

**Contribution Statement:**

Akiva Blander: Visited the Harvard Map Collection, helped select our group's map, searched for spatial dataset layers, created maps and added sentences on the datasets.

10 Points.

Jaida Nabayan: Visited the Harvard Map Collection, helped select our group's map, searched for spatial dataset layers, and created maps.

10 Points.

Manoel Pereira Neto: Visited the Harvard Map Collection, helped select our group's map, searched for spatial dataset layers, assembled final submission.

10 Points.

Yuanzhao Wang: Visited the Harvard Map Collection, helped select our group's map, searched for spatial dataset layers, and created maps.

10 Points.



**Manhattan's changing coastline:** Overlaying the boundaries of contemporary Manhattan reveals a history of landfilling, dredging, adding piers, and otherwise altering the borough's coastline. Notably, the Battery was created later in the 19<sup>th</sup> century off the island's southwest corner and the borough's east side was shored up after the creation of the historic map.

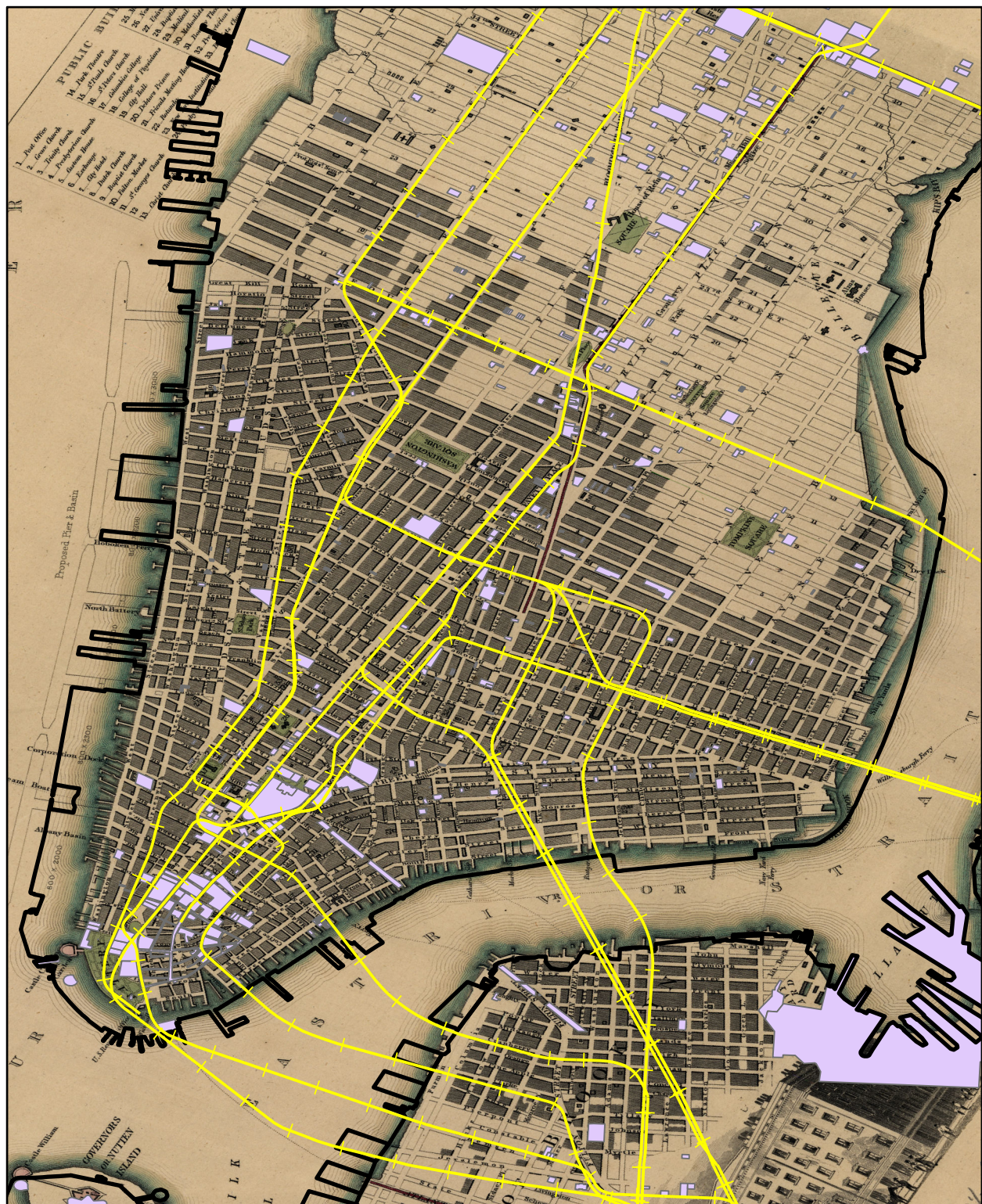


Current borough boundary

0 0.25 0.5 1 Miles



**Manhattan's historical and spatial pattern of development:** beginning from the southern tip, which was first settled, and moving uptown - influenced the development of the subway system: The southern points enjoy intense subway coverage, while parts of the East Village and Gramercy are still distant from subway stations today. It's also reflected in the concentration of sites listed by the Landmarks Preservation Council (LPC) in Lower Manhattan.

