NCDOT Photogrammetry Unit Historical Aerial Imagery Quick Reference Guide

Introduction

The NCDOT Photogrammetry Unit has created an online application that gives the general public access to search and view geo-located NCDOT historical aerial imagery using Esri's ArcGIS Online (AGOL) program. AGOL is an online, collaborative web GIS service that allows a user to create and share maps, scenes, apps, layers, analytics, and other GIS formatted data. The film frame imagery captured by the NCDOT Photogrammetry Unit for the years of 1955-1992 has been scanned at a low resolution and will be made available in November 2015. Quarterly updates will be made to correct any errors found and to add imagery from the years later than 1992. Please note that Geo-located images may be several hundred feet off from their true position. The NCDOT Photogrammetry Unit has provided a link to the NCDOT Historical Aerial Imagery Index map.

http://ncdot.maps.arcgis.com/home/webmap/viewer.html?webmap=91e02b76dce4470ebd7ec240ad202a04

NCDOT Historical Aerial Imagery Groupings

The NCDOT Photogrammetry Unit's online application, ***NCDOT Historical Aerial Imagery Index***, will allow users to search for the photo center of the geo-located historical aerial imagery using simple queries. The imagery will be loaded by decades: 1950s, 1960s 1970s, 1980s, & 1990s and grouped into one of the following three categories:

- *High*- Historical Aerial Imagery that has been grouped into this category can be described as having high detail and small ground coverage. These images have an image scale 1 inch = 460 feet and larger.
- *Medium* - Historical Aerial Imagery that has been grouped into this category can be described as having medium detail and medium ground coverage. These images have an image scale between 1 inch = 460 feet and 1 inch = 1200 feet.
- *Low* - Historical Aerial Imagery that has been grouped into this category can be described as having low detail and large ground coverage. These images have an image scale 1 inch = 1200 feet and smaller.
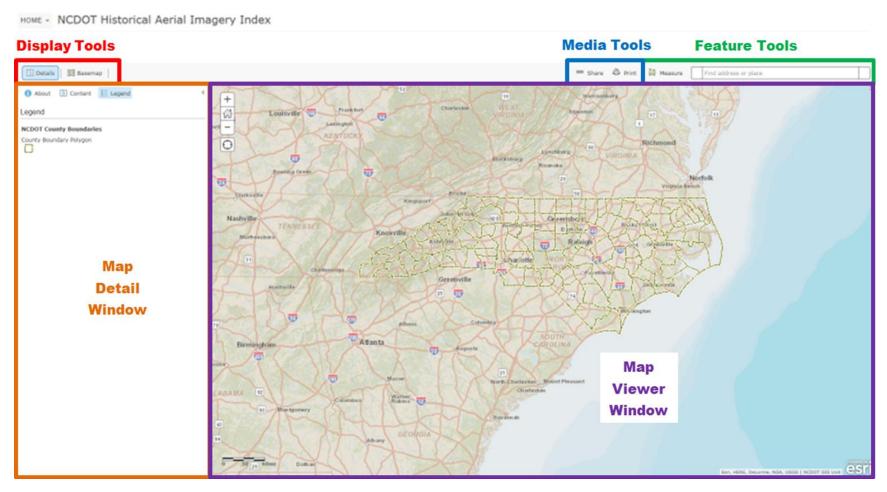
Overview

The Esri's ArcGIS Online (AGOL) web map is an interactive display of geographic information. The Web maps contain a basemap; layers; an extent; a legend; and navigation tools such as zoom, pan, and place finders. Below are the 5 basic sections that make up the Web Map Viewer:

- *Display Tools*- used to change the layout of the map.
- *Feature Tools*- used to determine additional information about the map.
- *Map Detail Window*- is where information about the map can be found.
- *Map Viewer Window*- is where all of the data for the map is displayed.
- *Media Tools*- used to share a link with another user or print the extents of the current map view.

