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AiM Training & Reference Manual

Effective June 15, 2017

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State University Construction Fund
State University Plaza, 353 Broadway, Albany, NY 12246
518.320.1770
www.sucf.suny.edu

Introduction

Capital Asset Management is a systematic process of deploying, operating, maintaining, upgrading, and disposing of building and infrastructure assets cost-effectively.

We all practice asset management, although we might not realize we are doing it. By fixing a leaky pipe we prevent more costly damage in future, by doing proactive preventative maintenance we prolong the life of our vehicle. We inspect our homes, consider life spans, and plan for major household expenses such as a furnace or roof replacement so that these expense are not unexpected. We do these things to ensure that we maintain what we own in the most cost-effective way to a standard that we feel is acceptable.

These principles that we apply in everyday life can and should be applied to the management of SUNY's building and infrastructure assets, in order to provide a good quality environment for teaching and learning that meets the expectations of faculty, staff and students and is financially sustainable into the future.

A New System for Capital Asset Management

Historically, the State University Construction Fund (Fund) and SUNY maintained property and space data in a number of mainframe-based legacy databases that included the BCI (Building Characteristics Inventory) and the PSI (Physical Space Inventory). These contained property data such as construction date, gross square feet, major use, and building name. In addition, the only data at our disposal related to our physical assets was collected via the Building Condition Assessment Survey (BCAS), which occurred only periodically. This data has not been maintained or updated as construction work has been completed.

In 2015, a committee comprised of representatives from the Fund, SUNY Office for Capital Facilities, SUNY Controller's Office and the SUNY Research Foundation were brought together to assess the needs of these systems and those that interacted with them. Eventually a selection committee was formed to review multiple software packages, ultimately selecting AiM to replace these legacy systems.

AiM provides a web-based integrated platform for "all things capital". AiM converts SUNY's space inventory into the federally recognized Facilities Inventory and Classification Manual (FICM) standard, updates and integrates property data, and provides a real time updatable life cycle management system for asset condition assessment and projecting future capital needs.

Overall Goals for the System

1. Demonstrate accountability and stewardship over SUNY's capital assets
2. Identify ongoing critical capital needs and project future renewal costs
3. Provide a mechanism for capital facility lifecycle management
4. Provide better data and stronger justification to the Legislature and the Division of Budget for new capital appropriations
5. Enable identification and prioritization of capital projects using condition as a starting point
6. Provide a user-friendly searchable system
7. Provide the capacity to update and access real-time data
8. Provide the capacity to support work order and preventative maintenance modules

About AssetWORKS - AiM

AiM is an online Integrated Work Management System (IWMS) developed by AssetWORKS that incorporates property, space, and asset management information into a real-time dynamic database. This system, and its associated data, will be used for a wide range of uses by many departments within SUNY System Administration, the Fund, the Research Foundation, and all campuses.

AiM has many modules within it, serving a multitude of purposes. The system is replacing outdated building information systems maintained by SUNY. Noted below are the modules available to users, and their associated past data system reference, as of the time of printing:

- AiM Property Management Module
    - SUNY Building Characteristics Inventory (BCI)
- AiM Space Management Module
    - SUNY Physical Space Inventory (PSI)
- AiM Asset Management Module
- AiM Planning & Needs Analysis Module
    - SUNY Building Condition Assessment Survey (BCAS)

This manual provides guidance for the use of the Asset Management and Planning and Needs Analysis (PNA) modules within AiM.

Definition of “Asset” Within the Context of AiM

Assets are defined as items or things that have potential or actual value to an organization. Distinct from financial assets, physical assets have a tangible material existence and for the purposes of SUNY’s Life Cycle Modelling (LCM) system that refers to buildings, infrastructure, plant and equipment and site improvements.

Asset Management and Planning and Needs Analysis

AiM, as implemented by SUNY, tracks buildings and infrastructure assets at a system and subsystem level. AiM will be sufficient to support capital planning but not so detailed that updates to the system will be continuously required by minor projects or everyday maintenance actions.

Information has been gathered to quantify each asset, such as roof area, building gross square feet, or linear feet of steam line. Cost models have been applied to each asset to estimate the future replacement cost of that asset.

Each asset is assigned an estimated installation date to define the beginning of its life cycle and is assigned an estimated number of years remaining before replacement is required.

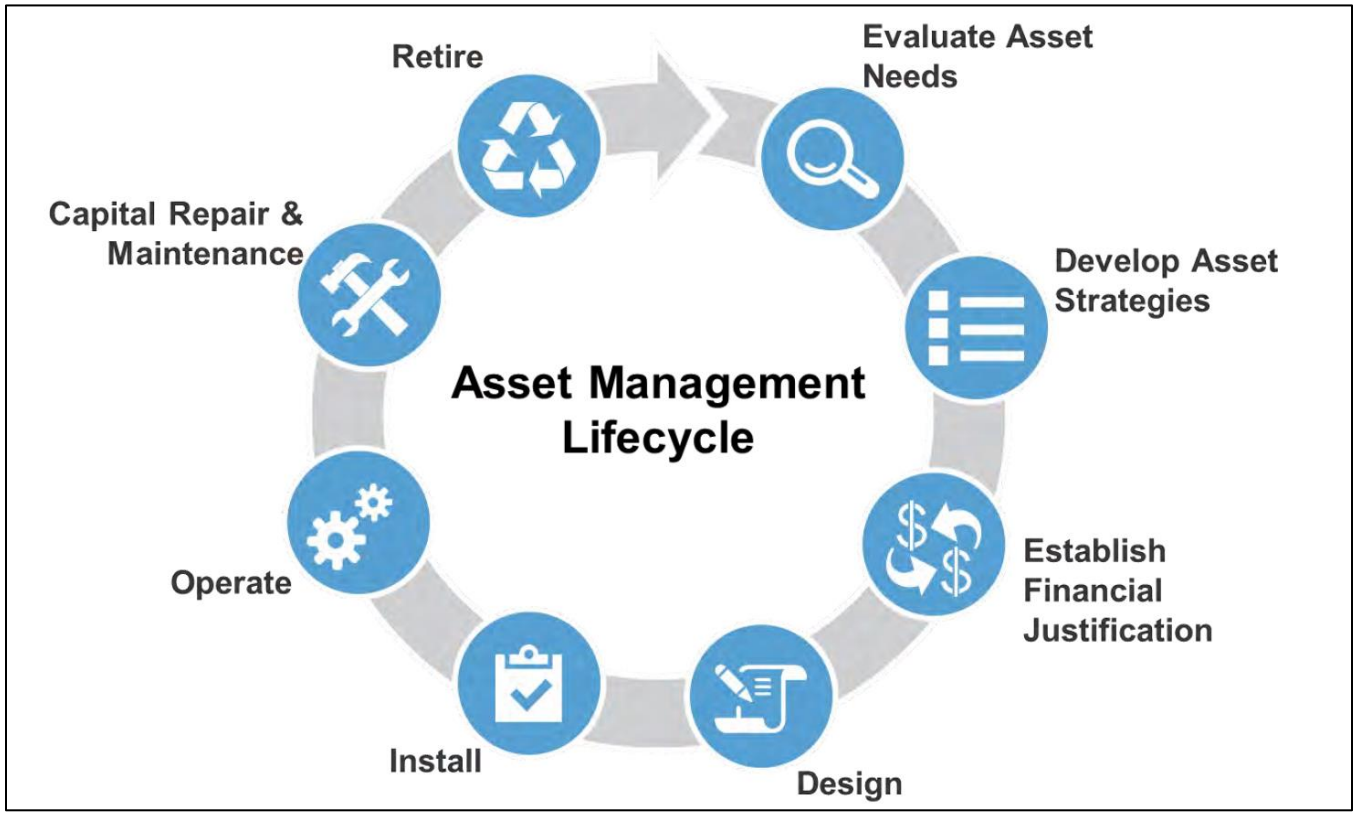
As major projects are completed, an update process exists to either extend the assets’ useful lives or to reset the installation dates and assign new life spans.

Application of cost models and inflationary factors can provide a projection of long term capital funding needs, as well as a short term building and infrastructure needs.

Fundamental attributes of each asset include:

1. Asset Description
2. Asset Grouping
3. Quantity of the Asset
4. Installation Date
5. Expected Remaining Life

ASSET MANAGEMENT LIFECYCLE

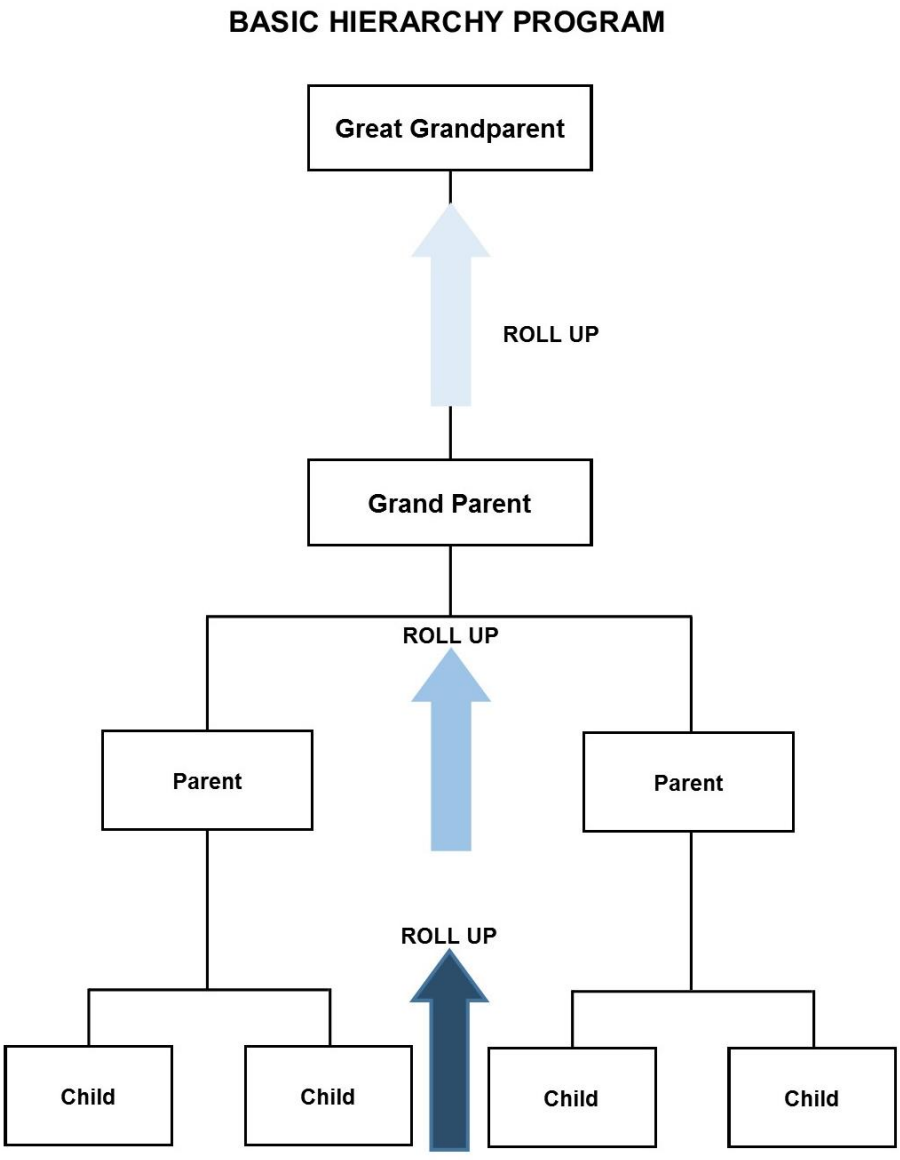


Asset Hierarchies

A simple definition of hierarchy is “a system or organization in which people or groups are ranked one above the other according to status or authority.” In relation to assets, hierarchy is the relationship between the levels of assets from buildings to systems to subsystems, and then down to serialized assets such as pumps and motors.

Like most Integrated Work Management System (IWMS) solutions, AiM contains an underlying hierarchical structure that provides a foundation for organizing and assessing assets as individual components, equipment, systems or groups of assets.

Data such as quantities, renewal years, and renewal costs can be “rolled up” to higher levels from lower, but cannot be unrolled lower than the lowest level collected. A rolled up structure is organized like a family tree. At the lowest level is the child, followed by parent, grandparent, great-grandparent and so on. Each level encompasses more and more asset records until reaching the highest organizational level.



Most importantly, the hierarchical structure allows us to accurately locate a specific asset, such as a chiller, across 32 state-operated institutions in the SUNY system and thousands of geographically diverse buildings.

Asset Location Hierarchy

To accommodate the predefined database fields of AiM and the geographical diversity of the SUNY system, each asset is located through a four level hierarchy as shown below:

Region

The Region field within AiM refers to our institutions. For example, regions include Cornell University, System Administration and SUNY Cobleskill. Within the software, regions are defined using the SUNY five digit institution code and a region description, such as “Binghamton”. The Region field is non-editable.

Facility

Because many campuses have sub-campuses or facilities separate from their main campus, the Facility field is used and refers to predefined sites including the main campus, sub-campuses or isolated facilities such as biological field stations. The facility field is non-editable.

Property

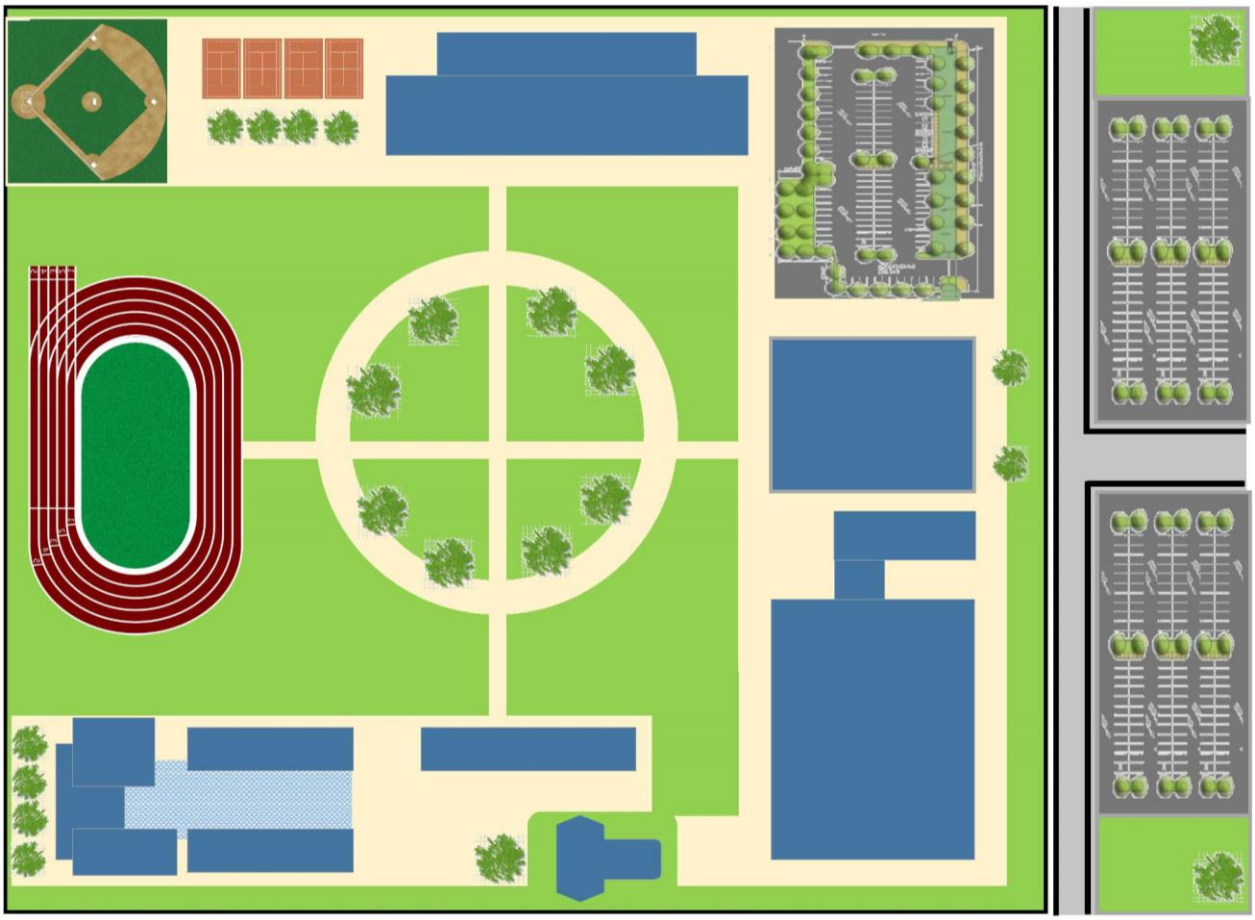
Within AiM, the property profile most commonly identifies individual buildings and stores property information such as square footage, construction type, date built, ownership status, hazardous material status and other information. Other land type properties exist to denote campus grounds, farm lands, parking lots and sports fields. All spaces or locations within AiM are tied to a particular property, as are assets.

Examples of Locating Assets in the Hierarchy System:

Region: Albany
Facility: Downtown Campus
Property: Draper Hall
Asset: Roof

Region: Oneonta
Facility: Biological Field Station
Property: Biological Field Station Grounds
Asset: Storm Water

Region: Stony Brook University
Facility: East Campus
Property: Parking Lot 1
Asset: Parking Lot 1



Asset Types and Groups

Asset Types

For high level reporting purposes, assets are categorized by *Asset Type*. Asset types broadly describe groups of similar building systems. Reporting at the asset type level allows a roll-up of renewal costs to a higher summary level and might be used in the preparation of long range strategic plans or documents to support capital funding requests.

Building-related asset types include:

- Envelope
- Superstructure
- Interior
- Electrical
- HVAC
- Conveying
- Plumbing
- Life Safety
- Minor Structure
- Central Plant

Infrastructure and site-related asset types include:

- Hardscape
- Softscape
- Utility Distribution
- Wayfinding
- Parking
- Sports Field

Asset Groups

Asset Groups are predefined, non-editable fields within AiM that categorize the asset at a system and subsystem level. Asset groups are most frequently used for reporting purposes. For example, under the building asset type “Electrical”, related asset groups are:

Asset Type	Asset Group	Description
ELECTRICAL	LIGHTING	Interior lighting
	ELECT-DIST-SECONDARY	Secondary electrical distribution
	ELECT-PRIMARY SERVICE	HV service, switchgear, transformer and main distribution panel
	TELCOM-DATA	Telecom and data wiring and associated systems

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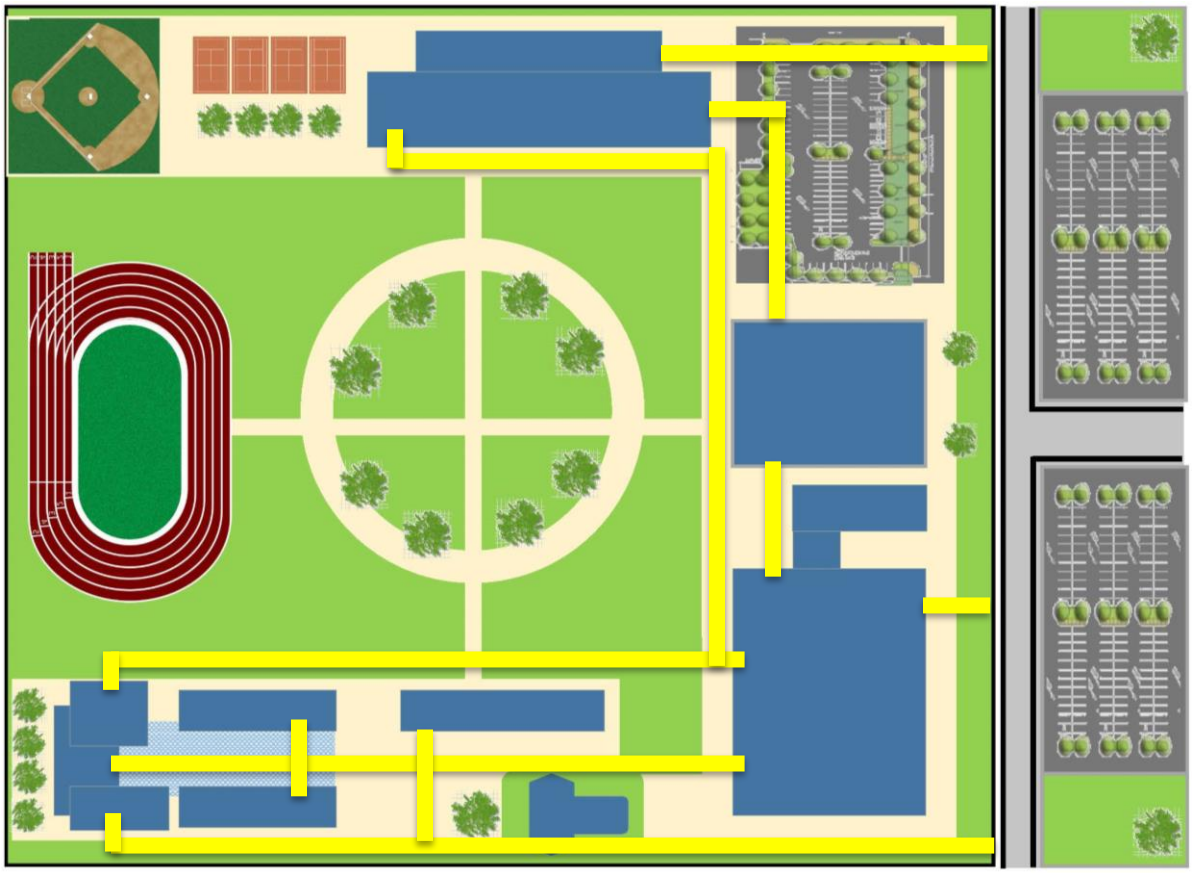
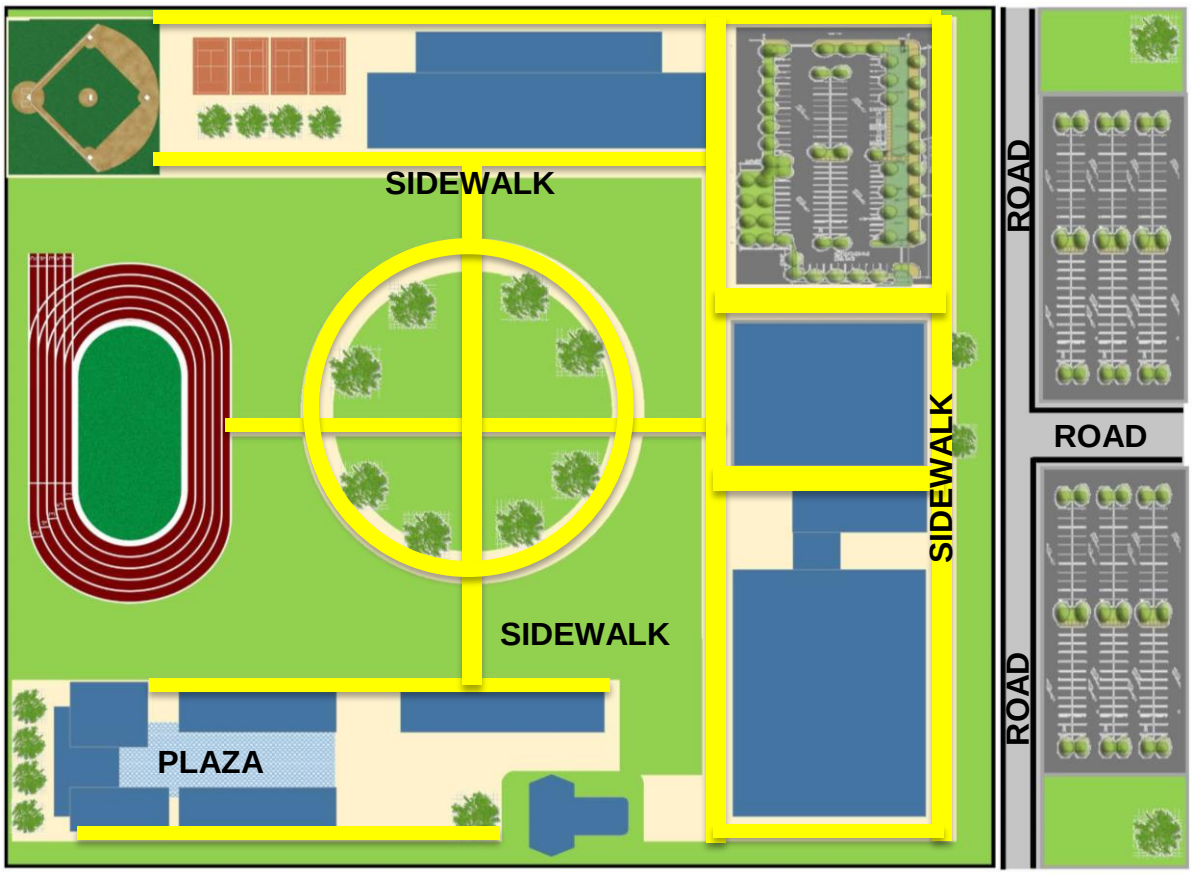
GRAPHIC ON A TYPICAL BUILDING CROSS SECTION SHOWING ASSET GROUPS TO BE PROVIDED.

