

Welcome to the Georeferencing Workshop

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GIS Specialist

Drew MacQueen MS

GIS Specialist

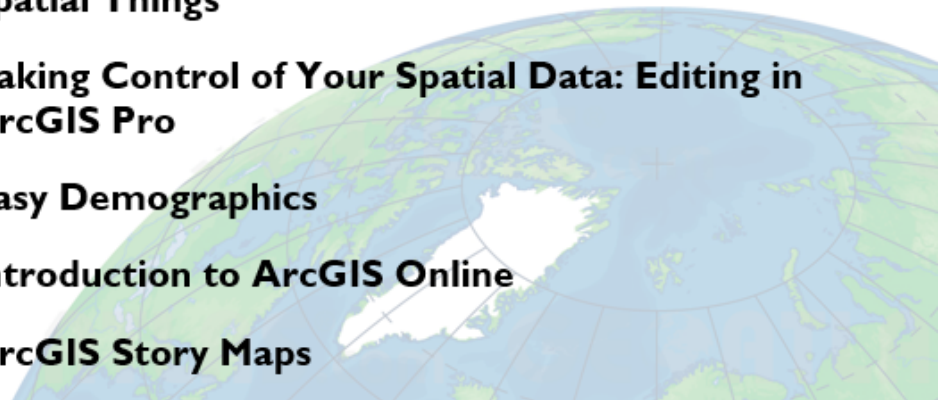
uvagis@virginia.edu

Fall 2023

Virtual GIS Workshops

Wednesdays – Sept. 6th to Oct. 25th 2PM – 3PM

September 6th	Making Your First Map with ArcGIS Pro
September 13th	Putting Old maps and Aerial Photos on Your Map: Georeferencing in ArcGIS Pro
September 20th	Getting Your Data on a Map
September 27th	Points on Your Map: Street Addresses and More Spatial Things
October 4th	Taking Control of Your Spatial Data: Editing in ArcGIS Pro
October 11th	Easy Demographics
October 18th	Introduction to ArcGIS Online
October 25th	ArcGIS Story Maps



What is Georeferencing?

Assigning spatial location to an image

Datasets can be...

- Historic Maps

- Aerial Photographs

- Construction Drawings

- Architectural Plans

- ...



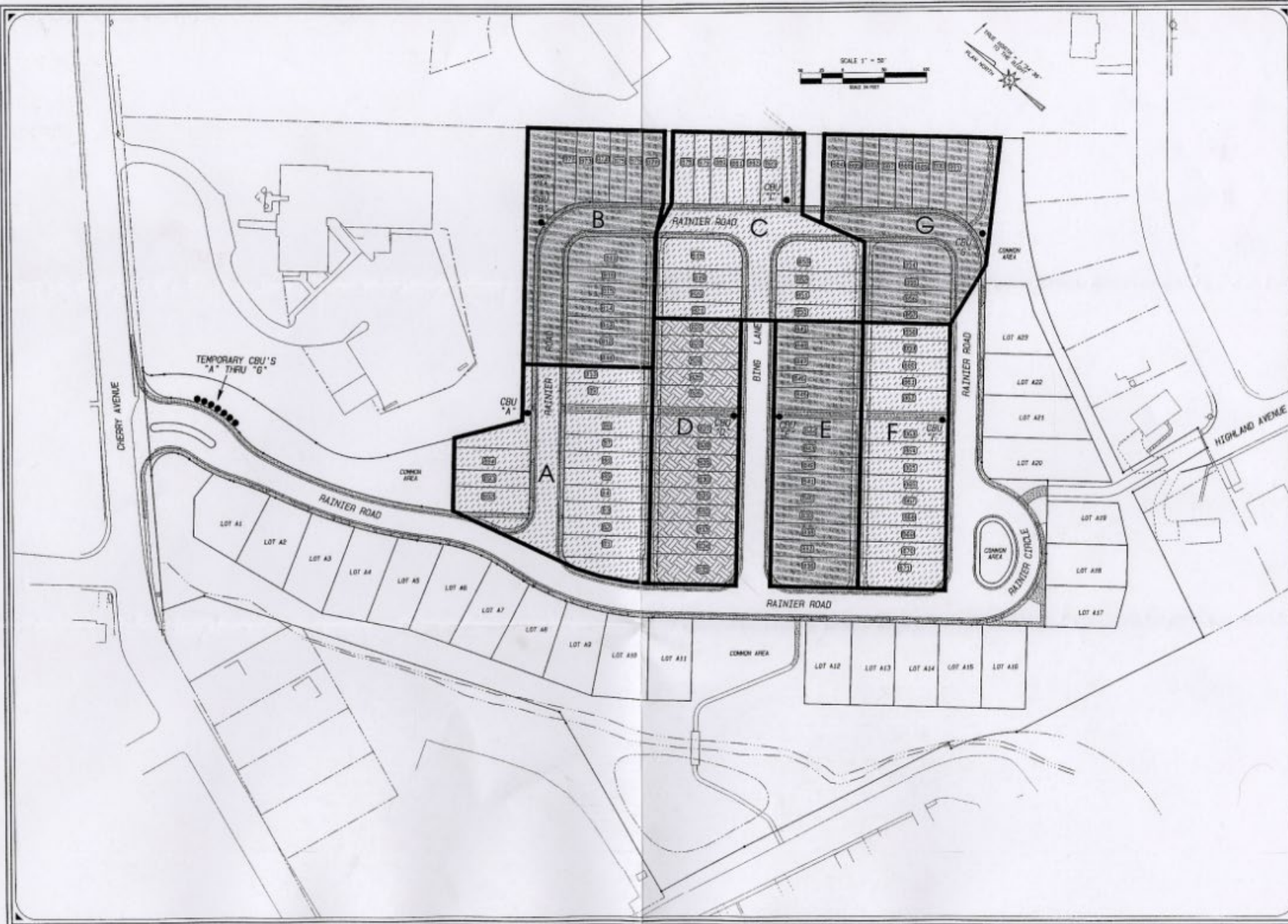
Image © 2010 Commonwealth of Virginia

©2009 Google

Imagery Date: Feb 1, 2006

38° 1' 21" N 78° 30' 50" W elev. 435 ft

Eye alt 4114 ft



ROUDABUSH, GALE & ASSOCIATES, INC.
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 A PROFESSIONAL CORPORATION
 84 KENTON ROAD, CHARLOTTEVILLE, VIRGINIA 22002
 PHONE 84-977-0055 - FAX 84-977-0056 - EMAIL INFO@ROUDABUSH.COM

