Attachment F. Real Property Legal and Physical Recommendations

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REAL PROPERTY LEGAL AND PHYSICAL RECOMMENDATIONS

Installations & Environment
Business Transformation Directorate

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1. Introduction

The Department of Defense (DoD) holds legal interests in nearly one million real property buildings, structures, and facilities as well as nearly 30 million acres of land at 6700 sites[1] throughout the world. Altogether, the scope and variety of these assets are unmatched by any other government or private enterprise. Financially, the current replacement value of the total real property asset inventory exceeds $620 billion, and the funds needed to operate, sustain and recapitalize the assets exceed $43 billion each year.[2] Real property assets available when and where needed, with the joint capabilities necessary to effectively and efficiently support DoD missions, are critical to DoD successful mission accomplishment.

"By establishing the Business Management Modernization Program (BMMP) and accompanying business transformation program office, the Department of Defense made a commitment to remedy its well-documented and frequently publicized financial and business problems. For this reason, The Secretary of Defense … affirmed business transformation as one of the Department's top ten priorities."[3] As an integral part of this program, the Installations and Environment (I&E) Domain is "…transforming, not just by incorporating best business practices, but also by extending these practices into new, previously unexplored areas."[4] More, this transformation is not just "…doctrinal innovation, and the employment of technology – it is also about changing our approach to the fundamental business practices and infrastructure "backbone" of the Department of Defense."[5]

The foundation for business management activities and decision making in the Installations and Environment (I&E) Domain is the Real Property Inventory (RPI). In order to develop a common approach and improve accountability for reporting real property assets throughout the Department of Defense (DoD) and to promulgate consistent terminology there is a need for a cross-service business process that will standardize the location reporting of real property assets. This standardization will have the following benefits:

- Increased reliability and validity of real property asset reporting
- Eliminate omission of real property assets
- Eliminate duplicate reporting of real property assets

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[1] DoD Base Structure Report, Fiscal Year 2003 Baseline, http://www.acq.osd.mil/ie/irm/irm_library/bsr_fy03_baseline.pdf.

[2] Defense Installations Strategic Plan, 2004

[3] Business Management Modernization Program homepage, program overview section, http://www.dod.mil/comptroller/bmmp/pages/over_background.html

[4] Defense Installations Strategic Plan, 2004

[5] Defense Installations Strategic Plan, 2004

- Provide standard terminology within the Department to reference real property assets

The critical data requirements published in the draft DoDI 4165.14 are well documented and have been analyzed in the *Assessment of DoD Real Property Information Systems* dated August 8, 2001. These two documents present a good dissertation delineating the requirements for buildings and structures. Based on deliberations of the Military Service and Defense Agency real property subject matter experts at the Real Property Inventory Workshop held during October 2003, the following real property inventory areas were identified for improvement:

- installation and site definitions
- inventory attributes of land
- the concept for uniquely identifying real property across DoD
- utilities system reporting
- leasing
- inventory attributes required to enable space management

Work teams comprised of representatives from the Military Services, Agencies and the Business Transformation Directorate were formed to identify the specific functional/business requirements (rules) and data and information requirements and standards to improve each of these areas. The each work team's effort and their recommendations are included in this document.

2. Installation and Site Definitions

2.1 Background

The Installation and Site Work Team started with the question "What are an Installation and a Site?" asked at the Installations and Environment (I&E) Workshop Kick-off Meeting held on October 12, 2003.

Answering the question led the Work Team to identify the "To-Be" inventory process and to develop the standard core data elements, business rules and definitions identified in this paper. The Work Team fully recognized the need to have this standard information in order to be able to provide support to federal government (to include internal DoD) data requests and Congressional inquiries, as well as ad hoc efforts such as Base Realignment and Closure. Currently, the information provided to different information requests (e.g., number of installations, number of sites, can this installation support a certain requirement, etc.) does not always match.

The starting point for the Installation and Site Work Team was deliberation of the basic concept of and definitions for parcel, site and installation. The benefits of reaching standard definitions are all users of Department-wide will have common agreement and understanding of the terms installation, site, and parcel. This will allow guidance, policy, instructions, and regulations to be written without having to list, define, or provide examples of the terms and will eliminate the confusion that is prevalent today. Standard definitions for these terms (concepts) are as follows:

Parcel – In the broadest terms a parcel is a portion or plot (measured area) of land[6]. In more focused terms a parcel is a specific area of land for which its perimeter is delineated by metes and bounds or other survey methods.

Site – In the broadest terms a site is a location[7]. In more focused terms a site is a specific area of land consisting of a parcel or contiguous parcels.

Installation – In the broadest terms an installation is a military camp or base[8].

The establishment of unique installation, site, and parcel identifiers and standard definitions will support the distinct difference between the terms installation and site. Today installation and site mean different things based on what is being discussed. United States Code Title 10 is a good example of this since it has different definitions for installation and site in its different sections. Each definition is tailored to satisfy the subject of the section. For example, an installation is defined as follow:

[6] Webster's II New Riverside University Dictionary

[7] Ibid

[8] Ibid

- Section 2687 defines an installation as a base, camp, post, station, yard, center, homeport facility for any ship, or other activity under the jurisdiction of the DoD, including any leased facility, which is located within any of the several states, District of Columbia, Commonwealth of Puerto Rico, American Samoa, Virgin Islands, or Guam (excludes civil works areas).

- Section 2391 defines an installation as any private facility producing goods or services pursuant to a defense contract.

Likewise, a site is defined in United States Code Title 10 as:

- Section 2710 defines a site as locations that are or were owned, leased to, or otherwise possessed or used by the DoD. This definition does not include any area or facility that is used for or was permitted for the treatment or disposal of military munitions.

The Work Team developed the concepts, data elements, definitions, business rules and scenarios involving the relationships between land, facilities, sites and installations. New data elements and definitions identified (beyond what was already contained in DoDI 4165.14) are shown in 2.2 of this document. Business rules and the required data elements were defined for each scenario to establish standardized reporting procedures for parcels, facilities, sites and installations. Business rules are listed in 2.3 of this document. Descriptive scenarios that portray different possible configurations of sites and installations are depicted in the charts in Attachment A.

Unique identifiers are warranted for both installation and site and are recommended by the Work Team. Options such as Unit Identification Code and Department of Defense Activity Address Code were evaluated as potential candidates for fulfilling the requirements for unique identifiers. A majority of the options are widely used in DoD, but are neither unique nor universally accepted. The *Department of Defense Guide to Uniquely Identifying Items, Version 1.4, February 20, 2004* offers that "Generally, a commercial identifier can be considered for use as a DoD UID equivalent if it meets these criteria: (1) must contain an enterprise identifier, (2) must uniquely identify an individual item within an enterprise identifier, product or part number, and (3) must have an existing Data Identifier (DI) or Application Identifier (AI) listed in ANSI MH10.8.2, Data Identifier and Application Identifier Standard."

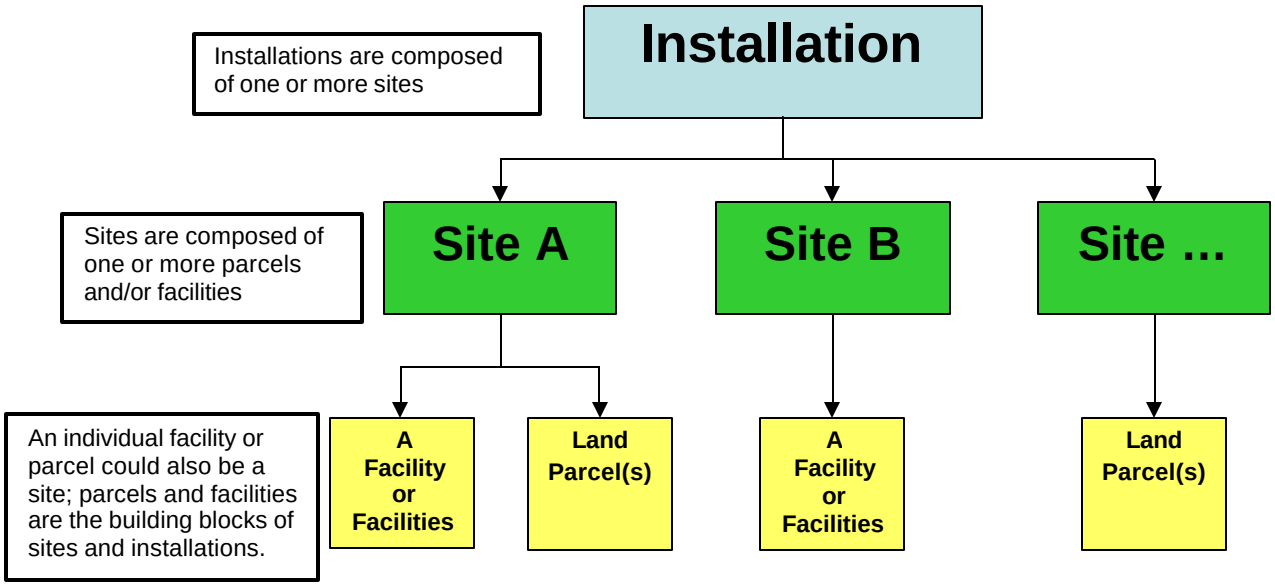
We continued the evaluation process and discovered the EAN.UCC System contains a Global Location Number (GLN). The GLN is a 13-digit number comprised of an EAN.UCC Company Prefix (7-digits), a location reference (5-digits) and a check digit. DoD could use the EAN.UCC Company Prefix to uniquely identify the installation and the location reference to identify the site. Each installation would hold an EAN.UCC Company Prefix and have the responsibility to assign location references to their sites. Use of the GLN would let DoD permanently identify physical locations and allow the Department to take advantage of other keys in the EAN.UCC System such as:

- Global Trade Item Number – to track predefined information on products and services at any point in the supply chain,
- Serialized Shipping Container Code – to track and trace individually physical units established for transport and storage of goods,
- Global Individual Asset Identifier or Global Returnable Asset Identifier – will track fixed or returnable assets, and
- Global Service Relation Number – allows a public or private service provider to track any entity's service requirements and needs over a continuing relationship.

An EAN.UCC System is identified as an acceptable commercial identifier in the *Department of Defense Guide to Uniquely Identifying Items, Version 1.4, February 20, 2004.*

Figure 1. Installations Relationship Figure

This figure graphically presents the relationship between installations, sites, parcels and facilities.



2.2 Data Elements and Definitions

There were three data elements, the RPUID (covered in the RPUID Appendix), site unique identifier and the installation unique identifier identified as being required in the RPI beyond those already identified in DoDI 4165.14. There were also definitions developed for installation, site, facility, and parcel. The following definitions were agreed to by the Installation and Site Work Team members.

