

A GIS Based Sustainability Information System for Buildings

MSGIC Quarterly Meeting
January 18, 2012

Eric Stetser, GISP, *Vice - President*
Susan Hmel, *Application Developer*

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Agenda

- SSA Overview
- SpatialMMS background
- Demonstration
- What's next
- Questions

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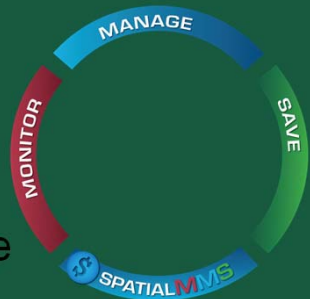
About SSA

- Founded 1995
- Esri Gold Level Business Partner
- Extensive Maryland experience providing professional GIS services
- Began FMIS in 2008

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SSA FMIS Services

- Facilities monitoring and site characteristics
- Analysis and reporting of collected data
- Asset inventory
- LEED certification assistance
- SpatialMMS



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Why SpatialMMS? - 1

EmPower Maryland

Goal: Reduce statewide energy use by
15% by 2015



Why SpatialMMS? - 2

Buildings account for

- 48% of total energy use in the country
- 12% of total water consumption
- 68% of total electrical consumption
- 38% of CO2 emissions
- 60% of non-industrial waste

Why SpatialMMS? - 3

Federal Initiatives:

- EO 13123 – Greening the Government through Efficient Energy Management
- EO 13327 – Federal Real Property Management
- EO 13423 – Strengthening Federal Environmental, Energy and Transportation Management
- EAct 2005 – Energy Policy Act of 2005
- EISA 2007 – Energy Independence and Security Act of 2007
- EO 13514 – Federal Leadership in Environmental, Energy and Economic Performance

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What is SpatialMMS?

SpatialMMS is an ESRI-based facility management system that:

- Monitors and analyzes indoor environmental data including temperature, humidity, and CO₂
- Monitors and analyzes power consumption for a facility via sub-metering
- Monitors and analyzes water consumption
- Tracks and reports space utilization
- Monitors site sustainability characteristics

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SpatialMMS Features

- Built on ESRI's Enterprise Server technology
- Web-based
- Cloud-based or behind the corporate fire wall
- Convenient dashboard presentation
- Organized to mirror LEED criteria
- Leverages ESRI's BISDM 3.0
- Integrates with building control systems

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Perdue School of Business Building

- Three story, 113,000 square feet, \$55M
- Sustainability goal – Gold certification:
 - 30% water reduction; 24% energy reduction
- One of 8 LEED buildings on campus, first to be monitored by SpatialMMS
- Project supported by Dr. Mike Scott!

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Perdue School of Business Building

- Completed Summer 2011
- Variety of uses: Classrooms, Faculty Offices, Museum, Conference Center, Auditorium, Café
- Building Automation System
- 6th largest building at Salisbury University

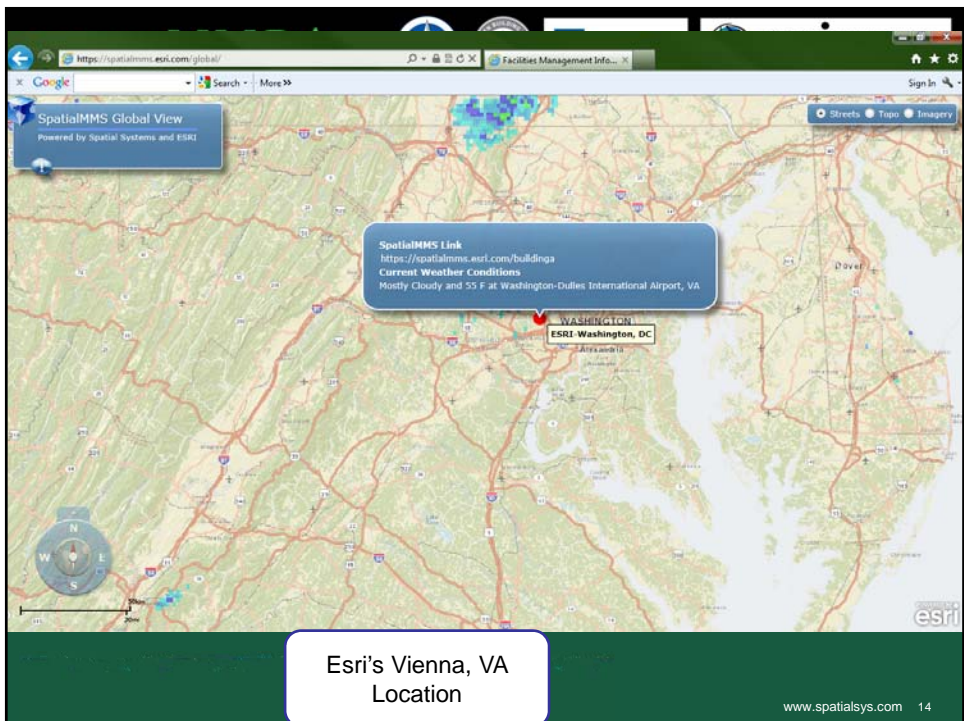
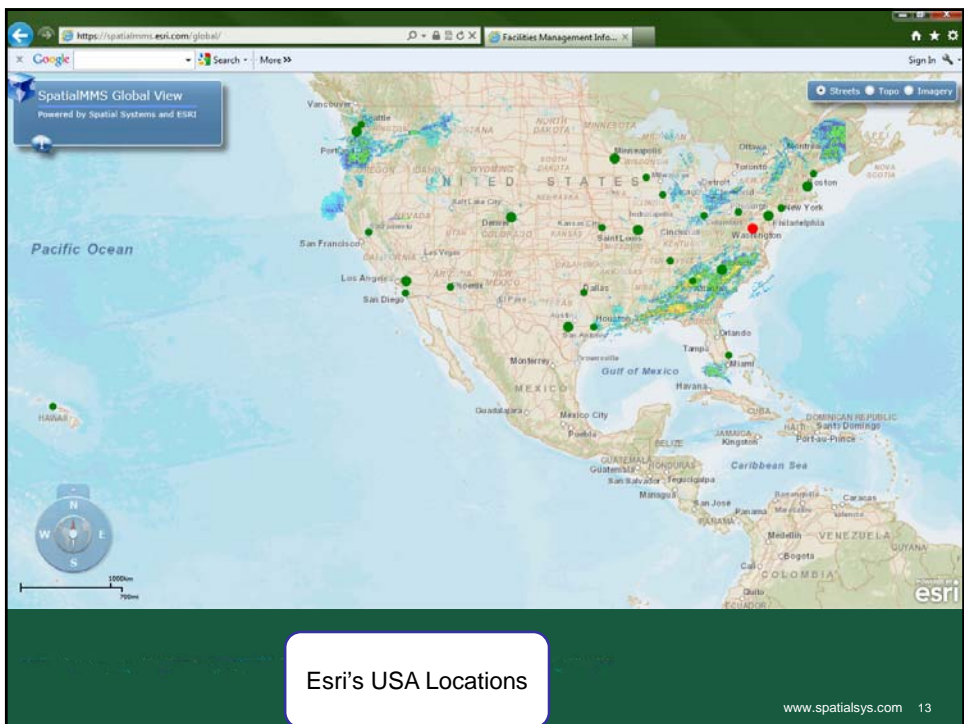
Salisbury University is a member of the Esri Partner Network. For more information, visit www.esri.com/partners.

