because it is assumed the existing site will be used.

In the Phase I SSER, each proposed site is evaluated, rated, and ranked based upon various programmatic, engineering, environmental, and community criteria. The site information needs to be presented in a standard narrative and graphic format so that the reviewers can evaluate the sites without bias. The information in the report should be presented in a consistent manner for each site for the same reason, to insure a sound objective evaluation. The selection based off actual criteria and not subjective motives or emotions will yield the preferred site that best meets

the criteria.

A Phase I SSER is prepared and provides the findings and conclusions of the evaluation, including which specific site is selected to be further evaluated during Phase II. The Phase I SSER is included in the final PJD and ensures that suitable sites are available for the proposed facility.

13.4.3.1 Tribal Consultation. IHS policy states that consultation occurs when there is a critical event that may affect Tribes, new or revised policies or programs are proposed, or the IHS budget request are being developed. The IHS must engage and consult with all affected Tribes regarding the general location of the proposed facility. Local and regional planning goals must be identified and incorporated into the selection process taking into consideration programmatic and financial impacts. Tribes should be directly involved in the selection of sites for consideration and written concurrence from all affected Tribes should be obtained prior to commencement of the site evaluation process. Sites located adjacent to existing facilities that are being replaced should be considered and evaluated during the Phase I selection process. If a potential site is on Trust land, it must be set-aside in writing by the tribal officials and its availability for a health care facility verified by the Bureau of Indian Affairs (BIA). Normally tribal written concurrences and/or set-asides are in the form of tribal resolutions.

13.4.3.2 Identification of Sites for Evaluation. Before the Phase I SSER begins, at least three sites must be identified that have adequate area and other desirable characteristics for placement of the planned facility. Identify a minimum of three (3) sites meeting the requirements stated herein to be evaluated. The site selection survey is not limited to 3 sites, a sufficient number of sites should be included in the survey to ensure a suitable site is found, that there are suitable alternative sites if the selected site does not work out and to prevent repeating the evaluation process if none of the sites prove suitable.

Before the final site is chosen, the chairperson of the site selection team must closely coordinate with the Area IHS Realty Specialist to ensure the proper steps can be taken to secure the site for IHS use (lease, purchase, set-aside, etc.). There are multiple modes of securing a site, which is the primary area of expertise of the leasing specialists.

13.4.3.3 Principles for Sustainable Federal Locations. The mission of the Indian Health Service is to raise the physical, mental, social, and spiritual health of American Indians and Alaska Natives (AI/AN) to the highest level. To this end, IHS is dedicated to constructing and maintaining facilities that contribute to the health and healing of the AI/AN populations served. The first step in the creation of such facilities is in the selection of project sites that, at the very least, minimize environmental impact and, whenever possible, neutralize impact and ideally, that contribute to the restoration of the environment. The fact that IHS healthcare facilities are remotely located and serve a user population, usually scattered over a large geographical area, present peculiar challenges to the achievement of these goals. For example, the lack of public transportation in these areas combined with the widespread geographic distribution of the user population necessitates a requirement for large amounts of parking.

The Implementing Instructions for Executive Order 13514 identifies Principles for Sustainable Federal Locations are required in the IHS Site Selection Process. When selecting sites to be

included in the evaluation process, the following and considerations must be taken:

- Local and Regional Planning. Consult affected Tribes as described in "Tribal Consultation" above.
- Local and Regional Planning. Incorporate local and regional planning goals identified during Tribal Consultation into the evaluation process.
- Seek Location-Efficient Sites. Include at least one site located within a central business district or rural town center in the evaluation.
- Seek Location-Efficient Sites. Identify available public transportation systems (if any), and consider inclusion of sites served by these systems.
- Seek Location-Efficient Sites. Consider sites with realistic pedestrian and bicycle access.
- Seek Location-Efficient Sites. Consider inclusion of sites located near to existing housing and commercial services that may be of service or interest to staff and users.
- Maximize Use of Existing Resources. Consider sites with access to existing utility infrastructure.
- Maximize Use of Existing Resources. Consider inclusion of previously developed sites.
- Maximize Use of Existing Resources. Consider inclusion of brownfield sites.
- Maximize Use of Existing Resources. Consider renovation of existing structures.
- Foster Protection of the Natural Environment. Avoid undeveloped or agricultural sites.

13.4.3.4 Site Selection Evaluation Team. Upon notification by the IHS Headquarters that the draft PJD may be finalized for approval, the respective IHS Area Office or Tribally Operated Program establishes a site study team, schedules site visits and prepares the appropriate SSER. The site study team should consist of at least three members: an IHS Area Office or Tribally Operated Program representative; a representative from the applicable Service Unit/Area; and one tribal representative from each tribe. Representatives of other entities, including DES (if DES services are retained) or the Bureau of Indian Affairs (BIA) may be included if deemed necessary. The site study team should be familiar with the PJD, the SSER Guidelines, and include members that are familiar with the facilities program. At least one team member should have proficiency in Federal sustainability requirements; proficiency with the Leadership in Energy and Environmental Design (LEED) process is highly desirable.

The required data is compiled with the findings of the team members after the survey is completed.

13.4.3.5 Phase I Site Selection Evaluation Report. A site selection study (Phase I SSER) should adequately describe the information below that will be later used for the selection process and can be incorporated into the Phase II Final SSER.

The amount of detail depicted depends on how much impact the particular area of concern will have on the project and whether potential sites have differences that could influence the site selection.

The Phase I SSER is prepared in accordance with the guidelines provided herein and in Appendix A, which contains a prototype/template Phase I SSER.

13.4.3.5.1 Executive Summary. The Executive Summary shall include a description of the:

- Project Scope
- SSER Team
- Sites Evaluated
- Size of Facility(s)
- Selected Site
- Findings and Recommendations
- Location
- Facility Type (Hospital, Health Clinic, Small Ambulatory, Dental, Quarters, etc.)
- Program Type (Direct Service, Tribal, etc.)
- Project Type (Joint Venture, M&I, M&M, Replacement, etc.)

13.4.3.5.2 Site Evaluation Score Sheets. The comparative site selection score sheet including criteria, weights and scores must be included in the SSER. All of the criteria on the selection score sheet should be defined and discussed within the SSER because that is the data on which the rating is based. Alternatively, if there is additional material in the SSER that may impact or influence the site selection; it should be included on the criteria within the score sheet.

13.4.3.5.3 Site Size (Facilities). Include the approximate land area required in Hectares (Ha) or acres if the project is using imperial units, and the basis for determining the plot size. The sites that are evaluated have to be of sufficient size to accommodate the proposed facilities. Sites too small should not be included in the evaluation. The final site area requirement depends on the design of the facility, as well as features and characteristics of the specific site. Consequently, for choosing potential sites for the evaluation process, a minimum required site area is estimated. The HSP will provide a required building floor area based on required services. The footprint area of the building will be less than the required floor area if the building is to be multistory. For an IHS facility, an estimate for the ratio of the site area to the footprint area is about nine. This is based on several assumptions including: Security requirements of a 15 m (50 ft.) envelope around building; LEED recommends a vegetated open space equal to the building footprint to promote biodiversity and stormwater management assistance; about 10% of the footprint and parking area (main impervious surfaces) will be needed for onsite Stormwater storage; 5 parking spaces per 1,075 ft^2 of footprint space (250 ft^2 per parking space which includes half an aisle); on-site wastewater disposal; a 25% footprint expansion area; a small allotment for fuel storage, water storage and misc.; and a 1.2 safety factor. Each site will be different based on soils, local rainfall, topography etc., this is solely for purposes of estimating a size.

13.4.3.5.4 Site Size Staff Quarters. The land requirement for staff quarters is estimated by multiplying the number of required quarters by 0.35 acres. This assumes 5% of the proposed space for staff quarters is for recreational facilities. Space exceeding 5% for recreation or other special features must be justified.

13.4.3.5.5 Site Location. Property locations can be a general narrative description for each site that also includes the community name, GPS Coordinates, street address, and legal description (metes and bounds, etc.). Proximity to important locations like population centers and other

facilities should be noted. Airport locations, flight patterns and noise contours should be considered. Information on adjacent property use, future use and ownership may be pertinent to selection. Preference should be given to sites adjacent to or in proximity to: existing and/or proposed staff quarters; and existing and/or proposed IHS healthcare facilities.

13.4.3.5.6 Site Access. Access information should include discussion on any records of easement, public road frontage, responsible party for maintenance and repair, whether the property's frontage to the public road is sufficient for safe access, whether access roads are within standards (width, grade, and drainage), whether additional access roads would be required, and what improvements would need to be performed. The IHS has some restrictions on using funds to improve public access, so other potential funding sources should be identified if applicable. Certain access issues preclude a property from even being considered as a site.

If any alternative site will impact traffic and/or noise in the surrounding community it should be noted.

13.4.3.5.7 Site Ownership. Ownership information should include information on trust status, fee status, current owner, chain of title, deed conditions, and title reports. Ownership information for trust property should address if it can be set-aside by the tribe and its availability for construction of a health care facility. Certain ownership issues will preclude a property from even being considered a site.

13.4.3.5.8 Physical Description. Physical description of the property in terms of topography must be included. Locations of streams, swales, ridges, significant landforms, wetlands, floodplains, large trees, tree cover, culverts, paved areas, fences power lines, gas, lines, easements, encroachments for adjacent structures, on-site roads, presence of land locked parcels, cemeteries (adjacent or on-site), and historical properties. Phase II SSER will include a geotechnical report; however, available data on soil information concerning water tables, radon potential, naturally occurring asbestos, percolation, potential geothermal, and soil types could be critical in the site selection process. Solar exposure and weather patterns should be noted.

