

Embracing ArcGIS Server Technology – A City's Balanced Approach

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About the City

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GIS – Moving towards New Enterprise Architecture

- Old Enterprise Architecture
 - Supported the City and Public for several years with the best available mapping technologies
- **New Enterprise Architecture**
 - Supporting the City and Public seamlessly integrating with the web, mobile environments and common data sources managed by the enterprise updated on a weekly/adhoc basis



Enterprise-Wide Geographic Information Systems (EGIS)

- Strategic Plan
- Enterprise GIS Governance Model
 - EGIS Policy Board
 - EGIS Process Management Team
 - Communication & Information Technology Technical Support Team
 - **Functional Teams**
- The primary stakeholder and process manager for EGIS is Center for Geospatial Information Services (CGIS)



Functional Team Activity

- **EGIS Functional Team Leads**
 - Community Development
 - Public Safety
 - Engineering & Operations
- **EGIS Functional Team Members**
 - Members from several City Departments meet monthly to discuss data layers, workflows, requirements and review the prototypes and give feedback

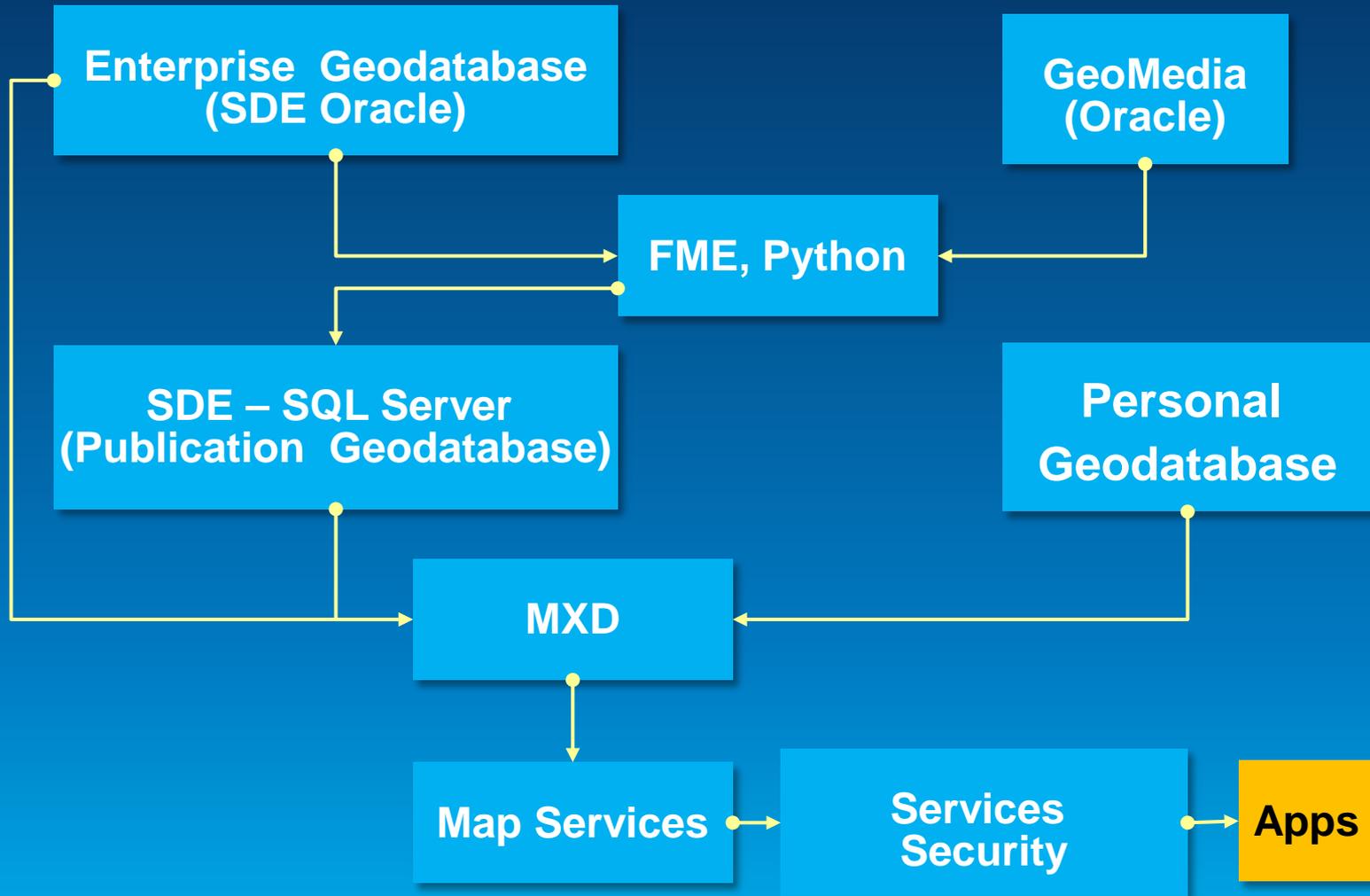


Base Layers

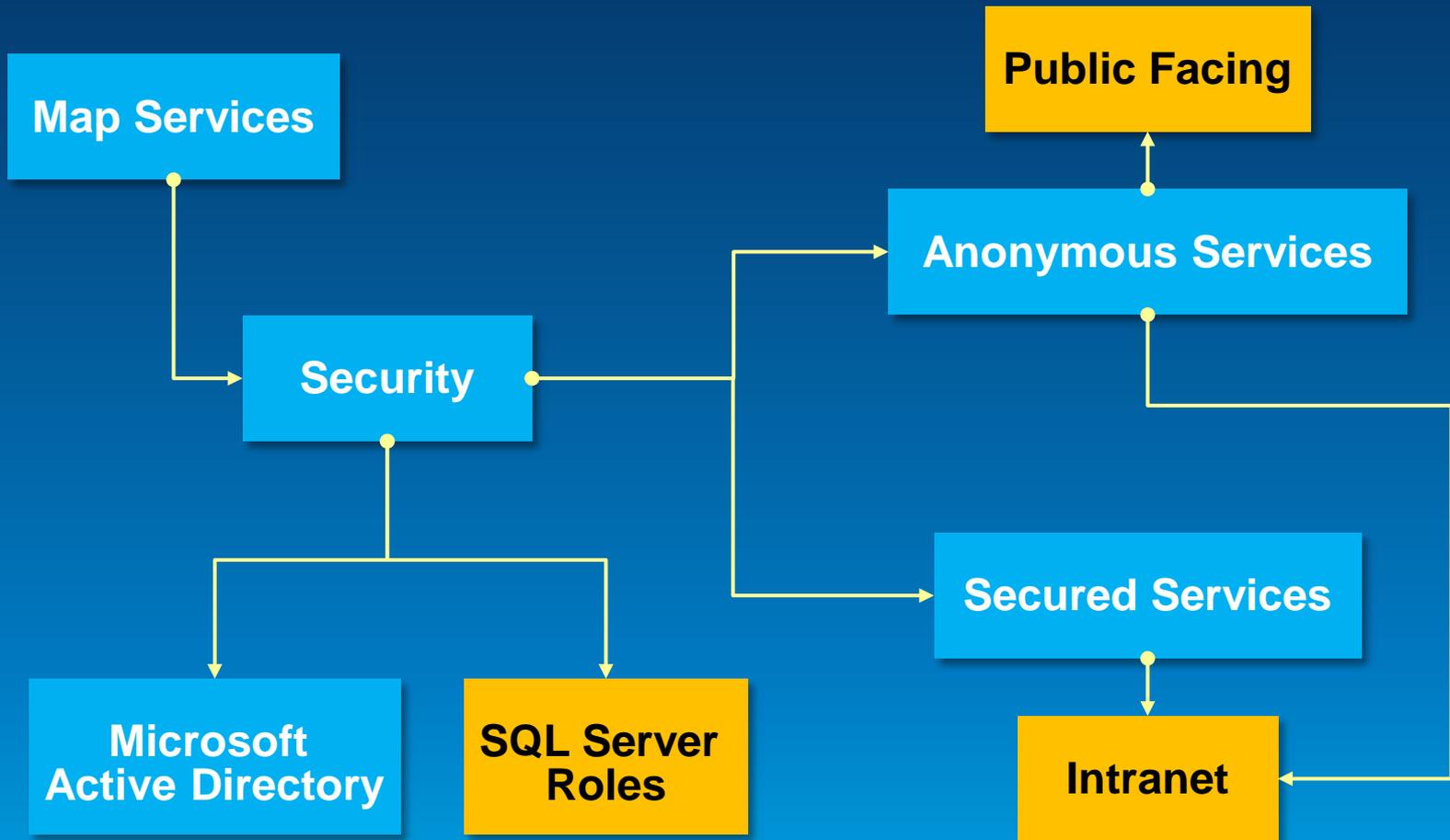
- Virginia Beach participated very early on in ESRI's Community Maps Program by creating map cache of its topographic basemap – **Most Important Layer**
- All layers that were existing in the previous applications and new layers as needed were decided through the functional team members