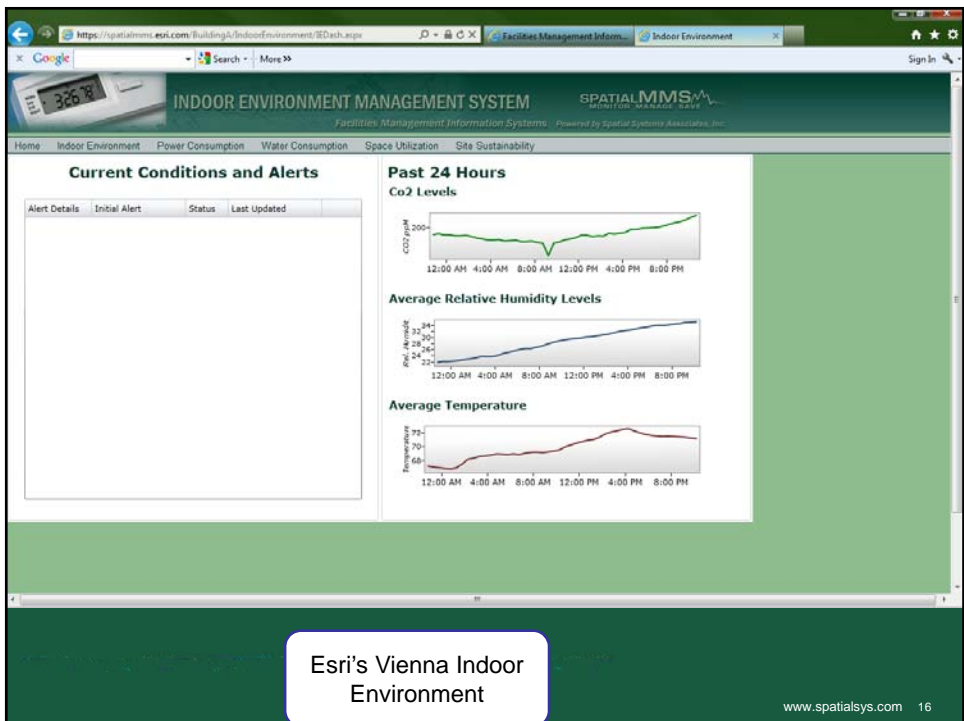
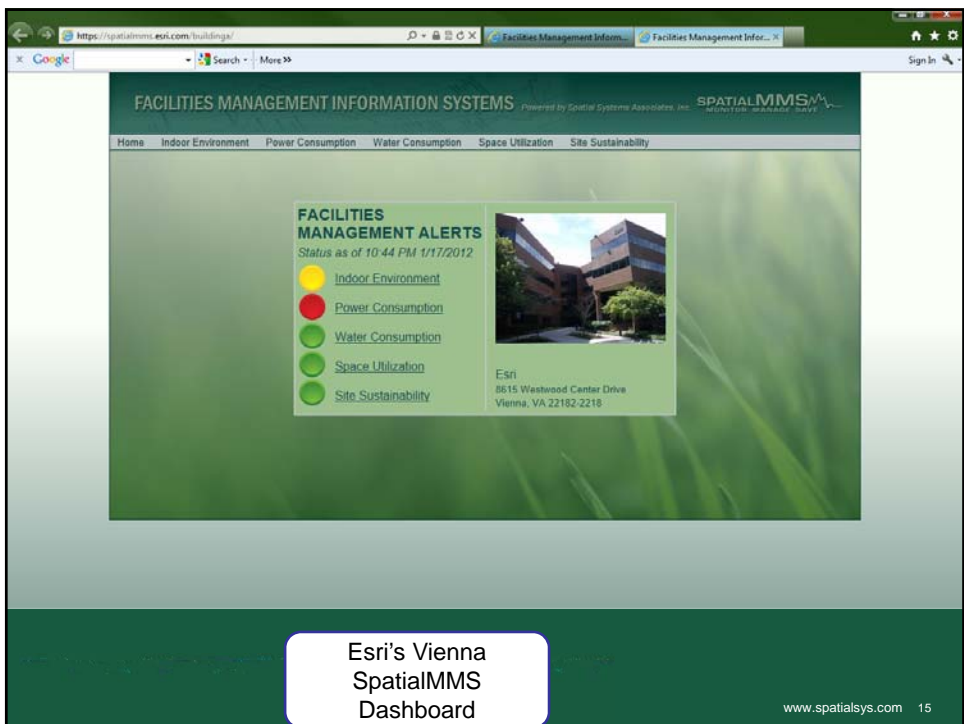
Application Demonstration Susan Hmel

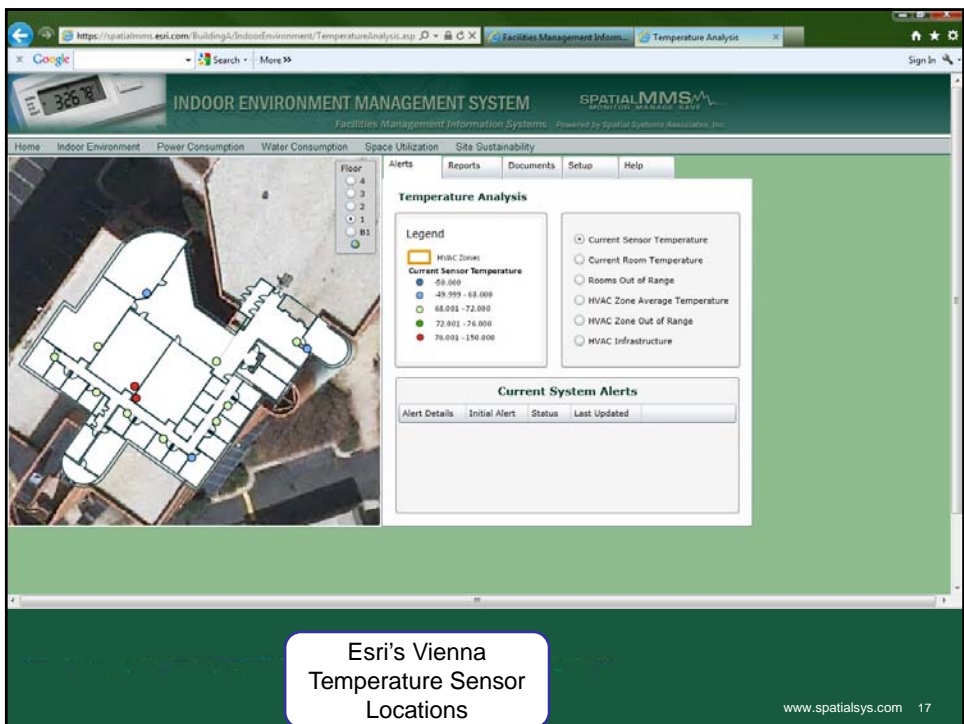
Use several sites to show:

- Dashboard
- Power Consumption
- Indoor Environment
- Space Utilization
- Site Sustainability

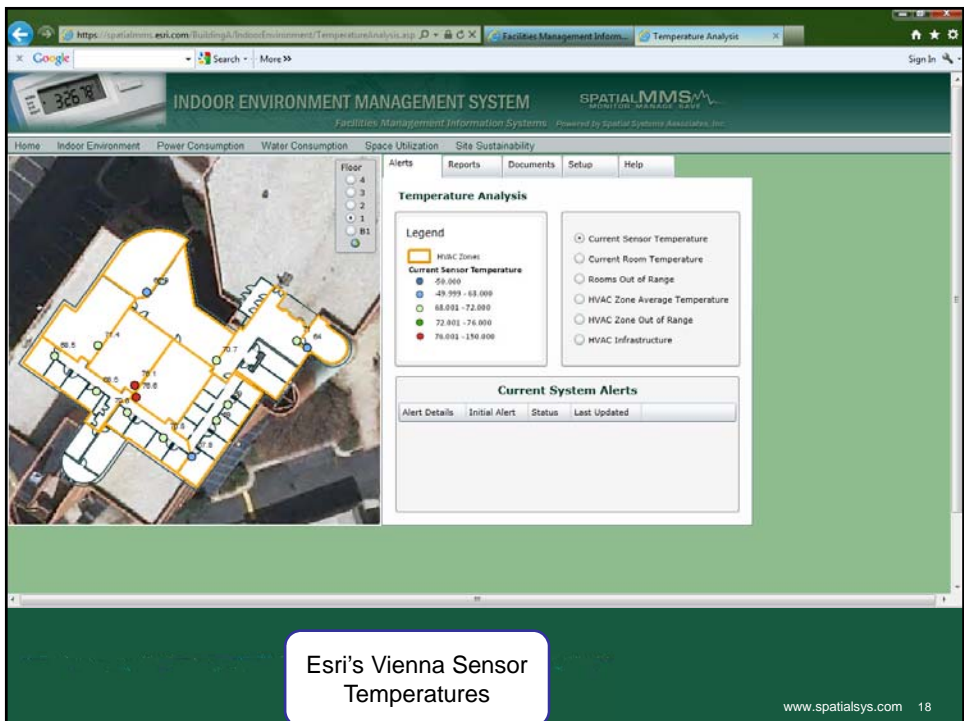
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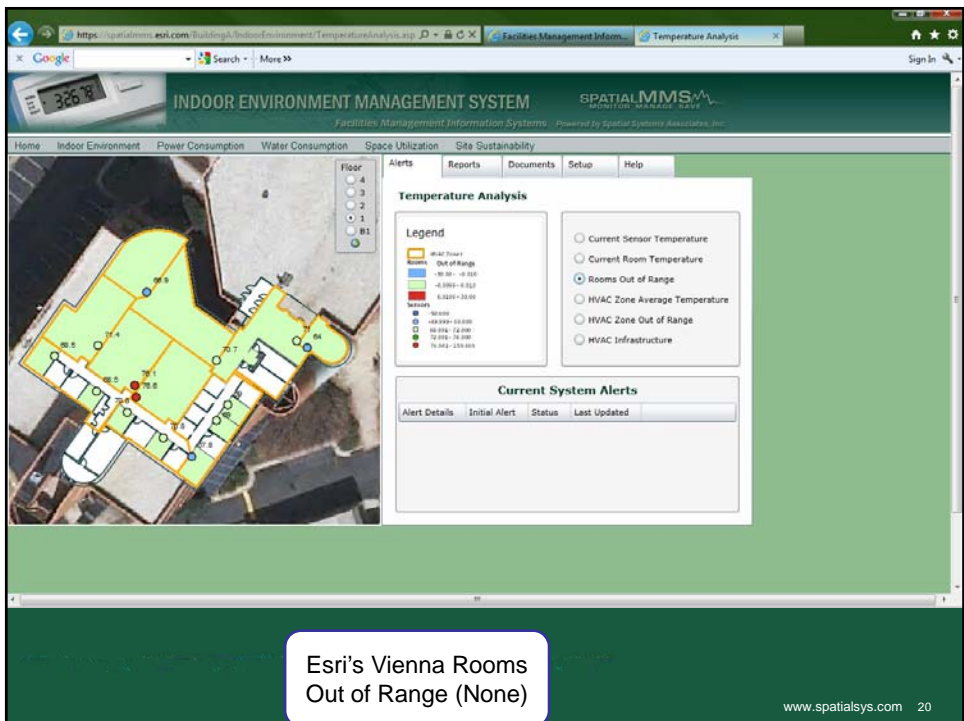
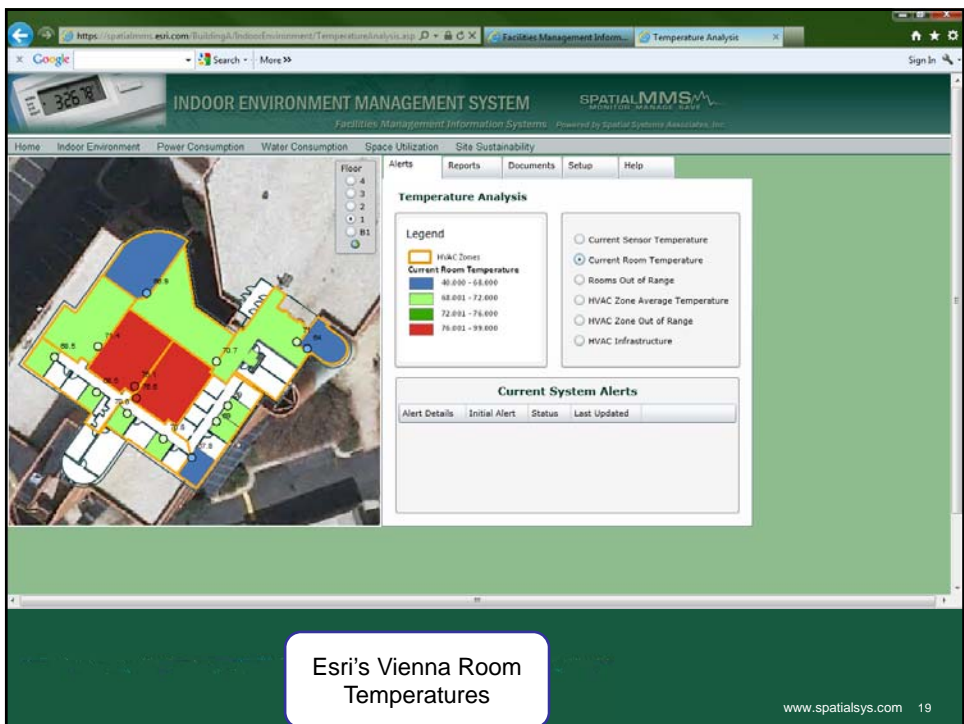




