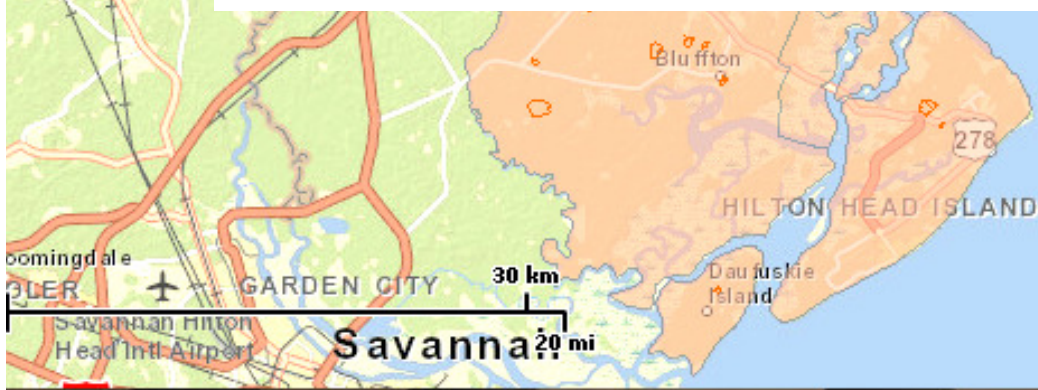




***“Seeing” Past, Present, and Future:  
an Innovative Approach  
to Facilities Management***

**Carol Crutchfield, Planning Coordinator  
Robert Oetting, Facilities Planning & Construction Officer  
Beaufort County School District**



# Objectives

- Attendees will be able to describe how using a GIS for facilities management is an effective tool for organizing and managing construction and planning documents
- Attendees will be able to explain how maintaining an accurate inventory of classroom space can improve instructional use of a school building
- Attendees will be able to recognize an improved workflow for closeout documents that can save district staff valuable time
- Attendees will be able to describe how training maintenance staff to capture facility data will improve the quality of the data to make it relevant for the user as well as decision makers.



# (GIS) GEOGRAPHIC INFORMATION SYSTEMS:

---

The tool we use to capture, store, process, analyze, and visualize spatial information.

GIS is an "acronym for *geographic information system*. An integrated collection of computer software and data used to view and map information about geographic places, analyze spatial relationships, and model spatial processes.

"A GIS provides a framework for gathering and organizing spatial related information so that it can be displayed and analyzed."

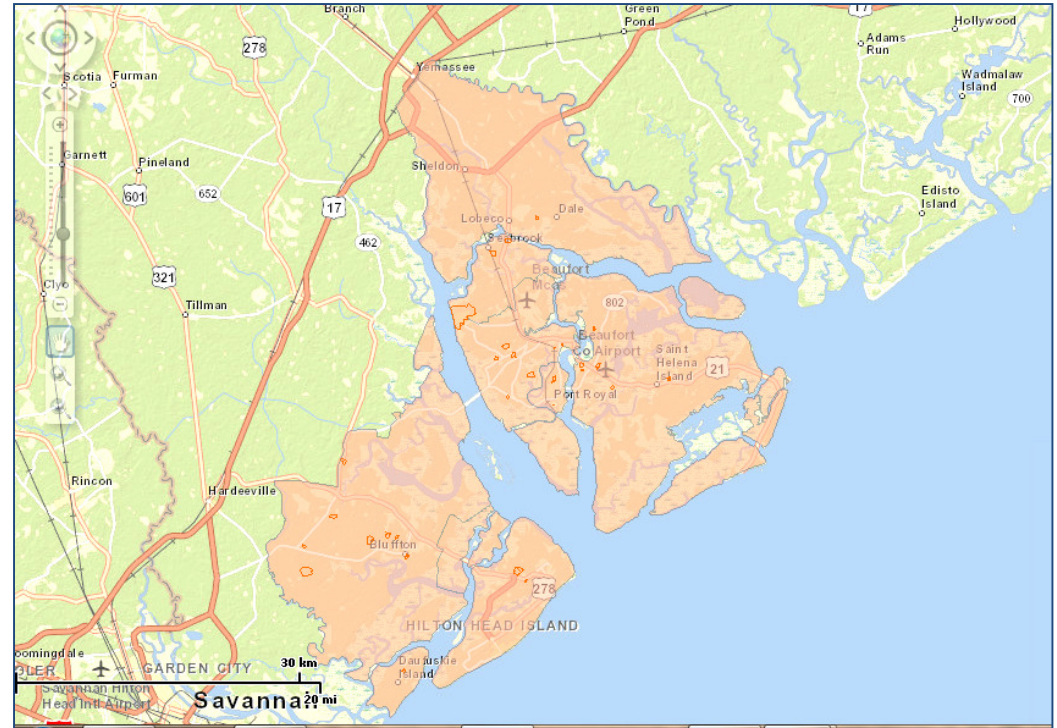
[www.Wiki.gis.com](http://www.Wiki.gis.com)

<http://www.esri.com/what-is-gis>





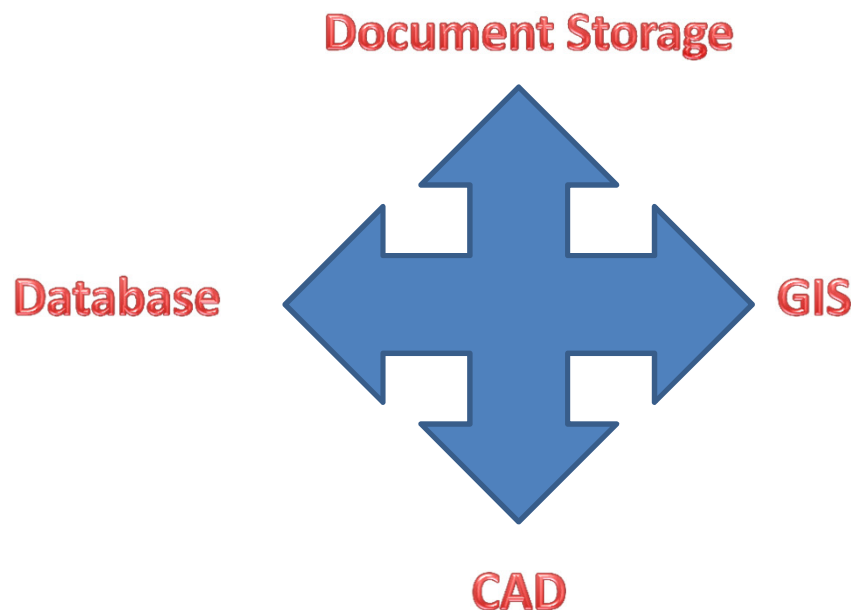
# Issues Impacting Beaufort County School District



- Enrollment growth in some areas of county
- Excess classroom space in other areas of county
- Documentation of buildings poorly managed
- Contractor managed maintenance and custodial

# Seeking a GIS Solution

- Document History of BCSD building projects
- Maintain a current “As Built” set of plans
- Manage Future Construction Project Documents



- Simple user Interface
- Accessible in the field
- Calculate Distances and Areas

We partnered  
with PenBay  
Solutions using  
an ESRI based  
program

**InVision Suite**  
Beaufort County School District

**The InVision Suite**  
BCSD InVision: [Invision FM](#), [Risk Analyst](#), [Security Planner](#), [Emergency Response](#)

**Portfolio Planning**  
A birds-eye view of your real estate portfolio enables informed decisions across a wide variety of business challenges. Whether your organization is expanding, consolidating or analyzing the allocation of resources, a GIS-based facility management solution lends insight few other technologies offer.  
[Learn more >](#)

**Operations**  
Because facilities are often the single largest asset of an enterprise, facility operations present tremendous opportunities - and critical business challenges - for your organization. InVision *FM*™ is a GIS-based facility management software solution that addresses these challenges in ways that can help boost your bottom line.  
[Learn more >](#)

**Safety & Security**  
Whether for a single building, campus or global portfolio, InVision Secure provides a GIS-based platform that is scalable and flexible to support your organization as you undertake risk analysis, emergency planning, emergency response and communications with a wide group of stakeholders and critical personnel.  
[Learn more >](#)

For More Information on the BCSD InVision FM System or to get access please contact Carol Crutchfield at [Carol.Crutchfield@beaufort.k12.sc.us](mailto:Carol.Crutchfield@beaufort.k12.sc.us) or call at (843) 322-0716

- Created in the Amazon Cloud
- Negotiated an ESRI Site license
- Consolidated County GIS and BCSD data
- Developed Standards and new workflows



From this...



..to this!



# Secured Log in

InVision FM<sup>SM</sup>

User Name:

Password:

Log In

Warning Notice. This is a Beaufort County School computer system, which may be accessed and used only for authorized BCSD business by authorized personnel. Unauthorized access or use of this computer system may subject violators to criminal, civil, and/or administrative action. All information on this computer system may be intercepted, recorded, read, copied, and disclosed by and to authorized personnel for official purposes, including criminal investigations. Such information includes sensitive data encrypted to comply with confidentiality and privacy requirements. Access or use of this computer system by any person, whether authorized or unauthorized, constitutes consent to these terms. There is no right of privacy in this system.

InVision FM is a member of the [InVision products and solutions suite](#) developed by [PenBay Solutions LLC](#).

