

## Pondering Shorelines, Part 2

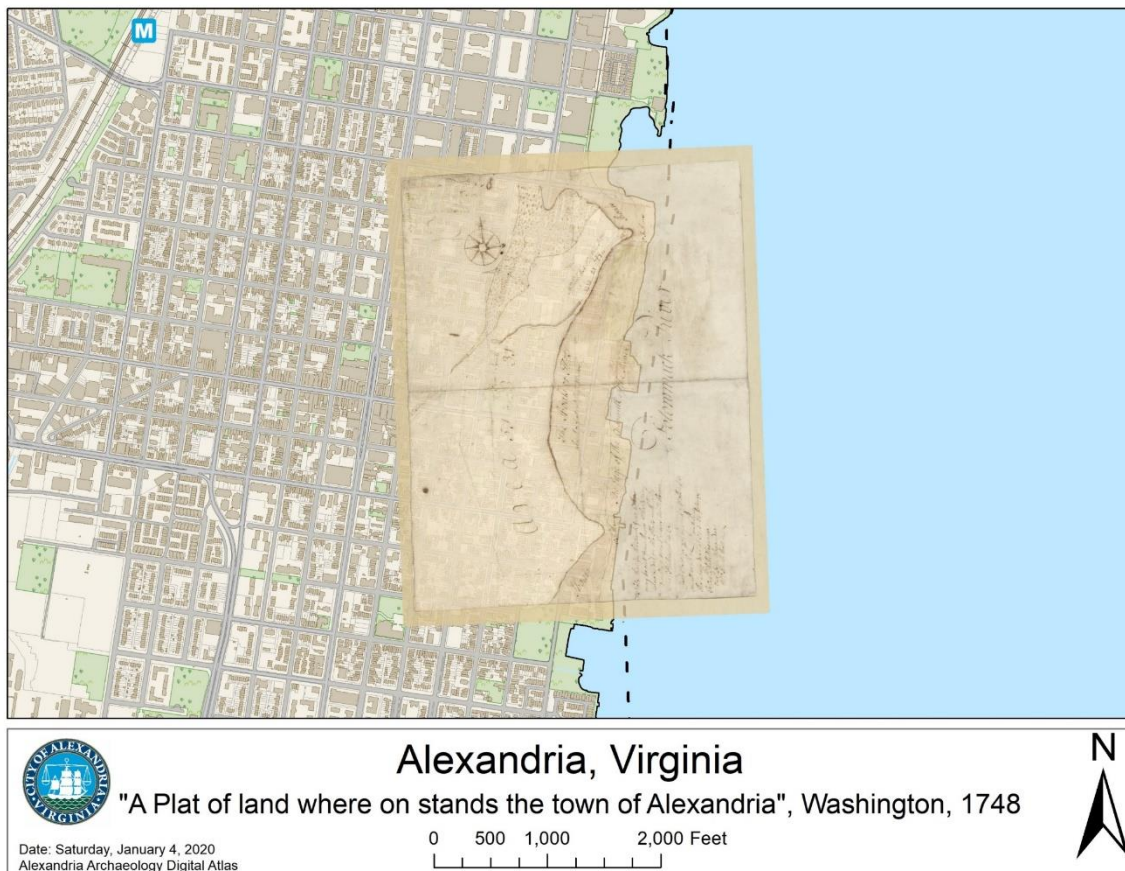
*Adapted from “‘On Examining the Records of the Town we find an Omission’ Using Historical GIS (hGIS) in Conjunction with Archaeological Excavation to Document Property Histories and Understand Changing Waterlines in Alexandria, Virginia.” Paper presented at the Society for Historical Archaeology Conference, January 2020 by B. Skolnik.*

Alexandria has a wealth of historic documentation. Geographic Information Systems (GIS) allow researchers to combine multiple historic and modern spatial datasets, including archaeological findings. In practice, GIS allows researchers to combine cartographic representations of an area like historic maps and aerial photographs with other representations like property boundaries from historic deeds and written descriptions, and modern geographic data like elevation, and the results of archaeological excavations.

Two examples from recent historic and archaeological research in Alexandria illustrate some of the hazards of working with historic maps and some of the insights that can be drawn from them. Both case studies involve the use of GIS and georectification (adjusting an image so that it is displayed in a known coordinate system) to overlay multiple historic spatial datasets with modern spatial data. The first example is a set of maps that are related to the founding and laying out of Alexandria and help produce a relatively detailed physical depiction of the city and the adjacent river bottom. The shape of the bottom of bodies of water influences human activity on the land just as it does the shape of the land adjacent to bodies of water. These bathymetric features include channels, harbors, sandbars, and mudflats. These features interact with the water above and surrounding land to influence cultural behaviors and patterning. In the present, we can accurately map bathymetric features using sonar or LiDAR (light detection and ranging technology). In the past, this could be accomplished with a stick or a weighted rope and a little bit of trigonometry. Systematic bathymetric surveys exist for much of the country beginning in the mid-19<sup>th</sup> century. With a little bit of creativity, we can take advantage of the fact that bodies of water are dynamic systems in states of change to map the historic configurations of these features and use these three maps as a rough baseline against which to measure future change and growth.