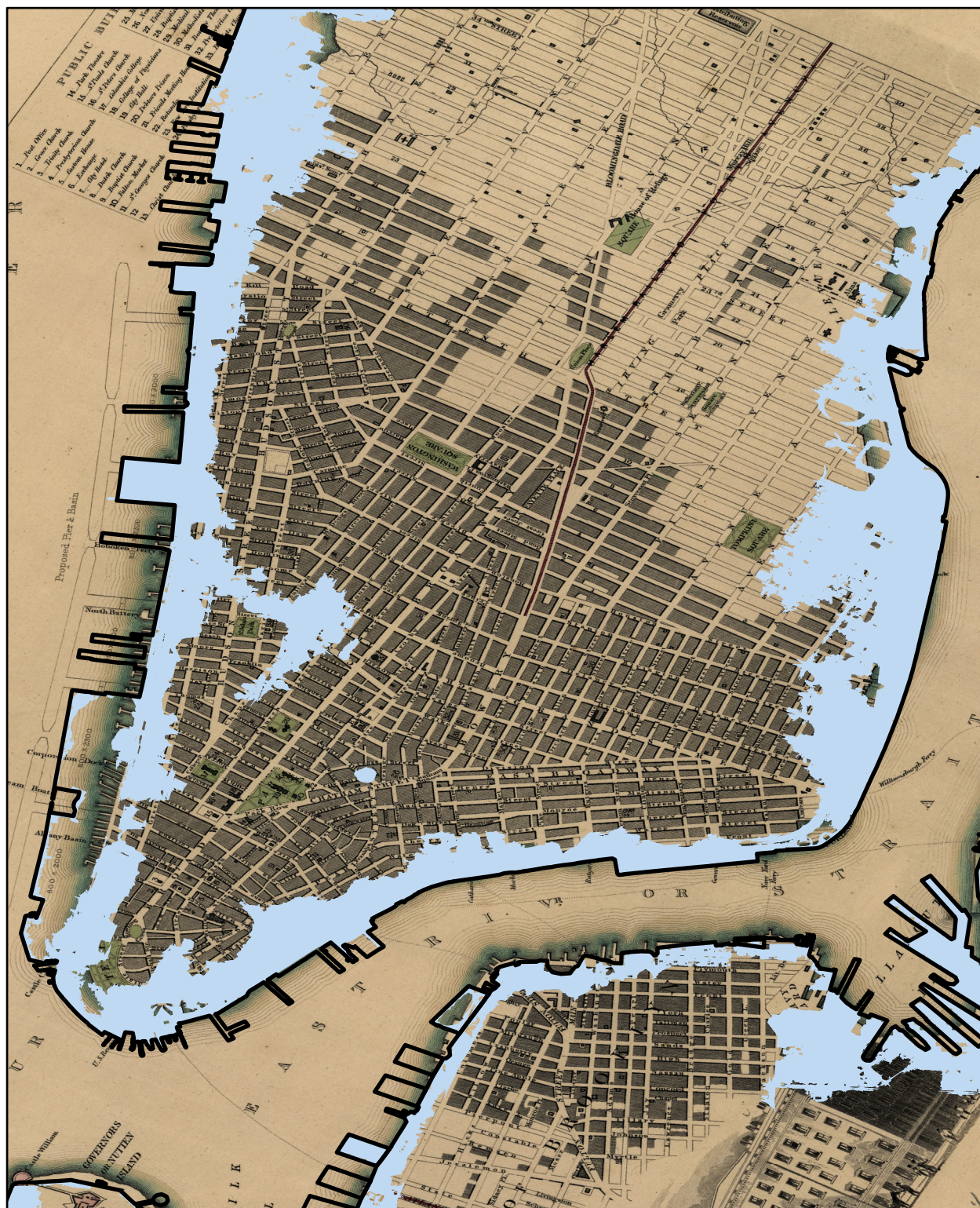


—+— Subway line  
 ■ Landmark Preservation Council (LPC) sites

0 0.25 0.5 1 Miles



**Sea-level rise vulnerability:** overlaying the inundation zone of Hurricane Sandy (2012) indicates that Manhattan's coastal areas continue to be vulnerable to sea level rise and storm events.