Layers to Map Service



Security Model



Web Applications Releases

- **ComIT** (Applications Support) - IT
 - VBgov - Internet (Public Facing Application)
 - ArcGIS Server 9.3.1, SharePoint, Javascript, Google Map, VS 2010, C#
- ArcGIS.com - GIS
 - City Maps, Census 2010
- **CGIS** (Web Team) - GIS
 - City Map - Intranet (City Wide Applications)
 - ArcGIS Server 9.3.1, ArcGIS Viewer for Silverlight 2.4, Expression Blend, VS 2010, C#



Choosing Web APIs and Web Apps

- Reviewed City's Enterprise Systems
- Reviewed Requirements and Map Layers
- Reviewed and **Selected Data Intensive Map Layers**
- Reviewed the Map Layers using the **ESRI Web API SDK Toolkits**
- Reviewed the advantages and disadvantages of the **Web APIs** and **Web Apps** with respect to the internet and intranet applications



Choosing Web API and Web Apps (Cont.)

- Tracked and reviewed the direction **ESRI** is taking currently and into the future of its **Web APIs** and **Web Apps**
- Reviewed and discussed the programming expertise within the organization and responsibilities
- Shared knowledge between the Teams
- Decide, Prototype and Implement the Applications Enterprise-wide



Selected Web APIs and Web Apps

Web APIs

Javascript

Silverlight

Web Apps

Microsoft SharePoint

ArcGIS.com

ArcGIS.com Viewer
ArcGIS Explorer Online

ArcGIS Viewer
For
Silverlight



Application Releases

Accomplished by being flexible and keeping a close assessment of the changing **product cycles and version releases** of ESRI

- VBgov (Public)
- Virginia Beach City Maps (Public)
- Virginia Beach Census 2010 (Public)
- City Map (Intranet)



VBgov Maps (Public Facing)

City of Virginia Beach Virginia
A Community for a Lifetime

A to Z Directory | Employment | About the City | Contact
Online Assistance | Translate | News | Media | Maps

Residents Business Visitors Government Services

Calendar *city events* Media *photo & videos* News *city stories* Services *online & offline* Maps *city locations*

Points of Interest More Maps >

Municipal Center Buildings

- 10-Judicial Ctr
- 10A-Juv & Domestic Court
- 10B-Court Support
- 11-First Precinct Police Station
- 14-Agriculture/Voter Reg
- 15-Police Aux/Crime Prev