INFRASTRUCTURE ASSETS



HARDSCAPE ASSETS



Categories of Assets within AiM

There are various categories of assets within AiM. The categories are:

- *Property Assets*: An asset associated with a property in the Property and Space module.
- *Building Assets:* Assets generally located within or associated with a building and include systems such as HVAC, subsystems such as a chiller, and serialized assets such as chilled water circulating pumps.
- *Grounds Assets:* Assets found on the typical campus site and include hardscape, roadways, and infrastructure items such as underground electrical feeders, water lines and sewer systems.
- *Parking Assets:* Assets referring to surface parking lots on campus grounds. It should be noted that parking structures, and their systems and subsystems, are regarded as building assets.
- *Sports Fields*: Assets referring to sports fields themselves and field lighting systems.

How Do We Measure Assets?

In order to estimate the future cost of renewal of an asset, we must be able to apply a unit of measurement to the asset for the cost models within AiM to calculate a renewal cost.

- Most building asset renewal costs are driven by the gross square feet of the building that the asset resides in. For example, the HVAC distribution asset in a 100,000 GSF building has a quantity of 100,000 GSF. Renewal costs are then calculated by a $/GSF rate.
- Major equipment items are generally quantified by the capacity of the equipment. For example, tons of refrigeration, boiler MBH and KW of generation capacity.
- Flat assets such as plazas, sidewalks and roadways are quantified by their total square feet.
- Linear assets such as underground infrastructure are quantified by a linear trench feet measure. For example, an underground duct bank with 12 ducts that is 100 feet long has a quantity of measure of 100 feet, even though it contains multiple feeders. Likewise, a high temp hot water system with a flow and return pipe that is 100 feet long has a quantity of measure of 100 feet despite containing two pipes.
- Some infrastructure assets such as underground and above ground tanks are quantified by their storage capacity in gallons (i.e. 5,000 gallons).

Naming Assets

The asset description field within AiM gives an opportunity to add identifying information to an asset to make the process of asset tracking and updates easier. In general, asset descriptions should provide a small amount of additional information on the type and location of the asset. Example descriptions include “Elevator #3 Passenger South Wing” or “Boiler #4 Basement MER”. Data standards for each asset group have been developed and contain additional guidance on asset naming conventions later in this manual.

Categories of Assets and Their Measures

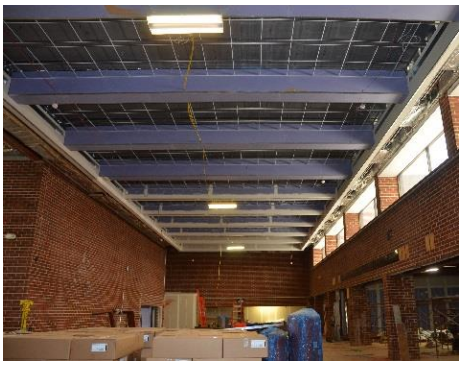
MAJOR EQUIPMENT

Chiller / Tons

Boiler / MBH

BUILDING GSF ASSETS

Lighting / GSF



Ceiling / GSF

LINEAR ASSETS

Water Line / Feet

Heat Pipe / Feet

FLAT ASSETS

Road / Square Feet

Sidewalk / Square Feet

STORAGE ASSETS

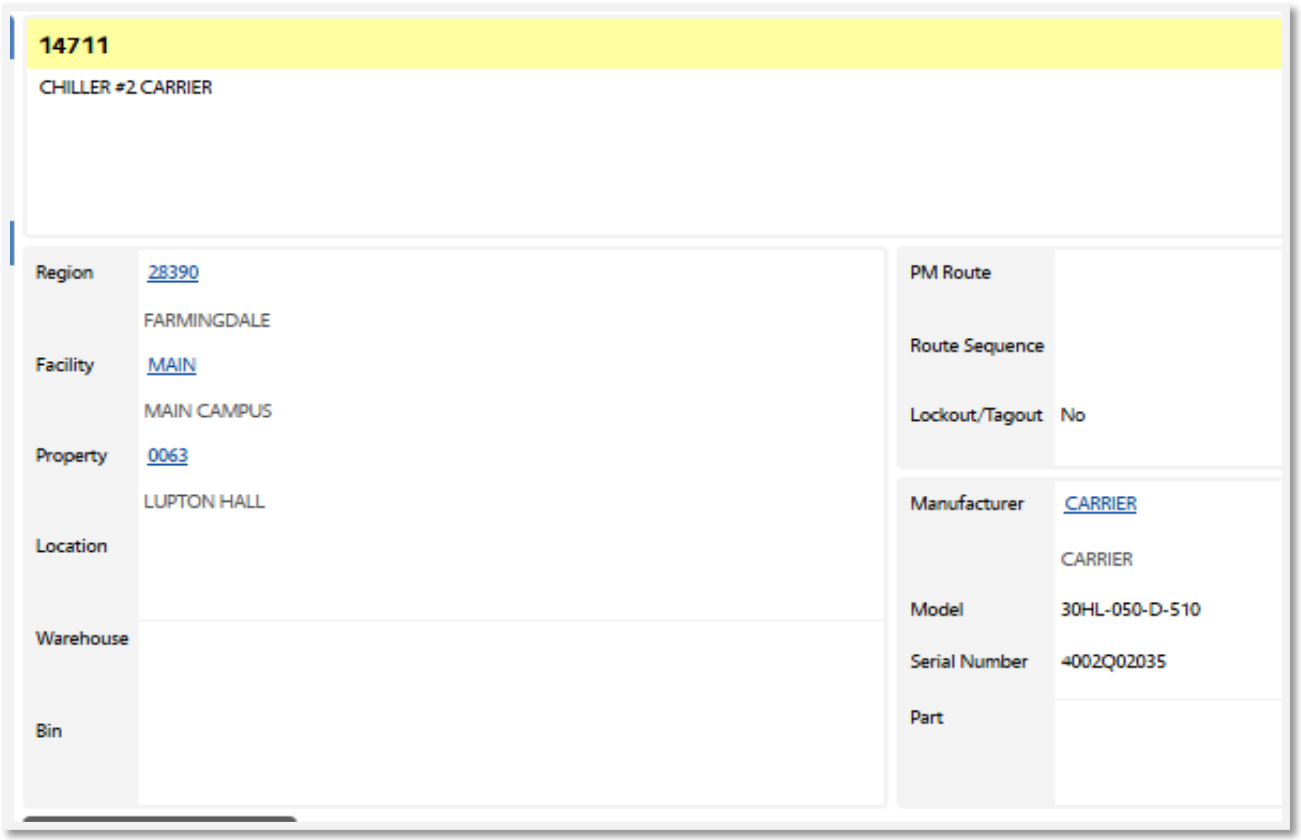
Oil Tank / Gallons

Water Tank / Gallons

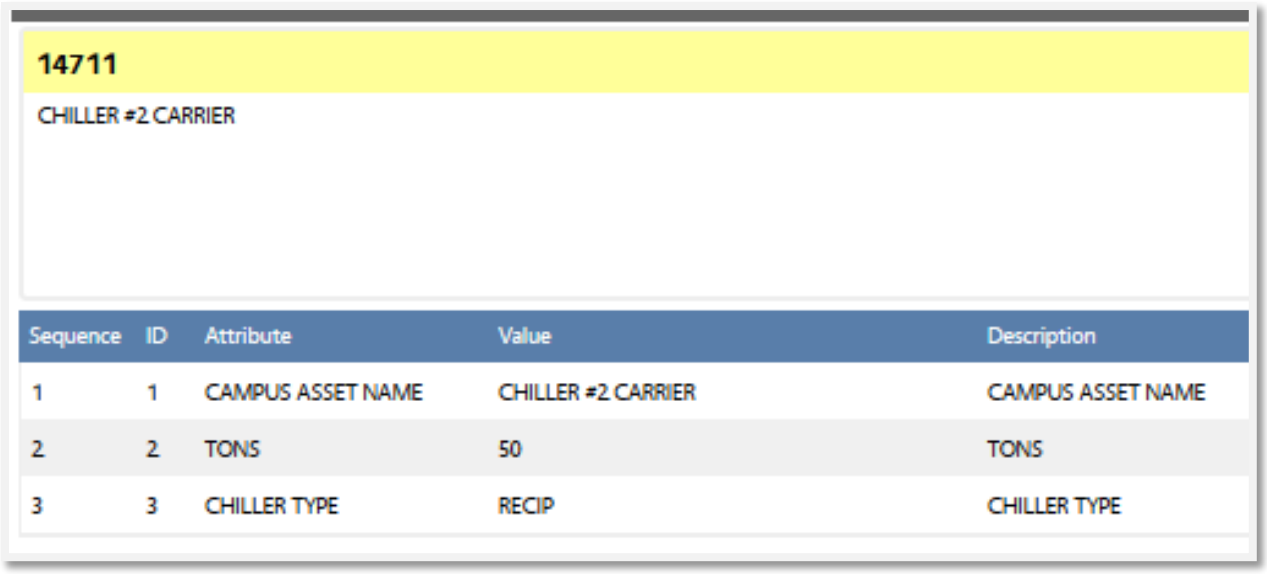
Where is Asset Information Stored within AiM?

Attached to this manual is a navigation guide to AiM which provides detailed instructions on searching, editing and updating asset information. In general, most information regarding an asset is contained on three main screens within AiM.

The ***Master Asset Profile*** is the main display for an asset record. It contains the asset identification number, asset descriptions, and hierarchy details, as well as make, model and serial number information (if available).



The ***Attributes*** sub-screen contains further detailed information about the asset. Type, capacity or size information is applied by cost models to determine renewal costs.



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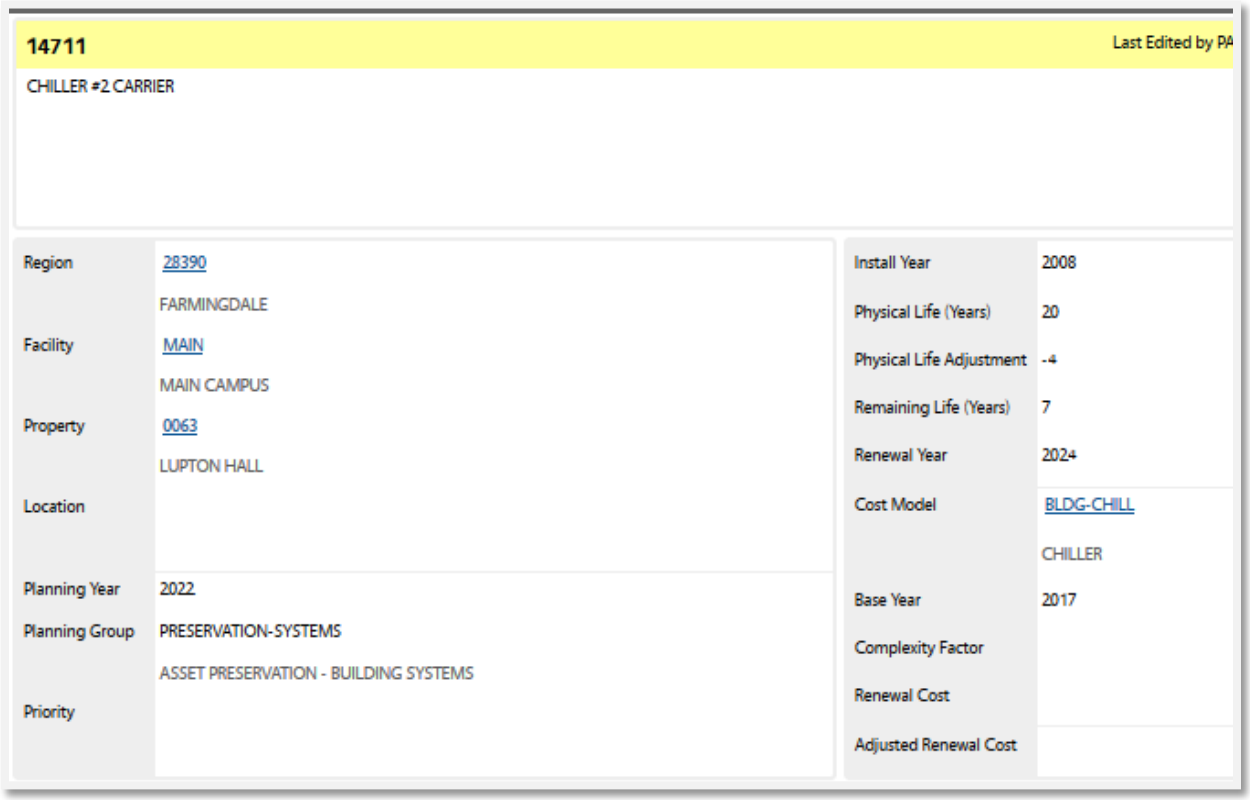
CHILLER #2 CARRIER

Sequence	ID	Attribute	Value	Description
1	1	CAMPUS ASSET NAME	CHILLER #2 CARRIER	CAMPUS ASSET NAME
2	2	TONS	50	TONS
3	3	CHILLER TYPE	RECIP	CHILLER TYPE

The ***Condition Assessment Asset Profile*** is the main display for information related to the renewal needs of the asset. This screen includes replacement year and adjusted renewal cost.



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CHILLER #2 CARRIER

Region	28390	Install Year	2008
	FARMINGDALE	Physical Life (Years)	20
Facility	MAIN	Physical Life Adjustment	-4
	MAIN CAMPUS	Remaining Life (Years)	7
Property	0063	Renewal Year	2024
	LUPTON HALL	Cost Model	BLDG-CHILL
Location			CHILLER
Planning Year	2022	Base Year	2017
Planning Group	PRESERVATION-SYSTEMS	Complexity Factor	
	ASSET PRESERVATION - BUILDING SYSTEMS	Renewal Cost	
Priority		Adjusted Renewal Cost	

Splitting Assets

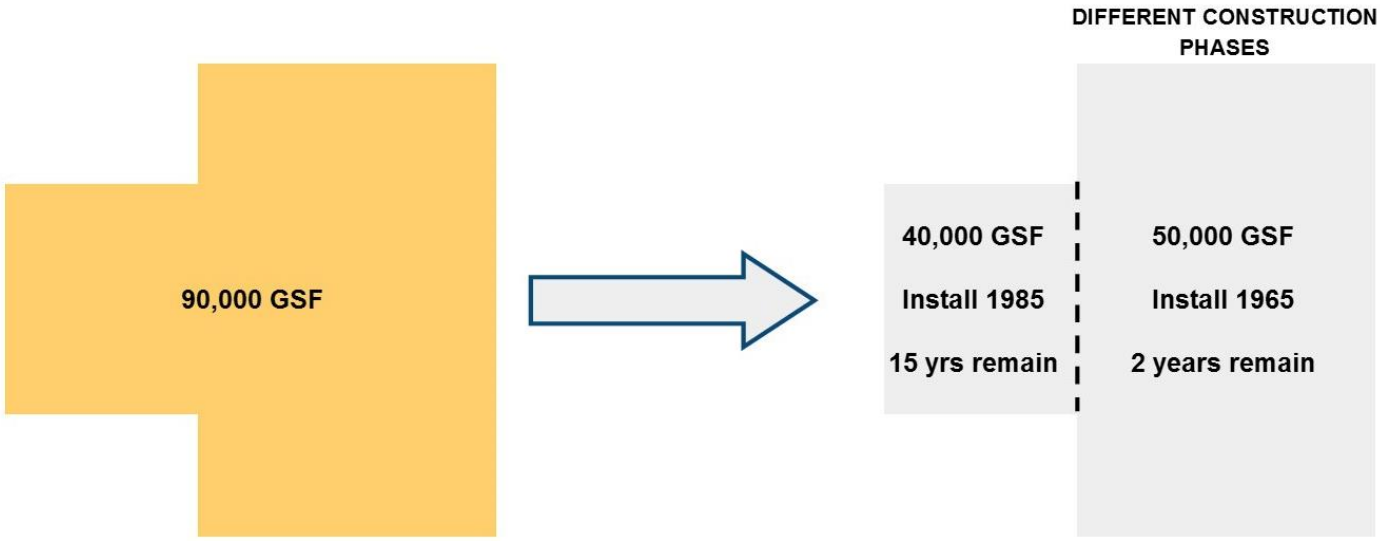
AiM adequately models the life cycle renewal needs of an asset where all the components in the asset are of roughly the same age and condition, with a similar remaining life. For example, if the HVAC distribution system of a building is largely original to the construction of the building and the components can be considered to have a similar remaining life, the system can be treated as a single asset within AiM.

In many cases existing buildings and campus infrastructure were constructed in distinct phases, vary in materials of construction, and may have been partially renewed through renovation. “Splitting assets” is a technique for creating a life cycle model that more accurately predicts these varying conditions, materials and renewal needs.

In concept, “splitting an asset” involves creating two or more assets from one, with prorated quantities adding to the original but with varying installation dates, remaining lives and/or material types.

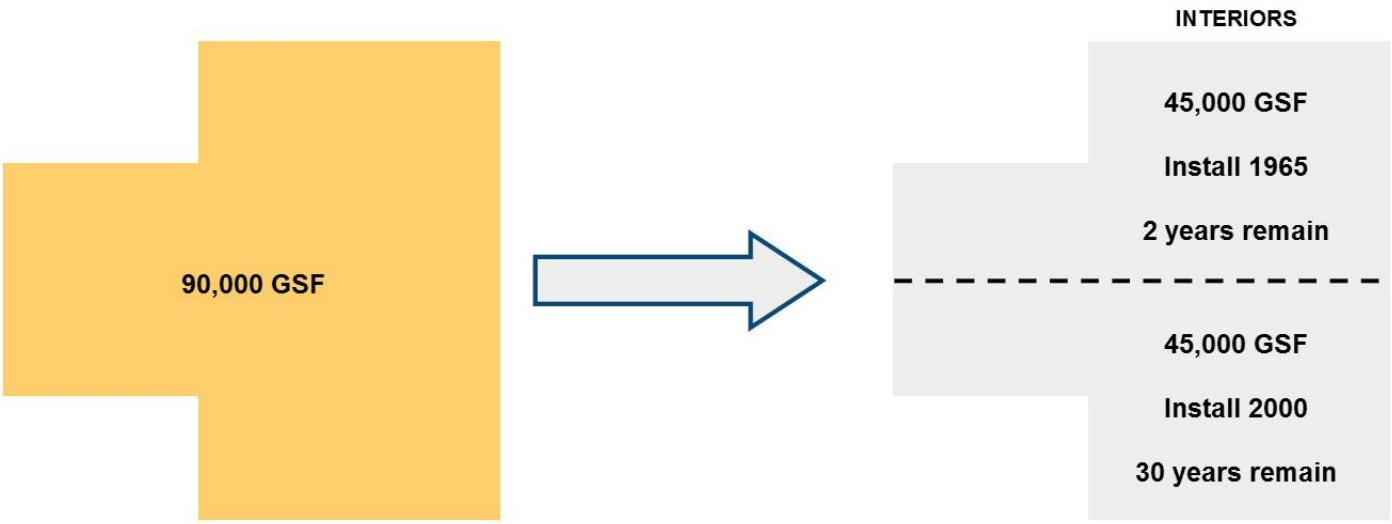
Example 1

A 90,000 GSF building with two distinct construction phases of 1965 (50,000 GSF) and 1985 (40,000 GSF) would include two HVAC distribution assets with different installation dates (1965 and 1985) and different remaining lives (2 and 15).



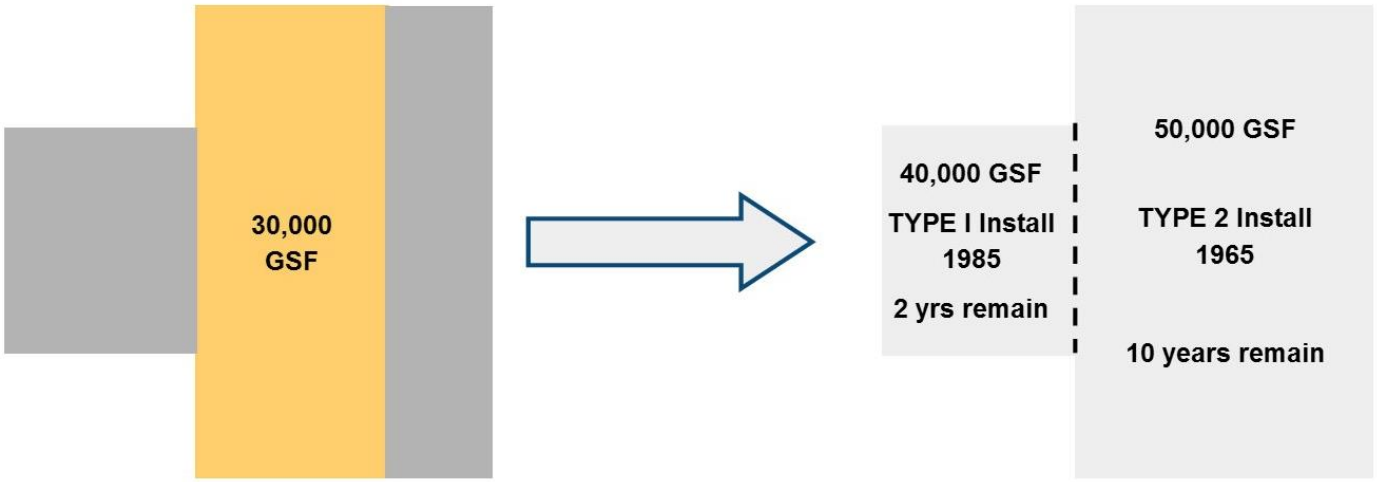
Example 2

A 90,000 GSF building originally constructed in 1965, but subject to a comprehensive renovation of approximately half the floor space in 2000, would include two interior finishes assets with quantities of 45,000 GSF each, installation dates of 1965 and 2000, respectively, and different remaining lives.