13.4.3.5.9 Facility Occupancy Type. Whether the facility, a building or portion thereof is a Healthcare Occupancy, an Ambulatory Healthcare Occupancy, or an occupancy other than healthcare and ambulatory healthcare needs to be specified.

A Healthcare Occupancy is defined in NFPA 101 Section 3.3.134.7 as "an occupancy used for purposes of medical or other treatment or care of four or more persons where such occupants are mostly incapable of self- preservation due to age, physical or mental disability, or because security measures not under the occupants' control." Although this definition does not address sleeping accommodations, Chapters 18 and 19 on health care occupancies address health care occupancies with overnight sleeping accommodations. Incapable of self-preservation means that in the event of fire, a person is not able to leave the building on his or her own (even if it requires the use of a wheelchair). For the purposes of occupancy definition, the fact that a person is in a wheelchair does not make him or her incapable of self-preservation. Healthcare Occupancy includes "general hospitals, psychiatric hospitals, and specialty hospitals," as well as Skilled Nursing Facilities (SNF), Nursing Facilities (NF), and intermediate care facilities.

Ambulatory Care Occupancy is defined by NFPA 101 Section 3.3.134.1 as "a building or portion thereof used to provide services or treatment simultaneously to four or more patients that (1) provides, on an outpatient basis, treatment for patients that renders the patients incapable of taking action for self-preservation under emergency conditions without the assistance of others; or (2) provides, on an outpatient basis, anesthesia that renders the patients incapable of taking action for self-preservation under emergency conditions without the assistance of others."

A Business Occupancy is defined by NFPA 101 Section 3.3.134.3, as a building "used for account and record keeping or the transaction of business other than mercantile." This is a very broad definition, but as it applies to health care, the definition refers to a facility where no one stays overnight and where three or fewer individuals are rendered incapable of self-preservation at any given time by virtue of their treatment.

13.4.3.5.10 Water and Wastewater. The potable water usage requirements and wastewater generation in gallons per day (gpd) in total and for each component of the facilities (clinic, quarters, etc.) including fire flow and fire flow storage must be specified. The underlying assumptions and calculations for water usage and wastewater generation must be shown. Potable water need is calculated based on the number of Outpatient Visits (OPV), Average Daily Patient Load (ADPL), number of staff and the number of staff quarters. The IHS estimates potable water demand at 30 gpd per staff, plus 30 gpd per OPV, plus 150 gpd per ADPL, plus 340 gpd per staff quarters. The total estimated potable water need is:

OPVs/250 days + # of Staff x 30 gpd + ADPL x 150 gpd + # of Qtrs Units x 340 gpd =_____ gpd

If the staff quarters are going to be at a different location than the facility, then the water requirements should be identified for each site. Costs for extensions, off-site improvements, connection fees or on site facilities must be considered. Onsite water systems need to consider as applicable, source type, depth to groundwater, distance to surface source, treatment, raw water quality, available quantity, nearby sources of contamination, amount of required on-site storage and space for facilities. Public water system quality needs to be verified.

Every inpatient facility must have an emergency plan for potable water. If there are more than one water source at the alternative sites, include information on both systems.

The actual required fire flow requirements will be specified by the design engineer consistent with the IHS Architect/Engineer (A/E) Guide, the National Fire Protection Association (NFPA) codes, the facility size, and occupancy type. The capacity for fire flow is often provided using a fire pump connected to on-site water storage. Other times an existing public water utility has the capacity to provide fire flow. The NFPA 14 code minimum for fire suppression systems is based on the number of stairwells in the building. The engineer must design for 500 gpm for the first stairwell and for 250 gpm for all subsequent stairwells, with a maximum of 1,000 gpm for fully sprinklered hospitals and a maximum of 1,250 gpm for buildings not fully sprinklered. Adequate available water pressure should be > 20 psi.

Wastewater generation is estimated to be 80 percent of usage. Information on public systems, available capacity, operating utilities and fees needs to be described. The location, depth and size of existing collection and distribution lines should be noted along with any need for pumping

stations. Onsite wastewater disposal issues ranging from required space, treatment, soil suitability and depth to water table must be identified.

13.4.3.5.11 Stormwater Management. Potential on-site stormwater[1] or off site stormwater, disposal requirements must be identified including:

- Onsite drainage patterns
- Offsite drainage issues
- Regional stormwater management
- Floodplain locations
- Requirements for non-point pollution control
- Need for onsite drainage improvements
- Need for culverts
- Retention/detention pond requirements
- Possible outfall easements and space for stormwater collection/disposal facilities
- Snow removal, street plowing and removed snow disposal may need to be considered

13.4.3.5.12 Solid Waste Disposal. Medical waste and solid waste disposal issues associated with the site should be identified. Trash removal options should be contrasted.

13.4.3.5.13 Renewable Energy Considerations. Consider energy implications in site selection and possible building orientation. Prevailing winds, potential for active and passive solar strategies, potential for sun exposure of pedestrian/parking areas in northern climates to assist with melting snow or ice, existing trees for shade and geothermal options are all factors that can be described, considered and compared in the site selection process.

Passive solar heating takes advantage of the existing heat generated by the sun to heat building spaces and does not involve any mechanical devices. A facility designed for passive solar heating needs to be oriented to allow heat from the sun to enter in the winter and not in the summer. Although site specific, in the Northern Hemisphere passive solar uses south-facing windows to capture the sun's rays in the winter when the sun is positioned low in the sky. In the summer when the sun is high in the sky, the sunlight is blocked by awnings hanging over the south facing windows. The building material is chosen for its ability to absorb, store and release heat forming a thermal mass that keeps the temperature stable. Active solar power uses solar collectors to convert solar energy to heat and electric power.

Planned renewable energy produced onsite (wind, solar, etc.) should be included in the alternative site's available energy and power evaluation.

13.4.3.5.14 Energy and Power. Energy is the capacity to perform work. Power is the rate at which energy is generated or used. The units for power are Watts (W), which is the same as Joules per second (J/s). The terms load and demand often refer to power. Electricity and other sources supply the power demand of a facility. The major electrical loads in healthcare facilities

[1] *The Energy Independence and Security Act of 20 section 438, states, "The sponsor of any development or redevelopment project involving a Federal facility with a footprint that exceeds 5,000 square feet shall use site planning, design, construction, and maintenance strategies for the property* ***to maintain or restore****, to the maximum extent technically feasible,* ***the predevelopment hydrology*** *of the property with regard to the*

are:

Lighting Loads

- Inside Lighting
- Special Lighting
- Outdoor Lighting

Data Center Power Loads[2]

- Cooling System
- The UPS System
- The Critical IT Loads

Equipment Power Loads

- HVAC and Refrigeration
- Elevators/Escalators
- Building Pumps (Fire, Sump, Water, etc.)
- Medical Pumps (Air, Vacuum, etc.)
- Kitchen Equipment
- Data Processing/PCs
- Communication Equipment
- Business (Copier/Printers) Machines
- Laundry

Medical Equipment Power Loads Diagnostic Imaging[3]

- Medical Records
- Laboratory
- Surgery
- Intensive Care, Recovery, Emergency
- Physical and Occupational Therapy
- Inhalation Therapy
- Pharmacy
- Materials Management

The proposed facility will need an adequate supply energy that can be furnished at a sufficient rate to meet the estimated demand. The energy and power requirements can be estimated using the formulas in this guideline or calculated using another method or cited from existing data provided the source and assumptions are stated in the report. The estimates are for site selection only. A detailed Energy/Power budget based on actual proposed equipment and loads will be

[2] The presence and size of Data Centers and Diagnostic Imaging (DI) loads can impact the estimated energy and power requirements and should be considered. The formula values below are based on historical IHS average usage data, which includes the loads of existing Data Centers and DI Systems. However, if the proposed facility is mostly DI or data space, the energy needs per unit area may be higher.
[3] See note #2

performed by the Architect/Engineer for the facility design.

The facility's estimated annual electrical energy need in kilowatt hours (kWh) is multiplied by 1.25 to accommodate code (NEC or other) and provide a factor of safety. This value is used as the minimum amount of energy kWh that must be available to the site annually.

Electricity and natural gas are typically provided by the utility as they are consumed, therefore in addition to having an adequate supply available, it must be verified that the electricity and/or natural gas can be furnished at a sufficient rate to meet the estimated demand (power requirement). The facility's estimated electric Apparent Power[4] in kilovolt-amps (kVA) is multiplied by 1.25 to accommodate the code (NEC or other) and provide a factor of safety. This value is the minimum amount of power that must be available at the site.

Propane and heating oil are typically stored on site and consumed as needed. Verification of the supply is all that is needed.

The alternative sites that meet the energy and power requirements can then be contrasted based on other energy and power considerations including:

- Utility Feeder Type; Single Radial Line, Dual Line, or Network Line. A radial system has multiple radial lines with each line a single path for power flow to all users on that radial line. Radial Systems are the most common type of grid system. If a fault occurs in one of the radial lines, only the users on that line are impacted. Often the Utility can isolate the fault and provide power to part of the line during repairs. Looped and Network Systems provide multiple paths for power flow to all the users. If a fault occurs, power can be provide to more users during repairs. These systems are more common in urban settings.
- Estimated costs to extend the utility to each site along with the distance; terrain issues, etc.
- If the alternative sites are provided energy from different vendors and/or sources, then contrast:
    - Reliability: -3 year Utility Power Outage History Index,15-minute outages per year
    - Utility Variance History grouped into Voltage Variation from 0-5%, 6-9%, or ≥10%
    - Utility's rate structure (cost for energy), and
- The options for electric, natural gas, propane, and/or potential renewable energy available.