Esri's Vienna
Temperature Sensor
Locations

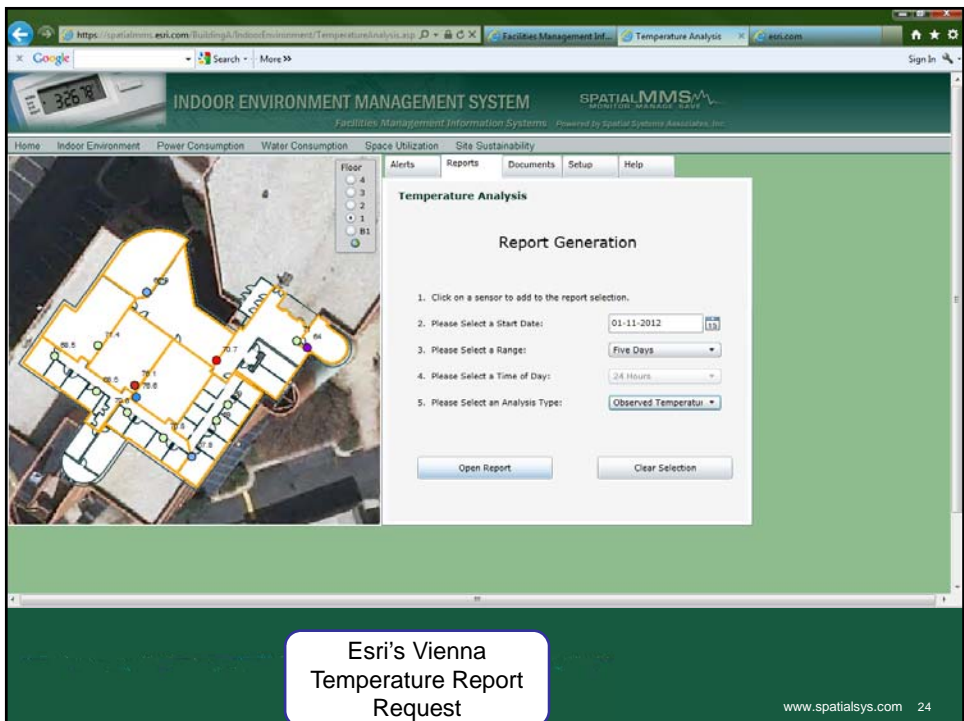
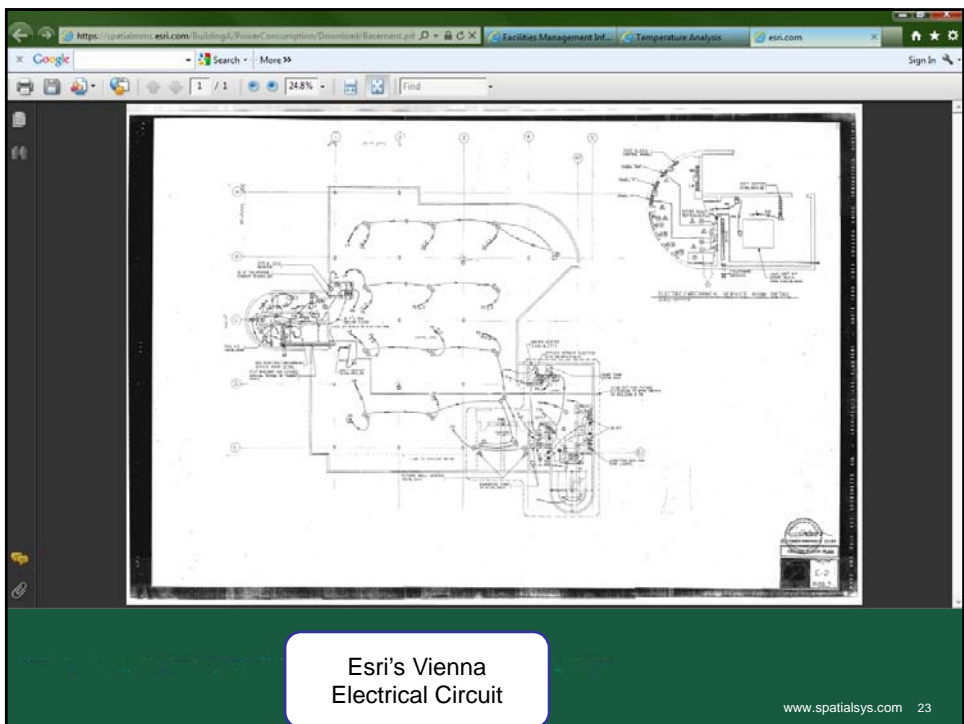