REVISIONS

DATE
 AUG. 27, 2007

SCALE
 1" = 50'

**CHERRY HILL
 MAILBOX EXHIBIT**

FILE NUMBER
 8081
 CHERRY HILL EXHIBIT

SHEET
 1 / 1



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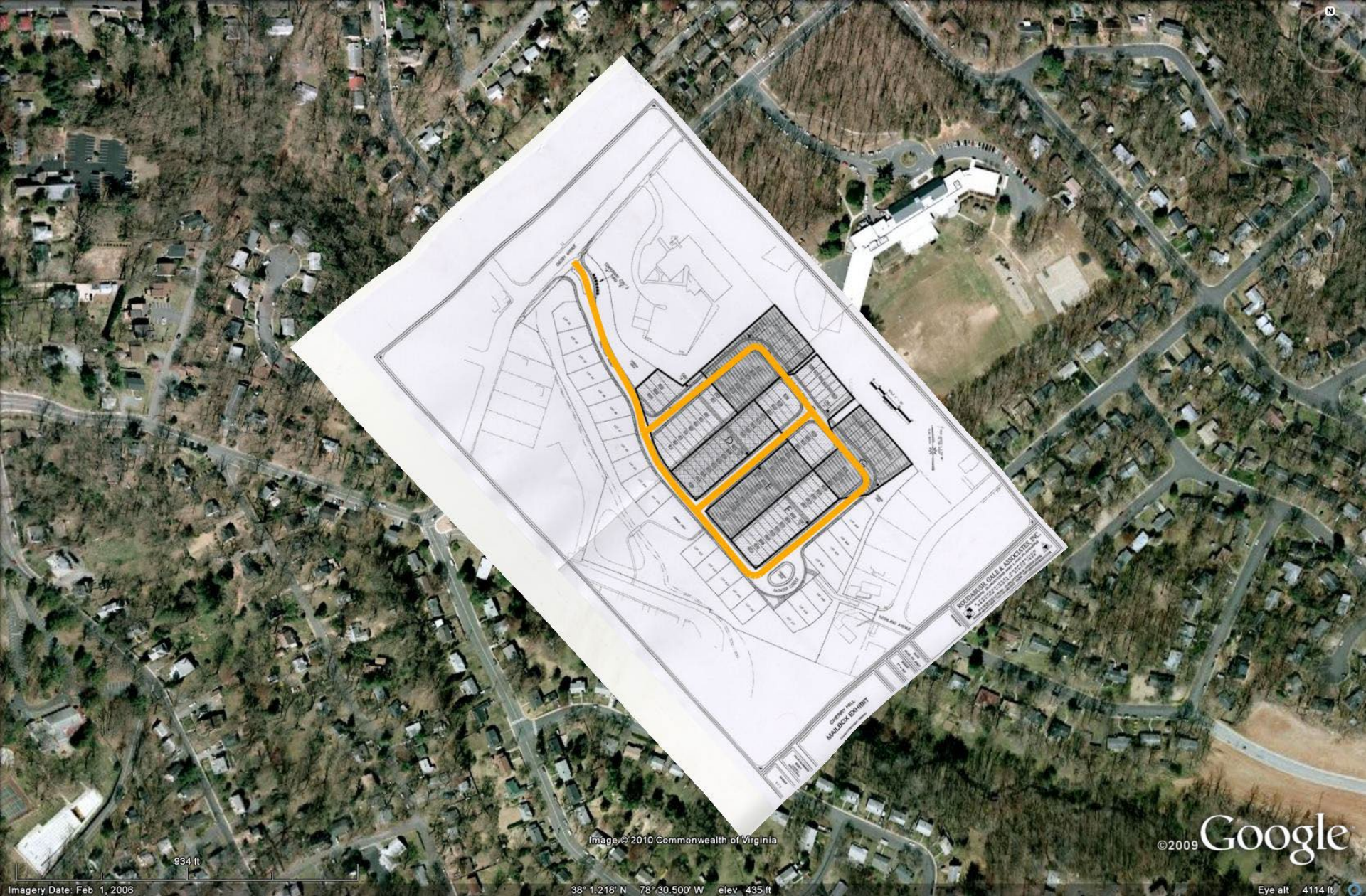