- Webster defines an installation as a military camp or base.

- The Work Group's suggested definition is:

  A base, camp, post, station, yard, center, homeport facility for any ship, or other activity under the jurisdiction of the Department of Defense, including leased facilities or sites at which the Secretary is conducting environmental restoration activities. Such term does not include any facility used primarily for civil works, rivers and harbors projects, or flood control projects.

  For real property purposes, "installation" is a single site or a grouping of two or more sites for the purposes of inventory reporting. An installation can exist in three possible forms, as follows:

  - A single site designated as an installation, e.g., Naval Support Facility Diego Garcia.
  - Several non-contiguous or contiguous sites grouped with one of the sites designated as the Installation site (e.g., Fort Lee) and other sites as subordinate (satellite) sites.
  - Several contiguous or non-contiguous sites grouped together as a single installation, where no one site is designated as the Installation site, e.g., Army National Guard manages all the sites in a single state as a "virtual" installation.

- Webster defines a site as a location. In more focused terms a site is a specific area of land consisting of a parcel or contiguous parcels.
  - The Work Group's suggested definition is:

    Physical (geographic) location that is or was owned by, leased to, or otherwise possessed or used by one Military Service or an Agency of the Department of Defense, to include locations under the jurisdiction of the Department of Defense where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located.

    A site may exist in one of three forms:

    - Land only, where there are no facilities present and where the land consists of either a single parcel or two or more contiguous parcels.
    - Facility or facilities only, where the underlying land is neither owned nor controlled by the government. A stand-alone facility can be a site. If a facility is not a stand-alone facility, it must be assigned to a site.
    - Land and all the facilities thereon, where the land consists of either a single parcel or two or more contiguous parcels.

- Webster defines a facility as something designed, built, installed, etc., to serve a specific function affording a convenience or service.[9]
    - The Installation and Site Work Team's interpretation of this definition for DoD is: A facility can be a building structure, or utility under the command or control of a Service or the Washington Headquarters Service (WHS).
- Webster defines a parcel as a portion or plot (measured area) of land. In more focused terms a parcel is a specific area of land for which its perimeter is delineated by metes and bounds or other survey methods.
    - The Installation and Site Work Team further interpreted these definitions to arrive at the DoD definition: A parcel is a specific area of land that is under the command or control of a Service or the Washington Headquarters Service (WHS). A parcel is created by a transaction whereby a Service or the WHS acquires any interest in land, and the interest so acquired is evidenced by a legal instrument.

2.3 Business Rules

Parcel business rules as related to sites are listed below. Specific business rules for parcels have been delineated in the Land Attributes Appendix.

- Parcels are the smallest sub-unit of land in the RPI, therefore, the building blocks of land for a site.
- Contiguous parcels must be assigned to a single site. A parcel can be a site if no additional parcels are adjacent.

Site business rules are listed below:

- A facility must be assigned to a site. If the facility is a stand-alone facility, it may be its own site.
- Where there is more than one facility within a defined geographic area, a site can be created for these facilities.
- Each and every parcel must be assigned to a site.
- The perimeter of the site will be delineated by metes and bounds, other survey methods or the geographic location of the facility for stand-alone facilities and must be a part of the electronic record.
- Each site must be assigned to one and only one installation.

[9] Webster's II New Riverside University Dictionary

- A site will have a site unique identifier which cannot be duplicated or reused.

- Even if the site expands or contracts, the site unique identifier assigned to the site remains the same. The description or attributes of the site will change. Historical data remains with the real property asset record of the parcel or the facility.

    - To demonstrate this, consider that the example where a stand-alone facility is a site. If this facility, is expanded (still do not own the underlying land) then the Site unique identifier for the site stays the same but the attributes of the site are updated to reflect the expansion. The same is true of the facility RPUID and the facility attributes. If a portion of the original facility is demolished, the Site unique identifier for the site and the RPUID for the facility does not change but once again the attributes of the site and facility are updated to reflect the demolition (contraction).

- When two or more sites are merged, the gaining site will receive the real property asset records (land and/or facilities) through an association of these records to the site unique identifier via the real property asset record RPUID. The losing site will have its site unique identifier archived.

- A building of leased space can be a stand-alone site. Each lease within the building, however, receives a separate property record for inventory purposes if the space is acquired in different transactions.

- A site implies access can be unilaterally controlled by the Service or responsible entity.

- Equal status among sites exists in that there is no "parent-child" relationship between sites.

The Installation and Site Work Team also defined the site decision rules that delineate single or multiple sites under alternative physical conditions. For example, the Work Team looked at an area of land divided by a road. The consensus business rule in this situation defines the area as a single site if the installation has the authority to close the road to through traffic, e.g., enclose the entire land area with a fence. However, if the installation could not close the road, (i.e., the road authority had an uninterruptible easement or actual right-of-way ownership through the land area), then the land area should be considered two sites. Similarly, the Work Team created site decision rules for a number of other possible and existing scenarios described in Appendix A.

Installation business rules are listed below:

- Facilities and parcels are not directly assigned to installations, they are assigned to sites.

- An installation unique identifier cannot be duplicated or applied to another installation. If an installation unique identifier is retired, for example, if the installation is transferred from one Service to another Service, then the original

installation unique identifier may be reinstated only if the installation reverts back to the original Service.

- When two or more installations are merged, the custody and control of the sites go to the "gaining" component.

2.4 Policy Changes

The internal policy changes required to be able to effectively implement the provisions of this paper are listed below.

- Installations and sites will be identified by an installation unique identifier and a site unique identifier respectively.
- All facilities and/or parcels must be aggregated into sites.
- Services will track real property by installation, site, parcel, and facility.

3. Attributes of Land for RPI

3.1 Background

Land is a major asset category for the DoD and a basic building block for all DoD sites and installations. The DoD owns or controls nearly 30 million acres of land that must be effectively accounted for and efficiently managed. The types of land assets in the RPI range from unimproved wilderness areas, to central urban developments. Likewise, the land portfolio reflects a myriad of land uses representing the different missions and requirements of the DoD Services and Agencies.

The Attributes of Land Work Group concentrated on defining the unique attributes, (specific data elements), required in order to track land separately from facilities in the RPI. As part of the overall Business Transformation effort, specific attention is targeted to identify and define the essential data elements associated with land for inclusion in the Real Property Inventory (RPI). A goal of this effort is to standardize the definitions and reporting of land throughout the Department and to provide requisite data for land management functions.

Two intermediate goals of this effort were to minimize data duplication and to simplify the RPI processes. Certain issues and corresponding data needs were believed to be asset management related and not within the scope of the core land RPI data attributes.

The Attributes of Land Work Group started with the draft Department of Defense Instruction (DoDI) 4165.14 and the current Service-specific data elements as the initial basis to identify and define the core land RPI data elements and attributes. The data elements to be included in the RPI were defined by the Work Group as those additional elements essential to land asset accountability or management. The lists of data elements were combined and evaluated based on the need for a given data element in the core, DoD RPI. Attributes that include physical, legal and financial aspects of the real property inventory are addressed in the data elements, definitions and business rules. Data elements related to real property management were not included in the final RPI land data elements list and were deferred to future management-focused consideration.

Parcels are the smallest sub-unit of land in the RPI. Parcels are, therefore, the building blocks of land for a site. The boundaries of the parcels, (i.e., the metes and bounds or other survey method), will delineate the perimeter of the site. A stand-alone parcel can be a site. If a parcel is not a stand-alone site, it must be assigned to a site. Facilities are not assigned to parcels, but are assigned to sites.

3.2 Data Elements and Definitions

In the broadest terms (Webster's Dictionary), a parcel is a portion or plot (measured area) of land. In more focused terms, a parcel is a specific area of land for which its perimeter is delineated by metes and bounds or other survey methods. For purposes of this paper, a parcel is a specific area, portion or plat of land that is under the command or control of a Military Service or Washington Headquarters Service (WHS). A parcel is created by a transaction whereby a Military Service or WHS acquires an interest in land, and the interest so acquired is evidenced by a legal instrument.

The specific data elements and definitions for land are outlined below.

Legal Data

- Legal Description – Legal description of the parcel extracted from the deed or relevant transaction instrument. Generally will consist of a metes and bounds or survey description, if available.

Physical Data

- Improvement Code – Improved, semi-improved, unimproved or other.
    - Improved Land: Includes areas that have been developed for housing, organized recreation (e.g., golf course, ball fields, etc.) and other building or structure projects. Vegetation consists primarily of ornamental trees, shrubs, and grasses planted to enhance the aesthetic qualities. Improved land typically requires regular, and sometimes extensive, maintenance and upkeep.
    - Semi-Improved Land: Semi-improved lands include areas that are generally located in proximity to runways and test and training sites. These relatively undeveloped areas are mowed frequently for vegetation, fire and pest management measures. The major vegetation components of these areas are native and introduced grasses and annual forbs. Semi-improved land typically requires less extensive maintenance and upkeep than improved land.
    - Unimproved lands: Unimproved areas comprise lands that are managed as part of the natural environment. Maintenance and upkeep is minimal or not required at all.
    - Other: Situations that do not fit into one of the above categories (e.g., lakes and ponds).
- Restrictions – Restrictions associated with land parcels will be recorded via pick lists providing the user with an easy tool to select one or more restrictions by category as applicable to the real property asset. A pick list example is "100 year flood plain".
- Rural/Urban – Rural area means a city, town, or unincorporated area that has a population of 50,000 inhabitants or less, other than an urbanized area immediately adjacent to a city, town, or unincorporated area that has a population in excess of 50,000 inhabitants, as specified in 7 U.S.C. 2009.

3.3 RPI Land Attributes Business Rules

In the course of identifying the data elements, certain rules, procedures, and/or definitions emerged that need to be adopted. These business rules include the following:

1. A parcel is created by a transaction whereby a Military Service or WHS acquires any interest in a parcel of land and the interest so acquired is evidenced by an appropriate legal instrument.

2. A parcel must be assigned to a site. Parcels may be assigned in contiguous groups or as a single parcel.

3. A split parcel (generally by disposition) will result in a new asset record created for the split off portion. The remaining portion of the parcel retains the old asset record, the attributes of the record are adjusted to reflect the change to the parcel.

4. Parcels are not merged; they remain separate for inventory purposes. If additional land area is acquired contiguous to an existing parcel, it is simply inventoried as another parcel. Parcels can be grouped into sites.

5. Geo-political data elements subject to periodic changes (for example, rural/urban designations) will be systematically updated.

6. Interest codes for land parcels are the same set of interest codes as for a facility and will represent a DoD standard code list.