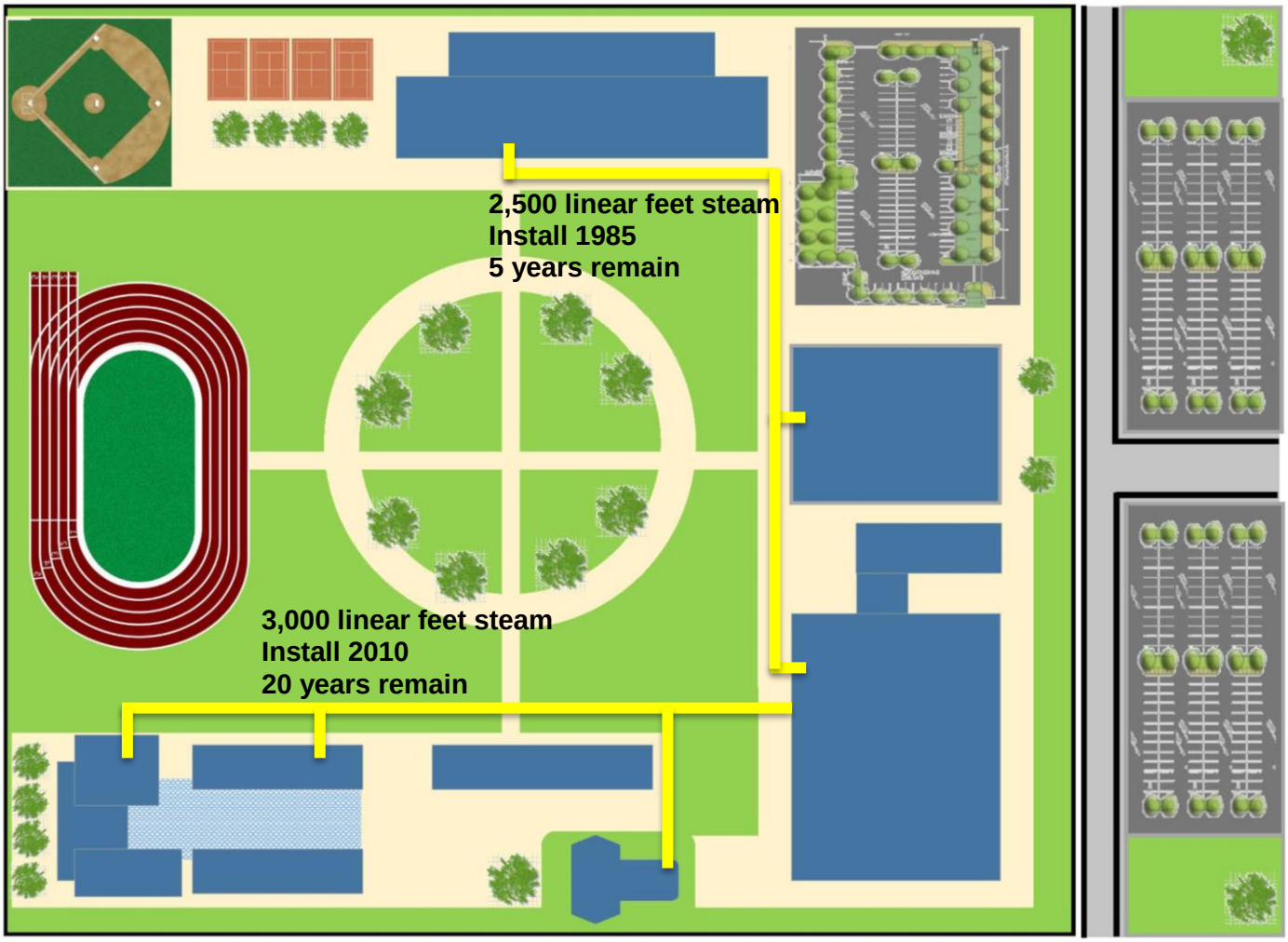
Example 3

A building constructed in 1980 has an overall roof area of 40,000 square feet, but it includes an EPDM roof section of 10,000 square feet and a copper roof section of 30,000 square feet. Because the roof is constructed of two material types with significantly different renewal costs and expected lives, the original roof asset is split into two assets, a type 1 roof of 10,000 square feet and a type 2 roof of 30,000 square feet, with different expected lives.



Example 4

An example for an infrastructure asset is a steam line, half of which may have been replaced in 2010 and the remainder dates from 1985. The two portions have significantly different life cycles and must be considered separately.



Example 5

A campus has approximately 200,000 square feet of sidewalk that has been renewed piecemeal over the years. It is not practical to identify every segment of replaced sidewalk as an individual asset, but a more adequate life cycle model is required rather than assessing all sidewalks in total. The asset is split into a number of segments that provide a better approximation of the required asset management plan.

Sidewalks 1 50,000 sq. ft. installed 1965 – remaining life 2 years
Sidewalks 2 50,000 sq. ft. installed 1980 – remaining life 7 years
Sidewalks 3 50,000 sq. ft. installed 2000 – remaining life 12 years
Sidewalks 4 50,000 sq. ft. installed 2015 – remaining life 20 years

The Golden Rules of Splitting Assets

1. Do not split assets it if there is no significant difference in age or expected life between the split assets, such as renovated spaces less than 10 years different in age. Common sense prevails!

2. Keep in mind that every time an asset is split there is more data to maintain. The decision to split an asset must result in a significant improvement to the life cycle model. Making a decision to split all assets in a building into three sections will create over 50 new assets to maintain.

3. Minor office renovations/modifications and other work often do not warrant splitting the assets within a building because the existence of these renovated spaces does not affect the decision to comprehensively renovate the building.

4. Unless the building or infrastructure asset is significantly large, split assets should not in general be smaller than 25% of the overall quantity of their parent. General practice is not to split building assets into more than 3 sections. This limits the number of asset records to be maintained and ensures that asset records maintained have a significant renewal cost. An exception might be a very large facility (e.g. over 200,000 GSF) where whole floor areas are significant.

5. Always split roof assets to differentiate between type 1 and type 2 roof materials.

6. When assets are split, ensure that the asset descriptions or notes contain a general sense of which portion of the building or infrastructure system the split assets apply to. For example, “Smith Hall – North Wing Interiors” or “HTHW – Loop #1”.

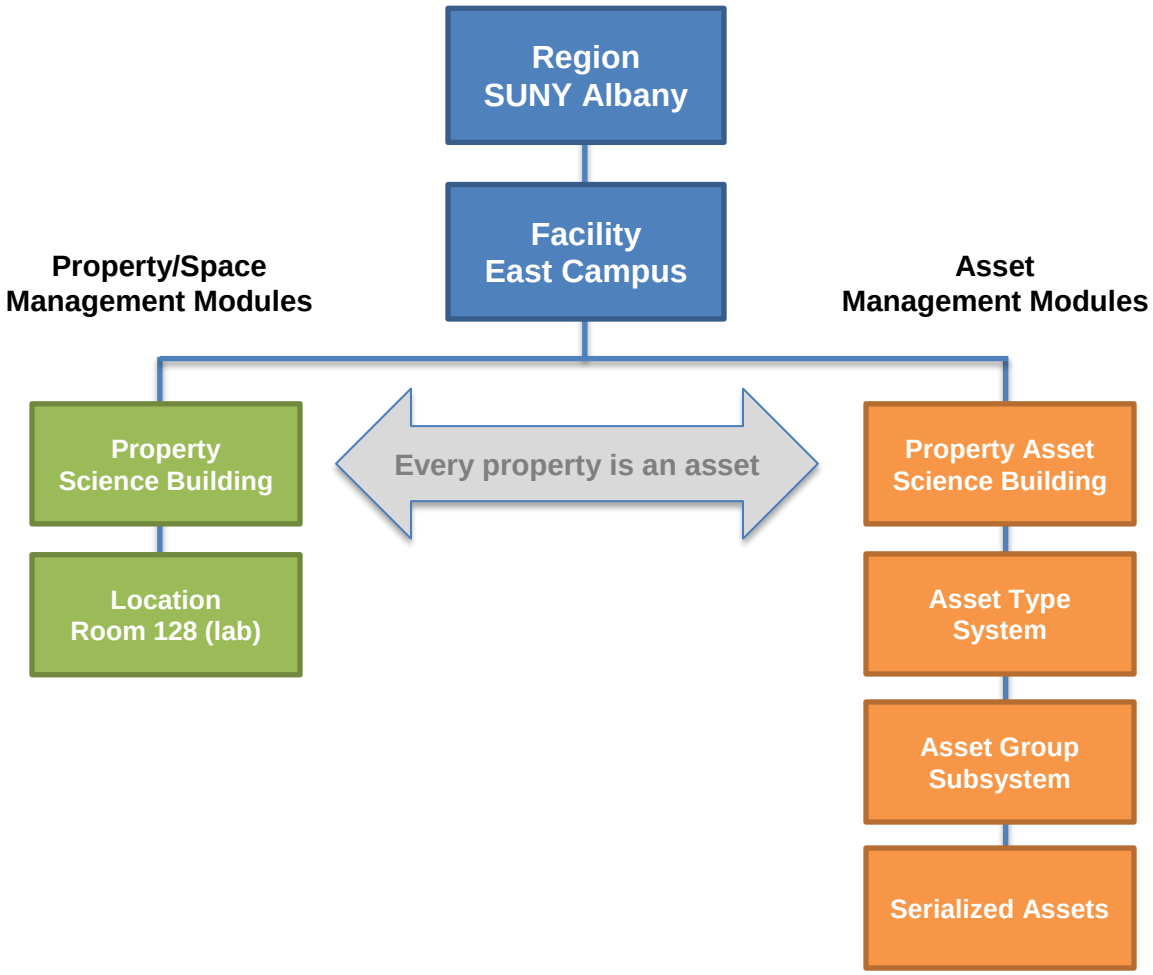
Properties and Property Assets

The AiM system provides an enterprise wide management system for properties, space and asset management. Where space locations are necessary in AiM, properties must be created for those locations to reside within. Examples of the different property types within AiM include:

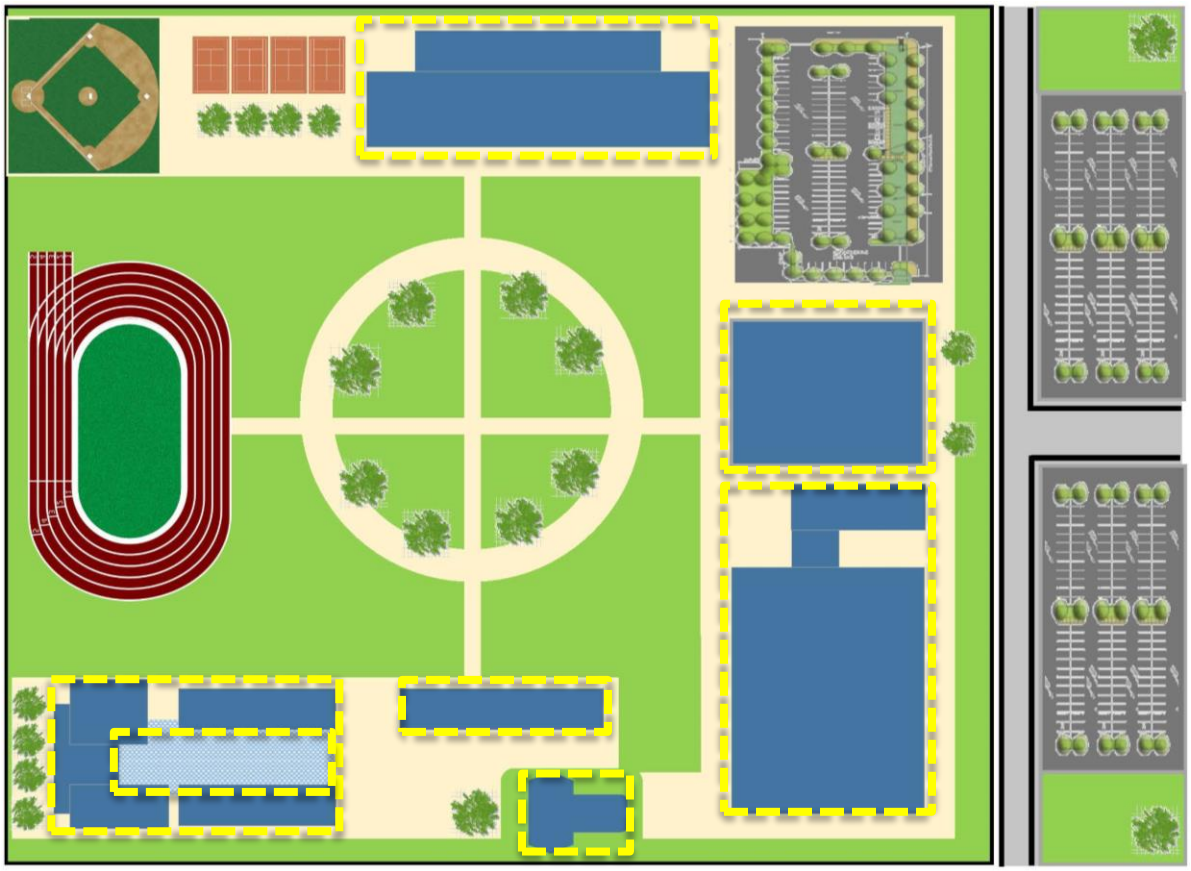
- Buildings
- Grounds
- Parking
- Sports Fields
- Farm
- Natural areas

Where assets reside within these property types, a Property Asset must be created to allow asset renewals to roll up to a property level for reporting purposes. Whenever a new property is created within AiM, a new property asset is created as part of that process.

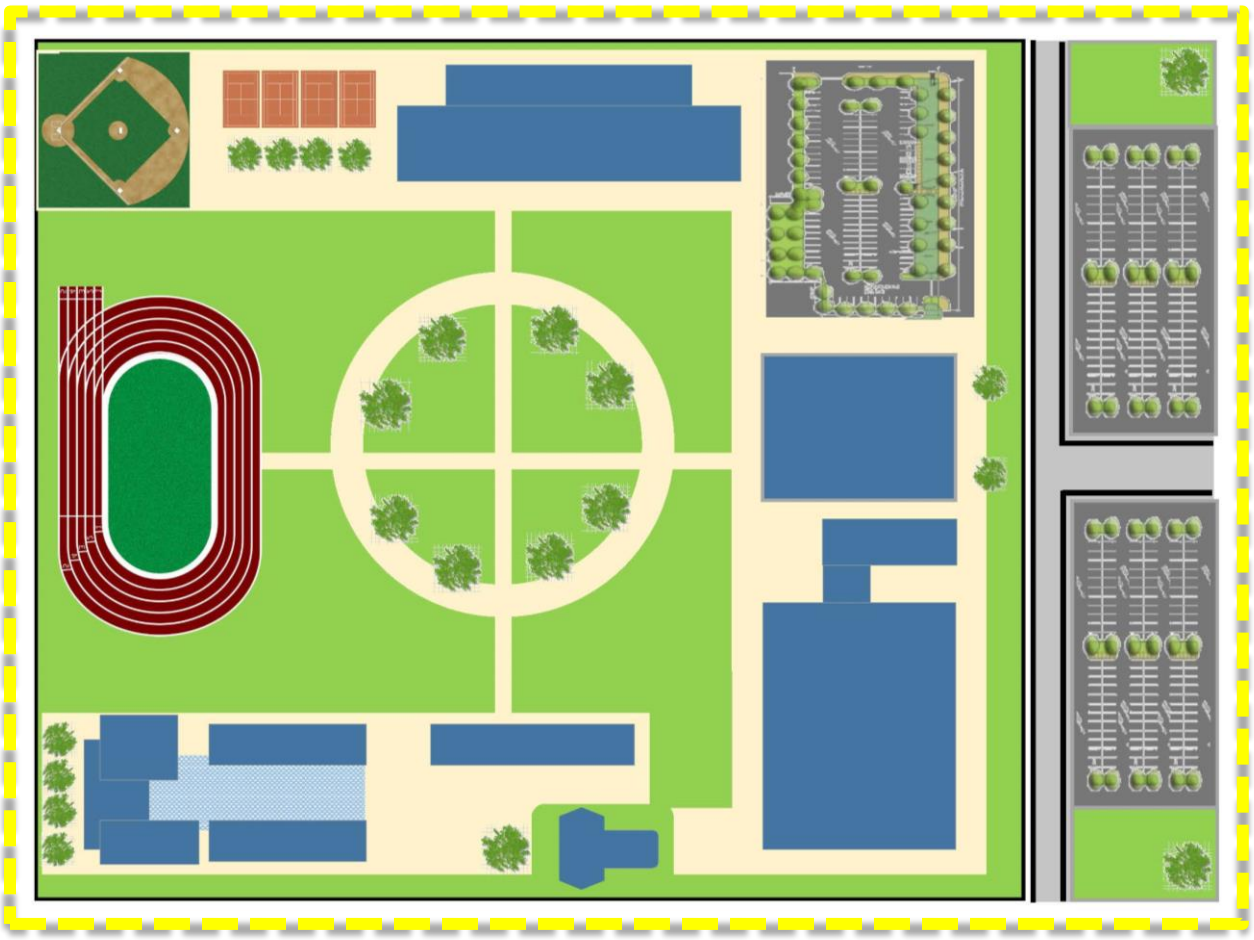
As an example, a hypothetical science building on the University at Albany campus would exist within AiM as a property and also as an associated property asset for reporting purposes. All assets within the science building would be subordinate to the property asset.



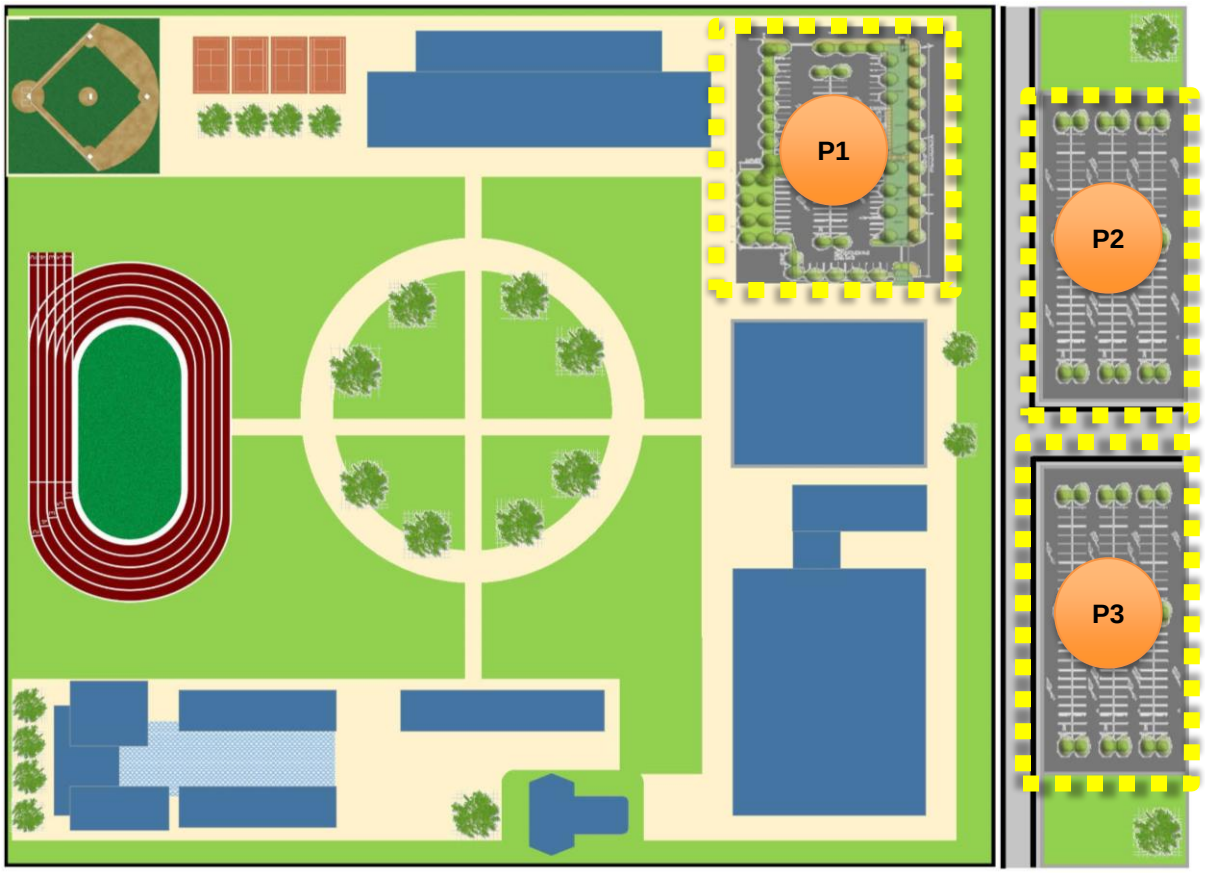
Building Properties



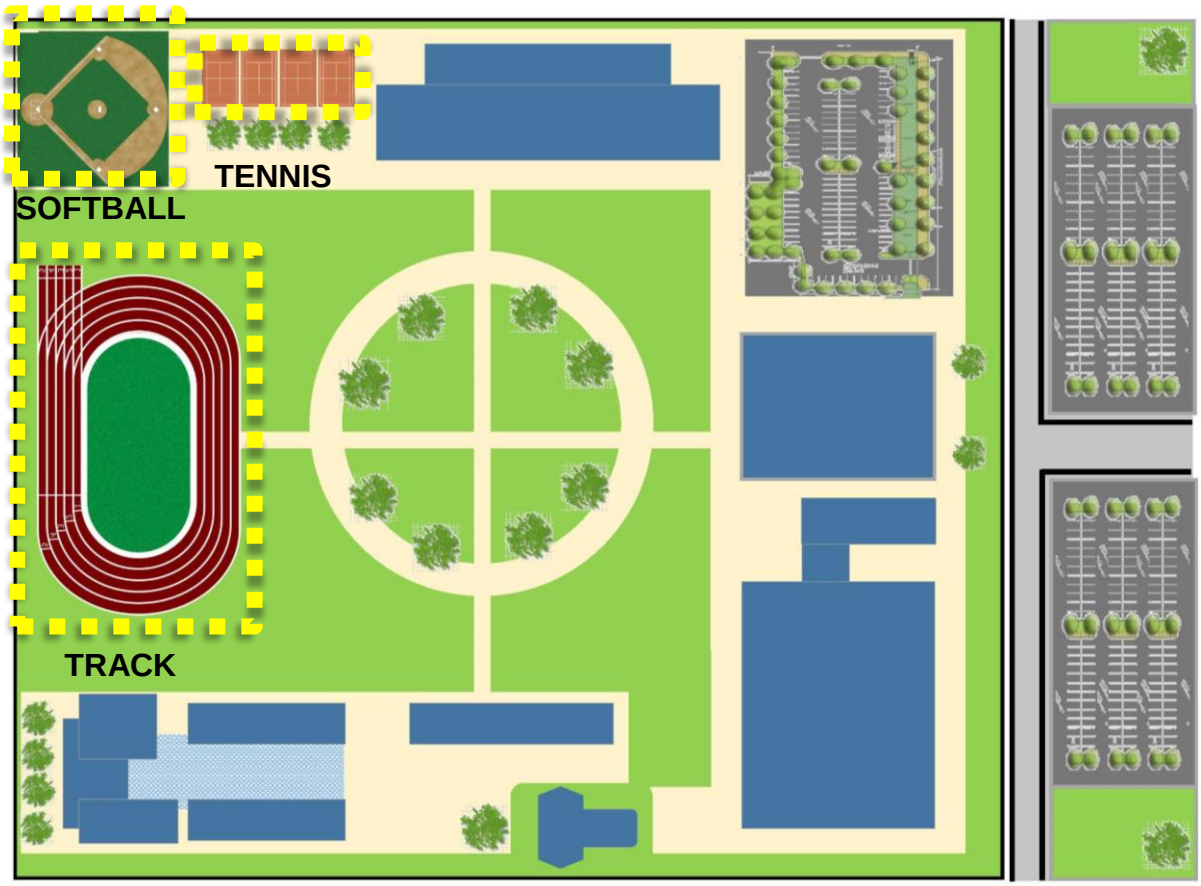
Campus Grounds Property



Parking Properties



Sports Field Properties



Building Assets - Minor Structures

For the purposes of SUNY Asset Life Cycle Management, a minor structure is defined as a building property asset within AiM with less than 2,000 GSF.