BCSD GIS Help Desk/Password Reset [GIS Help](#)



penbaysolutions

Global leaders in facilities GIS

InVision FM<sup>SM</sup> Tools County GIS Help

Select Level [v] [▲] [▼] [X]

Enter Building search terms

Basemaps

County GIS

Layer Visibility

- Aerials 2013
- Aerials 2012
- Aerials 2011
- Aerials 2009
- Aerials 2006
- Aerials 2004
- Aerials 2002

Basemaps

Bookmarks

- Beaufort County
- Beaufort County Southern Clusters
- Beaufort County Northern Clusters
- BJACE - Beaufort Jasper Academy for Career Excellence
- Battery Creek High School
- Beaufort Elementary School
- Beaufort High School
- Beaufort Middle School
- Bluffton ECC
- Bluffton Elementary School
- Bluffton High School
- Bluffton Middle School
- Broad River Elementary
- Burroughs Ave School
- Coosa Elementary School
- Daufuskie Island Elementary

# OVERVIEW

**EASY TO ACCESS and UNDERSTAND MENU ITEMS**

**Entity Display**

Select a Building floor to enable the entities below

- Traffic Cameras
- Tree
- Fire Hydrant
- Facility Site
- Facility Site Point
- Building
- Roof Leak
- Roof
- Pavement Marking
- Pavement Marking Line
- Street Pavement
- Recreation
- School Boundary *High Schools*
- Parcel
- Historic Areas *default*
- NOAA Active Hurricane
- USGS Earthquakes (last 90 Days)

- Door
- Asset
- Building Photo
- Floorplan Image
- Floorplan Line
- Room *By Assignment*
- Floor

**Legend**

**USGS Earthquake Service**

USGS Shake Maps - Last 90 Days

- Light
- Moderate
- Strong
- Very Strong
- Severe
- Violent
- Extreme

**NOAA Active Hurricane Service**

Forecast Positions

- Tropical Low
- Tropical Depression

**Transparency**

- BC GIS Traffic Cameras
- BC GIS Traffic Signals
- Historic Areas
- USGS Earthquake Service
- NOAA Active Hurricane Service
- BCSD layers
- Imagery

**Selections**

Draw to Select Query to Select Selection Grid View

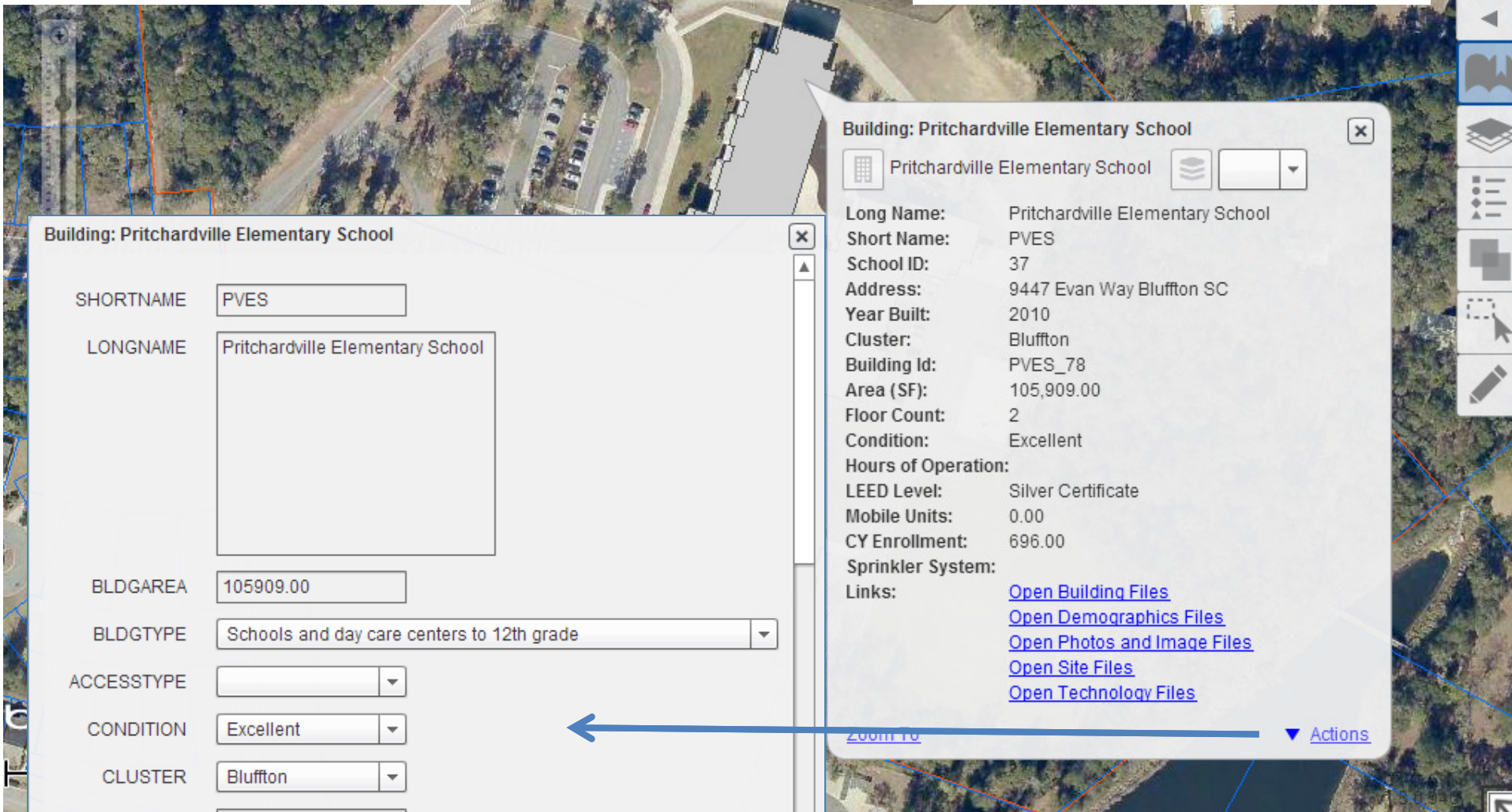
- Facility Sites (0)
- Buildings (0)
- Rooms (0)
- Roof Leaks (0)
- Roofs (0)
- Recreations (0)
- Parcels (0)

12

# OVERVIEW

### IMPROVED WORKFLOWS and DOCUMENTATION

### BUIDING INFORMATION AND DOCUMENT RETRIVAL



# EXAMINING THE PAST

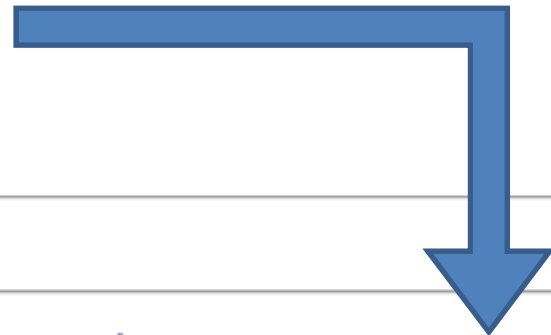
**IMPROVED WORKFLOWS  
and DOCUMENTATION**

**BUIDING INFORMATION AND  
DOCUMENT RETRIVAL**

**invisionfm.beaufortschools.org - /InVisionFM/Documents/BES/Building**

[\[To Parent Directory\]](#)

4/15/2014	8:39 AM	<dir> <a href="#">Assessments</a>
4/15/2014	8:28 AM	<dir> <a href="#">Close Out Documents</a>
4/15/2014	8:26 AM	<dir> <a href="#">Drawings</a>
4/15/2014	8:51 AM	<dir> <a href="#">Furniture</a>
4/15/2014	8:24 AM	<dir> <a href="#">Keys</a>
4/15/2014	8:31 AM	<dir> <a href="#">Roof</a>



[\[To Parent Directory\]](#)

4/15/2014	9:45 AM	<dir> <a href="#">2008 and earlier</a>
5/15/2012	2:31 PM	<dir> <a href="#">Summer 2009</a>
5/28/2014	2:14 PM	<dir> <a href="#">Summer 2010</a>
4/15/2014	9:41 AM	<dir> <a href="#">Summer 2011</a>
4/15/2014	9:33 AM	<dir> <a href="#">Summer 2012</a>
4/15/2014	8:31 AM	<dir> <a href="#">Summer 2013 (FY14)</a>
2/12/2014	9:53 AM	<dir> <a href="#">Summer 2014 (FY 15)</a>

**EXAMINING THE PAST**

**IMPROVED WORKFLOWS  
and DOCUMENTATION**

**SELECT and QUERY RECORDS  
EXPORT for OTHER USES**



Selection Grid View

Buildings

Export to CSV

S...	Cluster Assi...	Educatio...	Building Mailing Address	Year Built	Number ...
	Beaufort	Middle	2501 Mossy Oaks Road Beaufort SC	1959	0.00
	Battery Creek	Elementary	474 Broad River Blvd Beaufort SC	1957	0.00
	Battery Creek	Elementary	73 Chowan Creek Bluff Beaufort SC	1963	0.00
	Beaufort	Elementary	2510 Mossy Oaks Road Beaufort SC	1962	0.00
	Beaufort	Elementary	1214 Paris Avenue Port Royal SC	1911	0.00

Basemaps

Selections

Draw to Select Query to Select Selection Grid View

- ▶  Facility Sites (0)
- ▶  Buildings (5)
- ▶  Rooms (0)
- ▶  Roof Leaks (0)
- ▶  Roofs (0)
- ▶  Recreations (0)
- ▶  Parcels (0)