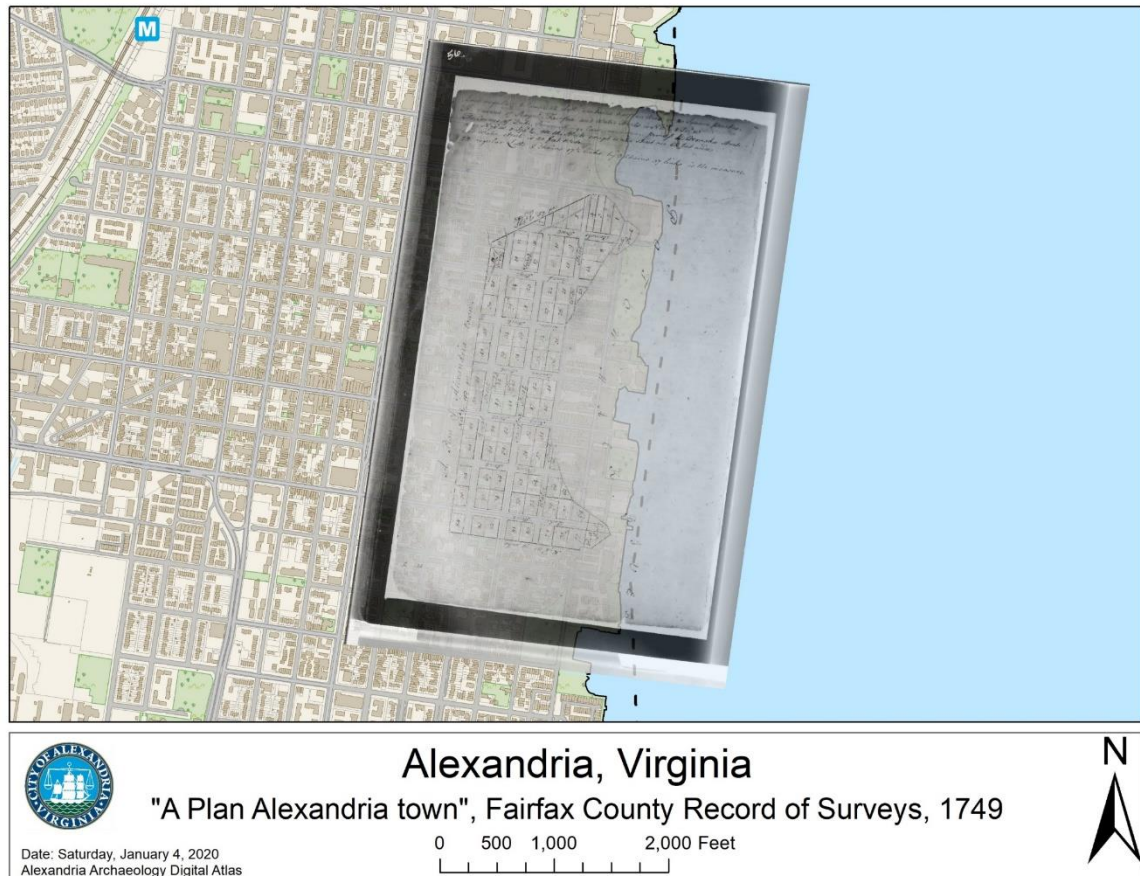
The first map was drawn in 1748 by a 16-year-old George Washington, who was then an assistant to Fairfax County Surveyor Daniel Jennings. Washington recorded a piece of land on

the Potomac River that was being considered for the site of a new town located at the tobacco collection warehouse near Hunting Creek. He shows the existing tobacco warehouse and dock, buildings belonging to Hugh West, the current owner of the northern section of this parcel, and the road to these from the west. Because of the importance of the water to a new port town, Washington also describes these features, including “shoals,” “the shoals or flats” (which he tells us are “about 7 feet at high water”), “the edge of the chanell of the river” (which he also tells us is “8 fathoms”), as well as “a fine improvable marsh” and a pair of springs. Thinking ahead, Washington also writes in the corner, “Note that in the Bank fine cellars may be cut from thence wharfs may be extended on the flats with any quality and warehouses built thereon as in Philadelphia &c.”, and “Good water is got by sinking wells at a small depth.”