3.4 Policy Changes

There are two policy changes required to be able to effectively implement the provisions of this paper:

- Since land parcels form the building blocks of sites, either as a single parcel or a contiguous group of parcels, parcels must be completely identified. Land is often inventoried at the aggregate level for each installation rather than at the parcel level. We recommend that in the "To-Be" environment Services and Agencies record land assets by parcel in the inventory.

- A second issue raised is the current way the Department categorizes land through the Facility Analysis Categories (FAC) and equivalent Service Category Codes (CATCODE). In the "As-Is" environment land category codes identify the acquisition method of the land. Since the core data includes a data element to track acquisition type, the current category codes represent a redundant capability. Our suggested approach for the "To-Be" environment is to configure the category codes to document the use of the land. This will create an additional information track not available today. Data could be used to validate land use studies, master planning documents, installations effected by encroachment and even identify installations that are reaching their saturation level for capacity. To implement this recommendation and adjust the policy a cross-Service working group should be convened under the auspices of ODUSD (I&E) Installations Requirements and Management Directorate. The outcome of the working group should be the revised scheme for land FACs and the appropriate mapping to the revised Service CATCODEs.

4. Concept for Uniquely Identifying Real Property

4.1 Background and Research Findings

For the I&E Domain, enterprise-wide, readily accessible real property information that is accurate and timely will form the nucleus for functions such as: property asset accountability, regulatory compliance, resource requirements for infrastructure, and decision support. In the future or "to be" world, DoD real property asset information can no longer be managed as a local, functional, component, or Service "stovepipe" resource. Tying today's disparate real property systems and DoD information needs into an enterprise requires a strong linking mechanism—a unique identifier readily serves this purpose. In this case, the Real Property Unique Identifier (RPUID) becomes the key element in the real property inventory that distinctively and uniquely identifies a piece of land, a building, or other real property improvements in which DoD has a legal interest. The RPUID allows related data from across the spectrum of DoD business areas to be linked to specific real property asset records. The RPUID functions for real property similar to the way a social security number functions for an individual. The RPUID remains with the asset from its acquisition. It will never be reused and will be archived to history only when DoD has relinquished its interest in the asset.

A unique identifier by definition must be "unique"—this is the one and only rule that must be inviolate. There is no requirement for the unique identifier (UID) to be either alphabetic or numeric; it can just as easily be alphanumeric. Again, the one rule is that the UID is never duplicated. Similarly, a UID can be derived from existing data, parts of existing data mated with some sequencing scheme, or constructed totally of new, non-derived sequencing data. Terminology-wise, an identifier constructed with any existing data in its structure is called an intelligent identifier; this means that the identifier, or at least some part of the identifier, has meaning outside the context of its unique identification role. While there is nothing wrong with using an identifier constructed like this, it is unsuitable as a "permanent" UID if the existing data used within the UID structure can ever change. A non-intelligent identifier is similarly defined as an identifier that has no specific meaning, in total or in part, outside its unique identifier role.

The RPIUD Work Team conducted research to consider the advantages and disadvantages of both the intelligent and non-intelligent identification schemes. A list of the organizations and companies contacted during that research phase is at Attachment A. From their research, it was found that many organizations and corporations that have implemented real property unique identifiers used an intelligent identifier. However, suggestions and lessons learned during the research phase lead the Work Team to believe that a non-intelligent identifier would prove best for the RPUID. The rationale for this belief is further developed with the following examples.

Intelligent identifier examples:

Federal Information Processing Standards (FIPS) Codes. FIPS Publication 6-4 lists codes for counties and equivalent entities of the United States. , These codes are assigned sequentially within a state, so that counties and other geopolitical units are always alphabetized within a state. When county names change, or a county is divided into more than one county, the numbers assigned to several counties can change whenever there is a need to re-alphabetize the counties.

This has resulted in the need to change data within an information system or to modify supporting systems.

Environmental Protection Agency (EPA) Facility Identification Codes. At one time, the EPA created a facility identification code by combining the U.S. Postal Service state code with the Data Universal Numbering System (DUNS) number for a facility. About 65% of the facilities regulated and monitored by the EPA, however, are not businesses to which DUNS numbers have been assigned. In addition, the EPA's objective is to uniquely identify a facility at a location, regardless of ownership. The DUNS number is assigned to a business based on ownership and the facility DUNS number changes as ownership changes. Because of these type issues, that methodology for creating a facility identification code was deemed inappropriate for EPA usage and the EPA now uses a non-intelligent methodology for creating the necessary codes.

Non-Intelligent identifier examples:

Social Security Number. The number is permanently assigned to an individual and used to identify that individual regardless of his or her residence, place of employment, or any other characteristic of that individual. Over the life of an individual, that person could move, change names, change physical characteristics, (height, weight, age, hair color, etc.), and marital status, but their social security number will remain unchanged through their entire life.

Data Universal Numbering System (DUNS) Number. DUNS numbers are assigned and maintained by Dun and Bradstreet to uniquely identify business establishments. The DUNS number is recognized worldwide as a business identification standard. Over 14 million DUNS numbers have been assigned in the U.S. and over 9 million outside the U.S.

From the research findings, it is clear that a non-intelligent type identifier scheme will better support the I&E Domain real property asset management needs with a permanent identifier. While this schema does not require the identifier to be alphabetic, numeric, or alphanumeric, a numeric integer "number" uses less storage space than corresponding alpha based "character" data. Therefore the best alternative for the RPUID is a numeric, non-intelligent sequencing scheme. Once assigned, the UID number will be forever tied to that specific asset. It will not change as the characteristics of the asset changes over time and will uniquely identify that specific asset for the life of the asset and beyond into historical storage.

4.2 RPUID Use - Business Rules

The DoD will use the RPUID to permanently and uniquely identify all real property assets in which the DoD has an interest. The following business rules define how the RPUID is used, when it is created, and specifics associated with non-owned property.

The RPUID:

- is assigned to all real property assets (parcels, buildings, structures, utility systems, roads, etc.) in which DoD has an interest.

- does not replace any of the commonly used identifiers currently in existence, such as facility number or building name, but will instead compliment them.
- is assigned to the real property asset, not to the owner or the installation since the owner and installation may change over time.
- is not based on the characteristics of the asset and does not change when criteria of assignment or the attributes of the real property asset changes.
- remains a part of the real property asset for the life of the asset and is archived with the asset record at the time that the Department relinquishes its interest. In essence, the Real Property Unique Identifier becomes the glue that holds the system(s) together.
- is the key element that will allow DoD to track financial and physical changes of the real property assets over the life cycle and beyond of the asset.
- will be assigned when:
    - an acquisition contract, (land purchase, construction, or design-build effort), is awarded,
    - ownership of an asset is initially transferred into the Military Department/WHS,
    - a leasing contract is awarded,
    - an asset is permitted from another government agency,
    - a license agreement is executed,
    - a Status of Forces Agreement (SOFA) is negotiated and signed, or
    - an easement is negotiated and signed.
- expansion (or contraction) of a facility, land or leased space does not require a new RPUID – although the attributes will change, the RPUID remains the same.
- a gap in time of a lease will require a new RPUID assignment. An example of a gap in time of use could be a lease expiration and re-acquisition after a period of time rather than an option being exercised upon termination of the original duration.
- a single lease or occupancy agreement that includes multiple, individual properties requires that each property be assigned a RPUID.

4.3 Procedures for Assignment and Maintenance of the RPUID

The procedures for assignment and maintenance of the RPUID will be in accordance with the following business rules.

- The web based RPUID registry system is maintained by OSD and assigns the RPUID programmatically; using systems will not have to manually input it.
- The central control of the registry system prevents duplication of RPUIDs. The real property unique identifier is used by the system and will not have to be manually entered.
- The RPUID identifies one real property asset regardless of ownership or other characteristics.
- A history of ownership is modified if ownership of the real property asset changes, but the RPUID remains the same.
- New asset RPUIDs will be created to identify a real property asset or site that has not previously been so identified in the Department.
- A RPUID is never duplicated or re-used.
- Access to the RPUID and core data that identify a facility shall be accessible to other DoD systems for use and sharing of information.

4.4 Characteristics of the RPUID

Each RPUID is a unique integer number in the range of 1 to $1X10^{17}$. At creation, the web based system-generated non-intelligent identifier will be validated and cross referenced to prevent duplication. This integer assignment range can provide 100 quadrillion RPUIDs. Although there are many unforeseeable factors, this range of RPUID values is believed to be adequate for over 75 years or more.

No spaces, hyphens, or other edit characters shall be used in the RPUID; it will be created and maintained solely as an integer value.

A RPUID can be referenced in a parent-child relationship to other RPUIDs for related subsets of assets as needed for data linkages. For example, multiple buildings and structures can be referenced to a site that has its own RPUID. Similarly, sections of an asset such as roads or utility systems can be a subset of the complete asset.

The RPUID is an integer value and will not be constructed as parent and child where the child is given a suffix number to the parent RPUID, (e.g., 11111111111316946 as parent, and 000000000000316946.01 as child). Any child relationship will also be an integer value that can be linked to the parent as shown in Table 1 in tabular format.

Table 1: Parent Child Linkage Table

Parent RPUID	Utility System	Child RPUID	Utility System Component
111111111111316946	Water	111111111111110017	Water Tower
111111111111316946	Water	111111111111100009	Intake Pipe
111111111111316946	Water	111111111111110204	Water Treatment Facility
111111111111316946	Water	111111111111120220	Distribution Line

4.5 Application of the RPUID

4.5.1 RPUID Usage Examples

The following are specific examples detailing how the RPUID is handled when land and facility assets change over the life of the asset.

Land

- Acquisition – If additional land, contiguous or non-contiguous is acquired, this will constitute a new parcel requiring a new real property asset record with a RPUID. If land is transferred to another installation, the land parcel will retain its original RPUID but its relationship (using the parent-child relationship) will change to a new site associated to the acquiring installation.

- Renovation – Land is not renovated. An improvement to land may be fill, trees, grading, or a berm as examples. The RPUID will not change because the land itself has not changed.

- Expansion – Same as acquisition.

- Disposal

  Full: When the disposal action for an entire parcel is completed, its real property asset record, RPUID and associated information will be archived at the time that the Department relinquishes its interest.

  Partial: When a disposal action only affects a portion of a parcel, the remaining part of the parcel will retain the existing RPUID but the real property asset record attributes will change. The part of the parcel disposed of will require a new real property asset record with a new RPUID. The real property asset record and RPUID for the part of the parcel disposed of will be archived at the time that the Department relinquishes its interest.