Q: Query to Select

Select: Building

Visible Floors
  All Floors
  Current map extent only

Selection Method:  Replace  Add  Subtract

Facility Site: Select Facility Site

Short Name of Building: Contains

Full Name of Building: Contains

Size of Building: Greater than 50000

Official School Board Recognized ID: Contains

Building Mailing Address: Contains

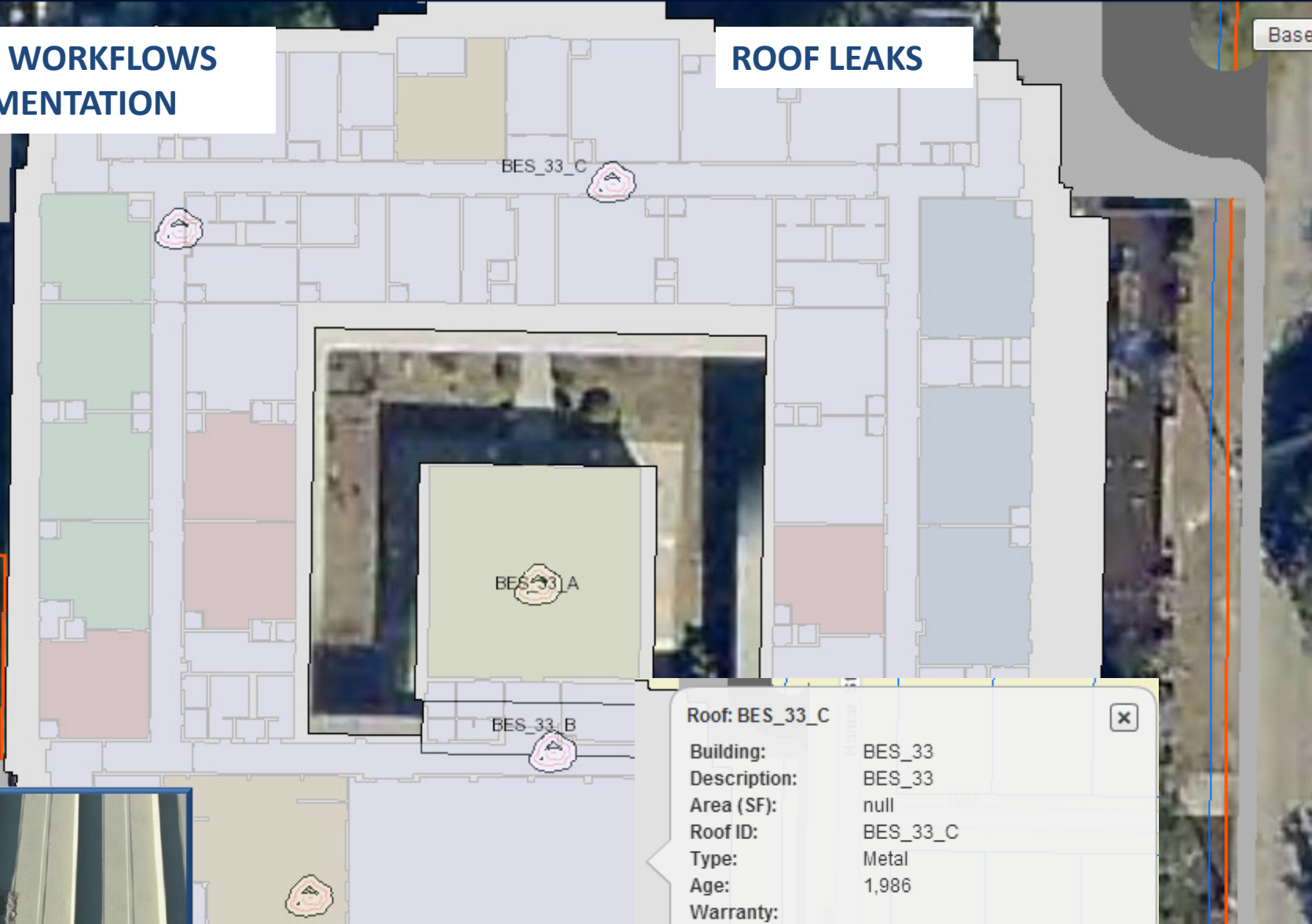
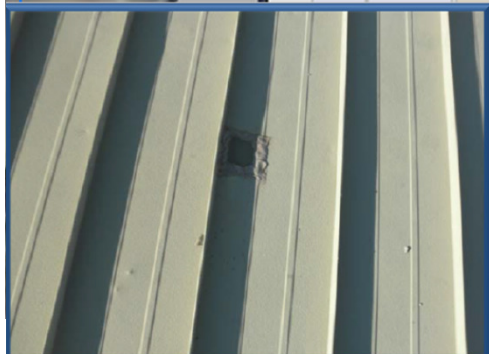
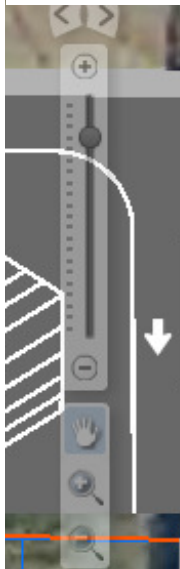
Year Built: Less than 1964

Reset

**EXAMINING THE PAST**

**IMPROVED WORKFLOWS  
and DOCUMENTATION**

**ROOF LEAKS**



Roof: BES_33_C	
Building:	BES_33
Description:	BES_33
Area (SF):	null
Roof ID:	BES_33_C
Type:	Metal
Age:	1,986
Warranty:	

**EXAMINING THE PAST**





**IMPROVED WORKFLOWS  
and DOCUMENTATION**

**STORMWATER ASSESSMENT  
PAVEMENT ASSESSMENT**

**Pavement Inspection: Block\_crack**

Fulcrum ID:	51d49b5aa9344841f4001d6e
Surveyed By:	S. Hunter
Facility:	Beaufort Elementary School
Type:	Asphalt
Pavement Use:	Parking
Issue:	Block_crack
Severity:	H
Disturbed Length:	
Area Disturbed:	11000
Maintenance Required:	Short term - crack seal, medium term - overlay
Survey Date:	August 2013
Actions Taken:	
Action Date:	
Doc Links:	<a href="#">Open File</a>
Comments:	Lot previously seal coated, large cracks present
Updated By:	invision_editor



# MANAGING the PRESENT

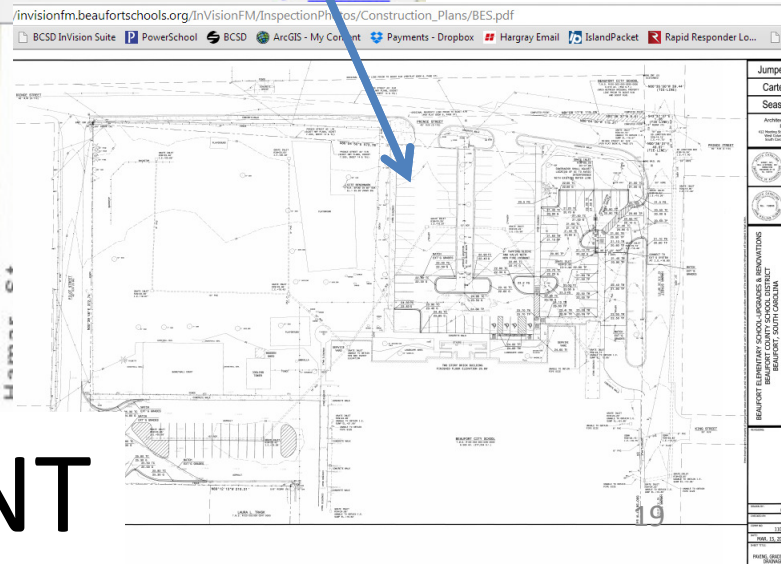
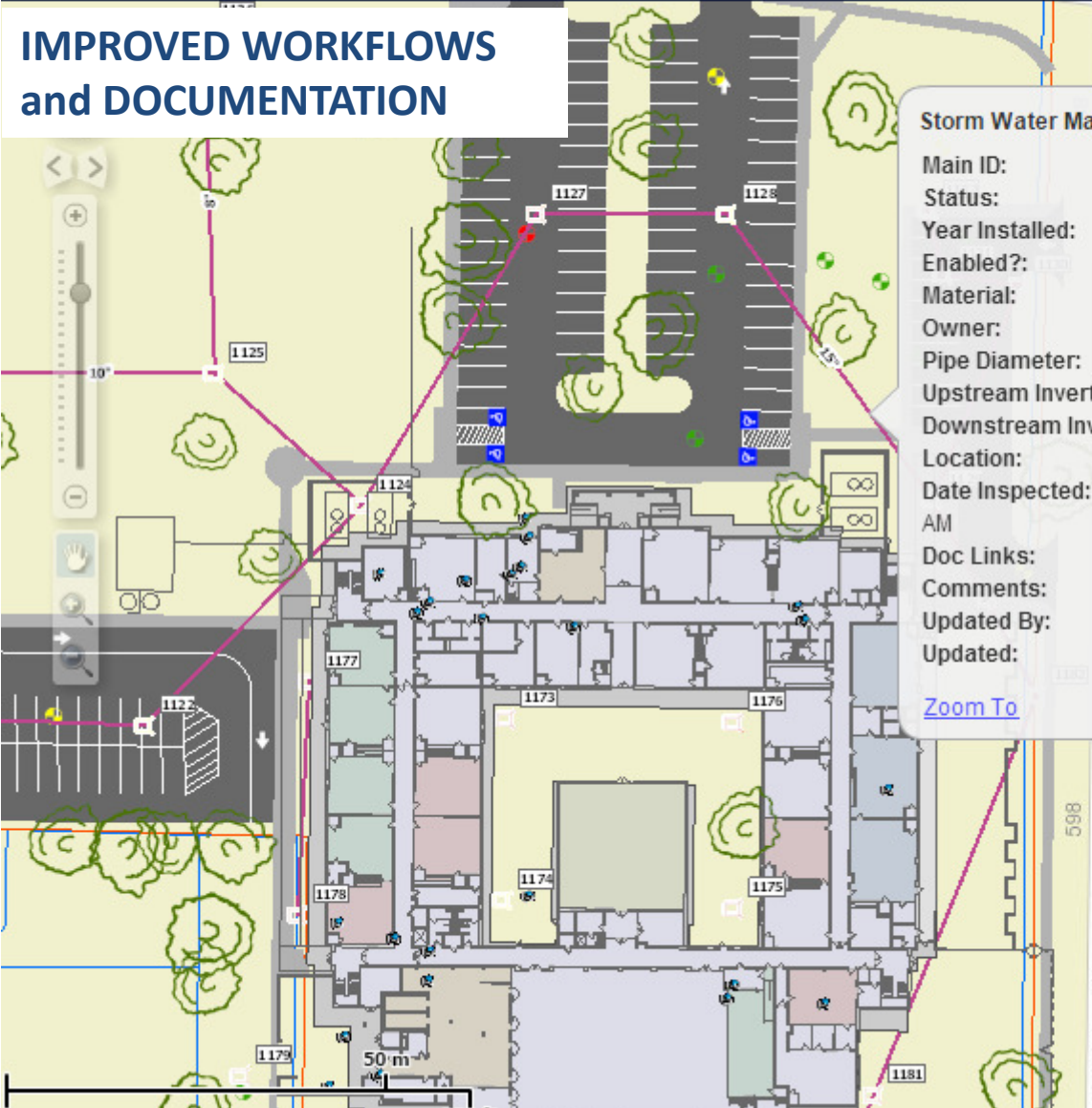
# IMPROVED WORKFLOWS and DOCUMENTATION

