GIS Deployment for Emergency Management & Special Events

Henrico County Division of Fire

Virginia Department of Emergency Management

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An AGOL Case Study

- http://videoembed.esri.com/iframe/4949/000000/width/960/1/00:00:00

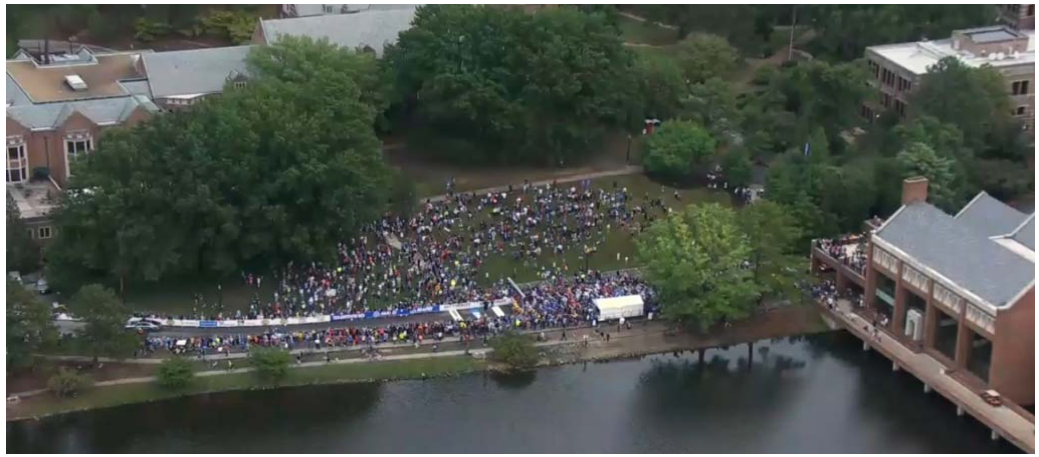
Unified Command Goals

- Optimize resource management / response.
- Enhance event communications and information management across multiple agencies
- Provide Incident Command, Agency Management, and event personnel with a common operating picture for situational awareness and decision support.
- Manage the records of response actions at the event.

Safety IMT Functions for Special Events

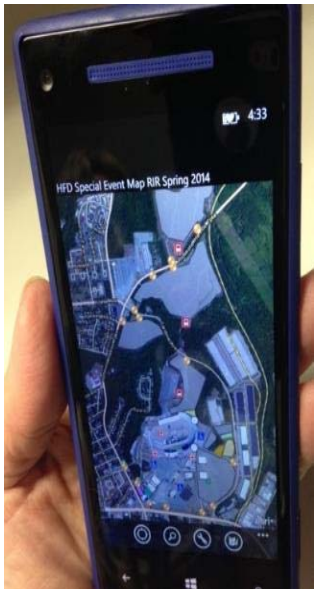
Special Event Operations

- 3rd Leg Cycling Triple Crown
  - Tour de France
  - Giro D'Italia
  - UCI World Championships
- Large spectator capacities
- More than 50 public safety organizations involved in operations
- 7,800+ individuals report for
  - Walking teams
  - Bike teams
  - Carts
- FEMA Type 1 Incident

