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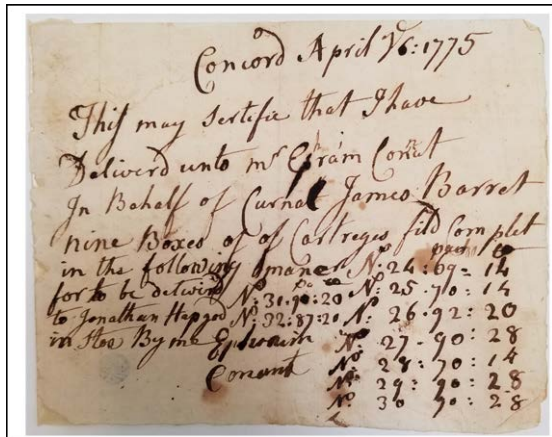
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**1. Revolutionary War Supply Caches**

A few months ago I received a call from Joel Bohy, director of Historic Arms & Militaria at Bruneau and Co. Auctions. Joel spends much of his time researching historic objects. (You may have seen him appraising historic material on the PBS series Antiques Roadshow.) He called to request mapping assistance for a project on supply caches created by Massachusetts colonists in preparation for war with the British. Here's Joel:

*"As a kid growing up in Concord, I was fascinated with the start of the American Revolution. I read the "History of Concord" by Lemuel Shattuck when I was 10 or 11. The book mentioned the lists of military stores and provisions stored in the town; the reason the British marched from Boston to Concord on April 19, 1775 was to destroy these stores.*



*"The material was being stockpiled in Concord to supply an army the Provincials were forming – which in the minds of the British was illegal. The Concord folks who stored all of these supplies were taking a huge risk.*

*"Shattuck's book mentioned papers from Colonel James Barret who was in charge of the military stores in town. I looked for these papers for many years without success. Then a friend happened to be doing some research at the American Antiquarian Society and found them there. After photographing all of the AAS documents, I*

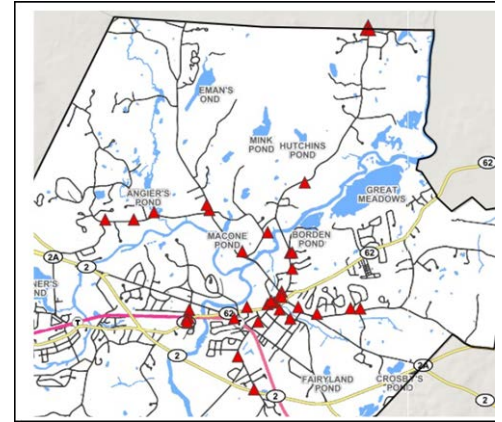
*expanded my search into the Massachusetts State Archives and other collections.*

*"Over more than two years I accumulated around 650 documents that relate to military supplies coming in and out of Concord from 1774-1783. While it was known that from late 1774 to the spring of 1775 there were supplies in the town, nobody really knew how much there was, nor that the supplies continued to flow through the entire war, albeit from a centralized location starting in May, 1775.*

“As I studied the documents and tracked down the locations of the homes used to store the material I thought that seeing it all mapped would show just how spread out all of the material stores were (red triangles, right).

“I plan to share this information, including the map, with the Concord Museum as well as the rangers at Minute Man National Historical Park to use as an interpretive and educational tool. I also want to write about the information and then donate my materials to the Concord Library for the benefit of future researchers studying the start of the American Revolution.”

Thanks Joel, for your historical enthusiasms, and for a fascinating mapping opportunity!

