

2013 Esri International User Conference

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Taking Advantage of ArcGIS Online to Push a Mobile Agenda

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Town of Amherst, MA



Some of our goals for mobile

- Use simple interfaces
- Avoid programming whenever possible
- Aim for platform independence

Harnessing ArcGIS Online

- Amherst's Approach
 - Web Maps on ArcGIS Online
 - Mostly using Amherst's ArcGIS for Server Services
 - Some Hosted Feature Services
 - ArcGIS App for iOS/Android/Windows Phone
 - Helps us to avoid developing custom apps for any of these platforms.

Amherst's ArcArsenal

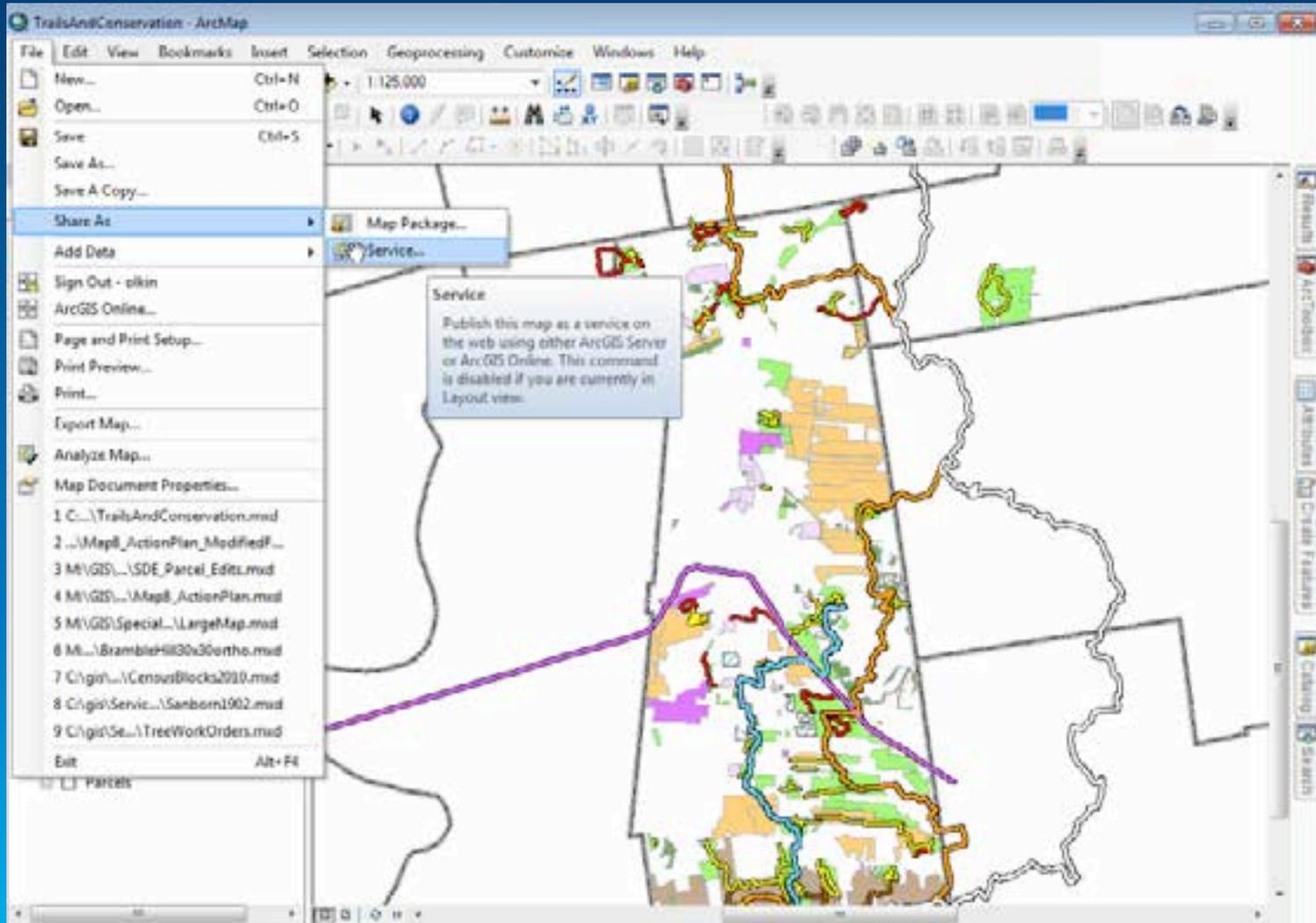
- ArcGIS for Desktop
- ArcGIS for Server / ArcSDE
- ArcGIS (for?) Online Organizational Subscription
 - Web Maps
 - Feature Services
- ArcGIS & Collector Apps for iOS/Android/WinPhone

Editable Mobile Map Setup Steps

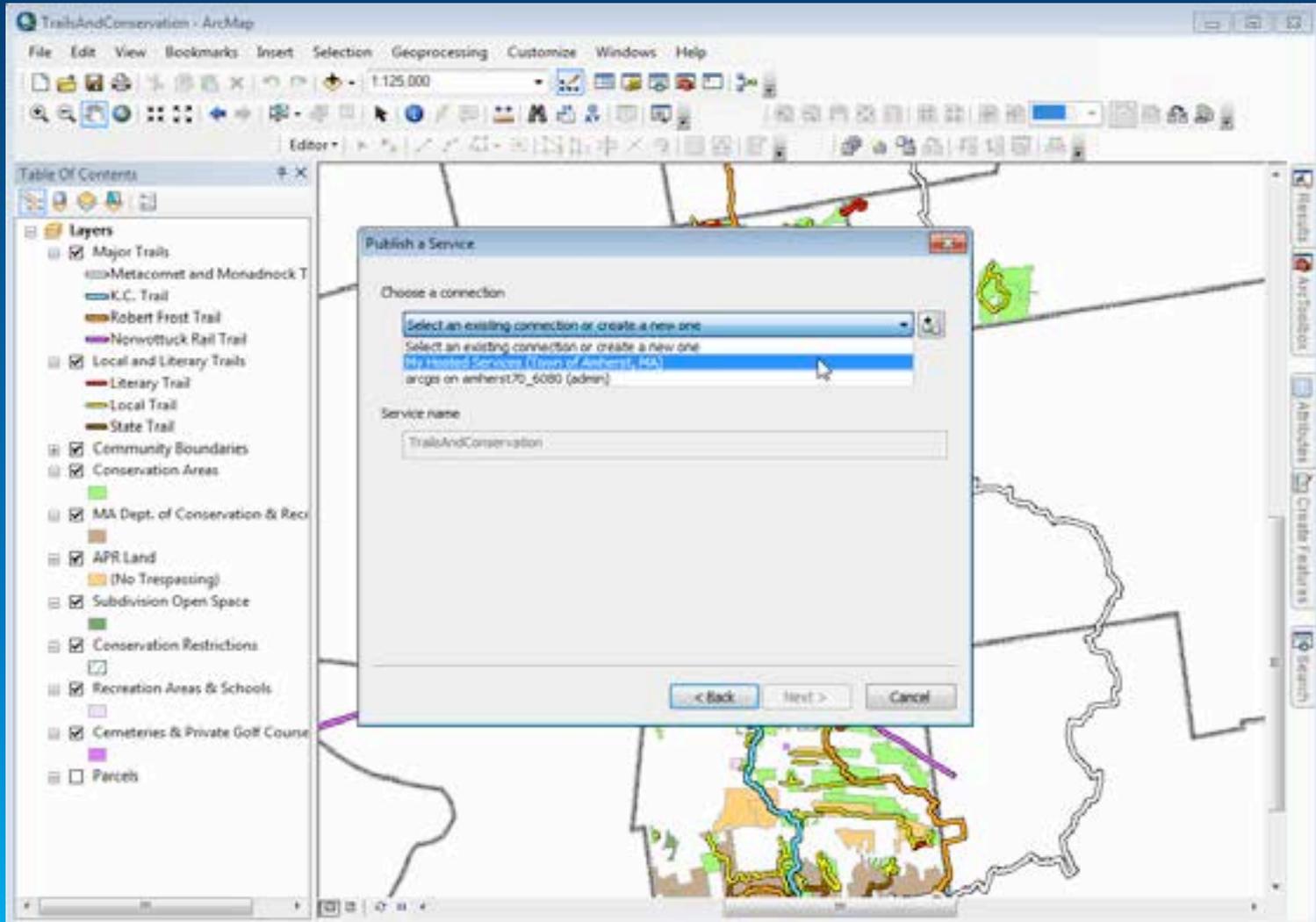
- Design the feature class(es)
 - Domains / Subtypes? Attachments? Edit Tracking?
- Compose a map in ArcMap & share as a service
 - On local AGS or as a hosted feature service
- Create ArcGIS Online Webmap
 - Set up popups & editing preferences
 - Share with appropriate groups