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934 ft

38° 1' 218" N 78° 30.500' W elev. 435 ft

Eye alt 4114 ft

Imagery Date: Feb 1, 2006



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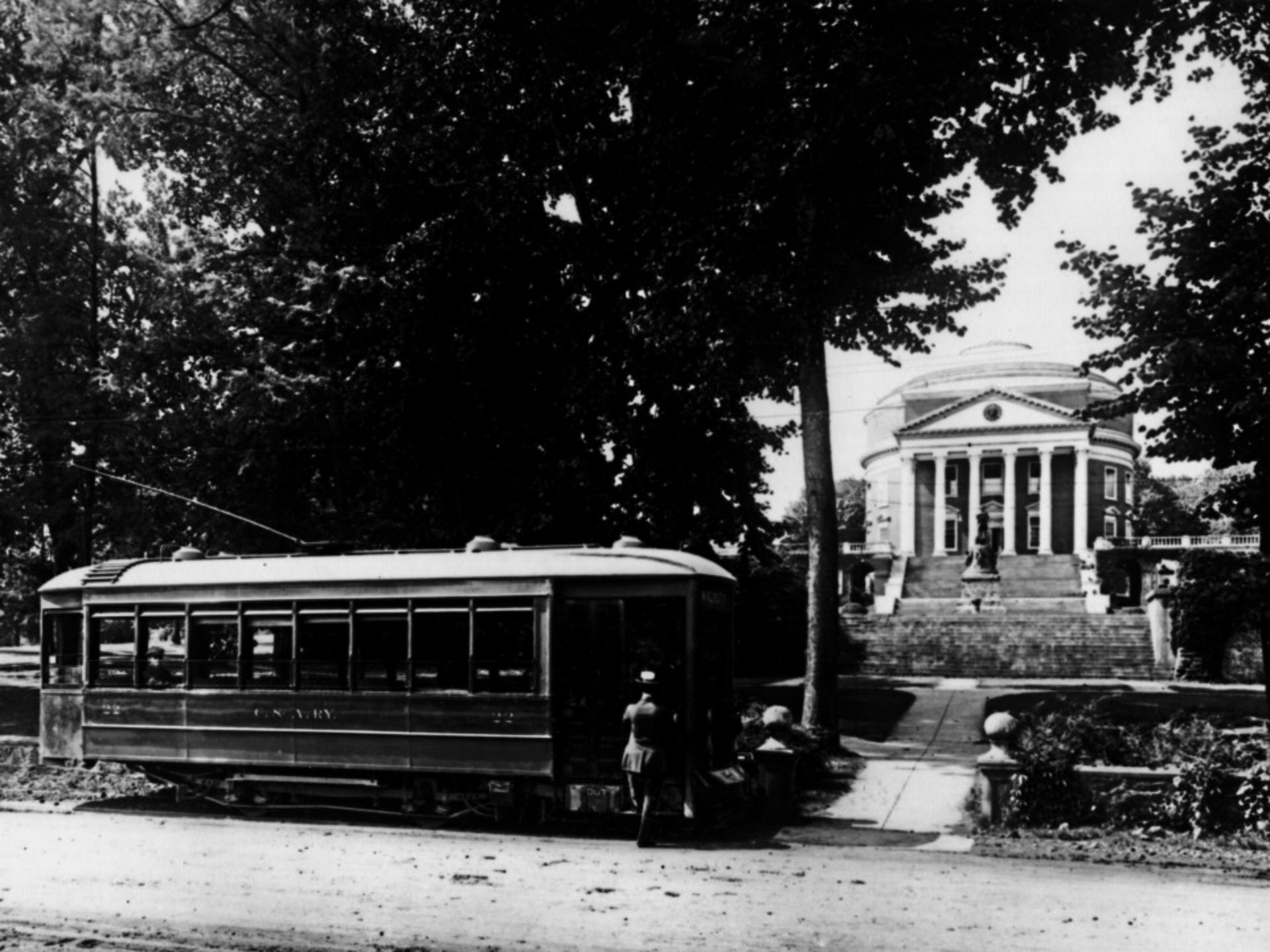
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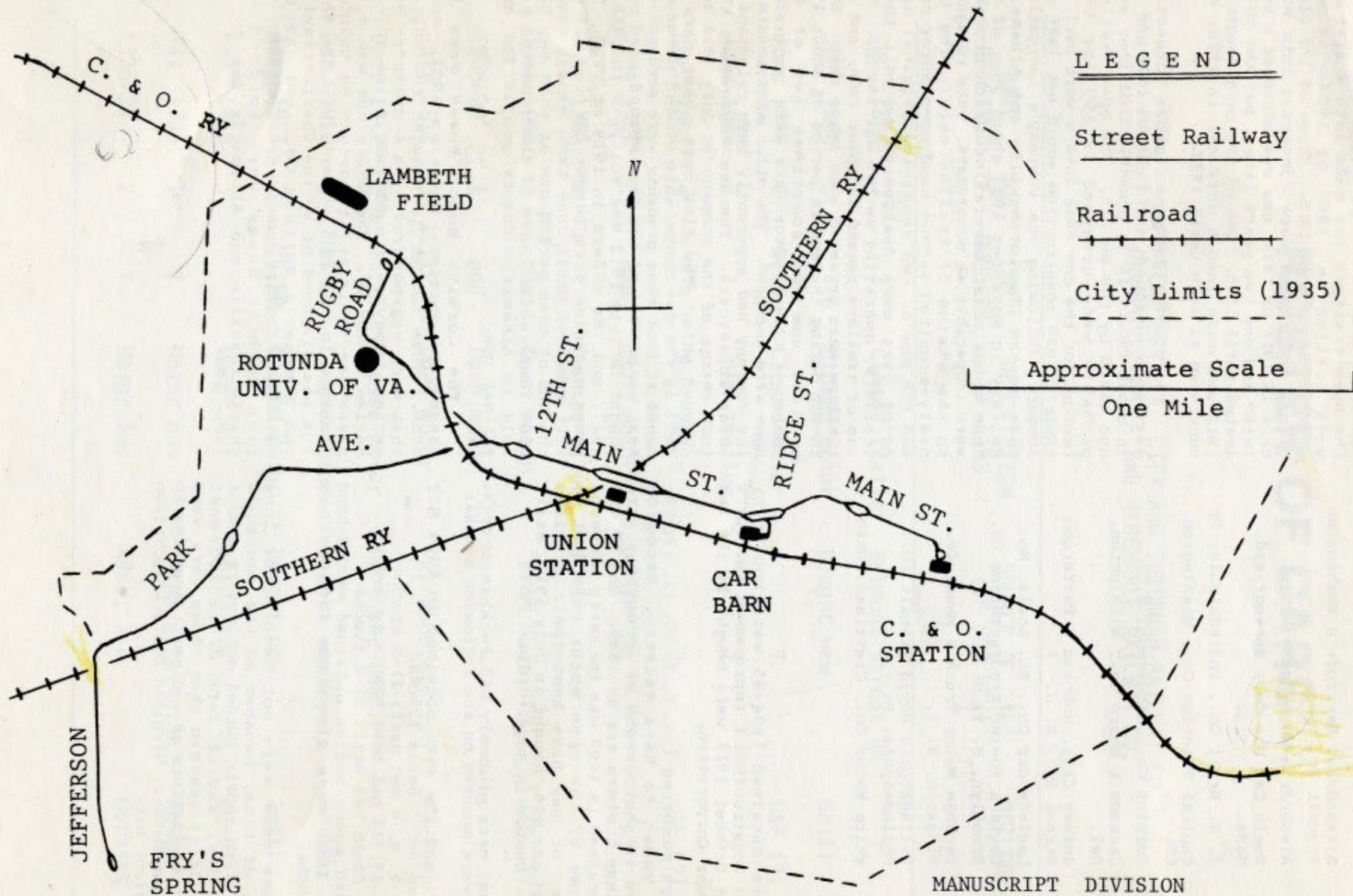
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STREET RAILWAYS - 1920

MANUSCRIPT DIVISION
ALDERMAN LIBRARY
UNIVERSITY OF VIRGINIA

GAJ-1981



1468 Barracks

29

1482 1481

LEGEND

Street Railway

Railroad

City Limits (1935)

Approximate Scale

One Mile

STREET RAILWAYS - 1920

MANUSCRIPT DIVISION
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CAF-1281

