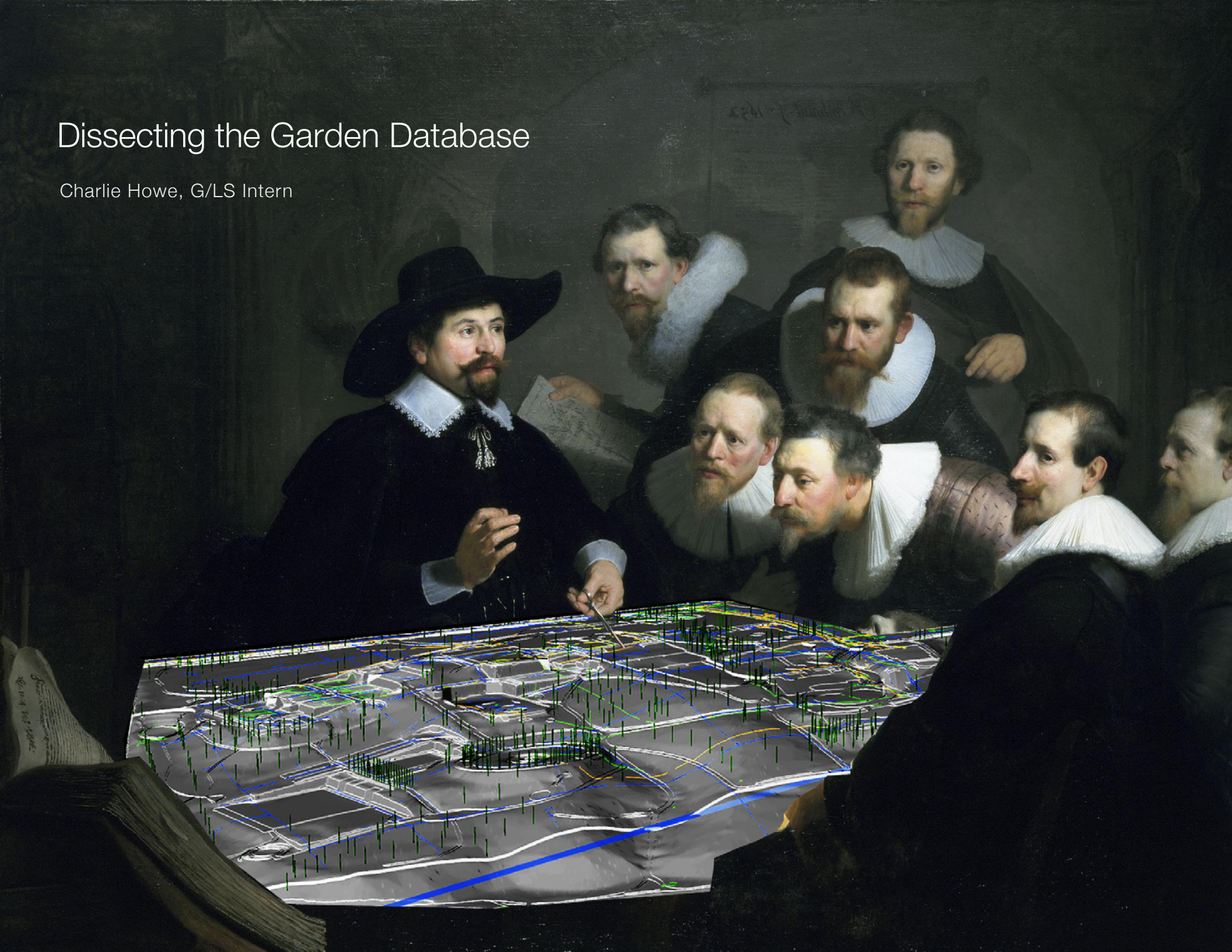
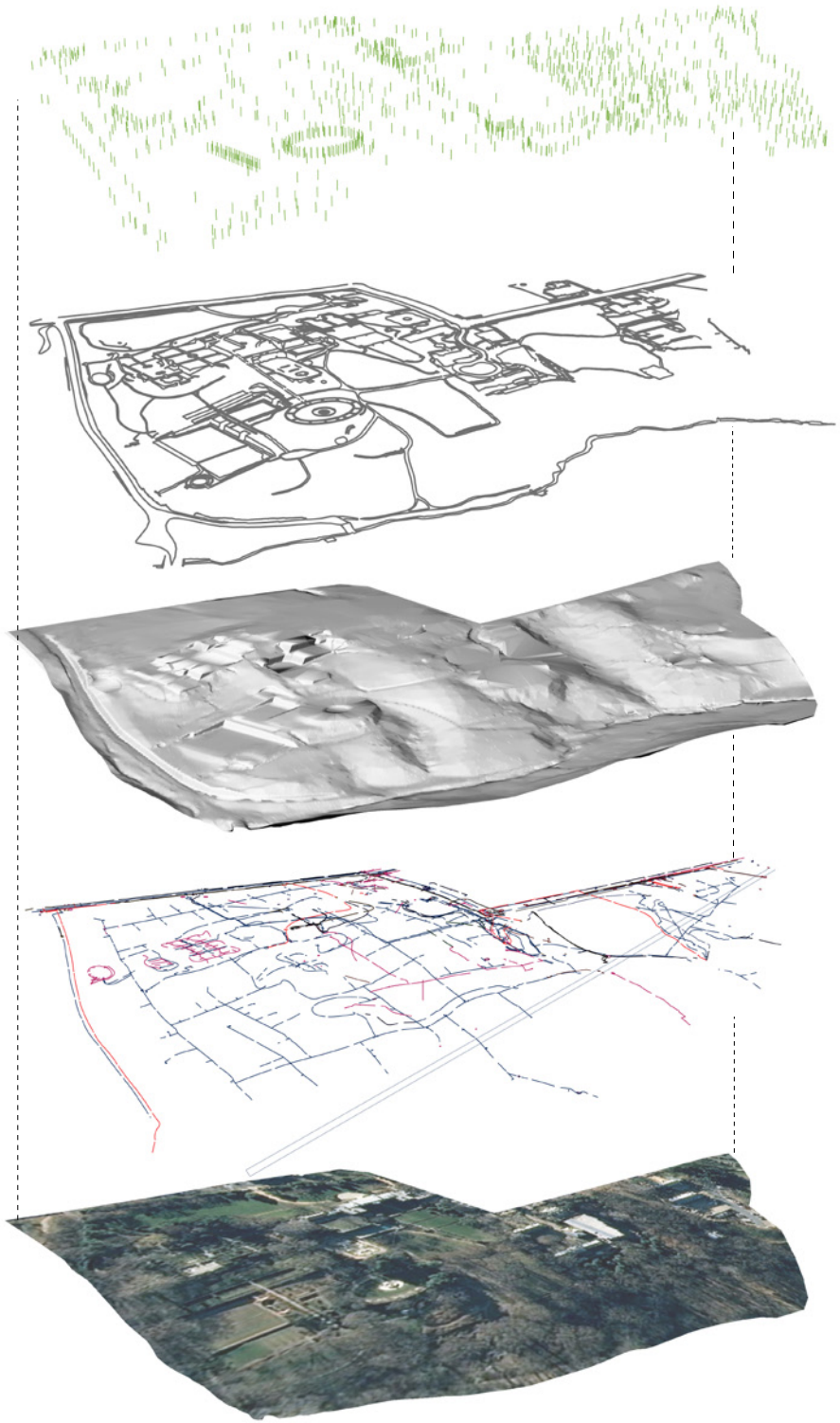
Dissecting the Garden Database

Charlie Howe, G/LS Intern





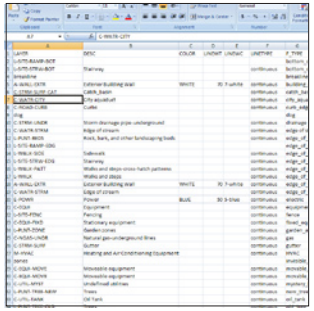
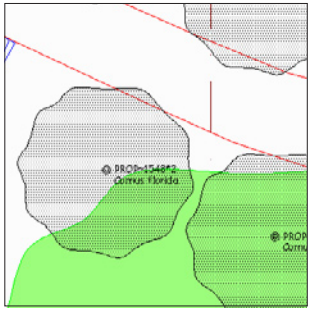
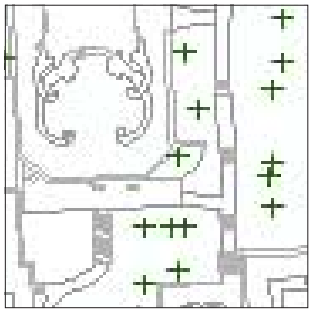
LAYER trees
SOURCES numerous tree surveys, field verification (Wooden)
OBJECTS points
HISTORIC DATA yes
DATA TABLES observations_ms, maintenance_ms, images_ms

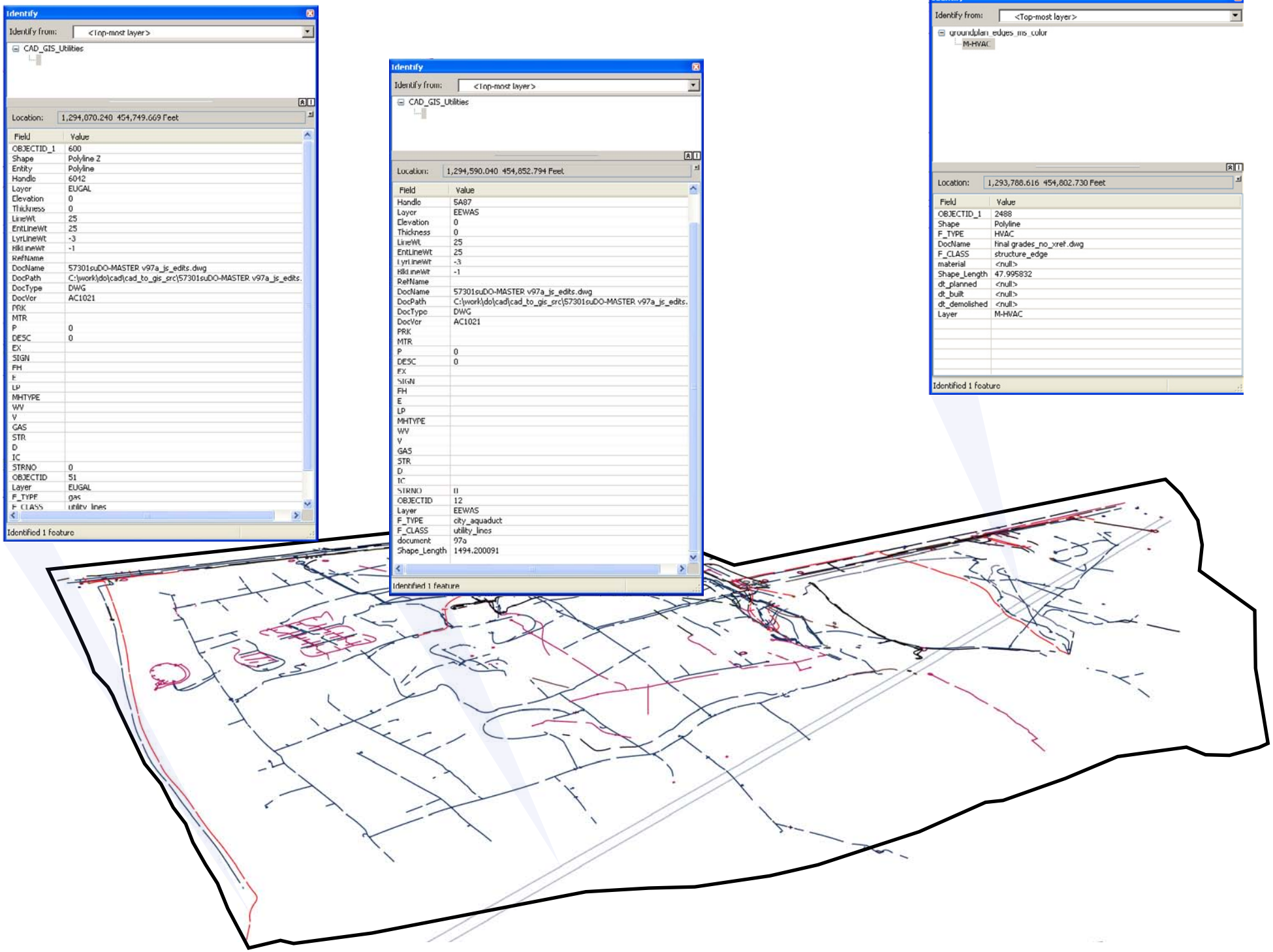
LAYER groundplan
SOURCES CAD data files, pdf documents
OBJECTS polylines
HISTORIC DATA no
DATA TABLES harvard CAD standards