Facilities: Buildings, Structures, and Utilities

- Acquisition – If a new facility is constructed or acquired, a new real property asset record will be created and a new RPUID will be assigned when the construction contract is signed.

- Renovation – If a facility is partially or totally renovated, the original RPUID will still apply but the real property asset record attributes will change.

- Expansion – If a facility is expanded, the original RPUID will still apply but the real property asset record attributes will change.

- Disposal

  Full: When the disposal action for an entire facility is completed, the real property asset record and RPUID will be archived at the time that the Department relinquishes its interest.

  Partial: When a disposal action only affects a portion of an existing facility, the remaining part of the facility will retain the existing RPUID but the real property asset record attributes will change. The part of the facility disposed of will require a new real property asset record with a new RPUID. The real property asset record and RPUID for the part of the facility disposed of will be archived at the time that the Department relinquishes its interest.

A RPUID can be referenced in a parent-child relationship to other RPUIDs for related subsets of assets as needed for data linkages. For example, multiple land parcels and/or facilities might be referenced to a site.

4.6 Proposed Policy Changes

A RPUID will be assigned for all real property assets to enable tracking of all financial obligations, establishing total cost to Government and physical changes over the life of each asset.

The RPUID is created when legal interest in the real property asset is acquired by the DoD.

A RPUID will be assigned to all existing real property assets that are under the custody and control of the DoD.

The RPUID and associated real property asset information will be archived when DoD relinquishes legal interest.

5. Network Facilities

In the current environment the Military Services track most utilities distribution systems as a single inventory record for each installation. At the OSD and Military Service headquarters level this meets their inventory requirement; but the organizations below the Military Service headquarters level require further decomposition to effectively manage the real property asset.

There exists the additional complication of identifying all the facility assets associated with the complete system. As an example, FAC codes 8111 (Electrical Power Source), 8112 (Stand-By/Emergency Power), 8121 (Electrical Power Distribution Line), and 8131 (Electrical Power Substations and Switching) record the electric utility lines as well as the structures and subsequent electrical equipment required to generate, transmit and distribute electricity; however FAC code 8910 (Utility Building) should include all the buildings that contain utility equipment and functions. A heavy user of RPI information may understand how to generate a complete set of building, structure and utility data, but an intermittent user may find this complicated. The Work Team addressed this issue and that recommendation is included below.

The primary objectives of the Network Facilities Work Team were to:

- uniquely define network facilities real property assets;
- standardize measurement and segmentation of linear assets to ensure consistency in the RPI; and
- determine the specific asset data elements for inclusion in the RPI.

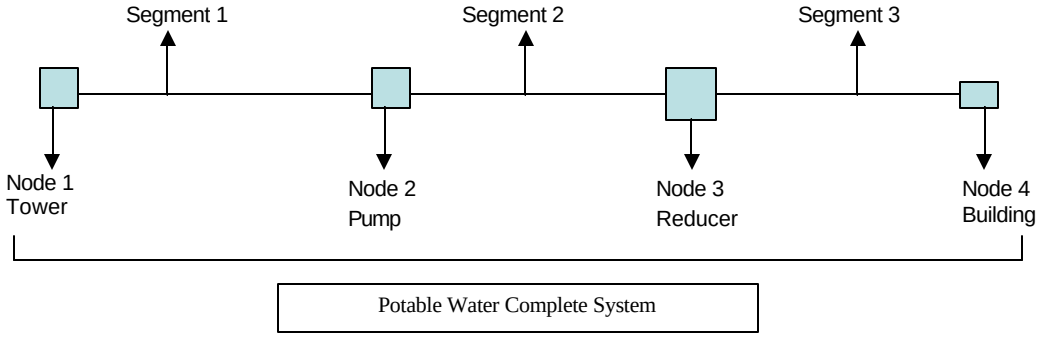
Issues that affect the data elements, definitions and business rules include:

- inventorying network facilities as a whole (e.g., road system, electrical distribution system, water and sewer systems);
- inventorying the non-linear structure and facility components of the network facilities or footprint assets (e.g., reservoir, water treatment plant, bridge, trestle);
- segmentation of network facilities to inventory their linear asset segments (e.g., pipeline, road, railroad, electrical power line);
- inventorying nodes (e.g., pumps, valves, switches, transformers) and
- geo-spatial integration.

As the Utilities Work Team deliberated, the utilities issues morphed to include other linear assets (roads, railroads, etc.). The linear assets at each installation are tracked to the same level and share many of the same issues and shortfalls, and both utilities and linear assets are covered under the 8XXX series of FAC codes. For purposes of this report, the term network facilities include utility systems and other linear real property assets in which DoD has an interest. These types of assets typically comprise the basic infrastructure of an installation or are part of its general physical plant. Information required for maintenance, management and ongoing operations will be created and retained by the users, (e.g, Public Works (PW)/Civil Engineer (CE)), or the accounting and finance department) of that data in the Real Property Management System. The data elements included for the RPI are the fundamental, core inventory data items required for overall asset accountability and real property management for the life cycle of the asset.

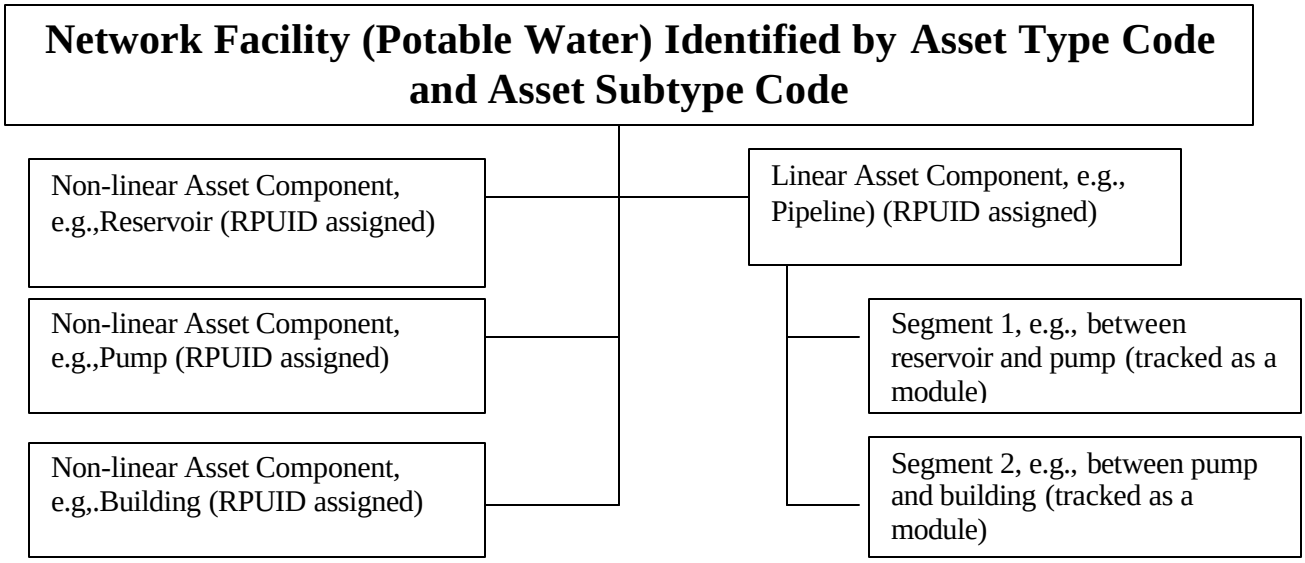
- Network facilities are comprised of compound assets:
    - Complete "systems" – the road network or the water/sewage system or the electrical distribution system on an installation is comprised of linear and non-linear assets.
        - Linear assets – the roads, rail lines, water and sewer pipes, fences, trails, runways and other networks that are part of "systems" that traverse installations. These linear assets will continue to be inventoried as a whole, but segments (the piece of linear asset between two breakpoints) will be delineated identifiable nodes or breakpoints. See Figure 14 for an example. The Segments will be identified as modules in the RPI.
        - Non-linear assets - structures, facilities and other assets within the utility or linear system that occupy complete "footprints" or fixed locations; for example, a pump station for water system or a bridge on either a rail or road system. These types of assets typically establish the node or breakpoints to split linear assets into segments. Non linear assets create a footprint that is located only on a single site.
        - Each asset within the system will be linked to the complete system by the Asset Type Code (L- land, B – building, S – structure, N – network facility) and Asset Subtype Code (e.g., EL- electrical generation and distribution, NG – natural gas, etc.).
- The linear and non-linear component assets will be assigned a RPUID (different names for the different components) for identification, tracking and inventorying in the RPI. See Figure 2 for an example.

Figure 2: Relationship between Node and Segment



Segmenting the linear assets allows defined units or lengths of the asset to be identified in the inventory, an important element in not only tracking what assets exist but also their general characteristics. Part of the process of developing segments is accurately identifying nodes (physical and discrete items such as pumps, poles, manholes, substations, etc.). The relationships between the network facility and its linear and non-linear components are graphically portrayed in the figure below.

Figure 3: Example - Components of a Specific Network Facility



An example of segmentation of a network facility is described more fully in the paragraph below and in Figure 4, Railroad Segments Example.

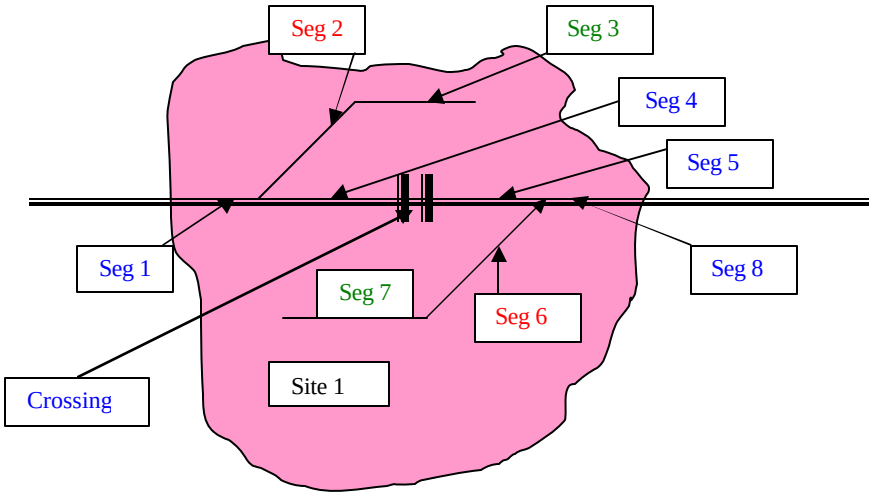
Railroad Segmentation Example

Railroads are part of an installation's physical plant and transportation infrastructure but are not generally considered to be a utility. Nevertheless, railroads create a linear footprint or network across one or more sites that help comprise the installation. In order to properly inventory all the rail assets, the rail line will be segmented by identifiable nodes, as described below. Each segment will be delineated as a length of rail line (to include the set of parallel rails, the crossties, spikes, and signage) between two breakpoints.

