

City's Future in ArcGIS Platform and Business Systems Integration

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About the City

- Virginia Beach is a city in the state of Virginia (VA) in the United States
- Virginia Beach is the most populous city in Virginia
- Virginia Beach is a major metropolitan area in the Southeastern United States
- Virginia Beach is a major tourist destination in Virginia
- Virginia Beach is a major port city in Virginia
- Virginia Beach is a major business center in Virginia
- Virginia Beach is a major educational center in Virginia
- Virginia Beach is a major cultural center in Virginia
- Virginia Beach is a major sports center in Virginia
- Virginia Beach is a major entertainment center in Virginia
- Virginia Beach is a major healthcare center in Virginia
- Virginia Beach is a major financial center in Virginia
- Virginia Beach is a major technology center in Virginia
- Virginia Beach is a major manufacturing center in Virginia
- Virginia Beach is a major service center in Virginia
- Virginia Beach is a major transportation center in Virginia
- Virginia Beach is a major energy center in Virginia
- Virginia Beach is a major environmental center in Virginia
- Virginia Beach is a major social center in Virginia
- Virginia Beach is a major political center in Virginia
- Virginia Beach is a major religious center in Virginia
- Virginia Beach is a major artistic center in Virginia
- Virginia Beach is a major scientific center in Virginia
- Virginia Beach is a major historical center in Virginia
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- Virginia Beach is a major port city in Virginia
- Virginia Beach is a major tourist destination in Virginia
- Virginia Beach is a major metropolitan area in the Southeastern United States
- Virginia Beach is the most populous city in Virginia



Changing World...Changing Cities...

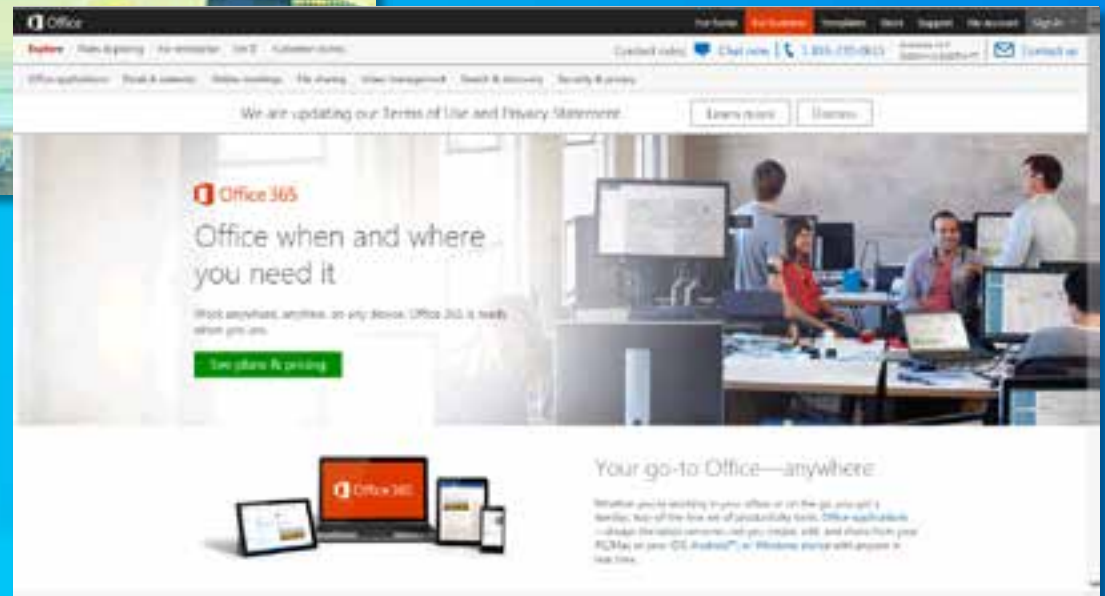
- **Business and Spatial Data Storage and Access**
 - Cloud
 - On-Premise
 - Hybrid
- **Data Analytics** across the information scape
 - Faster and better decision-making
- **Increasing Business and Spatial Data Omnipresence**
 - Desktops, Laptops, Tablets, Smartphones...
 - HoloLens- Holographic Computing...