These minor structures include tool and garden sheds, pump houses, storage sheds, salt sheds, simple cabins at field stations, animal housing and transformer housing. More often than not, the buildings have very few or very simple internal systems such finishes, HVAC distribution and lighting.

For greater efficiency of asset management, each minor structure is regarded as a single asset with an installation date and expected remaining years. For the purposes of the life cycle model, the assumption is made that renewal will include replacement of the entire structure including component systems such as fire alarm and lighting.

AiM recognizes that there is a variation of building complexity even with minor structures. Therefore, the assignment of a minor structure “type” of either 0, 1, 2, or 3 allows the cost model to calculate a renewal (replacement) cost that is commensurate with the complexity of the building.

The assignment of a minor structure type is mandatory in AiM PNA. Definitions of types are as follows:

- Type 0: Not a structure (e.g. transformer pads, water towers)
- Type 1: Shelters with minimal services
- Type 2: Structures with some services (e.g. garages and livestock housing)
- Type 3: Complex structures (e.g. hazardous Storage, occupied buildings, pump stations)

In some cases, structures greater than 2,000 GSF may be considered minor structures, such as large barns and storage buildings.

Campuses may elect to evaluate a minor structure using the standard inventory assessment method by copying the appropriated asset types and asset groups like a typical building/property.

Building Systems Assets

This section outlines the Asset Groups related to building systems that will be tracked in AiM for life cycle modeling purposes. Note that “Type” is an editable field for many Asset Groups. The “Type” field can also be utilized to further define the asset groups and allow advanced searches as required. For non-required asset groups, entries will be accepted as entered.

Air Handling Units (AHU)

Asset Group includes: AHU's including spit systems, rooftop units, heat recovery units, exhaust fans, makeup air units, dedicated outside air units, rigging, electrical wiring back to panel, controls

Unit of measure for cost model: Building Gross Square Feet (GSF)

Typical useful life: 25 years

Notes: Because of the difficulty of determining CFM or other capacity information for existing items of equipment, cost models estimate renewal costs based on overall size of building. Where there is a significant difference in asset install dates the air handling unit asset is split accordingly, proportioning building gross square feet between the two assets.

Boilers (Package Building Type)

Asset Group includes: boiler, rigging, boiler pump, wiring back to panel, local piping and valves, insulation

Unit of measure for cost model: MBH

Types: (optional field for reporting purposes)

- Steam
- LTHW Low Temp Hot Water
- MTHW Medium Temp Hot Water
- HTHW High Temp Hot Water

Typical useful life: 20 years

Notes: Each boiler is created as a separate asset.

Calculations:

1 MBH = 1,000 BTU/Hr.

MMBTU = 1,000,000 MBH

BHP = 33,475 BTU/Hr.

(ex. 50 BHP = 1,674 MBH, 50 MM BTU/Hr. = 50,000 MBH, 2,000,000 = 2,000 MBH)

Chillers

Asset Group includes: chiller, cooling tower including steel dunnage, rigging, chilled water pumps, condenser water pumps, local piping and valves, insulation, wiring back to panel, VFD's, water

Unit of measure for cost model: Tons refrigeration capacity

Types: (optional field for reporting purposes)

- Centrifugal
- Reciprocating
- Scroll/Screw
- Other

Typical useful life: 20 years

Notes: Each chiller is created as a separate asset.

Elevators

Asset Group includes: cab, interior finishes, lifting mechanism (hydraulic or traction), electrical power wiring, lighting, controls

Unit of measure for cost model: Number of Landings

Typical useful life: 25 years between major overhauls

Asset Types (optional):

- Traction
- Hydraulic
- Hybrid
- Other

Notes: Cost models estimate renewal costs based on the number of landings associated with each elevator.

Each elevator in the building is assigned as an individual asset.

Naming convention: Each asset description should identify the elevator by passenger or freight, number/location such that the asset can be accurately updated in future. For example, “Passenger Elevator #1 West Wing”.

Completion of a comprehensive elevator rehab should reset the install date of the elevator to that of the completion of the project.

Emergency/Standby Generators

Asset Group includes: diesel or gas generator, fuel tank and day tank or local gas piping and valves, cooling system including radiator, site and exterior enclosure as needed, transfer switch(s), exhaust

Unit of measure for cost model: KW

Types: (optional field for reporting purposes)

- Diesel
- Natural Gas
- Other

Typical useful life: 30 years

Notes: Each generator is created as a separate asset.

Emergency Lighting

Asset Group includes: emergency lighting fixtures, battery packs, distribution wiring and inverters

Unit of measure for cost model: Building Gross Square Feet (GSF)

Typical useful life: 20 years

Notes: Cost models estimate renewal costs based on overall size of building.

The cost model assumes estimated replacement cost of an emergency lighting system on a building of the same gross square foot area.

Exterior Doors

Asset Group includes: doors, frames and hardware, glazing as required

Unit of measure for cost model: Building Gross Square Feet (GSF)

Typical useful life: 30 years

Notes: Cost models estimate renewal costs based on overall size of building.

Exterior Walls

Asset Group includes: brick and block systems, metal stud wall system, metal panel systems, precast concrete, exterior finishes, water proofing, joints, metal flashing

Unit of measure for cost model: Building Gross Square Feet (GSF)

Typical useful life: 70 years

Notes: Cost models estimate renewal costs based on overall size of building.

Exterior Windows

Asset Group includes: framing, glazing, opening mechanisms, joint sealant, windows and skylights

Unit of measure for cost model: Building Gross Square Feet (GSF)

Typical useful life: 30 years

Notes: Cost models estimate renewal costs based on overall size of building.

Fire Detection

Asset Group includes: smoke detectors, power and sensor wiring, HVAC shutdown controls, central reporting station

Unit of measure for cost model: Building Gross Square Feet (GSF)

Typical useful life: 20 years

Notes: Cost models estimate renewal costs based on overall size of building.

The cost model assumes estimated replacement cost of a fire detection system on a building of the same gross square foot area.

This asset is generally not split unless there are two significant sections of the building with systems that differ in age by more than 10 years.

Foundations Superstructure & Stairs

Asset Group includes: Concrete, block and stone foundations, water proofing, steel and concrete super structure and framing

Unit of measure for cost model: Building Gross Square Feet (GSF)

Typical useful life: 70 years

Notes: The Asset renewal cost model assumes that 10% of the structure will be replaced at the end of its life span under major renovations. Specific instances where major structural defects and will require significant cost to remediate in the short term should be discussed with the Fund Program Manager.

HVAC & Building Controls

Asset Group includes: control devices, power and communication wiring, central control station, software and programming

Unit of measure for cost model: Building Gross Square Feet GSF

Typical useful life: 20 years

Notes: Cost models estimate renewal costs based on overall size of building.

HVAC Distribution

Asset Group includes: all supply, return and exhaust ductwork, VAV boxes, air terminals, fin tube, fan coils, pipe distribution, valves, chilled beams, steam radiators, radiant panels, main circulator pumps and VFDs, water treatment, heat exchangers, reheat coils, unitary heating and/or cooling units

Unit of measure for cost model: Building Gross Square Feet (GSF)

Typical useful life: 50 years

Notes: Cost models estimate renewal costs based on overall size of building. Splitting of this asset group should be carefully considered as greater than three HVAC Distribution assets may create an unreasonable data management workload in future. Individual assets should refer to defined areas of comprehensive HVAC system replacement rather than ad hoc improvements and modifications.

Interior Finishes

Asset Group includes: tile and plaster ceiling, sheetrock, masonry and tile walls, vinyl, terrazzo and concrete floors, doors, frames, and hardware, glazing, casework, built in furnishings

Unit of measure for cost model: Building Gross Square Feet (GSF)

Typical useful life: 30 years

Notes: Cost models estimate renewal costs based on overall size of building. Splitting of this asset group should be carefully considered as greater than three interior finishes assets may create an unreasonable data management workload in future. Individual assets should refer to defined areas of comprehensive interior renovation rather than ad hoc improvements and office renovations.

Lighting

Asset Group includes: lighting fixtures, branch circuit distribution wiring, switches and lighting control systems, panelboards

Unit of measure for cost model: Building Gross Square Feet (GSF)

Typical useful life: 20 years

Notes: Cost models estimate renewal costs based on overall size of building. Splitting of this asset group should be carefully considered as greater than three lighting assets may create an unreasonable data management workload in future. Individual assets should refer to defined areas of comprehensive lighting system replacement rather than ad hoc improvements and modifications.

Plumbing Distribution

Asset Group includes: water heaters and heat exchangers, circulation pumps, backflow preventers, distribution piping and valves, sanitary and storm drainage within building

Unit of measure for cost model: Building Gross Square Feet (GSF)

Typical useful life: 50 years

Notes: Cost models estimate renewal costs based on overall size of building.

Splitting of this asset group should be carefully considered as greater than three plumbing distribution assets may create an unreasonable data management workload in future. Individual assets should refer to defined areas of comprehensive plumbing system replacement rather than ad hoc improvements and modifications.

Note that gas fired water heaters are included in this asset if they supply domestic hot water rather than building heat.

Plumbing Fixtures

Asset Group includes: fixtures, toilets, urinals, faucets

Unit of measure for cost model: Building Gross Square Feet (GSF)

Typical useful life: 30 years

Notes: Cost models estimate renewal costs based on overall size of building.

Splitting of this asset group should be carefully considered as greater than three plumbing fixture assets may create an unreasonable data management workload in future. Individual assets should refer to defined areas of comprehensive plumbing fixture replacement rather than ad hoc improvements and modifications.

Roofs

Asset Group includes: roofing systems including flashing, roof curbs, penetrations, drains

Type 1 Roof: Membrane, Built Up, etc.
Type 2 Roof: Slate, Standing Seam, Copper, Green Roof, etc.

Unit of measure for cost model: Roof Area Square Feet

Typical useful life: Type 1 = 25 years, Type 2 = 50 Years

Notes: Because type 1 and type 2 roofs have fundamentally different useful lives and renewal costs, roofs that contain both types are split according to roof areas of the two roof types.

Security

Asset Group includes: raceways/cable trays and outlet boxes (excludes conductors, devices, head end equipment, backbone, etc.)

Unit of measure for cost model: Building Gross Square Feet (GSF)

Typical useful life: 15 years

Notes: Cost models estimate renewal costs based on overall size of building.

The cost model assumes estimated replacement cost of a card access/security system on a building of the same gross square foot area. If the building has an access/security system do not proportion the area of the asset by floors covered. Use the total building GSF.

This asset is generally not split unless there are two significant sections of the building with systems that differ in age by more than 10 years.

Sprinklers

Asset Group includes: sprinkler heads, distribution piping and valves, stand pipes, alarm valves

Unit of measure for cost model: Building Gross Square Feet (GSF)

Typical useful life: 40 years

Notes: Cost models estimate renewal costs based on actual sprinkler coverage area. Many buildings have partial coverage therefore coverage area should be estimated.

Telephone/Data

Asset Group includes: raceways/cable trays and outlet boxes (excludes conductors, devices, head end equipment, backbone

Unit of measure for cost model: Building Gross Square Feet (GSF)

Typical useful life: 15 years

Notes: Cost models estimate renewal costs based on overall size of building.

Splitting of this asset group should be carefully considered as greater than three telecom/data assets may create an unreasonable data management workload in future.

Individual assets should refer to defined areas of comprehensive system replacement rather than ad hoc improvements and modifications.

Central Plant Assets

Central plant equipment is tracked differently from building systems assets. Central plant equipment is defined as units of large capacity serving a significant portion of the campus through electrical or heat/cooling distribution systems. Smaller generators, chillers and boilers that serve 2-3 buildings are considered building systems, assessed as assets against the building in which they are located.

It is important to note that the central plant building itself contains both building and central plant assets and may contain a central plant generator that supplies the campus, as well as a small building generator that supports emergency and life safety systems for the building itself. Likewise, HVAC distribution systems in the central plant building refer to those assets that support the building such as exhaust fans, fan coil units and air conditioning systems for operator areas.

In the Asset Groups listed below, note that “Type” is an editable field. The “Type” column can also be utilized to further define the asset groups and allow advanced searches as required. For non-required asset groups, entries will be accepted as entered.

Central Plant Alternative Energy

Asset Group includes: solar panel fields, windmills, fuel cells, digesters, gasifiers and other centralized auxiliary electric power producing sources. The distinction must be made between research/demonstration equipment that is not considered a central plant asset and equipment that supplies energy to the campus (i.e. a large photovoltaic array).

Unit of measure for cost model: KW generating

Typical useful life: 25 years

Types:

- Solar
- Photovoltaic
- Fuel Cell
- Wind Generator
- Gasifier/Digester
- Other

An individual asset is assigned for each central plant alternative energy source.

Serialized information: Typically make/model/serial number are collected

Naming Convention: Each asset description should identify the alternative energy generator by number and general location such that the asset can be accurately updated in the future. An example is “PV Array #1 Roof Mounted Smith Hall”.

Asset notes should contain the original installation year and details or work done to extend the life of the asset.

Central Plant Boiler

Asset Group includes: steam, low, medium and high temperature hot water generators including burners, localized piping, valves, insulation, local breeching, dedicated boiler controls (generally over 10,000 MBH)

Unit of measure for cost model: MMBTU
Conversion Factor: 1 MMBTU = 1,000,000 btu/hr

Typical useful life: 35 years

Types (optional):

- Steam
- HTHW
- MTHW

An individual asset is assigned for each central plant boiler.

Serialized information: Typically make/model/serial number are collected.

Naming Convention: Each asset description should identify the central plant boiler unit number or manufacturer (make) such that the asset can be accurately updated in the future. An example is “Central Plant Boiler Unit #4 Parsons”.

Notes: Generally after a major boiler rebuild the installation date is reset to the year of the most recent rehabilitation project.

Asset notes should contain original construction year and details or work done to extend the life of the asset.

Central Plant Chiller

Asset Group includes: Centrally located chillers that feed multiple buildings including local piping, valves, insulation, dedicated chiller pumps (generally over 400 tons)

Unit of measure for cost model: Tons refrigeration capacity

Typical useful life: 35 years

Types:
- Centrifugal
- Screw/Scroll
- Reciprocating
- Other

An individual asset is assigned for each central plant chiller.

Serialized information: Typically make/model/serial number are collected.

Naming Convention: Each asset description should identify the chiller by number and general location such that the asset can be accurately updated in future. An example is “Central Plant Chiller #1 Basement MER”.

Notes: Generally after a chiller rebuild the installation date is reset to the year of the most recent rehab project.

Asset notes should contain the original installation year and details or work done to extend the life of the asset.

Central Plant Cooling Tower

Asset Group includes: cooling towers, condenser pumps, water treatment, piping and valves, heat tracing, insulation, rigging. Generally over 400 ton capacity and associated with a central plant chiller.

Unit of measure for cost model: Tons tower cooling capacity

Typical useful life: 35 years

Types (optional):
- Open
- Closed Cell

An individual asset is assigned for each central plant cooling tower.

Naming Convention: Each asset description should identify the tower and associated chiller by number and general location.

Asset notes should contain the original installation year and details or work done to extend the life of the asset.

Central Plant Generator

Asset Group includes: diesel or gas generator, fuel tank and day tank or local gas piping and valves, cooling system including radiator, site work and exterior enclosure as needed if outdoors, transfer switch(s), exhaust system, coordination study

Unit of measure for cost model: KW capacity

Typical useful life: 35 years

Types:

- Diesel
- Natural Gas/ Air Propane
- Other

An individual asset is assigned for each central plant generator.

Serialized information: Typically make/model/serial number are collected.

Naming Convention: Each asset description should identify the generator by number and general location such that the asset can be accurately updated in future. An example is “Central Plant Generator #1 Basement MER”.

Notes: Generally after a generator rebuild the installation date is reset to the year of the most recent rehab project.

Asset notes should contain the original installation year and details or work done to extend the life of the asset.

Infrastructure Assets

Listed below are descriptions of the Asset Groups related to infrastructure that are tracked for life cycle modeling purposes. Note that “Type” is an editable field. The “Type” field can also be utilized to further define the asset groups and allow advanced searches as required. For non-required asset groups, entries will be accepted as entered.

Blue Phones

Asset Group includes: phone stations, power and communication conduit and wire, tie into central systems

Unit of measure for cost model: Number of Blue Phones

Typical useful life: 20 years

Electrical – Site Distribution

Asset Group includes: Duct bank, Feeders, manholes, building termination

Unit of measure for cost model: Linear trench feet high voltage electrical duct bank

Typical useful life: 30 years

Electrical Substation

Asset Group includes: transformers, main switch gear, primary and secondary connections, fencing, site work, metering, grounding (excluding building structure as needed)

Unit of measure for cost model: Total Transformer KVA

Typical useful life: 50 years

Asset notes should contain original construction year and details or work done to extend the life of the asset.

Notes: Generally this asset group is included in a campus where high voltage electricity is received at an owned substation facility and stepped down by transformers to the site distribution voltage. The unit of measure for the asset is the total KVA of transformers and where there is a substantial difference in age and/or condition between transformers the asset may be split with the quantity of each split asset quantity equivalent to the transformer KVA.

Fire/Domestic Water Distribution

Asset Group includes: water piping, valves, fire hydrants manholes, pump stations, building connections

Unit of measure for cost model: Linear trench feet sewer piping

Typical useful life: 30 years

Asset notes should contain original construction year and details or work done to extend the life of the asset.

Where a detailed asset management plan has not been developed for a linear asset such as sanitary sewer or the ages and replacement dates of sections of the utility are uncertain, the asset is split into estimated sections with varying renewal dates effectively establishing a preliminary asset management plan. For example:

- Water 1 (50,000 sq. ft.) Installed 1965 - remaining life 2 years
- Water 2 (50,000 sq. ft.) Installed 1980 – remaining life 7 years
- Water 3 (100,000 sq. ft.) Installed 2000 – remaining life 12 years
- Water 4 (20,000 sq. ft.) Installed 2015 – remaining life 20 years

Fuel Tanks – Above Ground

Asset Group includes: tank, containment, supply and return piping with spill prevention, leak detection, level monitoring, fill station

Unit of measure for cost model: Gallons Storage Capacity

Typical useful life: 20 years

Types (indicate contents of tank):

- #6
- #2
- GAS
- DIESEL

Fuel Tanks – Below Ground

Asset Group includes: tank supply and return piping with spill prevention, leak detection, level monitoring, fill station

Unit of measure for cost model: Gallons Storage Capacity

Typical useful life: 25 years

Type (indicate the contents of the tank):

- #6
- #2
- GAS
- DIESEL

Notes: Tanks under 500 gallons are not considered asserts to for purpose of life cycle modeling.

Hydraulic tanks on elevators and generator saddle tanks are considered as part of the asset.

Plaza

Asset Group includes: drainage, pavers, concrete, curbs, subsurface work, excavation and backfill, grading

Unit of measure for cost model: Square feet of plaza

Typical useful life: 25 years

Plazas are generally identified as individual assets in AIM showing a plaza name or location in the description.

Roads

Asset Group includes: paving systems, painted markings, guard rails, curbing, bridges, culverts, traffic control, signage (no lighting)

Unit of measure for cost model: Square feet of roadway

Typical useful life: 15 years

Where a detailed pavement management plan has not been developed for a square foot asset such as roads or the ages and replacement dates of sections of the asset are uncertain, the asset is split into estimated sections with varying renewal dates effectively establishing a preliminary asset management plan, for example;

- Road 1 (50,000 sq. ft.) Installed 1965 - remaining life 2 years
- Road 2 (50,000 sq. ft.) Installed 1980 – remaining life 7 years
- Road 3 (100,000 sq. ft.) Installed 2000 – remaining life 12 years
- Road 4 (20,000 sq. ft.) Installed 2015 – remaining life 20 years

Alternatively road assets may be split and defined by road name provided that approximate installation dates and remaining years can be determined.

Sewer

Asset Group includes: sewer piping, manholes, pump stations, building connections

Unit of measure for cost model: Linear trench feet sewer piping

Typical useful life: 30 years

Asset notes should contain original construction year and details or work done to extend the life of the asset.

Where a detailed asset management plan has not been developed for a linear asset such as sanitary sewer or the ages and replacement dates of sections of the utility are uncertain, the asset is split into estimated sections with varying renewal dates effectively establishing a preliminary asset management plan, for example;

- Sewer 1 (50,000 sq. ft.) Installed 1965 - remaining life 2 years
- Sewer 2 (50,000 sq. ft.) Installed 1980 – remaining life 7 years
- Sewer 3 (100,000 sq. ft.) Installed 2000 – remaining life 12 years
- Sewer 4 (20,000 sq. ft.) Installed 2015 – remaining life 20 years

Sidewalks

Asset Group includes: concrete, paved, stamped or stone surfaces, signage (no lighting)

Unit of measure for cost model: Square feet of sidewalk

Typical useful life: 15 years

A campus has approximately 200,000 square feet of sidewalk that has been renewed piecemeal over the years. It is not practical to identify every segment of replaced sidewalk as an individual asset, but a more adequate life cycle model is required rather than assessing all sidewalks in total. The asset is split into a number of segments that provide a better approximation of the required asset management plan.

- Sidewalks 1 (50,000 sq. ft.) Installed 1965 – remaining life 2 years
- Sidewalks 2 (50,000 sq. ft.) Installed 1980 – remaining life 7 years
- Sidewalks 3 (50,000 sq. ft.) Installed 2000 – remaining life 12 years
- Sidewalks 4 (50,000 sq. ft.) Installed 2015 – remaining life 20 years

Site Lighting

Asset Group includes: poles, fixtures, conduit and wire, hand holes

Unit of measure for cost model: Number of Poles

Typical useful life: 20 years

Storm Water

Asset Group includes: storm water piping, manholes and building connections

Unit of measure for cost model: Linear trench feet of storm water piping

Typical useful life: 30 years

Asset notes should contain original construction year and details or work done to extend the life of the asset.