64

53

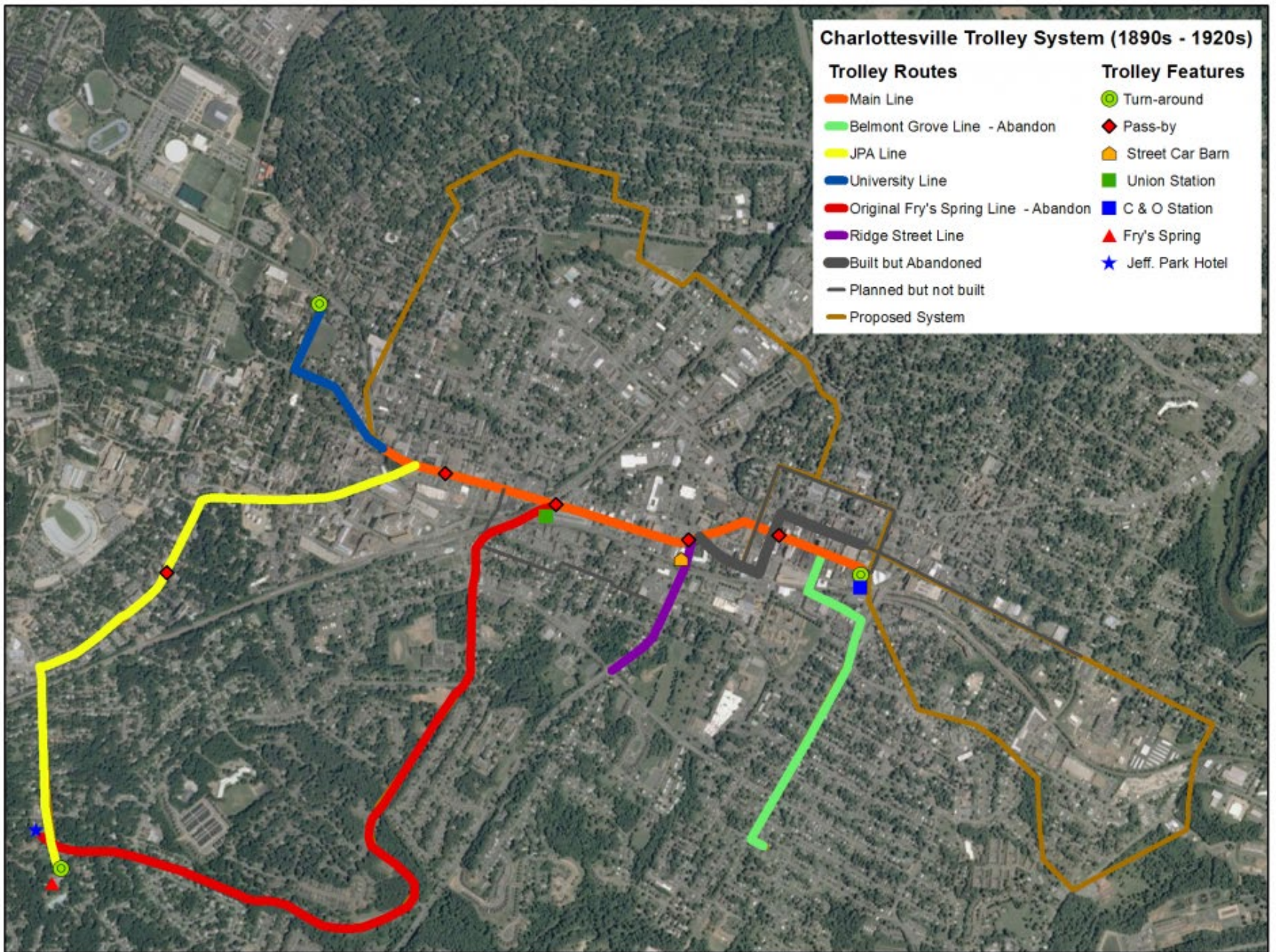
Charlottesville Trolley System (1890s - 1920s)

Trolley Routes

- Main Line
- Belmont Grove Line - Abandon
- JPA Line
- University Line
- Original Fry's Spring Line - Abandon
- Ridge Street Line
- Built but Abandoned
- Planned but not built
- Proposed System