The graph below shows per unit area, IHS overall energy usage[5], the maximum inpatient and outpatient facility energy usage intensity targets[6] and the recommended energy availability for inpatient and outpatient facilities.

[4] The Apparent Power is the necessary volt-amp power required. Apparent Power is a combination of Reactive Power (capacitive and inductive components) and True Power (resistive components). Most circuitry contains a combination of these components.
[5] FY 2015 GHG Inventory Data Report V6.1 16 01 08 resubmit 4.
[6] 3Federal Register, Vol. 75, No. 199 at http://www.gpo.gov/fdsys/pkg/FR2010-10-15/pdf/FR-2010-10-15.pdf

Graph 1. Annual Energy Consumption per Building Gross Area

The following table is a suggested energy budget based on the above values, the Energy Information Administration, (EIA) 2012 Commercial Building Energy Consumption Survey (CBECS), and the 2009 Building Energy Data Book for Newly Constructed Hospitals and Medical Facilities. (Latest editions of these documents) The assumed source mix and energy values may vary depending on the location, the available sources, climate, etc. The power demand values are based on the International Electrotechnical Commission (IET) Building Area Method, EIA 2012 CBECS and the National Electrical Code (NEC) minimum loads.

Table 1. Suggested Energy Budget

	Energy Availability		Power Demand		Assumed Source Mix
Inpatient Facilities	440 kWh/m^2/yr	139,565 BTU/ft^2/yr	0.14 kVA/m^2	44.5 BTU/hr/ft^2	40% Electric 60% other sources
Outpatient Facilities	210 kWh/m^2/yr	66,610 BTU/ft^2/yr	0.13 kVA/m^2	40.5 BTU/hr/ft^2	60% Electric 40% other sources
Staff Quarters	125 KWh/m^2/yr	39,650 BTU/ft^2/yr	0.13 kVA/m^2	40.5 BTU/hr/ft^2	40% Electric 60% other sources

The energy and power needs estimated by the formulas below are calculated from the Energy/Power budget recommended above. If different energy budget assumptions are used in the site selection process, they should be noted in the report along with a brief rationalization. These estimates are only for the purpose of selecting and evaluating sites. A comprehensive, detailed Energy/Power budget based on actual proposed equipment and loads will be developed later by the A/E performing the facility design (See Technical Chapter 21.5 Electrical Guidelines).

The formulas for the minimum Electrical Energy and Power available are:

Inpatient
Energy:_____kWh / yr = BGA ft^2 x 41 kWh / ft^2/ yr x 0.4* x 1.25**
Power:_____kVA = BGA ft^2 x 0.014 kVA / ft^2 x 1.25**
* Assumed Energy Budget =_____kWh / ft^2 / yr (60% fuel / 40% electric)
** 1.25 to accommodate the code (NEC or other) and provide a factor of safety

Outpatient
Energy:_____kWh / yr = BGA ft^2 x 20 kWh / ft^2/ yr x 0.6* x 1.25**
Power:_____kVA = BGA ft2 x 0.013 kVA / ft^2 x 1,25**
* Assumed Energy Budget =_____kWh / ft^2/ yr (40% fuel / 60% electric)
** 1.25 to accommodate the code (NEC or other) and provide a factor of safety

Staff Quarters
Energy:_____kWh/yr = BGA ft^2 x 12 kWh / ft^2 / yr x 0.4* x 1.25**
Power:_____kVA = BGA ft^2 x 0.013 kVA / ft^2 x 1.25**
* Assumed Energy Budget =_____kWh / ft^2 / yr (60% fuel / 40% electric)
** 1.25 to accommodate the code (NEC or other) and provide a factor of safety

Total Electrical Need
Energy:_____kWh/yr
Power:_____ kVA

Natural gas is usually sold by the cubic foot. Propane and heating oil are typically sold by the gallon. The common unit for comparing fuels in the United States is the British Thermal Unit (BTU). The BTU content of each fuel provided below is the average heat content for fuels consumed in the United States in 2015. There are various heating values for fuel. The Higher Heating Value of a particular fuel is the total thermal energy including what is lost during combustion to the heat of water vapor condensation. The Lower Heating Value (LHV) already subtracts the heat of condensation and is the value used in this guideline's calculations. The fuel conversion factors used in the following calculations are:

	kWh	Natural Gas	Liquid Propane	Fuel Oil	BTU
1 kWh	1 kWh	3,345 ft^3	0.0383 gallons	0.0247 gallons	3,413 BTU
Natural Gas (ft^3)	0.30 kWh	1 ft^3			950 BTU
Liquid Propane (gallons)	26.11 kWh		1 gallon		84,650 BTU
Fuel Oil (gallons)	40.57 kWh			1 gallon	130,000 BTU

Alternative sites need to have available the minimum amount of fuel that will be used (Typically only one).

Natural Gas

Inpatient
Energy:_____ft^3/yr = BGA ft^2 x 137 ft^3 / ft^2 / yr x 0.6*
Power:_____ ft^3/hr = BGA ft^2 x 0.065 ft^3 / ft^2 / hr
* Assumed Energy Budget =_____kWh / ft^2 / yr (60% fuel / 40% electric)

Outpatient
Energy:_____ft^3/yr = BGA ft^2 x 65 ft^3 / ft^2 / yr x 0.4*
Power:_____ ft^3/hr = BGA ft^2 x 0.035 ft^3 / ft^2 / hr
* Assumed Energy Budget =_____kWh / ft^2 / yr (40% fuel / 60% electric)

Staff Quarters
Energy:_____ft^3/yr = BGA ft^2 x 65 ft^3 / ft^2 / yr x 0.6*
Power:_____ ft^3/hr = BGA ft^2 x 0.03 ft^3 / ft^2 / hr
* Assumed Energy Budget =_____kWh / ft^2 / yr (60% fuel / 40% electric)

Total Natural Gas Need
Energy:_____ft^3/yr
Power:_____ ft^3/hr

Liquid Propane Gas

Inpatient
Energy:_____gallons/yr = BGA ft^2 x 1.6 gallons / ft^2 / yr x 0.6*
* Assumed Energy Budget =_____kWh / ft^2 / yr (60% fuel / 40% electric)

Outpatient
Energy:_____gallons/yr = BGA ft^2 x 0.8 gallons / ft^2 / yr x 0.4*
* Assumed Energy Budget =_____kWh / ft^2 / yr (40% fuel / 60% electric)

Staff Quarters
Energy:_____gallons/yr = BGA ft^2 x 0.29 gallons / ft^2 / yr x 0.6*
* Assumed Energy Budget =_____kWh / ft^2 / yr (60% fuel / 40% electric)

Total Liquid Propane Gas Need
Energy:_____gallons/yr

Heating Oil

Inpatient
Energy:_____gallons/yr = BGA ft^2 x 1.0 gallons / ft^2 / yr x 0.6*
* Assumed Energy Budget =_____kWh / ft^2 / yr (60% fuel / 40% electric)

Outpatient
Energy:_____gallons/yr = BGA ft^2 x 0.5 gallons / ft^2 / yr x 0.4*
* Assumed Energy Budget =_____kWh / ft^2 / yr (40% fuel / 60% electric)

Staff Quarters
Energy:_____gallons/yr = BGA ft^2 x 0.45 gallons / ft^2 / yr x 0.6*
* Assumed Energy Budget =_____kWh / ft^2 / yr (60% fuel / 40% electric)

Total Liquid Propane Gas Need
Energy:_____gallons/yr

Total Estimated Facility Electrical Energy and Power		
	kWh	Power
Electricity	_____ kWh / yr	_____ kVA demand

Total Estimated Facility Fuel Requirements		
	Energy	Power
Natural Gas	_____ ft^3/yr	_____ ft^3/hr
Liquid Propane	_____ gallons/yr	
Fuel Oil	_____ gallons/yr	

13.4.3.5.15 Information Technology and Data Systems Infrastructure Requirements. Information Technology (IT) improves and evolves rapidly. The time lapse between site selection and the Commissioning of the newly constructed facility is sufficient to see a change in IT requirements. The time lapse between publishing these guidelines and their application in your site selection process is probably even greater. Consult with Engineering Services or other IT expertise if you are uncertain about estimating current IT site selection related needs of the planned

Health Information Technology (HIT) plays a critical and expanding role in the healthcare as technologies including electronic health records, e-care technologies and mobile health technologies become central to expanding access to primary, acute and preventive ca lowering costs and reforming reimbursement incentives. Telemedicine and remote monitoring application remove geography and time as barriers to care, allowing instant access with providers and real-time tracking of patient vitals from outside the facility.

The HIT systems, processes and emphasis within IHS facilities are:

- The secure storage, access and exchange of appropriate health information among patients, consumers, providers, government and quality entities, and insurers.
- The IHS Electronic Health Record (EHR), the source and Patient Management System (RPMS), a decentralized integrated solution for management of both clinical and

administrative information.