Primer: Sharing Feature Services

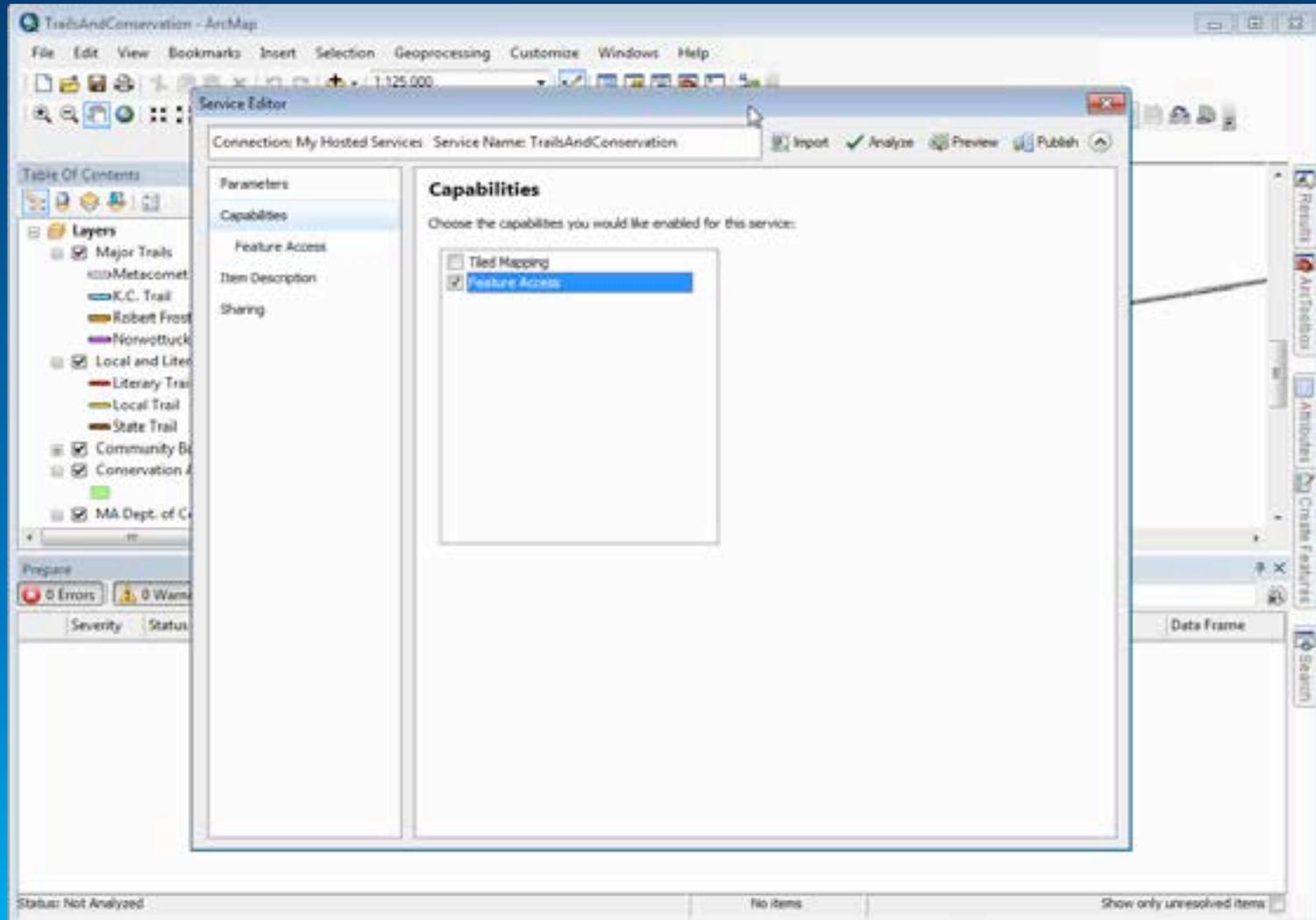
Sharing as a Service from ArcMap



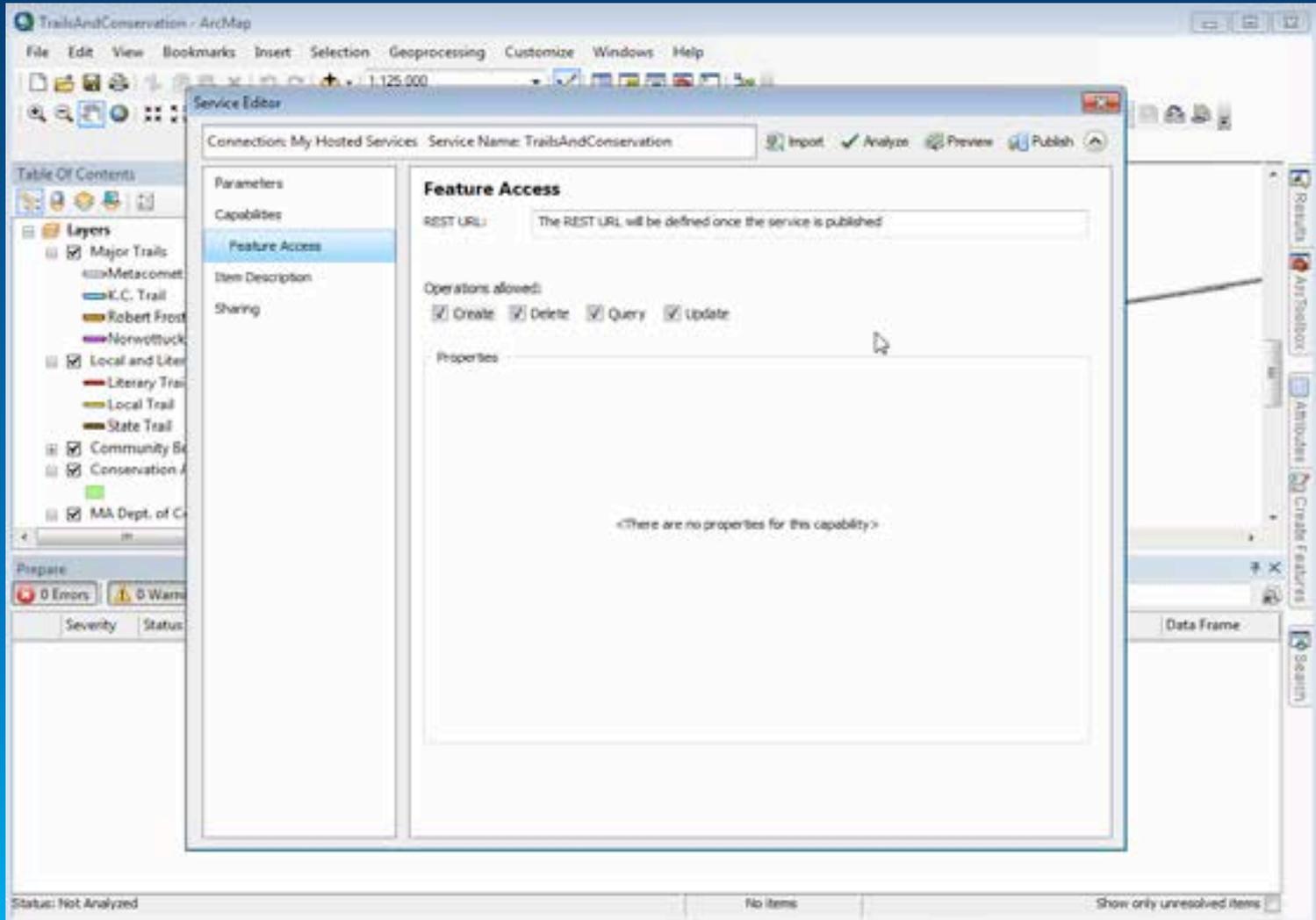
Hosted Service Setup



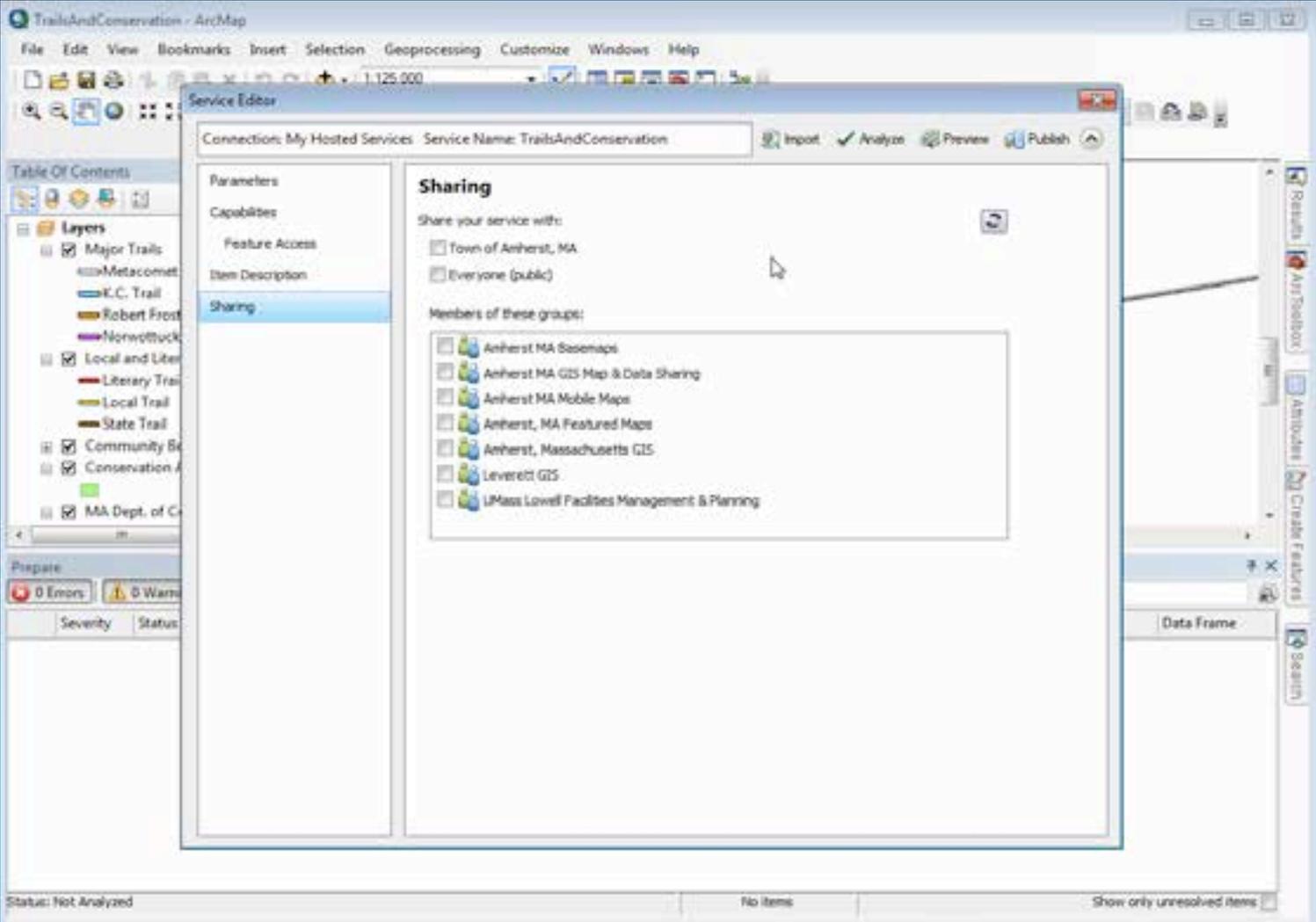
Hosted Service Setup



Hosted Service Setup



Hosted Service Setup



Hosted Feature Service

The screenshot shows the ArcGIS Online 'My Content' interface. At the top, there are navigation tabs: HOME, GALLERY, MAP, GROUPS, and MY CONTENT (which is selected). A search bar is located to the right of the MY CONTENT tab. Below the navigation is the 'My Content' header with a logo. A toolbar contains buttons for New, Delete, Add Item, Create Map, Share, Delete, Move To, Publish, and Change Owner. On the left, a tree view shows the folder structure under 'olkin', with 'UTILITIES' selected. The main area displays a table of content items.

	Title	Type	Modified	Shared	Size
<input type="checkbox"/>	Amherst MA Drainage System Map	Web Map	Nov 7, 2012	Organization	30 KB
<input type="checkbox"/>	Amherst MA Open Work Orders	Web Map	Nov 7, 2012	Organization	4 KB
<input type="checkbox"/>	Amherst MA Sewer Map	Web Map	Nov 7, 2012	Organization	31 KB
<input type="checkbox"/>	Amherst MA Street Tree Maintenance	Web Map	Nov 7, 2012	Organization	10 KB
<input type="checkbox"/>	Amherst MA Tree Work Orders	Web Map	Nov 7, 2012	Organization	12 KB
<input type="checkbox"/>	Amherst MA Water Distribution System	Web Map	Nov 7, 2012	Organization	20 KB
<input type="checkbox"/>	Amherst Survey Control Points	Web Map	Nov 8, 2012	Everyone	5 KB
<input type="checkbox"/>	Damage Reporting	Feature Service	Oct 29, 2012	Organization	1 KB
<input type="checkbox"/>	DamageReporting	Service Definition	Oct 29, 2012	Organization	51 KB

Hosted Feature Service

The screenshot displays the ArcGIS Online interface for a hosted feature service. At the top, there is a navigation bar with links for HOME, GALLERY, MAP, GROUPS, and MY CONTENT, along with a search box. The main content area is titled "Damage Reporting" and features a map viewer on the left. To the right of the map, the service details are shown, including the title "Amherst Storm Damage Reporting", the creator "Feature Service (Hosted) by s10m", and the last modified date "October 28, 2012". Below the title, there are social media sharing options for Facebook and Twitter. A row of action buttons includes "Open", "Share", "Edit", "Delete", "Make To", "Change Owner", and "Usage".

Description

Access and Use Constraints

Layers

Damage (0)

Shared with Organization, Amherst, Massachusetts 020

Tags Amherst, Storm, Damage

Credits

Size 1 KB

Extent Left: -72.55 Right: -72.33
Top: 42.12 Bottom: 42.43

Editing Editors can add, update, and delete features.

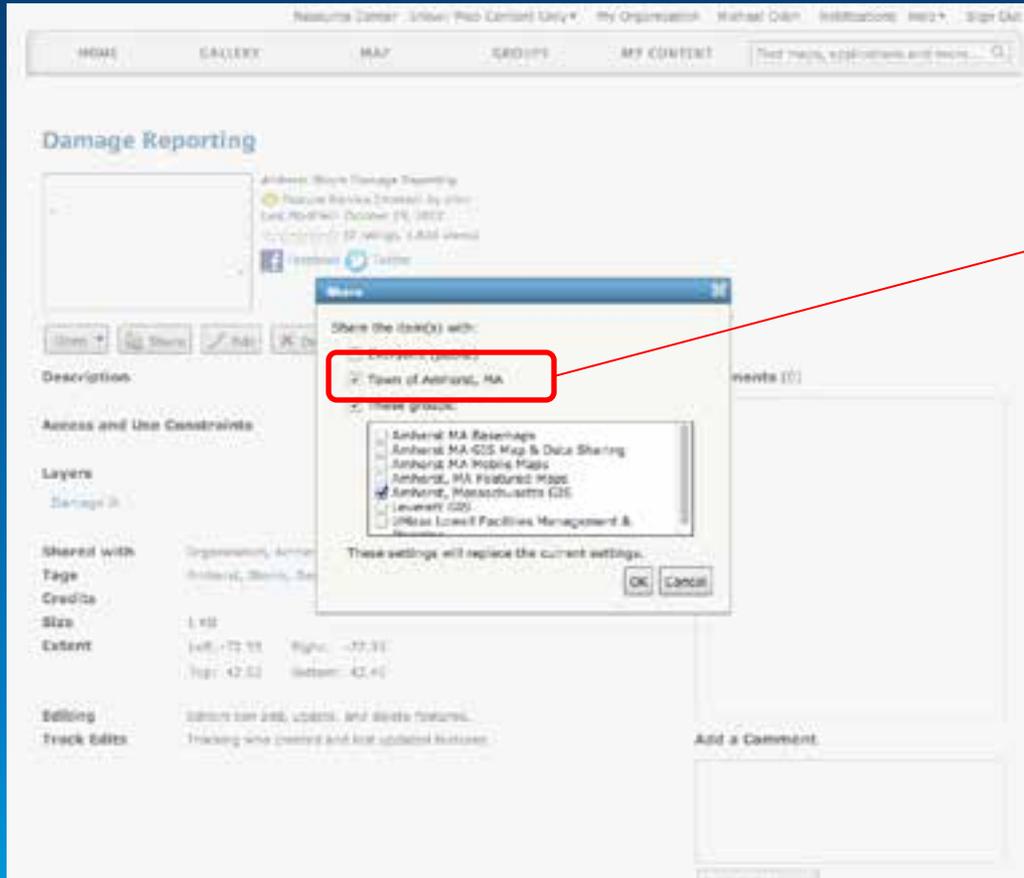
Track Edits Tracking who created and last updated features.

Comments (0)

Add a Comment

Public Comment

Hosted Feature Service Security



Hosted Feature Service

Description

Font: verdana Size: 12

Access and Use Constraints

Font: verdana Size: 12

Tags Amherst,Storm,Damage
Choose from your tags

Credits

Extent Left: 172.55 Right: 172.55 Top: 42.53 Bottom: 42.45

Editing Enable editing and allow editors to:
 Add, update, and delete features
 Update feature attributes only
 Add features only

Track Edits Keep track of who created and last updated features.
 Editors can only update and delete the features they add.