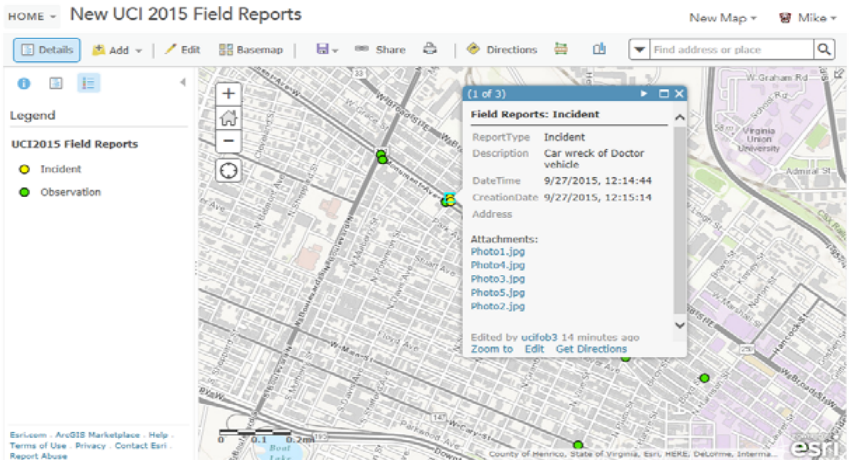


NIMS IMT

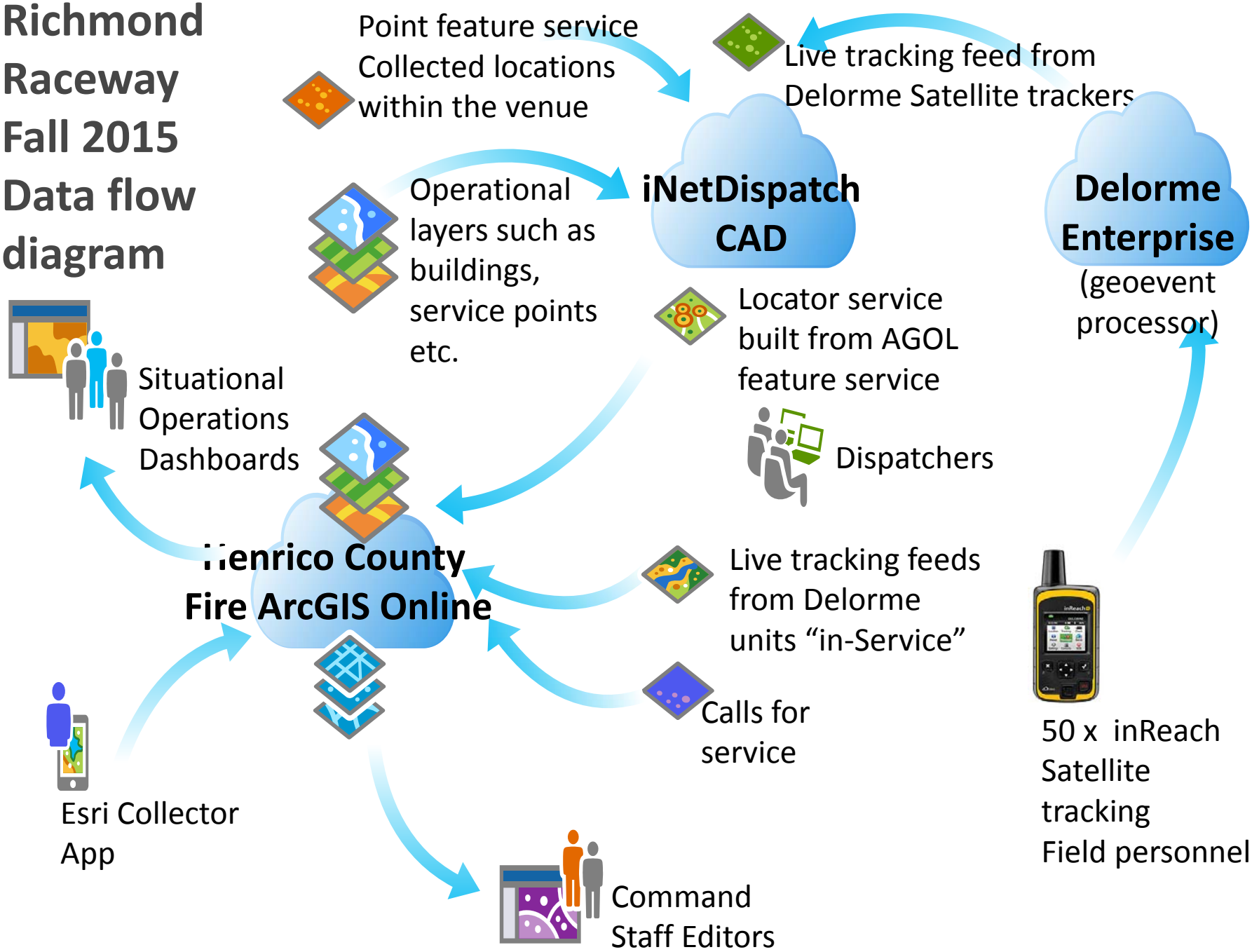
Incident Management Team + Technology Specialists to provide the COP