- The Health Information Exchange (HIE) that collects patient history documents from various sources, facility types and locations for the secure exchange of relevant patient data.
- Telemedicine / Telehealth

For site selection, the required level of internet/telephone service to support the above services at the facility is estimated. Then the alternative sites are evaluated based on their available level of internet/telephone service. The primary metric used is Bandwidth available compared to Bandwidth required to site. Bandwidth is the data transfer rate, usually measured in bits per second (bps), millions of bits per second (megabits per second, or Mbps), or billions of bits per second (gigabits per second, or Gbps). Factors that go into estimating bandwidth requirements are:

- Number of users
- Where Users are located
- Real-time transactions
- Hardware
- Storage technology

The Table below shows recommended minimum Mbps bandwidth speeds for various applications based on information from the Federal Communications Commission (FCC) [7].

	≥4 Mbps	≥10 Mbps	≥25 Mbps	≥100 Mbps	≥1 Gbps
Health Location (1 physician)	X				
Small Health Station (2-4 physicians, ~3,000 ft^2)		X			
Nursing home		X			
Large Health Station (~ 5 physicians, ~6,000 ft^2)		X			
Health Center Outpatient Clinic (5-25 physicians)			X		
Alternate Rural Health Clinic			X		
Hospital				X	
Academic/Large Medical Center					X
Supports management functions, email, and web browsing	X	X	X	X	X
Simultaneous EHR and high-quality SD video consultations	X	X	X	X	X
Enables non real-time image downloads	X	X	X	X	X
Enables real-time image transfer			X	X	X
Enables remote monitoring	X	X	X	X	X
Enables continuous remote monitoring				X	X
Makes possible use of HD video consultations			X	X	X
Image files (~10MB) should download in <30 seconds	X	X	X	X	X
Large image files (~20MB) should transfer in <10 second			X	X	X
Very large image files (~50MB) should transfer < 5 seconds				X	X

Possible broadband options are listed in the FCC table below[8].

Protocols	Common Broadband Access/ Circuit Types	Common Associated Bandwidths
Mass Market Broadband (Consumer or Business Class	ISDN	Speeds range greatly according to package
	Fixed Wireless Access	

[7] Federal Communications Commission. Health Care Broadband in America; Early Analysis and a Path Forward. OBIT Technical Paper #5. August 2010

[8] Federal Communications Commission. Health Care Broadband in America; Early Analysis and a Path Forward.

Protocols	Common Broadband Access/ Circuit Types	Common Associated Bandwidths
Internet Service)	DSL	
	Cable (DOCSIS)	
Dedicated Internet Access	Fractional T1	< 1.5 Mbps
	T1	1.5 Mbps
	Bonded T1	3–6 Mbps
	Fractional DS3	6–45 Mbps
	Fast Ethernet	10–100 Mbps
	DS3	45 Mbps
	OC3	155 Mbps
	Gig Ethernet	100–1,000 Mbps
	Satellite	Speeds range

The other potential IT metrics beyond bandwidth that should be considered during the site evaluation are latency, reliability, packet loss, and jitter.

Latency is the wait time caused by the signal travelling geographical distance as well as over the various pieces of IT equipment. Network Latency can be the result of: the transmission medium (whether optical fiber, wireless, or other); Router and other processing equipment delays; and When signals must be boosted by a repeater.

Packet loss occurs when transmitted packets do not reach their destination, causing noticeable effects in digital communications.

Jitter is a deviation in the amplitude, phase timing or the width of the signal pulses of a high-frequency digital signal. Jitter is often caused by electromagnetic interference (EMI) or "crosstalk" with other signals. Jitter can cause monitors to flicker, produce audio clicks, loose transmitting data etc. The amount of allowable jitter is highly dependent on the application.

Recommended targets for these metrics are shown in the FCC table below[9].

Quality Metric	Recommended Target
Reliability (uptime)	99.9%
Latency	<50 ms primary <120 ms back-up
Jitter	<20 ms
Packetloss	<1%

Finally, if a site(s) does not have broadband or sufficient bandwidth, compare the estimated cost/distance to extend/upgrade the service. In conclusion, for the purpose of site selection, we complete and compare the data in the table below:

	Site #1	Site #2	Site #3
Bandwidth Available			
Cost/Distance to extend Broadband to site			
Broadband Access/ Circuit Type			
Reliability (If Known)			
Latency (If Known)			
Jitter (If Known)			
Packetloss (If Known)			

13.4.3.5.16 Emergency Response Systems. Availability, adequacy and proximity of emergency response services from fire, rescue and police need to be compared. Usually the distance from

[9] Federal Communications Commission. Health Care Broadband in America; Early Analysis and a Path Forward. OBIT Technical Paper #5. August 2010

the service to the alternative sites and the time required to cover that distance (if significant) are cited and compared.

	Site #1	Site #2	Site #3
Distance to Fire Department			
Fire Department Response Time			
Distance to Police Department			
Police Response Time			
Will site use result in negative impact on Emergency Response Systems?			
Distance to Fire Department			

13.4.3.5.17 Environmental Factors. Potential environmental and historical preservation concerns related to the National Environmental Policy Act (NEPA) and Section 106 processes under the National Historic Preservation Act should be taken into account. Although an Environmental Information and Documentation (EID) form based on an in-depth environmental review will need to be completed for the project including the selected site and that in-depth review may expose issues that were not noted in the site selection process, there can be apparent environmental issues with particular sites that can impact the selection. A proactive approach during the site selection process can identify environmental issues of particular sites and minimize adverse impacts and associated project delays. The amount of time and effort that goes into an Environmental Review versus an Environmental Assessment or versus an Environmental Impact Statement is substantial. The latest version of the IHS Environmental Review Manual provides a thorough explanation of the compliance requirements of the major laws and Executive Orders related to reviews. Some environmental factors are not evaluated because they are independent of the site and others are evaluated separately because they were considered under the Sustainability section of this report (e.g. avoiding agricultural sites). In general, for the purpose of site selection, issues related to the following should be noted: Historic Properties including archeological sites; Threatened and Endangered Species; Water Resources including wetlands and other waters of the U.S.; Floodplains; Hazardous Substances; Noise; Visual Resources; Wilderness Areas; Coastal Resources; environmental justice issues; and Wild and Scenic Rivers.

Past uses of sites may be pertinent. Sustainability/LEED principles encourage the re-use of previously developed sites and brownfields. The environmental review process in previous versions of the Site Selection guidelines discouraged selection of previously developed sites and brownfields because of potential risks. Real Property transfers can be complicated by the presence of any environmental contamination. Siting a healthcare facility on a reclaimed brownfield can have perception problems.

13.4.3.5.18 Available Services. Most IHS facilities are provided for a specific community and therefore the alternative sites chosen for evaluation are within that community. It is assumed that alternative sites within or adjacent to the same community will have the same opportunities for housing, transportation, education, recreation, shopping, dining, and worship services. If for some reason there is a measurable difference in the availability of these services among alternative sites within the same community, those services should be considered in the evaluation. Sometimes IHS provides a facility that is not for one specific community (e.g. Youth

Regional Treatment Center) and the alternative sites to be evaluated could be in different communities. When evaluating sites in different communities, the availability of housing, transportation, education, recreation, shopping, dining, and worship services for staff must be considered, described and compared.

13.4.3.5.19 Sustainability. Site selection must address the Recommendations on Sustainable Siting for Federal Facilities guidelines (dated April 5, 2010), and OEHE Technical Handbook Chapter 21-17.2 Sustainability Guidelines for New Facility Construction, Build-To-Lease and Major Renovation. Therefore, the site selection process must address and give preference to sites that:

- Are NOT important farmland as defined by the USDA in 7 CFR 657.5;
- Are previously developed AND whose elevation is higher than 5 ft above the 100-year floodplain;
- Are NOT land identified as habitat for any species on Federal or state threatened or endangered lists;
- Are NOT land within 100 ft of any wetlands as defined by 40 CFR Parts 230-233 and Part 22;
- Are previously developed and further than 50 ft from any water body (seas, lakes, rivers, etc.);
- Are NOT public parkland;
- Are previously developed AND located within ½ mile of a residential neighborhood (average density of 10 units per acre) AND within ½ mile of at least 10 basic services;
- Are located within ¼ mile of one or more bus stops;
- Are located in existing central business districts and rural town centers;
- Have access to existing resources including water, sewer, and power.

13.4.3.5.20 Security Considerations. Security issues that influence site selection include: building setbacks, or standoff distances (50 feet envelope between building vehicles/parking/roads/drives etc.) that provide protective building perimeters and restrict access; whether the site lends itself to natural surveillance which increases the threat of apprehension through the perception that people can be seen; the site's level of passing vehicular traffic that could be used as a surveillance asset; and the site's natural access control which can limit the opportunity for crime by easily differentiating between public space and private space.

13.4.3.5.21 Airspace. Facility site selection must take into consideration any potential for interfering with an airport's Airspace. Restrictions are established on the heights of buildings, antennas, water tanks, and other structures as necessary to protect the airspace needed for operation of the airport. The criteria is found in FAR Part 77 imaginary surfaces [FAA (1993)] surrounding all airports in the United States. This regulation defines the requirements for notice to the FAA Administrator of certain proposed construction or alterations, and establishes standards for determining obstructions to navigable airspace. There are five imaginary surfaces: primary, approach, transitional, horizontal and conical. The purpose of these imaginary surfaces is to protect the airspace surrounding an airport from any hazards to air navigation. If an existing or proposed structure exceeds any imaginary surface, an aeronautical study will be required to identify the effects on the use of navigable airspace.