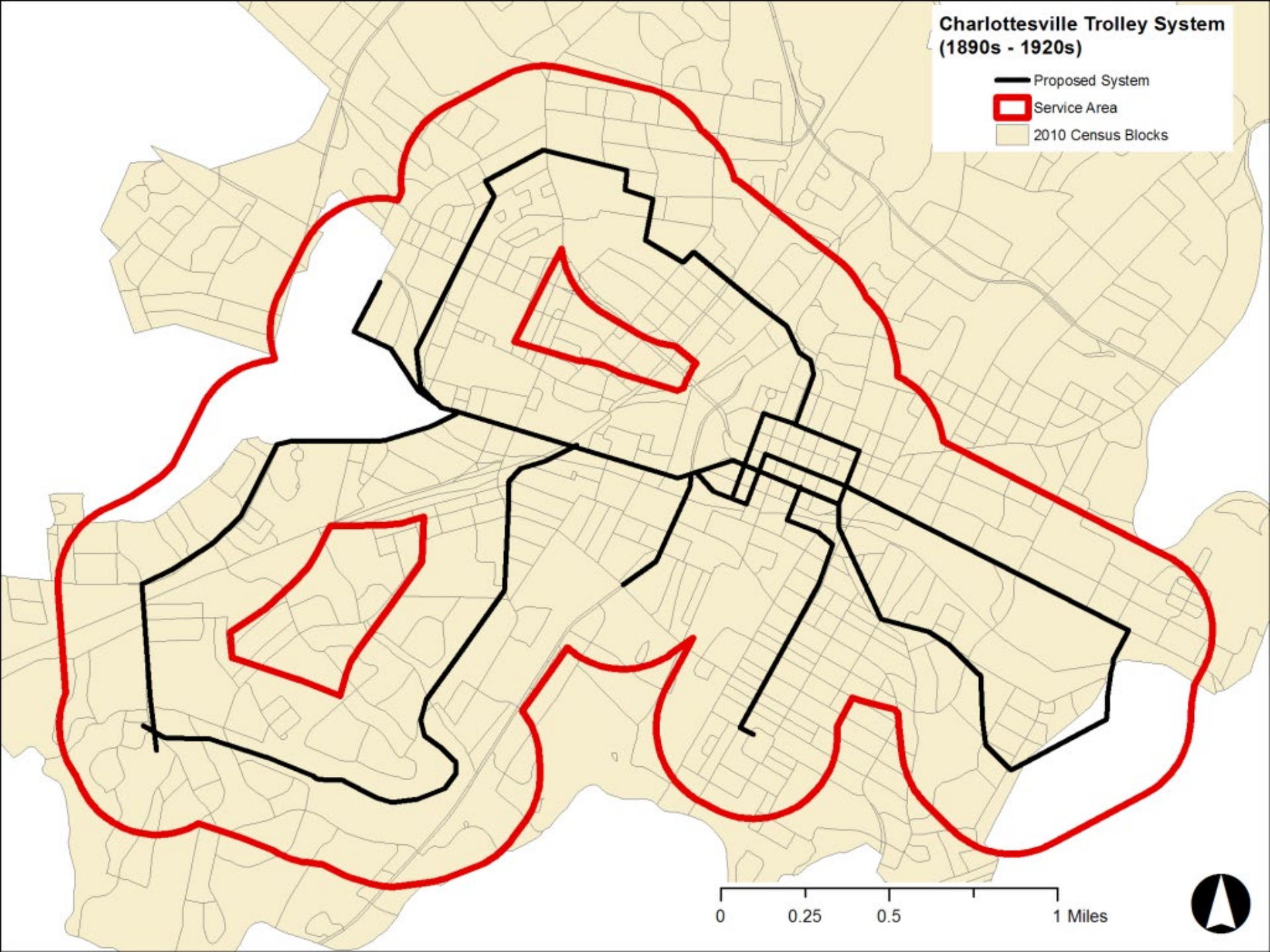
Trolley Features

- Turn-around
- Pass-by
- Street Car Barn
- Union Station
- C & O Station
- Fry's Spring
- Jeff. Park Hotel



**Charlottesville Trolley System
(1890s - 1920s)**

- Proposed System
- ▭ Service Area
- 2010 Census Blocks



ArcMap Georeferencing Steps

1. Add the basemap
2. Add the raster dataset to be georeferenced
3. Add control points
4. Transform the raster dataset
5. Save (create georeferencing world files)
6. Rectify to create a new raster dataset (optional)

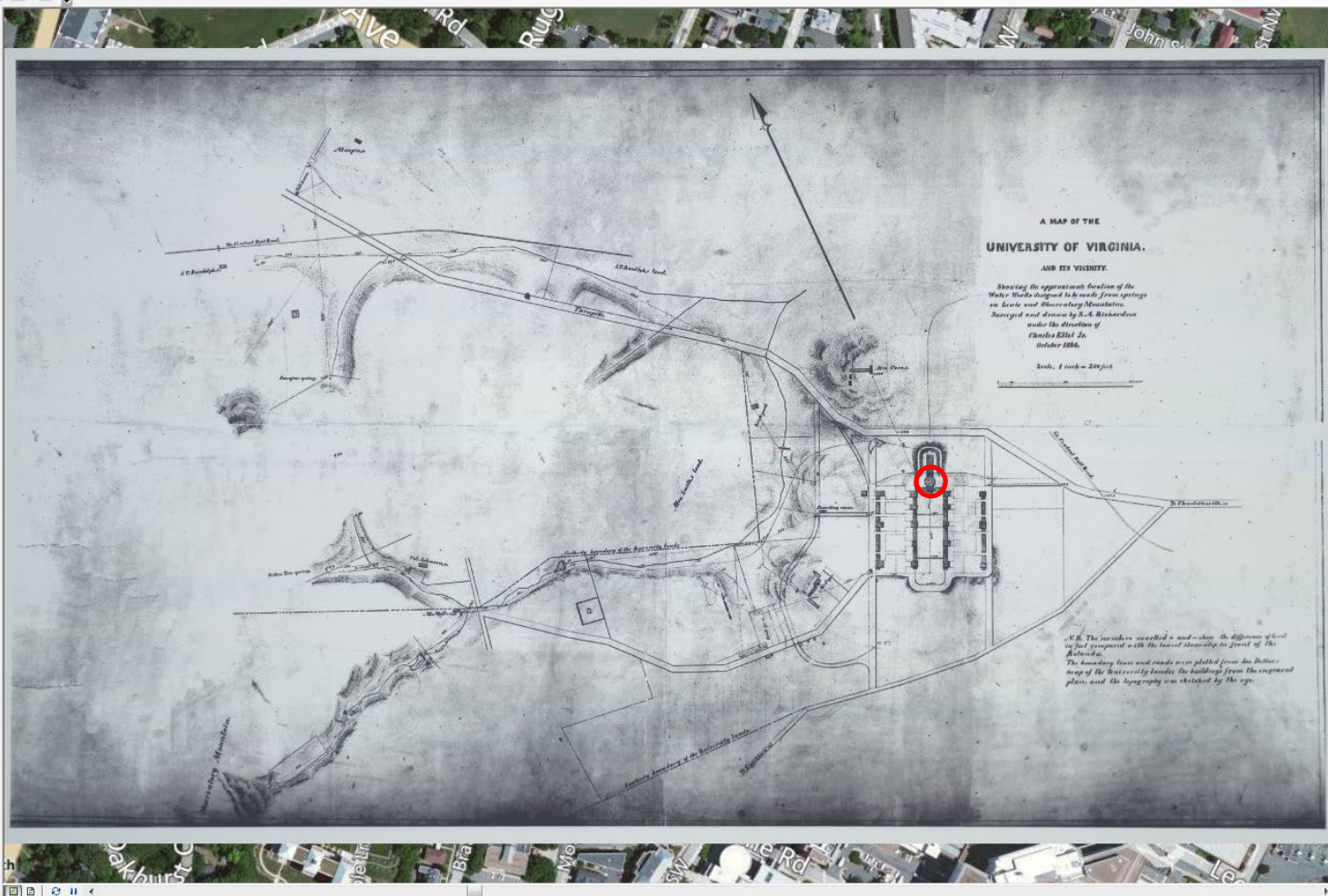
- Layers
- Ellet Map 1856.jpg
 - RGB
 - Red: Band_1
 - Green: Band_2
 - Blue: Band_3
 - ☒ Basemap
 - ☒ Bing Maps Hybrid