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NCDOT Historical Aerial Imagery Index Map

The NCDOT Historical Aerial Imagery Index map will open in a default setting that will shows the entire extent of the state of North Carolina with the county boundaries attached and displayed. While the map has lots of capability, this document will only touch the key points needed to help the user locate imagery at a known location.
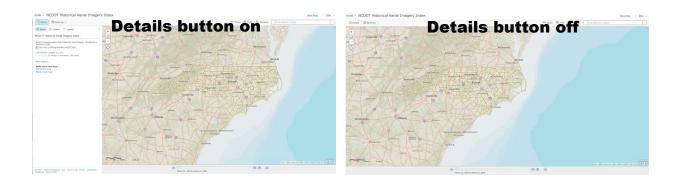
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Display Tools

The Display tools are used to change the layout of the map. There are currently 2 types of Display buttons:
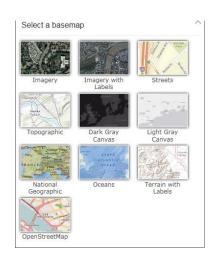
- *Details*
- *Basemap*

Details Button – Clicking on the "Details" button toggles off and on the Map Details Window.

Basemap Button- Clicking on the "Basemap" button allows the basemap to be changed.

To choose a basemap from the gallery, follow the steps below.

1. *Open the ArcGIS.com map viewer*

2. *Click the Basemap button.*

3. *Click the thumbnail of the basemap you want to use in your map.*

Note: The basemap gallery includes a variety of choices including topography, imagery, and streets.

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Find Address or Place Tool
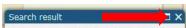
| Find address or place |

Use the **"Find address or place"** tool to find locations such as addresses, places, intersections, cities, points of interest, monuments, and geographic entities. The map will automatically zoom to the closest match and a pop-up window appears at the location.
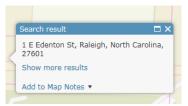
Searching for a location by address
1. Open a web map in the ArcGIS.com map viewer.
2. Enter the address the user is searching for
   a. Enter: Street Number, Street Name, City, State, Country
      i. Example : 1 E Edenton St, Raleigh, NC, USA

   > 1 E Edenton St, Raleigh, North Carolina, USA

3. Click on the Close Button to close the search result window
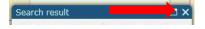
Searching for a location by city
1. Open a web map in the ArcGIS.com map viewer.
2. Enter the name of the city the user is searching for
   a. Enter: City, State, Country
      i. Example: Buxton, NC

   > Buxton, North Carolina, United States

3. Click on the Close Button to close the search result window

Searching for a location by Points of Interest
1. Open a web map in the ArcGIS.com map viewer.
2. Enter the name of the point of interest the user is searching for
   a. Enter: Name of the point of interest
      i. Example: Cape Hatteras Lighthouse

   > Cape Hatteras Lighthouse

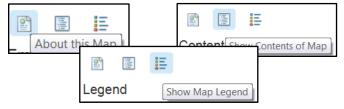3. Click on the Close Button to close the search result window

==Note: When entering information into the search tool, keep in mind that this tool is controlled by Esri and that there are multiple locations in the US with the same name.==
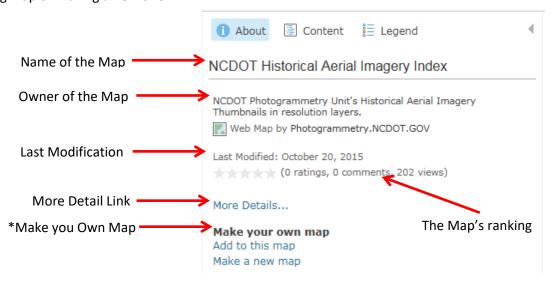
Map Detail Window

The Map Detail Window is where information about the map can be found. This window is open when the "Details" button is activated. When the "Details" button is toggled on, there are 3 types of windows that can be displayed to show different information about the map. They are:

- *About the Map*
- *Show Contents of Map*
- *Show Map Legend*

About the Map- Click the **"About the Map"** button to see a summary of the map, including information like: the map's name, the owner's name, the last modification date, user ratings, and a link to more detailed information. The user will also see options to make their own map by adding to the existing map or making a new one*.