Of concern in site selection are projects that include any construction or alterations that are:

- More than 200 ft in height;
- Within 3.7 miles of an airport with a runway greater than 3,200 ft in length and protrude through an imaginary surface approximated as extending outward and upward at a slope of 1% from the runway;
- Within 2 miles an airport where all runways are less than 3,200 ft in length and protrude through an imaginary surface approximated as extending outward and upward at a slope of 2% or
- Within 5,000 ft of a heliport and protrude through an imaginary surface approximated as extending outward and upward at a slope of 5 to 1.

If a Heliport is proposed in the project, it should be identified in the Phase I SSER.

13.4.4 Phase II Site Selection Process. The Phase II SSER is a thorough engineering evaluation of the selected site. A Phase II SSER is necessary for all proposed facilities and is completed as supporting documentation for the POR. The Phase II SSER is to be organized as soon as the PJD has been approved by the IHS HQ and direction by IHS HQ has been given. The Phase II SSER for Joint Venture Projects are funded by the applicable Tribe, the non-Joint Venture Project SSERs are funded by IHS. IHS HQ will provide funding for the site survey, use plan, geotechnical/soil reports and environmental, archaeological and/or historical surveys portions of the Phase II SSER. Completing the Phase II SSER is a cooperative effort involving the applicable respective direct service IHS Area Office or Tribally Operated Program and all affected tribes. The applicable DES can be retained to assist as needed.

13.4.4.1 Trust Property. Before the Phase II SSER is initiated, the respective direct service IHS Area Office or Tribally Operated Program must, for trust property, obtain documentation from the BIA indicating that the sites that were proposed for selection consideration during Phase I, are still available for the proposed facility and that any of these sites, when finally selected, will be withdrawn from the tribal inventory.

13.4.4.2 Phase I SSER Review. Because a significant amount of time may have elapsed between completion of the Phase I SSER and commencement of Phase II, it is very important that the Phase I SSER be reviewed to ensure that the parameters which resulted in the original ranking of the sites have not changed. If these parameters have changed significantly, the Phase I SSER should be reviewed by the selection team to determine if a new ranking would result from these changes. If a new ranking results, a revised Phase I SSER must be prepared prior to commencing detailed evaluation of a specific site under Phase II. This revised Phase I SSER can be included in the Phase II SSER for the selected site.

13.4.4.3 Phase II Site Selection Evaluation Report. The Phase II SSER is a comprehensive engineering evaluation of the selected site and should incorporate much of the information found in the SSER Phase I specific to the chosen site. The Phase II should adequately describe the information below that will be used for the Engineer's Cost Estimate, design and project supporting documentation. The amount of detail depicted depends on how much impact the particular area of concern will have on the project design, costs and construction. The prototype

Phase II SSER in Appendix B provides an outline for presenting this information.

13.4.4.3.1 Executive Summary. The Executive Summary should be a succinct summarization of the report and should include:

- **Project Summary**: The Project Summary includes a brief narrative with the project name, location of the proposed health care facility project, the specific site and the IHS Area. It is a description of proposed project that matches the POR including the facility type (Hospital, Health Clinic, Small Ambulatory, dental, Quarter etc.), the program type (direct service, 638, Joint Venture, M&I, M&M, replacement, etc.), the size of facility, number of quarters, the main components of the projects, and any major special components. It should include a statement of validation for the site selected in the Phase I SSER.
- **SSER Authors:** Acknowledgments that identify the names and organization of individuals involved in the preparation of the report, or team members if a review team is reconstituted for this phase.
- **Results Summary:** Briefly state the results of the Phase II SSER Report, including a summary of the land and utilities specifications, selected site data, Environmental Determination, unresolved issues, areas of concern, conclusion and recommendations. Summarize any unusual or additional costs that must be added to the budget estimate.

13.4.4.3.1 Basic Project Data. The Basic Project Data should match the data in the POR and will include the following: the IHS Area; the name and location of the proposed facility; the type of facility type (Hospital, Health Clinic, Small Ambulatory, dental, Quarter etc.); the program type (direct service, 638, Joint Venture, M&I, M&M, replacement, etc.), the size of facility, the proposed health care services; the number of impatient beds; the number of projected annual Out Patient Visits (OPV)s; the projected annual Dental workload, the estimated number of proposed staff; the number of staff to have Government vehicles assigned for official use; the number of Government Vehicles that will need secured parking at the proposed facility; the number of buses estimated to need parking at the facility, number of quarters by type (bedroom size, handicapped accessible, gross area in sf^2) ; and any major special components. Basic project data that is not applicable should be clearly stated as such and not simply omitted so that the reader will know it was considered.

13.4.4.3.1 Site Size. The Land Area Required in Acres for the total proposed facility and each component of the facility. The basis for determining the plot size and if either the size requirements or method for determining the size changed from the Phase I SSER should be stated. The final site area requirement depends on the design of the facility, as well as features and characteristics of the specific site. Based on the Phase II SSER, more detailed site specific requirements will be known. The Phase II SSER report should list which items were examined and explain in what way site specific requirements were addressed. It should state that the consideration was given to the GSA security requirements, Sustainability recommendations, stormwater management, parking spaces, on-site wastewater disposal needs if applicable; expansion area; applicable allotments for fuel/water storage, and other issues (airstrips, wetlands, etc.) effecting the site size. Any applicable land requirement for staff quarters should be addressed including the items above along with any space for recreational facilities or other

special features. Quarter's site information should be consistent with the POR for the quarters. Record whether the quarters site is adjacent to the facilities site, or if not, the separation distance.

13.4.4.3.1 Site Location. Property location that includes the community name, GPS Coordinates, street address, and legal description (metes and bounds etc.). Proximity to important locations like population centers, airports and other facilities should be noted. Any pertinent information on adjacent property use, future use and ownership should be noted.

13.4.4.3.1 Site Access. Access information should include discussion on any records of easement, public road frontage, responsible party for maintenance and repair, affirmation that the property's frontage to the public road is sufficient for safe access, and that the access roads are within standards (width, grade, and drainage). If additional access roads are required, the improvements needed and the source of funding should be clearly identified. Any need for traffic control, pedestrian access and impact on surrounding traffic should be noted.

13.4.4.3.1 Site Ownership. Ownership information should include trust status, fee status, the current owner, chain of title, deed conditions and title reports. Ownership information for trust property should address affirm that the site can be set-aside by the tribe and is availability for construction for the health care facility.

13.4.4.3.1 Physical Description. Physical description of the property in terms of topography must be included. Locations of streams, swales, ridges, significant landforms, wetlands, floodplains, large trees, tree cover, culverts, paved areas, fences power lines, gas, lines, easements, encroachments for adjacent structures, on-site roads, presence of land locked parcels, cemeteries (adjacent or on-site), and historical properties. Phase II SSER will include a geotechnical report. Solar exposure and weather patterns should be noted with any proposed use plans. Note any flight patterns and noise contours. The physical description should also note the climate. Evidence of trespass, foot trails, sports fields or other suggest prior use that could be cause for community opposition should be noted.

13.4.4.3.1 Water and Wastewater. Potable water, fire flow water and wastewater disposal information with volumes, flows and how those requirements are going to be met need to be addressed. The following items should be included:

- The potable water, fire flow and fire flow storage needs for the facility (clinic, quarters, etc.).
- The underlying assumptions and calculations for water usage.
- If a back-up water source is also required it should be noted with associated requirements.
- It should be specified if the potable water needs are to be provided from:
    - Existing public systems,
    - Public systems with improvements funded through the project,
    - Existing onsite systems and/or
    - Proposed onsite systems.
- The wastewater flow rates for each component of the facilities (clinic, quarters, etc.).
- Whether the wastewater disposal needs are to be provided from:

  - Existing public systems,
  - Public systems with improvements funded through the project,
  - Existing onsite systems and/or
  - Proposed onsite systems.

- Details on existing on-site facilities describing infrastructure, capacity; locations, depths, etc.
- For facilities utilizing public systems:
  - The available capacity; required improvements funded by the project,
  - Line item improvement costs,
  - Location of utilities with respect to the site,
  - Infrastructure needs to bring services to the site,
  - Depths and sizes of collection and distribution lines,
  - The operating organization,
  - Connection fees,
  - Utility fees, and
  - Gravity connections versus pumping stations for proposed wastewater connections.

Appropriate documentation from the utility concerning connections should be attached to the report.

13.4.4.3.1 Stormwater Management. The strategy for managing stormwater must be identified. On-site stormwater or off site stormwater disposal requirements must be thoroughly addressed including onsite drainage patterns, offsite drainage issues, regional stormwater management, requirements for non-point pollution control, floodplain locations, need for onsite drainage improvements, need for culverts, retention/detention pond requirements, possible outfall easements, existing site impervious area, proposed facility site impervious area, estimated stormwater flows, and space for stormwater collection/disposal facilities. The underlying assumptions and calculations for stormwater management need to be included.

13.4.4.3.1 Solid Waste Disposal. Proposed medical waste and solid waste disposal plans should be clearly identified. Snow removal, street plowing and removed snow disposal should be addressed.

13.4.4.3.1 Energy and Power. Specific services for electric (including adequacy), natural gas, propane, and renewable energy must be noted. The underlying assumptions and calculations for energy requirements must be included. Appropriate documentation from the respective utility providers concerning connections should be attached to the report.

The Energy Independence and Security Act requires a >30% reduction in energy use per unit area in federal buildings, the Energy Policy Act of 2005 requires >7.5% of the total electricity consumed in IHS facilities come from renewable energy; a large share of this requirement will be achieved through new construction, therefore the site features that lend themselves to this end need to be highlighted for incorporation into the design.