- IMT Planning – established a Technology Section Chief to address IT issues across all branches
- GIS - used symbology from Public Safety COP template
- Moved map layer datasets into the cloud via Henrico Fire AGOL Organization
- Develop component web maps and mobile apps
- Smartphone / tablets were used to communicate spatial information to/from the field



Richmond Raceway Fall 2015 Data flow diagram



ArcGIS Online

Basis for all mapping products

- Feature services created
  - Drag & drop ability for desktop
  - Simplified editing
- Shared data development
  - Non-GIS users participated & provided feedback
  - Engagement invested responders in product development

Connectivity Eliminates Interoperability Problems

- Dispatch assignments consider resource type, status and location
- The Command Center is able to monitor and share dynamic views
  - Location and status of tracked teams
  - Event incident statistics
  - Information feeds from other spatial services (ex traffic and regional weather overlays)
- Scalable – CAD and Tracking for incident dispatch, Tracking for SAR, Collector for Damage Assessment

ArcGIS Online

ArcGIS Online Challenges

- Sharing across organizations
  - Feature services would not display on different orgs.' maps
  - Minor changes resulted in data disappearance
- Data Governance
  - Creating multiple versions of maps and features
  - Caused by sharing between organizations
- Non-GIS personnel use
  - AGOL organization's potential for confusion
  - Using 'map notes' for publishing
- Information Security
  - Event staff sharing without public access
  - Law Enforcement tracking limited access

ArcGIS Online Solutions

- Creation of Super-User Accounts
  - GIS Personnel upload to single account
  - Multi-tiered accounts for product management
- Bulk Account Creation
  - Simplified the account assignment
  - Temporary
  - Generic

Members

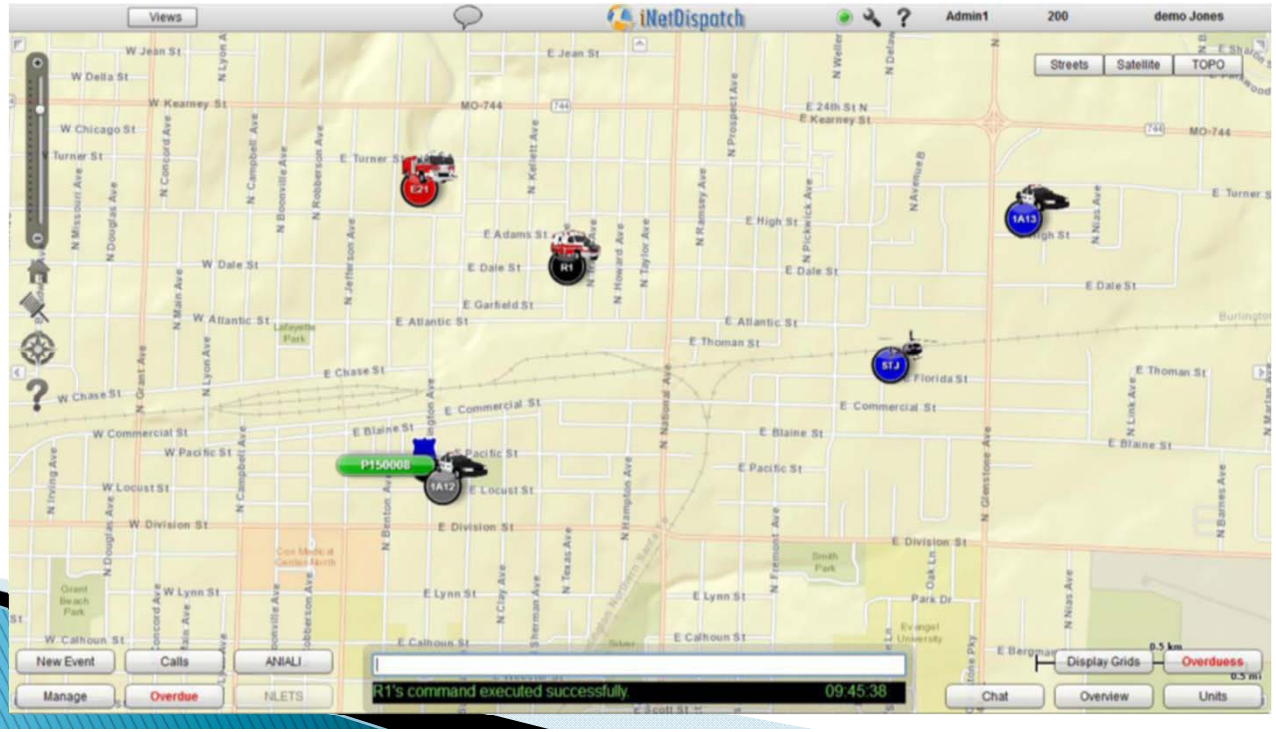
Viewing: Current Members

Search for Name...