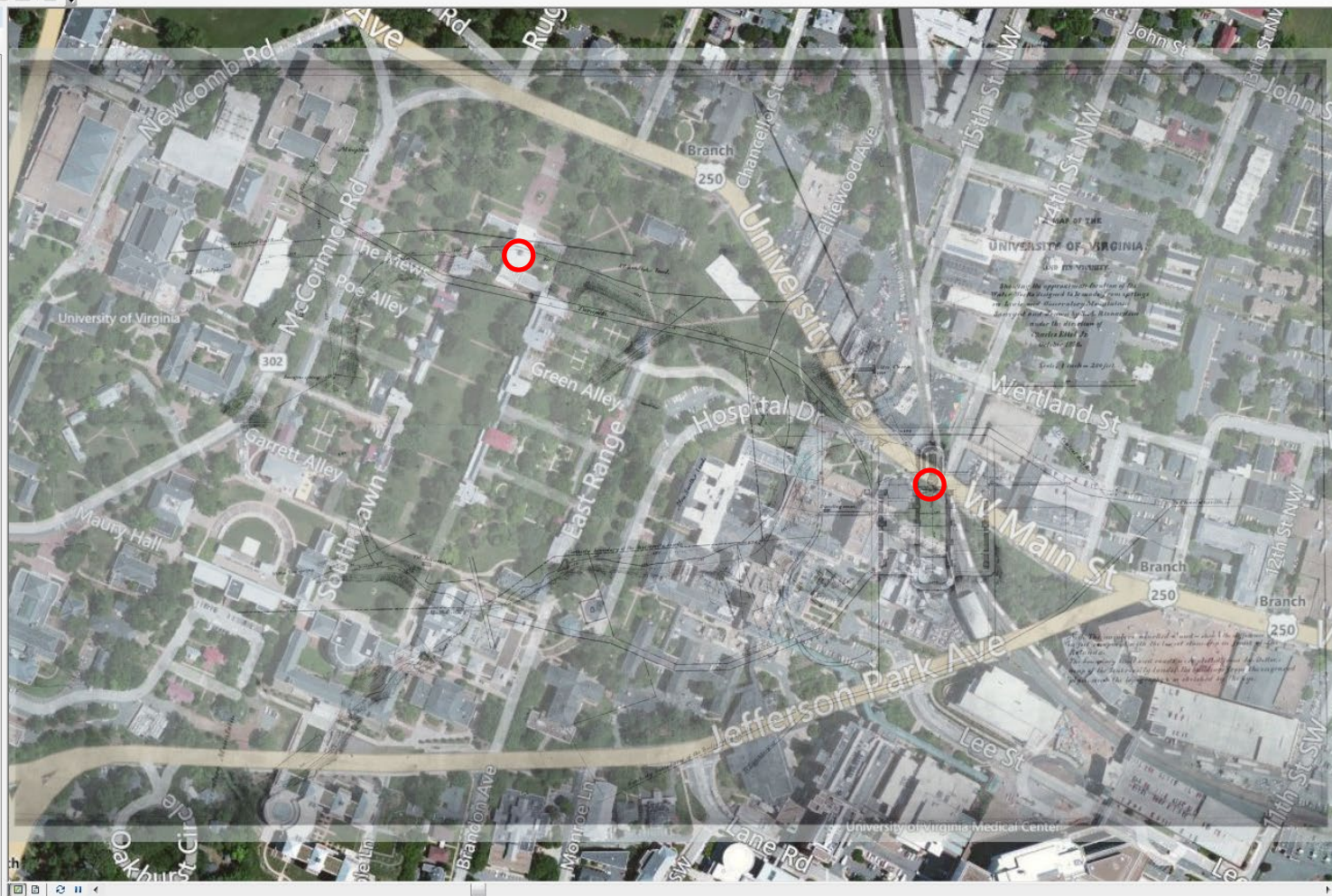


Layers

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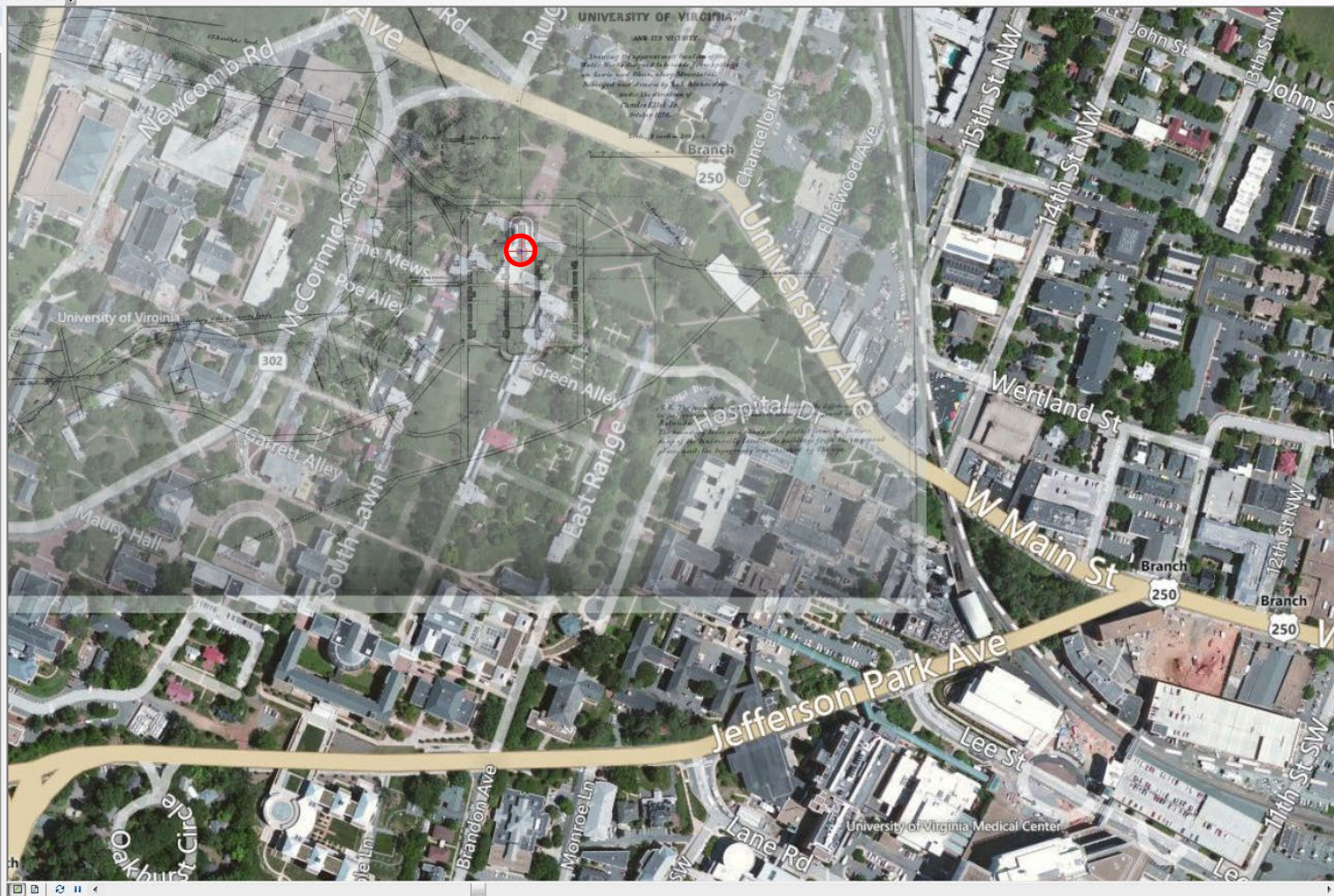