Driving Force...Information...

- Empowered **by computing power and mobility**
- Access to data **all the time is key**
- Data consumption is at a **rapid pace**
- Thinking... **in the Digital World**
 - **3rd Graders using Self-Service Mapping for projects**
 - **ESRI's \$1 Billion Pledge**
 - **Students Gain Geographic Ground Following Esri's Billion-Dollar Software Pledge to White House ConnectED Initiative**

City's Cloud/On-Premise Environments...

Spatial Systems Self-Service Mapping



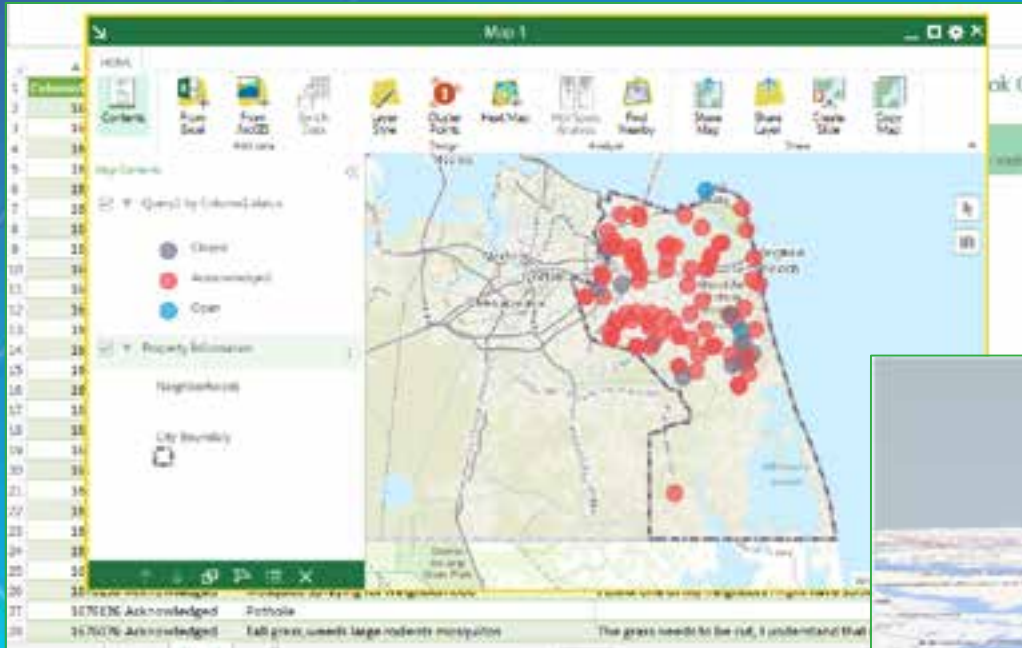
Business Systems Self-Service Reporting (Making inroads into Mapping)

Future of Mapping and Data...