13.4.4.3.1 Information Technology (IT) and Data System Infrastructure Requirements. Health Information Technology (HIT) plays a critical and expanding role in the healthcare as technologies including electronic health records, e-care technologies and mobile health technologies become central to expanding access to primary, acute and preventive care, lowering costs and reforming reimbursement incentives. Telemedicine and remote monitoring applications remove geography and time as barriers to care, allowing instant access with providers and real-time tracking of patient vitals from outside the facility.

The HIT systems, processes and emphasis within IHS facilities are:

- The secure storage, access and exchange of appropriate health information among patients, consumers, providers, government and quality entities, and insurers.
- The IHS Electronic Health Record (EHR), the Resource and Patient Management System (RPMS), a decentralized integrated solution for management of both clinical and administrative information.
- The Health Information Exchange (HIE) that collects patient history documents from various sources, facility types and locations for the secure exchange of relevant patient data.
- Telemedicine / Telehealth

For site selection, the required level of internet/telephone service to support the above services at the facility is estimated. The primary metric used is Bandwidth available compared to Bandwidth required to site. Bandwidth is the data transfer rate, usually measured in bits per second (bps), millions of bits per second (megabits per second, or Mbps), or billions of bits per second (gigabits per second, or Gbps). Factors that go into estimating bandwidth requirements are:

- Number of users
- Where Users are located
- Real-time transactions
- Hardware
- Storage technology

The Table below shows recommended minimum Mbps bandwidth speeds for various applications based on information from the Federal Communications Commission (FCC)[10].

	≥4 Mbps	≥10 Mbps	≥25 Mbps	≥100 Mbps	≥1 Gbps
Health Location (1 physician)	X				
Small Health Station (2-4 physicians, ~3,000 ft^2)		X			
Nursing home		X			
Large Health Station (~ 5 physicians, ~6,000 ft^2)		X			

[10] Federal Communications Commission. Health Care Broadband in America; Early Analysis and a Path Forward. OBIT Technical Paper #5. August 2010

	≥4 Mbps	≥10 Mbps	≥25 Mbps	≥100 Mbps	≥1 Gbps
Health Center Outpatient Clinic (5-25 physicians)			X		
Alternate Rural Health Clinic			X		
Hospital				X	
Academic/Large Medical Center					X

The other potential IT metrics beyond bandwidth that were considered during the site evaluation are latency, reliability, packet loss, and jitter.

Latency is the wait time caused by the signal travelling geographical distance as well as over the various pieces of IT equipment. Network Latency can be the result of: the transmission medium (whether optical fiber, wireless, or other); Router and other processing equipment delays; and When signals must be boosted by a repeater.

Packet loss occurs when transmitted packets don't reach their destination, causing noticeable effects in digital communications.

Jitter is a deviation in the amplitude, phase timing or the width of signal pulses of a high-frequency digital signal. Jitter is often caused by electromagnetic interference (EMI) or "crosstalk" with other signals. Jitter can cause monitors to flicker, produce audio clicks, loose transmitting data etc. The amount of allowable jitter is highly dependent on the application.

Recommended targets for these metrics are shown in the FCC table below[11].

Quality Metric	Recommended Target	
Reliability (uptime)	99.9%	
Latency	<50 ms primary	<120 ms back-up
Jitter	<20 ms	
Packetloss	<1%	

13.4.4.3.1 Emergency Response Services. Availability, adequacy and proximity of emergency response services from fire and police need noted.

13.4.4.3.1 Environmental Review and Determination. The documentation of a completed National Environmental Policy Act (NEPA) review (including related laws and Executive Orders) must be included in the SSER Phase II package. Title V projects might only include the determination (Categorical Exclusion, Finding of No Significant Impact, or Record of Decision) without the supporting materials because the Tribe is responsible for all Federal environmental and historic preservation requirements under a Title V Construction Project Agreements. For Direct Service projects, either the IHS EID form documenting a Categorical Exclusion, an Environmental Assessment and Finding of No Significant Impact, or Environmental Impact Statement and Record of Decision should be attached. Note that providing only an EID form for a Categorical Exclusion if a higher level of review (e.g. Environmental Assessment) will be required

[11] Federal Communications Commission. Health Care Broadband in America; Early Analysis and a Path Forward. OBIT Technical Paper #5. August 2010

can result in project delays. The latest IHS Environmental Review Manual provides a thorough explanation of the requirements of the major laws and Executive Orders related to reviews.

13.4.4.3.1 Services Availability. The availability of housing, transportation, education, recreation, shopping, dining, and worship services for staff at the chosen site should be described.

13.4.4.3.1 Sustainability Considerations. Site characteristics that impact or lend themselves to sustainability should be described. Site characteristics that impact and will be exploited with respect to LEED should be described. The impact that the project will have on the surrounding community in terms of traffic, noise, education, employment, schools, housing and emergency services needs to be noted. There should be sufficient detail provided so that designers will know to incorporate these aspects into the design and reviewers can follow the process from planning through design.

13.4.4.3.1 Security Considerations. Describe whether the chosen site was sized and of a configuration to permit the building to be located and oriented with a minimum of 50 ft buffer between the building and parking, roads, drives or other vehicle accessible areas. Describe whether the topography, landscape and site surroundings enable natural surveillance which reduces security risks due to the increased threat of apprehension because the site can be seen by people and passing vehicles. Describe whether the site's topography enables natural access control which can limit the opportunity for crime by easily differentiating between public space and private space.

13.4.4.3.1 Technical Evaluation. The Technical Evaluation affirms that the sections above both validate the Phase I SSER information and provide additional detail on the selected site and the criteria for which the selection was based. Site specific technical reports including the environmental review material and the geotechnical report are included in the Phase II SSER Appendix and referenced in this section. Specific statements and discussions covering all the parameters and subject matter of the above items that may have bearing on the design are included. Any envisioned potential problems are discussed along with alternative solutions to potential problems.

13.4.4.3.1 Geotechnical Investigation. The Geotechnical investigation results should be summarized. The geotechnical report should be referenced and attached to this report. The geotechnical evaluation should discuss topographical features, soils, foundation considerations, seismic considerations, drainage, geological features that may impact the design, slopes, rock, and recommendations. Any areas of concern like slope stability, erosion or rock outcrops.

13.4.4.3.1 Maps. The SSER should contain pertinent maps. Examples of maps include zoning maps, topography maps, water/sewer availability maps, soils maps, floodplain maps, wetland maps, FEMA maps, drainage maps, easement maps or any combination of the above.

13.4.4.3.1 Conclusions and Recommendations. Include a firm statement concerning the acceptability of the site; any areas of special concern, potential cost concerns, required actions, significant issues identified in the sections above and recommended approaches to identified problems.

13.4.3.7 Responsibility. The respective direct service IHS Area Office or Tribally Operated Program is responsible for initiating all phases of the site selection evaluation process. As each phase of the site selection process is completed, the reports will be reviewed and recommended for approval by the preparing office, then forwarded to the Associate Director, Office of Environmental Health and Engineering at the applicable IHS Area, for approval. The respective direct service IHS Area Office or Tribally Operated Program has prime responsibility for completion of both the Phase I and Phase II SSER. This includes the responsibility for obtaining and verifying the data required to complete these reports.

The respective direct service IHS Area Office or Tribally Operated Program are responsible for contacting the clearinghouses, committees, state and local officials, and other Federal agencies while preparing the elements of the Phase II SSER for which they have prime responsibility.

The IHS Headquarters, DFPC, must indicate that the draft PJD complies with IHS planning guidelines and policies and that it is ready to be prepared in final for approval before the site selection and evaluation process should move forward.

To assist with the understanding of the established responsibilities, the following definitions are provided:

IHS Area:	**IHS Area Director or designee.**
TOP:	Tribally Operated Program (TOP). Tribe or tribal organization that has elected to operate a health program under P.L. 93- 638, the Indian Self-Determination and Educational Assistance Act.
AD	Associate Director, Office of Environmental Health and Engineering of respective IHS Area.
IHS SU	Service Unit or Service Area of proposed project.
IHS HQ:	IHS Headquarters. Director, Division of Facilities Planning and Construction (DFPC), Office of Environmental Health and Engineering (OEHE) or designee.
DES:	Director, Division of Engineering Service (Dallas or Seattle), or designee.
Prime:	The office(s) having "prime" responsibility for a listed task/activity is responsible for all planning, direction, execution, and follow-up of that task/activity. Where more than one office is indicate there is joint responsibility, which requires the offices concerned to agree on who takes the lead the equitable division of work, and a time schedule for completion of the task. Office(s) having a "prime" responsibility are to contact the office(s) which have "support" responsibilities to determine the extent to which their joint efforts are to be coordinated.
Phase I:	The initial phase of the site selection and evaluation process. A Team, consisting of representatives from the respective direct service IHS Area Office or tribally operated program, the Service Unit, and applicable tribe(s), evaluates various sites for each opposed health care facility project in the IHS Are and selects one for further consideration during Phase II.
Phase II:	This is the final phase of the site selection and evaluation process in which the recommended site is reviewed in detail, to ensure its adequacy and to identify potential problems that may need addressing during design and construction.
Support:	The office(s) with "support" responsibility is to provide timely assistance and consultation to the office(s) having "prime" responsibility in accordance with a predetermined plan for coordination of joint efforts.
Tribe:	Tribal governing bodies or designated tribal organizations.