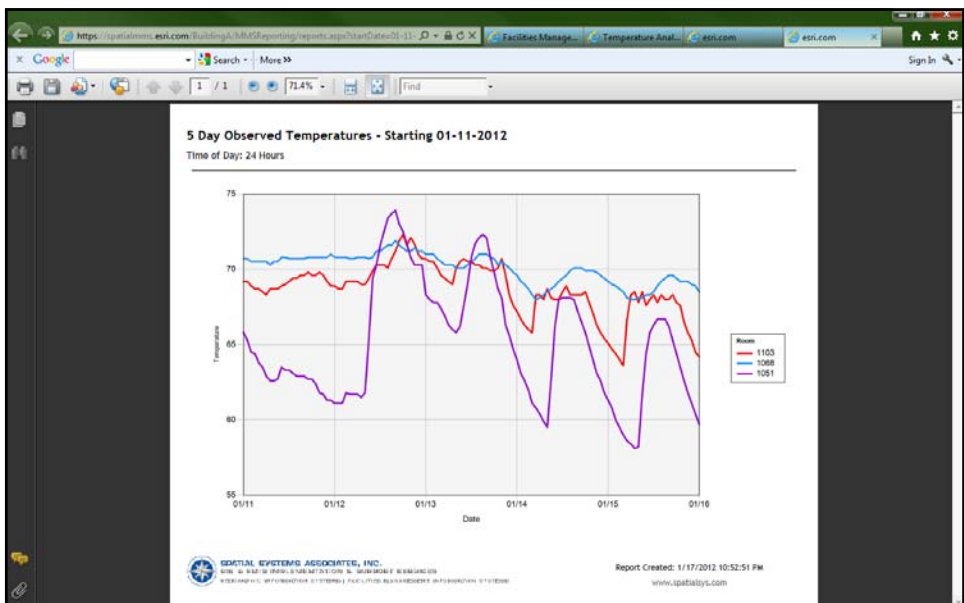
Esri's Vienna Sensor
Temperatures



Esri's Vienna HVAC Infrastructure

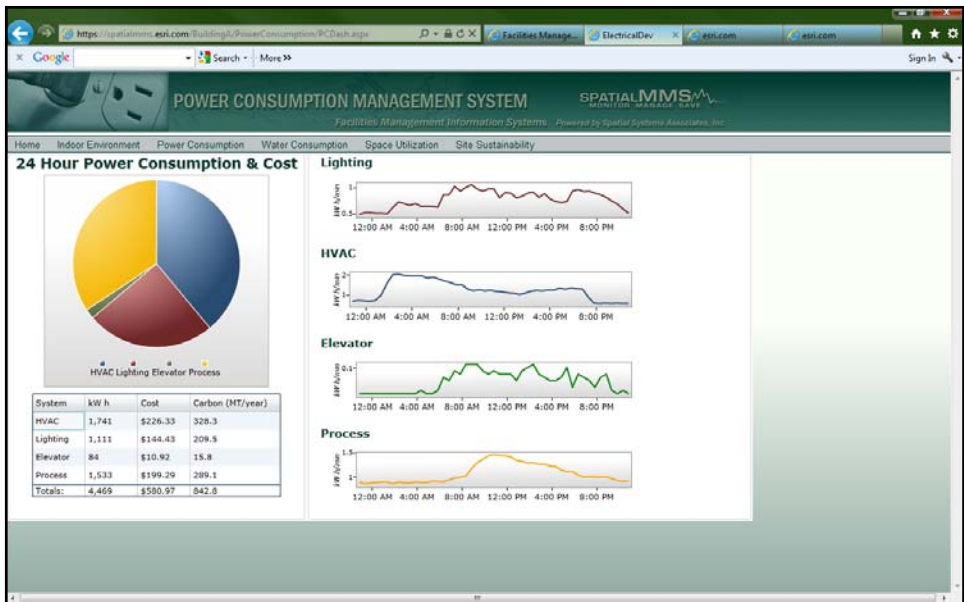
Esri's Vienna HVAC Document List





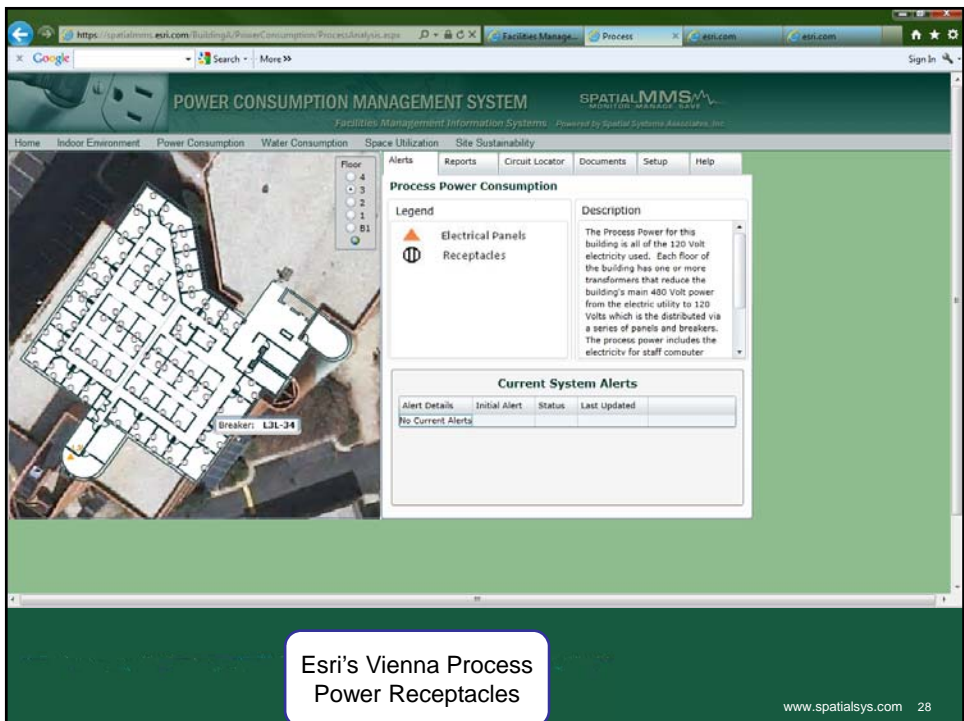
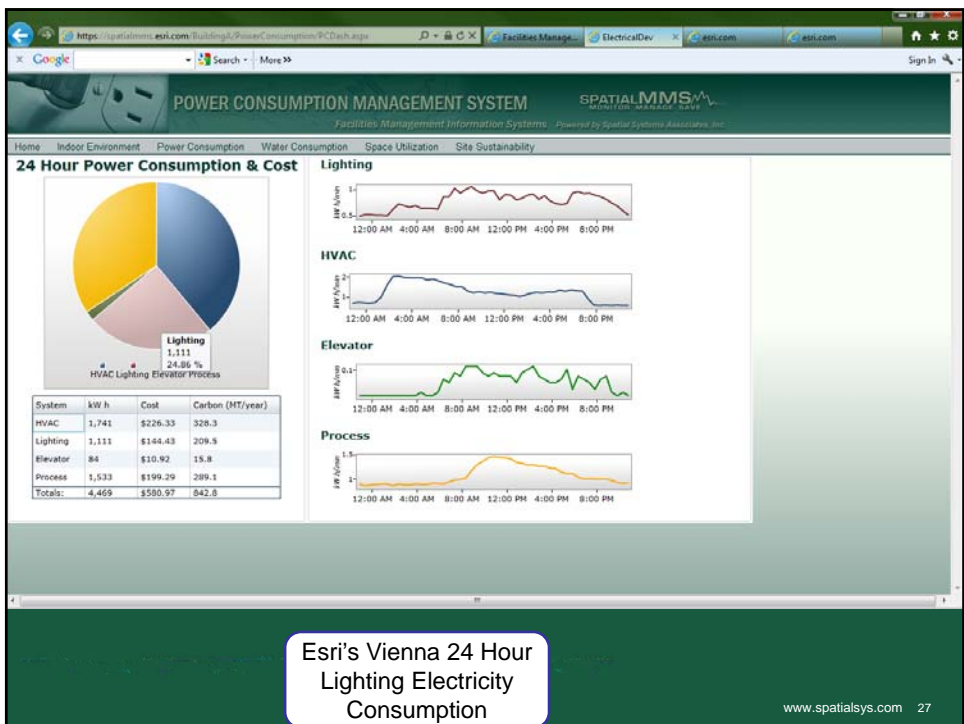
Esri's Vienna Three
Sensor Temperature
Chart

