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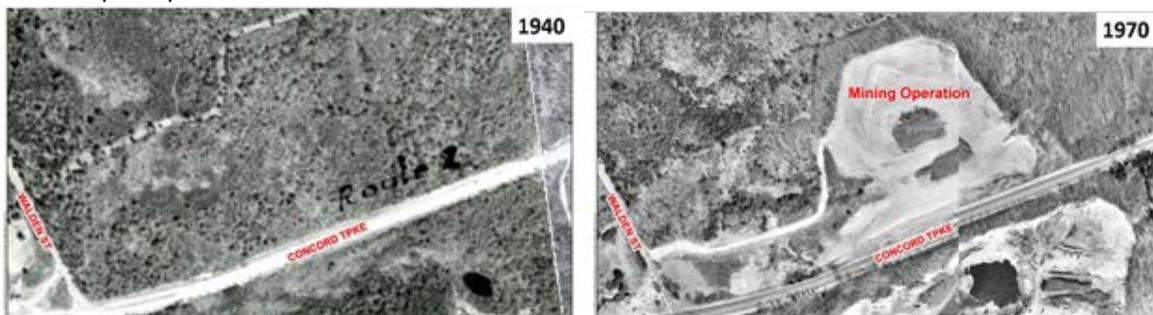
### 1. Professor Pitch Pine vs. the Dreaded Southern Pine Beetle

Professor Jeff Licht from BU called a few months ago, looking for a little mapping assistance with a research project. His focus was on studying Pitch Pine populations in Concord and Maine, monitoring them for Southern Pine Beetle infestation as the beetle moves north. It may be tiny, but it's a killer:



Prof. Licht initially requested a display of individual pitch pine trees comprising three major populations in the Concord Town Forest area, based on GPS data. The map I created helped him select representative samples to monitor from each population. Next we did the same for several Pitch Pine populations on Mount Desert Island in Maine.

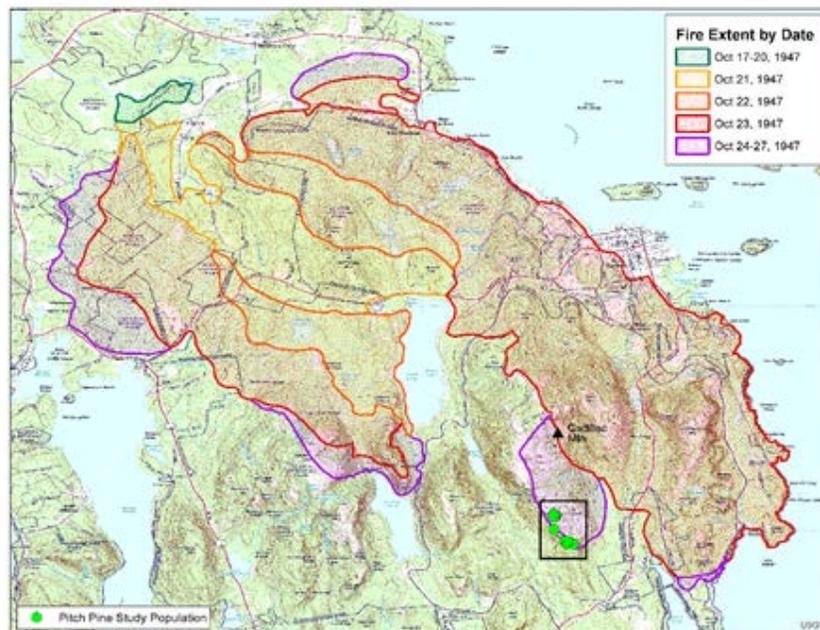
Why these two locations? The **Concord** pitch pine community emerged from the Town Forest when a sand and gravel mining operation took place starting in the late 1960s. The mining operation took out nearly all the vegetation, leaving ideal conditions for pitch pine colonization: Full sun and infertile soil.