Hosted Feature Service

ArcGIS REST Services Directory

[Home](#) > [services](#) > [DamageReporting \(FeatureServer\)](#) > [Damage](#)

[JSON](#)

Layer: Damage (ID:0)

View In: [ArcGIS.com Map](#) [ArcGIS Explorer Online](#)

Name: Damage

Display Field: Type

Type: Feature Layer

Geometry Type: esriGeometryPoint

Description:

Copyright Text:

Min. Scale: 0

Max. Scale: 0

Default Visibility: true

Max Record Count: 1000

Supported query Formats: JSON

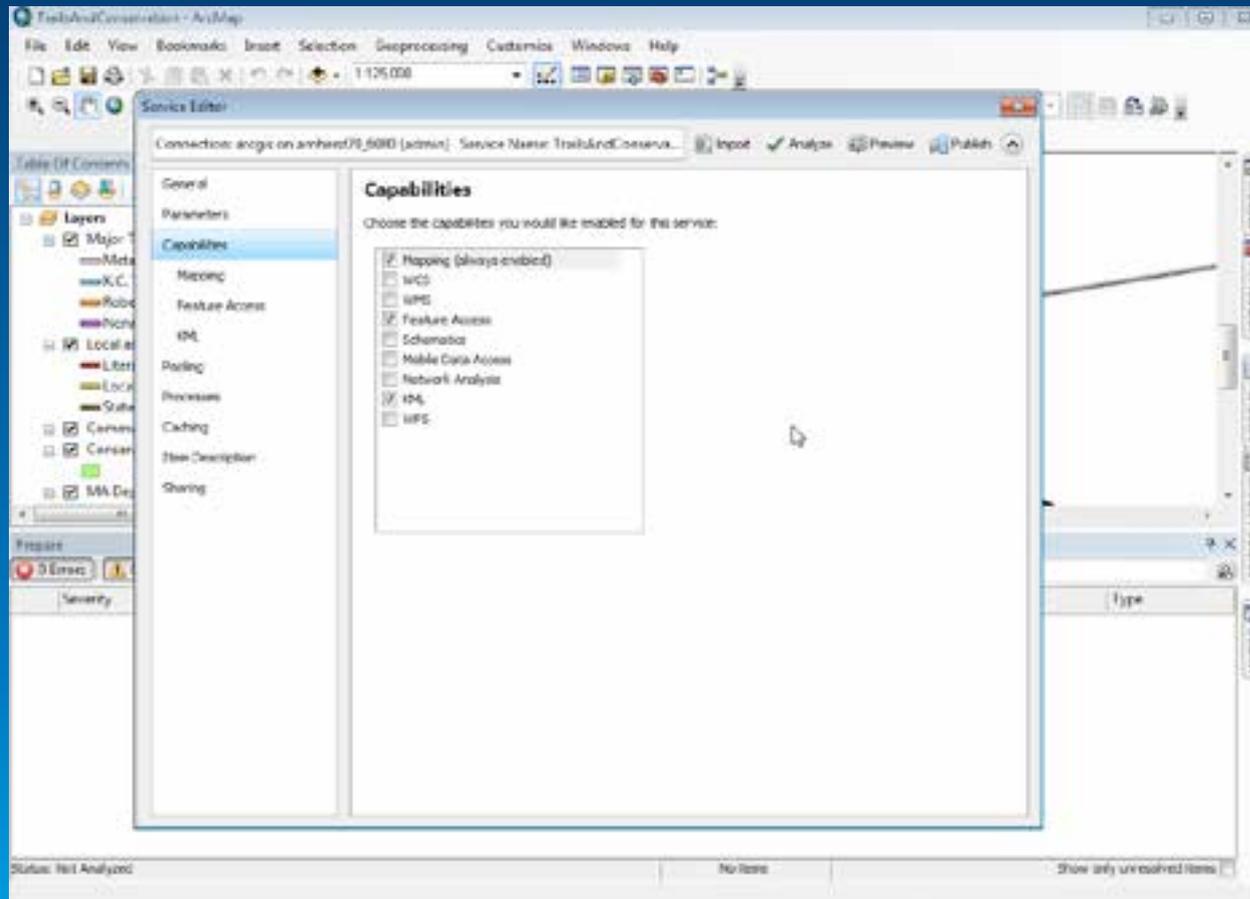
Extent:

XMin: -8054656.8569
YMin: 5238602.1148
XMax: -8051481.8505
YMax: 5239550.4502
Spatial Reference: 102100

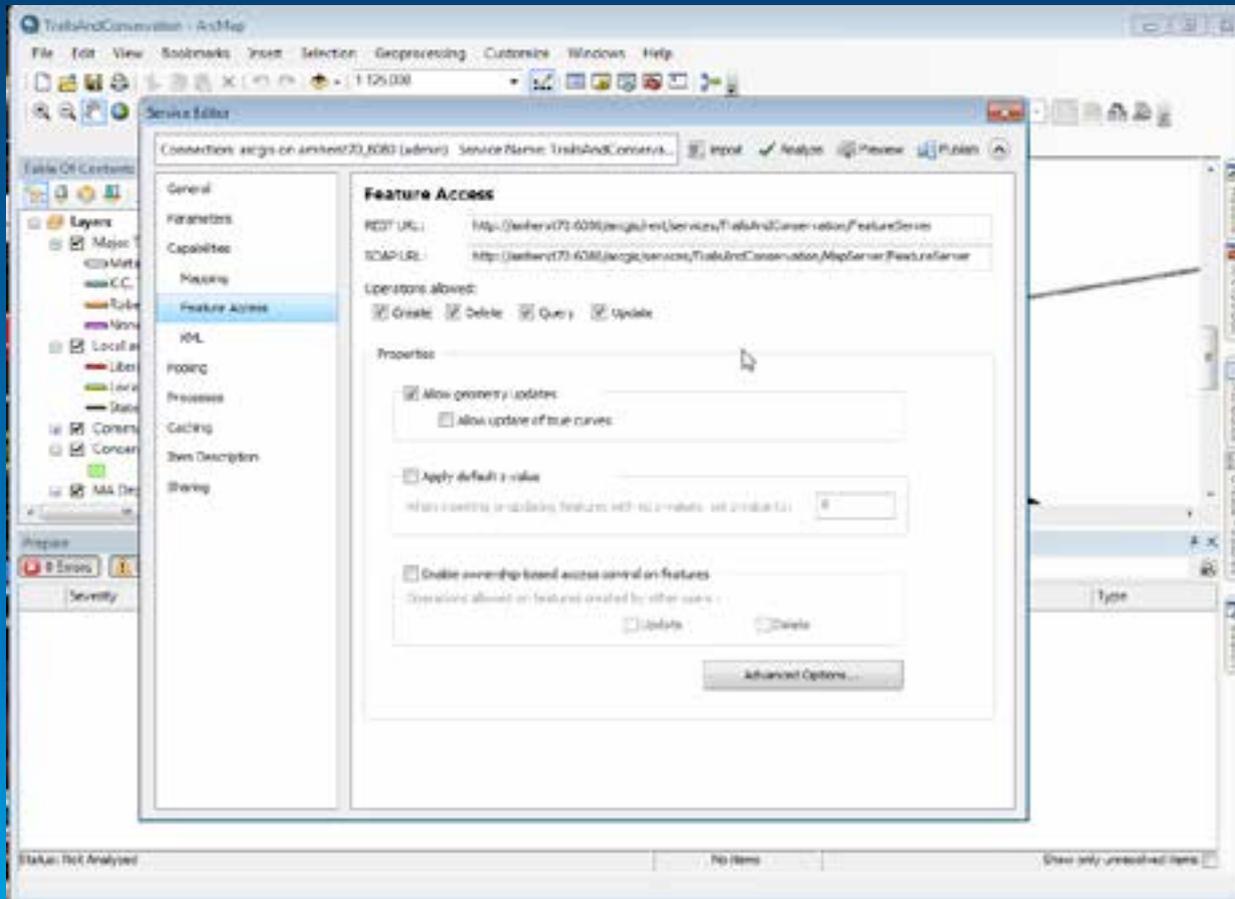
Drawing Info:

Renderer:
Unique Value Renderer:
Field 1: Status

AGS Feature Service



AGS Feature Service



AGS Service Security

The screenshot displays a list of six ArcGIS Online services. Each service entry includes a thumbnail, a title, a status, and instance statistics. The 'TrailQuest' service is circled in red.

Service Name	Type	Status	Instances Running	Instances in Use	Maximum Instances
Predicts	Map Service	Started	1	0	2
PropertyMap	Map Service	Started	2	0	2
SanJuanCrewMap	Map Service	Started	1	0	2
StreetTrees	Map Service	Started	1	0	2
TrailQuest	Map Service	Started	1	0	2
TrailsAndConservation	Map Service	Started	1	0	2

AGS Service Security

Additional login necessary for end users: This is your own local domain or AGS security, which is separate from ArcGIS Online.

There are other security options (token based, etc) that are not reviewed here.



Enabling Feature Access on an AGS Svc

The screenshot shows the ArcGIS Server Manager interface for editing a service named 'TraiRequest'. The 'Capabilities' tab is selected in the left-hand navigation pane. The main area displays a 'Select and configure capabilities' section with several checkboxes. The 'Feature Access' checkbox is highlighted with a red circle. Below this section, the 'Mapping Configuration' section shows the REST and SOAP URLs. The 'Operations Allowed' section shows 'Map', 'Query', and 'Data' checkboxes, all of which are checked. The 'Dynamic Workspaces' section has an unchecked checkbox for 'Allow per request modification of layer order and symbology'. At the bottom, there is a table with columns for 'Workspace ID', 'Type', and 'Connection String', and an 'Add' button.

ArcGIS Server Manager | Services | Site | Security | Logs

Manage Services | OGC Services | KML Network Links

Editing: TraiRequest [Help](#) [Save and Restart](#) [Cancel](#)

General
Parameters
Capabilities
Pooling
Processes
Caching
Item Description

Select and configure capabilities:

- Mapping (always enabled)
- WFS
- Schemas
- Network Analysis
- WFS
- WCS
- Feature Access**
- Mobile Data Access
- KML

Mapping Configuration

URLs

REST URL: <http://amherst20.6680/arcgis/rest/services/05/TraiRequest/MapServer>

SOAP URL: <http://amherst20.6680/arcgis/services/05/TraiRequest/MapServer>

Operations Allowed

- Map
- Query
- Data

Dynamic Workspaces

- Allow per request modification of layer order and symbology

To register a database, file geodatabase, shapefile or raster workspace, click Add

Workspace ID	Type	Connection String
--------------	------	-------------------

Add

Enabling Editing in your Web Map

The screenshot shows the ArcGIS Online interface with the 'Configure Attributes' dialog box open. The dialog box is titled 'Configure Attributes' and contains a table with columns: Display, Field Alias, Field Name, Allow Edits, TextBox Type, and Editing Hint. The 'Allow Edits' column is highlighted with a red box. The table lists several fields, including OBJECTID, Type, Notes, Reported, Completed, Creator, Editor, and EditDate. The 'Allow Edits' checkbox is checked for 'Type', 'Notes', 'Reported', and 'Completed', and unchecked for 'OBJECTID', 'Creator', 'Editor', and 'EditDate'. The 'TextBox Type' column shows dropdown menus for 'Single Line' and 'Multiple Line'. The 'Editing Hint' column is empty. The dialog box has 'OK' and 'Cancel' buttons at the bottom right.

Display	Field Alias	Field Name	Allow Edits	TextBox Type	Editing Hint
<input type="checkbox"/>	OBJECTID	{OBJECTID}	<input type="checkbox"/>		
<input checked="" type="checkbox"/>	Type	{Type}	<input checked="" type="checkbox"/>	Single Line	
<input checked="" type="checkbox"/>	Notes	{Notes}	<input checked="" type="checkbox"/>	Multiple Line	
<input checked="" type="checkbox"/>	Reported	{Reported}	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/>	Completed	{Completed}	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/>	Creator	{Creator}	<input type="checkbox"/>	Single Line	
<input checked="" type="checkbox"/>	Editor	{Editor}	<input type="checkbox"/>	Single Line	
<input checked="" type="checkbox"/>	EditDate	{EditDate}	<input type="checkbox"/>		