The following table lists activities related to the site selection and evaluation process for proposed IHS health care facilities and identifies the office or group having prime and support functions.

TASK ACTIVITY	**RESPONSIBILITY**	
PHASE I (SITE SELECTION SSER)	**PRIME**	**SUPPORT**
1. Identify projects that require SSERs.	DFPC	IHS Area, DES
2. Identification of at least three specific potential sites for evaluation.	Tribe, TOP	IHS SU IHS Area
3. Provide a tribal resolution to the IHS Area identifying the potential sites and indicating the tribe's support for the sites for the proposed facility.	Tribe	
4. Advise applicable IHS Area, TOP and DES that the draft PJD complies with IHS planning criteria and is ready to be prepared for approval.	DFPC	IHS Area, TOP, Tribe
5. Request the IHS Area to proceed with the preparation of the Phase I SSER, if applicable.	IHS Area, TOP	DES

TASK ACTIVITY	RESPONSIBILITY	
PHASE I (SITE SELECTION SSER)	**PRIME**	**SUPPORT**
6. Establish team to evaluate sites, site review schedule and preparation of the Phase I SSER.	IHS Area*	DES, TOP, Tribe
7. Obtain and verify data required to complete the Phase I SSER.	IHS Area*	DES, TOP, Tribe
8. Complete Phase I SSER.	IHS Area*	DES, TOP, Tribe
9. Review the Phase I SSER and recommend it for approval. Forward 2 with original sigma to the approving official.	IHS Area*	DES, TOP, Tribe
* The IHS Area office can retain the services of the DES to assist with any aspect of the SSER		
10. Review and approve Phase I SSER.	AD OEHE	IHS Area, TOP
11. Furnish copies of approved Phase I SSER to DFPC and DES.	AD OEHE	IHS Area, TOP
12. Maintain and keep current the results of the Phase I SSER.	DES	IHS Area, TOP
13. In approving the PJD, provide concurrence for the approved Phase I SSER.	IHS-HQ	
PHASE II (FINAL SSER)		
1. Advise the IHS Area, DES or TOP that the final draft POR meets IHS planning criteria and is ready to be prepared for approval. Provide an approved final draft copy of POR to the IHS Area, TOP and/or DES.	DFPC	IHS Area, TOP, Tribe, DES
2. Request the IHS Area to proceed with the preparation of the Phase II SSER. Includes validation of Phase I SSER, scheduling of Phase site study and preparing Phase II SSER.	IHS Area, TOP	DES
3. As necessary, request funds from IHS-HQ for completion of Phase II.	IHS Area*	DES
4. Provide funds to IHS Area for site survey, use plan, soils investigation and archaeological and/or historical survey elements of the Phase II SSER.	IHS-HQ (DFPC)	
5. Obtain documentation from the BIA, verifying that site is available for the proposed new facility, and that the site has been withdrawn from tribal inventory for use by the IHS.	IHS Area, TOP	DES
6. Schedule and conduct site visit(s) to evaluate the site(s).	IHS Area*/TOP	DES, TOP
7. Obtain and verify data required for the Phase II SSER.	IHS Area*/TOP	DES, TOP
8. Contact applicable Federal, State and local agencies, as required, to obtain necessary permits and clearances, e.g. road access, rights-of-way, etc.	IHS Area*	DES, TOP
9. For the proposed site, prepare environmental documentation, as required, complying with applicable public laws and regulations. The Phase II SSER cannot be completed until an environmental determination has been provided. This could be a CATEX, EA, or EIS	IHS Area, TOP	DES, DFPC
10. Complete Phase II SSER.	IHS Area*,TOP	ES, TOP
11. Review the Phase II SSER and recommend it for approval. Forward to the approving official.	IHS Area*	ES, TOP
12. Review and approve Phase II SSER.	AD OEHE	IHS Area, TOP
13. Furnish copies, with original signatures, of the approved Phase II SSER to DFPC and DES.	AD OEHE	IHS Area, TOP
14. Maintain and keep current the results of the Phase II SSER.	IHS Area*, TOP	DES, TOP, Tribe
15. In approving the POR, provide concurrence of the approved Phase II SSER.	IHS-HQ	
* The IHS Area office can retain the services of the DES to assist with any aspect of the SSER		

13.4.5 Appendix.

13.4.5.1 Applicable Executive Orders, Public Laws, and Regulations.

The list of applicable Executive Orders, Public Laws and Regulations per Revised General Administration Manual, HHS Part 30, and Environmental Protection includes:

Note: Regulations change often. Confer with the environmental authority in the area and OEHE headquarters for the latest regulation.

STATUTES AND EXECUTIVE ORDERS		
Environmental statute or executive order	**Citation**	**Part 30 location**
Acid Precipitation Act of 1980	42 U.S.C. §§ 8901 to 8912.	
Act to Prevent Pollution From Ships	33 U.S.C. §§ 1901 to 1912.	
Agricultural Act of 1970	7 USC 612c-2 and 7 USC 1427a. PL 91-524	
American Indian Religious Freedom Act	42 U.S.C. § 6.	

STATUTES AND EXECUTIVE ORDERS		
Environmental statute or executive order	**Citation**	**Part 30 location**
Antiquities Act of 1906	16 U.S.C. §§ 43 to 433	30–00–20K
Archeological and Historic Preservation Act of 1974	16 U.S.C. §§ 469 to 469c–1	30–00–20K
Archeological Resources Protection Act of 1979	16 U.S.C. §§ 470aa to 470mm.	
Asbestos Hazard Emergency Response Act of 1986	15 U.S.C. §§ 2641 to 2656	
Atomic Energy Act of 1954	42 U.S.C. §§ 2011 to 2297g–4.	
Aviation Safety and Noise Abatement Act of 1979	49 U.S.C. app. §§ 2101 to 2125.	
Clean Air Act	42 U.S.C. §§ 74 to 7671q	30–00–20A
Clean Vessel Act of 1992	33 U.S.C. § 1322 note.	
Clean Water Act [Federal Water, Pollution Control Act]	33 U.S.C. §§ 1251 to 1387	30–00–20B
Coastal Barrier Resources Act.	U.S.C. §§ 3501 to 3510.	
Coastal Wetlands Planning, Protection, and Restoration Act	16 U.S.C. §§ 3951 to 3956.	
Coastal Zone Management Act of 1972	16 U.S.C. 1451 to 1464	30–00–20C; Ch. 30–40
Community Environmental Response ion Act	42 U.S.C. § 9620 note.	
Comprehensive Environmental Response, Compensation, and Liability Act	42 U.S.C. §§ 9601 to 9675	30–00–20D
Emergency Planning and Community Right-to-Know Act of 1986	42 U.S.C. §§ 11001 to 11050	300–20E; Ch. 30–60
Emergency Wetlands Resources Act of 1986	16 U.S.C. §§ 3901 to 3932.	
Endangered Species Act of 1973	16 U.S.C. §§ 1531 to 1544	30–00–20F; Ch. 30–40
Energy Policy Act of 1992	42 U.S.C. §§ 13201 to 13556	30–00–20G
Energy Policy and Conservation Act	42 U.S.C. §§ 6201 to 6422	
Energy Reorganization Act of 1974	42 U.S.C. §§ 5801 to 5891	
Energy Supply and Environmental Coordination Act of 1974	15 U.S.C. §§ 791 to 798	
Environmental Programs Assistance Act of 1984	42 U.S.C. § 4368a	
Environmental Quality Improvement Act of 1970	42 U.S.C. §§ 4371 to 4375	
Energy Independence and Security Act of 2007	42 U.S.C. 6291 et seq	
Farmland Protection Policy Act	7 U.S.C. §§ 4201 to 4209	
Federal Facility Compliance Act of 1992	42 U.S.C. §§ 6903, 6908, 6924, 6927, 6939c, 6939d, 6961, 6965.	
Federal Food, Drug, and Cosmetic Act	21 U.S.C. §§ 301 to 397	
Federal Insecticide, Fungicide, and Rodenticide	Act 7 U.S.C. §§ 136 to 136y	30–00–20H
Federal Land Policy and Management Act	43 U.S.C. §§ 1701 to 1784	
Federal Oil and Gas Royalty Management Act of 1982	30 U.S.C. §§ 1701 to 1757	
Fish and Wildlife Act of 1956	16 U.S.C. §§ 742a to 742d, 742e to 742j–2	
Fish and Wildlife Coordination Act	16 U.S.C. §§ 661 to 666c	30–00–201; Ch. 30–40
Flood Disaster Protection Act of 1973	42 U.S.C. §§ 2414 to 4001 to 4129	
Forest and Rangeland Renewable Resources Planning Act of 1974	16 U.S.C. §§ 1600 to 1614	
Forest and Rangeland Renewable Resources Research Act of 1978	16 U.S.C. §§ 1641 to 1649	
Forest Ecosystems and Atmospheric Pollution Research Act of 1988	16 U.S.C. §§ 1642, 1642 note	
Geothermal Energy Research, Development and Demonstration Act of 1974	30 U.S.C. §§ 1101 to 1164	
Global Change Research Act of 1990	15 U.S.C. §§ 2921 to 2961	
Global Climate Protection Act of 1987	15 U.S.C. § 2901 note	
Hazardous Substance Response Revenue Act of 1980	26 U.S.C. §§ 4611–4612, 4661–4662.	
Historic Sites Act of 1935 [Historic Sites, Buildings, and Antiquities Act]	16 U.S.C. §§ 461 to 267	30–00–20J
Indian Environmental General Assistance Program Act of 1992	42 U.S.C. § 4368b	
Lead-Based Paint Exposure Reduction Act	15 U.S.C. §§ 2681 to 2692	
Lead-Based Paint Poisoning Prevention Act	42 U.S.C. §§ 4821 to 4846	
Lead Contamination Control Act of 1988	42 U.S.C. 300j–21 to 300j–26	
Low-Level Radioactive Waste Policy Act	42 U.S.C. §§ 2021b to 2021j	
Marine Mammal Protection Act of 1972	16 U.S.C. §§ 1361 to 1421h	
Marine Protection, Research, and Sanctuaries Act of 1972	16 USC § 31 to 1445a; 33 USC § 1401 to 14	30–00–20K; Ch. 30–40
Medical Waste Tracking Act of 1988	42 U.S.C. §§ 6992 to 6992K	
Migratory Bird Treaty Act	16 U.S.C. §§ 703 to 712.	
Mining and Mineral Resources Research Institute Act of 1984	30 U.S.C. §§ 12 to 1230a	
Multiple-Use Sustained-Yield Act of 1960	16 U.S.C. §§ 8 to 531	
National Climate Program Act	15 U.S.C. §§ 01 to 2908.	
National Contaminated Sediment Assessment and Management Act	33 U.S.C. § 1271 note.	
National Environmental Policy Act of 1969	42 U.S.C. § § 4321 to 4370d	30–00–20L; Ch. 30–50
National Forest Management Act of 1976	16 U.S.C. § § 472a, 521b, 1600, 1611 to 1614	