Hurricane Sandy Inundation Zone

0 0.25 0.5 1 Miles



**Public parks and open space:** by also adding the public parks and open space in Manhattan and Brooklyn, we see both continuity and change. Washington Square and Tompkins Parks remain, while new public spaces like East River and Brooklyn Bridge Parks have been designed in accordance with explicit resilience goals.

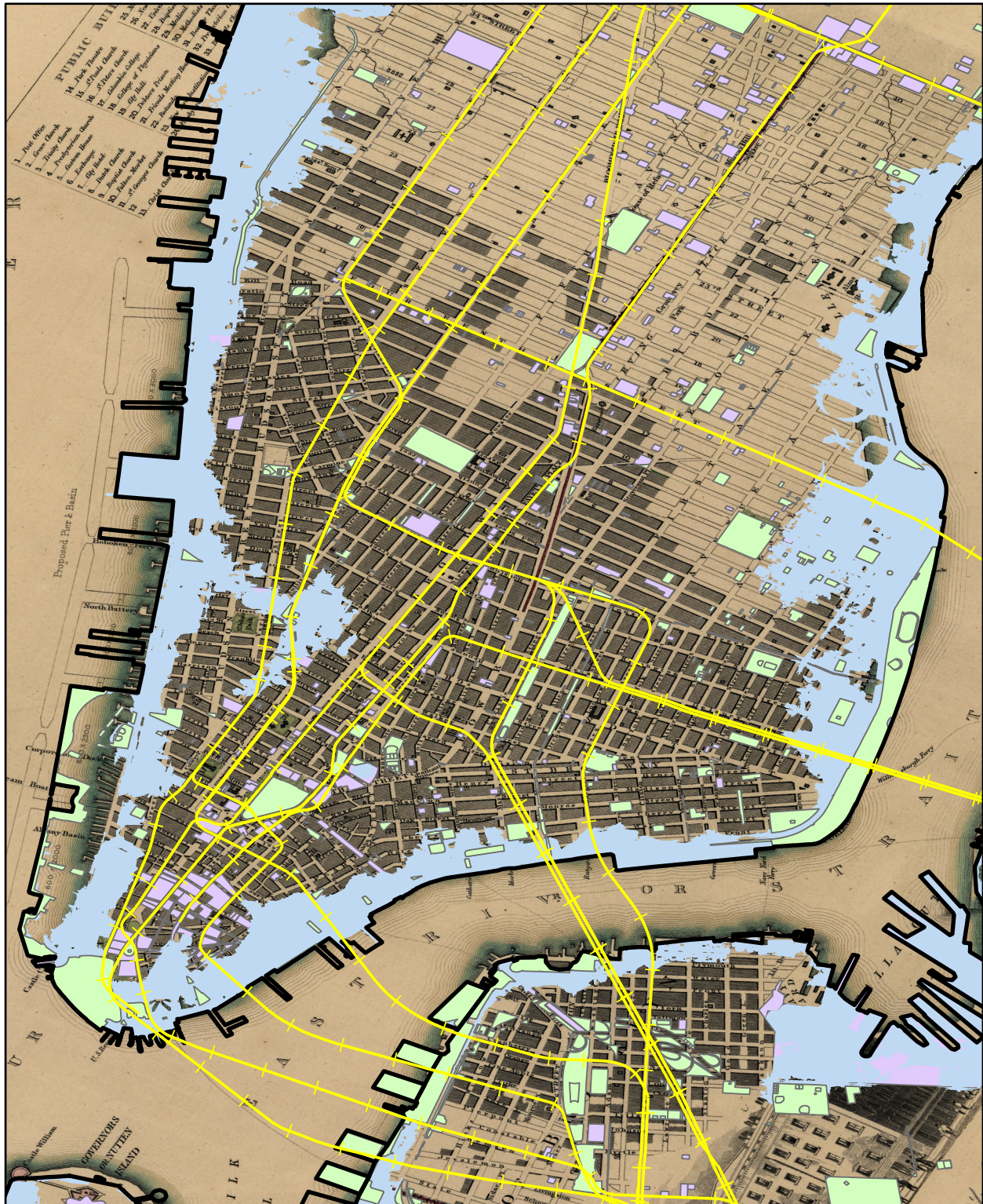


 Parks and Open Spaces

0 0.25 0.5 1 Miles



**A final map:** showing all of the layers that we used in this analysis reveals the cultural and environmental considerations that should guide future development in Lower Manhattan.



- Current borough boundary
- Subway line
- Hurricane Sandy Inundation Zone
- Parks and Open Spaces
- Landmark Preservation Council (LPC) sites