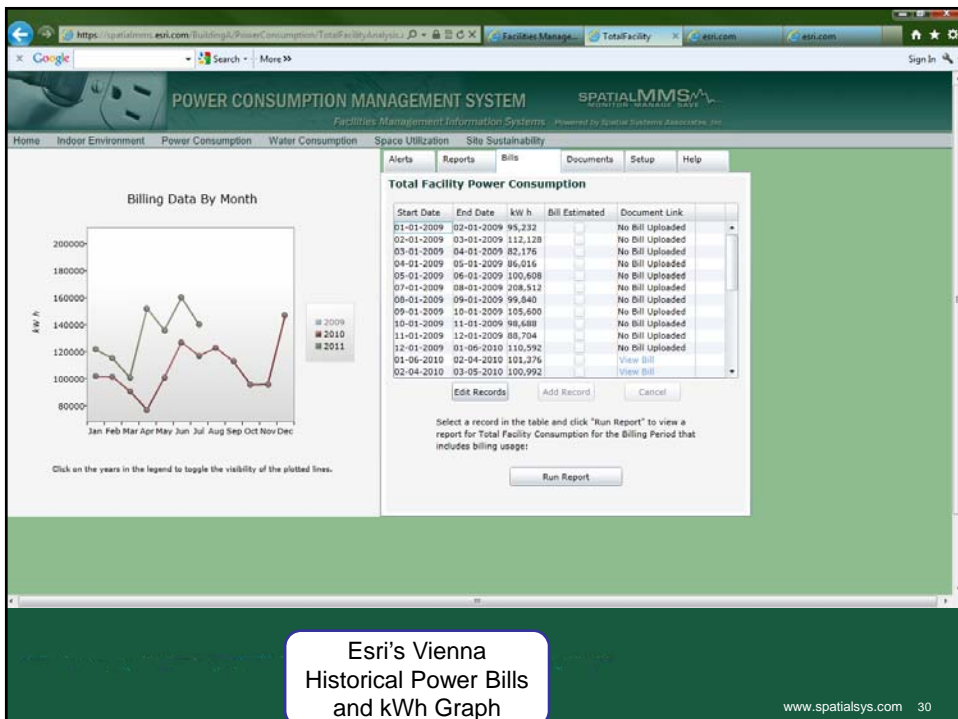
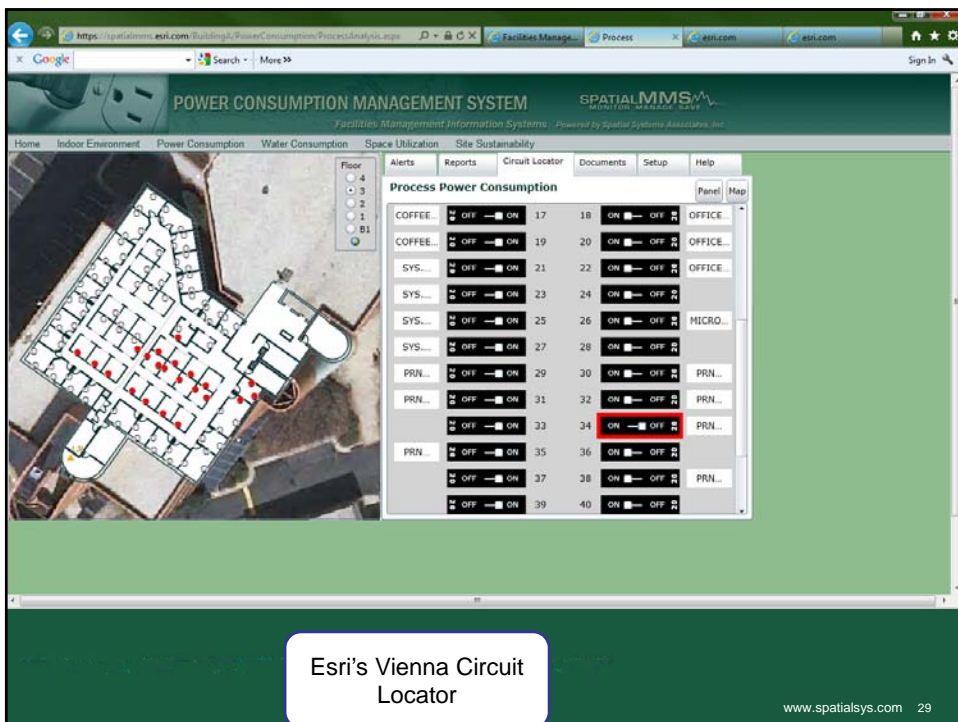
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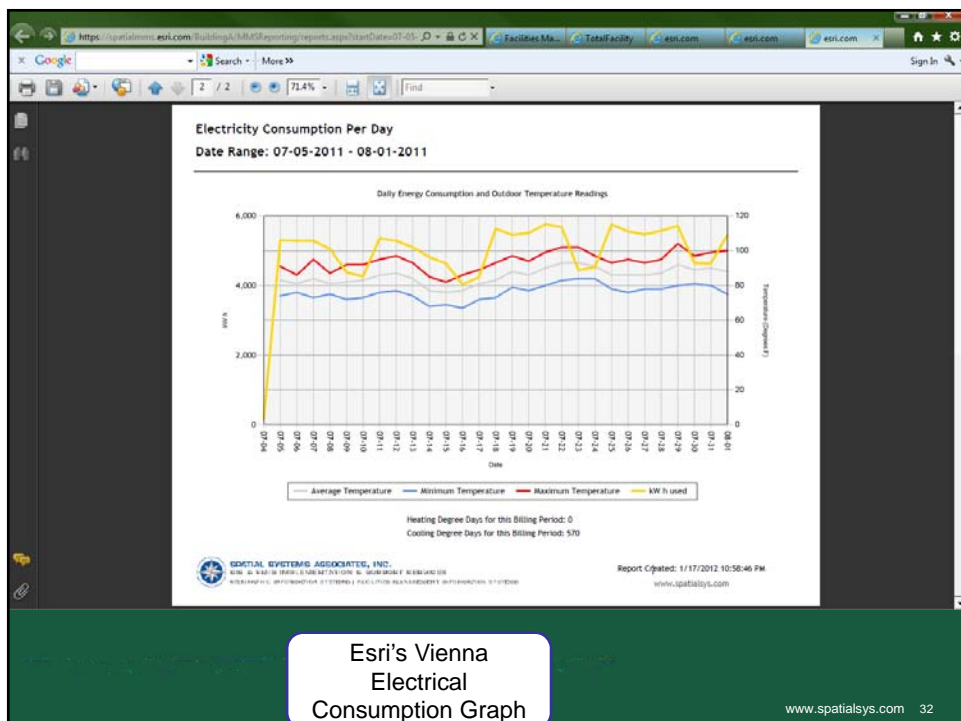
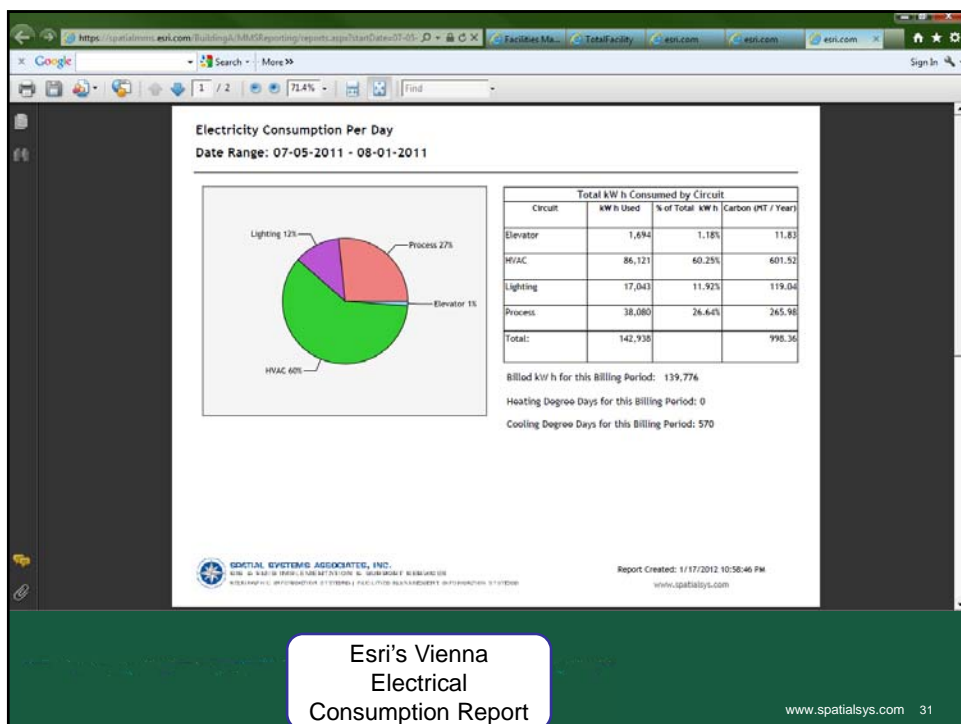