# STORMWATER ASSESSMENT PAVEMENT ASSESSMENT

Storm Water Main Line: OB

Main ID:	
Status:	
Year Installed:	null
Enabled?:	null
Material:	RCP
Owner:	
Pipe Diameter:	null
Upstream Invert:	null
Downstream Invert:	null
Location:	BES
Date Inspected:	8/1/2013 12:00 AM
Doc Links:	<a href="#">Open Construction Plan</a>
Comments:	
Updated By:	
Updated:	

[Zoom To](#) ▼ Actions



# MANAGING the PRESENT

IMPROVED WORKFLOWS  
and DOCUMENTATION

CREATE NEW RECORDS  
MANAGE BUILDING ASSETS

The screenshot displays the InVision FM GIS interface. At the top, there is a navigation bar with 'InVision FM', 'Tools', 'County GIS', and 'Help'. A search bar on the right contains the text 'Enter Building search terms'. The main area is a map of Savannah, Georgia, showing various landmarks and roads. Two pop-up windows are overlaid on the map:

- Left Window: Manage Building Assets**
  - Header: Manage Building Assets
  - Section: You are editing: Assets
  - Buttons: Assets (dropdown), Done Editing
  - Button: Clear Selection
  - Section: Asset
  - Grid of icons: Mechanical (wrench), Architectural (classical building), Security (shield), Office Equipment (scissors), IT Infrastructure (info icon), Electrical (lightning bolt).
- Right Window: Manage Building Assets**
  - Header: Manage Building Assets
  - Section: You are editing: Doors
  - Buttons: Doors (dropdown), Done Editing
  - Button: Clear Selection
  - Section: Door
  - Grid of door options: Wood Core, Aluminum Storefront, No door leaf, Rollup, Other, FRP, Hollow Metal.

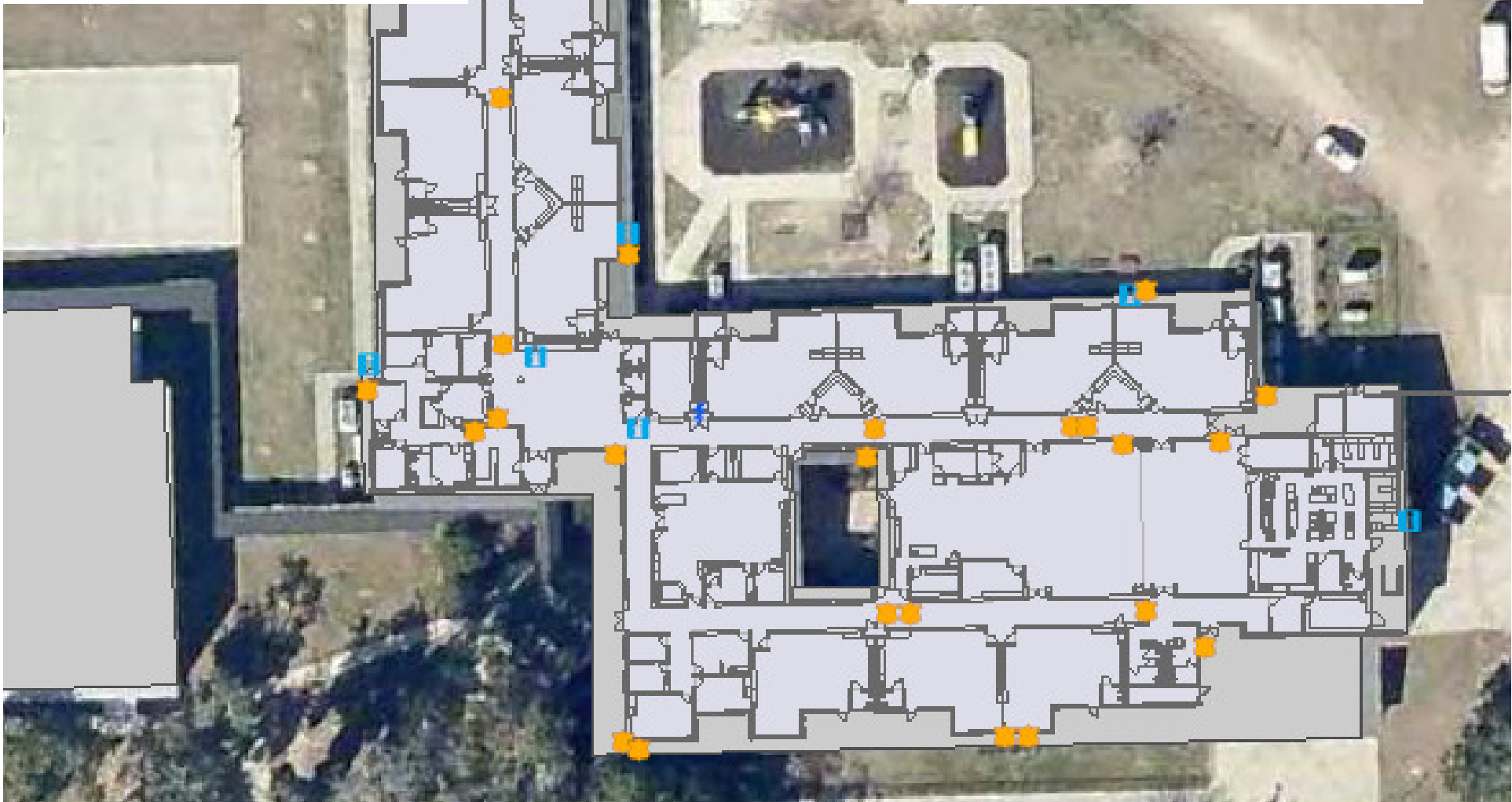
MANAGING the PRESENT

# Some of the features we are managing

- Floor plans
- Playgrounds
- Parking lots / sidewalks
- Roofs/roof leaks
- Exterior doors
  - Type
  - Hardware
  - Access Control
- Trees
- Fire hydrants
- Security cameras
- Generators
- HVAC units
- FDC
- IT infrastructure
  - Server rack locations
  - Network switch
  - Telecom panel
- Electrical
  - Main power shut off

**IMPROVED WORKFLOWS  
and DOCUMENTATION**

**SECURITY CAMERAS and  
TECHNOLOGY**



**MANAGING the PRESENT**

**IMPROVED WORKFLOWS  
and DOCUMENTATION**

**DOCUMENTING SPACE DESIGN  
and SPACE USAGE**

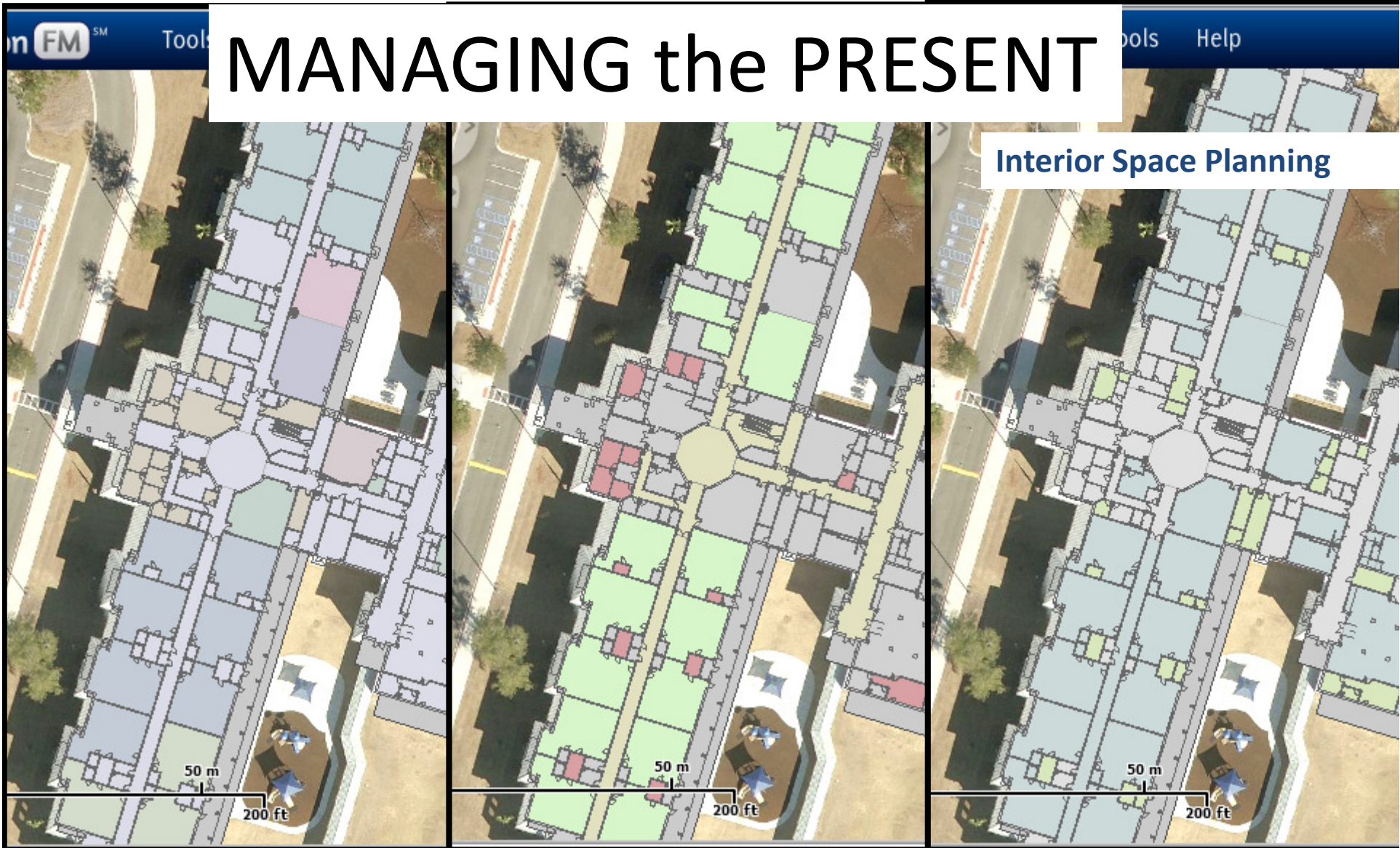
The screenshot displays the InVision FM interface. At the top, there is a navigation bar with 'Tools', 'County GIS', and 'Help' menus, a search bar containing 'Enter Building search terms', and a zoom level indicator set to '1'. The main area shows an aerial view of a school building with a semi-transparent floor plan overlaid. A popup window titled 'Room: 211' is open, displaying the following data:

Room Id:	PVES_78_1_211
Building:	PVES
Floor:	1
Section/Wing:	
Long Name:	Classroom ECSE
Description:	Classroom for ECSE
Space (As Designed):	Classroom
Space (As Utilized):	Special Ed.
Assignment:	
Assigned Teacher:	Walker
Access Type:	Student
Ceiling Height:	null
Room (SF):	1,609.09
Capacity:	null
Instructional Unit:	Yes
Key Number:	

Below the data table, there is a 'Zoom To' link and an 'Actions' dropdown menu with an 'Edit Attributes' button. The background map includes a scale bar (50 ft / 20 m) and a 'bing' logo. The version number 'v1.3.0.946' is visible in the bottom right corner.

# MANAGING the PRESENT

# MANAGING the PRESENT



Interior Space Planning

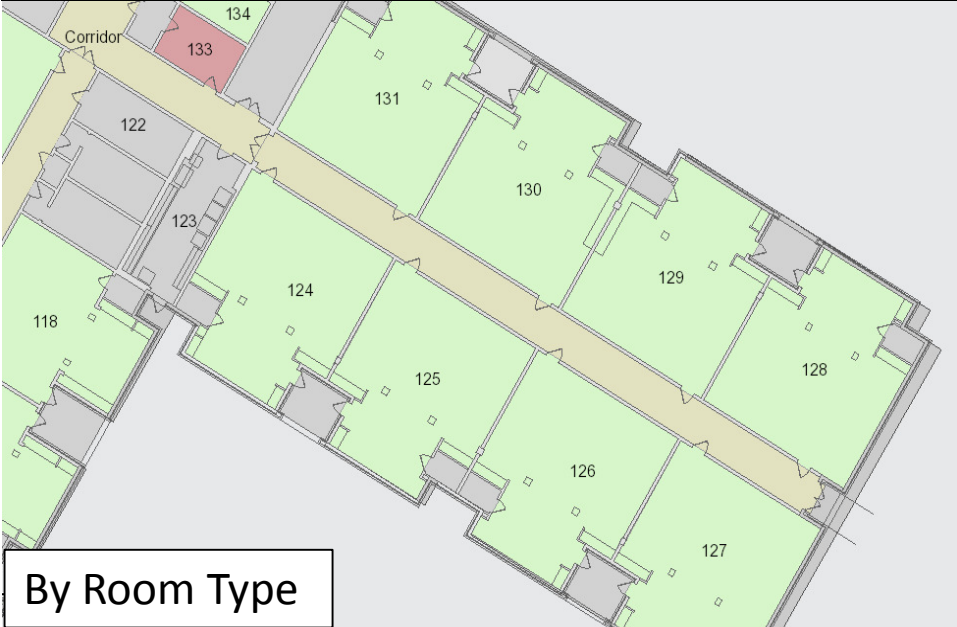
By Assignment  
(Grades or Usage)

By Type  
(Classrooms, Offices, etc.)

By Access  
(Staff, Visitors, Students)