Name	Username	Last Login	Role	Action
uci eodst9	ucieodst9	Not yet	Read Only	
uci fob1	ucifob1	Sep 5, 2015	User	
uci fob10	ucifob10	Sep 27, 2015	User	
uci fob2	ucifob2	Sep 27, 2015	User	
uci fob3	ucifob3	Sep 27, 2015	User	
uci fob4	ucifob4	Sep 24, 2015	User	
uci fob5	ucifob5	Oct 29, 2015	User	
uci fob6	ucifob6	Sep 27, 2015	User	

iNet Dispatch

- iNet Dispatch
  - Web based Computer Aided Dispatch (CAD)
  - Flexible deployment (just need an internet connection)
  - Base maps and feature services created in AGOL



iNet Challenges

- Geofence matching of response areas between special event and normal operations dispatching
- Creating searchable common places
- Call type designations differed between jurisdictions
- Any changes to AGOL background feeds during the live event could cause the iNet feed to break

iNet Solutions

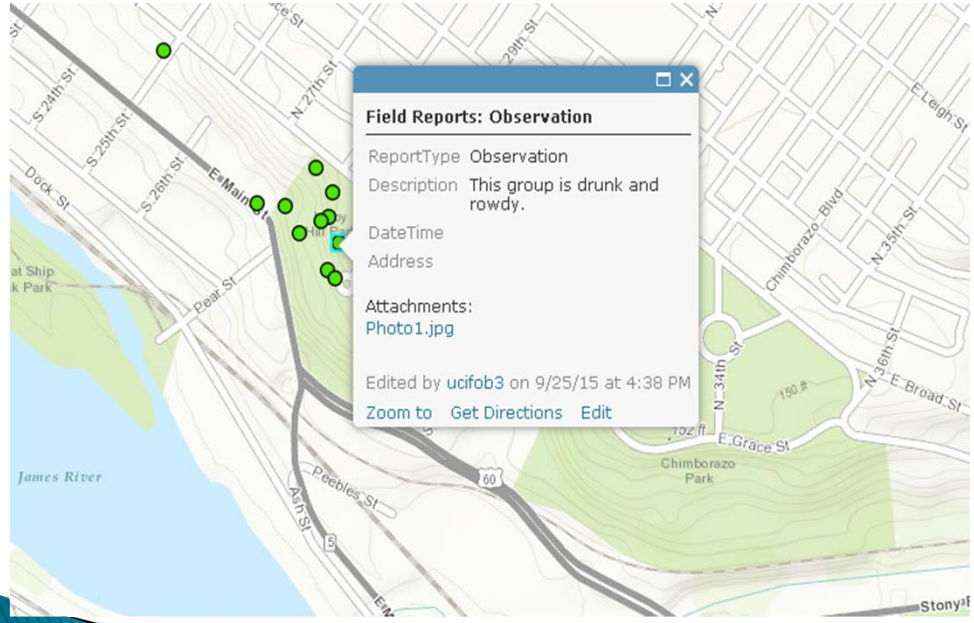
- Including both Richmond CAD and iNet special event geofences in iNet dispatching basemap
- Export CAD common places name and import into iNet
- Used standardized (APCO) call types
- Feed secured by multi-tiered AGOL accounts preventing accidental access or changes