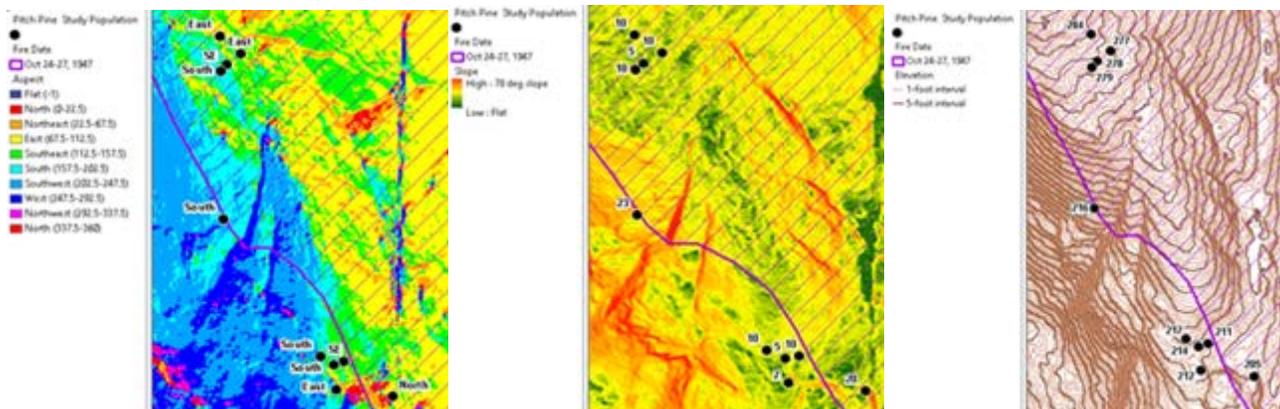
Conservation efforts on what is now the Walden Woods Project's Brister's Hill preserve have allowed revegetation, including many more pitch pine (yellow dots):



On **Mount Desert Island**, pitch pine thrive on the cliffs of Cadillac Mountain, aided greatly by the otherwise-devastating fires of October 1947.



Using ESRI's Spatial Analyst toolset, I provided Prof. Licht with data on Aspect, Slope and Elevation for each tree in his target population (within black box in map above) – not to mention some cool images!



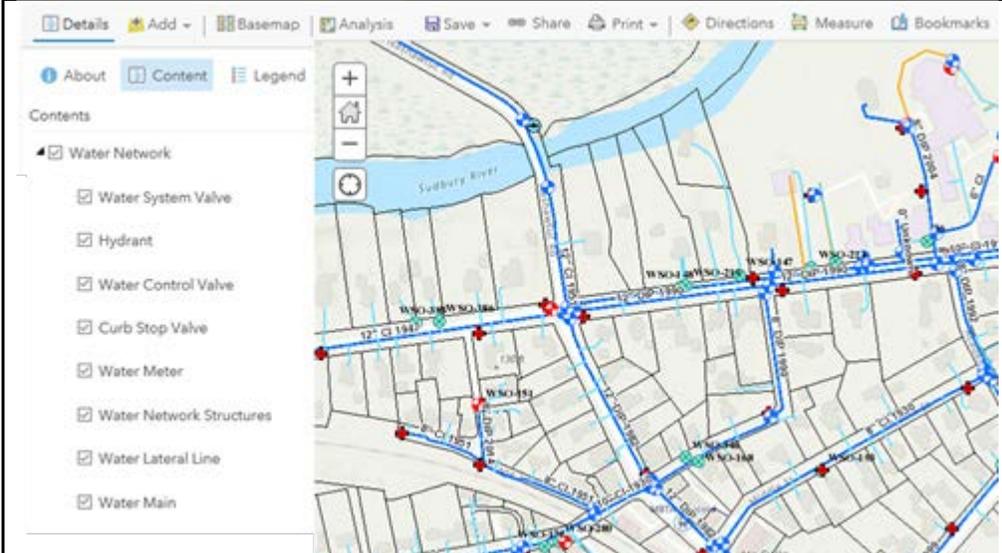
I'm interested to see what sorts of analyses Professor Pitch Pine and his colleagues come up with based on this data!

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## 2. CPW GIS Webviewer

Concord Public Works is responsible for facilitating and maintaining multiple types of infrastructure within our Water/Sewer, Engineering, and Highway and Grounds Departments. Whether performing routine inspections or responding to a water main leak, it is critical that CPW's crew and supervisors have immediate access to all of our asset data via different internet enabled devices.