# EASE of PLANNING for BETTER USE OF SPACE



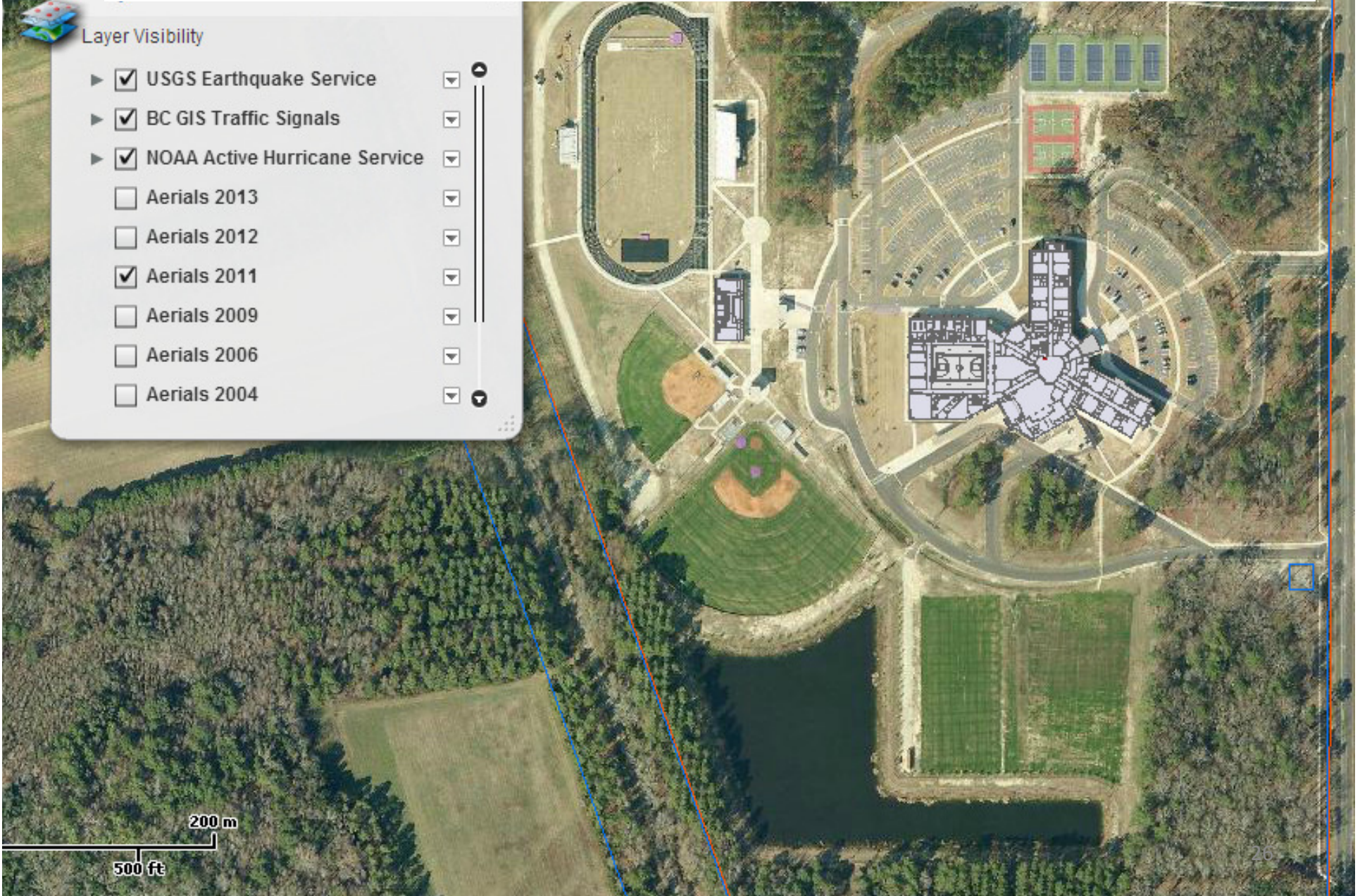
# COMPARING PAST AND PRESENT

Cou

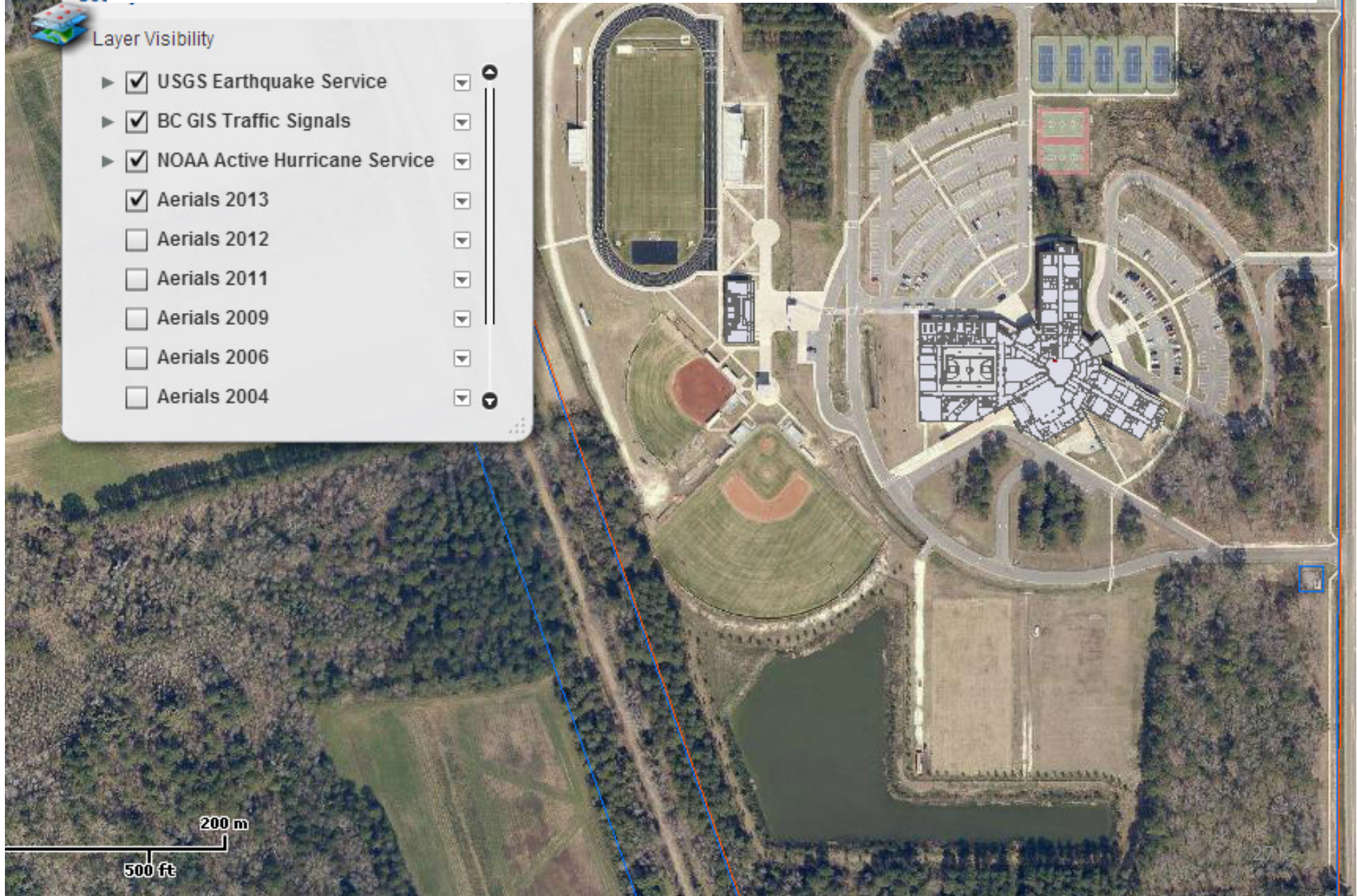


## Layer Visibility

- USGS Earthquake Service
- BC GIS Traffic Signals
- NOAA Active Hurricane Service
- Aerials 2013
- Aerials 2012
- Aerials 2011
- Aerials 2009
- Aerials 2006
- Aerials 2004



# COMPARING PAST AND PRESENT



InVision FM<sup>SM</sup> Tools County GIS Help

Select Level

Traffic: CAMERA 34

Camera Name: 34  
 Camera #: CAMERA 34  
 Address: 2768 TRASK PKY  
 Description: Hwy 21 / Clarendon Road  
 Live Feed: [View Camera](#)  
[Zoom To](#)

www.bcgov.net/online-services/Traffic-Cameras/camera.php?camera=34

Camera 1 Camera 2  
 Camera 3 Camera 4  
 Camera 5 Camera 6  
 Camera 7 Camera 8  
 Camera 9 Camera 10  
 Camera 11 Camera 12  
 Camera 13 Camera 14  
 Camera 15 Camera 16  
 Camera 17 Camera 18  
 Camera 19 Camera 20  
 Camera 21 Camera 22  
 Camera 23 Camera 24  
 Camera 25 Camera 26  
 Camera 30 Camera 31  
 Camera 32 Camera 33  
 Camera 34 Camera 36  
 Camera 37 Camera 38  
 Camera 39 Camera 40  
 Camera 42 Camera 43  
 Camera 44 Camera 45  
 Camera 46 Camera 47  
 Camera 48 Camera 49  
 Camera 50 Camera 51  
 Camera 52 Camera 53  
 Camera 54 Camera 55  
 Camera 56 Camera 57  
 Camera 58 Camera 62  
 Camera 63 Camera 64