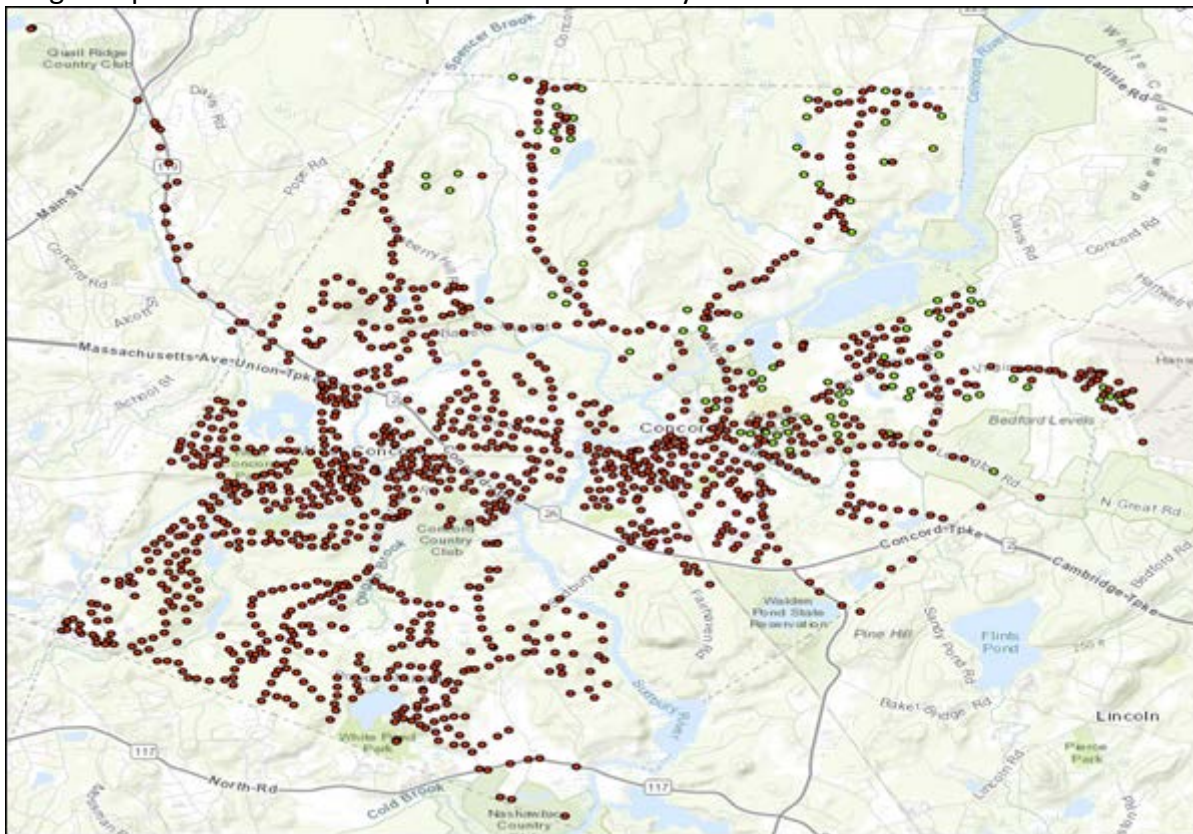


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## 2. Public Works Hydrant Flushing

The Water and Sewer division has started preparations for their routine Spring hydrant flushing program. Hydrant flushing is an essential part of Public Works operations. This process clears out any stagnant water in our pipeline, removes sediment and other contaminants in the water system, and tests the efficiency and pressure of each hydrant.

We track our flushing program using tablets, where we have configured ArcCollector and ArcOnline to collect our data. All green points in the screen capture below were hydrants flushed in the Fall of 2020.



When flushing a hydrant, the crew records such information as flush date and time, inspector, sediment and color, as well as any notes or if the hydrant needs repairs. By keeping this information in a digital format, we can relate it back to our GIS infrastructure for long term record keeping. It's also easily exportable into an Excel spreadsheet for state reporting requirements.

Our ArcCollector application has been structured to work completely offline so that network connectivity is not necessary when flushing. Crew members have been empowered to leverage our technology that allows for better record keeping and more efficient work processes.

CPWGIS_Lib.CPWCREATOR.wHydrantFlushing: HG06-004	
Facility ID	HG06-004
Location	Red Coat Lane
Install Date	4/4/12
Manufacturer	Smith
Model	
Steamer	5 1/4
Breakaway	No
Branch	Yes
Flush Date	10/20/2020, 12:44 PM
Inspector	B. Pileeki
Total FlushTime	10-15 min
Sediment	Light
Color	Clear
Notes	
Completed	Yes

CPW will continue developing ways to use tablets for tracking work and data, improving the interface for ease of use by crew members.

– Ben Griffiths, GIS Technician

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### 3. Conservation Restriction Monitoring

The Concord Natural Resources Division works with the Conservation Restriction Stewardship Committee to monitor Conservation Restrictions (CRs) to ensure that their conservation values are upheld. Committee members visit each CR every few years to walk its boundaries and observe the conditions. They photograph violations (and other observations), record various data associated with each photo as well as its location, and capture their Route of Travel in the field. Natural Resources acquired an iPad to support this work, and asked for assistance in setting it up.