LAYER contours
SOURCES DOG base v.2008, DO-Master v1997
OBJECTS polylines
HISTORIC DATA yes, 1922
DATA TABLES none

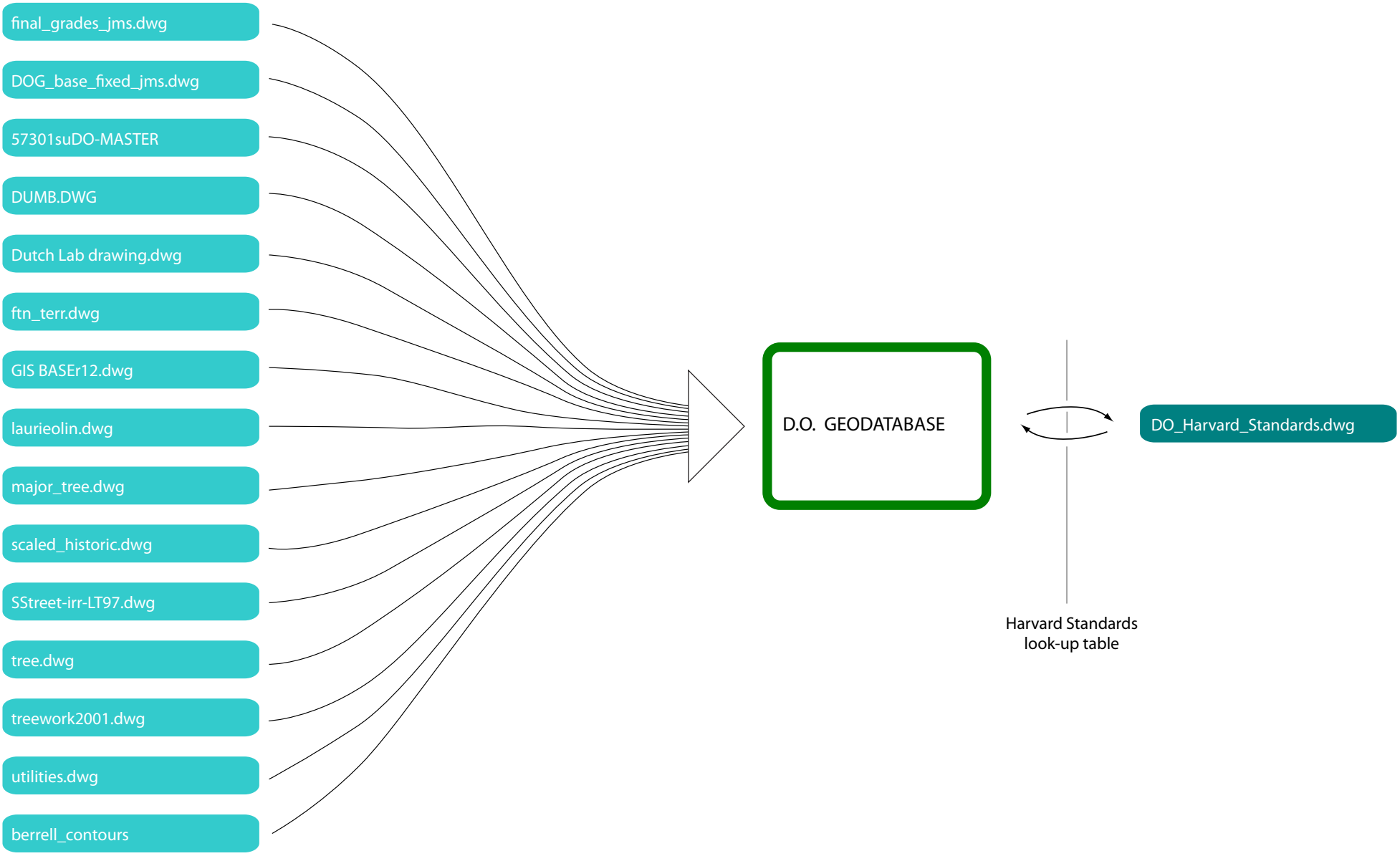
LAYER utilities
SOURCES DOG base v.2008, other CAD files
OBJECTS polylines, points
HISTORIC DATA no
DATA TABLES harvard CAD standards

LAYER imagery
SOURCES USGS aerials, drawings
OBJECTS raster data
HISTORIC DATA yes
DATA TABLES none

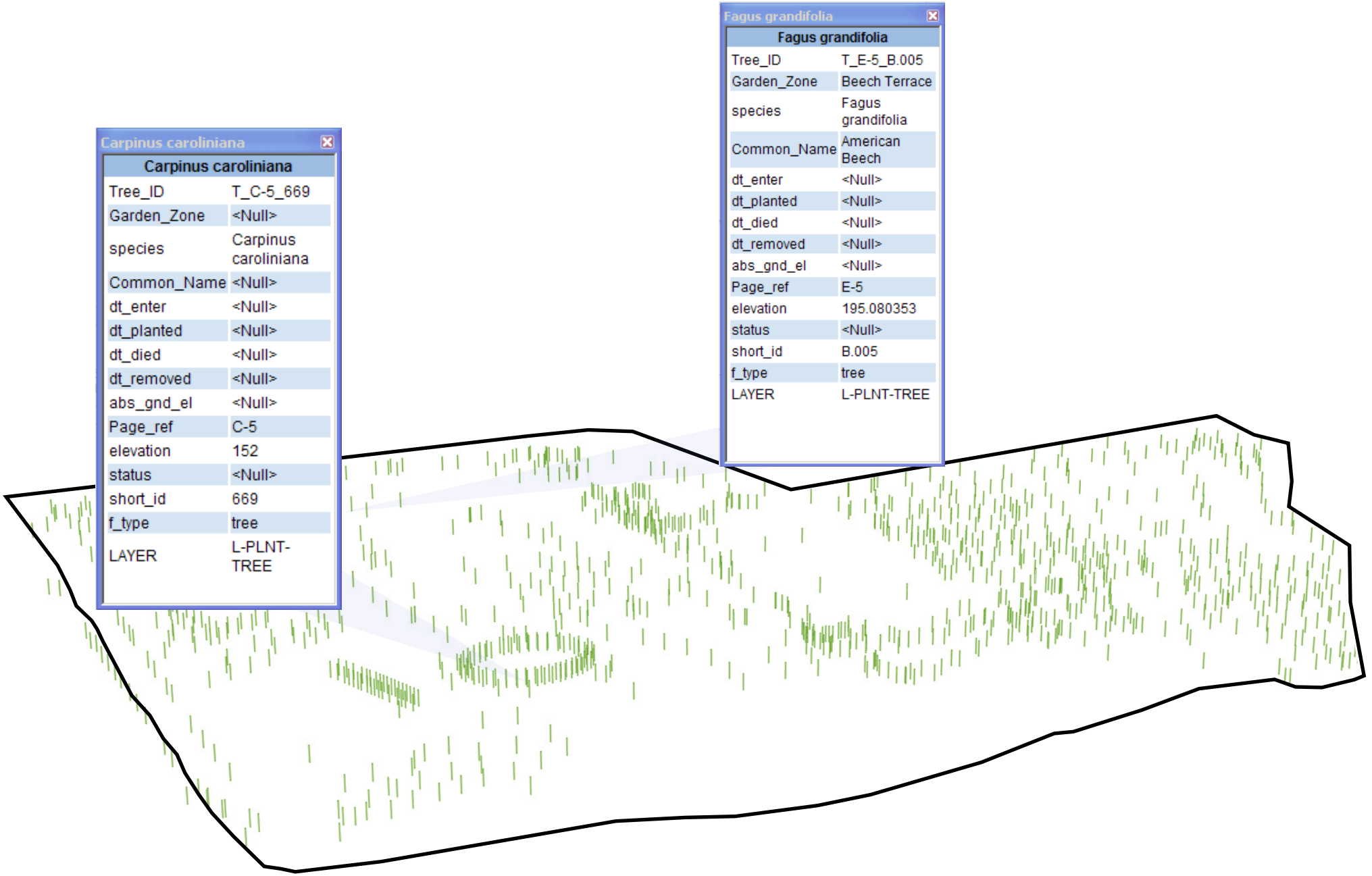
						
	Notes	AutoCAD / Excel	Plant Mapper	BG Base	CityWorks	ArcMap
	individual & group	linked by tree ID	web based	commercial	commercial	commercial
PRECISION	low -loss with time	high -geographic	low	high	high	high
USABILITY	high	moderate -requires care in data handling	high -user friendly interface	user friendly - 90 day support	high -user friendly inteface and support	moderate/low
COST	free	free/low	free	$6,950 + 500 second work station	$10,000 - 20,000	Free through ESRI grant/Harvard
EXPORT	low - loss of information	high - both common file types	not exportable	low - tedious to export data	low/moderate webbased platform	high - option to export to common file types
SCALABILITY	low - difficult at large scale and over time	high	low - not able to add observations, trees become too close to distinguish	high	high - suitable for city-wide use	high