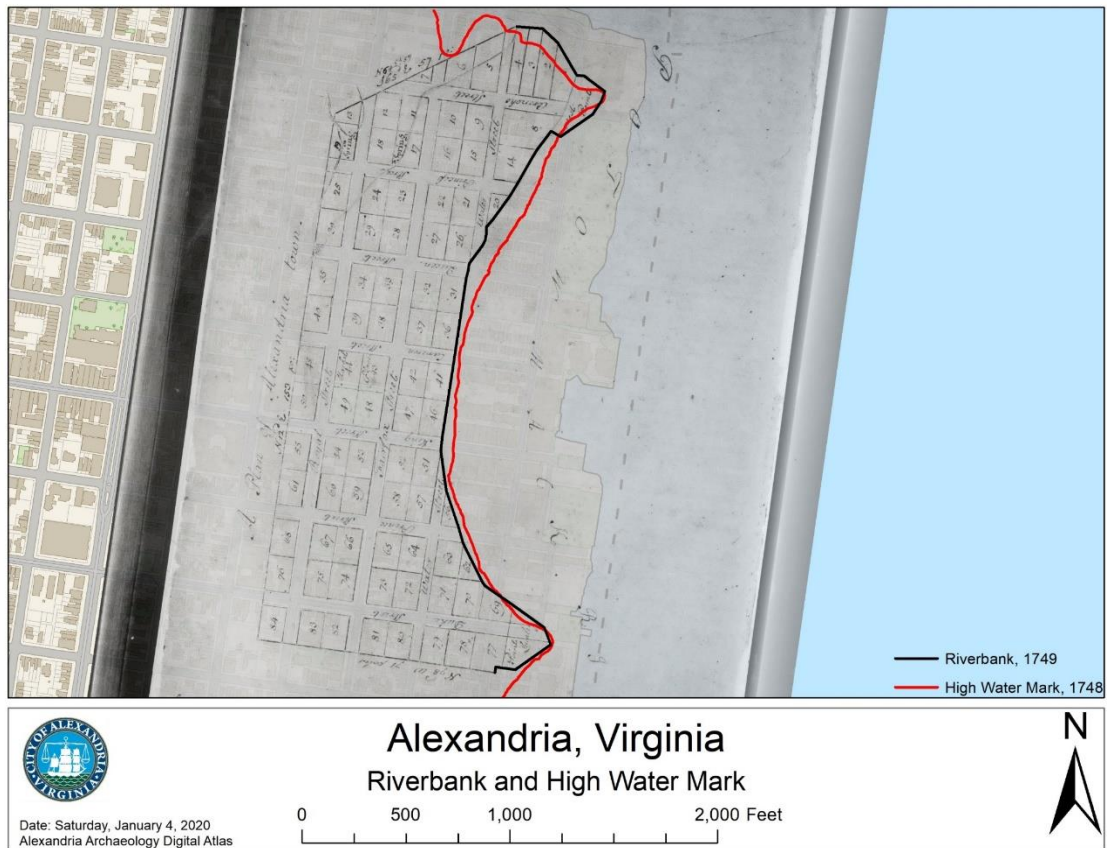
The second map, “A Plan of Alexandria town,” was recorded in the Fairfax County Record of Surveys by Daniel Jennings, and served as the official, legal plat of the town. Here, Jennings’ primary goal was to record the size and locations of each of the lots offered for sale in

July 1749, but he also records the streets and public lands at West Point and Point Lumley. He also depicts the two springs drawn by Washington a year earlier and his marsh, although the latter is not labeled as such. There is no coastline or river edge drawn on this map and the boundaries depicted on this plan are the boundaries of the individual lots sold in the town, not the boundary between the land and water. The town lots stop at the edge of the riverbank, not the high tide line (which is the legal boundary of Virginia).



Georectifying the 1748 map is a somewhat difficult given a general lack of identifiable features. Washington drew a plat of land on which to locate a future town, one that by Maryland's founding charter would be legally bounded by the high water mark of the Potomac. This is the same high water he references when describing the shallow bay between Point Lumley and West's Point, making the high water mark the most likely candidate for his shoreline. Even if georeferenced with Washington's 1748 shoreline meeting the riverbank at Point Lumley and West's Point, we can identify this strip of land (in red) beneath the top of the

riverbank but above high water. Moving high water below the bank any further at these two points only increases the amount of waterfront land below the bank but above high tide mark.



The third map, “A Plan of Alexandria now Bellhaven”, is drawn by Washington in 1749 in order to convey to his half-brother the results of the initial sale of lots and is a combination of the official plan drawn by Jennings and the earlier plat of the site by Washington. Here, Washington may be suggesting this topographic feature at the river’s edge with the use of long black pen strokes and shorter dashes between the edge of the town lots and the shallow mudflats before the channel in the river denoted by the dotted area. Together, these three maps can be used together to tease out topographic and bathymetric features of the city’s early waterfront.



Date: Saturday, January 4, 2020  
Alexandria Archaeology Digital Atlas

## Alexandria, Virginia

"A Plan of Alexandria, now Belhaven", Washington, 1749

0 1,000 2,000 4,000 Feet