Where a detailed asset management plan has not been developed for a linear asset such as storm water or the ages and replacement dates of sections of the utility are uncertain, the asset is split into estimated sections with varying renewal dates effectively establishing a preliminary asset management plan. For example:

- Storm Water 1 (50,000 sq. ft.) Installed 1965 - remaining life 2 years
- Storm Water 2 (50,000 sq. ft.) Installed 1980 – remaining life 7 years
- Storm Water 3 (100,000 sq. ft.) Installed 2000 – remaining life 12 years
- Storm Water 4 (20,000 sq. ft.) Installed 2015 – remaining life 20 years

Telecommunications

Asset Group includes: duct banks, wiring, manholes / hand holes, building terminations

Unit of measure for cost model: Linear trench feet of telecom duct bank

Typical useful life: 15 years

Where a detailed asset management plan has not been developed for a linear asset such as Telecom/Data or the ages and replacement dates of sections of the utility are uncertain, the asset is split into estimated sections with varying renewal dates effectively establishing a preliminary asset management plan. For example:

- Telecom 1 (50,000 sq. ft.) Installed 1965 - remaining life 2 years
- Telecom 2 (50,000 sq. ft.) Installed 1980 – remaining life 7 years
- Telecom 3 (100,000 sq. ft.) Installed 2000 – remaining life 12 years
- Telecom 4 (20,000 sq. ft.) Installed 2015 – remaining life 20 years

Underground Chilled Water

Asset Group includes: chilled water system piping, valves, manholes, building connections

Unit of measure for cost model: Linear trench feet of the system

Typical useful life: 30 years

Naming Convention: Each asset description should identify either a defined chilled water line loop or indicate the length of chilled water line included in the asset by start and finish points.

Cost models are inclusive of all replacement types including direct bury and box culvert.

Asset notes should contain original construction year and details or work done to extend the life of the asset.

Underground Gas Distribution

Asset Group includes: gas piping, valves, meters, building connections (campus owned only)

Unit of measure for cost model: Linear trench feet gas piping

Typical useful life: 30 years

Asset notes should contain original construction year and details or work done to extend the life of the asset.

Notes: In some gases gas distribution systems are owned by the utility rather than the campus. Utility owned segments of gas distribution should not be included in the life cycle model as renewal is the responsibility of the utility.

Underground Steam/HTHW

Asset Group includes: steam/HTHW Piping system, valves, manholes, building connections

Unit of measure for cost model: Linear trench feet of the system

Typical useful life: 30 years

Types (optional):

- Steam
- HTHW
- MTHW
- LTHW

“Type” is an editable field. The “Type” field can also be utilized to further define the asset groups and allow advanced searches as required.

Naming Convention: Each asset description should identify either a defined heating line loop or indicate the length of heating line included in the asset by indicating start and finish points.

Cost models are inclusive of all replacement types including direct bury and box culvert.

Asset notes should contain original construction year and details or work done to extend the life of the asset.

Water Tanks

Asset Group includes: foundations, tanks, local piping and valves

Unit of measure for cost model: Storage capacity of the tank in gallons

Typical useful life: 30 years

Notes: Renewal and life extension of water tanks may not constitute complete replacement of the tank shell.

Wayfinding & Signage

Asset Group includes: foundation and bases, signs, power wiring for lighting as needed

Unit of measure for cost model: Number of Monumental and Direction Finding Signs

Typical useful life: 25 years

Generally assets included here are substantial monumental wayfinding and direction finding signs, the type that would have foundations and perhaps lighting.

Parking Assets

Parking Lots

Note that each surface parking lot is assigned a property number and has a corresponding property-level asset in AiM. Detailed descriptions of Asset Groups related to parking are below.

Surface Parking

Asset Group includes: paving systems, drainage, painted markings, curbing, guard rails, traffic control, signage (no lighting)

Unit of measure for cost model: Number of parking spaces per lot

Typical useful life: 15 years

Naming Convention: Every lot is a property and property asset. Lot name and property name should correspond.

Type: Optional but could be used by campus for advanced searches (e.g. student or faculty parking).

Notes: Details of work that occurred to extend life should be noted.

Parking Structures

Each parking structure is has a property number within AiM and has an associated property asset. Parking structures contain Asset Groups that vary from typical buildings. These are outlined below.

Parking Garage Electrical

Assets Group includes: primary transformer and main switchgear, building switchboard, power distribution to building panel boards, branch circuit distribution wiring and outlet devices

Unit of measure for cost model: Gross Square Feet of Parking Structure

Typical useful life: 30 years

Parking Garage Elevator

Asset Group includes: cab, interior finishes, lifting mechanism (hydraulic or traction), electrical power wiring, lighting, controls

Unit of measure for cost model: Number of elevator landings

Typical useful life: 25 years

Notes: Cost models estimate renewal costs based on the number of landings associated with each elevator. Each elevator in the parking garage is assigned as an individual asset.

Naming convention: Each asset description should identify the elevator by passenger or freight, number/location such that the asset can be accurately updated in future. An example is “Passenger Elevator #1 West Side”.

Completion of a comprehensive elevator rehab should reset the install date of the elevator to that of the completion of the project.

Parking Garage Emergency Lighting

Asset Group includes: emergency lighting fixtures, battery packs, distribution wiring and inverters

Unit of measure for cost model: Gross Square Feet of Parking Structure

Typical useful life: 20 years

Parking Garage Fire Detection

Asset Group includes: smoke detectors, power and sensor wiring, HVAC shutdown controls, central reporting station

Unit of measure for cost model: Gross Square Feet of Parking Structure

Typical useful life: 20 years

Parking Garage HVAC Systems (Parking Office)

Asset Group includes: all supply, return and exhaust ductwork, VAV boxes, air terminals, fin tube, fan coils, pipe distribution, valves, chilled beams, steam radiators, radiant panels, main circulator pumps and VFD's, water treatment, heat exchangers, reheat coils, unitary heating and/or cooling units

Unit of measure for cost model: Gross Square Feet of Parking Structure

Typical useful life: 25 years

Notes: Applies to parking office only

Parking Garage Interiors - Garage Office

Asset Group includes: tile and plaster ceiling, sheetrock, masonry and tile walls, vinyl, terrazzo and concrete floors, doors, frames, and hardware, glazing, casework, built in furnishings

Unit of measure for cost model: Square Feet of Garage Office

Typical useful life: 30 years

Parking Garage Lighting

Asset Group includes: lighting fixtures, branch circuit distribution wiring, switches and lighting control systems, panelboards

Unit of measure for cost model: Gross Square Feet of Parking Structure

Typical Useful Life: 20 years

Parking Garage Plumbing

Asset Group includes: water heaters and heat exchangers, circulation pumps, backflow preventers, distribution piping and valves, sanitary and storm drainage within building, fixtures and faucets

Unit of measure for cost model: Gross Square Feet of Parking Structure

Typical useful life: 30 years

Parking Garage Security and Access Systems

Asset Group includes: stand-alone gate and access control, security systems

Unit of measure for cost model: Gross Square Feet of Parking Structure

Typical useful life: 15 years

Parking Garage Sprinkler

Asset Group includes: sprinkler heads, distribution piping and valves, stand pipes, alarm valves

Unit of measure for cost model: Gross Square Feet of Parking Structure

Typical useful life: 40 years

Parking Garage Structure

Asset Group includes: parking deck foundations, water proofing, steel and concrete super structure and framing, decking system, painted markings

Unit of measure for cost model: Gross square feet of the garage structure

Typical useful life: 75 years

Notes: Often parking structures require continual structural rehabilitation through the course of their lives. Specific major structural issues on a parking garage, where they represent significant cost should be applied as deficiencies to the property asset.

Sports Field Assets

Like surface parking lots, sports fields are created as properties within AiM to enable them to be scheduled as locations. Each sports field property has an associated sports field property asset.

There is some consolidation of sports fields properties by campuses, for instance a group of 8 tennis courts might be regarded as a single property with multiple assets. Below are descriptions of the Asset Groups related to sports fields.

Baseball Fields

Asset Group includes: turf, underdrainage, dugouts, batter boxes, fencing, and scoreboard

Typical useful life: 10 years

Type: Optional

Football Fields

Asset Group includes: turf, underdrainage, fencing, scoreboard, bleachers

Typical useful life: 10 years

Type: Optional

Football/Soccer/Lacrosse – Natural Fields

Asset Group includes: natural turf, underdrainage and fencing

Typical useful life: 20 years

Type: Optional

Notes: Natural fields minimal improvements

Multi-Purpose Synthetic Fields

Asset Group includes: synthetic turf, underdrainage and fencing

Typical useful life: 10 years

Type: Optional

Notes: Synthetic fields minimal improvements

Running Track

Asset Group includes: drainage, track surface, striping and fencing

Typical useful life: 20 years

Type: Optional

Notes: Optional

Tennis/Basketball Courts

Asset Group includes: drainage, paved playing surface, striping, backboards, net

Typical useful life: 10 years

Type: Optional

Sports Field Lighting

Asset Group includes: poles, fixtures, underground conduit, wiring and controls as needed for each field

Typical useful life: 20 years

Type: Optional

Notes: new asset for athletic lighting against each sports field property asset

Maintaining the Data

One of the objectives of implementing AiM at SUNY is to provide a life cycle modelling and asset management system capable of real time updates. Maintaining asset condition data allows the university system and campus facilities managers to be able to obtain up to date estimates of deferred maintenance backlog and future renewal needs at a property, campus, and university system level. In addition, continuous update and periodic audit and improvement of the data provides greater credibility for the system with outside entities such as the Division of Budget, when the information is used to support future capital requests.

Creation of New Property Assets

Paragraph on automatic creation of new property assets when new properties are brought online, e.g. after completion of construction of a new facility.

Life Cycle Modeling Group

The Life Cycle Modeling Group exists within Fund to provide system oversight and a consistent approach to asset updates across a range of projects from simple to very complex. This consistency provides a higher level of confidence in the data set and in the report output.

Project-Based Updates

The greatest impact on the continued accuracy of the life cycle modeling data is the initiation and completion of a capital project. A capital project can effectively reset or greatly extend the effective remaining lives of many assets as well as impact reporting on property needs, deferred maintenance backlog and facilities condition index (FCI).

Because of the high level of SUNY life cycle modeling, the performance of general maintenance activities such as preventative maintenance and minor repairs affect serialized assets within operations and maintenance modules and do not result in real time updates to the assets within the PNA module. The effect of continued maintenance (or lack of) on general asset remaining lives is taken into account through the period audit/review process

In general, when projects are awarded for construction, the assets planned to be renewed under the project are tagged as “pending”, this takes the associated renewal needs of the affected assets out of deferred maintenance and FCI reports. Where necessary “split” assets are created to reflect a project that only partially renews an asset. Tagging the assets as pending is also a prompt to update assets at the completion of the project.

At the completion of the project new major equipment assets such as chillers, boilers and generators are added to the system, installation and remaining years are reset to the assets renewed under the project and all assets are flagged as “active”.

A detailed procedure for project-based updates on Fund and Campus administered projects follows:

The Four-Year Review Cycle

A life cycle modeling system requires that each property asset in every Campus is audited/reviewed at least once every four years. The objective of the audit process is to validate and improve asset data, ensure that the major equipment inventory is current, and update overall asset remaining lives. The audit also reviews and consolidates “split” assets to avoid a proliferation unnecessary asset registries.

For workload management, the overall property asset inventory is divided into 25% portions which contain a mix of asset types and property sizes. A rolling 4 year plan is developed that includes an annual audit of approximately 25% of each campuses property assets, their systems, and their subsystems.

At the beginning of the audit period, a prepopulated audit worksheet is produced showing current asset information for the subject properties.

During the audit period, meetings take place between the Fund program manager, campus representatives and representatives from Fund design and construction. An asset update file is prepared including but not limited to the following:

- Updated asset descriptions
- Updated asset estimated remaining lives
- Updated asset quantities and attributes
- Deleted or added assets
- Updated asset notes regarding work done to extend remaining lives

At the end of the audit period the revised asset data is consolidated and prepared for upload into AiM by the 1st of September.

Glossary of Terms

Adjusted Renewal Cost – The estimated total cost to replace a capital asset, inclusive of the complexity factors of the asset as well as design costs.

Asset - Assets are defined as items or things that have potential or actual value to an organization. As distinct from financial assets, physical assets have a tangible material existence and for the purposes of SUNY's asset management system this refers to buildings, infrastructure, and plant, equipment and site improvements.

Asset Group - A collection of assets with common attributes. For SUNY, asset groups correspond to subsystems.

Asset Renewal (APPA Footnote) - The systematic management process of planning and budgeting for known future cyclical repair and replacement requirements that extend the life and retain the usable condition of facilities and systems, not normally contained in the annual operating budget.

Asset Type – A systems level categorization of assets. Each Asset Type is composed of one or more Asset Groups.

Backlog – see *Deferred Maintenance*

Base Year - The Base Year is used for inflation calculations. For each year beyond the base year inflation is applied to the estimated Renewal Cost and added to the Adjusted Renewal Cost.

Building Asset - Assets generally located within or associated with a building and include systems such as HVAC, subsystems such as a chiller down to serialized assets such as chilled water circulating pumps.

Capital Asset Management (APPA Footnote) - The identification and prioritization of facility and infrastructure physical, functional, and budgetary needs, spanning a multi-year timeframe. Also includes the process of reinvesting funds into physical assets in support of the organizational mission, above and beyond normal routine operations and maintenance.

Central Plant (Equipment) Asset - Units of large capacity serving a significant portion of the campus through electrical or heat/cooling distribution systems. Smaller generators, chillers and boilers that serve 2-3 buildings are considered building systems as assessed as assets against the building they are located in.

Complexity Factor – Other factors, such a multipliers for location and type of building, which are used in the cost model calculation to determine a capital asset's estimated renewal costs.

Cost Model – A calculation used to estimate renewal costs of capital assets. Cost models are based on industry standards and past SUCF project experience.

Current Replacement Value (CRV) (APPA Footnote) - The total expenditure in current dollars required to replace any facility at the institution, inclusive of construction costs, design costs, project management costs and project administrative costs. Construction costs are calculated as replacement in function vs. in-kind.

Deferred Maintenance (APPA Footnote) - The total dollar amount of existing maintenance repairs and required replacements (capital renewal), not accomplished when they should have been, not funded in the current fiscal year or otherwise delayed to the future.

Deficiency – see *Assessment Deficiency*

Facility – The second level of the Property Hierarchy. A facility is equivalent to a geographical sub-campus of a SUNY institution.

Facility Condition Assessment (APPA Footnote) - The structured development a profile of existing facilities conditions, typically placed in an electronic database format, and populated with detailed facility condition inspection information. The FCA identifies existing deficient conditions (requirements), in logical grouping and priorities, and also, associated recommended corrections and corrective costs.

Facility Condition Index (APPA Footnote) - A comparative industry indicator/benchmark used to indicate the relative physical condition of a facility, group of buildings, or entire portfolio "independent" of building type, construction type, location or cost. The facility condition index (FCI) is expressed as a ratio of the cost of remedying existing deficiencies/requirements, and capital renewal requirements to the current replacement value (i.e., FCI=(DM+CR)/CRV).

Grounds Asset – An asset found on the typical campus site and include hardscape, roadways, and infrastructure items such as underground electrical feeders, water lines and sewer systems.

Hierarchy – The organization of data within AiM in which levels of data are ranked one above another.

Install Year - The year the asset was installed, not to be mistaken for the year the asset was purchased. This should be the year that the asset began deteriorating from use.

Location – The fourth level of the Property Hierarchy. A location is one level below Property and equivalent to items such as rooms in buildings or parking spaces in parking lots.

Minor Structure - A building property asset within AiM with a size less than 2,000 GSF.

Parking Asset – Assets associated with surface parking lots on campus grounds. Note that parking structures, their systems and subsystems are regarded as building assets.

Physical Life – The expected useful life of the asset (see *Expected Useful Life*).

Physical Life Adjustment – The anticipated life span of the asset, based on the actual condition of the asset. This value is stored as the number of years of more or less life than expected.

Planning Group – The organization of Asset Renewals and Assessment Deficiencies into categories that align with the structure of a capital budget request.

Planning Year – In AiM this refers to the year in which project planning/scoping needs to begin in order to initiate construction in time for the asset's Renewal Year. The Planning Year is typically set to begin two years prior to the Renewal Year.

Priority – A field used to rank the criticality of asset renewals within a Planning Group.

Property – The third level of the Property Hierarchy. A property is a fixed tangible real estate asset, items such as structure, field or parking.

Property Asset - An asset associated with a property in the AiM Property and Space modules.

Quantity – The size of the asset, in relation to the assets' unit of measure.

Region – The first level of the Property Hierarchy. A region is equivalent to a SUNY institution.

Remaining Life – The estimated number of years from present day that an asset will remain in an appropriately acceptable usable condition.

Renewal Cost – The per-unit cost to replace the asset.

Renewal Needs – The roll-up of renewal costs for all items at property level.

Renewal Year - The anticipated year that the asset will be renewed based on its current condition.

Repairs - Work to restore damaged or worn-out assets/systems/components (e.g., large-scale roof replacement after a wind storm) to normal operating condition.

Replacement - An exchange of one fixed asset for another (e.g., replacing a transformer that blows up and shuts down numerous buildings) that has the same capacity to perform the same function.

Replacement Tag - Identity labels supporting the cross-referencing of new assets. This label can be changed and maintained in history, the asset identification code itself cannot be changed.

Serialized Assets – Component-level assets, usually identifiable with a serial number. These assets roll-up to a subsystem (see *Asset Group*). Condition assessments are not conducted on this level of assets.

Split Asset – The term used for instances when an asset group for a given property is divided into multiple sections. The breakout could be based on different install years, different materials, etc.

Sports Asset – A specific category of assets including the sports fields themselves and field lighting systems.

Status (Pending, Active, Inactive) – Identifies the current state of the asset. Valid entries include:

Active – This identifies an asset in normal, working condition.

Inactive – This status permanently retires an asset and removes it from use within AiM.

Pending - Pending indicates a new asset has been created but is not yet available for use with transactions. Good examples for this status could include assets that are about to be purchased and not yet installed or assets included in planning but might not be acquired.

Systems Lifecycle Costing (Modeling) (APPA Footnote) - An estimating procedure used to determine the cost of facility system/component renewal based on the average useful life of an individual component.

Unit of Measure (UOM) – A standard measure, based on the Asset Group, of how the asset is quantified.

Useful Life – The anticipated life expectancy of an asset, based on industry standards.

Appendix A: Navigation

Logging into AiM

Follow the link: http://aim.sucf.suny.edu

On the screen below:

1. Select your campus
2. Click the Log In button
3. Enter the requested information. This requested information is related to your official SUNY username/password for your campus.

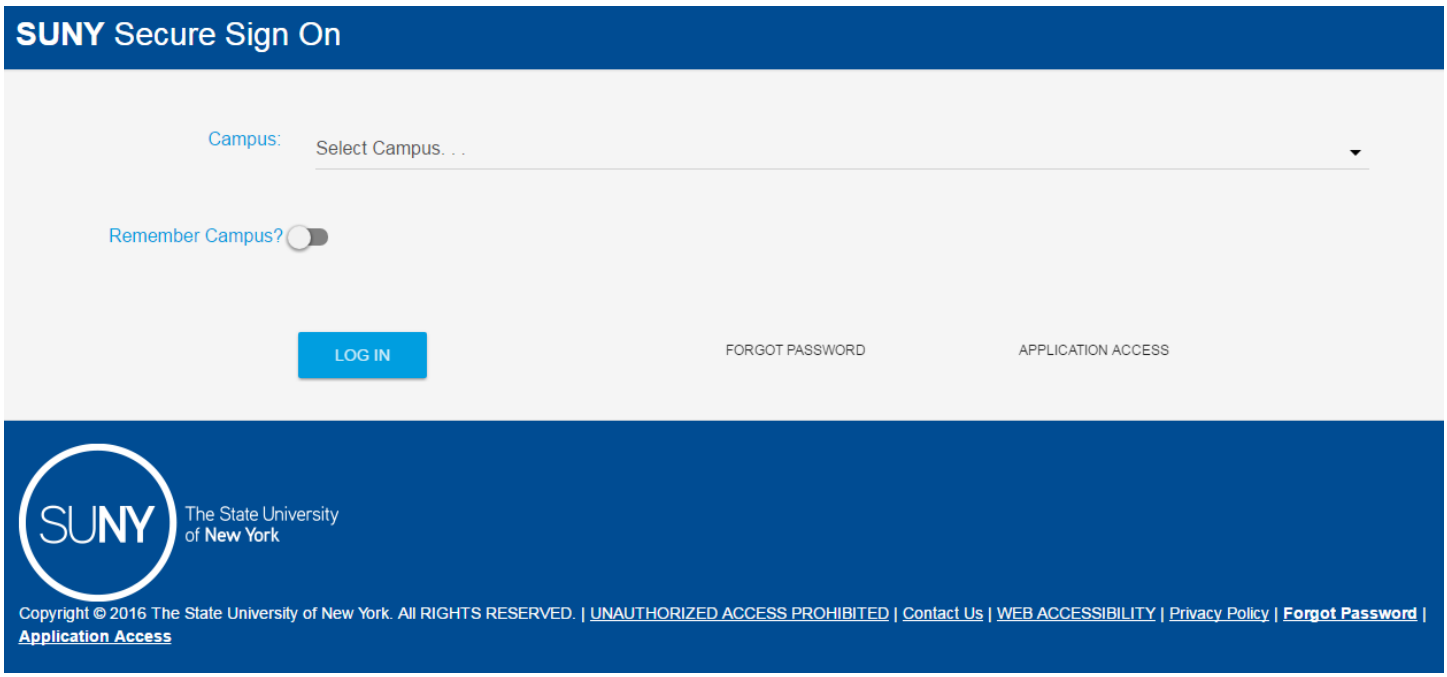


Figure 1

Note: Each user's login credentials will determine their role and permissions within AiM.