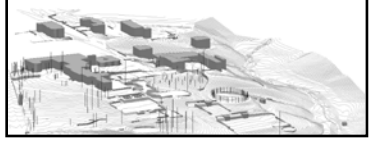
UTILITIES AND GROUNDPLAN:
DATA TRANSFER



UTILITIES AND GROUNDPLAN:
DATA TRANSFER



DUMBARTON OAKS TREES:
GEOGRAPHIC DATABASE



Table

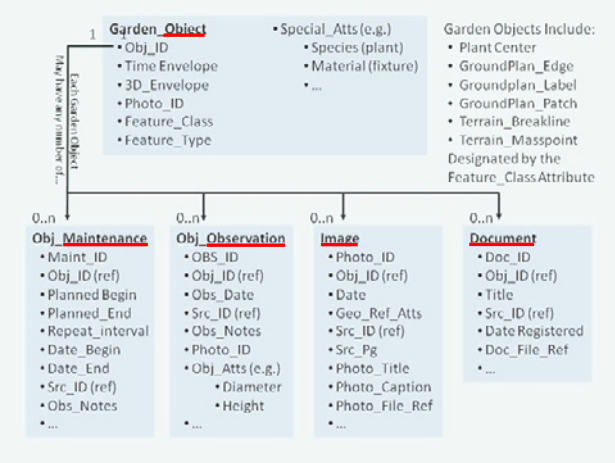
tree_points_ms

OBJECTID *	Shape *	Tree_ID *	Garden_Zone	species	Common_Name	dt_enter	dt_planted	dt_died	dt_removed	abs_gnd_el	Page_ref	elevation	dt_first_obs	dt_final_obs	status	short_
1203	Point	T_B-4_118	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	B-4	130.88743	<Null>	<Null>	<Null>	1180
1204	Point	T_B-4_118	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	B-4	128.00949	<Null>	<Null>	<Null>	1183
1205	Point	T_B-4_118	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	B-4	126.71621	<Null>	<Null>	<Null>	1184
1206	Point	T_B-4_110	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	B-4	125.27751	<Null>	<Null>	<Null>	1107
939	Point	T_C-5_721	<Null>	Carpinus	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	C-5	152	<Null>	<Null>	<Null>	721
940	Point	T_C-5_722	<Null>	Carpinus	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	C-5	152	<Null>	<Null>	<Null>	722
941	Point	T_C-5_727	<Null>	Carpinus	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	C-5	152	<Null>	<Null>	<Null>	727
942	Point	T_C-5_729	<Null>	Carpinus	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	C-5	152	<Null>	<Null>	<Null>	729
943	Point	T_C-5_738	<Null>	Carpinus	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	C-5	152	<Null>	<Null>	<Null>	738
944	Point	T_C-5_739	<Null>	Carpinus	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	C-5	152	<Null>	<Null>	<Null>	739
945	Point	T_C-5_744	<Null>	Carpinus	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	C-5	152	<Null>	<Null>	<Null>	744
946	Point	T_C-5_750	<Null>	Carpinus	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	C-5	152	<Null>	<Null>	<Null>	750
947	Point	T_C-5_754	<Null>	Carpinus	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	C-5	152	<Null>	<Null>	<Null>	754
948	Point	T_C-5_755	<Null>	Carpinus	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	C-5	152	<Null>	<Null>	<Null>	755
949	Point	T_C-5_756	<Null>	Carpinus	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	C-5	152	<Null>	<Null>	<Null>	756
950	Point	T_C-5_760	<Null>	Carpinus	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	C-5	152	<Null>	<Null>	<Null>	760

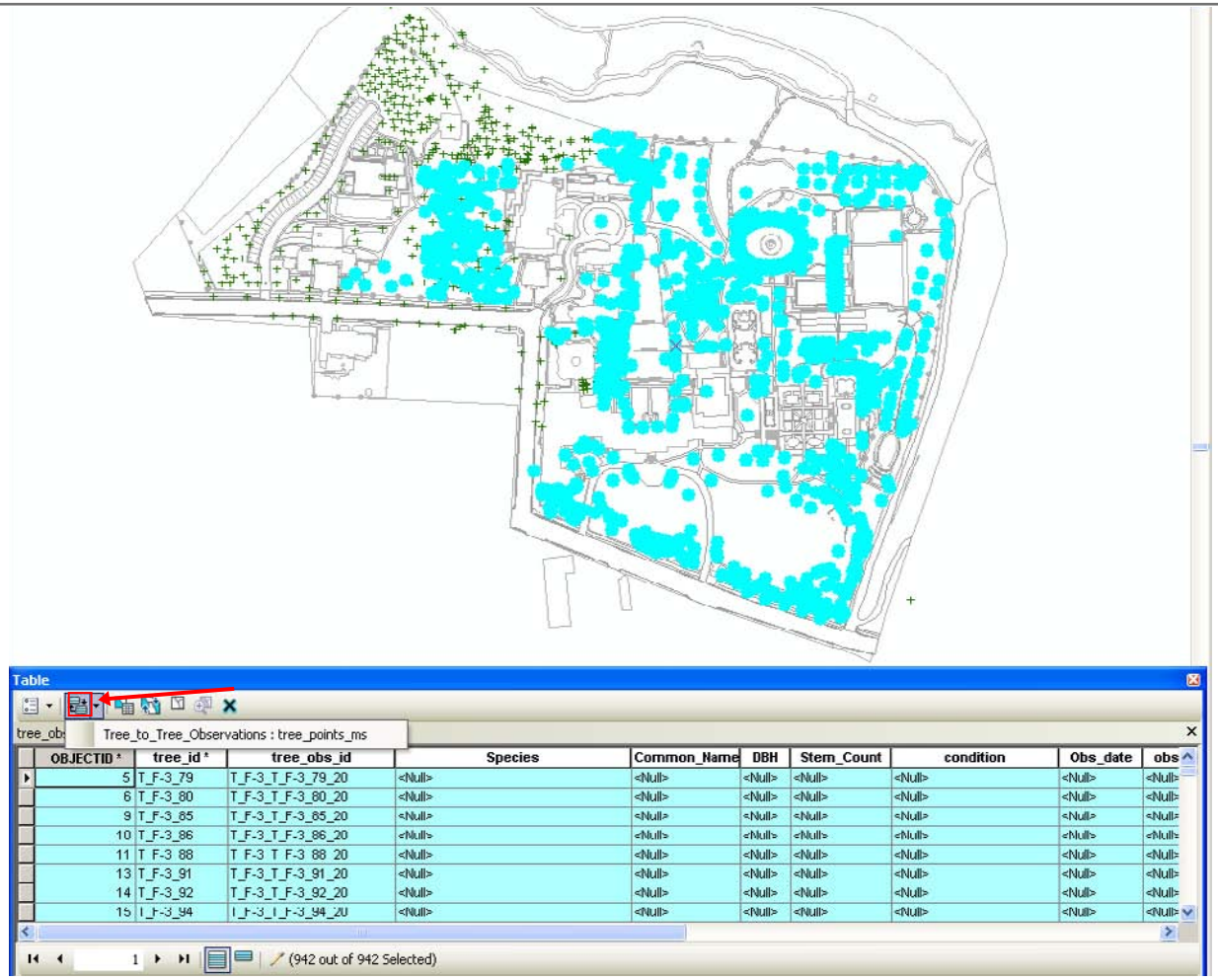
1 (1 out of 1404 Selected)

tree_points_ms

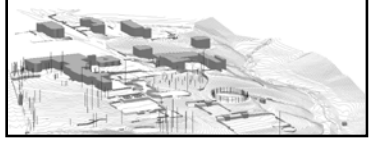
The unique *Tree_ID* number for every tree point allows us to associate additional information tables with each tree point.

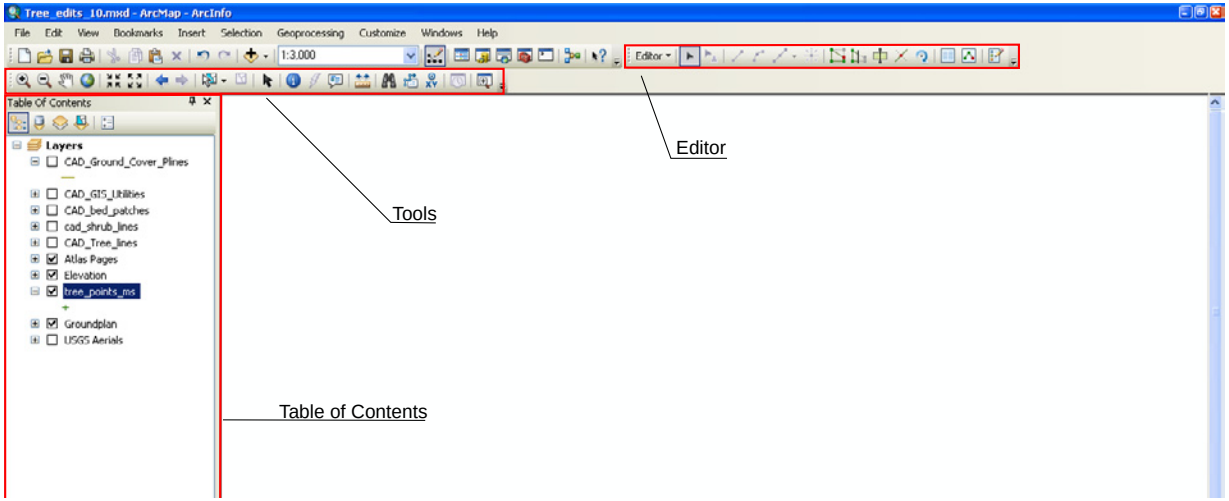


The DO tree database has ‘maintenance’, ‘observation’, and ‘image’ tables. Each entry in these tables is linked to a specific tree point using the *Tree_ID* number.

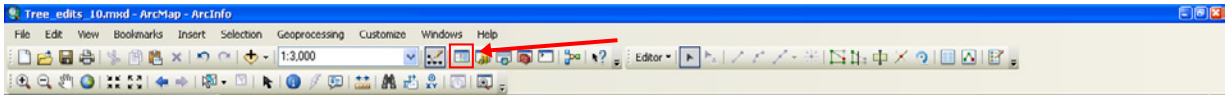


The *Observation* table is linked to the tree points on the map via the *tree_id* number.
Use the *Related Tables* button it is possible to select tree points based on the *tree_observations_ms* records.
For example: If we wanted to see all of the trees that have at least one observation record we could highlight all of the *tree_observation_ms* records - click the *Related Tables* button and choose *tree_points_ms*. Above we see selected all of the tree points with related observations.

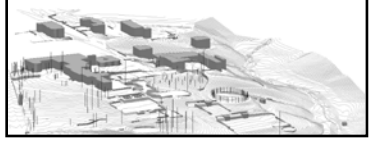


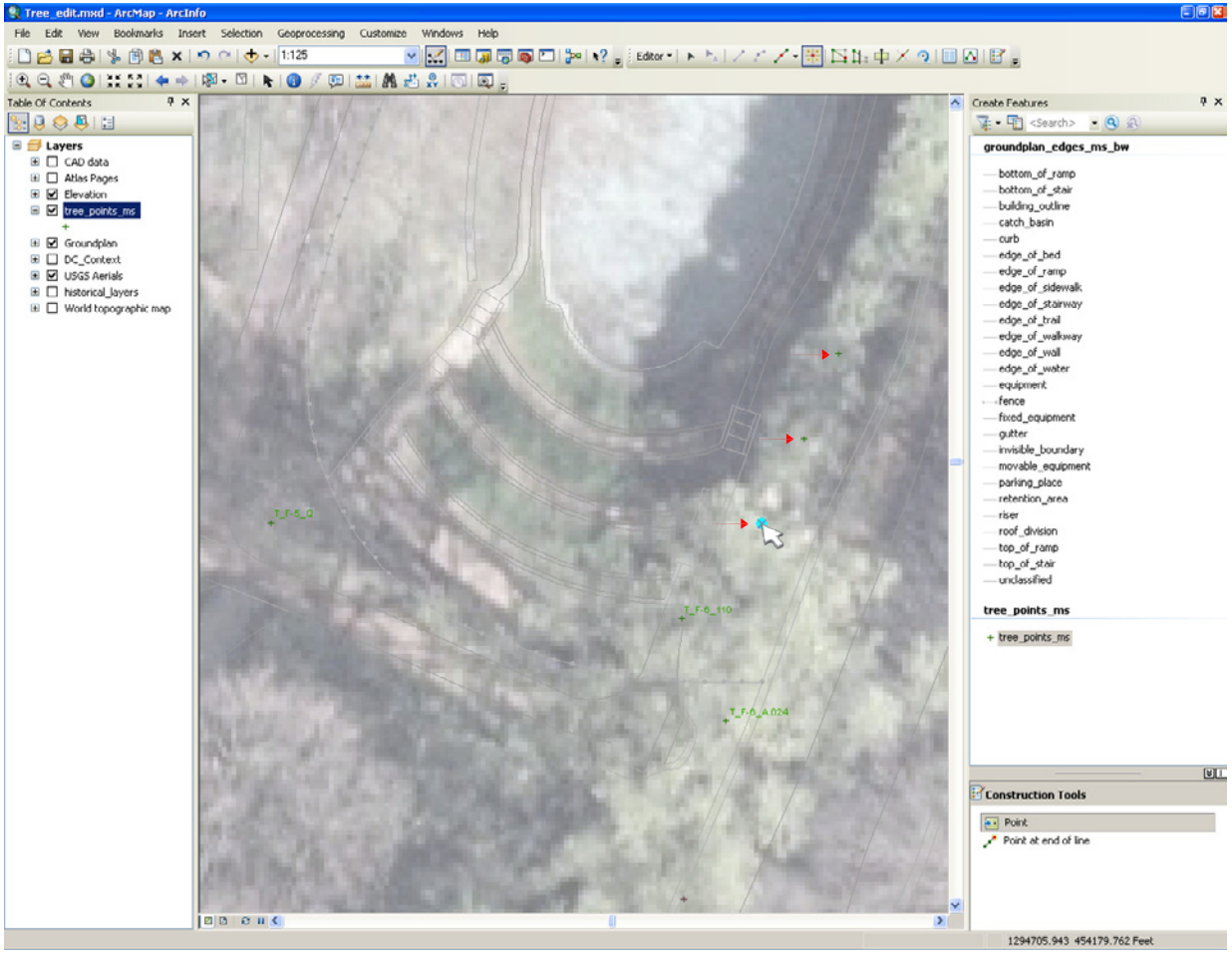


Tools, Editor, and *Table of Contents* toolbars will be necessary to view and edit the DO tree database. If these toolbars are hidden follow the following to display them. If other toolbars are showing you may drag them to the middle of the screen and close them. drag > close (x)