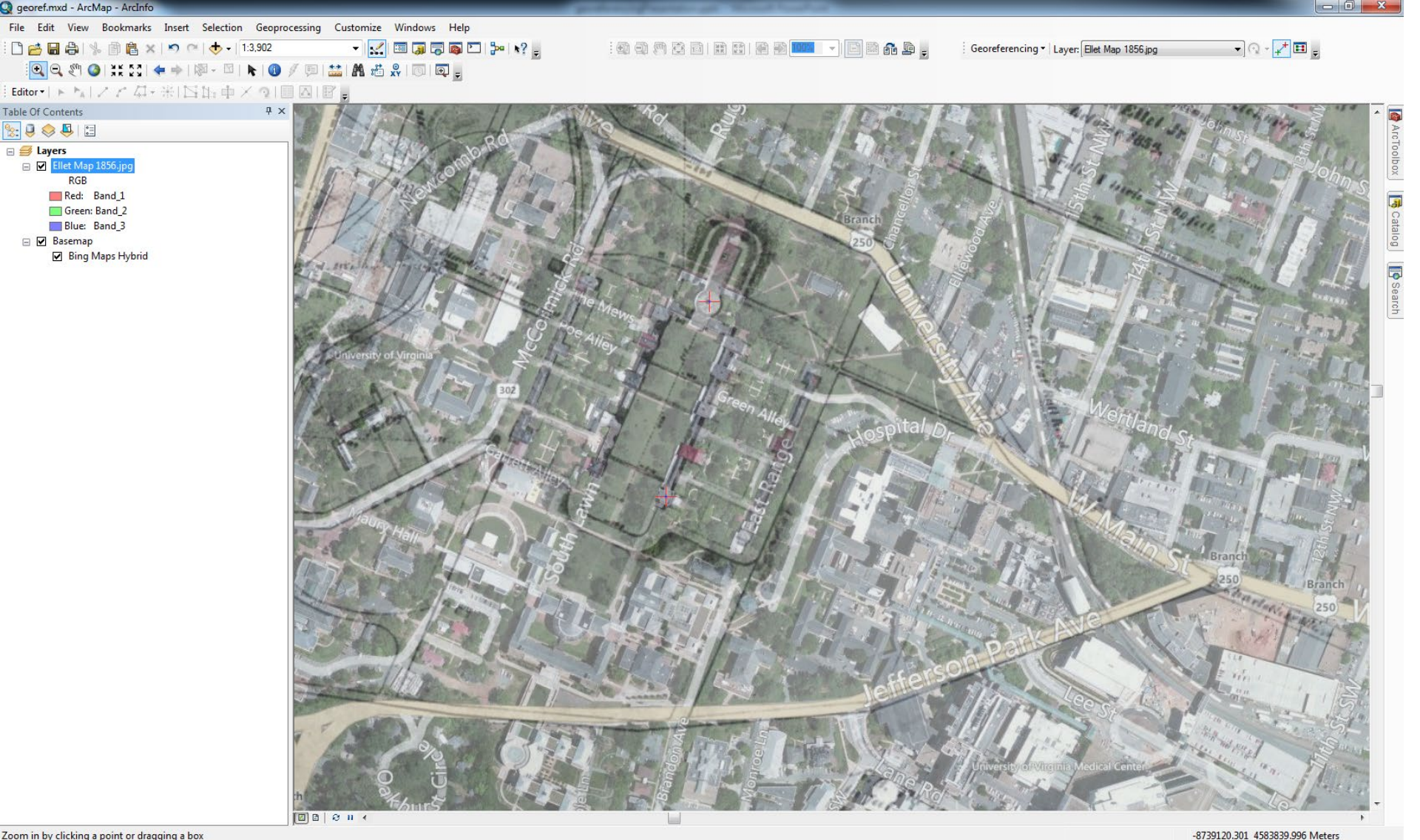
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Layers