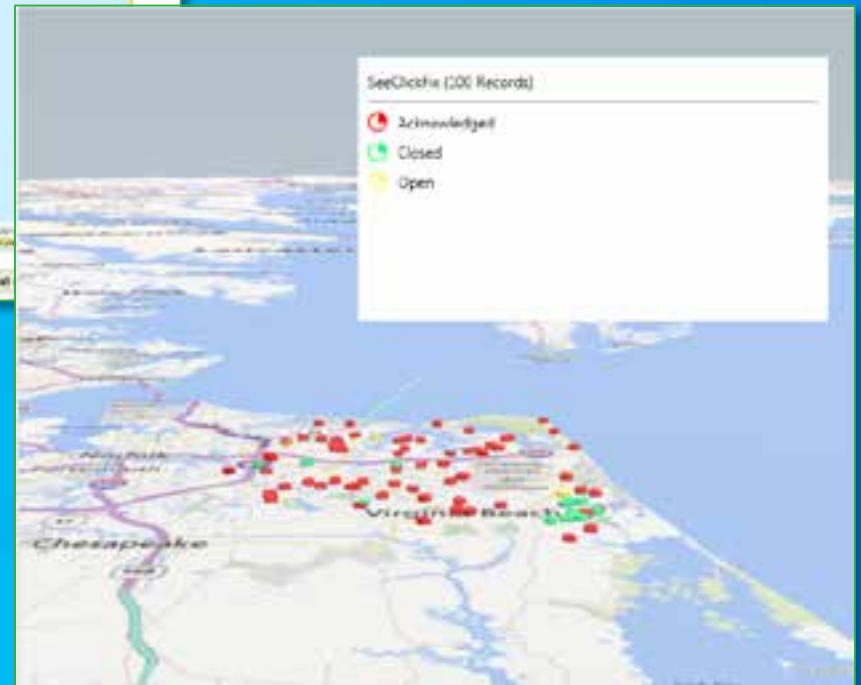


ArcGIS Online and Office 365 in Review...

Esri Maps for Office



Office 365 (Excel)



Spatial vs. Business Data Streams...

- City has ESRI's ArcGIS Server, ArcGIS Online and other Spatial Systems... **providing efficient spatial data** in features, imagery etc..
- City's IT Systems provide **efficient and robust business data** with business logic...
- City is currently working on **ideas, prototyping** with the **hybrid** environments for the future...


Strengthening Our Data Streams...

- **Business Data Warehouse**
 - Aggregation of Business data to provide fast data analytics in Real Time
 - Efficient dissemination of Data for Analytics
- **Spatial Data Warehouse**
 - Providing data that can be consumed by any platform or device spatially
 - Enabling spatial data for multiple platforms
- **Hybrid Data Warehouse**
 - Business and Spatial Data – MDS and Other...


Supporting our Customers and Citizens...

- Enhancing **spatial data accessibility** across various platforms...
- Enabling **business system integration** with mapping systems...
- Enhancing **data and spatial analytics in near real-time**


Business Systems with Spatial Data and Self-Service Reporting Integration...



Hansen Work Order
• Shape Files




Hansen Asset Management
• Shape Files




Thomas Rueters GRM
• SDO Geometry


Currently In Works..



Thomas Rueters Proval
• SDO Geometry




ACCELA Code Enforcement
• Address




ACCELA Permits
• Address




E-Pro
• Block Range




Banner
• Address (Mailing)




PCI Business License
• TBD



CAD
• ANI/ALI




COMPSTAT
• Address




FIRE RMS
• Address




POLICE RMS
• Address




See Click Fix
• XYZ location




OSSI Crime Data
• Address




EVENT Planning
• TBD it is a need




WEB EOC
• Shape File?




Happy Section 8 Housing
• Address




DSC ATLAS
• XYZ Coordinate (Shape file)




Fleet Anywhere (Cloud)
• Geoevent Processor




311 Call Taking
• TBD




VB ALERT
• Shape Files



Tow Tracker
• XYZ Location



ARCHIBUS
• Address



SCADA
• XYZ location



VBLand Records
• Instrument #

Recent Activity...

- Implementation of **Data Warehouse** and **Self-Service Reporting** using SharePoint Portal provided by **Database Team** – SSRS, SSAS, Power View...
- Application support enabling database data access using REST services – **Property Search** Application... provided by **Application Support, Web and Mobile Team**
- Spatial REST services being provided by **CGIS Team** – Web Map Services that are available across all devices...

Mapping Integration with Business Systems....Prototyping

- **Fire, ECCS...**
 - Spatially enabling RedNMX, CAD...
 - Mapping with Self-Service Reporting Integration
 - Access to ECCS data
- **REA...**
 - Mapping with Self-Service Reporting
- **Property Search...**
- **ePro**
 - **Spatially enabling** crime data with Blocks, Intersections... Future – **Integrating with Self-Service Reporting**

Current ESRI Software...

- **ArcGIS Server 10.2.2**
- **ArcGIS Online, Community Analyst**
- **Image Server**
- **Geoevent Processor**
- **Other Extensions...**

Challenges...