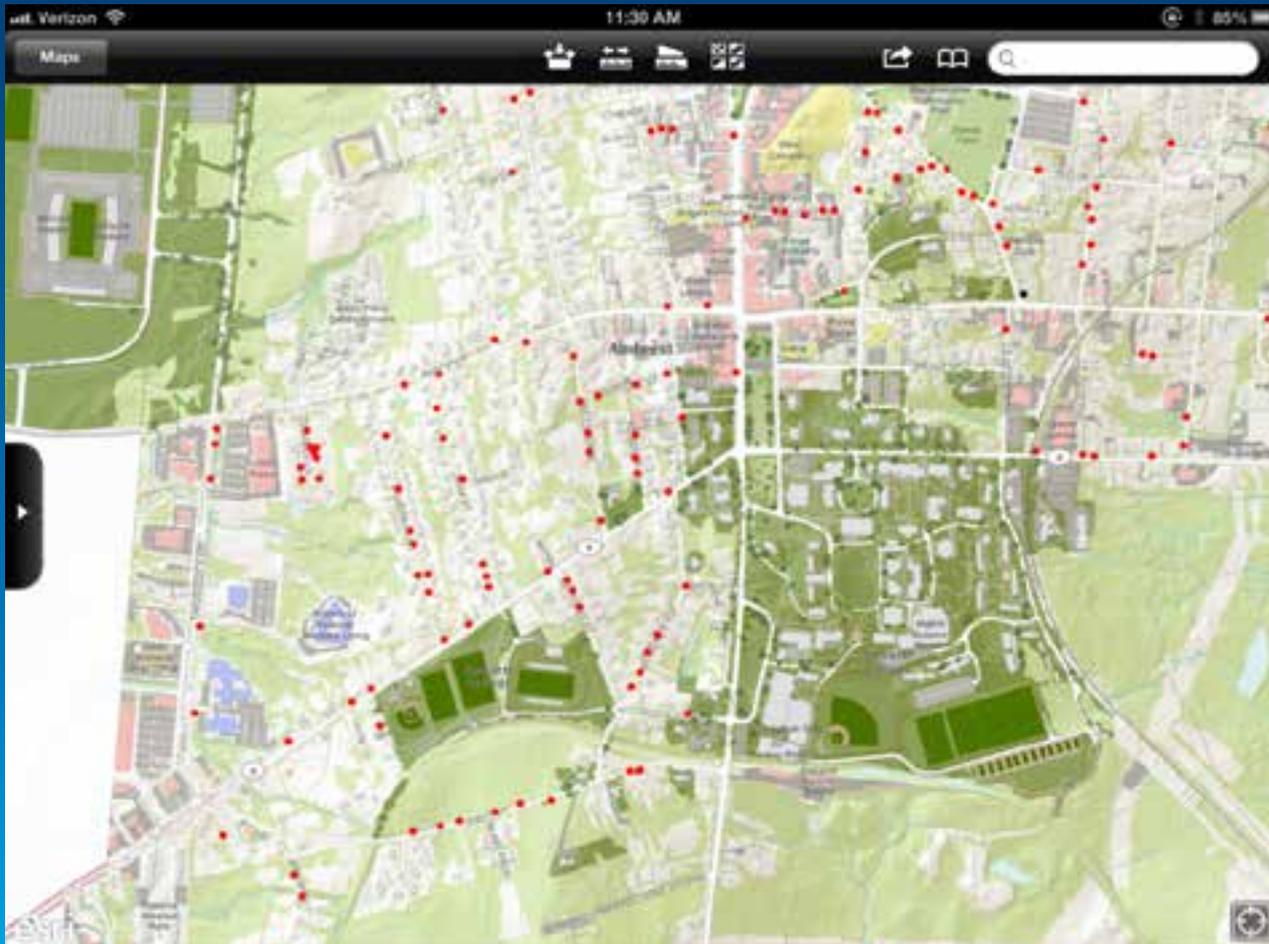
Amherst Example Mobile Maps

- Secured Staff Maps with Editable Features
 - Storm Damage Tracking
 - Street Tree Management & Maintenance
 - Invasive Species Inventory
 - Work Order Management
 - Water / Sewer / Drain Maps
 - Street Sign Inventory
- Publicly Accessible Maps
 - Trails & Conservation Land Maps
 - Parking
 - Property Maps
 - Trail Obstruction Reporting

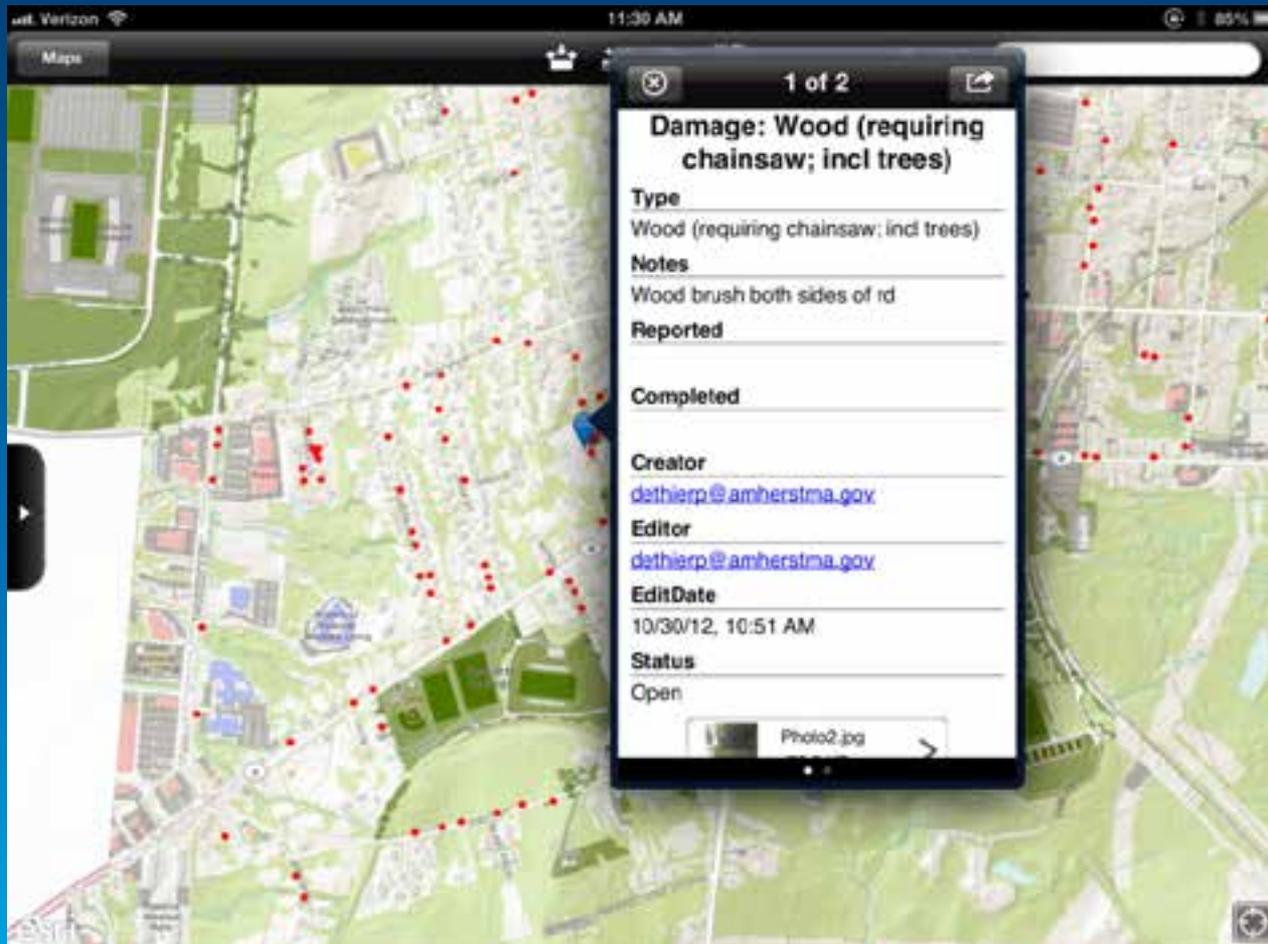
Storm Damage Tracking

- Initiated on October 29th 2012 for Hurricane Sandy
 - Hosted Feature Service
 - Setup in <1 hour
 - Field observations with iPads by Engineering Staff
 - Available at the EOC as a “live” web map
 - Used during cleanup in days after the storm
 - Used for federal roadway cleanup reimbursements