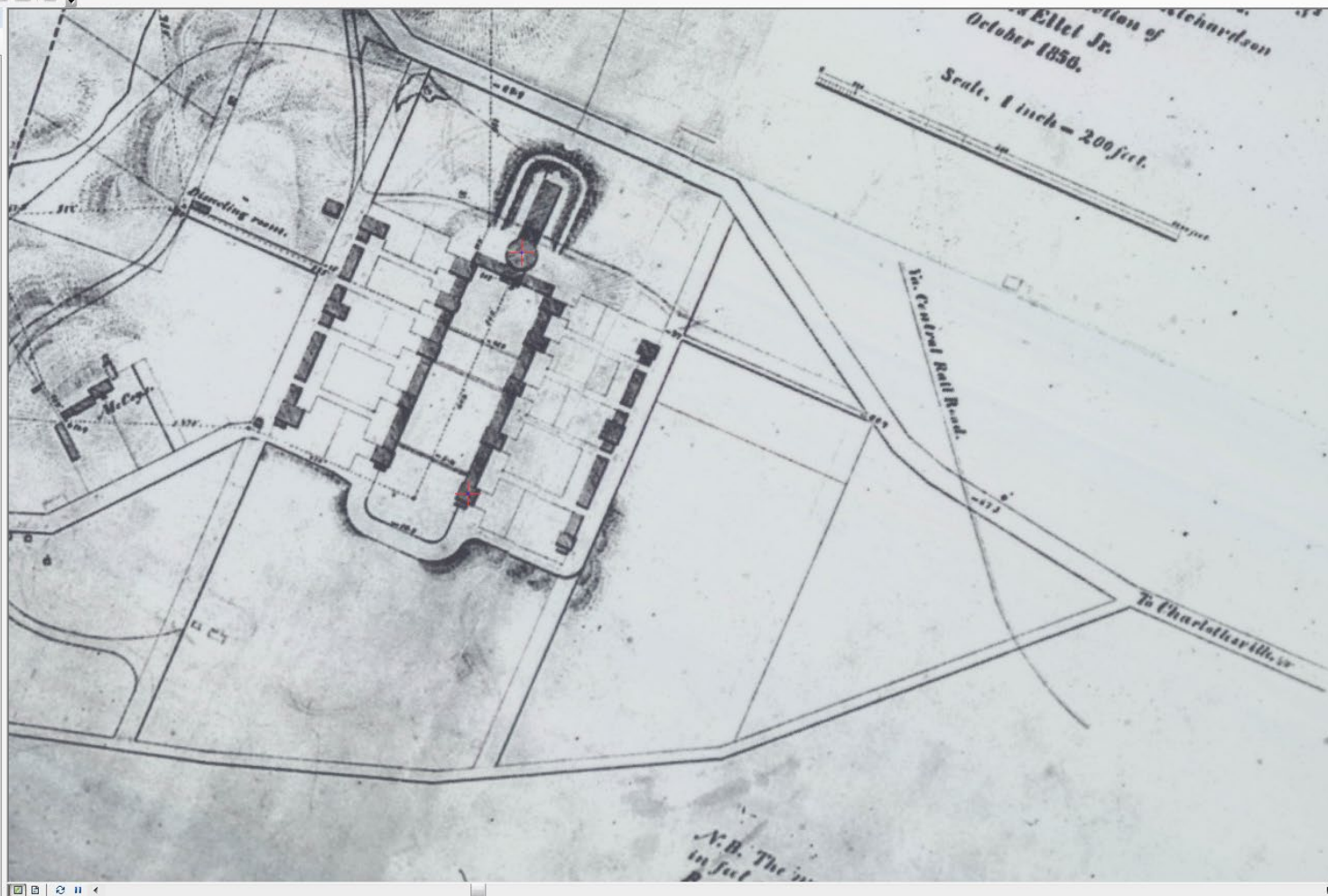
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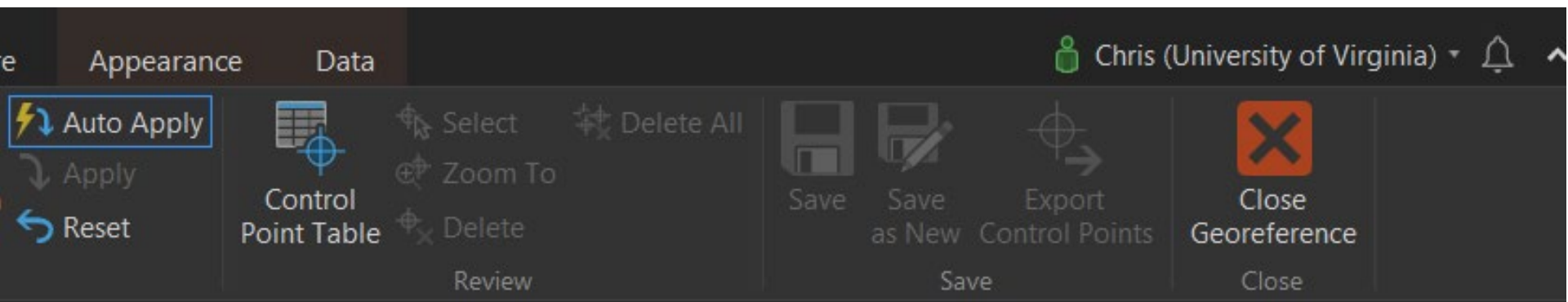
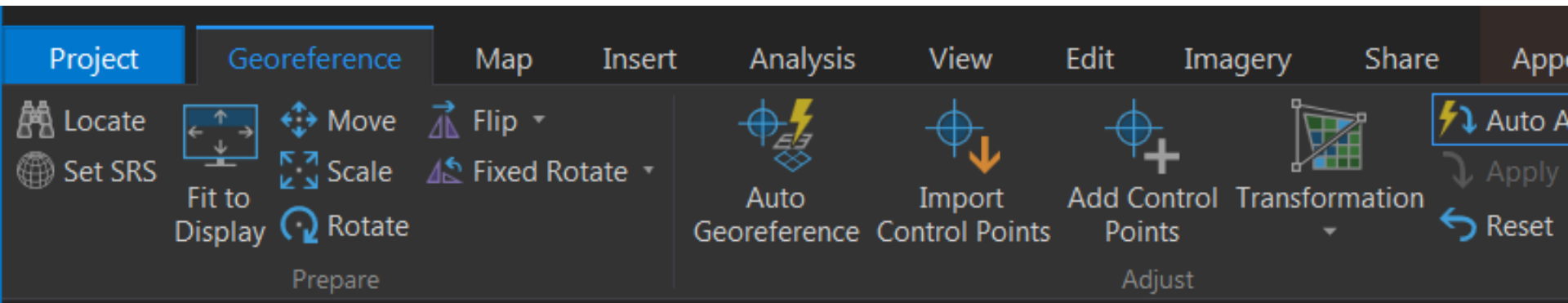
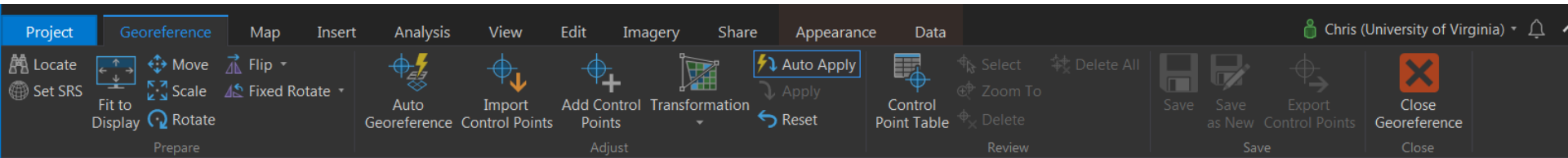


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ArcMap Georeferencing Toolbar



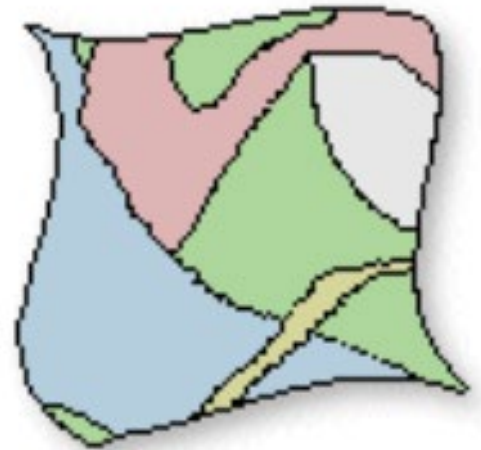
Transformation Types



1st Order / Affine
3 control points



2nd Order
6 control points



3rd Order
10 control points

World File