The segmentation will be based on the following breakpoints or nodes:

- Switches
- Crossings
- Type of Rail
- Signals
- Bridges/Trestles
- Yards/Terminals
- Site or installation boundary
- If a section of track equals one-half mile without a switch, crossing, signal, or bridge/trestle, yard, terminal or any other identifiable feature, then the half-mile segment will be artificially delineated as a module.

Figure 4: Railroad Segments Example

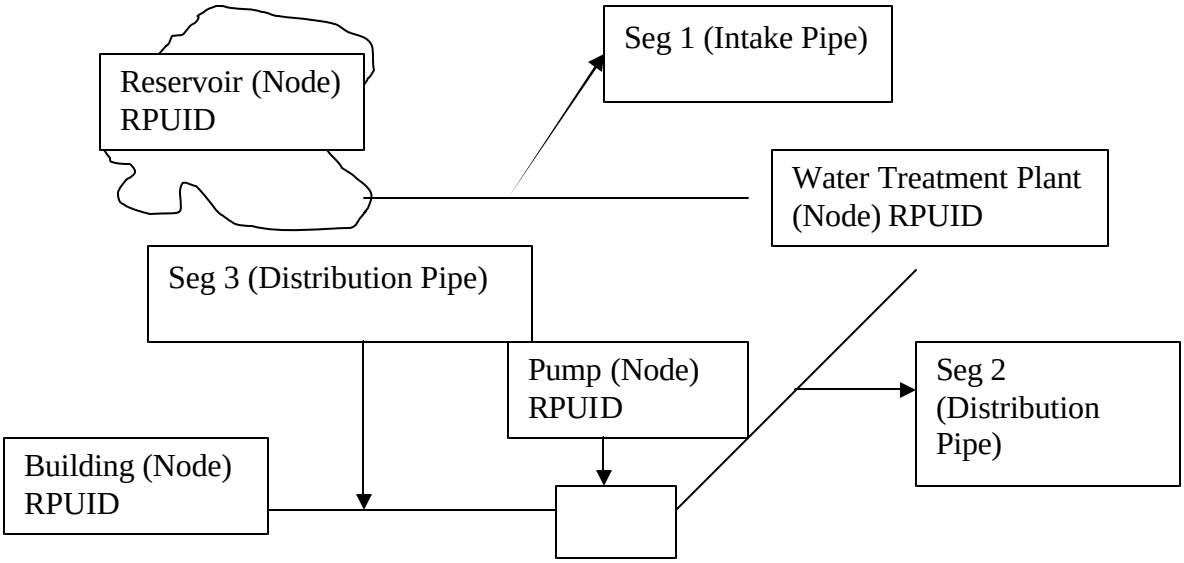


This example includes a railroad track (with spurs, sidings, and a crossing) located on a single Site. The railroad track will also have signals and switches but they are not shown in order not to clutter the example. The railroad track is divided into eight segments with each segment assigned its own module. These eight segments are all linked to the site the individual segments cross. As can be seen from this example, segmentation provides an easy way for real property management personnel to identify exactly what portions of a railroad (spur, siding, main track) that require sustainment, restoration, or modernization work and which are rated for the transportation of hazardous materials. Segmentation will also allow the tracking of sustainment, restoration, and modernization costs at a more granular level. These segments in Figure 16 are described below:

- Seg 1 is the stretch of track from where it enters the site until the first spur (includes switch).
- Seg 2 is the spur until it reaches the siding (includes switch).
- Seg 3 is the siding off of the first spur.
- Seg 4 is the section of track from the first spur until it reaches the road crossing. The total length of this segment will include the crossing. If the crossing were actually a bridge or trestle, the bridge or trestle would be considered a non-linear asset that is part of the network facility and would have a RPUID assigned and its characteristics would be inventoried as data elements for the bridge.
- Seg 5 is the section of track from the crossing until it reaches the second spur.
- Seg 6 is the second spur.
- Seg 7 is the second siding.
- Seg 8 is the section of track from the second spur until the track departs the site.

The figure below graphically portrays the segments and nodes of a potable water system.

Figure 5 Potable Water Network Facility Segments Example



This example includes a potable water distribution system (network facility). The potable water distribution system is divided into three segments with each segment assigned tracked as a module of the asset record and four nodes. These seven components of the potable water network facility are described below:

- Node 1 is the water reservoir located on the installation.
- Segment 1 is the length of distribution pipeline from the point of intake to the water treatment facility.
- Node 2 is the water treatment facility.
- Segment 2 is the length of distribution pipeline from the water treatment facility to a major pump.
- Node 3 is a major pump.
- Segment 3 is the length of distribution pipeline from the major pump to the point where it is tied into the building's potable water distribution system.
- Node 4 is the building.

Segmentation in this example quickly highlights points of vulnerability, for example, critical security points. It also allows a quick check on capacity limits – what is the limiting component or segment.

5.1 Data Elements and Definitions

The data elements, other than the RPUID (covered in the RPUID section of this Attachment) and those already identified in DoDI 4165.14 are presented after the definitions shown below. The

definitions shown below are for purposes of identifying the types of assets (network facilities, node, and segment) to be inventoried.

1. The term "Network Facilities" includes utilities and other linear-type real property assets, in which DoD has an interest, that are part of the basic infrastructure of an installation or are part of the installation's general physical plant. This term was previously defined in 1.2. The utility systems and other linear assets considered in this paper include the following current Category Groups (two digit) or Basic Categories (three digit):
    - Liquid Fueling and Dispensing Facilities
    - Communication Lines
    - Electricity (Power)
    - Heating
    - Sewer
    - Water
    - Roads
    - Railroads
    - Ground Improvement Structure (e.g., fence, wall and storm drainage)
    - Miscellaneous Utilities
2. A node is a non-linear existing, easily identifiable feature (e.g., substation, pole, tower, crossing, road intersection, major pump, etc.) of a linear asset.
3. In order to properly inventory linear assets, there is a need to segment these assets into distinct lengths. A segment is therefore defined as a discrete portion of a linear asset between two identifiable breakpoints, or nodes. If no such features are present, the asset could be artificially segmented by a designated amount of linear feet for the convenience of the real property manager. Table 2 shows a proposed designated amount for artificial linear asset segmentation if no identifiable node is present.

These segmentation amounts are provided to give basic guidance in developing segments that do not have any other breakpoint (node) present to provide a convenient start and stop point for a segment. This guidance is intended to be flexible and guided by common sense. For example, if an electrical distribution line has reached 1,000 LF from the start point and another breakpoint (node) is only another 300 LF away, common sense would dictate that the segment will be 1,300 LF versus 1,000 LF in length.

Table 2: Artificial Linear Asset Segmentation Table

Linear Asset	Segmentation Amount
Steam Lines	1,000 LF
Electrical Lines	1,000 LF
Water Lines, Potable, Non-Potable, and Fire	1,000 LF
Storm Drainage Lines	1,000 LF
Fence	1,000 LF
Wall	1,000 LF
Petroleum, Oil and Lubricant (POL) Lines	1,000 LF
Communication Lines	1,000 LF
Tunnel	1,000 LF
Airfield Runways	1,000 LF
Road/Street	1,050 LF (.2 MI)
Railroad	2,640 LF (.5 MI)

Real Property Unique Identifier (RPUID) – covered in RPUID Appendix. This is the RPUID assigned to each non-linear and the total linear component of a system.

Asset Type Code (L- land, B – building, S – structure, N – network facility)

Asset Subtype Code (e.g., EL- electrical generation and distribution, NG – natural gas, etc.)

Seg X module – this contains the segment specific attributes of each segment of the total linear component of a network facility.

Above or Below Ground Indicator – use A for above ground and B for below ground. Used for utility network facilities.

Hazardous Material Capability – this is to record items that meet regulatory agency standards to be able to transport (pipeline, railroad, etc.) hazardous materials. An example of this is 131 pound railroad trackage,

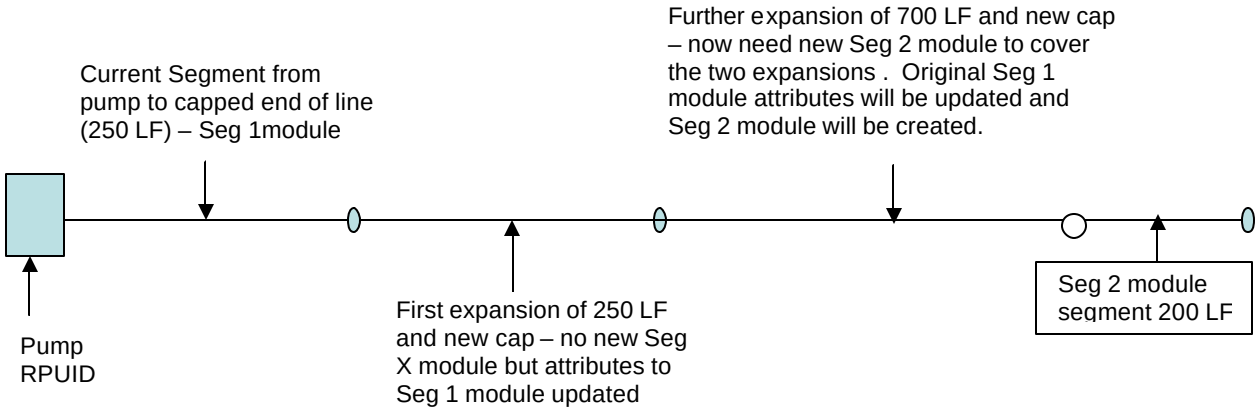
Source Connected To – Pick list to show if there is a commercial or private source that the network facility connects to. The name of the source should be a field attached to this pick list.

5.2 Business Rules

Several business rules are suggested to inventory network facility assets effectively. The rules are as follows:

1. Network facilities traverse a site or sites and are contained within a single installation. An exception occurs if two nearby (or adjacent) installations share a utility or other linear asset, for example, a rail line or a water and sewage system. In those cases, the rules of assignment of sites and installations will apply to inventory the assets.
2. Each total linear asset will be assigned a RPUID. Each linear asset will have its own real property asset record. Each linear asset segment will be assigned its own module Seg X which contains the segment specific attributes of each segment of the total linear component of a network facility.
3. Each structure, facility or other "footprint" (non-linear) asset will be assigned its own RPUID and have its own real property asset record.
4. Acquisition – any linear or non-linear asset acquired in the future will be entered into the RPI in segments based on the rules above. Each subsequent segment (linear) or node (non-linear) will be assigned its own Seg X module of a real property asset record.
5. Expansion – if a segment is expanded and this expansion does not create another segment based on the rules above, then the old Seg X module will still apply and the attributes will be updated. If a new segment is required due to this expansion then the new segment will be assigned its own Seg X module. Figure 6 graphically portrays this.