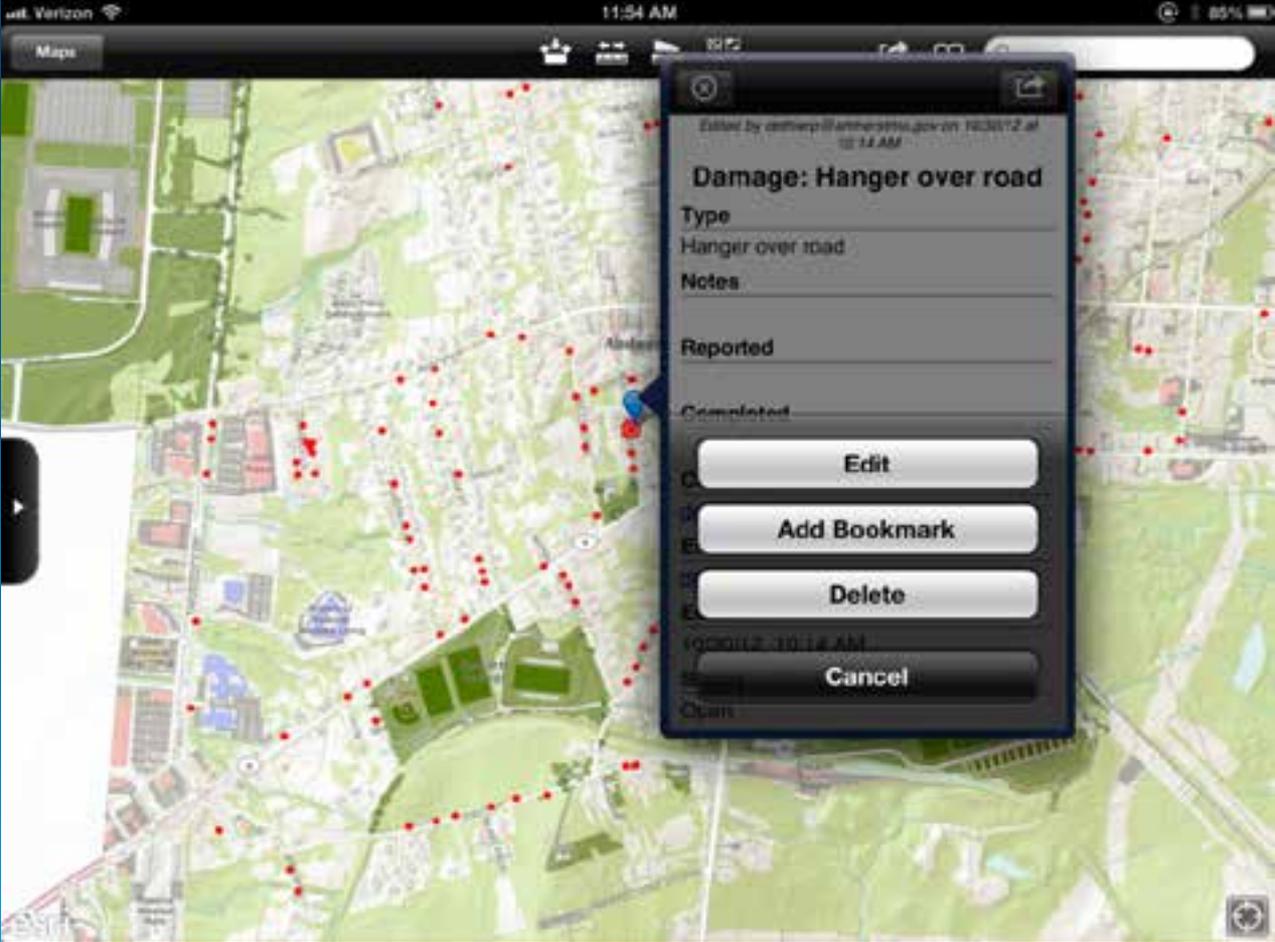
Storm Damage Tracking



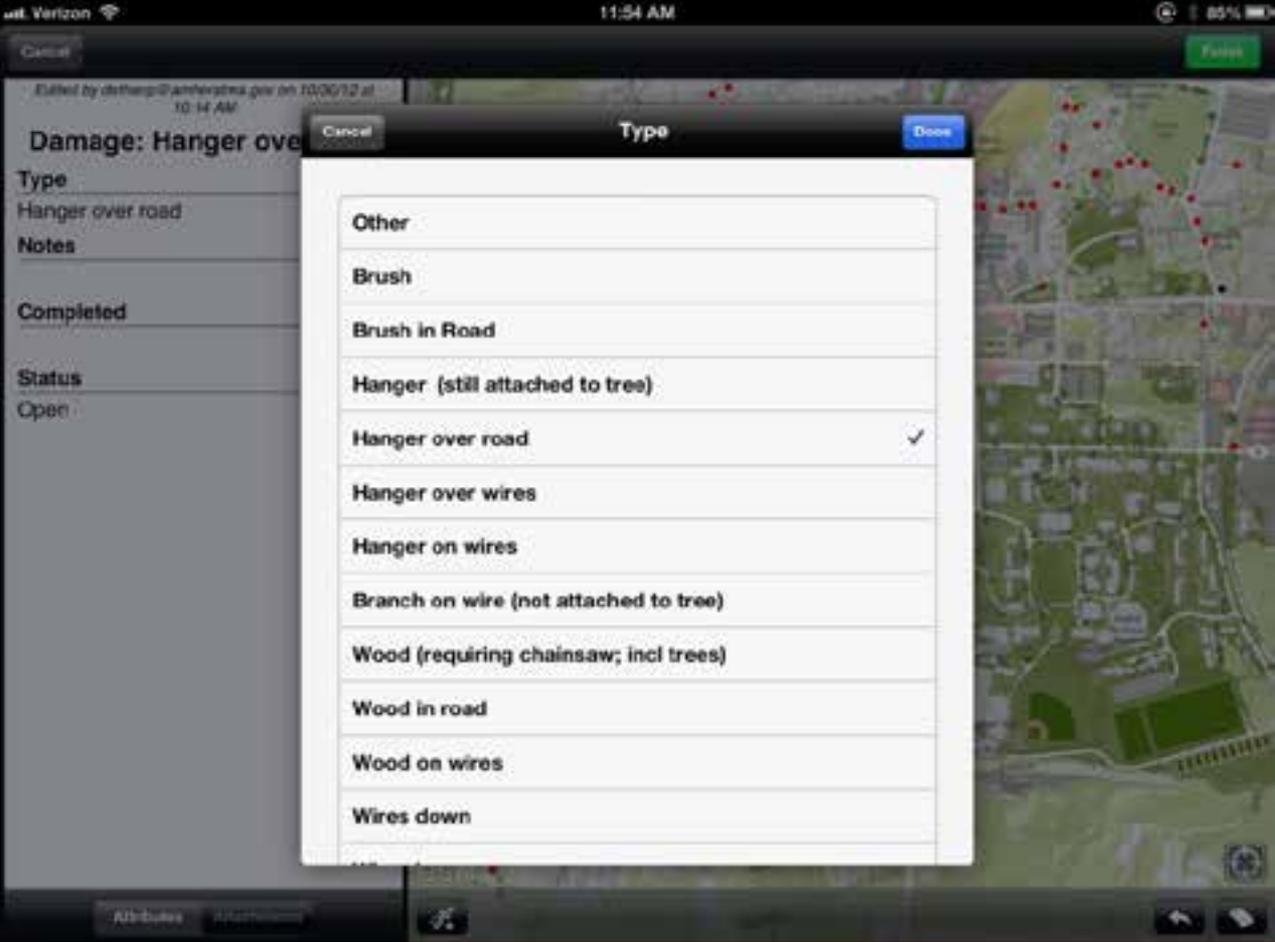
Storm Damage Tracking



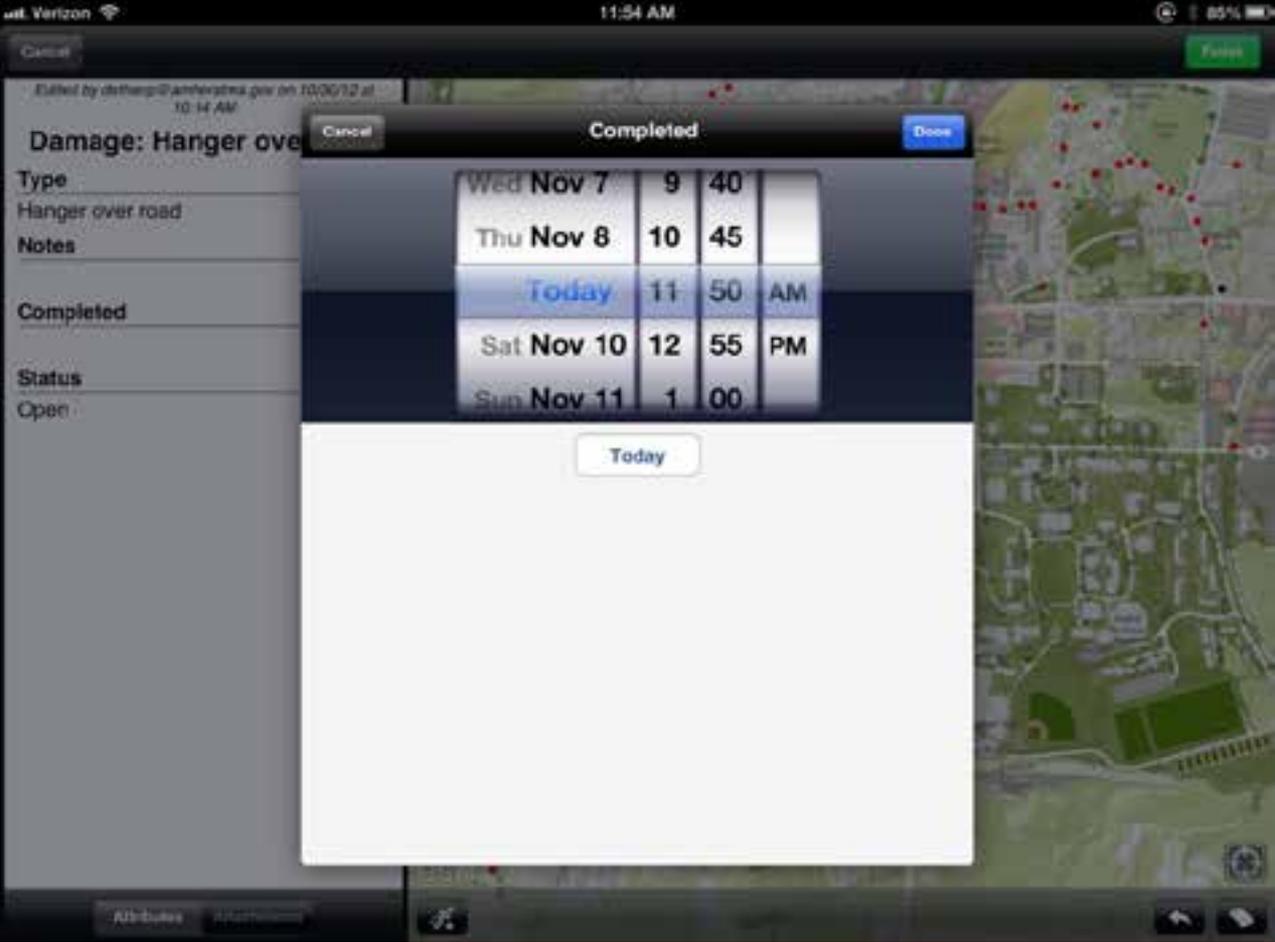
Storm Damage Tracking



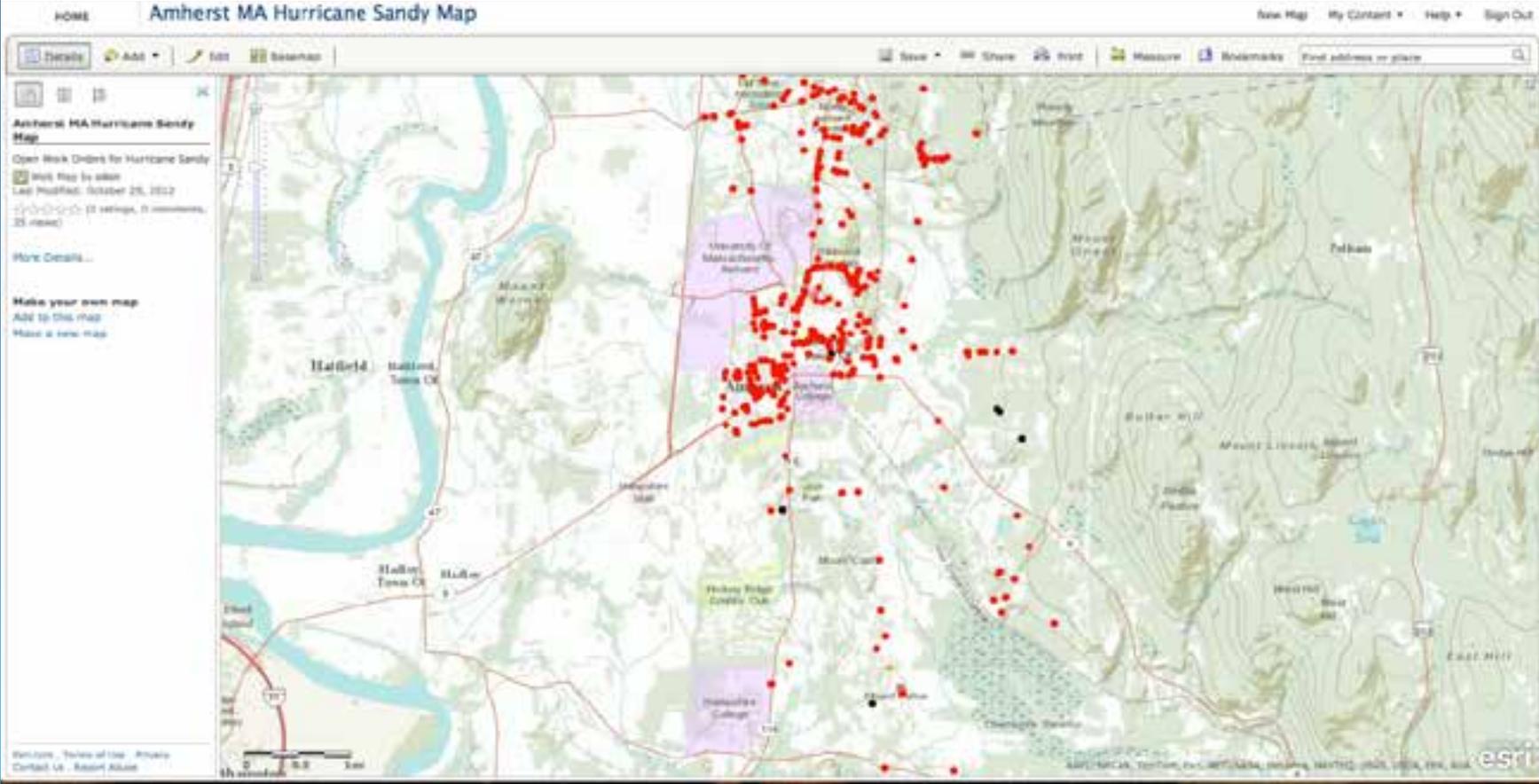
Storm Damage Tracking



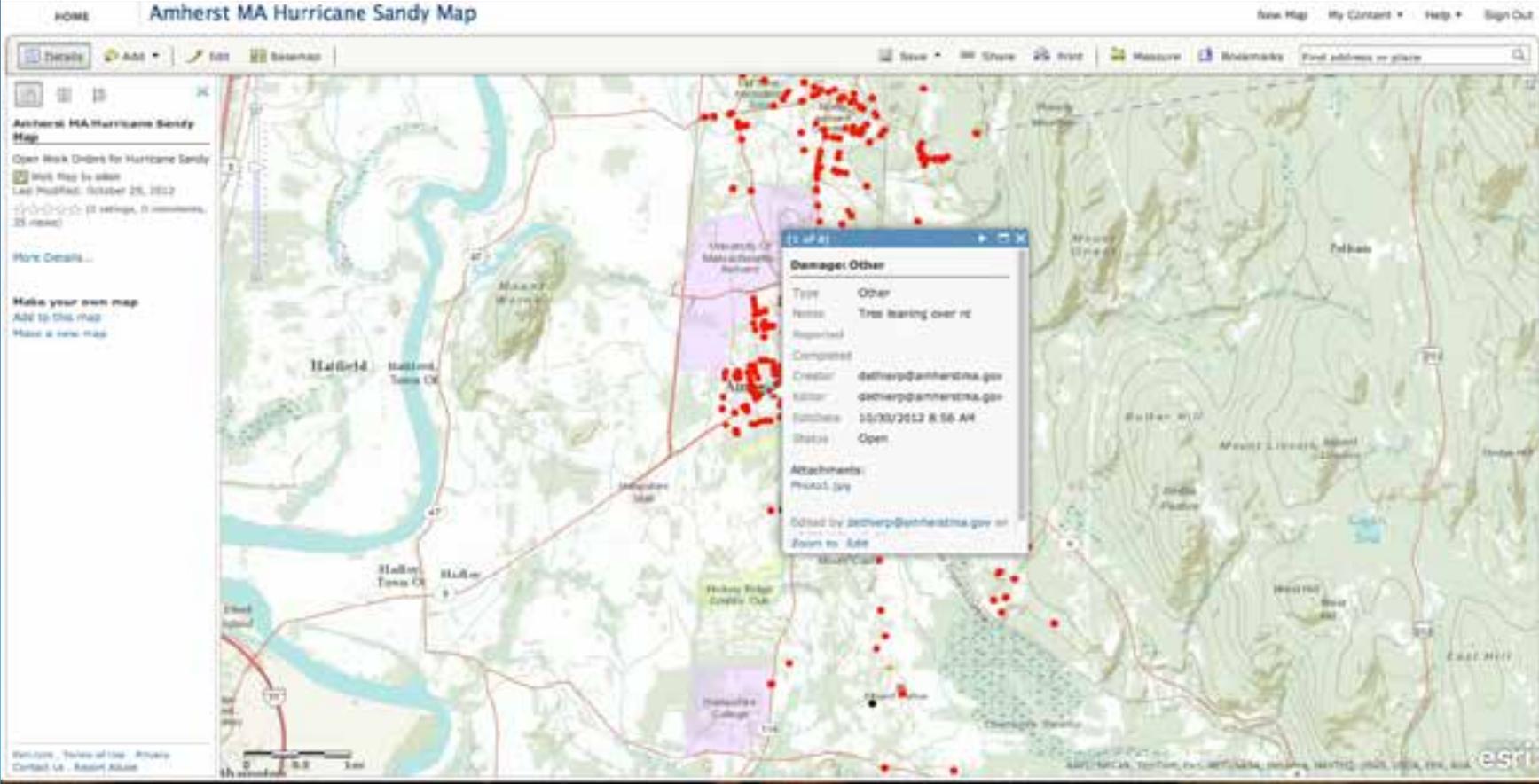
Storm Damage Tracking



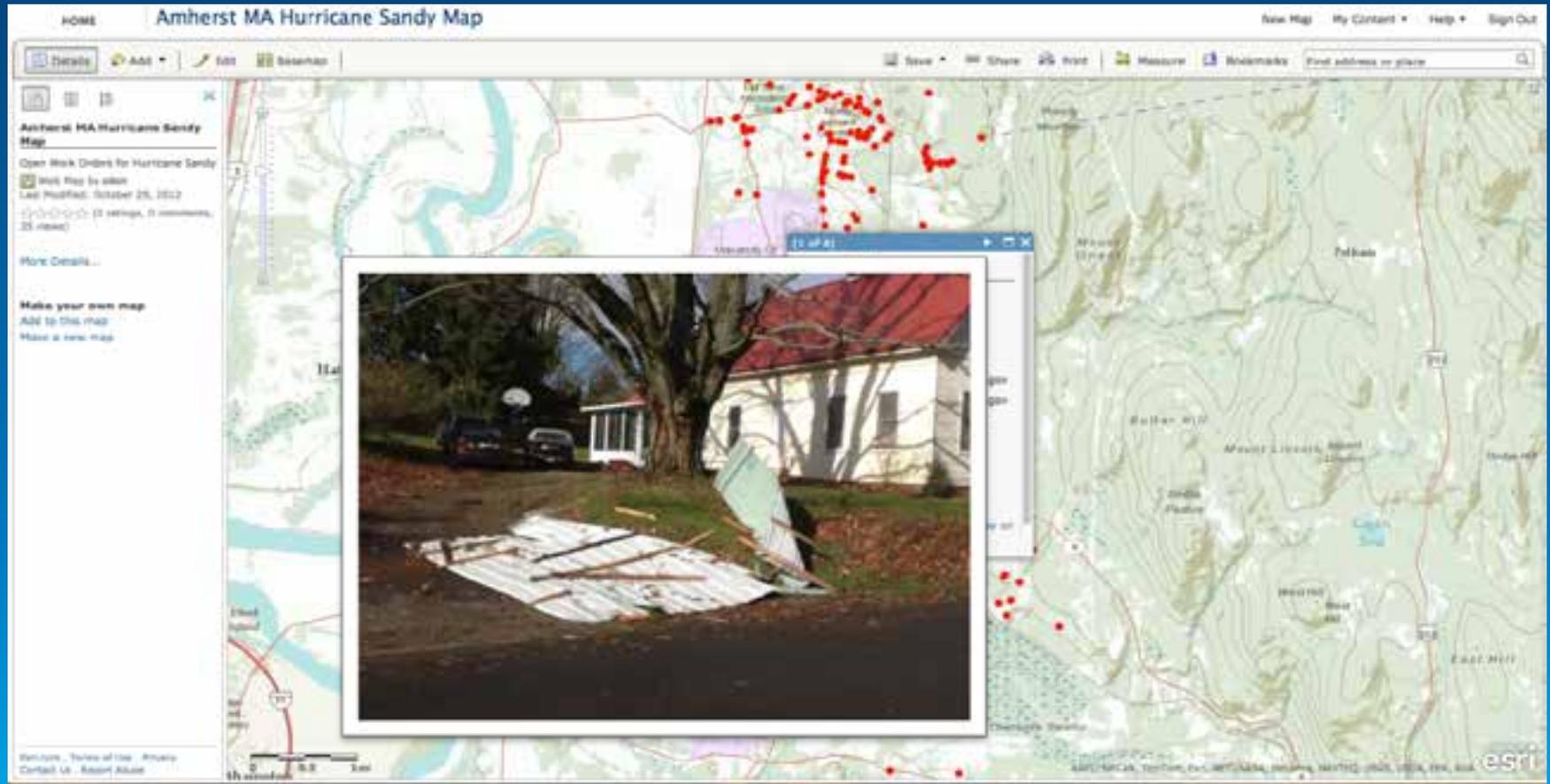
Storm Damage Tracking EOC “Live” event tracking map



Storm Damage Tracking EOC “Live” event tracking map