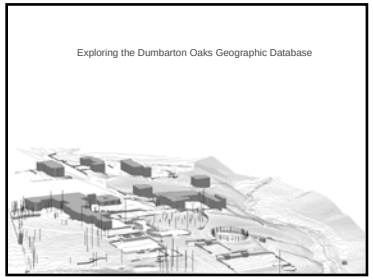


the *Table of Contents* can be displayed by simply clicking the *Table of Contents Window* button above

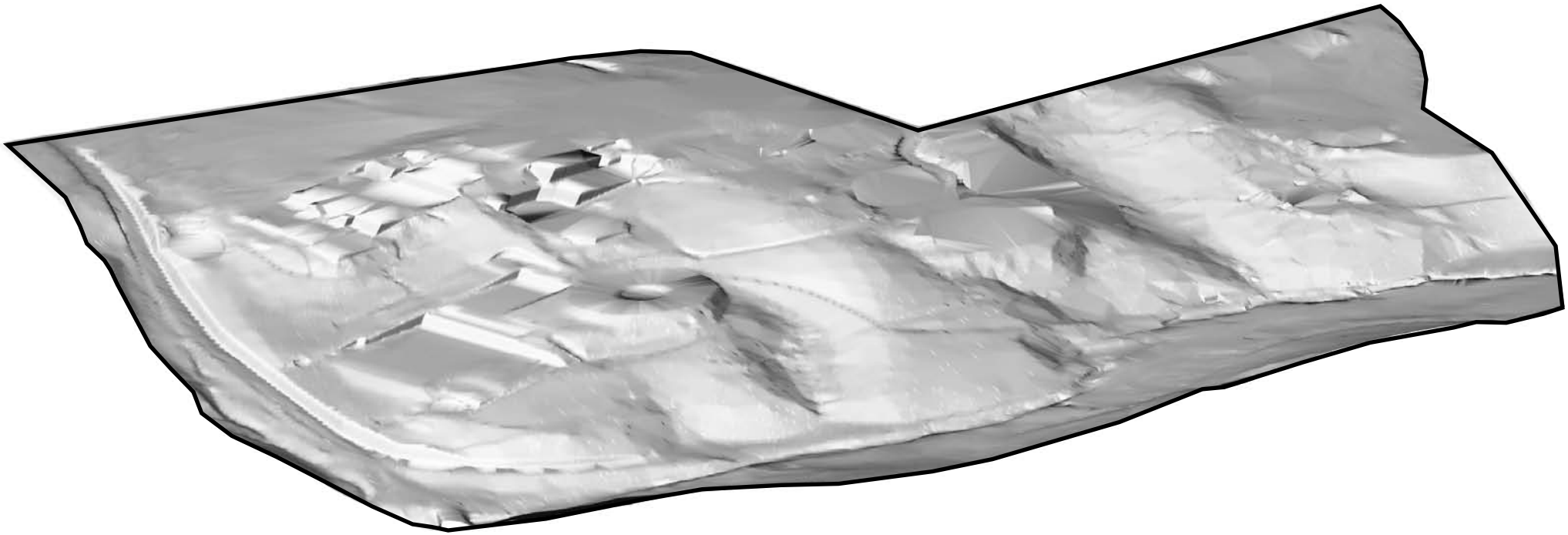




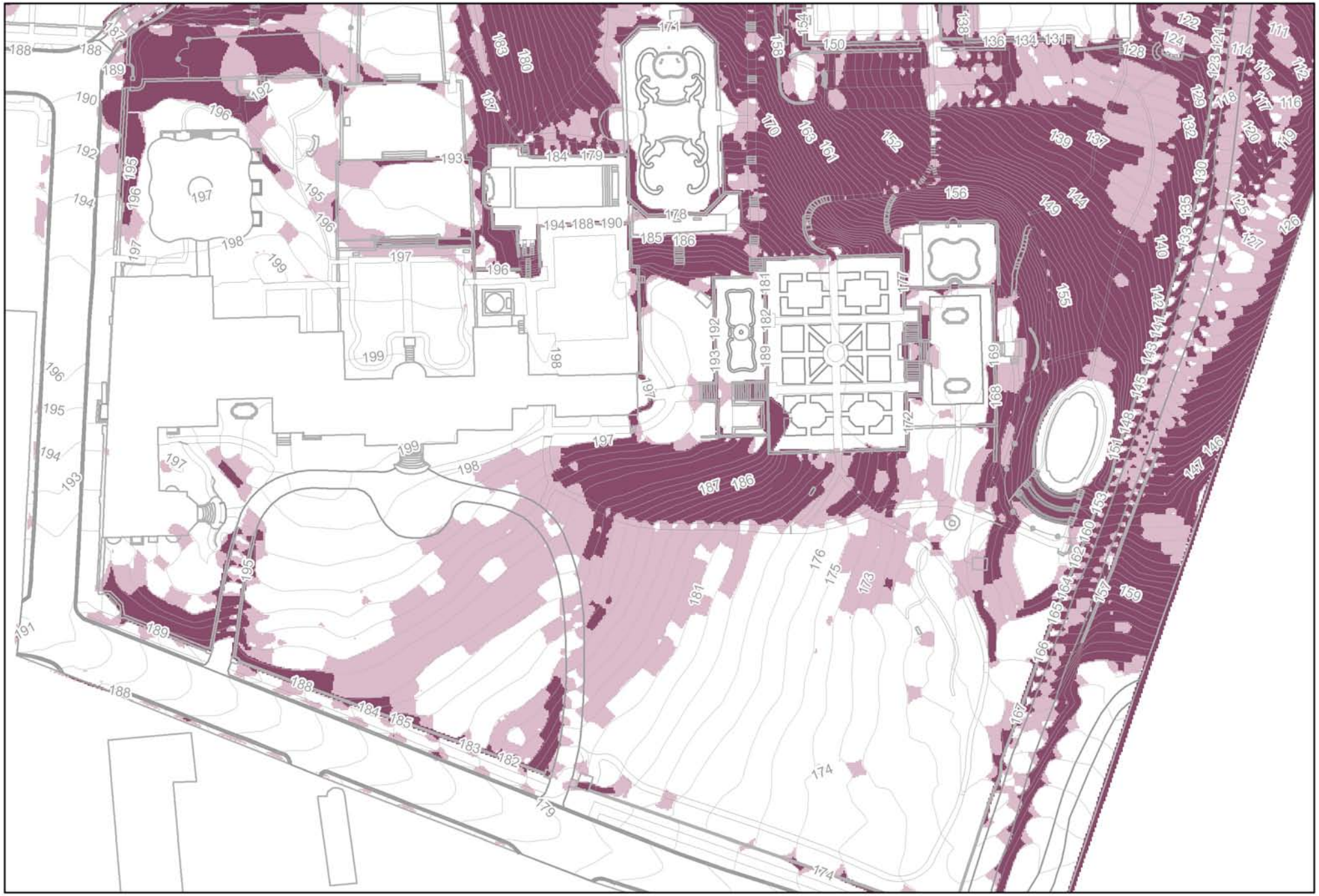
The cursor remains ‘active’ and each click on the map will result in a new tree point. I add three trees by clicking in the three locations shown above. If you accidentaly click in the wrong location, that’s fine, you can move and delete points after done adding them.



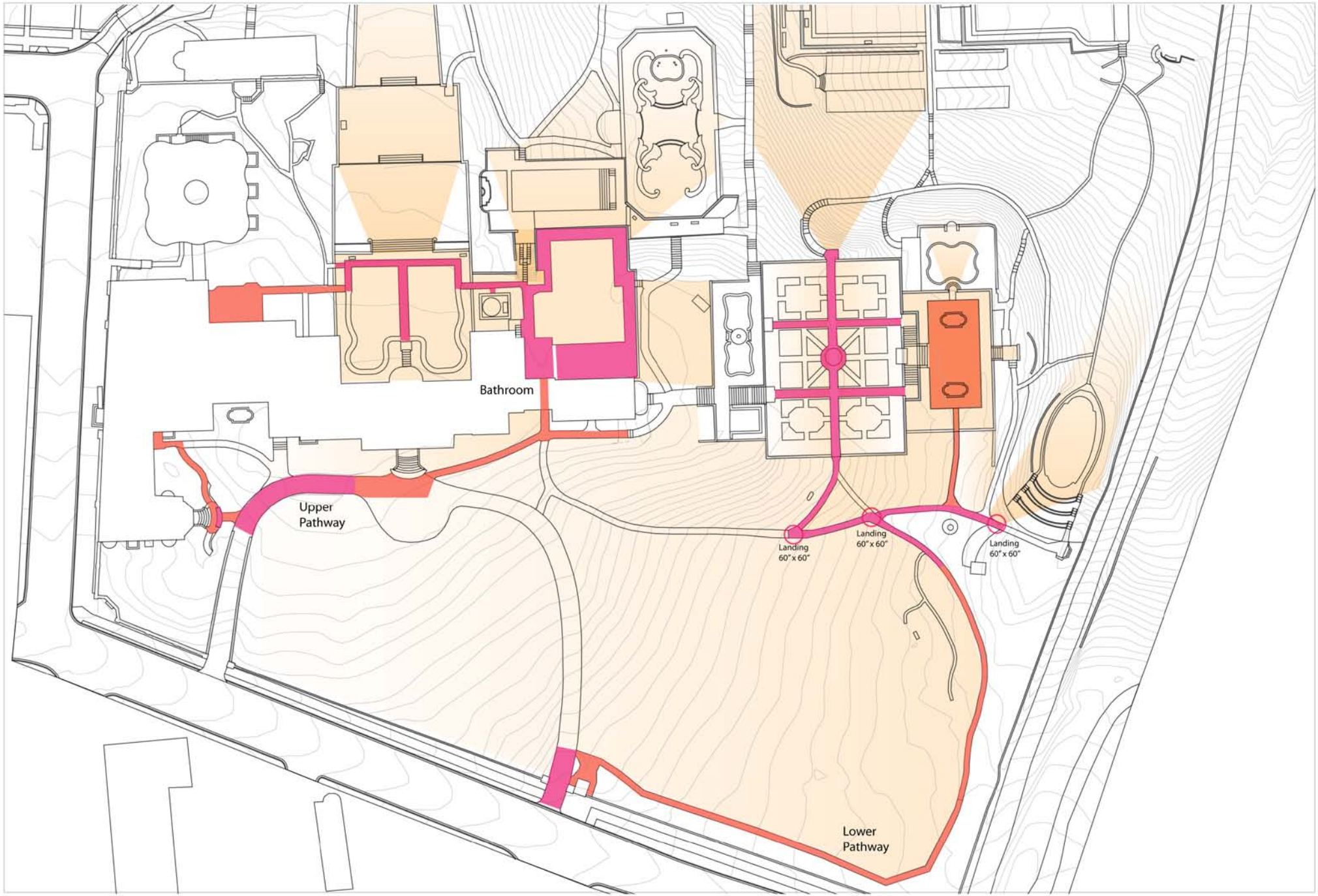
Contents:



TOPOGRAPHY DATABASE:
COMPUTATION



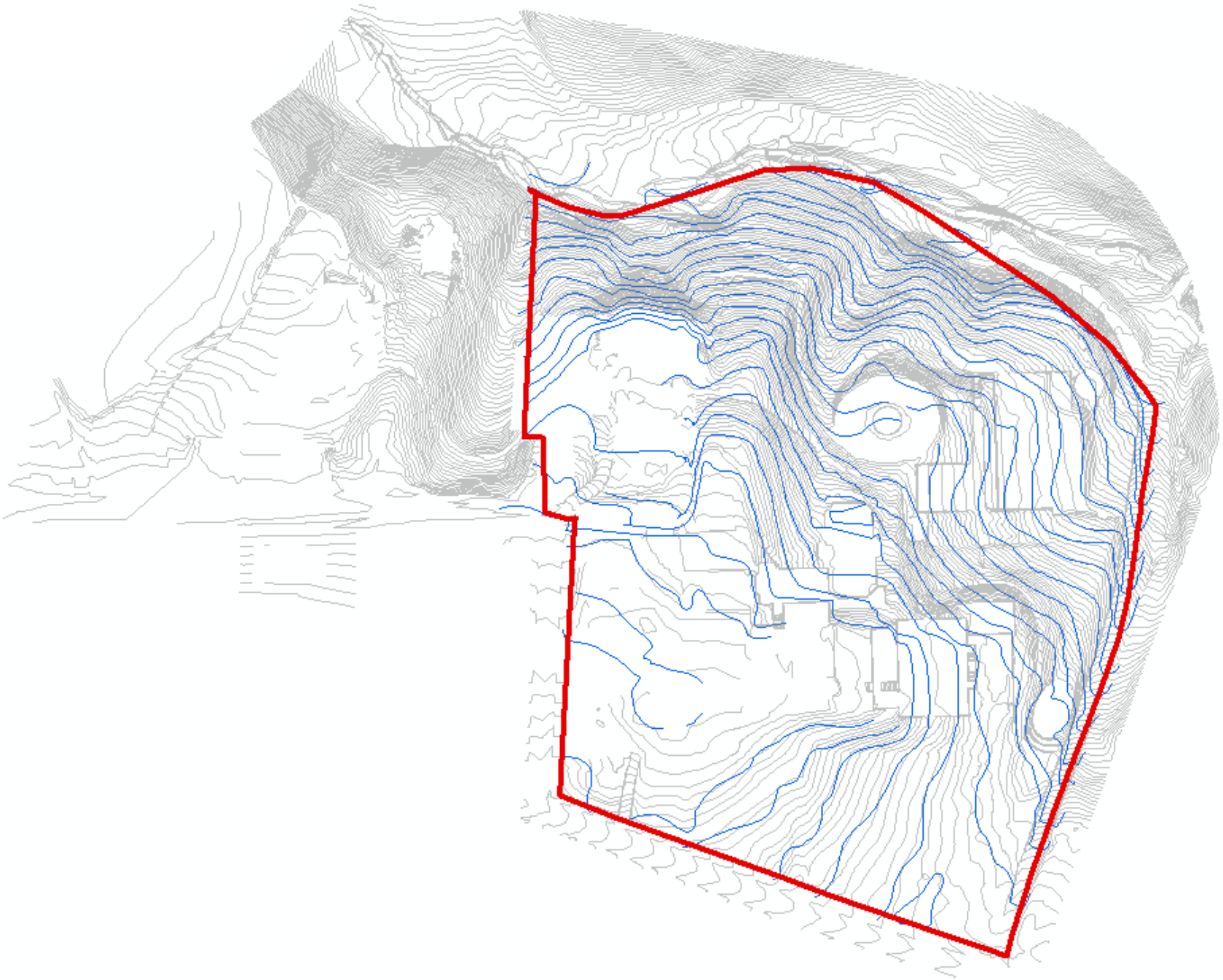
Dumbarton Oaks Garden
Accessibility



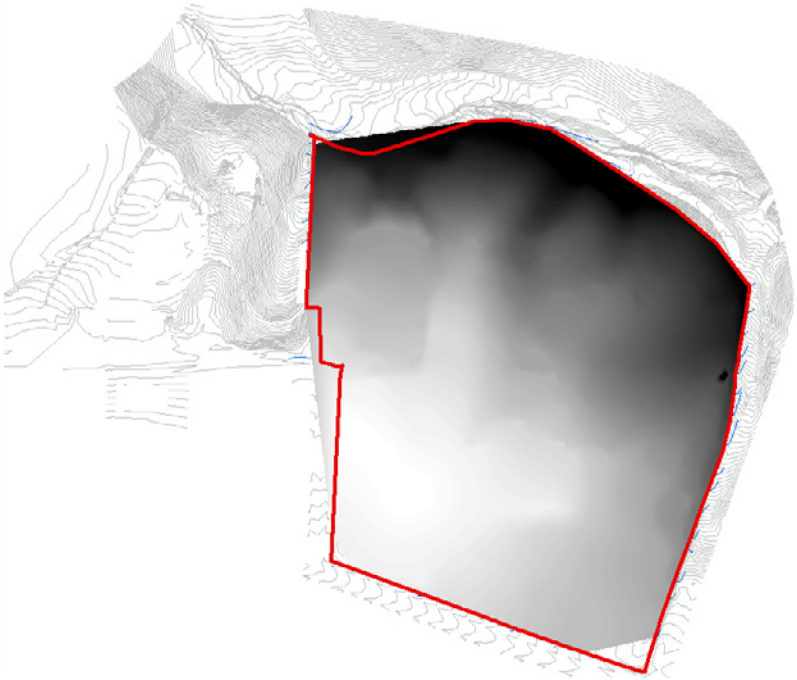
Dumbarton Oaks Garden
Accessibility

Modification Required
No Modification Necessary
Viewshed

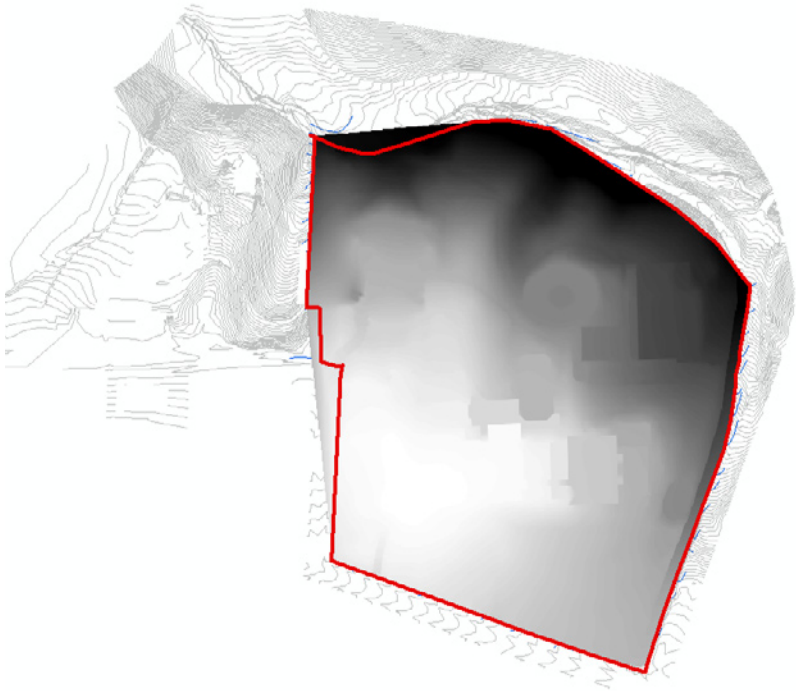
0 125 250 Feet
Maryland State Plane Projection.