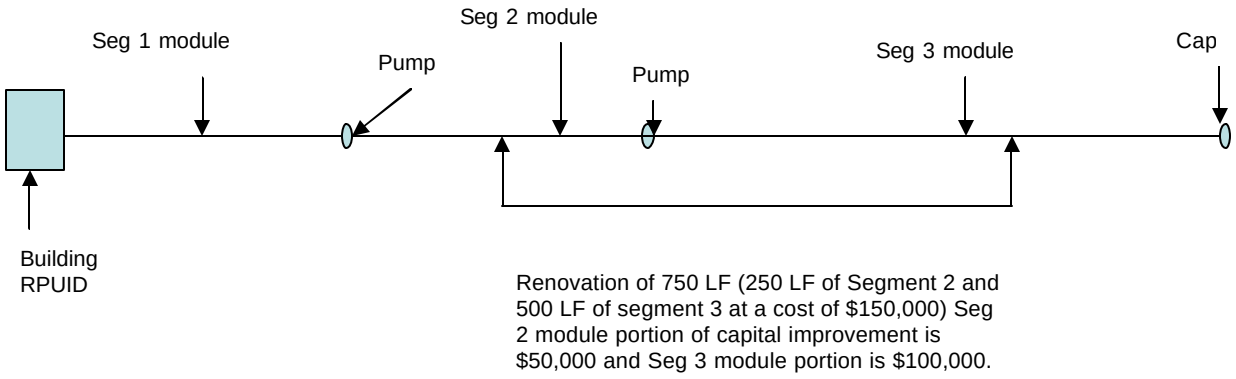
Figure 6: Expansion Example



6. Renovation – Renovations can occur in one of two ways: an entire segment is renovated or a part of a segment is renovated.
   a. If a renovation involves all or part of a single segment, the affected segment's data attributes will be adjusted accordingly with the cost entered as an improvement in the RPI. The RPI would have the capability for many such entries over the life cycle of the system.

b. If a renovation project affects multiple segments, each segment will maintain its Seg X module and the replacement date, amount of segment replaced, and the cost would be entered into the appropriate real property asset record as an update to its attributes. The cost entered for each segment would be prorated based on linear feet of replacement or renovation in each segment. For example, the renovation covers 1200 LF at a cost of $480,000. This 1200 LF covers 500 LF of segment 1 and 700 LF of segment 2. Therefore, $200,000 of the cost would be charged against Seg 1 module and $280,000 charged against Seg 2 module. Consider the example depicted in Figure 7.

Figure 7: Renovation Example



7. Disposal – If a segment or group of segments is disposed of, then the Seg X module(s) and attributes of the module(s) will be updated. This is also applicable for partial segment disposal.

5.3 Policy Changes

Currently the distribution portion of utility network facilities are inventoried and accounted for at the total facility level. Other network facilities such as roads, railroads, and fences are inventoried and accounted for at the total facility level. The implementation of the concepts proposed in this document will require the following policy changes:

- Network facilities will be identified through the Asset Type Code (L- land, B – building, S – structure, N – network facility) and Asset Subtype Code (e.g., EL- electrical generation and distribution, NG – natural gas, etc.).
- Network facilities must also be identified by its individual components (linear and non-linear).
- Each linear component could be broken down into segments based on implementation guidance to be provided.

6. Lease and Other Non-Owned Real Property

6.1 Background

Acquiring rights to real property not owned by DoD is a standard practice within the Department. The principal rights acquired are the occupancy and use of land and/or a facility. Rights to real property not owned by DoD are acquired through one of a number of conveyance types evidenced by a written legal agreement. Although General Services Administration (GSA) is typically the government source for the definitions of each type of conveyance (See Public Building Service (PBS)/GSA Companion Document, Chapter 3), each Service also has developed its own definitions. The goal of a standardized real property reporting system will require standardized definitions and interpretations of each conveyance vehicle. The conveyances included in this paper and recommended definitions are:

1. Leases (including BRAC leaseback and subleases where GSA is the leasing agent) - A written agreement which conveys a possessory interest in real property, usually exclusive, for a period of time for a specified consideration.
2. Permits - Authority granted by another federal government agency to do a specified act or series of acts on the licensor's property without acquiring any estate, and authorizes an act on which would otherwise constitute a trespass. Use is not exclusive.
3. Licenses - Authority granted by another individual, organization, corporation, or non federal governmental entity to do a specified act or series of acts on the licensor's property without acquiring any estate, and authorizes an act on which would otherwise constitute a trespass. Use is not exclusive.
4. Easements - A grant to use real property for a specific purpose. It may be temporary or permanent.
5. Rights of entry - A right to go upon the real property of another for a short duration for specified purposes.
6. Status of Forces Agreement (SOFA) - A written agreement with a foreign source which conveys a possessory interest in real property in a foreign country, usually exclusive, for a period of time for a specified consideration.

The Department requires much of the same initial data to account for and manage non-owned real property as it does for owned property. The Real Property Inventory (RPI) will be augmented to include additional data elements that reflect the nature of the non-ownership acquisition plus the associated terms and conditions of the Department's interest in the property. The RPI will include the requisite data for managing and administering all non-owned property in which the Department has an interest as well as performing all accounting functions.

For simplification purposes within this paper, the term "lease" (or "leases") is employed generically to reflect any of the different types of a non-ownership interest in real property. Although the specific form of conveyance may differ legally or administratively, fundamentally the same data elements and business rules apply for RPI purposes regardless of the type of conveyance. Leases are a specific type of contract and are categorized for accounting and budgeting purposes, for example, as either operating or capital leases. Both categories of lease are included in this discussion. Each of the other conveyance types of non-ownership rights to

real property represents a legal agreement that may be simple or complex in coverage and context. The common components of all such transactions include, for example:

- the rights of use and occupancy are granted by the space provider to the space user or customer;
- rent may or may not be paid and may be comprised of several component parts;
- the duration is specified as specific start and end dates;
- other terms and conditions are fairly standard, although their specific requirements may vary; the GSA categorizes lease provisions for the acquisition of a leasehold interest, for example, as follows:
    - definitions and general clauses,
    - performance,
    - inspection,
    - payment,
    - standards of conduct,
    - adjustments,
    - audits,
    - disputes,
    - labor standards, and
    - subcontracting.

The scope of the Leasing Work Team was formed to determine the DoD-standard data elements to facilitate lease accountability and to address associated issues with appropriate business rules to achieve full acceptance of those standard elements. The scope included in-grants of real property from any source external of DoD.

The purpose of this effort was to address the RPI issues surrounding non-owned real property, including issues regarding the financial accounting of non-owned real property. Resolution of the key issues resulted in the recommended data elements and business rules described below.

6.2 Leasing Data Elements for the RPI

The RPI includes the physical, financial or legal attributes of real property and is the cornerstone of data required for real property management. The data elements required to inventory owned property served as the basis for data elements necessary to track leased assets. To a degree, the major difference is who owns the asset. The leasing attributes to be included in the RPI are those additional data elements essential to enable leasing asset stewardship and financial accounting.

The group identified the following new or modified leasing real property data elements to be added to the RPI core data elements database:

1. ***Lease Amendment (Supplement Or Modification) Number*** – number from the instrument

2. ***Tenant Improvement Allowance*** – Dollar amount allowed for tenant improvements - source of data is the lease document. Used for capital improvements only. Needed since DoD incurs cost of unamortized tenant allowance if DoD exits the lease early.

3. ***Parking Spaces*** – Total number of parking spaces that are part of or included in the conveyance agreement.

4. ***Lease Use Restrictions*** – a list of use restrictions that are applicable to the agreement.

Additionally, the group identified the following Leased Data Elements needed for financial reporting to be added to the RPI core data elements:

5. ***Capital Lease Acquisition Cost*** –This data element represents the cost of real property acquired under a capital lease that is the lesser of the fair market value of property or the present value of the rental and other minimum lease payments during the lease term, excluding that portion of the payments representing executory cost to be paid by the lessor. Value is derived from Acquisition.

6. ***Capital Lease Criteria*** – Reason(s) why lease was classified as a capital lease; left blank for operating leases. This is derived from Acquisition.

7. ***Leasehold Improvement Cost*** – The cost of each leasehold improvement, which meets the capitalization criteria made to the leased property. Leasehold improvements represent physical enhancements made to property by or on behalf of the property's lessee, regardless of the method of payment (installment vs. lump-sum). May apply to both operating or capital leases.

8. ***Leasehold Improvement Date*** –Date each leasehold improvement is placed in service. This date triggers amortization of the leasehold improvement. The useful life for a leasehold improvement is the lesser of the useful life of the improvement or the term of the underlying lease.

9. ***Lease Term*** - The length of time for the lease. Lease term is a derived field from the "Lease Start Date" and the "Lease End Date".

Modifications to existing core data elements from DoDI 4165.14 are recommended as follows:

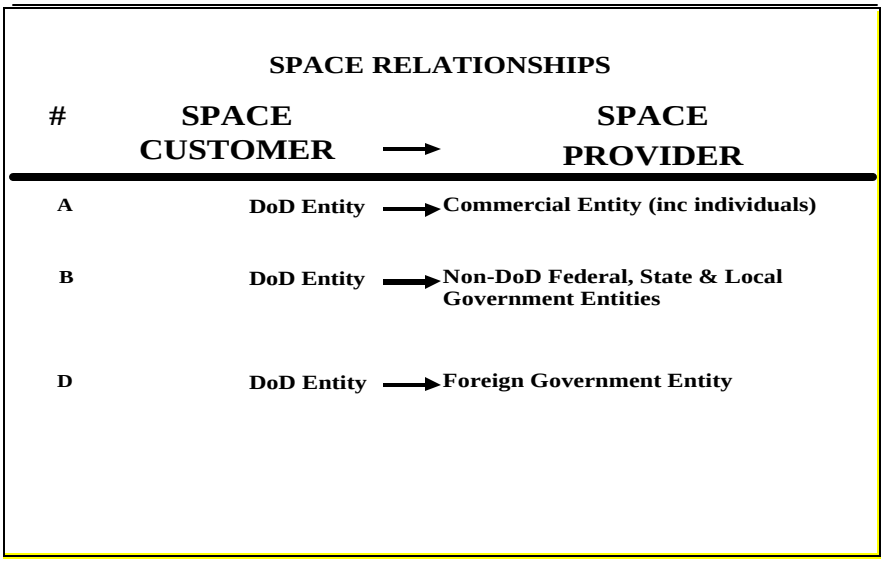
1. **Lease Annual Cost** – The annual cost of the lease in dollars and cents. Costs will include the sum of all items defined in the lease contract. The source of this value is the contract. Only total outlays required under the lease, not component costs, will be captured.