ArcGIS Collector

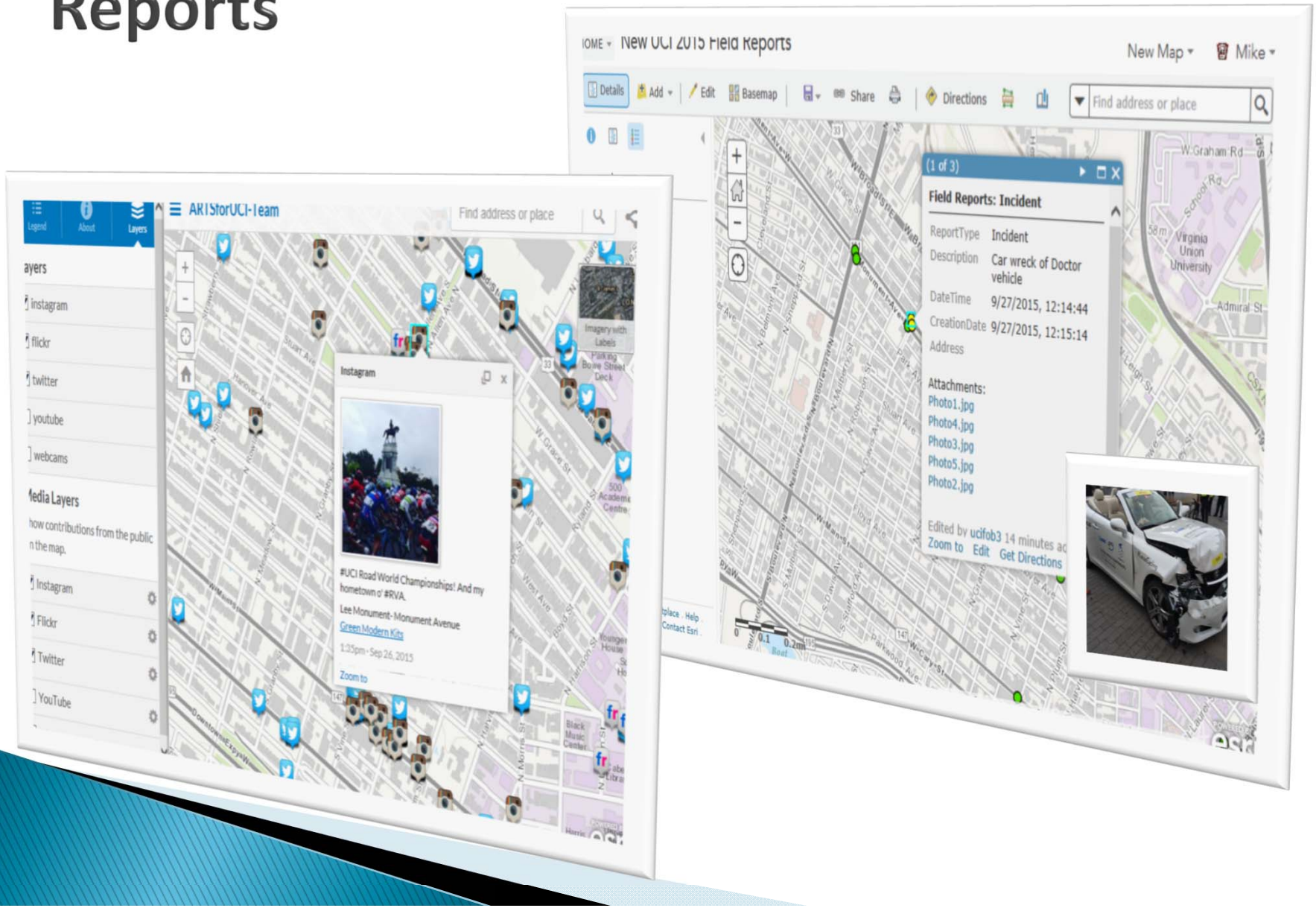
- Compatible with iOS and Android
- Multimedia capable
- Populates points of interest and potential hazards
- Reporting tool for Operation Command Staff (e.g crowd estimates on Libby Hill)