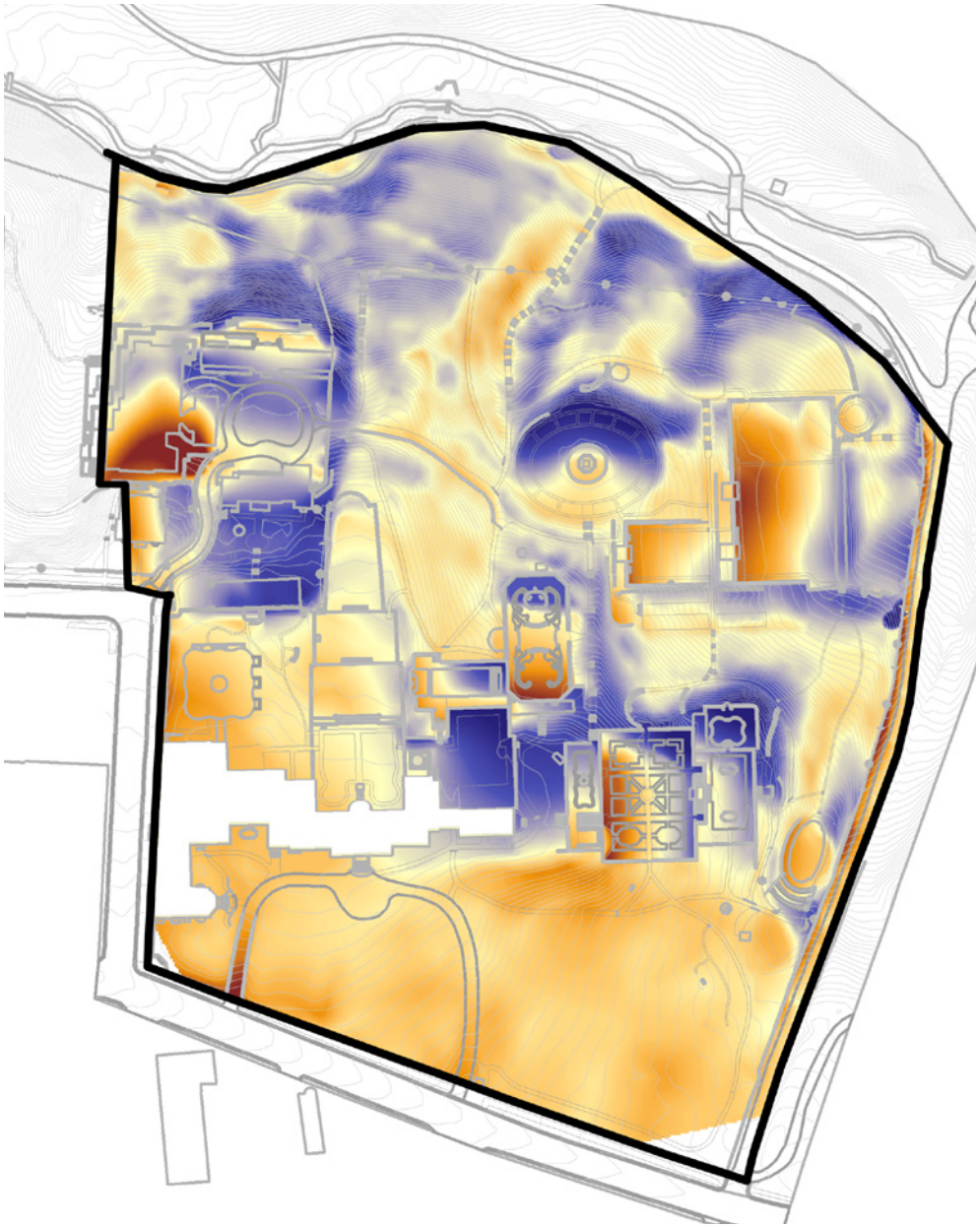
extent of Berral contours, 1922

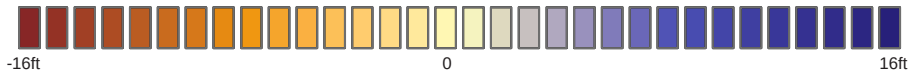


digital elevation model, 1922



digital elevation model, recent

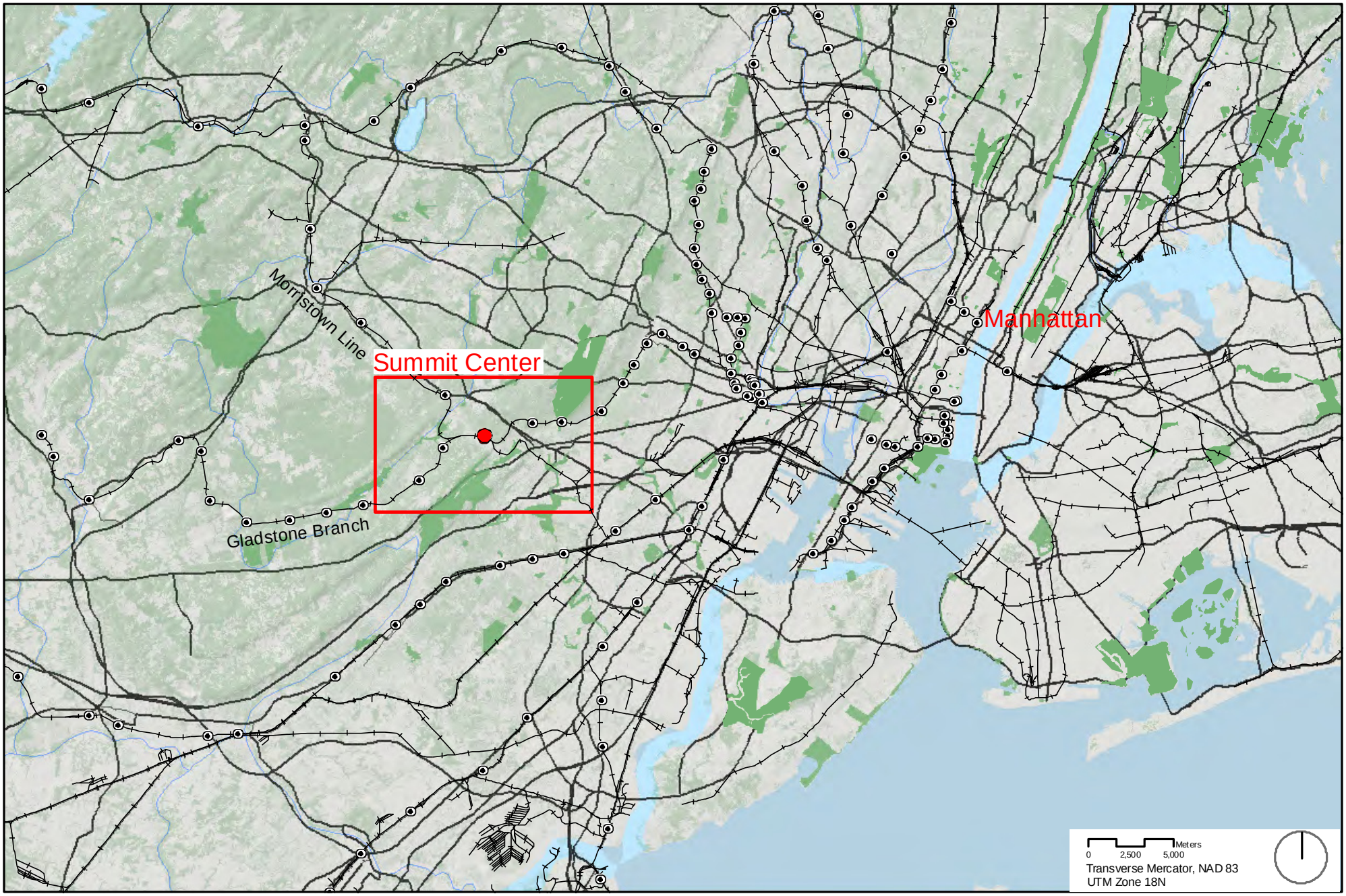




Cut

Fill

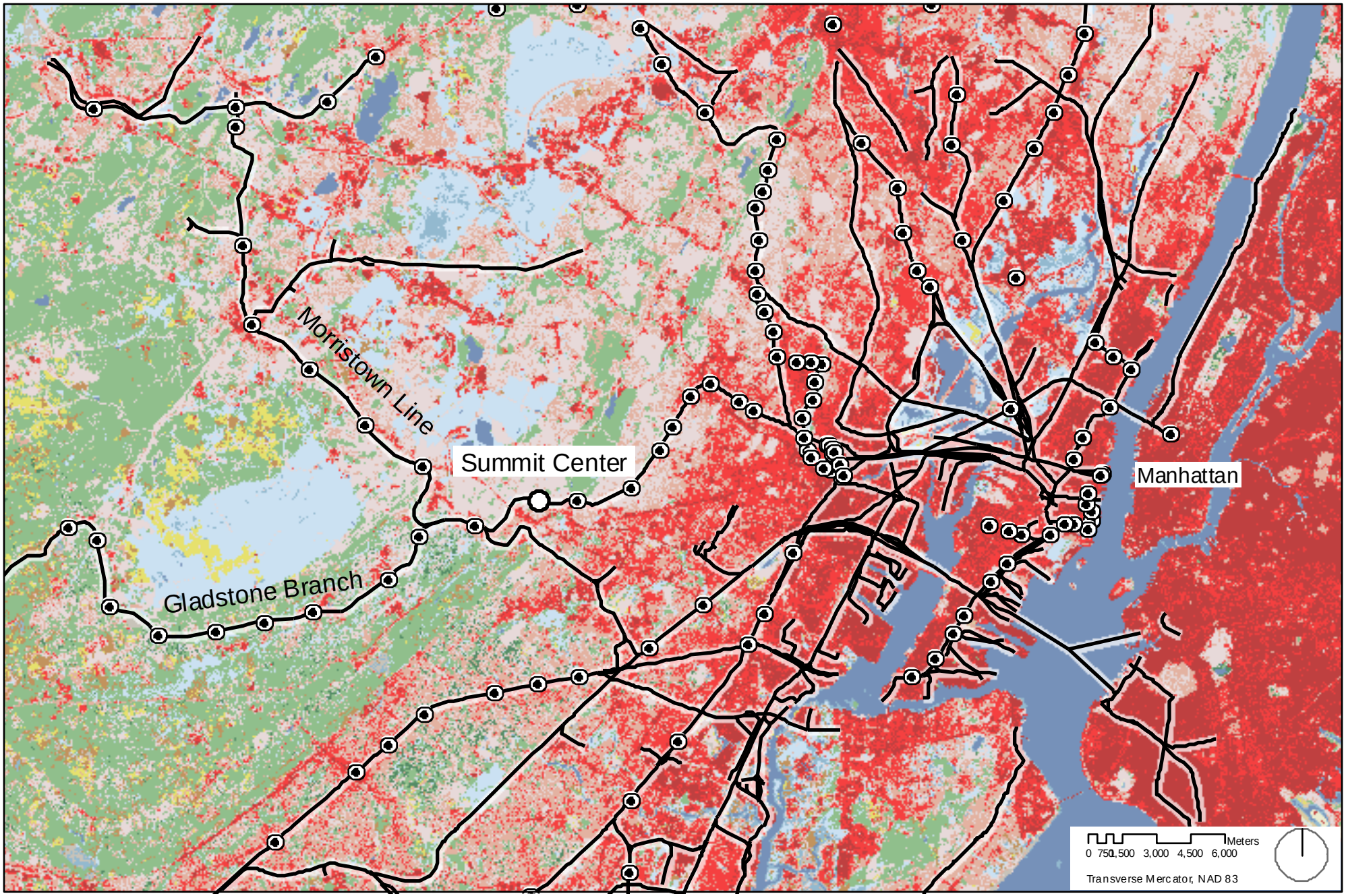
TOPOGRAPHY DATABASE:
COMPUTATION



Summit in Context - Metro NYC

Only a shortr train ride from Manhattan the city of Summit offers natural amenities of protected wilderness areas, small town charm and access to the activity NYC metro.

Sources:
Map by Charles Howe; Fundamentals of GIS Assignment 1; February 27, 2011; Residential Streets &Hydrography - NJDEP 2000; Major Highways, Rail & Parks - StreetMap USA; Elevation - February 2002, USGS; Canopy, January 2006, USGS.

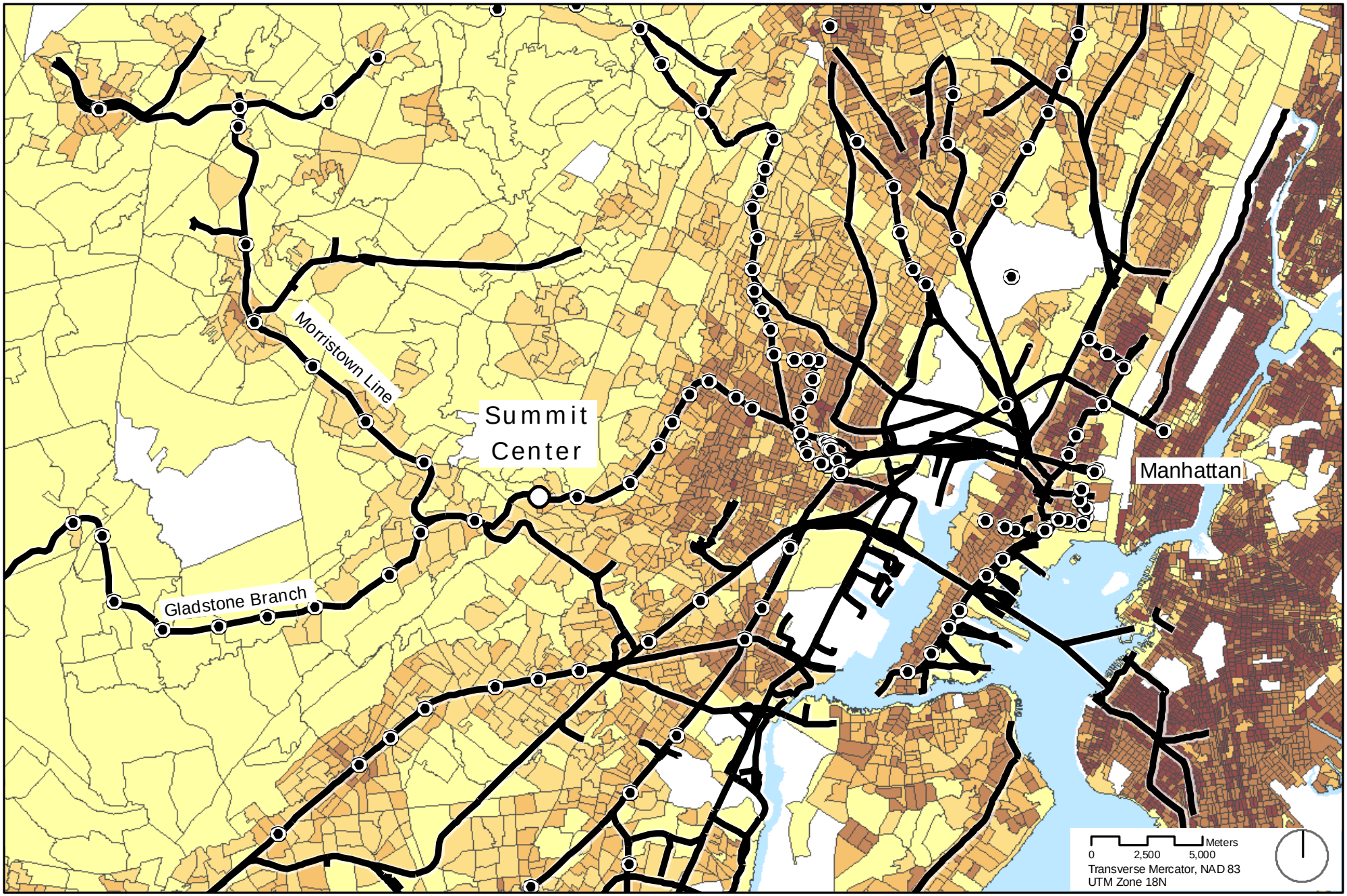


Land Cover / NJ Rail Transit

Spectral patterns along New Jersey Transit lines are characteristic of high density development and low density development depicted in red and pink. This data suggests that in 2003 corridors of urbanization alligned with rail lines, such as the Gladstone Branch and Morristown Line of the NJ Transit System stretching west from Manhattan.