2. **Lease Instrument Number** – The lease contract number assigned by the granting authority that issued the lease. DoD currently uses GSA's lease instrument number regarding in-grants from GSA; intra-governmental transfer protocol requires the use of the provider's instrument number, rather than that of the customer.

6.3 Leasing Business Rules

An initial set of business rules for non-ownership interests were required to handle the three specific situations identified in Figure 8.

Figure 6: Space Relationships: Customers and Providers



1. An <u>in-grant of property rights</u> to a DoD entity from a non-DoD entity creates a new asset for the DoD RPI. A new RPUID is assigned to the asset and the property's attributes are entered into the real property asset record unless the in-grant is a renewal (with no gap in time) or a sublease of space already inventoried.

2. Short-term (temporary) leases and assignments – If the assignment (lease) is authorized under real property acquisition law or regulations, then the asset is recorded in the RPI, regardless of the duration, amount of space or costs involved. Reference the RPUID Appendix for generating a RPUID.

6.4 Policy Changes

The DoDI 4165.14 will have to be adjusted to include leased assets.

7. RPI Attributes to Enable Space Management

7.1 Background

DoD Real Property's primary focus is to ensure a quality work place/living place for the warfighters and other DoD personnel. The real property inventory (RPI) serves not only to inventory the real property assets, but also to provide key data to manage those assets effectively in order to accomplish the Department's multiple missions. Space management is a crucial functional area for the operational utilization of the DoD's more than 2.2 billion square feet of owned or leased real property, worldwide.[10] Space management requires matching space needs with space availability and capability. In addition to knowing the physical inventory of space, the management function needs to track the space user, how much space is being used and for what purpose, the physical and qualitative characteristics of the space and how long the current user is expected to remain in the space. A target objective in space utilization is for each Military Service to reduce excess, non-useable space.

Currently, real property inventory data kept by the individual services are neither broad enough nor standardized enough to allow successful space management across the Military Services and at the DoD level. The Military Services capture different data elements or define similar elements differently. Especially as the DoD moves toward more joint-use operations and functions under continued cost-control scrutiny, optimizing real property asset utilization within and among the Military Services and Agencies becomes even more vital.

Managing the magnitude and variety of the DoD real property portfolio and coordinating mission needs with space availability require substantial, specific information at a granular level. Some of the data needs are purely quantitative (size, location) while others are qualitative (capacity, quality). Although detailed data are required for space management purposes, not all data are required at the real property inventory (RPI) level. Consequently, some data items, such as the amount of space currently used by a specific user are carried as a RPI core data element, other, more detailed data will be deferred to the space management functional area.

As the repository of the Department's real property data, the RPI will include not only the physical details of each property but also key utilization attributes of each property for effective asset management and planning. That is, the RPI will contain data elements relating to fundamental utilization attributes, such as the property's designed use, how it is actually being used, and who is using how much space and where. The physical data elements in the RPI, such as width, length and height of a warehouse or the width, length, thickness and density of a runway, for example, will provide the basis for computing a facility's use capabilities or capacity. Capacity, therefore, will be a derived attribute, not an individual data element in the RPI.

The Space Management Work Team's primary purpose, therefore, was to develop a set of standardized data elements and their definitions to be employed across all of the DoD. The

[10] Department of Defense, Office of the Undersecretary of Defense (Installations and Environment), Base Structure Report, FY03 Baseline, p 71

Space Management Work Team identified the following four key space management RPI requirements for every asset in the inventory. The group established that the RPI should identify:

1. which asset;
2. who is the space provider;
3. who is the space user; and
4. what type and how much space is being used.

This document delineates the proposed business rules and RPI core data element requirements to facilitate space management. The Space Management Work Team concentrated on separating data elements required for management from and data elements required for inventory purposes.

The Department of Defense Instruction (DoDI) 4165.14, the current Military Service-specific data elements and the draft RPI core data elements database under development served as the initial basis to identify and define the RPI data attributes for space management. The data attributes to be included in the RPI for space-management purposes were defined as those essential attributes not already included. The RPI will be augmented to include the additional data elements defined below. Business rules were promulgated to answer specific questions and to give overall guidance about the nature of the data elements and their inclusion in the RPI.

7.2 Data Elements for RPI Space Management

1. **User** – User of the space (DoD or non-DoD user identifier) by code: e.g., UIC or Standard Accounting Classification System (SACS). There may be more than one user for a facility or parcel.

2. **Design Use (FAC and CATCODE)** – The code that denotes the predominant function of the real property asset as designed.

3. **Current Use (FAC and CATCODE)** – The code that denotes the predominant function of the real property asset if the asset has been changed as a result of a capital improvement to support a new use as designed.

4. **Quantity of Space for Each User** – Quantity of space associated with each user in a facility. Reported by FAC.

5. **Quantity of Space for Each Use** – Quantity of space associated with each use (e.g., administration, warehouse) in a facility. Reported by FAC.

6. **Asset Review Type Code** – The type of the asset review, e.g. appraisal, survey, inventory, physical condition, functional (adequacy) condition, lease assessment, replacement, current value, etc., for the facility.

7. **Physical Quality Code** – The code quantifying the overall quality of the facility based on its physical condition and configuration at the time of the inventory. This should align with the "Q-code" ratings established.

8. **Functional Quality Code** – The code quantifying the overall quality of the facility based on its functional condition and configuration at the time of the inventory.

9. **Joint Use Indicator for Each Combination of Use and User** – Flag to indicate if space has more than one user. An example of joint use is space in a facility that is used by the installation Monday through Friday and by a reserve unit on the weekend. This joint use indicator field will mark the space so the area is counted only once.

10. **Length of Facility** – the length of the facility in linear feet. (Irregularly shaped facilities will be noted.)

11. **Width of Facility** – the width of the facility in linear feet. (Irregularly shaped facilities will be noted.)

12. **Height of Facility** – the height of the facility in linear feet. (Irregularly shaped facilities will be noted.)

13. **Number of Floors Above Ground** – number of floors the facility has above ground level.

14. **Number of Floors Below Ground** - number of floors the facility has below ground level.

15. **Attic** – yes/no indicator

16. **Mezzanine/Partial Floors** – yes/no indicator

7.3 Space Management Attributes Business Rules

1. FAC codes will be recorded in the RPI to represent the predominant design use and the current use. DoD standard FAC codes will be mapped to service-specific CAT codes.

2. The RPI will be able to track multiple FAC codes per property, as significantly different uses may be associated with the property.

3. The primary unit of measure (UM) for most FAC codes that represent buildings is square foot (SF). For owned buildings the value will be reported in *gross square feet* and for leased buildings the value will be reported in *rentable square* feet.

4. The identification of the user should be a standard field across the Department. This field is currently carried in the Military Services real property inventory systems but the entries are not standard across the DoD. We will propose an interim solution for acceptable values for this field. The long term solution should be based on the initiative to uniquely identify people. We understand that unique identifiers will be developed to identify organizations within the DoD. We propose using the outcome of this effort as a partial solution for our user field entries. To fully satisfy our requirements we need to include the Standard Accounting Classification System (SACS) that is being addressed by the Accounting/Finance Domain. The SACS will identify outside vendors to accommodate

corporations, not-for-profits, individuals and estates for payment purposes. The ability to pull from these two data sources should fully satisfy our "User" requirements.

5. Space quantity will be identified by user and use for each facility.

6. Space quantity will be tracked to the smallest relevant unit of measure value. In the RPI, each Military Service will continue with their existing minimum thresholds for tracking space utilization.

7. If an entire facility is vacant it is defined as unutilized. If a facility is partially vacant it is defined as underutilized.

8. A space assignment grants another entity use of space but does not transfer ownership of the asset. The owner of the asset remains responsible to update the attributes of the asset including space assignments for all users.

7.4 Policy Changes

The current use FAC code will be used for sustainment calculations. In most cases the current use FAC and the design use FAC will have the same value. The current use FAC can be changed as a result of a capital improvement and will be reflected on either the DD Form 1391 (FY, Military Construction Project Data) or DD Form 1354 (Transfer and Acceptance of Military Real Property) submitted with the capital improvement.

All space used (owned, leased, and in-granted from Federal Departments) will be reported.

8. Conclusion

The RPI Requirements identified and defined in this Attachment and throughout this paper represent the core data elements required to effectively manage and track real property inventory across the Department. The essential data elements and definitions must be standardized throughout the Department to simplify collection and reporting. A common set of core data elements, definition and business rules will foster communications across the DoD. This is most critical as our existing real property assets evolve to support the warfighter in a more flexible environment. Standard terms and data will allow the Department to make more informed decisions as all levels across the board. Below is a recap of the recommendations (by topic) from this Attachment.

Installation and Site

The terms installation and site have been part of the DoD vernacular for many years. The Military Services are aligning real property assets to commands based on mission responsibility. Installations are no longer geographically constrained. All physical assets need to be properly allocated to the managing installation regardless of the location. To meet this emerging need and to preserve proper accountability of real property assets, the group developed standard definitions for installation and site. Installation is more a management term, and represents an organization, including the assets necessary for the installation command to carry out its mission. Site is a real property term and represents the land and facilities under the custody and control of the installation command. An installation command can have one or more sites, but a site is under the control of one installation command. This should help drive a consistent answer for the number of installations in DoD, yet allow the Department analysts to report the number of facilities and acres of land in each country, state, congressional district, etc. A benefit of this work will be the consistency in number of DoD installations/locations reported.

The following must be done to enable the reliability and validity of real property reporting:

- Incorporate the installation and site definitions provided into real property instructions and regulations across DoD during the next scheduled update of the appropriate document.
- Identify each real property asset and assign it a RPUID,
- Assign each real property asset to a site,
- Assign each installation and site an installation unique identifier and a site unique identifier respectively,
- Assign each site to an installation,
- Use the scenarios shown in Attachment A to properly identify sites and installations; and

The Services, Defense Agencies, and WHS may continue to use their current site and installation codes and names as data elements in the real property asset, site, and installation records. However, the site unique identifier will be the primary key for sites and the installation unique identifier will be the primary key for installations.