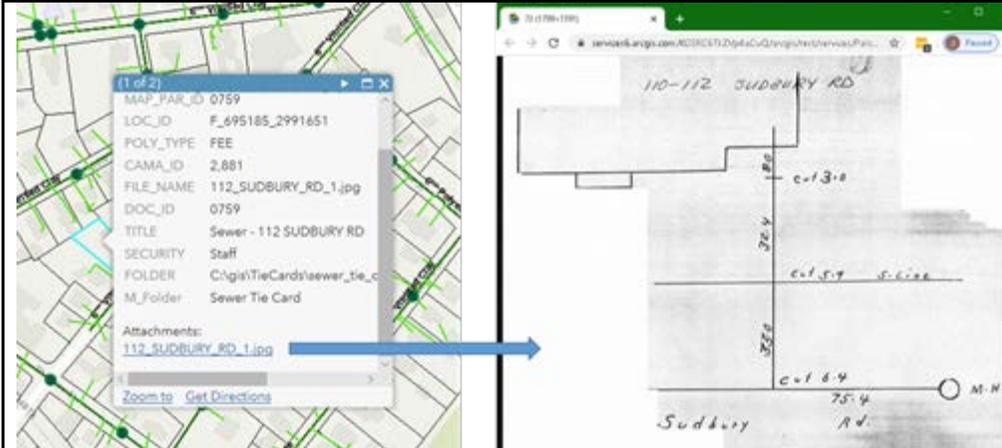
Using our ESRI Enterprise account, Public Works GIS has developed a cloud-based interactive GIS Webviewer on ArcOnline.



- Webviewer Data
  - Water Network (shown)
  - Sewer Network
  - Drainage Network
  - Gas
  - Fiber Network
  - Assessor Data
  - Flyover Aerials
  - Water and Sewer Tiecards

The CPW Webviewer is linked directly to our GIS Server, meaning that data is updated in real time. The map is formatted to work on desktops, laptops, tablets, and even cell phones (might need glasses!) Operations crew are no longer required to retrieve paper copies of records prior to going out in the field, allowing for knowledge-driven work from any location.

An example:



- Sewer tie cards are linked to our Parcel layer
- Selecting a parcel in the Webviewer pops up a window with a hyperlink to the Sewer tie card
- Clicking on the Attachments hyperlink opens a new tab displaying the tie card

The Webviewer will be routinely updated for improvements and added capabilities. Public Works GIS will continue to develop user-friendly applications using technology to improve daily operations and meet longer-term goals.

– Ben Griffiths, GIS Technician

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## 3. Enterprise-ation → Integration → Automation

During **2018**, Concord GIS made the transition to an **Enterprise** Geodatabase. This allows us to provide web services via ArcGIS Online based on our real-time data. A few examples:

[Abutton List](#) app

[Assessor Tax Map](#)

[Broadband Available](#) embedded map on Broadband website

[Voter Precinct](#) map link on Town Clerk website

[Sleepy Hollow Cemetery](#) tour app via QR code posted at Assessor Office

In **2019**, we **Integrated** the Enterprise GDB with other major enterprise application suites, notably:



- > [NISC](#) for utility business management
- > [EngHouse NetDesigner](#) for broadband network design
- > [FullCircle PermitEyes](#) for Town-wide e-Permitting

These all include map-based data visualization and search capabilities, based on our Enterprise GDB.

2019 also saw the integration of

- > [Vision's](#) new cloud-based Assessor Data service into PeopleGIS
- > [NearMap](#) aerial imagery into ArcGIS Desktop and ArcOnline – the focus of the [April GIS Newsletter](#).

**2020** is turning out to be the year of **Automation**. Here's what's going on:

#### NISC MapWise

- > The 2019 **Integration** linked MasterGISLib into NISC's MapWise for direct access to several basemap layers (e.g. Parcels)
- > 2020's **Automation** now provides a nightly update from MapWise to MasterGISLib for the latter's Electric Utility layers, including **Poles**, **PrimaryConductor**, **SecondaryConductor**, **Structures** and **ConsumerMeter**

#### EngHouse NetDesigner

- > The 2019 **Integration** linked MasterGISLib into EngHouse's NetDesigner for direct access to several basemap layers, similar to the above
- > 2020's **Automation** will provide a nightly update from MapWise to MasterGISLib for the latter's Broadband Utility layers, including **Fiber\_Cable**, **LCC** and **SpliceCase**

#### Vision

- > The 2019 **Integration** provided a direct feed of Vision's Assessor data into PeopleGIS
- > 2020's **Automation** will provide a similar direct feed into MasterGISLib, for a nightly refresh of **ParcelsLevel3AssessorData**

This all adds up to providing you, the user, with the most up-to-date Concord GIS data possible, no matter where you encounter it!