STATUTES AND EXECUTIVE ORDERS		
Environmental statute or executive order	**Citation**	**Part 30 location**
National Environmental Education Act	20 U.S.C. §§ 5501 to 5510	
National Historic Preservation Act	16 U.S.C. §§ 470 to 470X-6	30–00–20J
Native American Graves Protection & Repatriation Act	25 U.S.C. §§ 3001 to 3013.	
Noise Control Act of 1972	42 U.S.C. §§ 4901 to 4918.	
Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990	16 U.S.C. § § 4701 to 4751	
Nuclear Waste Policy Act of 1982	42 U.S.C. §§ 10101 to 10270.	
Occupational Safety and Health Act of 1970	29 U.S.C. §§ 651 to 678	30–00-20M
Ocean Dumping Act of 1988	33 U.S.C. §§ 1412a, 1414a to 1414c.	
Oil Pollution Act of 1990	33 U.S.C. §§ 2701 to 2761.	
Organotin Antifouling Paint Control Act of 1988	33 U.S.C. §§ 2401 to 2410	
Outer Continental Shelf Lands Act	43 U.S.C. §§ 1331 to 1356	
Outer Continental Shelf Lands Act Amendments of 1978	43U.S.C. §§ 1344 to 1356, 1801 to 1866; 30	
Pollution Prevention Act of 1990	42 U.S.C. §§ 13101 to 13109	30–00–20N; Ch. 30–70
Pollution Prosecution Act of 1990	42 U.S.C. § 4321 note.	
Power Plant and Industrial Fuel Use Act of 1978	42 U.S.C. §§ 8301 to 8483	
Refuse Act of 1899	33 U.S.C. § 407.	
Renewable Resources Extension Act of 1978	16 U.S.C. §§ 1671 to 1676	
Residential Lead-Based Paint Hazard Reduction Act of 1992	42 U.S.C. §§ 4851 to 4856	
Resource Conservation and Recovery Act of 1976	42 U.S.C. §§ 6901 to 6991i	30–00–20O
Rivers and Harbors Appropriation Acts (Selected sections)	33 U.S.C. §§ 401 to 426p and 441 to 454.	
Safe Drinking Water Act	42 U.S.C. §§ 300f and 300j–26	30–00–20P; Ch. 30–40
Shore Protection Act of 1988	33 U.S.C. §§ 2601 to 2609, 2621 to 2623.	
Soil and Water Resources Conservation Act of 1977	16 U.S.C. §§ 2001 to 2009	
Surface Mining Control and Reclamation Act of	30 U.S.C. §§ 1201 to 1328	
Toxic Substances Control Act.	15 U.S.C. §§ 2601 to 2692	30–00–20Q
United States Public Vessel Medical Waste Antidumping Act of 1988	33 U.S.C. §§ 2501 to 2504	
Uranium Mill Tailings Radiation Control Act of 1978	42 U.S.C. §§ 7901 to 7942	
Water Resources Research Act of 1984.	42 U.S.C. §§ 10301 to 10309	
Wild and Scenic Rivers Act	16 U.S.C. §§ 1271 to 1287	30–00–20R; Ch. 30–40
Wild bird Conservation Act of 1992	15 U.S.C. §§ 4901 to 4916	
Wild Free-Roaming Horses and Burros Act	16 U.S.C. §§ 1331 to 1340	
Wilderness Act	16 U.S.C. §§ 1131 to 1136.	
Wood Residue Utilization Act of 1980	16 U.S.C. §§ 1681 to 1687	
Executive Order (EO) 13007, Indian Sacred Sites	61 FR 26771 (1996)	
EO 12902, Energy Efficiency and Water Conservation at Federal Facilities	59 FR 11463 (1994)	
EO 12898, Federal Actions to Address Environmental Justice	59 FR 7629 (1994)	30–00–20S
EO 13101, Greeting the Government Through Waste Prevention,	58 FR 54911 (1993)	30–00–20N; Ch. 30–90
EO 12866, Regulatory Planning and Review	51735 (1993)	
EO 12856, Federal Compliance With Right-to-Know Laws and Pollution	58 FR 41981 (1993)	30–00–20E; Ch. 30–80
EO 12856, Federal Compliance With Right-to-Know Laws and Pollution Prevention Requirements	58 FR 41981 (1993)	30–00–20E; Ch. 30–80
EO 12852, President's Council on Sustainable Development.	58 FR 35841 as amended by EO 12855, 58 FR 39107; 42 USC §4321	
EO 12845, Requiring Agencies to Purchase Energy-Efficient Computer Equipment	58 FR 21887 (1993)	
EO 12844, Federal Use of Alternative Fueled Vehicles	58 FR 21885 (1993)	
EO 12843, Procurement Requirements and Policies for Agencies or Ozone-Depleting Substances	58 FR 21881 (1993)	
EO 12778, Civil Justice Reform	56 FR 55195 (1991); 28 U.S.C. § 519 note	
EO 12777, Implementation of Section 311 of the Federal Water Pollution Control Act of October 18, 1972, as Amended, and the Oil Pollution Act of 1990	56 54757 (1991); 33 U.S.C. § 1321 note	
EO 12761, Establishment of President's Environmental and Conservation Challenge Awards	56 FR 23645 (1991); 42 U.S.C. § 4321 note	
EO 12759, Federal Energy Management	56 16256 (1991); 42 U.S.C. § 6201 note	
EO 12630, Governmental Actions and Interference With Constitutionally Protected Property Rights	FR 8859 (1988); 5 U.S.C. § 601 note	
EO 12612, Federalism Considerations in Policy Formulation and Implementation	54 41685 (1987); 5 USC § 601 note	

STATUTES AND EXECUTIVE ORDERS		
Environmental statute or executive order	**Citation**	**Part 30 location**
EO 12580, Superfund Implementation	52 FR 2923 (1987), as amended by EO 12777, 56 FR 54757 (1991); 42 USC	
EO 12114, Environmental Affects Abroad Major Federal Actions	44 FR 1957 (1979); 42 USC § 4321	30–00–20M; Ch. 30–50
EO 12088, Federal Compliance With Pollution Control Standards.	43 FR 47707 as amended by EO 12580, 52 FR 2923); 42 USC § 4321 note	
EO 11990, Protection of Wetlands	42 FR 26961 (1997), as amended by EO 12608, 52 FR 34617 (1987); 42 U.S.C. § 4321 note	
EO 11988, Floodplain Management	42 FR 26951 as amended by EO 12148, 44 FR 43239 (1979); 42 USC § 4321 note.	30–00–20L; Ch. 30–40
EO 11987, Exotic Organisms	42 FR 26949 (1977); 42 U.S.C. § 4321 note	30–00–20L
EO 11912, Delegation of Authorities Relating to Energy	41 FR 158 (1976); amended EO 12003, 42 FR 37523 (1977), EO 12038, 43 FR 4957 (1978), EO 12148, 4 FR 43239 (1979), EO 12375, 47 FR 34105 (1982); 42 U.S.C. § 6201 note.	
EO 11738, Administration of the Clean Air Act and the Federal Water Pollution Control Act With Respect to Federal Contracts, Grants or Loans.	38 FR 25161 (1973); 42 U.S.C. § 7606 note.	
EO 11644, Use of Off-Road Vehicles on Public Lands	37 FR 2877 (1972), as amended by EO 11989, 42 FR 26959 (1977), EO 12608, 52 FR 34617 (1987); 42 U.S.C. § 4321 note.	
EO 11593, Protection and Enhancement of the Cultural Environment.	36 FR 8921 (1971); 16 U.S.C. § 470 note	30–00–20J
EO 11514, Protection and Enhancement of Environmental Quality.	35 FR 4247, as amended by EO 11991, 42 FR 26967 (1977); 42 USC § 4321 note	30–00–20L
EO 13514, Federal Leadership in Environmental, Energy, and Economic Performance	72 FR 33504 (June 18, 2007)	

End of Chapter 13.4 Site Selection and Evaluation Process