The technology Ben Griffiths used for the Hydrant Flushing program above unfortunately didn't support simultaneous collection of both photo points and route of travel, so we consulted ESRI. Their new **Field Maps** app turned out to be the answer: It works on iPads, captures both point locations and tracks, attaches photographs and associated attributes to points, and supports offline data collection when a network connection isn't available. (In the end the NRC folks decided to run a separate GPS app in the background to collect the Route of Travel, so as not to interrupt that process for Photopoint collection. The **GPX Tracker** app for iPad tested out well for this purpose.)

#### Survey Workflow



1. Open Field Maps app on iPad
2. Select Offline Map
3. Start Photopoint collection
4. Take photo, enter attributes, and add point

After the volunteer completes the survey and returns the iPad to 141 Keyes Road, a simple tap of an iPad button syncs the data into Concord’s ArcGIS Online. From there, NRC can download a Photopoint Shapefile and a pre-formatted report – including photos! These Photopoints, along with Route of Travel data from GPX Tracker, are easily mapped in ArcGIS Desktop:



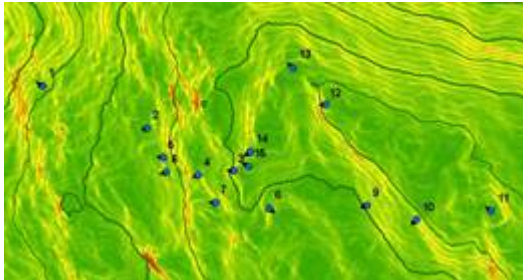


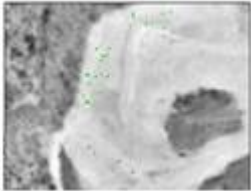

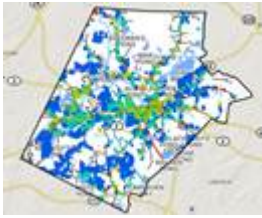
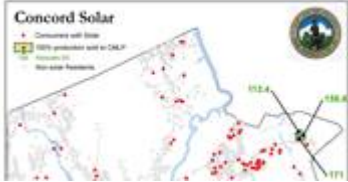

NRC’s Assistant Director Colleen Puzas says, “This upgrade allows volunteers to reference aerials, mapped wetlands, parcel information, and the CR boundaries during field investigations. We’re excited to utilize the iPad as an all-in-one solution for data collection!”

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## 4. Map Gallery – including Publications!!

*CTRL-Click on a thumbnail to view a full-size map*

<p><b>Concord NRC Trail Guide!</b></p>		<p>Concord Natural Resources staff and volunteers teamed up to create a unique trail guide, with an ecological focus. This lovely new book – with colorful maps, of course! – will be available for purchase at the Visitor Center once it opens for the year.</p>
<p><b>Bruce Freeman Rail Trail: Pedestrian Zone</b></p>		<p>Marcia Rasmussen requested an update to the Bruce Freeman Rail Trail map on the BFRT Advisory Committee web page. Cyclists haven’t been walking their bikes through the Junction Park Pedestrian Zone. This update emphasizes the presence and location of the Pedestrian Zone.</p> <p><i>I’m eager to provide another update soon, once the Acton-Concord link over Route 2 is complete!</i></p>
<p><b>Pitch Pine: Slope and Aspect</b></p>		<p>Jeff Licht (AKA Professor Pitch Pine) discovered through data analysis that pitch pine growth is significantly affected by both Slope and Aspect (the compass direction towards which the Slope is facing.) He asked if a map could display both of these factors. In this example, Slope is represented by the background color, ranging from Green (level: 0%) through Yellow to Red (vertical: 90%). The blue Tree symbol includes a</p>

		black pointer, driven by the GIS data to aim in the direction of the Aspect.
<b>Pitch Pine: Sand and Gravel</b>		Prof. Licht also asked to overlay the Concord pitch pine points onto a 1970s aerial image, to help him discern which trees post-dated the sand and gravel operation of that era.
<b>Pitch Pine: Publication!</b>		Prof. Licht will be including a selection of these maps in a paper he is preparing for publication in <i>Frontiers</i> .
<b>Structures 50+ Years Old</b>		Elizabeth Hughes and the Historic District Commission requested a listing of structures over 50 years old,. This required bringing together multiple data sources for a comprehensive-as-possible set of Construction Date attributes. A map of the data has been posted to the Staff webmap for review by the Committee.
<b>Solar Customers</b>		Pamela Cady, CMLP, asked for an updated map of customers with solar installations. This time, we added Non-solar Customers in light gray, to clarify relative building densities throughout the Town.
<b>West Concord 5 &amp; 10</b>		Mark Pauley at MMN requested a map of West Concord, to use in the <a href="#">West Concord 5 &amp; 10 tribute video</a> .

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