Virginia Beach

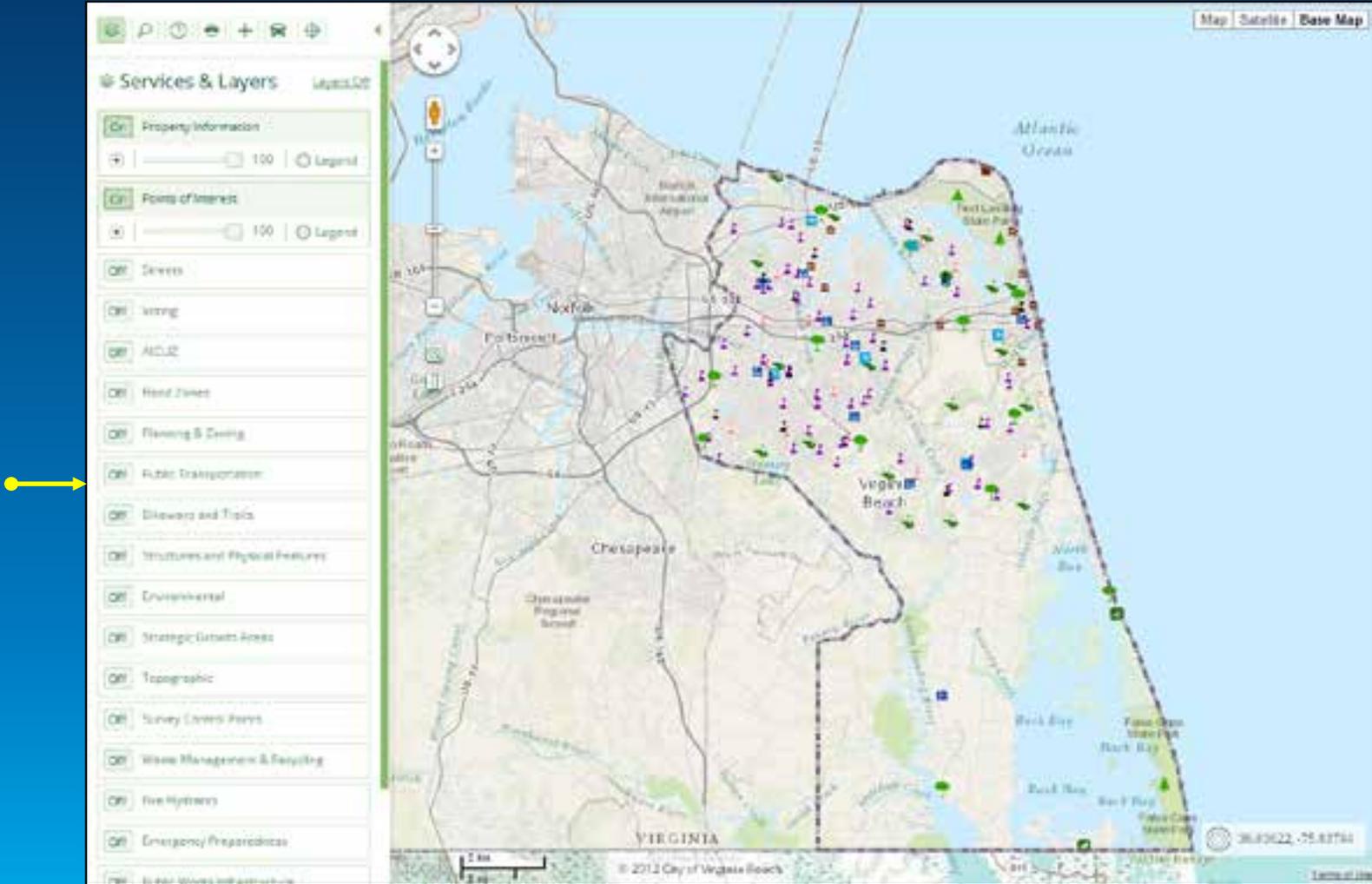
Base Map

Google

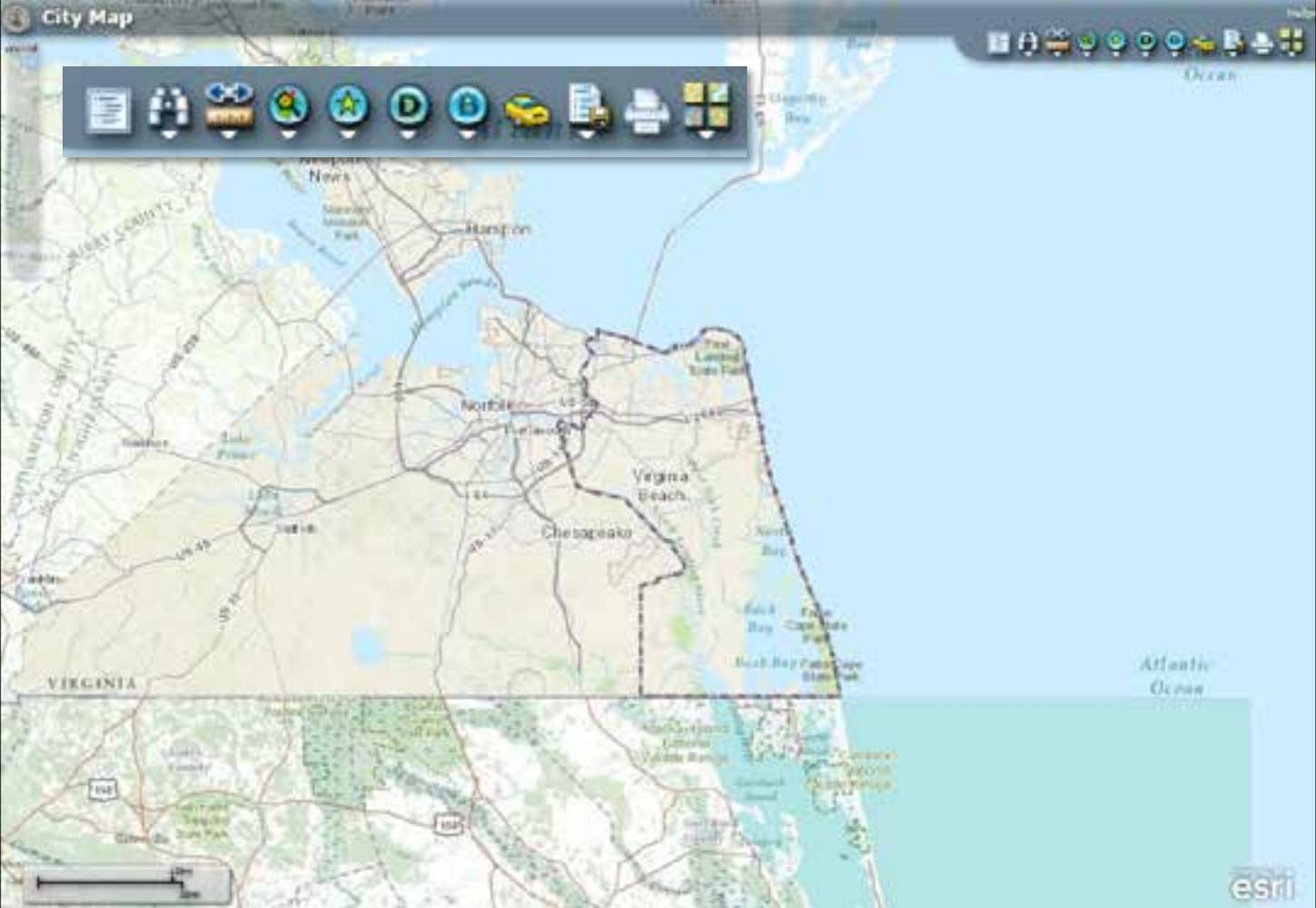
Terms of Use



VBgov Maps (Public Facing – Cont.)



City Map – Intranet



City Map – City Document Access

The screenshot displays the ArcGIS City Map interface. On the left is a 'Map Contents' panel with various layers like 'Points Of Interest', 'Property Information', and 'Water Distribution'. The main map area shows a street grid with a parcel highlighted in red. A 'Facets' popup window is open, displaying the following information:

Facets	
14948149580000	
1 of 4	
GPRN	14948149580000
STREET NUMBER	24CE
STREET NAME	COURTHOUSE
STREET TYPE	DR
STREET	Null
DIRECTION	
ZIP CODE	23409
FULL ADDRESS	24CE COURTHOUSE
PROPERTY ADDRESS	24CE COURTHOUSE DR
APPLIC NUMBER	

Below the facets popup, a 'Map Book/Instrument' popup is visible, with a red arrow pointing to it from the right. The map includes a scale bar and the Esri logo in the bottom right corner.



City Map – Find, Identify, Points of Interest

The screenshot displays the ArcGIS City Map interface with three main panels overlaid on a map of a city area. A red double-headed arrow points to a specific feature on the map, and a yellow arrow points to the 'Find Points of Interest' panel.

Find Points of Interest Panel: This panel lists various points of interest. The 'Name' field is set to 'City Parks'. The list includes:

- Little Island Park
- Woodstock Park
- Red Mill Park
- Oakdale High School
- Red Mill Farm Park
- Great Neck Park
- Bayville Farm Park
- Lynn Haven Park
- Munden Park
- City View Park
- Peconic Avenue Park
- Beach Garden Park
- Moore Technical Park

Identify Map Features Panel: This panel shows the results of identifying a feature. The 'Layer Group' is 'Property Information' and the 'Sublayer' is 'Parcels'. The selected feature ID is 24993190260000. The following table shows the attributes of this feature:

Field	Value
OBJECTID	4418
CPIN	14940110360000
STREET NUMBER	2733
STREET NAME	0703
STREET TYPE	RD
STREET DIRECTION	Null
ZIP CODE	11684
FULL ADDRESS	2733 BVD RD
PROPERTY ADDRESS	2733 BVD RD
NACLU NOISE ZONE	NA