### Beaufort County ITMS Traffic Cameras

Camera 34



Hwy 21 / Clarendon Road  
2768 TRASK PARKWAY

# MANAGING the PRESENT

**IMPROVED WORKFLOWS  
and DOCUMENTATION**

**KNOW YOUR NEIGHBORS:  
SITE PLANNING for FUTURE  
EXPANSIONS**



# IMAGINING THE FUTURE



# IMAGINING THE FUTURE

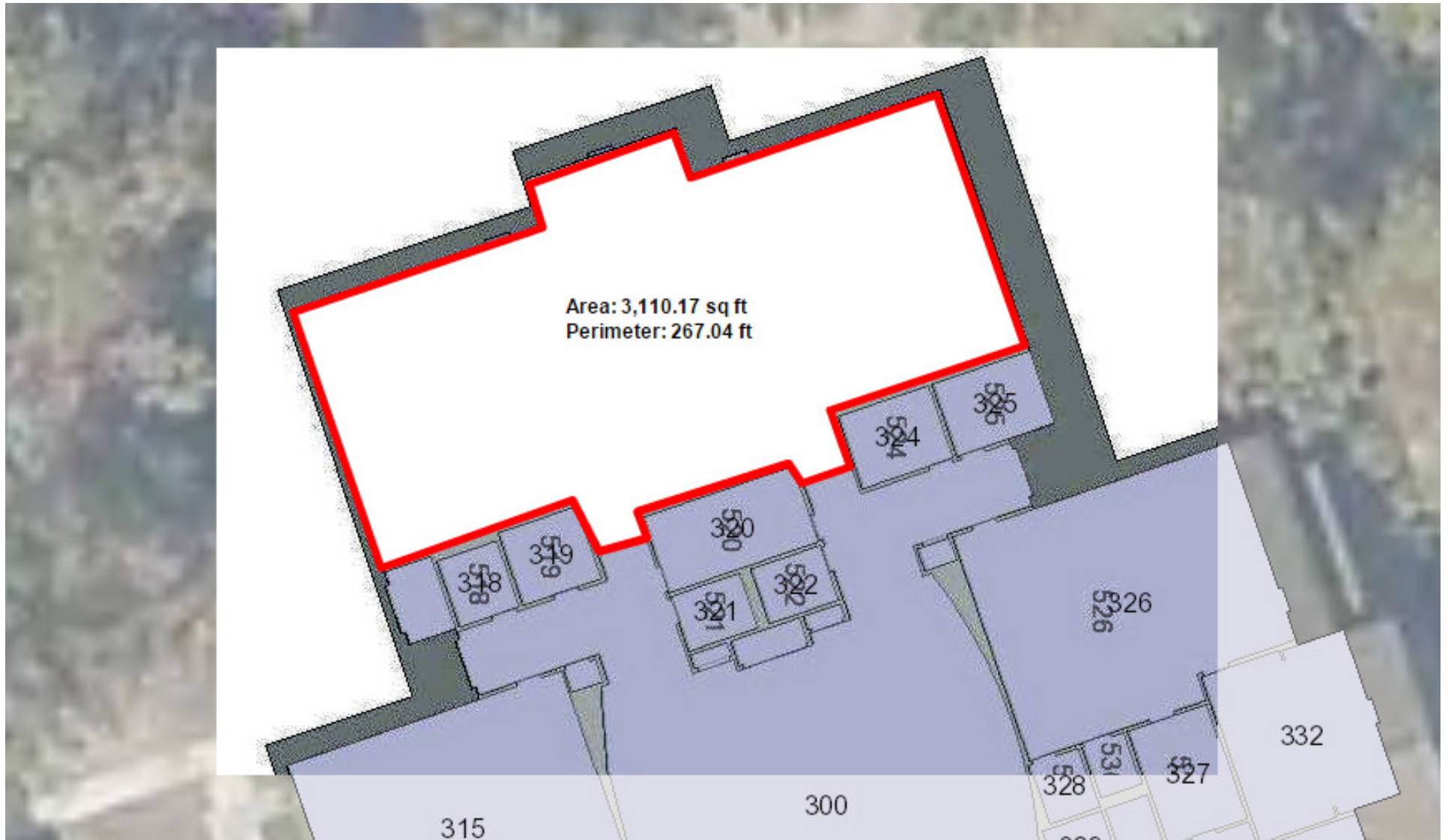


# IMAGINING THE FUTURE



# IMAGINING THE FUTURE

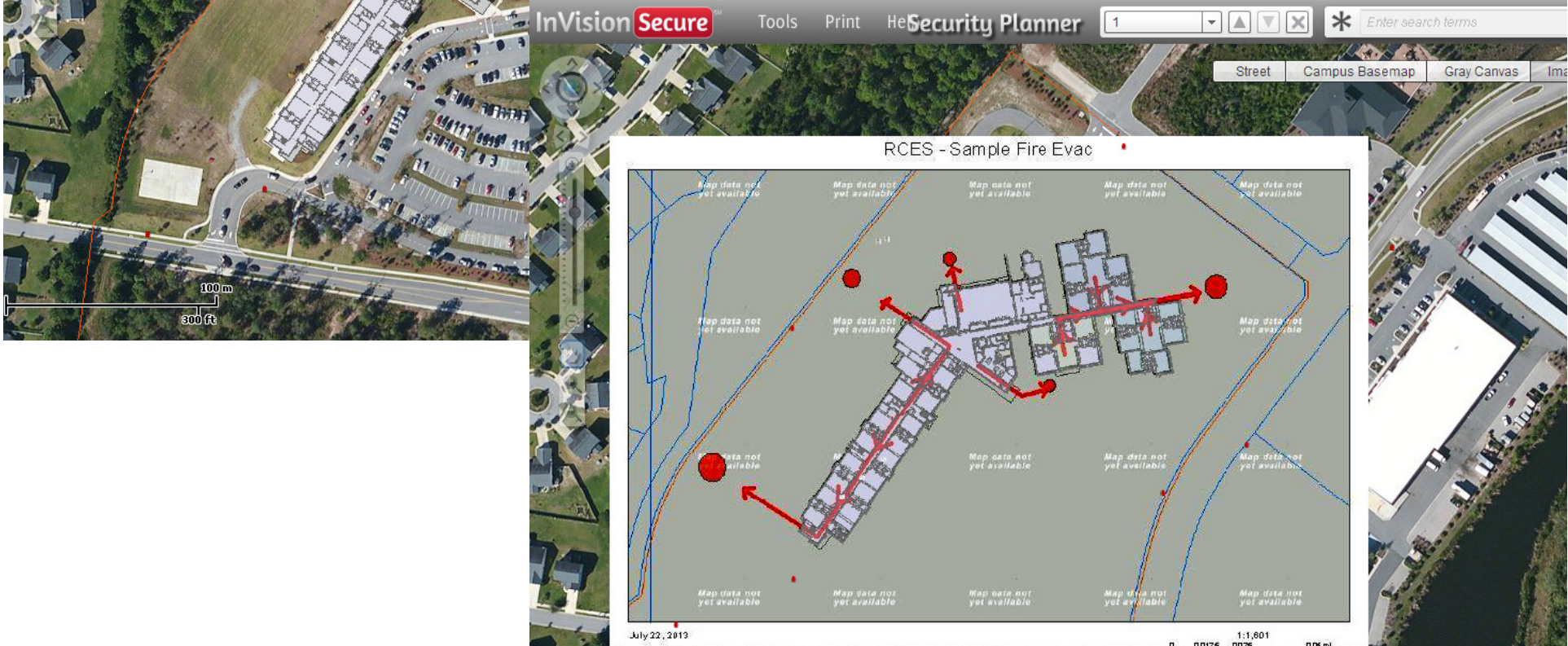




IMAGINING THE FUTURE

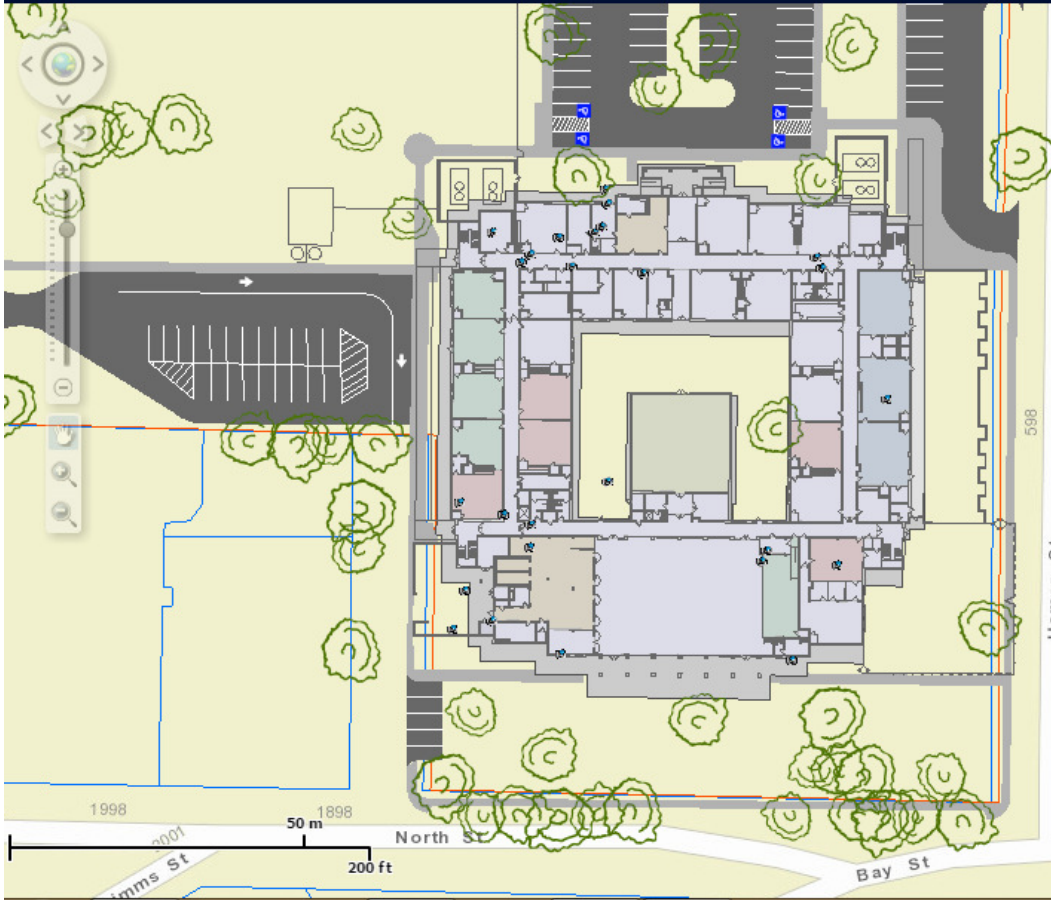


# Emergency Evacuation Plans

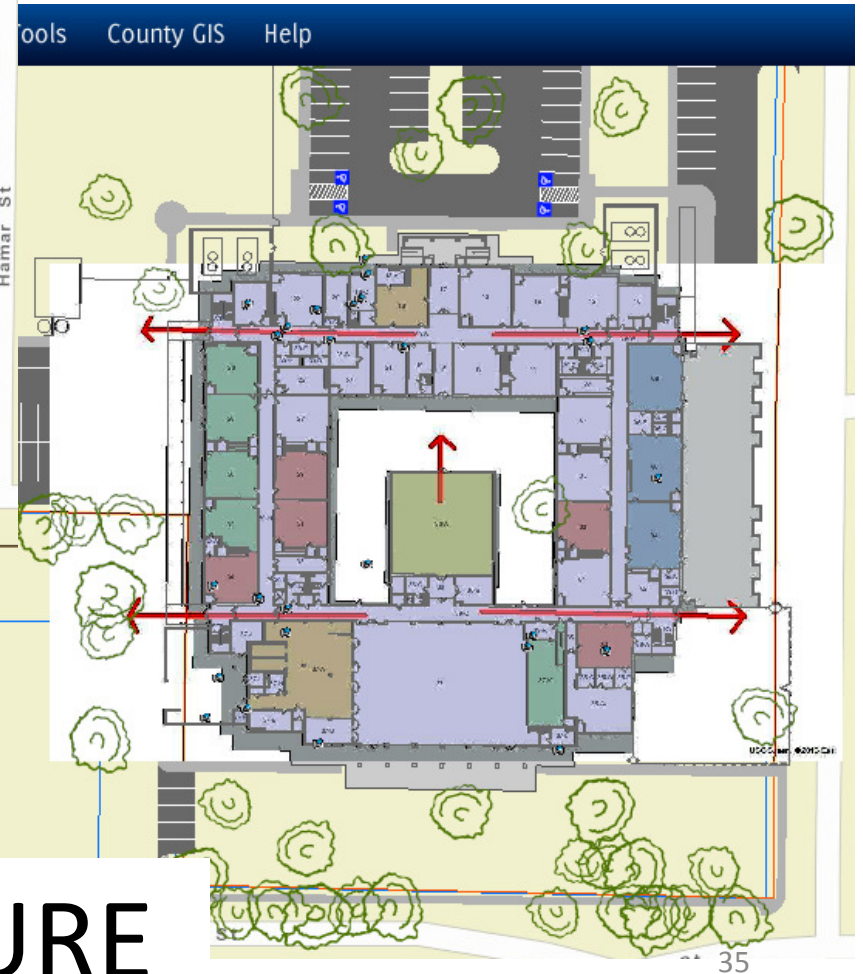


# IMAGINING THE FUTURE





# Emergency Evacuation Plans



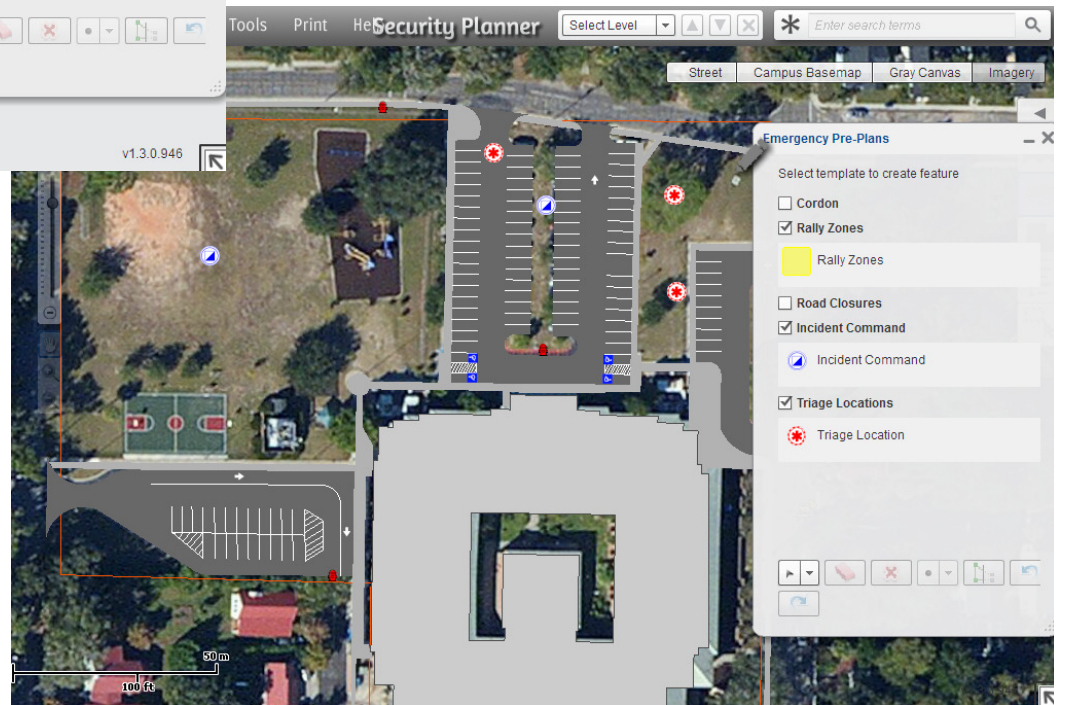
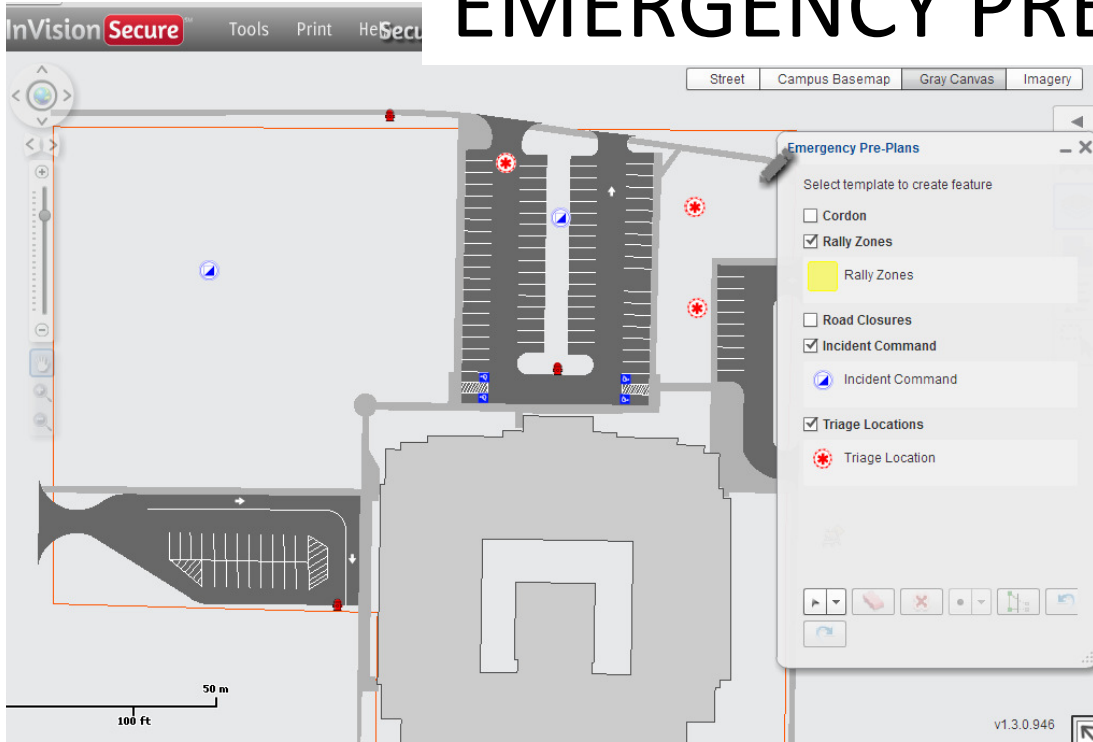
# IMAGINING THE FUTURE

# EMERGENCY PLANNING

**InVision Pre-Planner**  
Create Emergency Pre-Plans for your facilities...  
[Login](#)



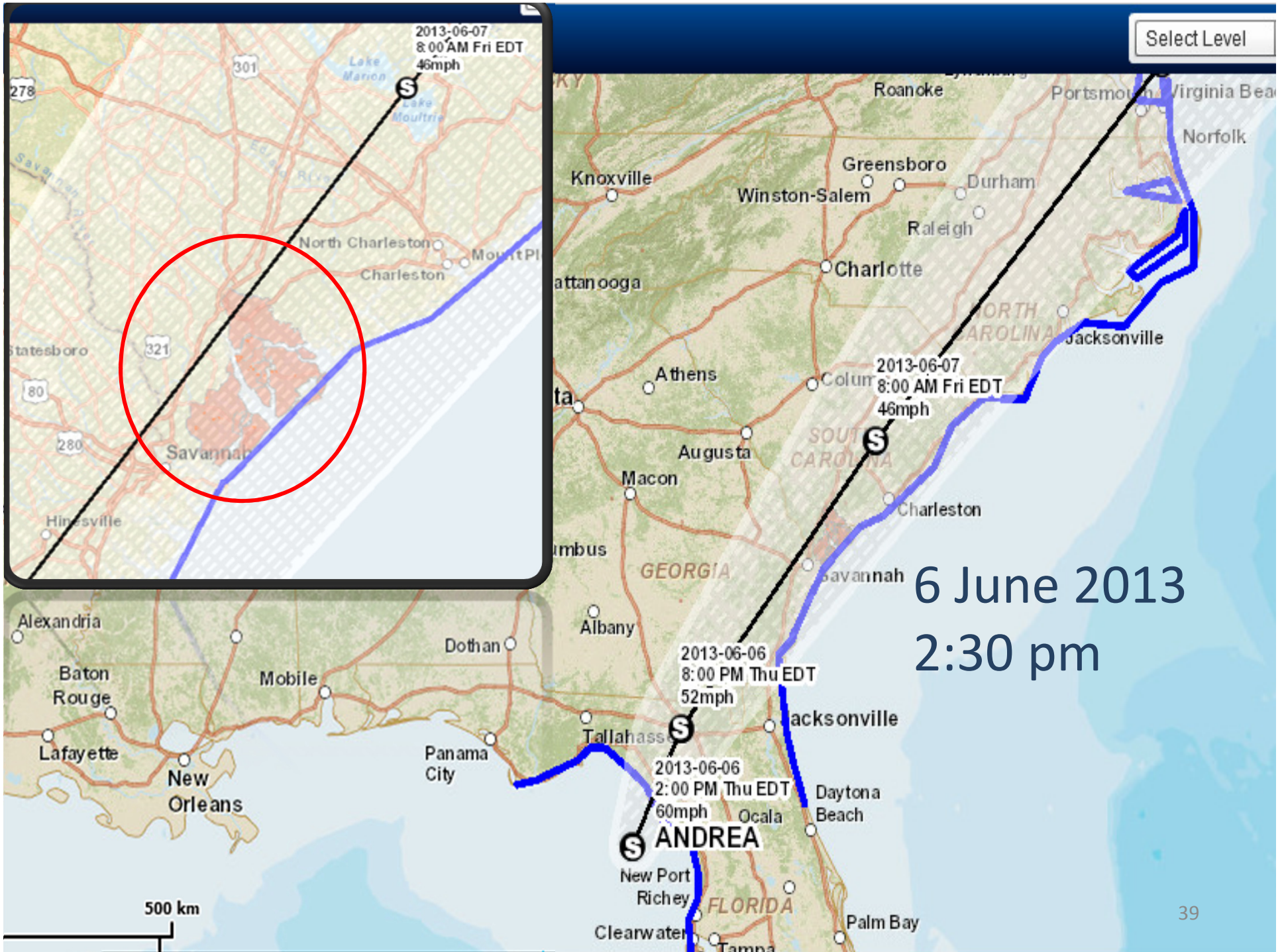
# EMERGENCY PRE-PLANNING



# Hurricane Tracking



6 June 2013  
11:30 am



6 June 2013  
2:30 pm



6 June 2013  
5:30 pm



# The Take Away

Implementation of Facilities Management GIS has:

- Improved workflows and documentation
- management of documents
- asset management and data creation
- access to closeout documents
- planning for instructional Space Planning
- emergency pre-planning for schools

# Objectives Review

- Attendees will be able to describe how using a GIS for facilities management is an effective tool for organizing and managing construction and planning documents