Collector in Action

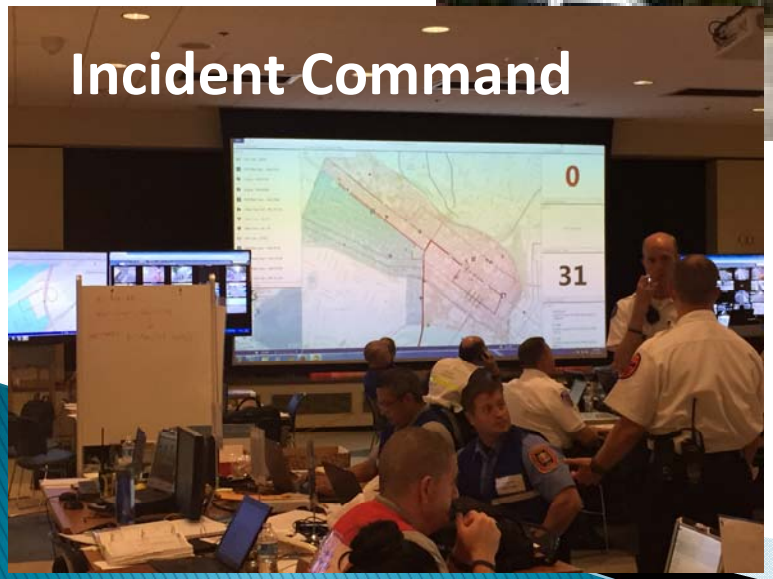
- Field observers notice inebriated patrons
- Point Entered in Collector
- Police advised to be aware



Common Operating Picture – Field Reports

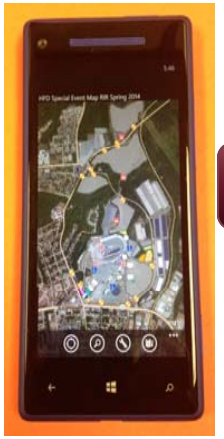


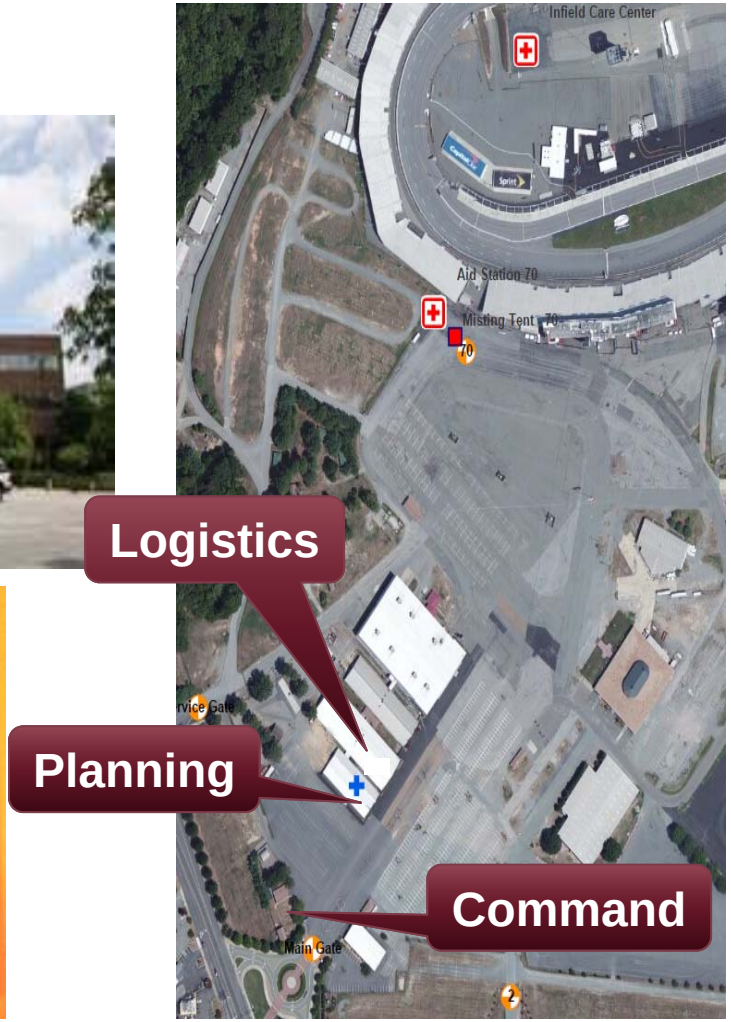
AGOL Dashboards – Custom Views



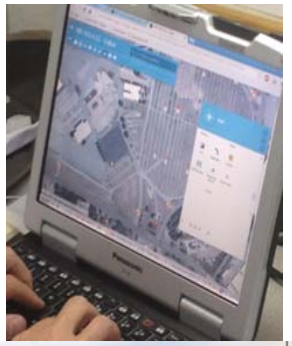
Dashboard, Web Maps and Mobile Apps connect All Event Staff