Attributes of Land

We standardized the definitions and reporting of land throughout the Department and to provide requisite data for land management functions. We will track land by parcel starting with how and when the parcel is transferred into the Department's custody and control. As our use of the land changes, the parcel attributes are updated, and as the parcel is disposed (or partially disposed) the attributes are updated (or the parcel can either be reconfigured to note the part retained) and archived.

Real Property Unique Identifier

The RPUID provides the key element that distinctively and uniquely identifies a piece of land, a building, or other real property asset in which DoD has a legal interest. The RPUID will be generated by the UID registry system and will be used by the Business Domains within the DoD and other users with a valid need to access the real property asset information.

The I&E Domain recommends that the definitions, concepts, and business rules described herein regarding a standardized RPUID be approved and adopted. The RPUID will be the key element of DoD's implementing strategy to track financial and physical changes of the Department's assets over the life cycle. The Real Property Unique Identifier creates the capability to link data from systems across the Department to an individual real property asset. It will eliminate the need for multiple real property data files and promote the concept of an authoritative source, where data is entered once but shared by many).

Network Facilities

The identification of complete network facilities (utility systems, roads, and railroads), along with the recognition of the linear and non-linear components of the total system and the further segmentation of the linear components will be a key element in accounting for real property assets in which DoD has a legal interest. The linear and non-linear components of a network facility are linked to the network facility through the Asset Type Code and the Asset Subtype Code data elements. The components of a network facilities are not used at the same rate, sustained at the same level, nor is the total system recapitalized at the same time, granularity is supportive in analysis to determine the effect fluctuations in use (or the load) of a segment has on the sustainment costs, restoration costs, and cyclical replacement of the network facility segment. Segmentation also allows analysis of whether it is better to repair or replace an existing section. The Department analysts can identify the total set of assets included in a privatization effort, and the effect transfer of those assets will have on future budget requirements and the need to flow funds from sustainment, restoration and modernization to the other base operating service account.

Leasing

Previous studies identified that leases are not consistently being included in any of the real property inventories. Leasing subject matter experts were engaged to define the unique attributes needed in the RPI to facilitate lease accountability and to complete the initial drill-down of the leasing process. The group also looked at other instruments such as ingrants/outgrants, permits, and easements that are used to transfer custody and control of real property. A process has been developed to capture how real property inventory information in this category will be captured and updated and by whom. The goal is to get the right level of information captured, keep it accurate, and avoid duplication.

Space Management

As the repository of the Department's real property data, the RPI will include not only the physical details of each property but also key utilization attributes of each property for effective asset management and planning. That is, the RPI will contain data elements relating to fundamental utilization attributes, such as the property's designed use, how it is actually being used, and who is using how much space and where. The physical data elements in the RPI, such as width, length and height of a warehouse or the width, length and thickness of a runway, for example, will provide the basis for computing a facility's use capabilities or capacity. This will enable more extensive analysis to include such efforts as evaluating the effective cost of space use, assessing the contribution (positively or negatively) of the space to mission fulfillment, determining if the space is being used as intended, and determining where and what amount of space is available for a given use.

8.1 Recommendation

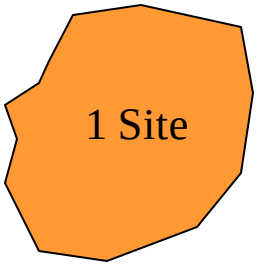
Overall, the work groups evaluated and proposed improvement to the full life cycle management of the inventory process. This will enable more extensive analysis of consistent information and will support well founded real property decisions across the Department. The I & E Domain recommends that the Military Services, Defense Agencies, and other Domains agree to establish and use the core data elements, definitions and business rules described in this paper.

Attachments

A. Land Area Scenarios and Business Rules Defining Sites

Case 1: Single Site

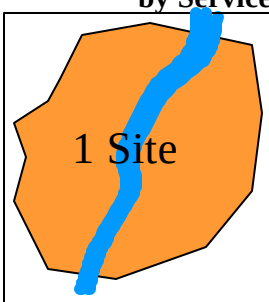
Case 1a **No Impediments or Easements**



1 Site = 1 Installation

Example:
Henderson Hall (USMC)

Case 1b **Natural Feature or Easements Controlled by Service**



1 Site = 1 Installation

River, cove, inlet or bay running through site.

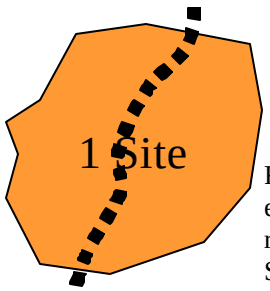
Example:
Aberdeen Proving Grounds

Case 1a is a single site which comprises a single installation.

Case 1b is also a single site, but it has a river, cove, inlet, bay or other natural feature running through the site. Access to the feature can be controlled by the installation, making this a single site.

Case 2: Road, Highway or Other Corridor

Case 2a **Service controls access to the "corridor"**

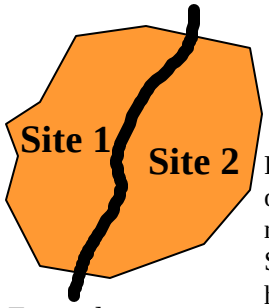


1 Site = 1 Installation

Road or other easement running through Site.

Example:
MCB Camp Covington, Guam

Case 2b **Service has no access control and no legal interest in the "corridor"**



2 Sites = 1 Installation

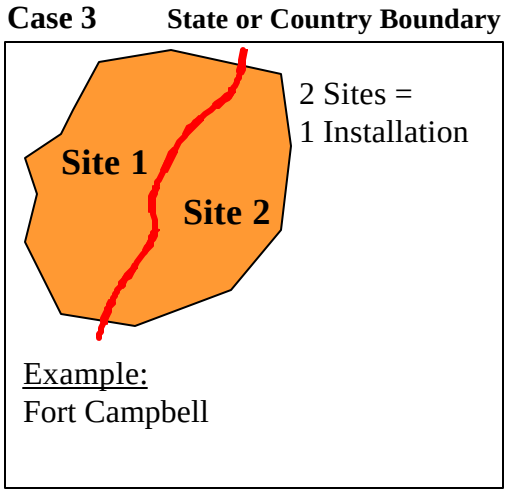
Road, highway or other corridor running through Site and Service has no access control or legal interest in the "corridor."

Example:
Tyndall AFB – US Highway 98

Case 2a is a single site with a power easement, gas line or road running through the site, and where the Service controls access and security, it is a single site.

Case 2b is two sites because DoD has no legal interest in the "corridor" and cannot control access.

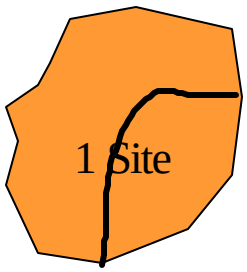
Case 3: State or Country Boundary



Cases 3 is a single land area under the custody and control of a single military service, but divided by a state or country boundary. This type of geographic boundary requires the installation to be divided into two sites. The installation will be referred to by the location of the command building.

Case 4: Joint Use Installations

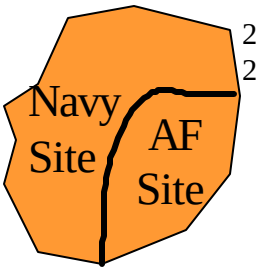
Case 4a **Under control of a single service**



1 Site =
1 Installation

Example:
Selfridge Air Nat. Guard (Host) and Selfridge Army (Tenant)

Case 4b **Under control of two services**



2 Sites =
2 Installations

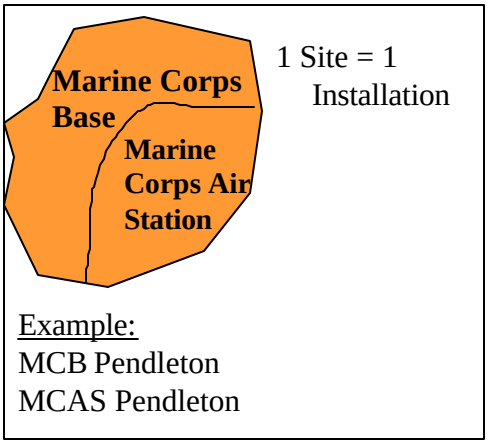
Example:
Pearl Harbor Naval Station and Hickam AFB

Case 4a is a single land area with more than one service or agency located on it. All of the property is under the custody and control of one service, the host. The other service, therefore, is a tenant. This is a single site and is assigned to a single installation.

Case 4b is a single land area under the custody and control of two different services. The property under the custody and control of each service is a site for that service. Each site is assigned to a single installation by the respective services.

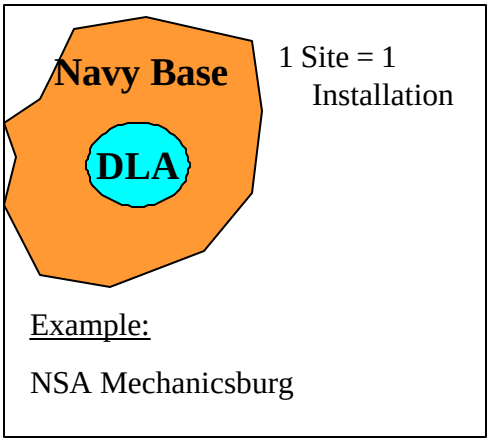
Case 5: Other Configurations

Case 5a



Example:
MCB Pendleton
MCAS Pendleton

Case 5b



Example:

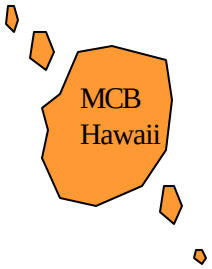
NSA Mechanicsburg

Case 5a: When one service has custody and control of a single land area, even if the service provides two dissimilar missions on that land area, the land area will be considered a single site for inventory control purposes, and must be assigned to an installation according to site business rules.

Case 5b: When one service has custody and control of a single land area, but a Defense Agency occupies a discreet area of land within that single land area, the entire land area will be considered a single site for inventory control purposes, and must be assigned to an installation according to site business rules

Case 6: Noncontiguous Sites

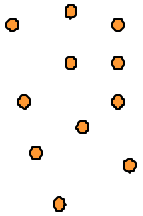
Case 6a **Installation site with satellite sites**



Multiple sites forming one installation

Example:
MCB Hawaii and outlying sites in Kenya

Case 6b **No designated Installation site**



Multiple sites forming one installation

Example:
Texas Army National Guard

Case 6a: When more than one site is assigned to an installation, one site may be designated as the primary site, with other sites being subordinate sites. This may be the most common configuration.

Case 6b: When more than one site is assigned to an installation and there is no primary site, this is referred to as a virtual installation.