Name of the Map → NCDOT Historical Aerial Imagery Index

Owner of the Map → NCDOT Photogrammetry Unit's Historical Aerial Imagery Thumbnails in resolution layers. Web Map by Photogrammetry.NCDOT.GOV

Last Modification → Last Modified: October 20, 2015 (0 ratings, 0 comments, 202 views)

More Detail Link → More Details...

*Make you Own Map → Make your own map / Add to this map / Make a new map

The Map's ranking

Note: To make a new map or add to the existing map, the user must have an AGOL account.

More Details... The "More Details…." link will take the user out of the map viewer and back to the AGOL Item details page that includes a title, summary, thumbnail, description, owner, ratings and comments, last modified date, access and use constraints, size, credits, tags, and extent of the map.
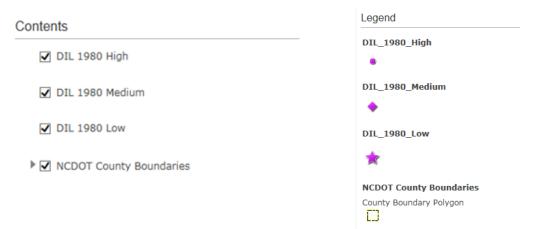
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Content- Click the **"Content"** button to prompt a list of all of the layers in the map that can be displayed in the Map Viewer Window.

If the box to the left of the name is checked, then the layer is turned on (displayed)

If the box to the left of the name is unchecked, then the layer is turned off (not displayed)

If the layer name is bold, then data associated with that layer is available to be viewed at the current zoom level

If the layer name is light gray, then data associated with that layer exceeds the map's drawing settings at the current zoom level

Contents

- ☑ DIL 1980 High
- ☐ DIL 1980 Medium
- ☑ **DIL 1980 Low**
- ☑ DIL 1970 High
- ☑ DIL 1970 Medium
- ☐ **DIL 1970 Low**

NOTE: If photo centers are not visible, the user may need to "zoom in" using the scroll wheel on the mouse and allow the screen to refresh.

Legend- Click the "**Legend**" button to activate a legend displays the meaning of the symbols used to represent features on the map. Legends consist of examples of the symbols on the map with labels containing explanatory text that corresponds to the content layers that are "**Checked".**

Contents

- ☑ DIL 1980 High
- ☑ DIL 1980 Medium
- ☑ DIL 1980 Low
- ▶ ☑ NCDOT County Boundaries

Legend

DIL_1980_High
●

DIL_1980_Medium
◆

DIL_1980_Low
★

NCDOT County Boundaries
County Boundary Polygon
⬚

● The DOT symbol represents Historical Aerial Imagery that can be described as having high detail and small ground coverage.

◆ The DIAMOND symbol represents Historical Aerial Imagery that can be described as having medium detail and medium ground coverage.

★ The STAR symbol represents Historical Aerial Imagery that can be described as having low detail and large ground coverage.

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Map Viewer Window

The Map Viewer Window is where all of the activated content layers of the map are displayed. This window contains a Scale bar and a Zoom bar. These tools are used to Pan and Zoom around the Map Viewer Window. The user will also be able to select features from the different content layers and view the attributes associated with each feature layer in the map by viewing Pop-ups.

Pan Tool - The user can pan around the map by using the mouse to "Click and Drag".

Using the Mouse to Pan
- *Click a Mouse button and hold*
- *Move Mouse in opposite direction the user wishes to move*
  - *Pan North- Move mouse down*
  - *Pan South- Move mouse up*
  - *Pan East- Move mouse to the Left*
  - *Pan West-Move mouse to the right*

Zoom Tool - There are several ways that a user can zoom in or out in the Map Viewer Window. The two most common ways are to use the Scroll wheel on the mouse or to use the Plus/Minus buttons on the map.

Scroll Wheel

Using the Scroll Wheel to zoom
- *Scroll forward to zoom in closer*
- *Scroll backward to zoom out farther*

Plus/Minus

Using the Plus/Minus buttons to zoom
- *Plus will zoom in closer*
- *Minus will zoom out farther*
- *Home will zoom to the default extent*

Scale Bar- The scale bar is located in the lower left corner of the map and will automatically adjust itself as the map is zoomed in or out. Once the user has zoomed into a scale of at least 1 inch = 300ft, the NC One Map's parcel layer will appear in the map.