- High Density Development
- Low Density Development
- Forest
- Wetland
- Herbaceous Planted / Herbaceus Scrub

Sources:
Map by Charles Howe; Fundamentals of GIS Assignment 1; April 3, 2011; Land Cover - National Land Cover Database 2003; Rail Lines - StreetMap USA; Rail Stops - New Jersey Transit.



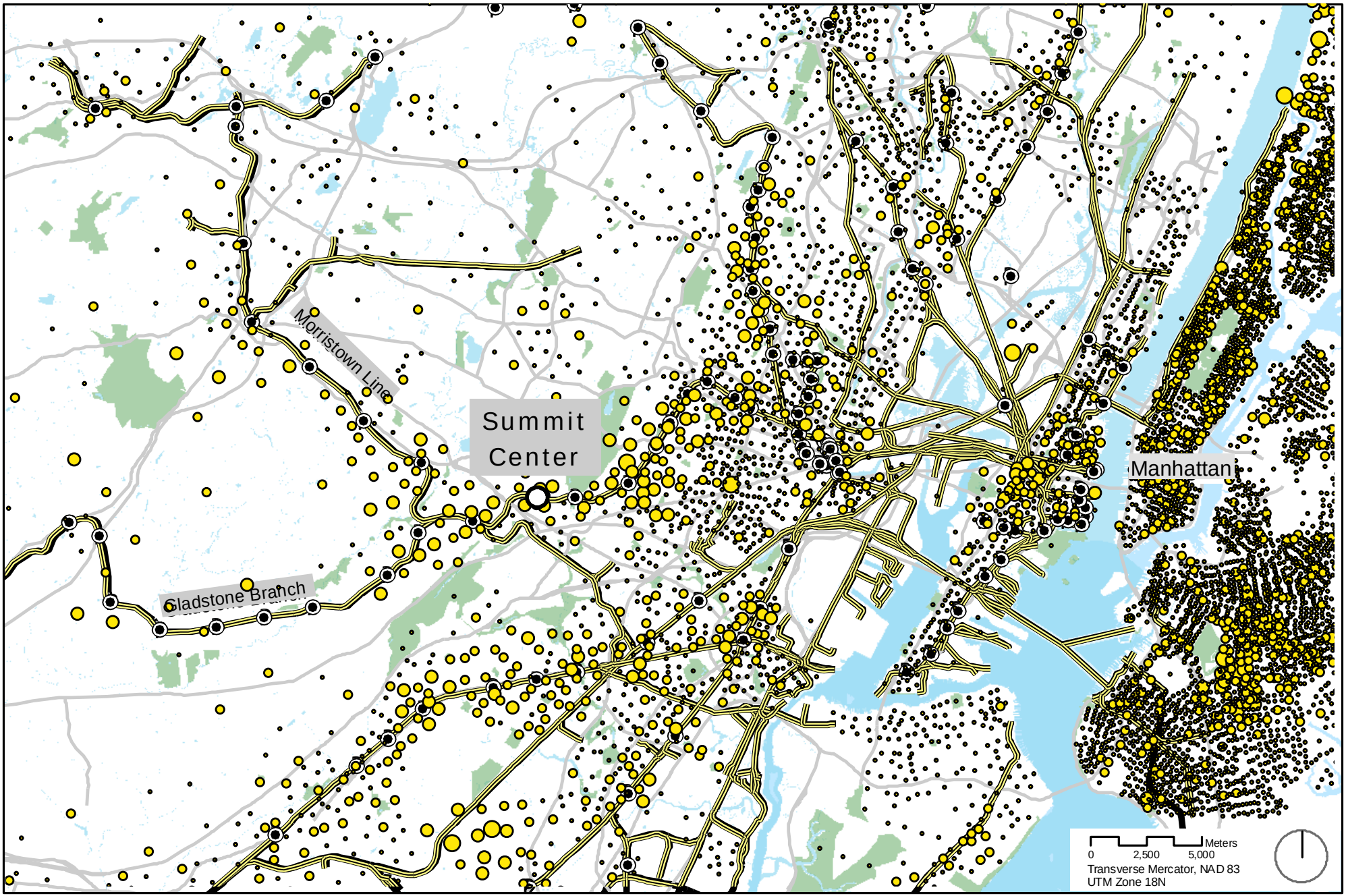
Population Density

Residents per square mile as reported by the 2000 census. This data strengthens the hypothesis of greater population densities along the NJ Transit rail corridors as suggested by land cover data. Unfortunately block group data does not provide enough resolution to depict density clustering around individual transit stops.

Population Density pop./hectare

- 1 - 10
- 11 - 24
- 25 - 59
- 60 - 173
- 174 - 1189

Sources:
Map by Charles Howe; Fundamentals of GIS Assignment 1; April 3, 2011; Population Density Data - US Census, 2000; Rail Lines - StreetMap USA; Rail Stops - NewJersey Transit, 2010.



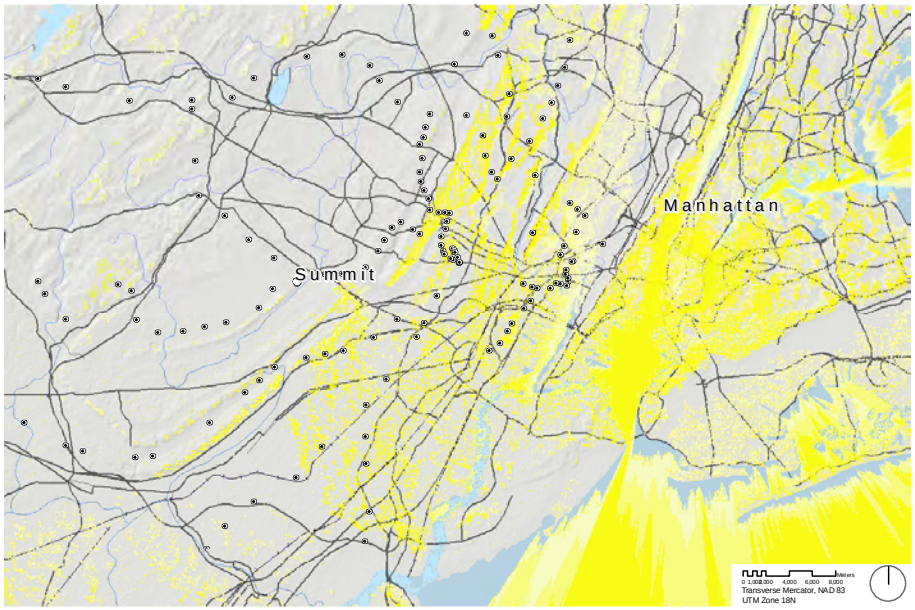
Rail Ridership

Dot size indicates the total number of working persons with greater than 16 years of age who responded that they use rail to commute. This data suggests less ridership within block groups located farther from NJ Transit rail lines and heavier rail usage close to rail stops. However, large areas covered by block groups in low density regions makes interpretation difficult - block level data would be preferable.

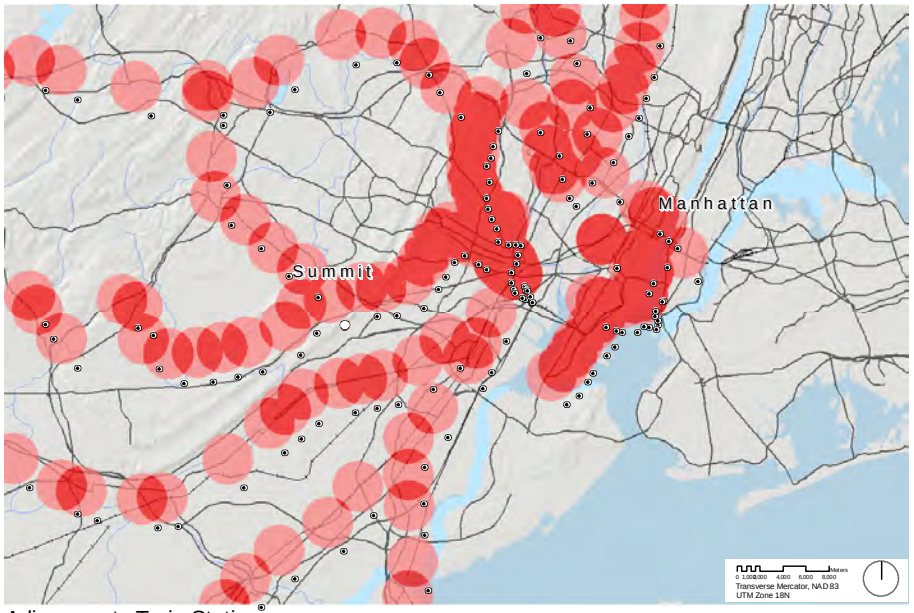
Rail Ridership people/day

- 1-10
- 10-20
- 20-40
- 41-760

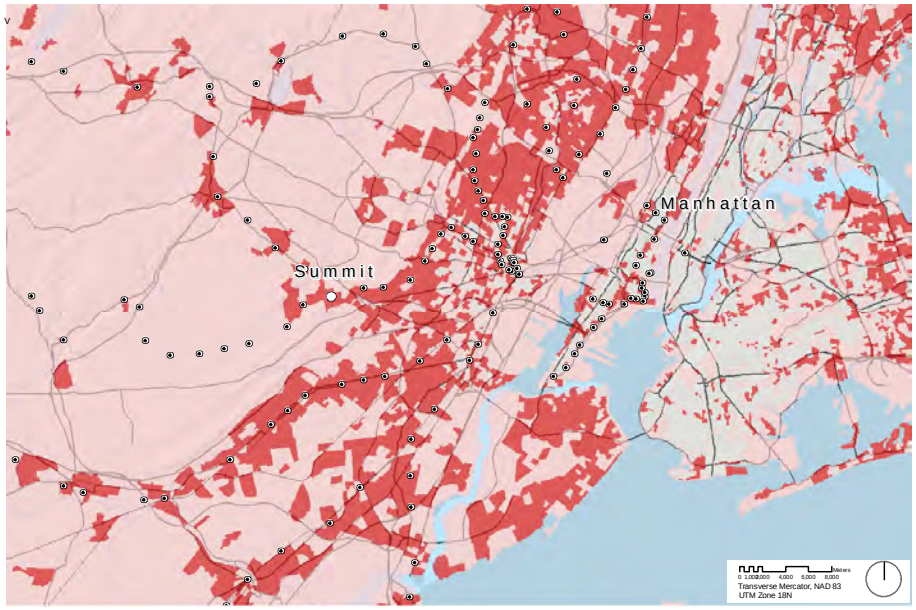
Sources:
Map by Charles Howe; Fundamentals of GIS Assignment 1; April 3, 2011; Population Density Data - US Census, 2000; Rail Lines - StreetMap USA; Rail Stops - NewJersey Transit, 2010; Ridership Data - Census Transportation Planning Package, 2000.