The Main WorkDesk

Overview

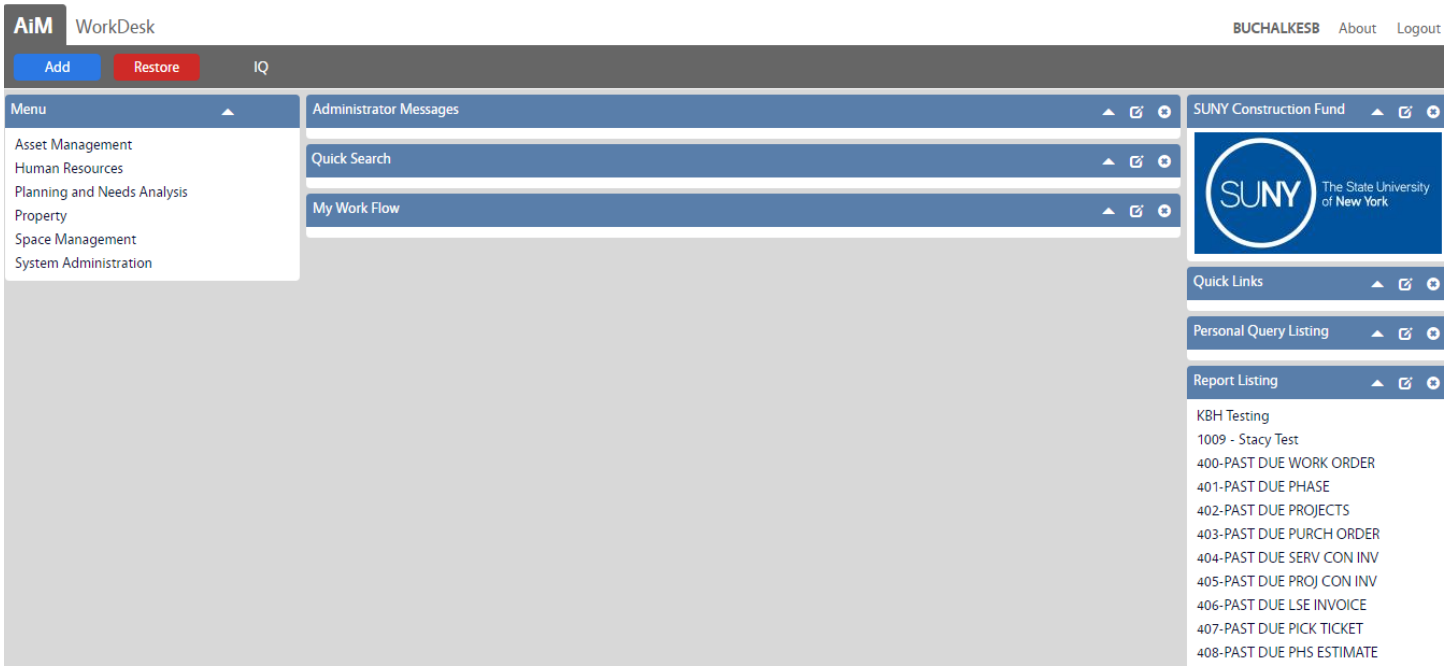


Figure 2

Key Notes:

1. *The Add Button* – Click this button to edit the appearance of the Main WorkDesk. See Appendix C for WorkDesk setup guidelines.
2. *The Restore Button* – Click this button to restore your WorkDesk to original standardized settings. This will delete any changes you have made to your WorkDesk. This cannot be undone.
3. *The IQ Button* – Click this button to navigate to AiM IQ, a reporting tool offered with the software.
4. *The Menu Channel* – Click on a link to navigate to a module.
5. *Other Channels* – These channels can be edited per an individual user's preferences. See Appendix C for WorkDesk setup guidelines.

Asset Management Module

Navigation and Definitions

This section will show the user how to locate a specified asset in AiM and define the key fields related to assets.

1) From the Main WorkDesk, click on the **Asset Management link**.

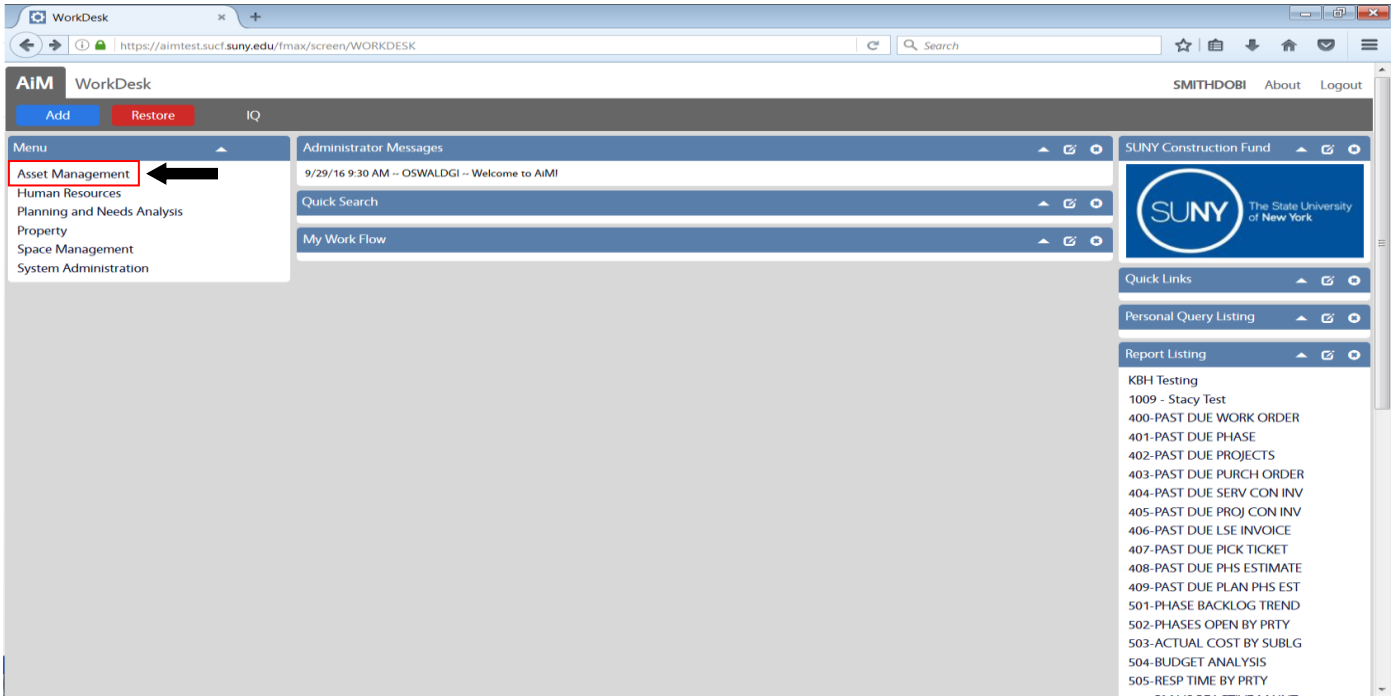


Figure 3

2) Click on the **Master Asset Profile**.

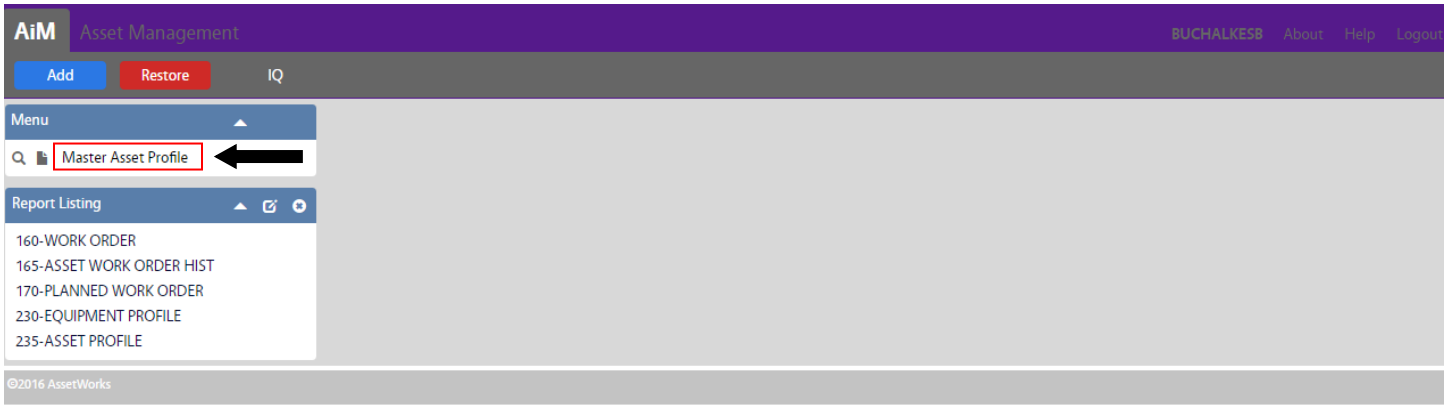


Figure 4

3) Click on the **Search** button. You will now navigate to an asset.

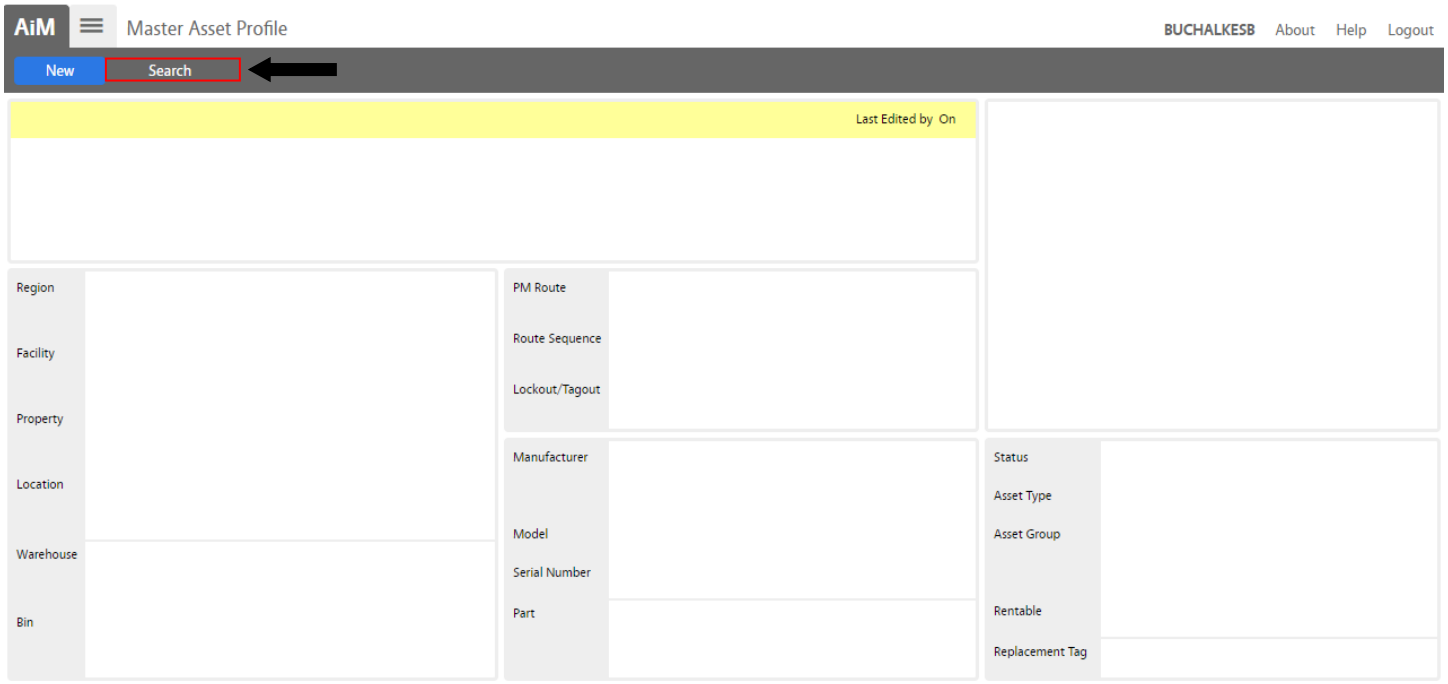


Figure 5

4) Search for the asset. If the Asset ID number is known, enter it as shown below. Otherwise, use any other search criteria to find the asset. Recommended search criteria include filtering based upon the **Property** and/or filtering based upon the **Asset Group**.

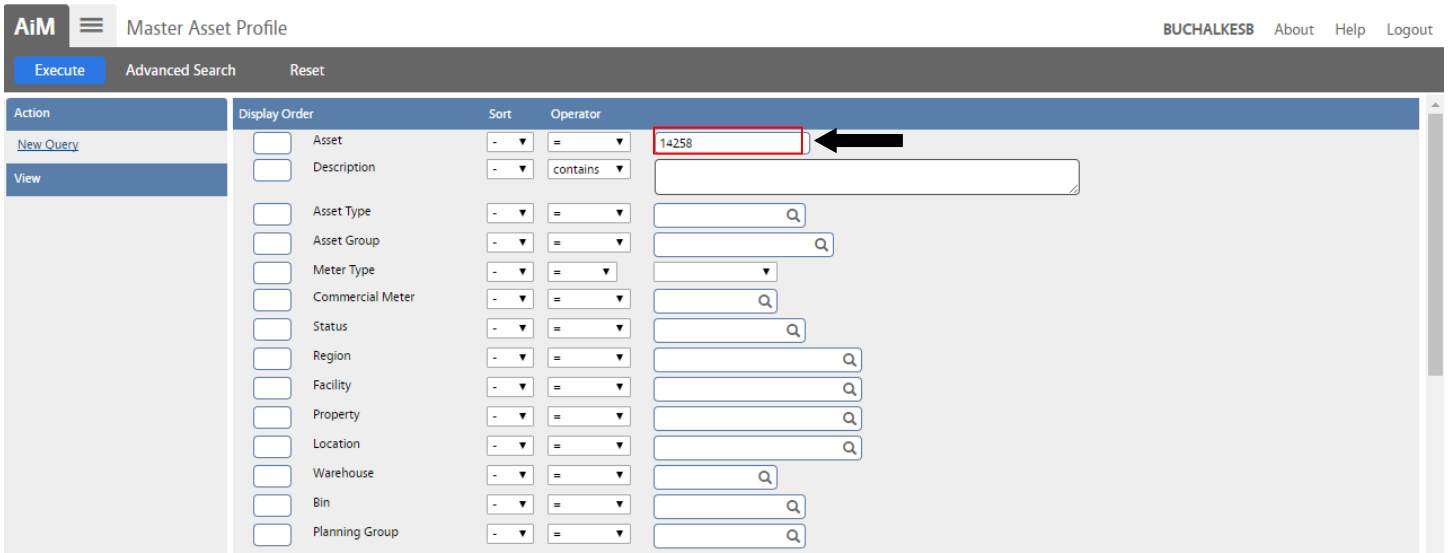


Figure 6

5) Click the **Execute** button. On the following screen, select the asset.

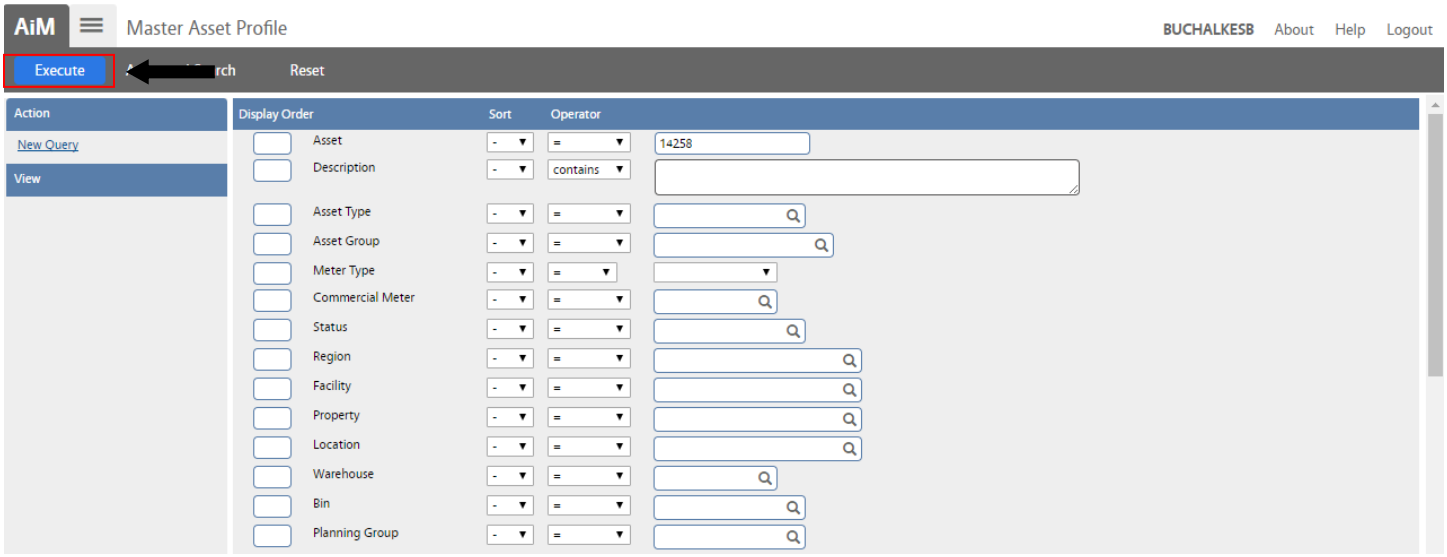


Figure 7

6) This is the **Master Asset Profile** and contains all of the information related to specifications and the location of the asset.

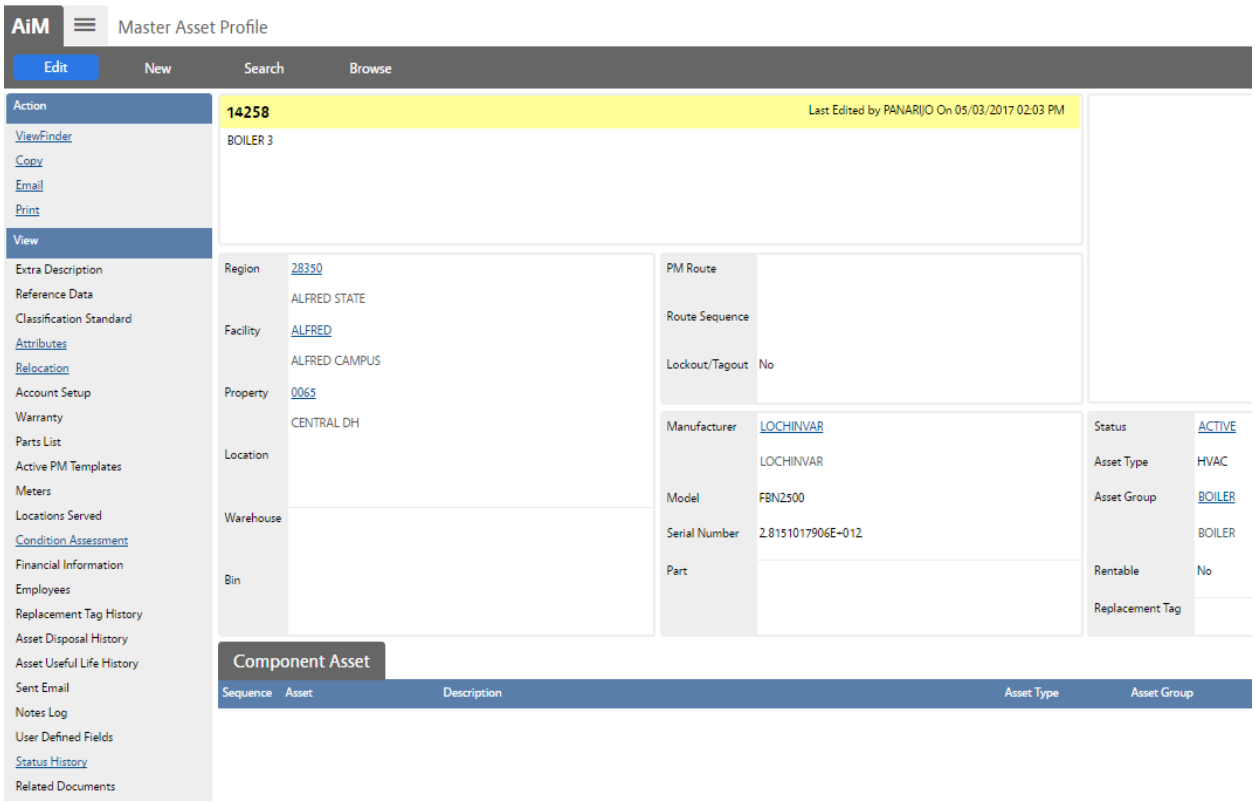


Figure 8

Asset ID	Required – The System ID used for the asset record. This cannot be changed.
Asset Description	Required – The name of the asset. This can be changed.
Region	Required – The institution where the asset resides.
Facility	Required – The geographical sub-campus where the asset resides.
Property	Required – The property in which the asset resides.
Manufacturer	Optional
Model	Optional
Serial Number	Optional
Status	Required – Identifies the current state of the asset.
Asset Type	Required – The system-level categorization of the asset.
Asset Group	Required – The subsystem-level categorization of the asset.

Table 3

7) The menu to the left contains other information related to the asset. This guide will review required fields. The Attributes screen contains required information for some asset groups. Click on the **Attributes** link.

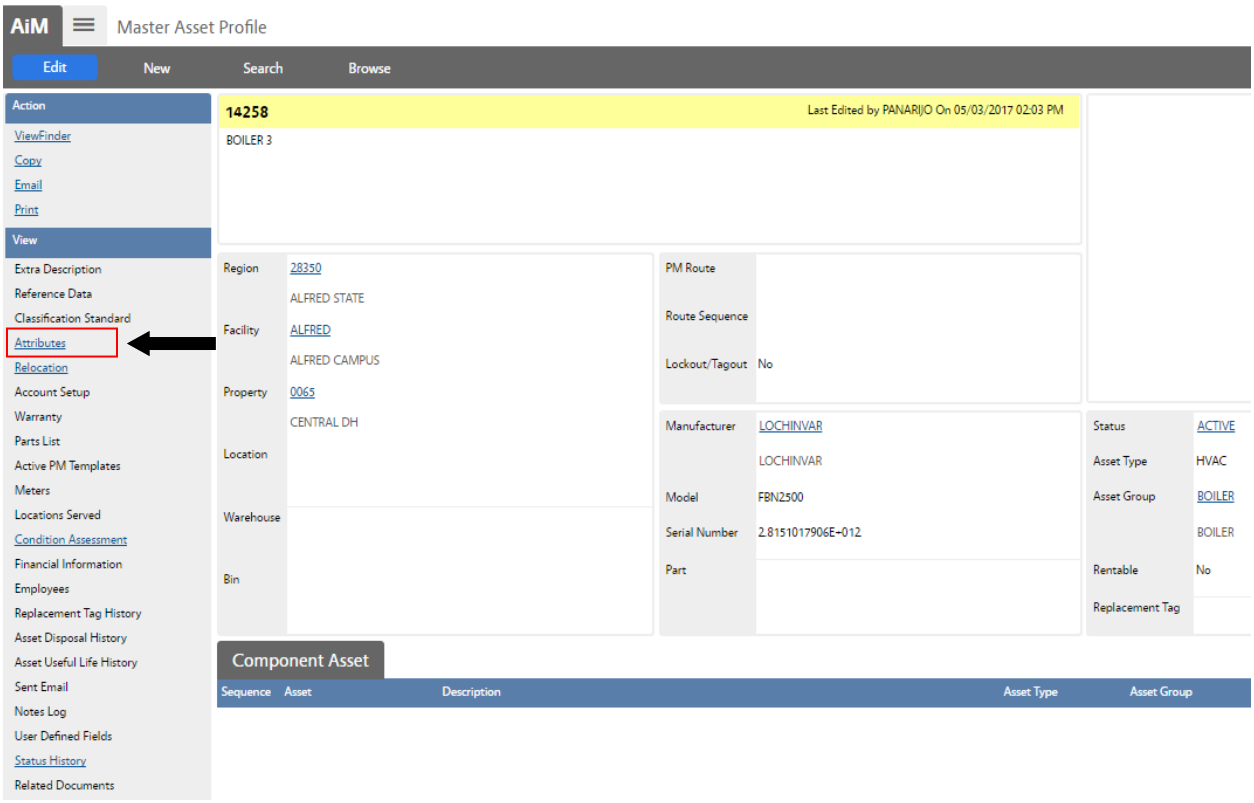
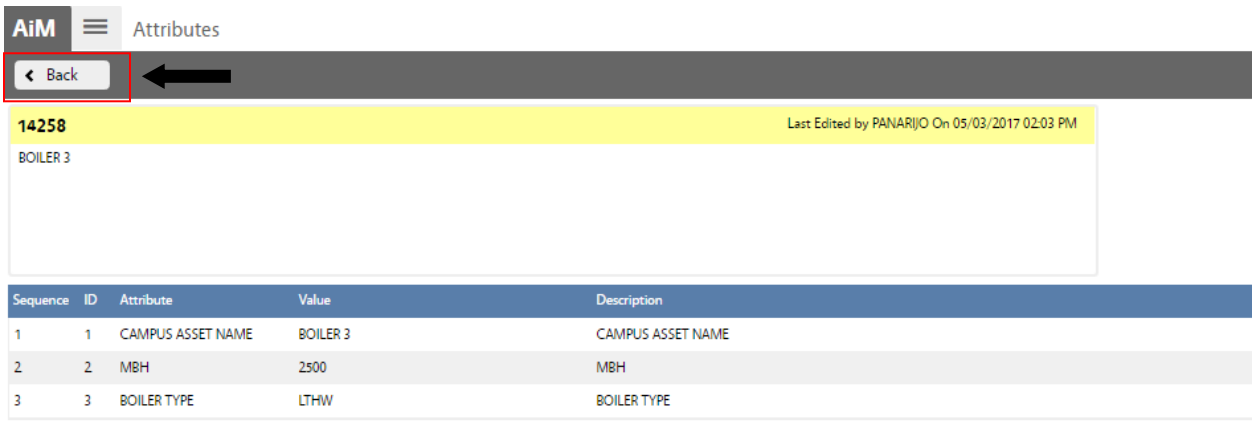


Figure 9

8) This is the Attributes screen. If the asset group requires this data to be populated, it will be shown on this screen. Click the **Back** button to return to the Master Asset Profile.