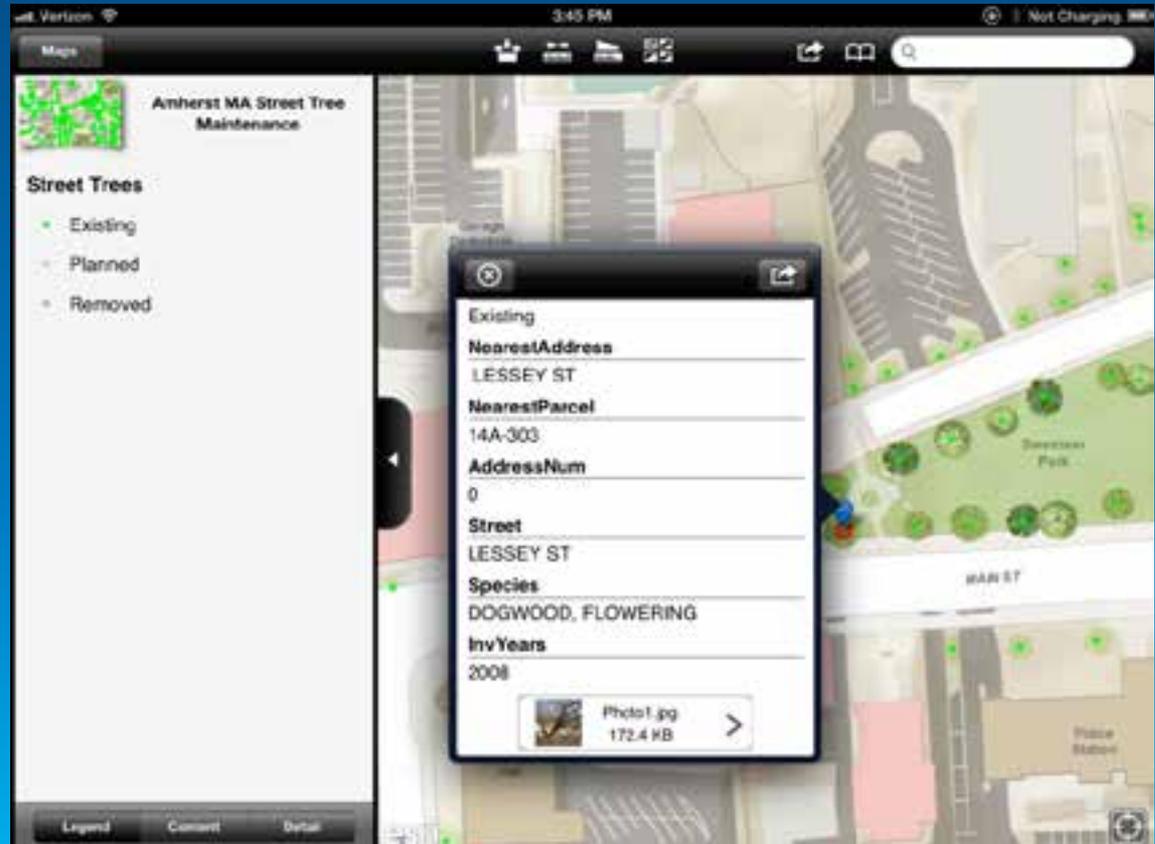


Storm Damage Tracking EOC “Live” event tracking map



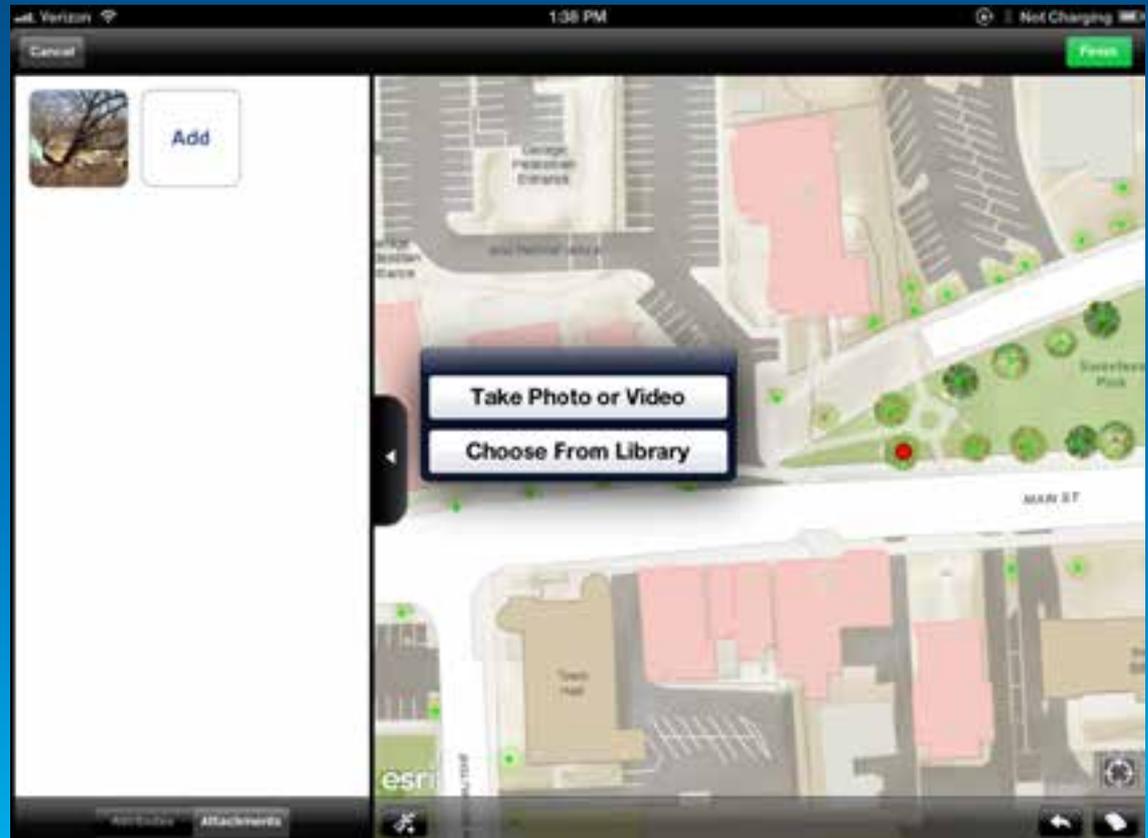
Street Tree Management

- Add Planned New Plantings
- Update Inventory Info
- Attach Photos



Street Tree Management

- Add Planned New Plantings
- Update Inventory Info
- Attach Photos



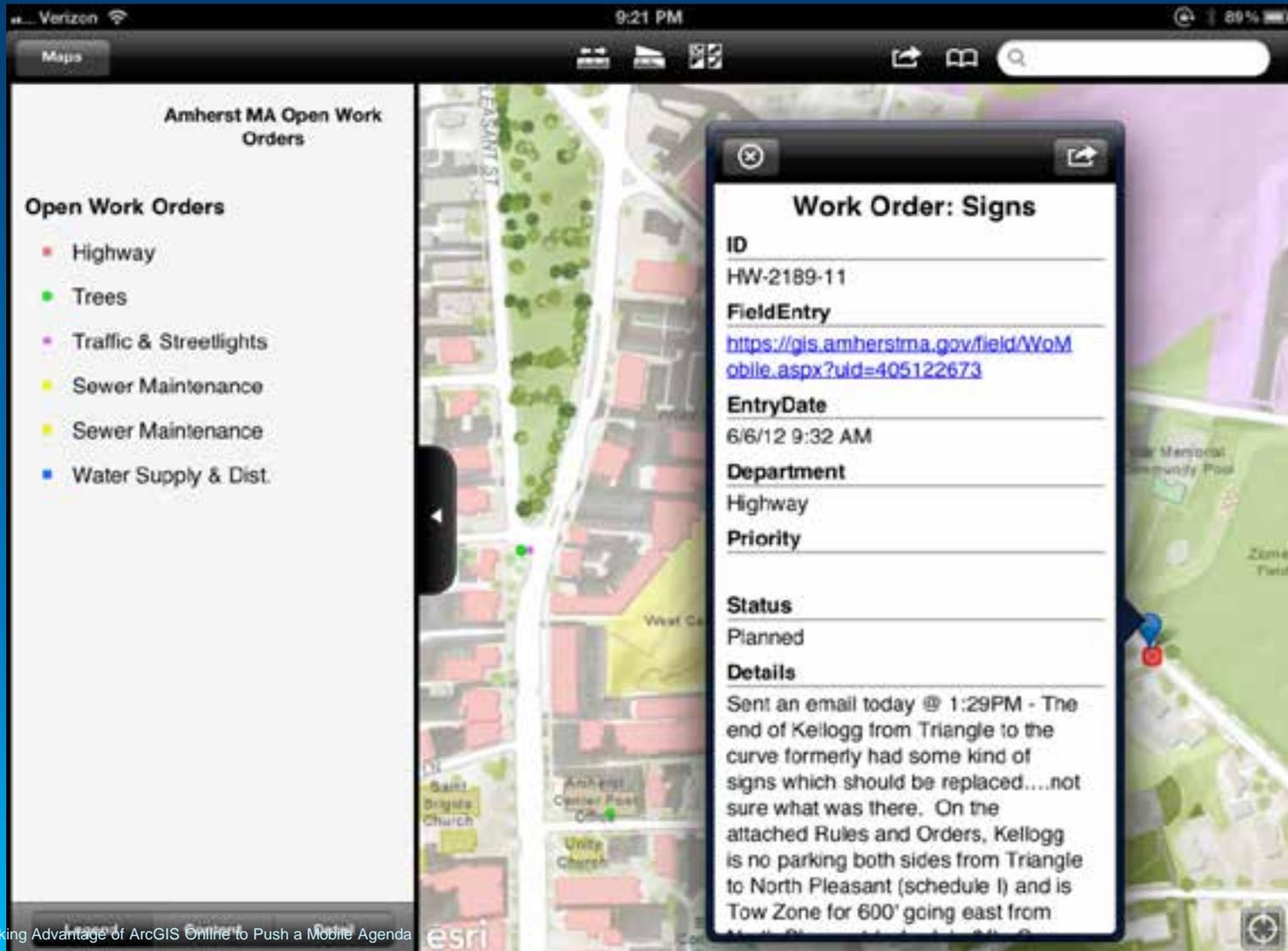
Invasive Species Inventory

A volunteer effort on Amherst Conservation Areas conducted by a college student, Summer 2012