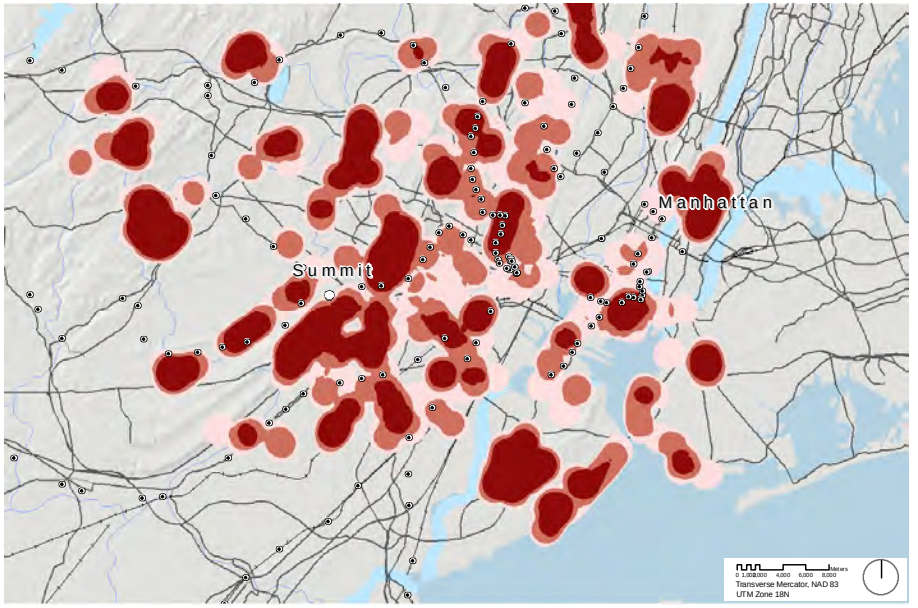
Views of Manhattan



Adjacency to Train Stations



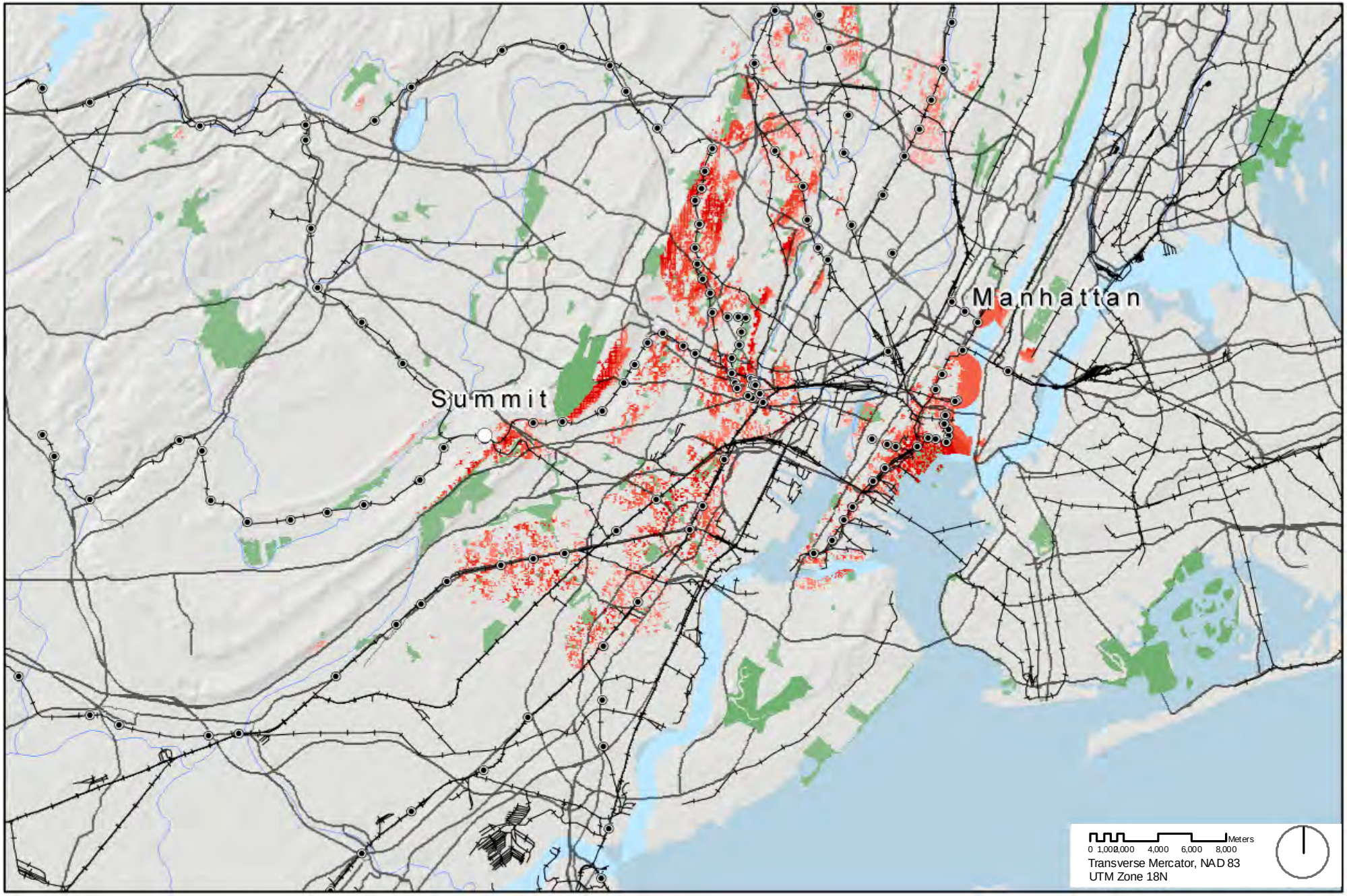
Mid & Low Density Housing



Adjacency to Parks

Finding Summit: Ranking Potential Bedroom Communities

While the original intent of this study was to use transportation time as the primary criteria for categorizing the attractiveness of metro NYC suburban communities, the patchiness and high deviation of CTPP data (see following maps) limited this line of investigation [using CTPP data]. Instead this study first identifies areas of low and mid-density housing, in metro NYC, and awards points to these suburban zones based on: Views of the City, Adjacency to NJ Transit and Adjacency to Parks.



Community Suitability

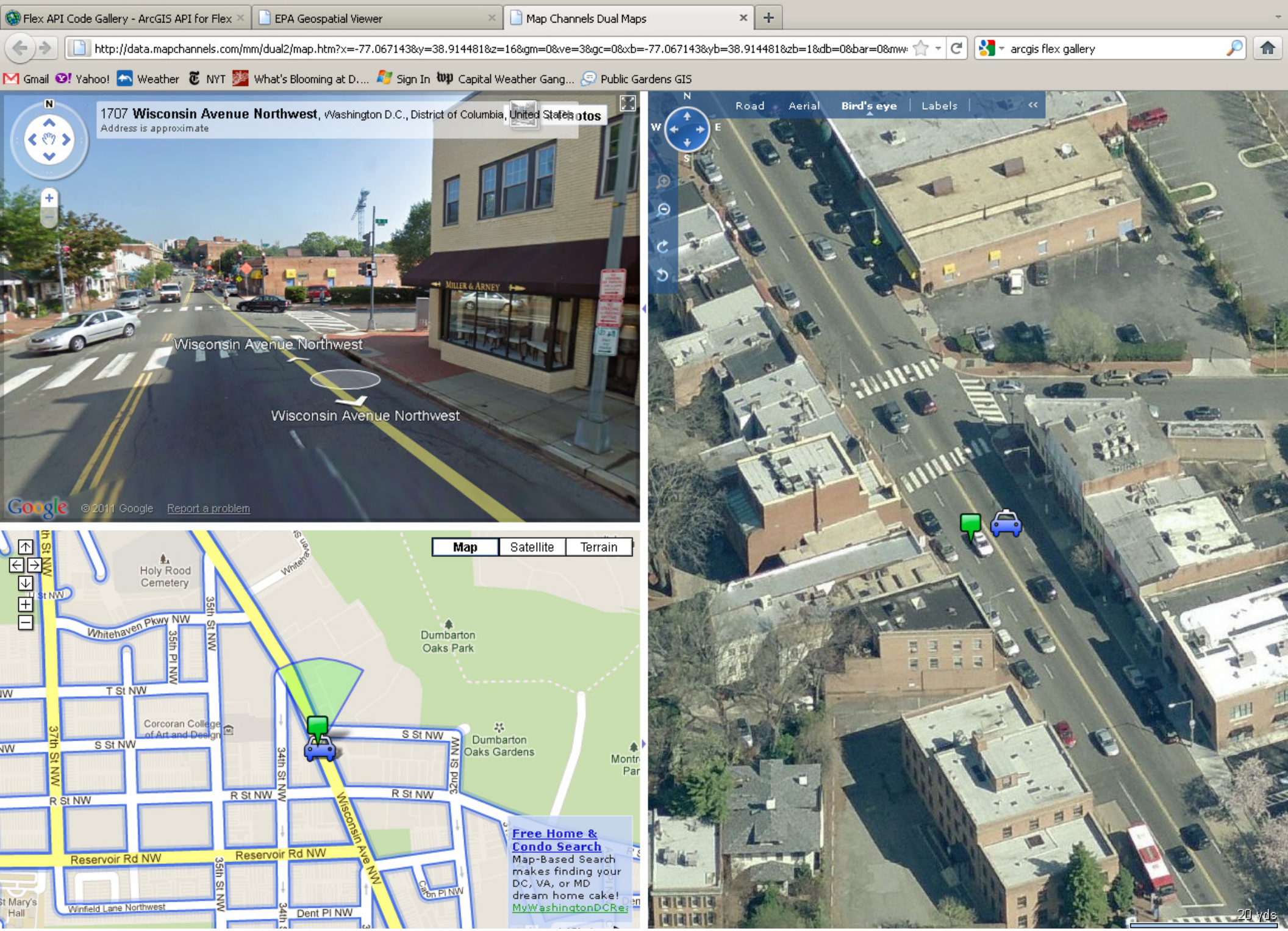
High suitability ranking indicates the presence of quality of life indicators: views of the Manhattan skyline, adjacency to NJ Transit rail stops, and adjacency to parks.

Suitability Ranking

1	4
2	5
3	6

Sources:
Map by Charles Howe; Fundamentals of GIS Assignment 1; February 27, 2011; Residential Streets &Hydrography - 2000, NJDEP; Major Highways, Rail & Parks - StreetMap USA; Elevation - February 2002, USGS; Building Heights - 2009, NYCDOITT, Rail Stops - 2010, NJ Transit.

Analysis of plant condition at the Arnold Arboretum reveals a cluster of plants in poor condition (indicated by red dots), in this case mostly eastern hemlocks (*Tsuga canadensis*) damaged by hemlock wooly adelgids.



VIRTUAL TOUR:
2020

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http://help.arcgis.com/en/webapi/flex/gallery.html#

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Changes: The Lower Columbia River Then and Now


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Point Buffer Widget Version 2.4 for FlexViewer 2.4