Esri's Vienna 24 Hour
Electricity
Consumption

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https://spatialmms.esri.com/BuildingA/SpaceUtilization/SpaceOccupancy.aspx

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Sign In

SPACE UTILIZATION MANAGEMENT SYSTEM

Facilities Management Information Systems Powered by Spatial Systems Associates, Inc.

Home Indoor Environment Power Consumption Water Consumption Space Utilization Site Sustainability

Alerts Reports Documents Setup Help

Space Occupancy

Legend

Space type

- Conference Room
- Corridor
- Kitchen
- Office
- Restroom
- Stairway

Building Information

This space categorization is based on the B150M 3.0 data model.

Current System Alerts

Alert Details Initial Alert Status Last Updated

Rooms: 1059
Description: Classroom

Esri's Vienna Space Utilization

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https://spatialmms.esri.com/BuildingA/SiteSustainability/SSite.aspx

Search + More >>

Facilities Management Information Systems Site Sustainability

SITE SUSTAINABILITY MANAGEMENT SYSTEM

Facilities Management Information Systems Powered by Spatial Systems Associates, Inc.

Home Indoor Environment Power Consumption Water Consumption Space Utilization Site Sustainability

Alerts Reports Documents Setup Help

Map Aerial Photo

Site Sustainability

Legend

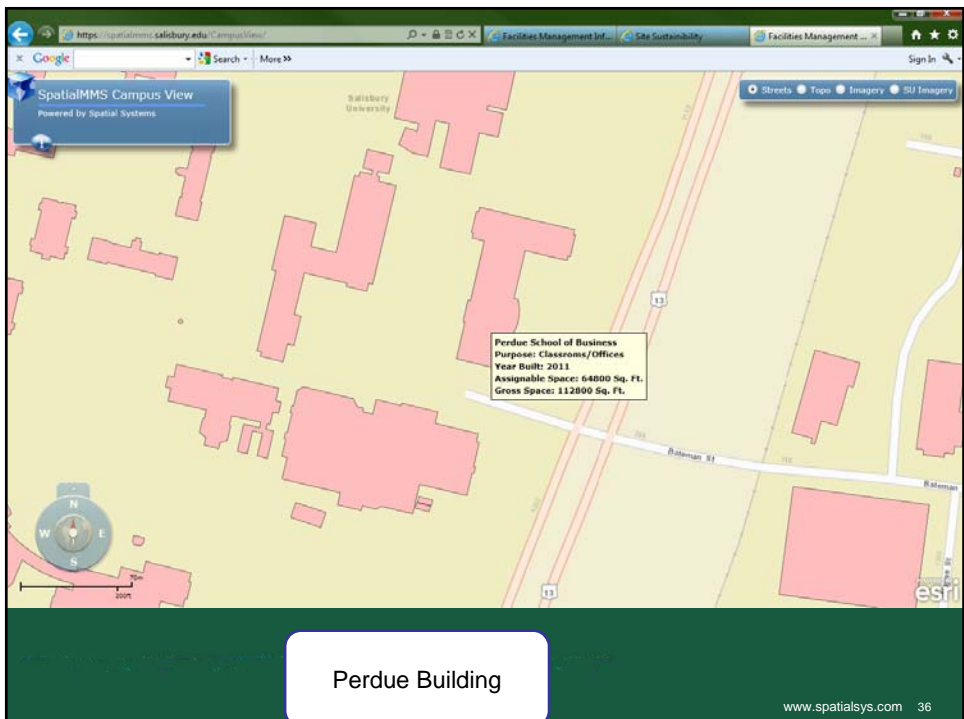
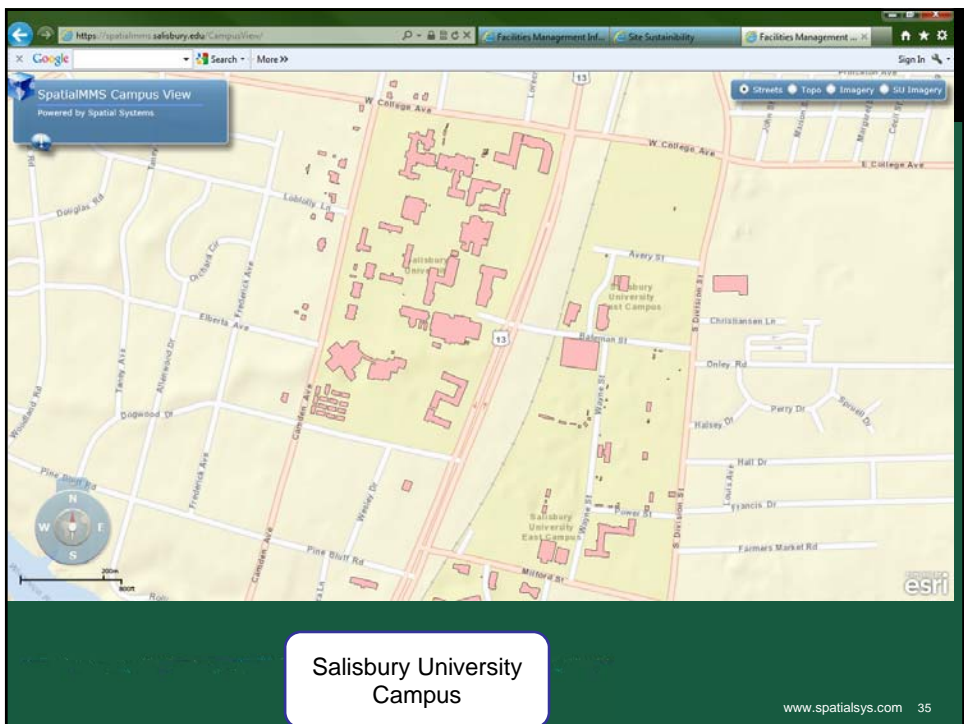
- Property Line
- Stormwater Catch Basin
- Stormwater Gravity Main
- Water Hydrant
- Water Valve (Bend)
- Water Valve (Gate)
- Water Fitting (Reducer)
- Water Main
- Water Lateral Line
- Manhole
- Catchment Inland Line