Work Order Management

Work Order access from the field



Work Order Management

Close Out Work Orders from the field

The screenshot displays a mobile GIS application interface. On the left, a sidebar titled "Amherst MA Open Work Orders" lists categories: Highway, Trees, Traffic & Streetlights, Sewer Maintenance, and Water Supply & Dist. The main area shows a map of Amherst, MA, with a green dot indicating a work order location. A detailed view of a work order is shown, titled "Work Order: Signs". The work order details include:

- ID: HW-2189-11
- FieldEntry: <https://gis.amherst.org/mobile.aspx?uid=...>
- EntryDate: 6/6/12 9:32 AM
- Department: Highway
- Priority: (blank)
- Status: Planned

A dropdown menu is open, showing the following options:

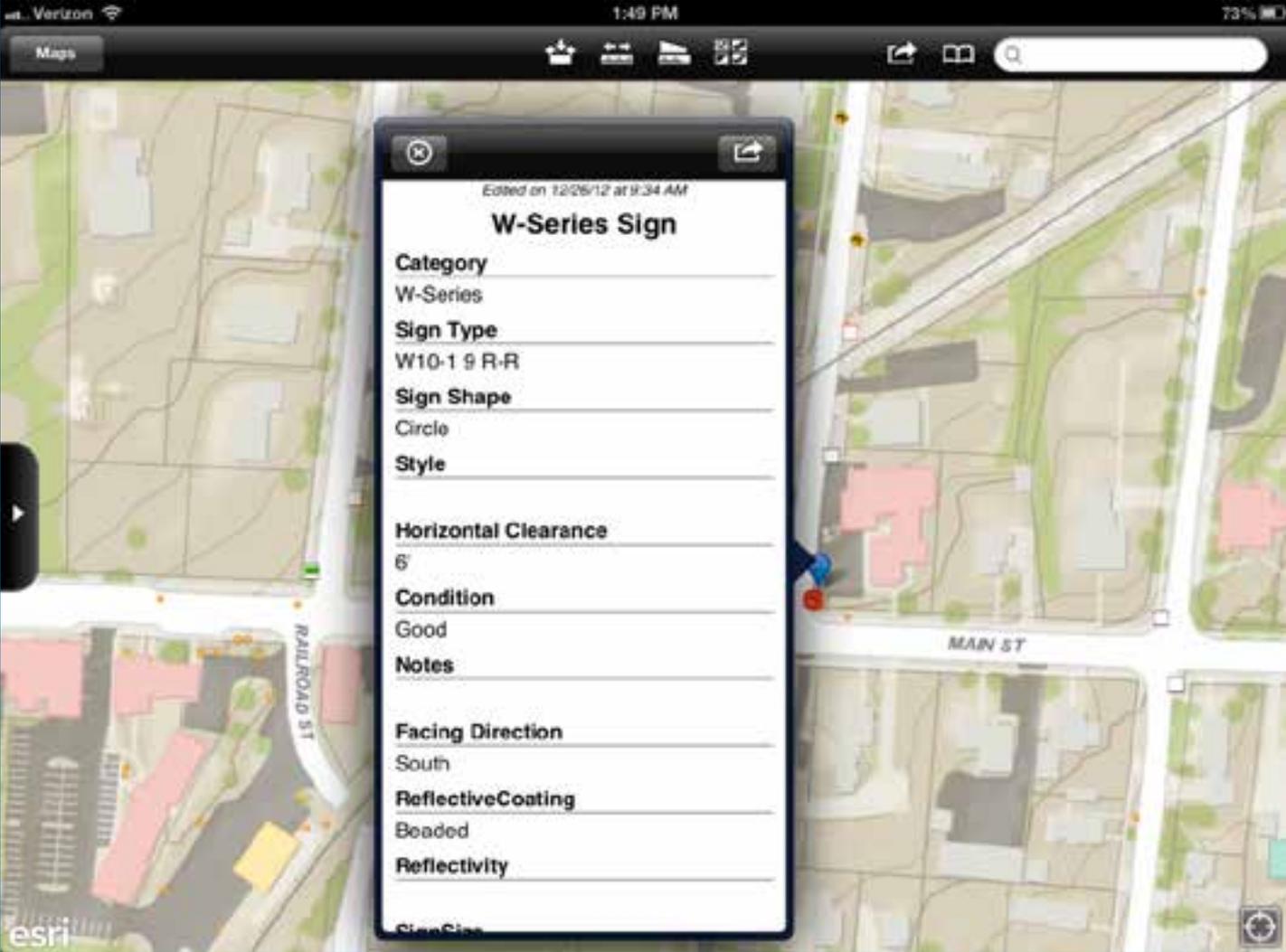
- Completed
- Given to tree warden
- In Progress
- On Hold
- Planned (checked)

The work order details also include a "Details" section with the following text:

Sent an email to the end of Kellogg to the curve formerly had some kind of signs which should be replaced. ...not sure what was there. On the attached Rules and Orders, Kellogg is no parking both sides from Triangle to North Pleasant (schedule I) and is Tow Zone for 600' going east from North Pleasant (schedule IV). See attached

The interface also shows a "Reported" date of 06/06/2012 and "Update" and "Cancel" buttons.

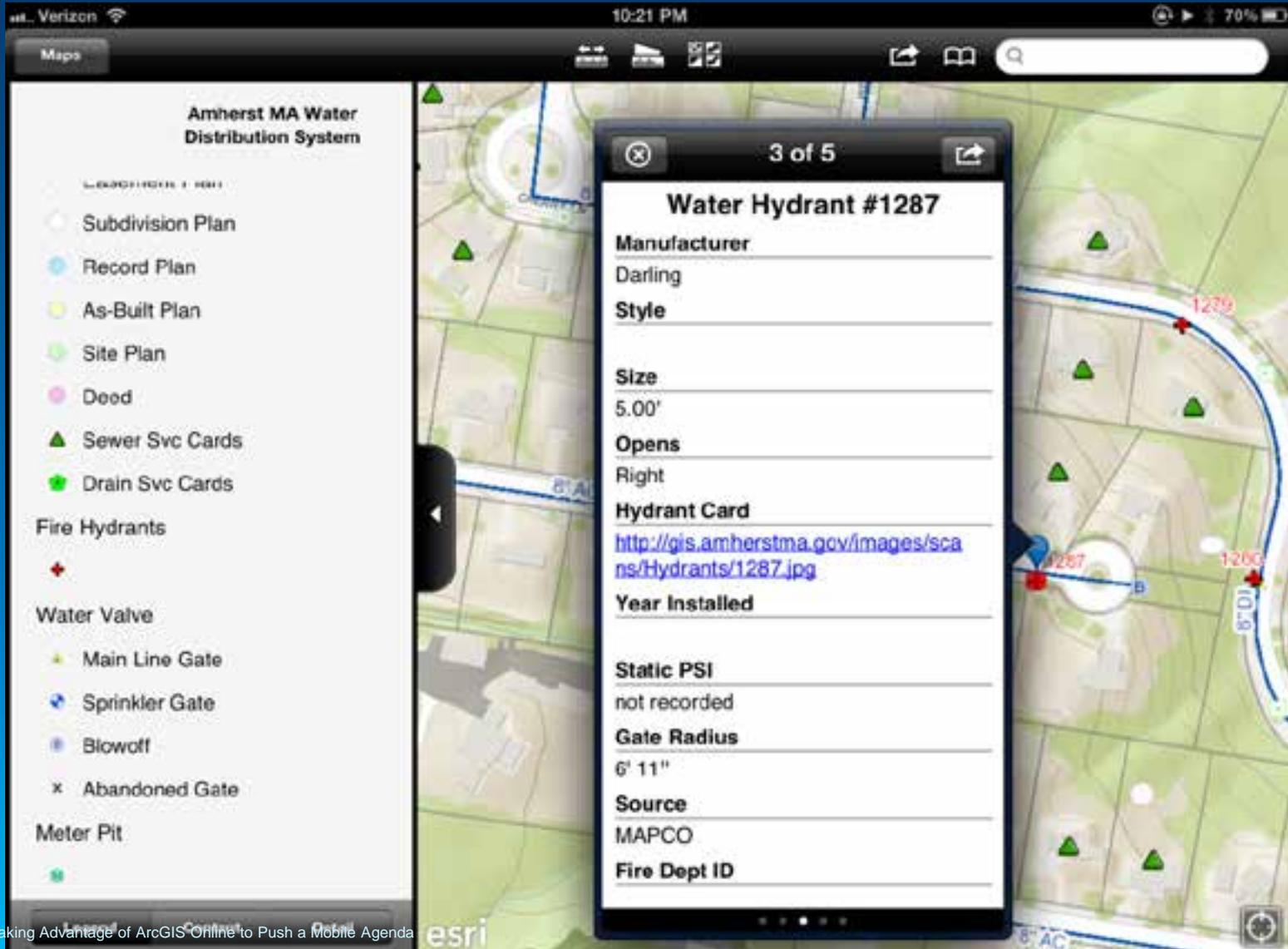
Sign Inventory & Maintenance



Sign Inventory & Maintenance



Utility System Maps



Utility System Maps

Amherst MA Water Distribution System

LEGEND

- Subdivision Plan
- Record Plan
- As-Built Plan
- Site Plan
- Deed
- Sewer Svc Cards
- Drain Svc Cards
- Fire Hydrants
- Water Valve
 - Main Line Gate
 - Sprinkler Gate
 - Blowoff
 - Abandoned Gate
- Meter Pit

Water Hydrant #1287

3 of 5

Manufacturer
Darling

Style

Size
5.00'

Opens
Right

Hydrant Card
<http://gis.amherstma.gov/images/scans/Hydrants/1287.jpg>

Year Installed

Static PSI
not recorded

Gate Radius
6' 11"

Source
MAPCO

Fire Dept ID

Hydrant Gate for Sherman Lane
2nd Hyd on the right

1287

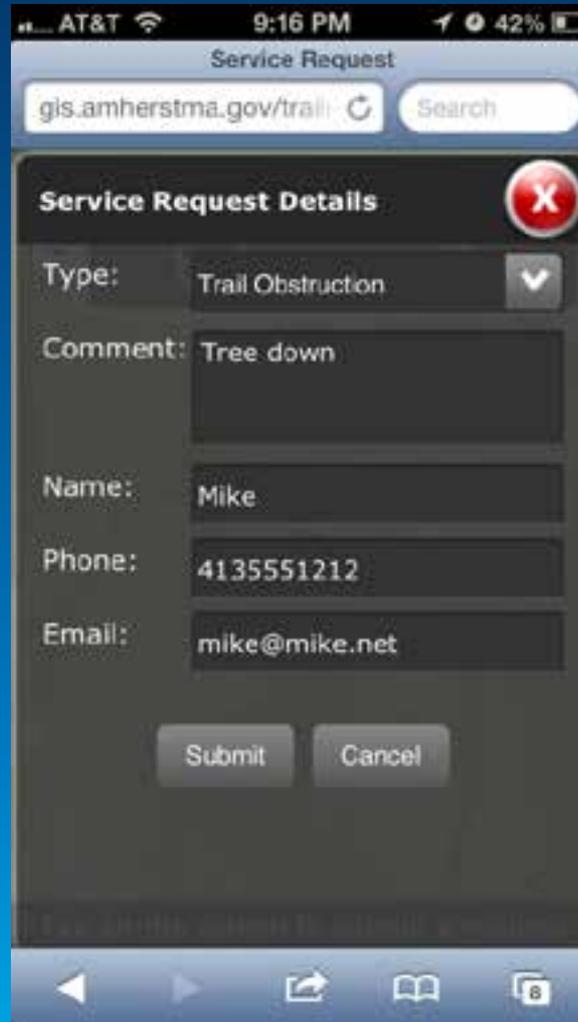
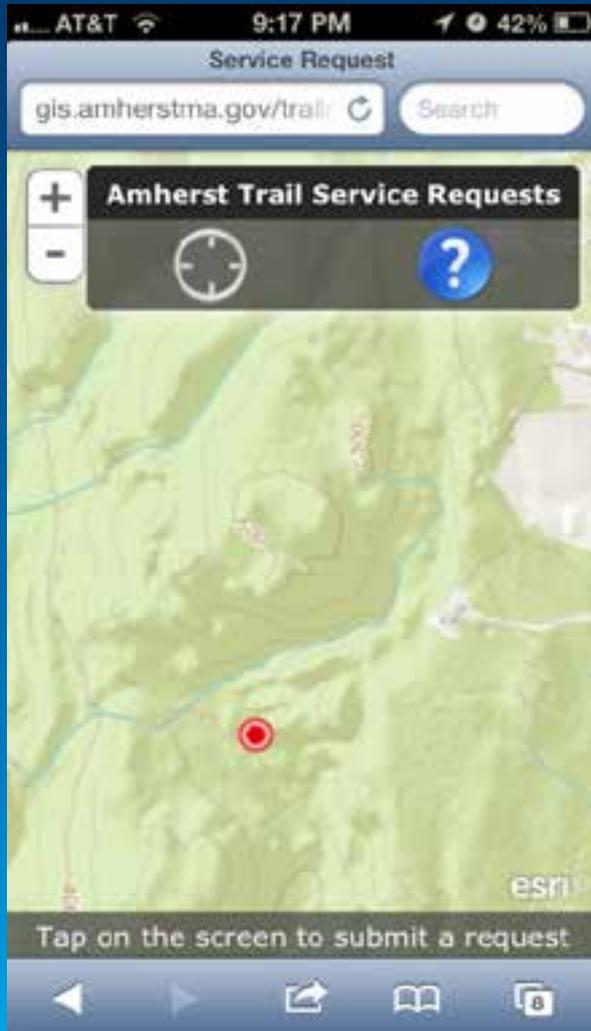
Subdivision L.L.