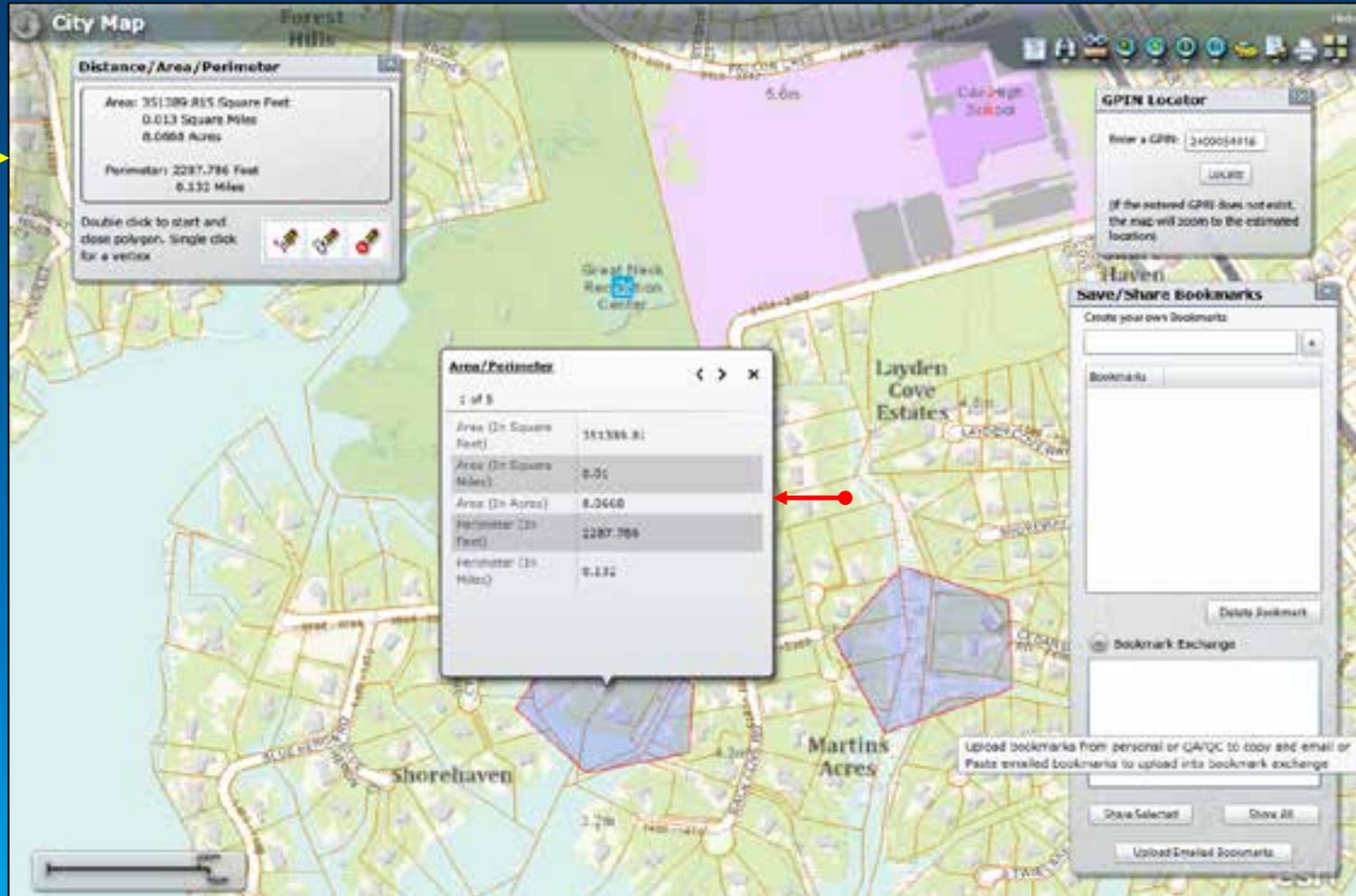
Find Map Features Panel: This panel allows for searching for map features. The 'Text Search' radio button is selected. The search criteria are:

- Location: Address, GPS, GPS points, Neighborhood, Walking (in)
- Planning: Street Information, Street Segment, Mapbook Page, Intramur
- Other: Other, Raw Data, Other WKT

The search results show '1211 Bvd Rd' in the 'Enter Search' field.