- **Feature Services with limitations (1000 or 2000 features...) – Web AppBuilder, Operations Dashboards...**
- **Volume of data that is presented by business systems with business logic that cannot be part of map service in many instances...**
- **Data relationships such as relate tables may cause some limitations...**
- **Real-time data that is delivered from business systems cannot be part mapping systems in many instances...**

Addressing the Challenges...

- **Feature Services – Analysis of the data streams, filtering at the business system level, UI design can help minimize issues...**
- **Leverage spatial and business system data wherever applicable and design, embracing the strengths each data stream brings...**
- **Query Layers, BI reporting tools...**
- **Hybrid UI design with data from multiple web services and applications may minimize issues...**

Neighborhood Values...



Subdivision Properties By Count and Value

Properties By Class Code

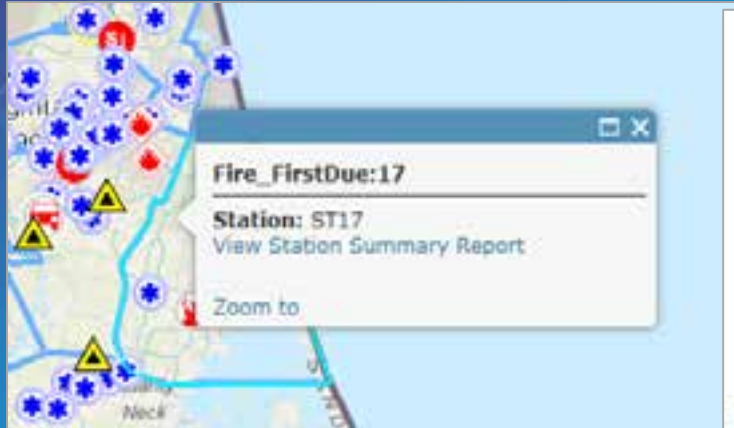


- 100 Vacant Residential Land
- 101 Residence
- 103 Townhouse
- 700 Religious - Parsonages
- 714 Charitable - Housing

Subdivision Name	# of Properties	Total Property Value
Princess Anne Plaza	9045	\$1,499,308,400.00
Total	9045	\$1,499,308,400.00

GPIN	Address	Property Class	Land Value (\$)	Improvement Value (\$)	Total Value (\$)	Value Chart
14869540140000	3305 Cedar Bridge Rd	101 Residence	\$84,000.00	87800	\$171,800.00	
14877372820000	3509 Hilber St	101 Residence	\$84,000.00	104900	\$188,900.00	
14961416300000	801 Kings Arms Dr	101 Residence	\$84,000.00	78700	\$162,700.00	
14867937320000	3524 Silna Dr	101 Residence	\$84,000.00	57900	\$141,900.00	

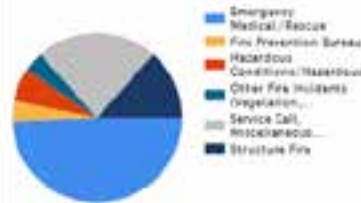
Fire Incidents By Station...



Virginia Beach Fire Department Station Summary Report (2015)

Station: **ST17**


Incident Count By Type



Incident Count By Shift



STATION	Incident Type	Month	Shift	Nature Code Description	Nature Code
ST17	Total				156
	<input type="checkbox"/> Emergency Medical/Rescue	Total			77
		<input type="checkbox"/> April	Total		17
			<input type="checkbox"/> A Shift	Total	6
			<input type="checkbox"/> B Shift	Total	4
			<input type="checkbox"/> C Shift	Total	7
		<input type="checkbox"/> February	Total		18
		<input type="checkbox"/> January	Total		15
		<input type="checkbox"/> March	Total		16
		<input type="checkbox"/> May	Total		11
	<input type="checkbox"/> Fire Prevention Bureau	Total			6
	<input type="checkbox"/> Hazardous Conditions/Hazardous Materials Incidents	Total			10
	<input type="checkbox"/> Other Fire Incidents (Vegetation, Rubbish, Other)	Total			6
	<input type="checkbox"/> Service Call, Miscellaneous or Special Incidents	Total			16
	<input type="checkbox"/> Structure Fire	Total			21
Total					156



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

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