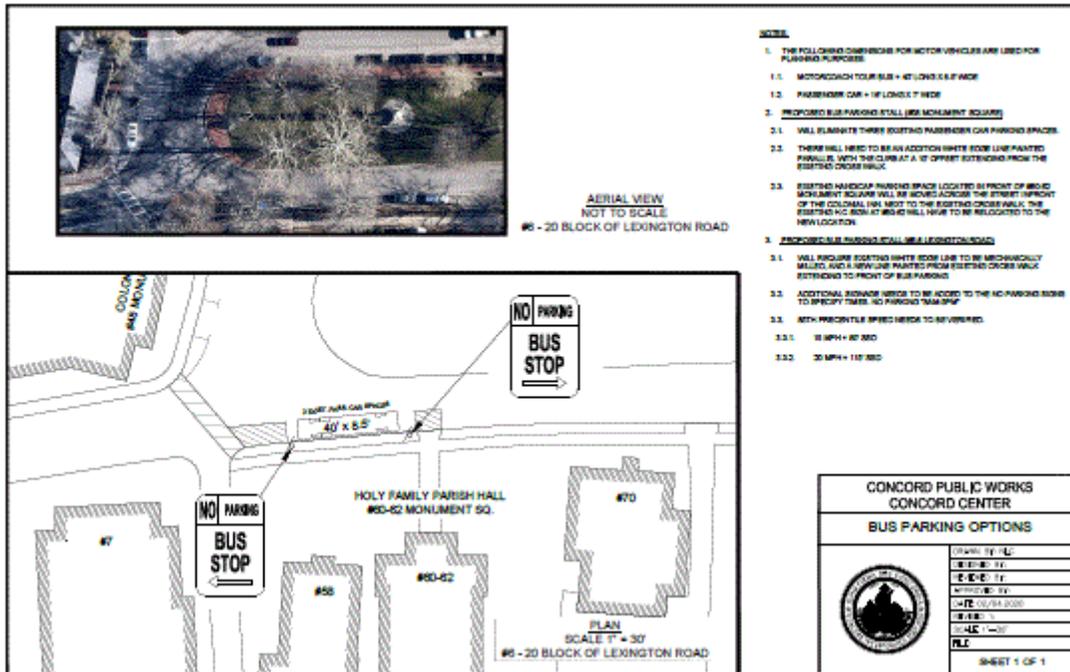
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## 4. Nathan Digs Nearmap



After reading the April GIS Newsletter and the information on Nearmap, Public Works Engineer Nathan Chin sent me an email with the subject, "Thank you for Nearmap!"

Nate has exported images from the Nearmap aerials and incorporated them into his AutoCAD plans for a “bird’s eye” view of CPW project sites.



He has also used the measuring tool to estimate street lengths for planning purposes when planning roadway reconstruction.



If you have used Nearmap in your work, I would love to hear about it!

**This just in:**

Nearmap now offers measurable Oblique imagery for ArcGIS users

*(Oblique, or “bird’s eye”, imagery lets you see a building or other location from North, East, South and West)*

Nearmap Oblique for ArcGIS allows you to create a customizable, mini MapBrowser to view and measure from Nearmap oblique content by installing the “Oblique Viewer for Nearmap” widget on an ArcGIS platform.

To learn more, review the documentation [here](#), and if you are interested, let me know!

## 5. Map Gallery, COVID-19 Edition

It won't surprise you to read that I am staying informed about COVID-19 in good part through maps. Here are some of those I find to be particularly informative – and also well-designed.

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

<p><b>ProPublica: Infection Rates over Time by State</b></p>		<p>Illustrating the trend of infection rates through time poses a cartographic challenge when the scope of the map is US states and territories, or the countries of the world. This simple display solves the problem quite cleverly for the US. Start the time slider at the bottom of the map to watch the dynamic display.</p>
<p><b>JHU: Curve Flattening by State</b></p>		<p>Johns Hopkins takes a similar approach to presenting curve-flattening data. As with the map above, clicking on a state takes you to more detail. Their website provides a wealth of data, both US and worldwide.</p>
<p><b>Nextstrain: Rates by Country Worldwide</b></p>		<p>Here's a view of the changing transmission rates worldwide. The circles grow and shrink as various countries' rates of infection rises and – I hope – falls. Click <b>Play</b> to watch.</p>
<p><b>Nextstrain: North American Rates and Vectors</b></p>		<p>The above website provides many options for customizing the display. The example at left focuses on North America, and includes transmission vectors where known. Again, click <b>Play</b> to watch.</p>
<p><b>Tableau: Worldwide Map plus Graphs</b></p>		<p>Another rich resource combines maps with graphs. Hovering over a portion of the display pops up details; clicking on a data element highlights linked data in the rest of the multi-factor display. You can explore both a Worldwide and a United States tab.</p>

To lighten things up, my cats will provide the last word on COVID for this edition of the GIS Newsletter.



Ella: "I wash my hands thoroughly and often. And here's how I mask up."



Social distancing is a challenge though – she and sister Sadie love their hugs.

Sadie has this to say about the Corona virus.



I tend to agree.

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