City Map – Measure, Locate and Bookmark



City Map – Parcel Change History

The screenshot displays the ArcGIS City Map interface. A large parcel is highlighted in blue on the map. A red arrow points to a specific location on the parcel boundary. The 'Identify Map Features' window is open on the right side of the screen, showing the following information:

Identify Map Features

Select a layer group
Property Information

Click the pointer tool and map to identify features

Select a sublayer
Property Source Documents

Select a feature to view attributes

- D:115/P:29
- R:115/P:26-28
- R:100/P:13
- D:100/P:26

Field	Value
BOOK	119
EFFECTIVE DATE	940
PAGE	33
SOURCE ID	0712
SOURCE NAME	N/A
SOURCE NUMBER	0114/P:14
TYPE	3D
Shape	Polygon
SHAPEAREA	8803.010817
PERIMETER	1159.14779

Buttons: Back, PDF, Home

Yellow arrows on the right side of the interface point to the 'Identify Map Features' window, the list of source documents, and the 'SOURCE NUMBER' field in the attribute table.



City Map – Select Features within a Buffer

The screenshot displays the ArcGIS City Map interface. A circular buffer is drawn around a central area of the map, highlighting several address points. The 'Layer Buffer' dialog box is open on the right side, showing the 'Address Point' sublayer selected. The buffer distance is set to 1000 feet. The 'Attributes of Results Layer' table at the bottom shows 4 selected records.

PROP_ADDRESS	OBJECTID	GPIN	STR_NUM	STR_NAME	STR_TYPE	STR_DIR	STR_UNET	FULL_ADDR	LU_ZIP1	LU_ZIP_CKT	NOISE_ZONE	AICAT_ZONE	FEMA_ZONE
425 DALPHIN LN	27241	1400000300000	425	DALPHIN	LN			425 DALPHIN	23422	2322	75 - 75	P/A	
427 DALPHIN LN	12740	1400000400000	427	DALPHIN	LN			427 DALPHIN	23422	2322	76 - 76	P/A	
438 DALPHIN LN	12212	1400000500000	438	DALPHIN	LN			438 DALPHIN	23422	2322	76 - 76	P/A	



City Map – CIP Document Access

City of Virginia Beach - Adopted CIP - Fiscal Years 2012-13 through 2014-15

Search

Business Area

Safe Community

Quality Physical Environ

Cultural and Recreational

Safe Community

Quality Educational and I

Economic Vitality

Quality Organization

Family and Youth Develop

Department

Category

Title

District

Project Type

Project Status

Cultural and Recreational

Economic Vitality

Family and Youth Develop

Quality Educational and I

Quality Organization

Quality Physical Environ

Safe Community



City Map – Document Access (Cont.)

The screenshot displays a web-based GIS application interface for document access. The interface is divided into several sections:

- Search:** A search bar at the top left.
- Business Area:** A dropdown menu at the top left.
- Department:** A dropdown menu at the top left.
- Category:** A dropdown menu at the top left.
- Left-Hand Navigation Menu:** A list of categories including 'Waste Water' (highlighted with a yellow arrow), 'Buildings - QM', 'Economic and Tourism (E)', 'Buildings - CIO', and 'Parks and Recreation'.
- Central Map Area:** A map showing a highlighted project area. A red arrow points to a 'View PDF' button in the top right corner of the map area.
- Right-Hand Sidebar:** A sidebar containing project details such as 'Business Area', 'Department', 'Category', 'Title', 'District', 'Specialty', 'Project Type', 'Project Status', and 'Address'.



Lessons Learned...

- Try working backwards in solving problems by making use of one's organizational requirements to focus and test the available technologies to fit your organization's needs
- Coordination and Sharing knowledge with other developers within the organization to develop applications to support the City's Enterprise



Thank You

- All the members of the CGIS Team that have worked hard, coordinated and made it happen
- ComIT for the cooperation and their hard work on the VBgov Mapping Application for the Citizens
- The Functional Teams, Departments and/or Divisions that have provided invaluable time and support
- EGIS Policy Board and its Members for the Support



The Future ...

- **Moving to ArcGIS 10.2...**
- Supporting Department/Division(s) workflows and application requirements
- Supporting Public Safety applications for Emergency Management using Operational Dashboards
- Mobile Applications Development
- ArcGIS.com Subscriptions



Questions?

Thanks for attending the presentation. I hope some ideas that were presented are worth taking back with you. Your feedback is welcomed and it may help me think of new approaches.