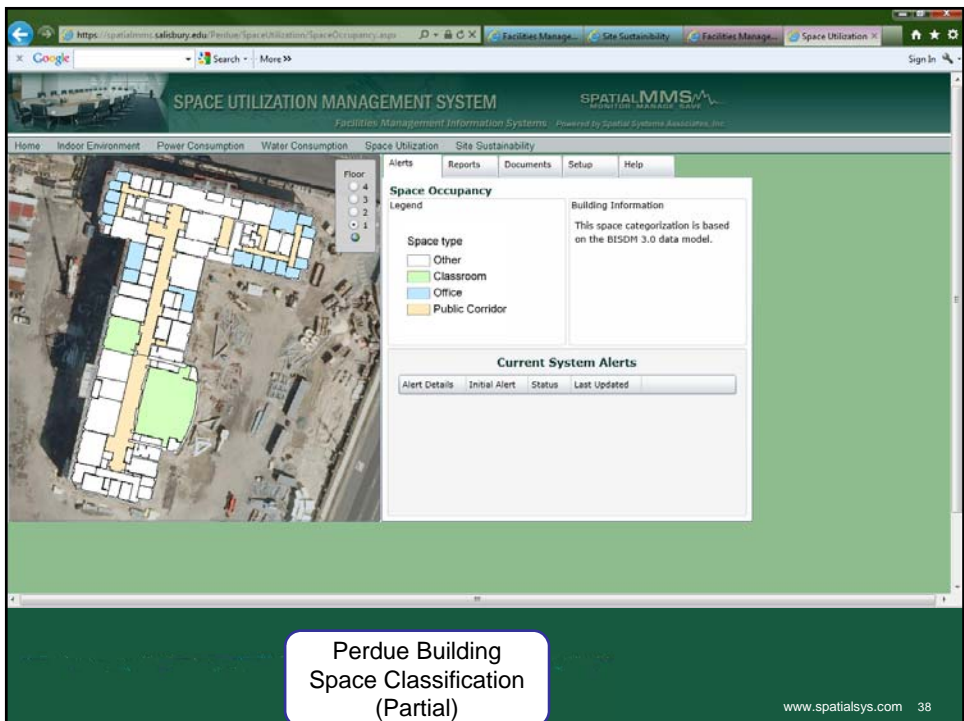
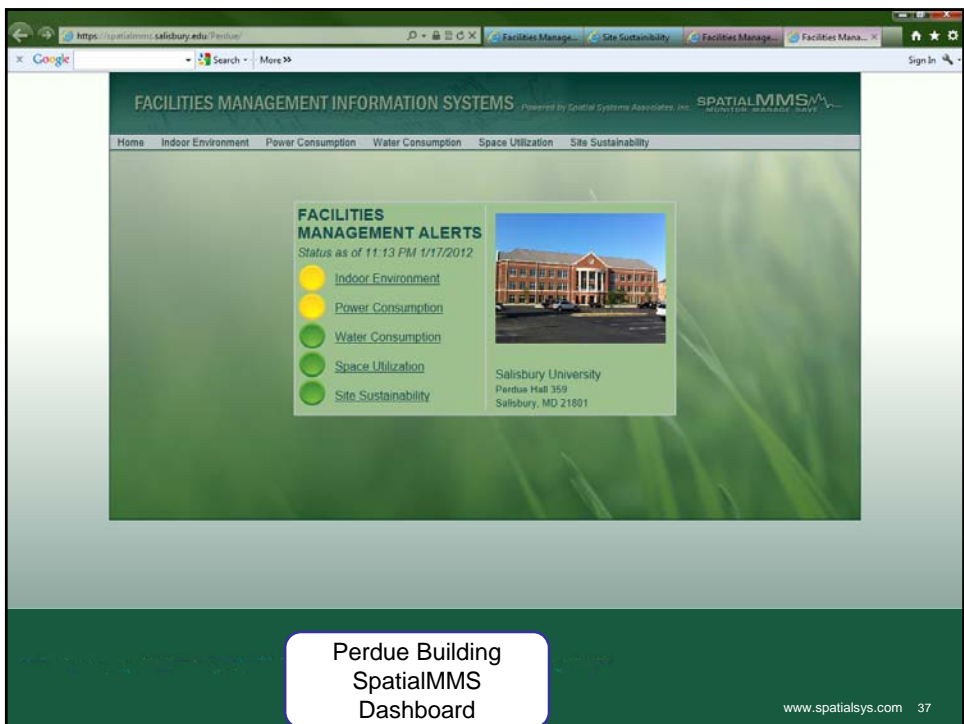
Site Information

The ESRI DC Headquarters Site is on a 166,127 square foot lot. Utilities include water, sewer, and stormwater management. The parking lot consists of 144 spaces, 10 of which are marked for use by the handicapped.

Current System Alerts

Alert Details Initial Alert Status Last Updated





What's Next?

SSA is considering enhancing the application via:

- Facilitating export of EPA Energy Star ratings inputs
- Display and analysis performance
- Mobile GIS module
- ArcGIS 10.1 migration (when released)

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Questions?

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