HYD. 1287

HYD.

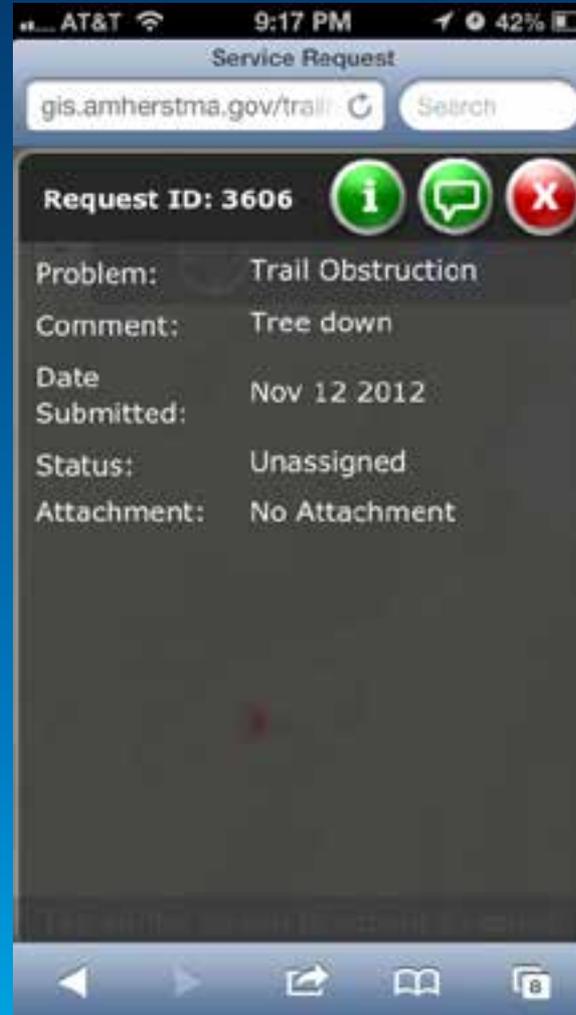
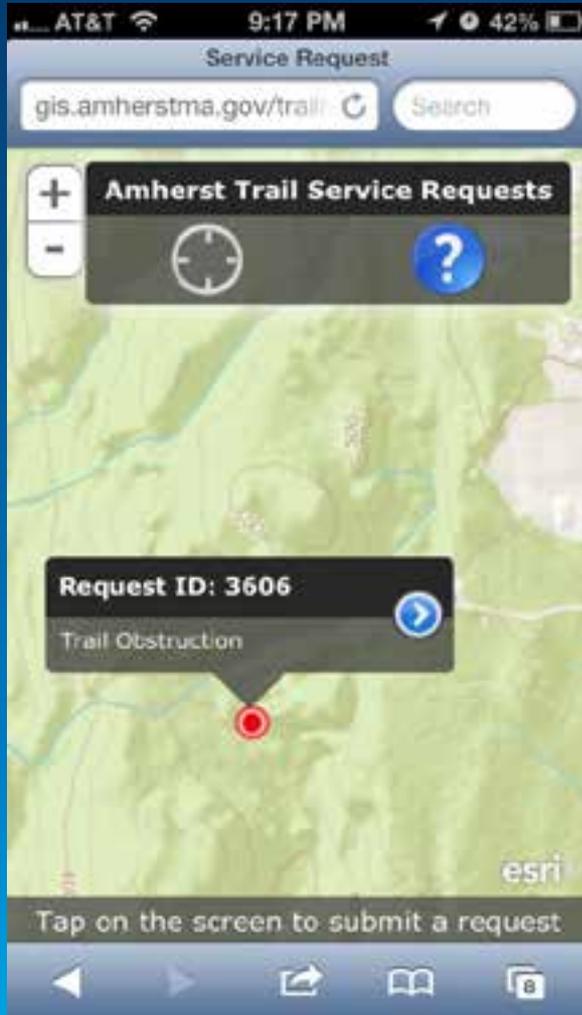
11-28-67

Trail Obstruction Reporting



Built using the “Citizen Service Requests (ArcGIS 10.1)” HTML5 / JavaScript application template, posted on ArcGIS.com.

Trail Obstruction Reporting



Built using the “Citizen Service Requests (ArcGIS 10.1)” HTML5 / JavaScript application template, posted on ArcGIS.com.

Trails & Conservation Land

The image displays a web application for "Amherst MA Trails & Land Conservation". The desktop interface at the top features the "AMHERST MASSACHUSETTS" logo and a navigation menu with icons for LIVING, VISITING, BUSINESS, GOVERNMENT, BOARDS & COMMITTEES, DEPARTMENTS, and ONLINE SERVICES. Below the menu, a breadcrumb trail reads: "You are here: Home > Departments > Conservation and Development > Conservation > Conservation Areas & Ecological Management > Map".

The main content area is titled "Conservation Area & Trail Map" and includes a legend for "Trails & Land Conservation". The legend categories are:

- Major Trails:** Metacombet and Monadnock Trail (blue line), K.C. Trail (green line), Robert Frost Trail (orange line), Nonwotuck Rail Trail (purple line).
- Local and Literary Trails:** Literary Trail (red line), Local Trail (yellow line), State Trail (grey line).
- Community Boundaries:** Represented by a grey outline.
- Conservation Areas:** Represented by green shaded regions.

The mobile phone view, shown as an inset, displays the same map on a smaller screen. The phone's status bar at the top shows "AT&T", signal strength, Wi-Fi, the time "1:57 PM", and a battery level of "77%". The mobile interface includes zoom-in (+) and zoom-out (-) buttons and shows the map with the same trail and conservation area data as the desktop version.

Parking

AMHERST MASSACHUSETTS

Search amherstma.gov

LIVING VISITING BUSINESS GOVERNMENT BOARDS & COMMITTEES DEPARTMENTS ONLINE SERVICES

You are here: Home > Departments > Finance > Treasurer/Clerk > Parking in Amherst

Parking in Amherst

PARKING IN AMHERST

We're making parking in Amherst Center even more convenient!
www.amherstma.gov/parking

Contact

Parking Clerk
4 Bolwood Avenue
Amherst, MA 01002
parking@amherstma.gov
Phone 413-255-3023

Enforcement

The New Meters

Payments

Permit Parking

Rates & Fees

Winter Parking

Hours

Mon, Tue, Wed and Fri
8:00a to 4:30p
Thursday
12:00p to 4:30p

News!

You will find the [new pay-by-space meters](#) are paperless, accept credit cards and are even linked to each other. Email us your questions and suggestions parking@amherstma.gov

ONLINE PAYMENTS \$

MAPS & PROPERTY INFO

EMERGENCY ALERTS

JOB & APPLY ONLINE

BLOGS & FORUMS

TOWN CALENDARS

AMHERST BIENNIAL 2012

Articles View Tour Book

Legend

Parking

- Public Parking Lots
- Parking Lot
- Bolwood Garage
- Parking Costs

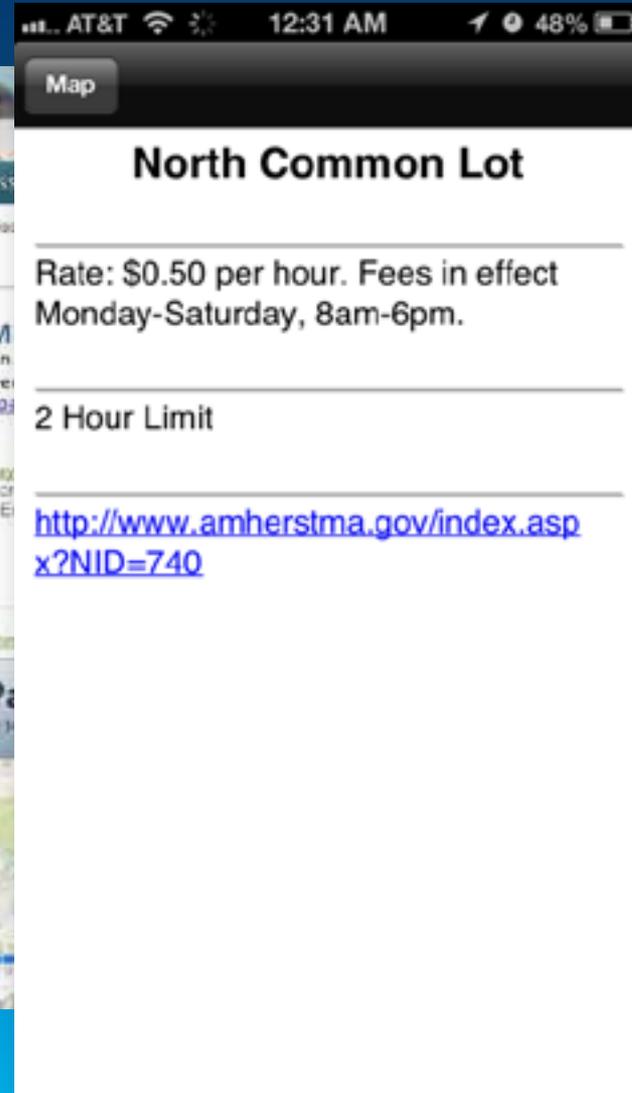
Amherst Center Parking Map

Lots & meters \$.50 per hour. Fees in effect Monday-Saturday during posted times. Click on the map for more info.

Legend

- Public Parking Lots
- Parking Lot
- Bolwood Garage
- Parking Costs

Parking



Take Our Maps With You

www.amherstma.gov/mmmaps

AMHERST MASSACHUSETTS

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Living VISITING BUSINESS GOVERNMENT BOARDS & COMMITTEES DEPARTMENTS ONLINE SERVICE

You are here: Home > Departments > Information Technology > Geographic Information Systems > GIS Resources > Amherst Maps Mobile

Amherst Maps Mobile

The ArcGIS App for Smartphones and Tablets provides access to Amherst's extensive set of maps from anywhere. This free app can be downloaded from Google Play, the Apple App Store, Amazon Appstore, and Windows Marketplace.

Once you have the ArcGIS App, just search for "Amherst" to find all of our mobile maps, including [Jobs & Construction Access](#), [The Amherst Property Map](#), [Amherst Census Tracting](#), [zoning](#) and more!

[System Requirements and More Information](#)

Available on the **App Store**

Available on **Google play**

Available on **Windows Phone 7**

Available on **Amazon Appstore**

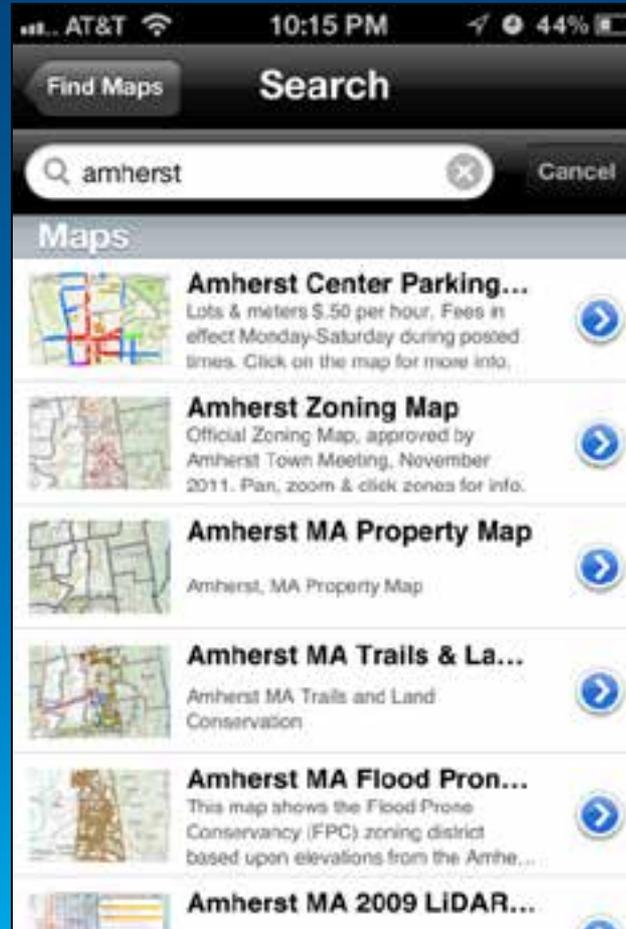
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Search for “Amherst”
in the ArcGIS App



Taking Advantage of ArcGIS Online to Push a Mobile Agenda



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olkinm@amherstma.gov