EOC



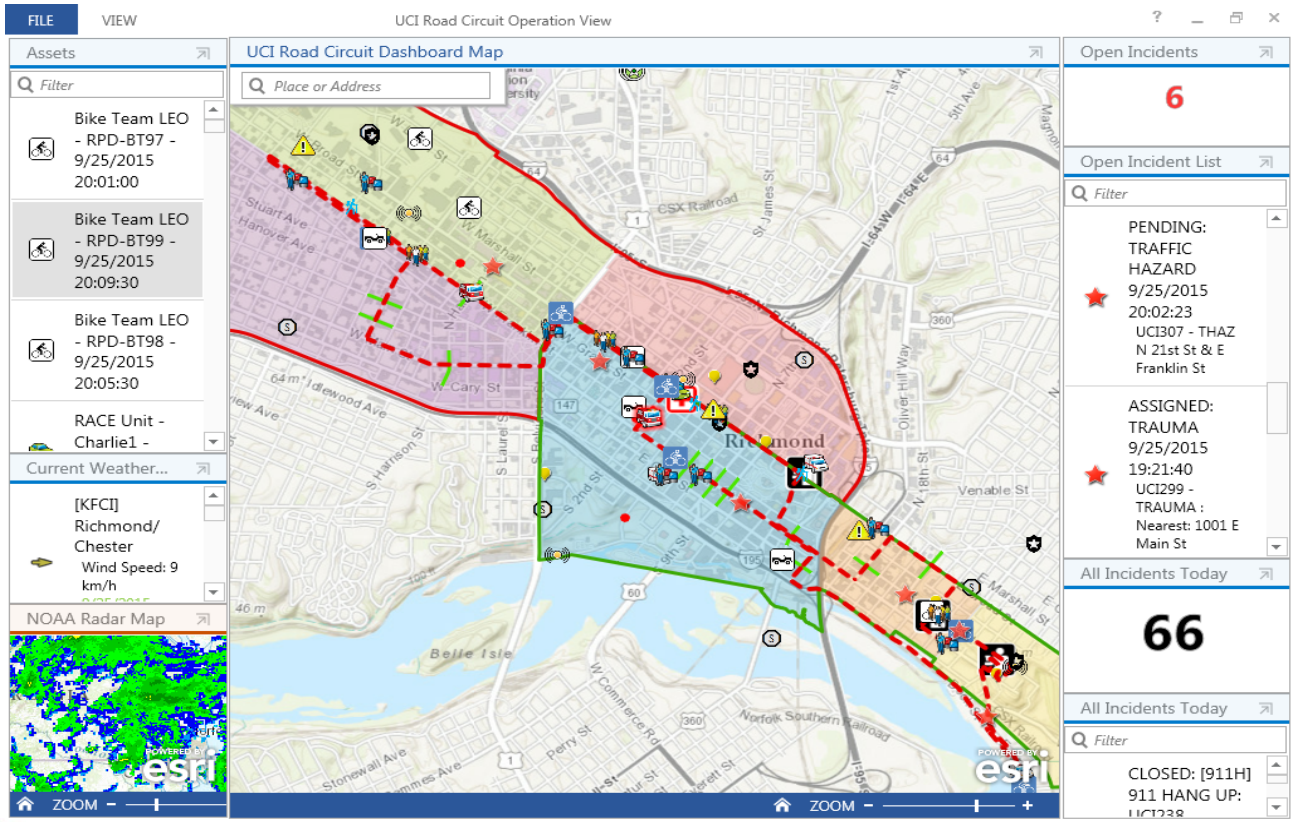


Throughout the event site



On any device!

Successful Implementation



- Full Tracking of Response Resources Integrated with Incident Dispatch involving multiple agencies.
- Dashboards specific to Command and Dispatch
  - Ability to monitor resource demands & incident types
  - Ability to identify response team status and location

Conclusions

- There was a successful integration of spatial technology that provided a common operating picture for all agencies and stakeholders
- The ICS structure appropriately incorporated technology professionals
- Restricting access to AGOL feature services that were consumed by iNet (if changed broke iNet feed)
- Delorme user training extremely important
- First time an event of this magnitude was hosted in our region – proven possible with lots of collaboration!

Questions?

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