Sequence	ID	Attribute	Value	Description
1	1	CAMPUS ASSET NAME	BOILER 3	CAMPUS ASSET NAME
2	2	MBH	2500	MBH
3	3	BOILER TYPE	LTHW	BOILER TYPE

Figure 10

9) Of note, the Condition Assessment information can be accessed directly from the menu on the left. Details of this information can be found in the **Planning and Needs Analysis** section of this guide.

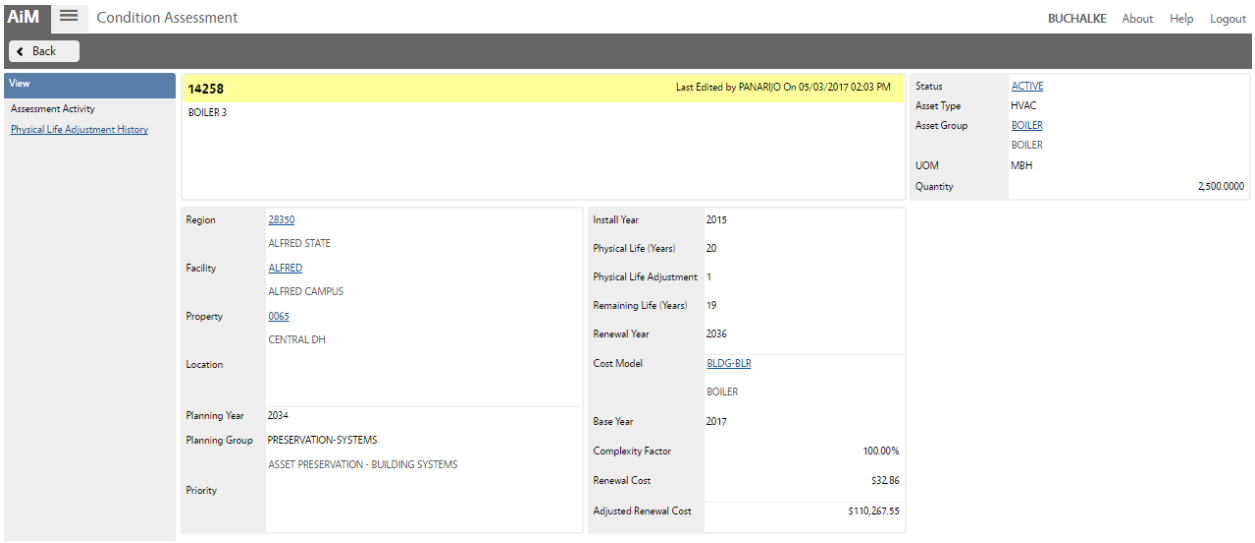


Figure 11

Editing Asset Information

1) Follow Steps 1 – 6 in this section to locate the specified **Master Asset Profile**.

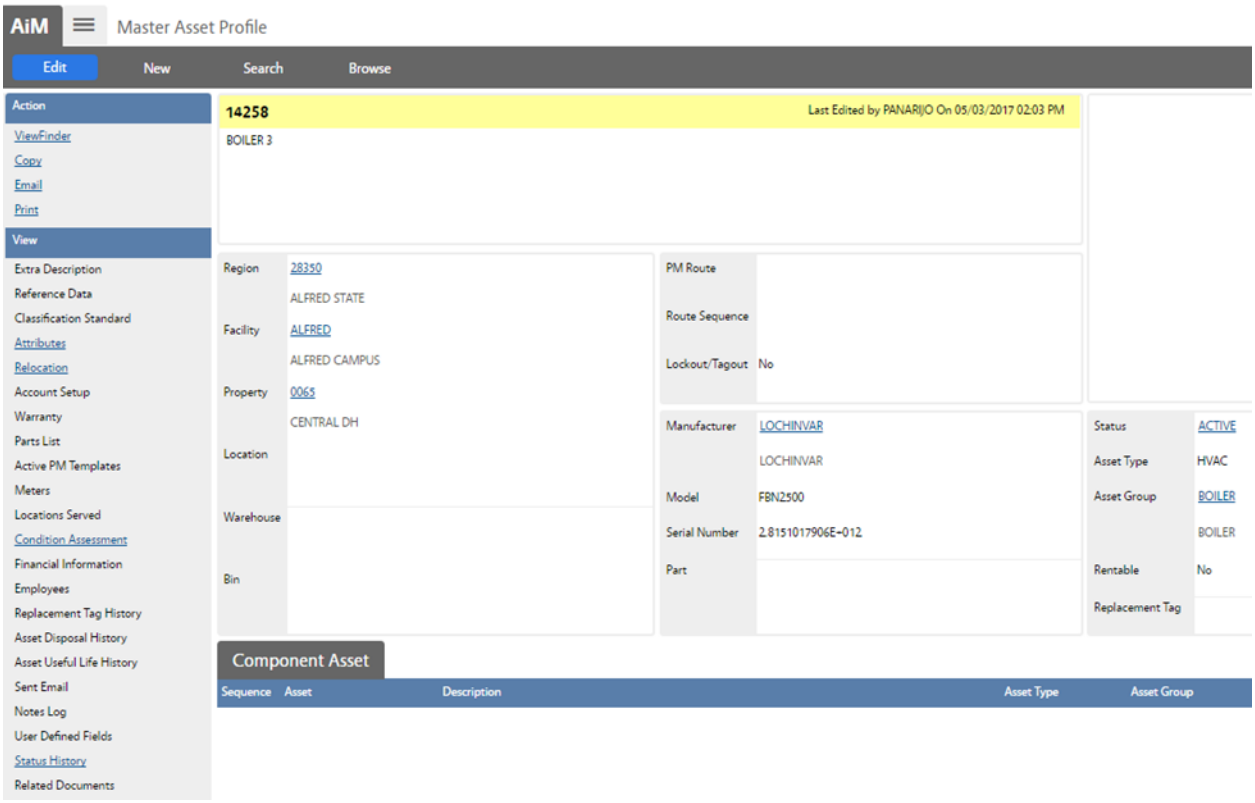


Figure 12

2) Click the **Edit** button.

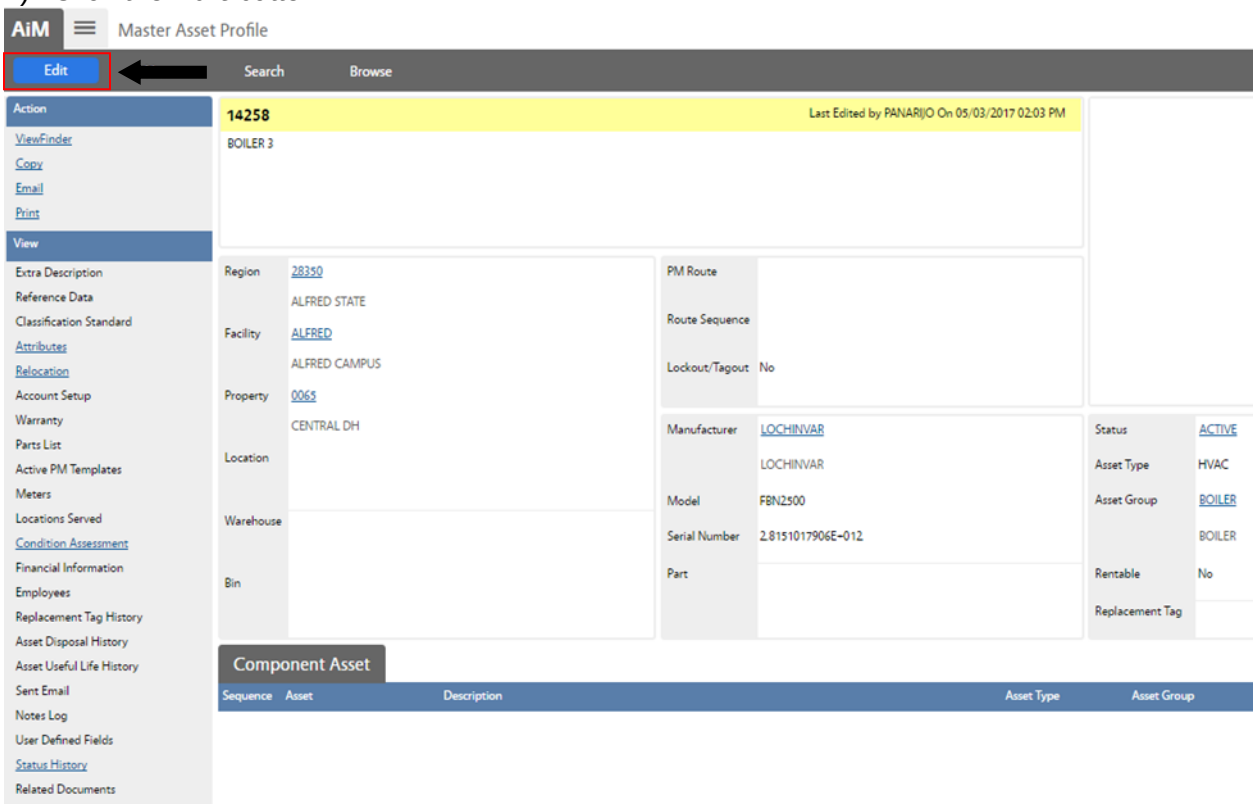


Figure 13

3) Enter or make changes to the information.
Note: Red boxes indicate required fields. You will not be able to save if these fields are blank.

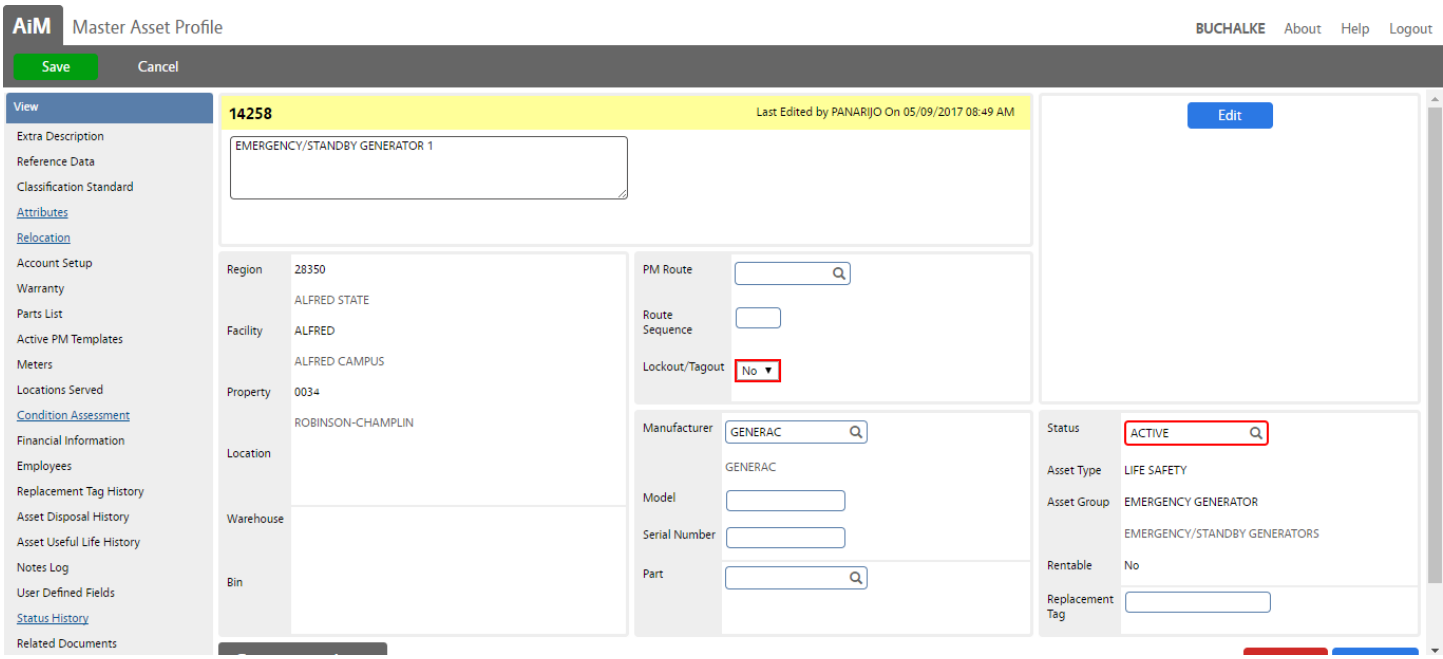


Figure 14

4) Optionally, changes may also be made within the sub-screens of the Master Asset Profile. Click on a sub-screen link.

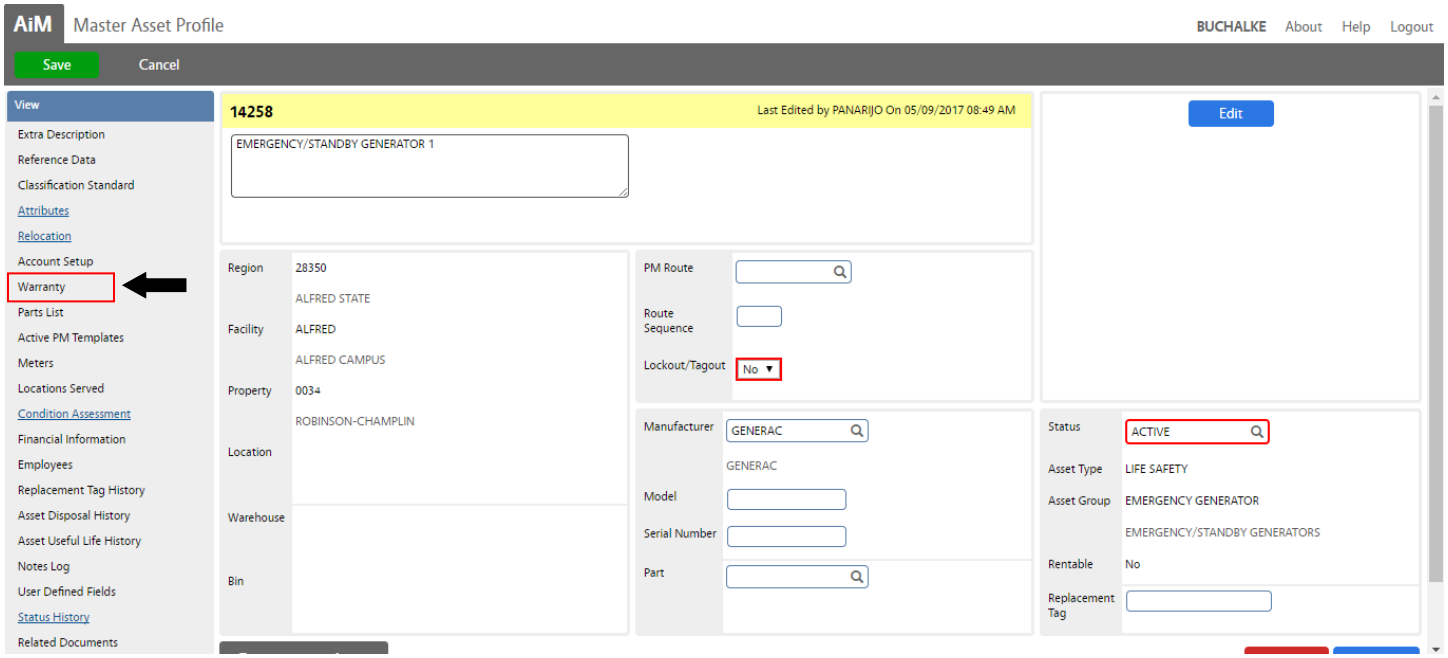


Figure 15

5) Follow the prompts on the screen to enter or make changes to the information. Click the **Done** button to return to the Master Asset Profile.

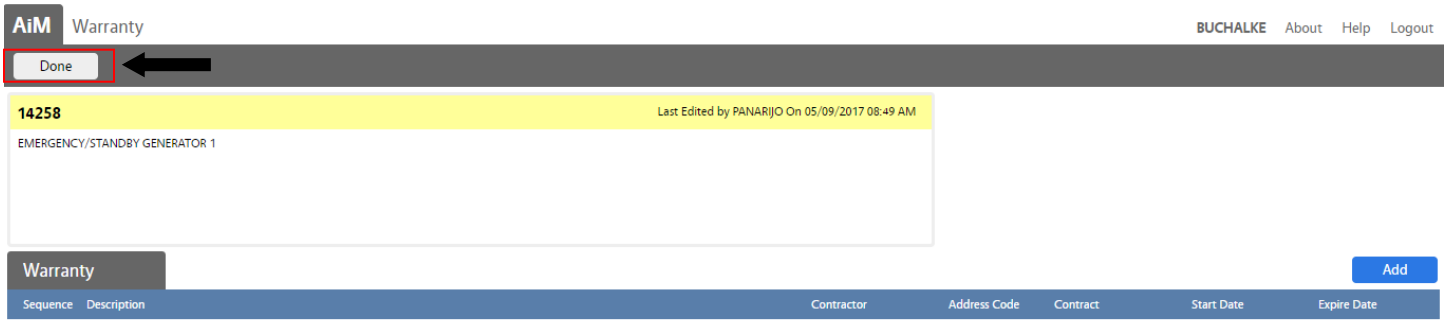


Figure 16

6) Click the **Save** button to save your changes.

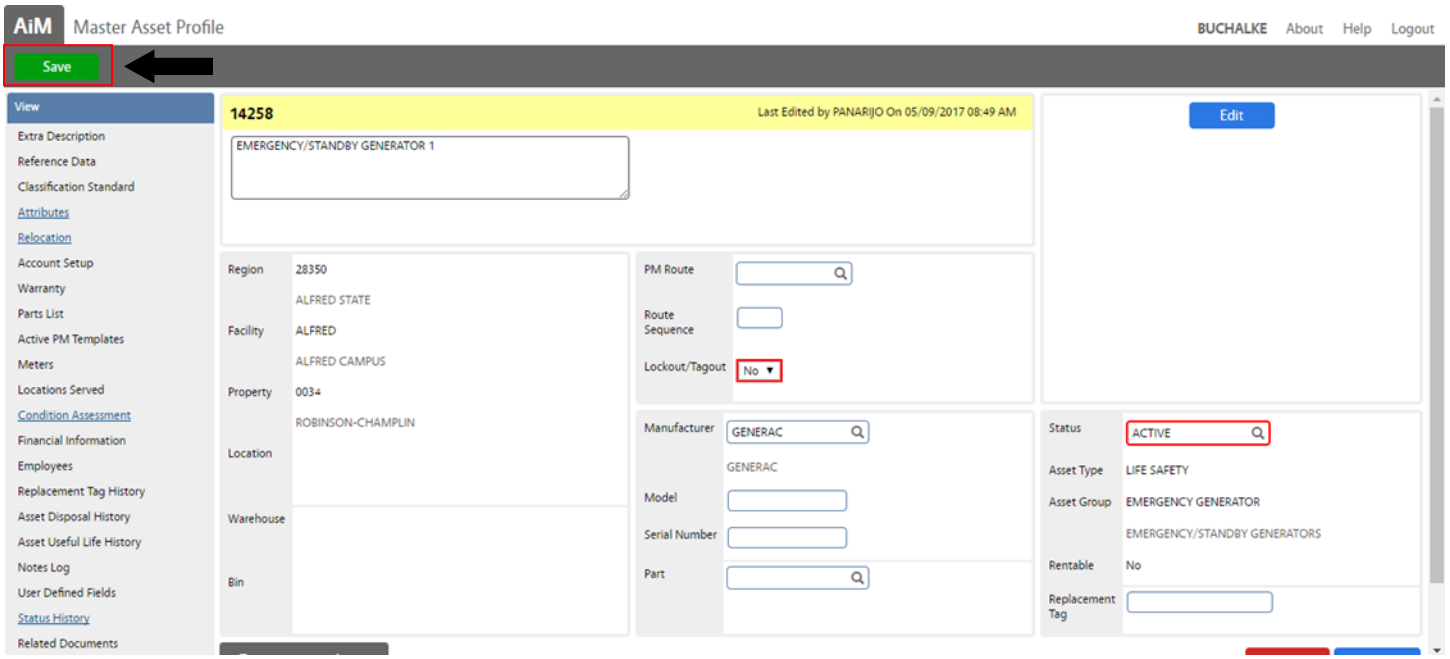


Figure 17

Planning and Needs Analysis Module

Navigation and Definitions

This section will show the user how to locate a specified asset in AiM and define the key fields related to the condition of the asset.

1) From the Main WorkDesk, click on the **Planning and Needs Analysis link**.