- Attendees will be able to explain how maintaining an accurate inventory of classroom space can improve instructional use of a school building
- Attendees will be able to recognize an improved workflow for closeout documents that can save district staff valuable time
- Attendees will be able to describe how training maintenance staff to capture facility data will improve the quality of the data to make it relevant for the user as well as decision makers.

# Contact info

Carol Crutchfield, Planner

(843) 322-0716

[Carol.Crutchfield@beaufort.k12.sc.us](mailto:Carol.Crutchfield@beaufort.k12.sc.us)

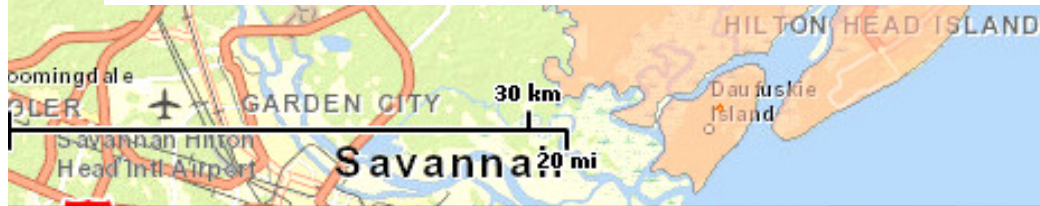
Robert Oetting, FPC Officer

(843) 322-0783

[Robert.oetting@beaufort.k12.sc.us](mailto:Robert.oetting@beaufort.k12.sc.us)

# Helpful Links

- ArcNews Article about BCSD Facilities GIS  
<http://www.esri.com/esri-news/arcnews/winter1314articles/controlling-growth-from-the-inside>
- Other helpful ESRI links:
- <http://www.esri.com/library/ebooks/gis-in-education-facilities.pdf>
- <http://www.esri.com/industries/government/facilities>
- <http://www.esri.com/library/brochures/pdfs/gis-for-facilities-overview.pdf>
- <http://www.esri.com/industries/government/facilities/templates>
- <http://www.esri.com/industries/government/facilities/newsletter>



# Q&A