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Pop-ups -Pop-ups allow the user to view the attributes associated with each feature layer in the map, such as Mission Number, TIP Number, Date of Photography, Image Name, and Image Scale and allows the user to view a JPEG thumbnail of the selected image.

To open the pop-up window for a selected image, follow the steps below.

1. *Open the map in the ArcGIS.com map viewer,*
2. *Locate the image symbol of interest*
3. *Click the chosen image symbol of interest*
   a. *Keep a record of all the information in the Pop-up window in case there is a need to order a high resolution scanned image from the NCDOT Photogrammetry Unit*
   b. *To order a high resolution scanned image from the NCDOT Photogrammetry Unit please email Kayren Williamson with recorded information of the image of interest at knwilliamson@ncdot.gov*

High_1980: m2455_0457_t.jpg	
MissionNum	M-2455
Detail	High
Coverage	Low
Tip	gov-complex
MM_DD_YYYY	October 11, 1989
Strip	1
CamCnt	457
Image_Name	m2455_0457_t.jpg
Image_Scale	1" = 267 ft

Attachments:
m2455_0457_t.jpg

Zoom to

To view the thumbnail of a selected image, follow the steps below.

1. *Open the map in the ArcGIS.com map viewer,*
2. *Locate the image symbol of interest*
3. *Click the image symbol of interest*
4. *Right Click on the attached JPEG file under "Attachments" **and** select "Open in a new window" in order to view the image in comparison to the map.*

To zoom in on the thumbnail of a select image, follow the steps below.

1. *Open the map in the ArcGIS.com map viewer,*
2. *Locate the image symbol of interest*
3. *Click the image symbol of interest*
4. *Click on the attached JPEG file under "Attachments"*
   a. *The zoom value can be adjusted using either the "control &+" or "control & - " key combinations. Using these key combinations will increase/decrease the zoom view of the imagery approximately 25% each time the buttons are clicked, respectively.*

Note: If the thumbnail image was opened and "zoomed" using Internet explorer, the user must reset the zoom value of the internet explorer window back to 100% before opening up another window.

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Measuring area, distance, and location- Use the **"Measuring area, distance and location"** tool to measure the area of a polygon, the length of a line, or find the coordinates of a point on the map. Before or after performing each measurement, you can set or change the units of measurement.
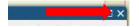
To measure the area of a polygon

1. *Open a web map in the ArcGIS.com map viewer.*
2. *Click the "Measure" button to display the Measure window.*
3. *Click the "Area" button to measure an area on the map.*
4. *Choose the unit of measurement from the drop-down list.*
5. *Click on the map once for every vertex of the area you want to measure.*
6. *Double-click to complete the area. The result appears in the bottom of the Measure window.*
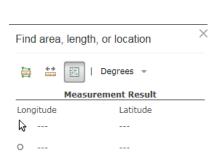7. *Click on the Close Button to close the Measure window*

To measure length of a line

1. *Open a web map in the ArcGIS.com map viewer.*
2. *Click the "Measure" button to display the Measure window.*
3. *Click the "Distance" button to measure a line on the map.*
4. *Set the units of the result (See Above)*
5. *Click on the map once for every vertex of the line you want to measure.*
6. *Double-click to complete the distance. The result appears in the bottom of the Measure window.*
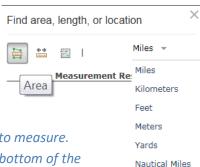7. *Click on the Close Button to close the Measure window*

To find the coordinates of a point

1. *Open a web map in the ArcGIS.com map viewer.*
2. *Click the "Measure" button to display the Measure window.*
3. *Click the" Location" button to get coordinates for a point on the map.*
4. *Click on the map at the location for which you want to get coordinates. The result appears in the bottom of the Measure window.*

==Note: To find area, length, or choose another location the "Location" button needs to be selected again to reset the tool.==