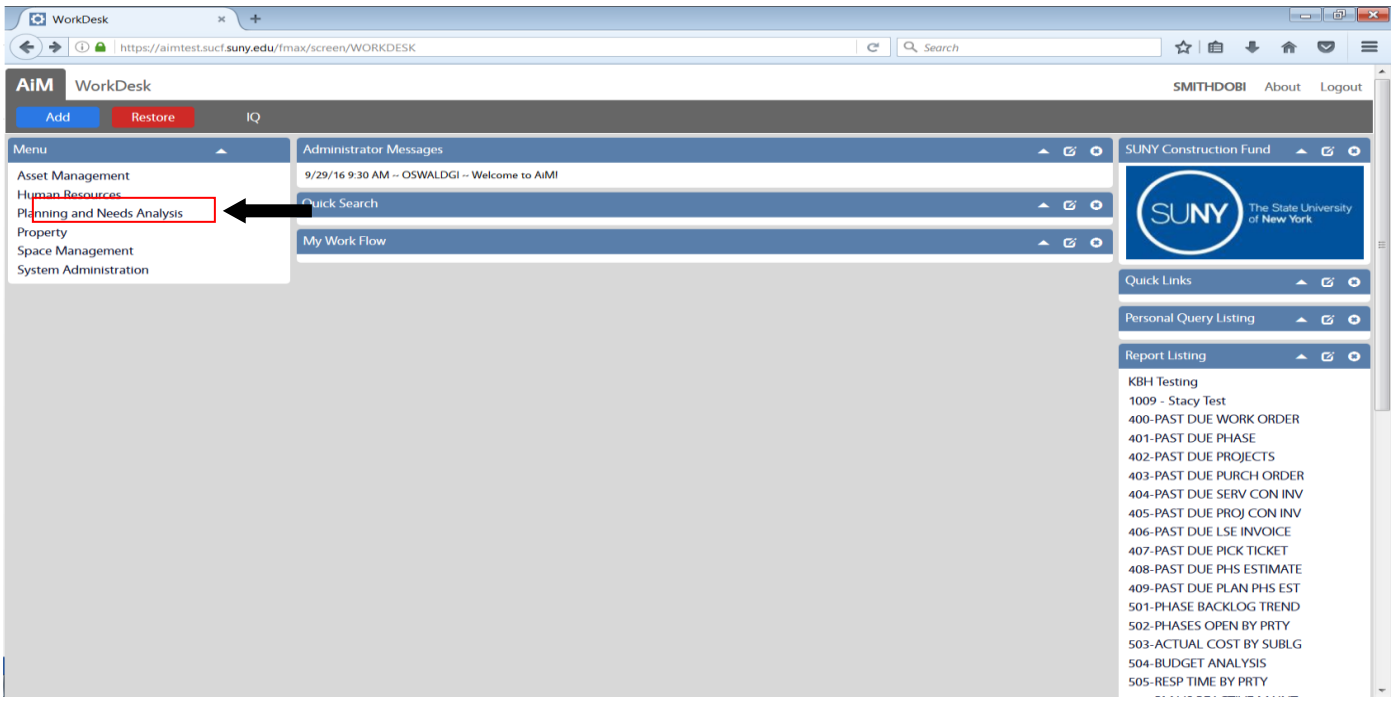


Figure 18

2) Click on the **Condition Assessment Asset Profile**.

Figure 19

3) Click on the **Search** button.

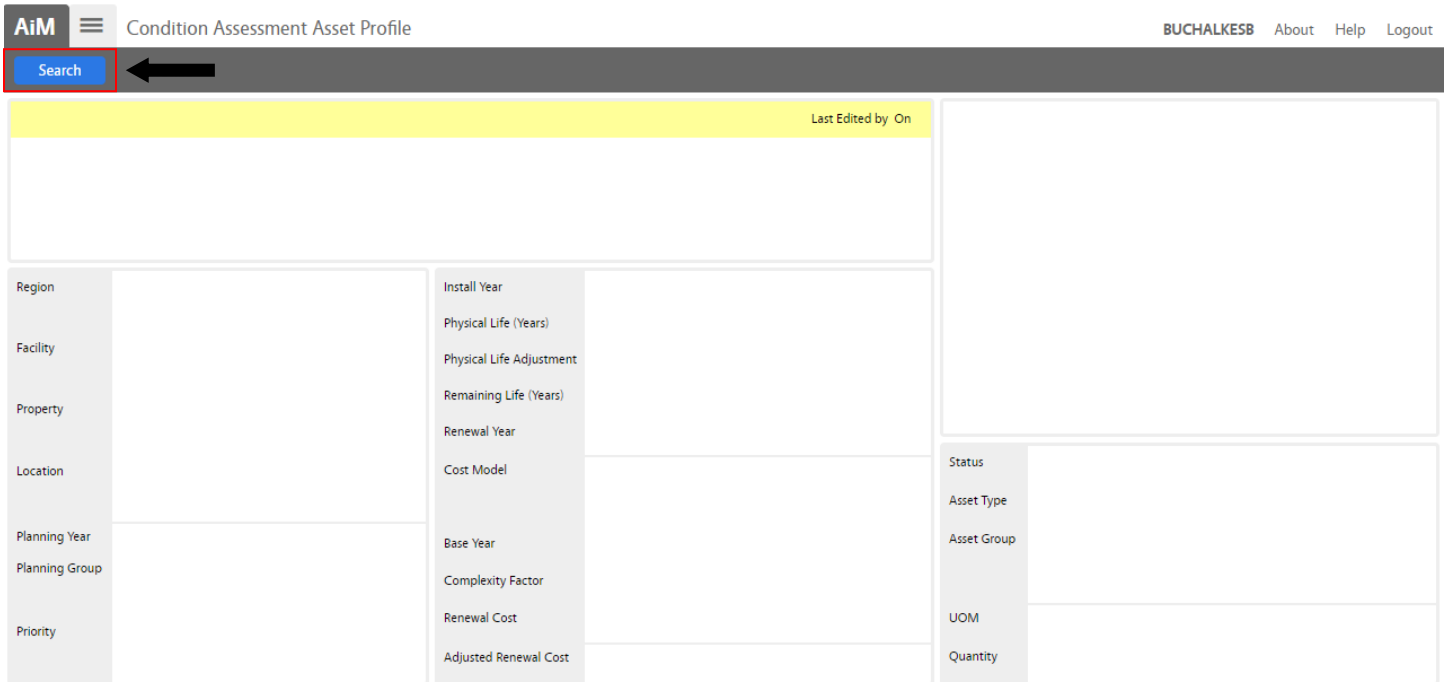


Figure 20

4) Search for the asset. If the Asset ID number is known, enter it as shown below. Otherwise, use any other search criteria to find the asset. Recommended search criteria include filtering based upon the Property and/or filtering based upon the Asset Group.

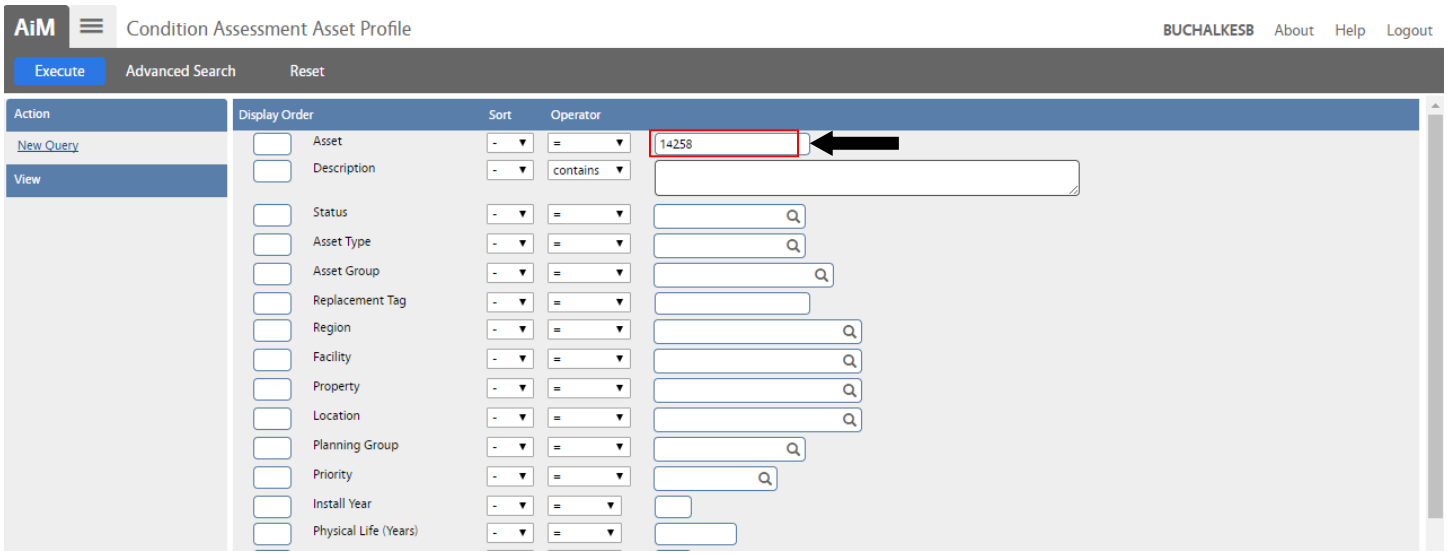


Figure 21

5) Click the **Execute** button. On the following screen, select the asset.

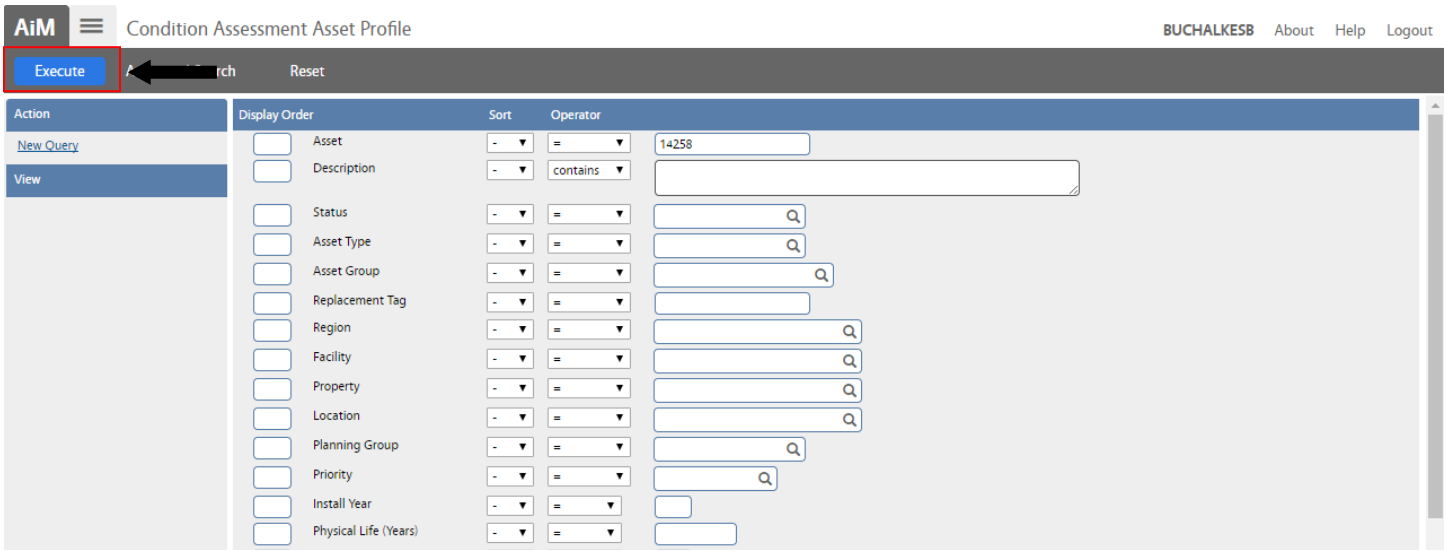


Figure 22

6) This is the **Condition Assessment Asset Profile** and contains all of the information related to the condition of the asset.

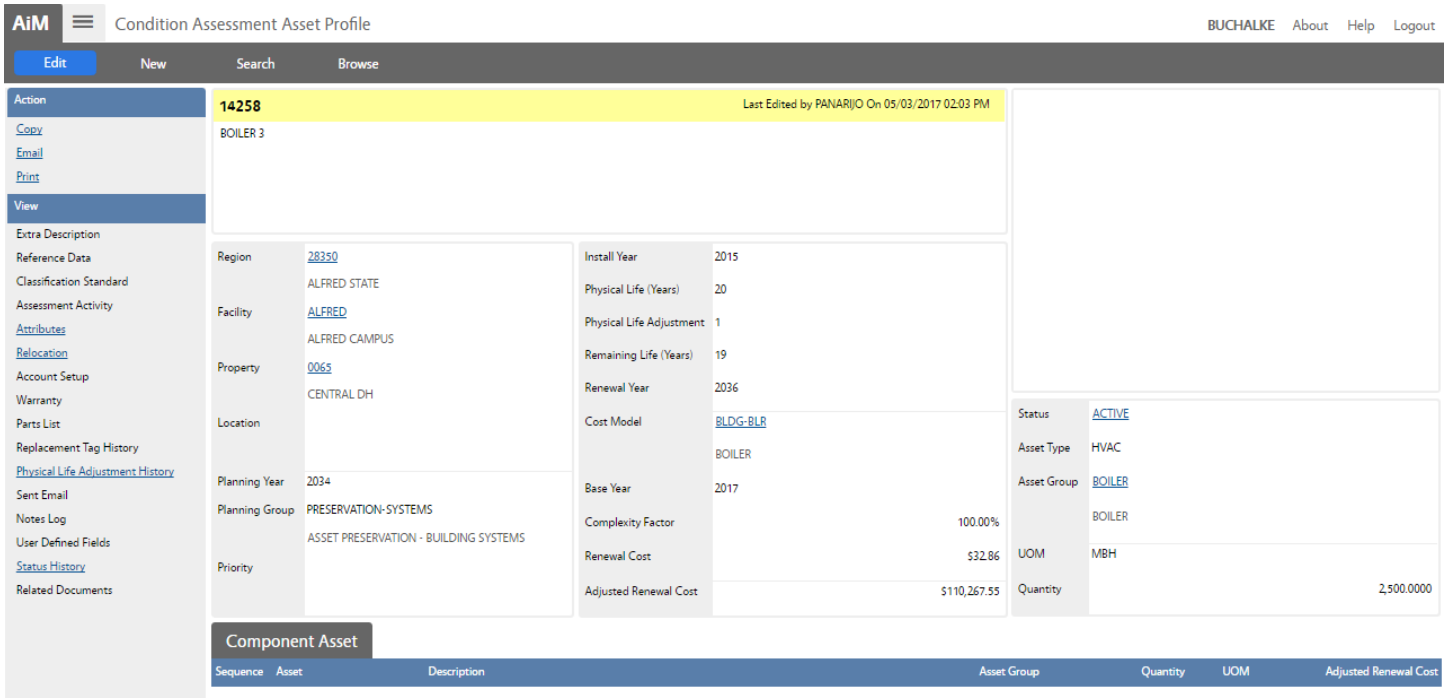


Figure 23

Asset ID	The System ID used for the asset record. This cannot be changed.
Asset Description	The name of the asset. This can be changed.
Property Hierarchy	Where the asset resides. Note the Location field is optional.
Planning Year	Year in which project scoping would begin, typically two years prior to the Renewal Year.
Planning Group	A categorization of assets for purposes of developing annual capital requests.
Priority	Optional – This field can be used to prioritize needs within a given Planning Year.
Install Year	Year the asset was installed, not to be mistaken for the year the asset was purchased.
Physical Life	The expected useful life of the asset.
Physical Life Adjustment	The estimated number of years of more or less useful life than expected (see Physical Life).
Remaining Life	The number of years of life from present day.
Renewal Year	The anticipated year that the asset will be renewed based on its current condition.
Cost Model	The selected cost model to be used to calculate the renewal costs for the asset.
Base Year	Determines escalation factors used in the cost model.
Complexity Factor	A factor for the complexity (i.e. building complexity, geographic location) for the asset.
Renewal Cost	The per unit renewal cost of the asset.
Adjusted Renewal Cost	The total renewal cost for the asset.
UOM	The unit of measure for the asset.
Quantity	The size of the asset (based on units of measure).

Table 4

Appendix B – Asset Typical Useful Lives

ASSET TYPE	ASSET GROUP	COST MODEL DESCRIPTION	PHYSICAL LIFE (YEARS)
BUILDINGS			
SUPERSTRUCTURE	STRUCTURE	FOUNDATIONS / SUPER STRUCTURE / STAIRS	75
ENVELOPE	EXTR-WALL	EXTERIOR WALLS	70
ENVELOPE	EXTR-WINDOW	EXTERIOR WINDOWS	30
ENVELOPE	EXTR-DOOR	EXTERIOR DOORS	30
ENVELOPE	ROOF	ROOF - TYPE 1 (EPDM, BUILT UP, TPO, ETC)	25
ENVELOPE	ROOF	ROOF - TYPE 2 (SLATE, STANDING SEAM, COPPER, GREEN, ETC)	25
INTERIOR	INTERIOR FINISHES	CEILING / WALLS / DOORS / FLOORS	30
CONVEYING	ELEVATOR	ELEVATOR	25
HVAC	AIR HANDLING UNITS	AIR HANDLING UNITS	25
HVAC	HVAC-DISTRIBUTION	HVAC DISTRIBUTION - DUCTWORK / PIPING / UNITARY SYSTEMS	50
HVAC	BOILER	BOILER	20
HVAC	BMS	HVAC AND BUILDING CONTROLS	20
HVAC	CHILLER	CHILLER	20
ELECTRICAL	ELECT-DIST-SECONDARY	BUILDING DISTRIBUTION WIRING	30
ELECTRICAL	ELECT-PRIMARY SERVICE	PRIMARY ELECTRICAL - TRANSFORMER / SWITCHGEAR / ETC	30
ELECTRICAL	LIGHTING	LIGHTING SYSTEMS	20
ELECTRICAL	TELCOM-DATA	TELECOM AND DATA DISTRIBUTION	15
LIFE SAFETY	EMERG-BATT-LIGHT	EMERGENCY BATTERY AND LIGHTING	20
LIFE SAFETY	EMERGENCY GENERATOR	EMERGENCY / STANDBY GENERATORS	30
LIFE SAFETY	FIRE DETECTION-ALARM	FIRE DETECTION SYSTEMS	20
LIFE SAFETY	FIRE SPRINKLER	FIRE SPRINKLER - WET / DRY (SF COVERAGE AREA)	40
LIFE SAFETY	SECURITY	SECURITY AND ACCESS SYSTEMS	15
PLUMBING	PLUMB-DISTRIBUTION	PLUMBING DISTRIBUTION	50
PLUMBING	PLUMB-FIXTURES	PLUMBING FIXTURES	30
MINOR STRUCTURES			
MINOR STRUCTURE	MINOR STRUCTURE	MINOR STRUCTURE TYPE 1 (UNDER 2000 GSF-SHELTER)	50
MINOR STRUCTURE	MINOR STRUCTURE	MINOR STRUCTURE TYPE 2 (UNDER 2000 GSF-SIMPLE)	50
MINOR STRUCTURE	MINOR STRUCTURE	MINOR STRUCTURE TYPE 3 (UNDER 2000 GSF-OCCUPIED)	50
PARKING STRUCTURES			
INTERIOR	GARAGE OFFICE	OCCUPIED SPACE	15
SUPERSTRUCTURE	STRUCTURE	FOUNDATIONS/SUPERSTRUCTURE/STAIRS/PARKING DECK	75
HVAC	HVAC-DISTRIBUTION	HVAC SYSTEMS	50
PLUMBING	PLUMB-DISTRIBUTION	PLUMBING SYSTEM	50
LIFE SAFETY	FIRE SPRINKLER	FIRE SPRINKLER - WET / DRY (SF COVERAGE AREA)	40
ELECTRICAL	ELECT-PRIMARY SERVICE	PRIMARY AND SECONDARY ELECTRICAL SYSTEMS	30
ELECTRICAL	LIGHTING	LIGHTING SYSTEMS	20
LIFE SAFETY	EMERG-BATT-LIGHT	EMERGENCY BATTERY AND LIGHTING	20
LIFE SAFETY	FIRE DETECTION-ALARM	FIRE DETECTION SYSTEMS	20
LIFE SAFETY	SECURITY	SECURITY AND ACCESS SYSTEMS	15

ASSET TYPE	ASSET GROUP	COST MODEL DESCRIPTION	PHYSICAL LIFE (YEARS)
INFRASTRUCTURE			
HARDSCAPE	ROADS	ROADWAYS	30
HARDSCAPE	SIDEWALKS	SIDEWALKS	15
HARDSCAPE	PLAZA	PLAZA	25
PARKING	SURFACE	PARKING SURFACE	30
WAYFINDING	WAYFINDING	MONUMENTAL AND DIRECTIONAL SIGNS	25
UTILITY DISTRIBUTION	SEWER	SEWER COLLECTION - PIPING / MANHOLES / ETC	50
UTILITY DISTRIBUTION	STORMWATER	STORM WATER SYSTEM - PIPING / VALVES / MANHOLES / ETC	50
UTILITY DISTRIBUTION	CHILLED WATER	UG CHILLED WATER SYSTEM - PIPING / VALVES / MANHOLES / ETC	30
UTILITY DISTRIBUTION	HTHW-STEAM	UG HTHW AND STEAM - PIPING / VALVES / MANHOLES	30
UTILITY DISTRIBUTION	WATER	UG WATER - DOMESTIC / FIRE	50
UTILITY DISTRIBUTION	NATURAL GAS	UG NATURAL GAS	50
UTILITY DISTRIBUTION	TANKS-FUEL-AG	TANKS - FUEL - ABOVE GROUND	20
UTILITY DISTRIBUTION	TANKS-FUEL-UG	TANKS - FUEL - BELOW GROUND	25
UTILITY DISTRIBUTION	TANKS-WATER	TANKS - WATER	30
UTILITY DISTRIBUTION	ELECTRIC-SUBST	CAMPUS ELECTRIC - SUBSTATION(S) OWNED	50
UTILITY DISTRIBUTION	ELECTRIC-DIST	ELECTRIC - HIGH VOLTAGE DIST - DUCTBANK / MANHOLES / ETC	30
UTILITY DISTRIBUTION	LIGHTING-SITE	SITE LIGHTING - PARKING LOTS / ROADS / WALKS / ETC	20
UTILITY DISTRIBUTION	TELECOM	TELECOM AND DATA - DUCTBANK / MANHOLES / ETC	35
UTILITY DISTRIBUTION	CAMPUS LIFE SAFETY	BLUE PHONES / MASS NOTIFCATION	20
SPORTS FIELDS			
SPORTS FIELD	SPORTS LIGHTING	SPORTS LIGHTING	20
SPORTS FIELD	BASEBALL-SOFTBALL	BASEBALL / SOFTBALL FIELD	10
SPORTS FIELD	FOOTBALL -SOCCER-LACROSSE	FOOTBALL / SOCCER / LACROSSE FIELD	10
SPORTS FIELD	MULTI-PURP-GRASS-FIELD	MULTI - PURPOSE FIELD - GRASS	20
SPORTS FIELD	MULTI-PURP-SYN-FIELD	MULTI - PURPOSE FIELD - SYNTHETIC	10
SPORTS FIELD	TENNIS-BASKETBALL	TENNIS / BASKETBALL	20
SPORTS FIELD	TRACK	RUNNING TRACK	20
CENTRAL PLANT			
CENTRAL PLANT	CNTRL PLNT BLR	CENTRAL PLANT BOILER	35
CENTRAL PLANT	CNTRL PLNT CHLR	CENTRAL PLANT CHILLER	35
CENTRAL PLANT	CNTRL PLNT ELEC GENR	CENTRAL PLANT ELECTRICAL GENERATOR	35
CENTRAL PLANT	CNTRL PLNT TOWER	CENTRAL PLANT COOLING TOWER	20
CENTRAL PLANT	CNTRL PLNT ALT	CENTRAL PLANT ALTERNATIVE ENERGY - SOLAR / WIND / ETC	25