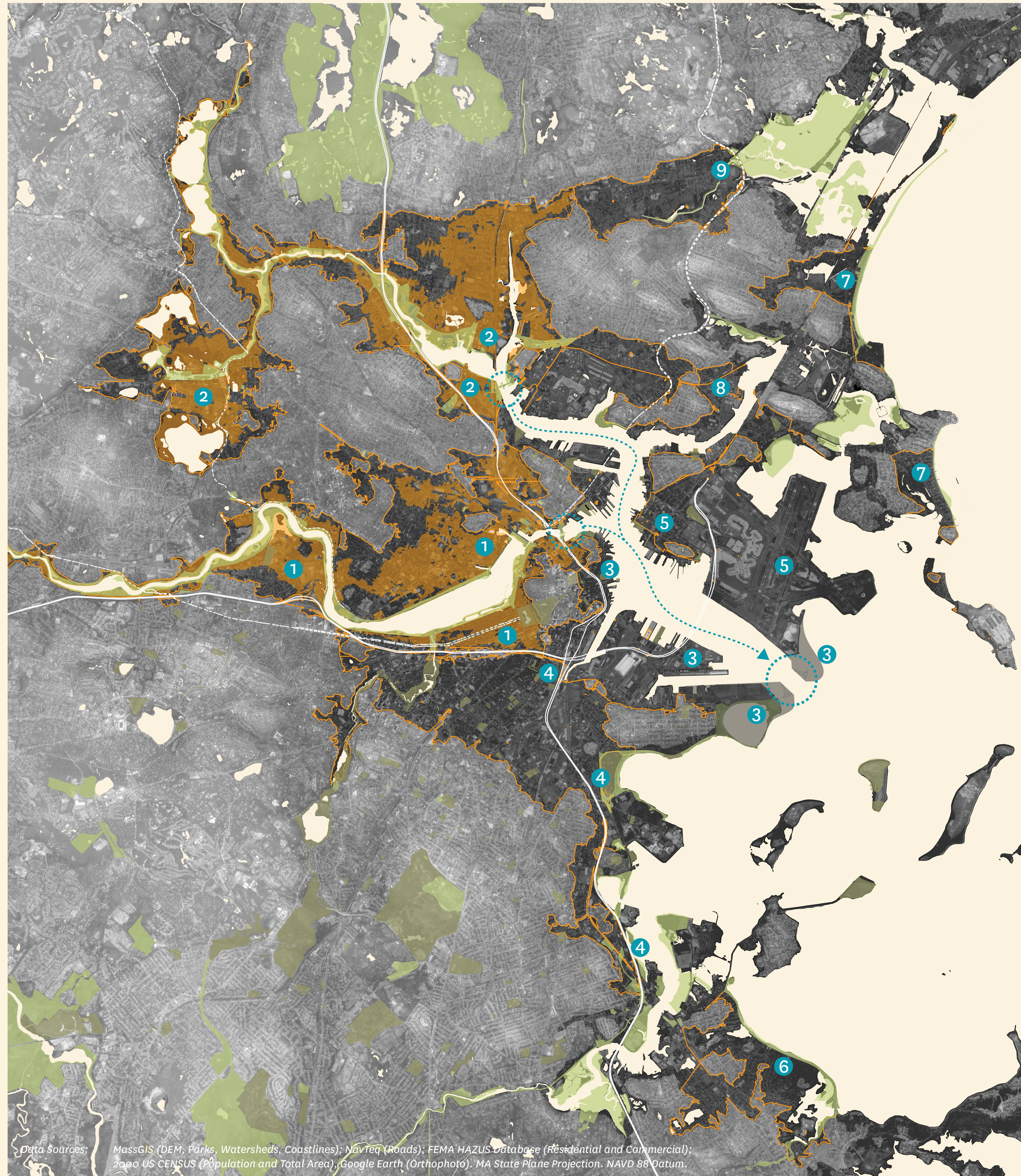


SHIFTING GROUND

Rising Sea Level Risks to Boston

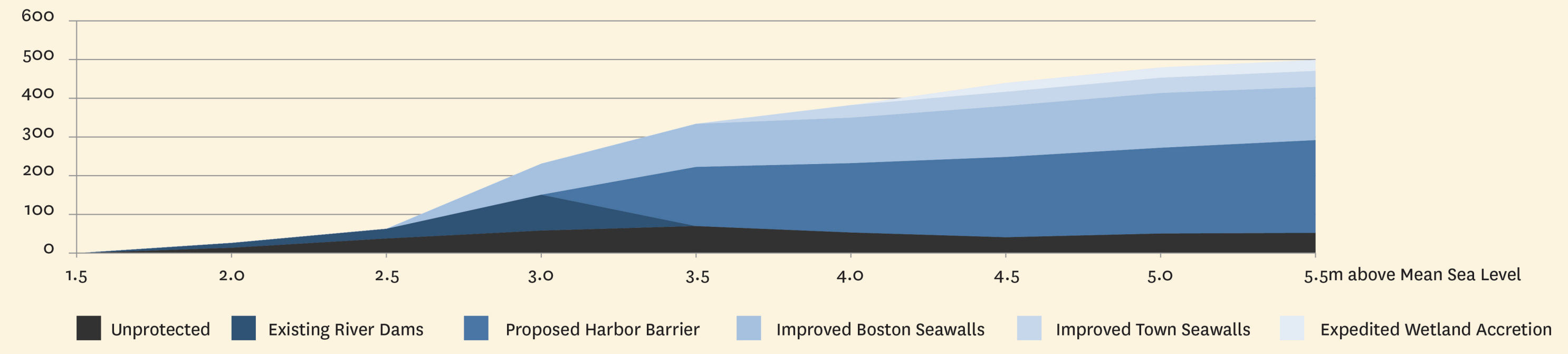
Michael Wilson – Landscape Architecture Thesis
 Advisors Charles Waldheim and Daniel Schrag
 Harvard GSD MLA /MUP Candidate 2017



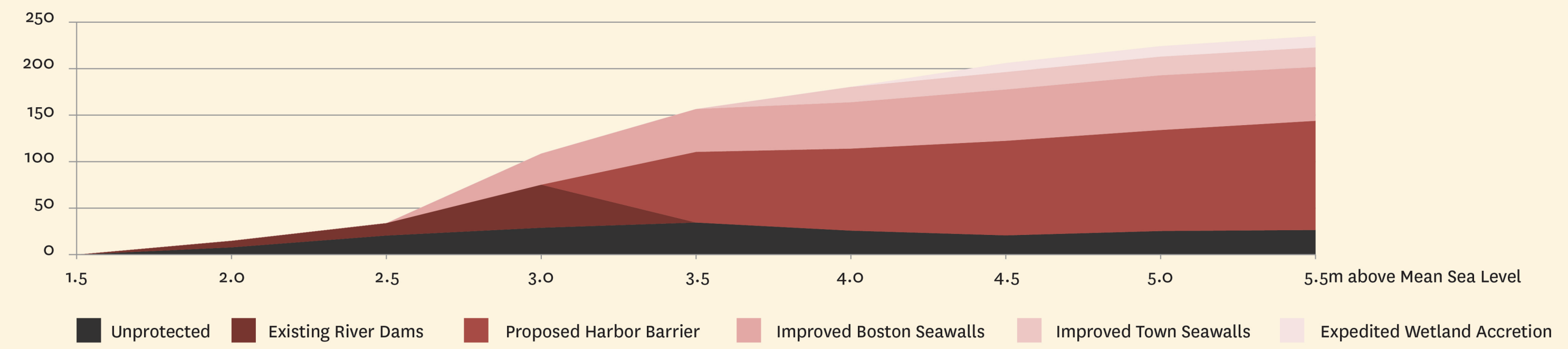
Data Sources: MassGIS (DEM, Parks, Watersheds, Coastlines); NavTeq (Roads); FEMA HAZUS Database (Residential and Commercial); 2000 US CENSUS (Population and Total Area); Google Earth (Orthophoto). MA State Plane Projection. NAVD 88 Datum.

- Area of Risk at 5.5m above MSL
- Existing Protection at 3.5m above MSL
- ① New Charles River Dam
- ② Amelia Earhart Dam (Mystic)
- Proposed Hydrological Districts
- Roads**
- ▬ Interstate Highways
- ▬ State Highways
- Parks**
- City of Boston (Emerald Necklace)
- Mass DCR (Reservations)
- ③ Proposed Harbor Barrier
- Improved Boston Seawalls
- ④ South Boston/South End
- ⑤ East Boston/Logan Airport
- Improved Town Seawalls
- ⑥ Quincy
- ⑦ Revere and Winthrop
- Expedited Wetland Accretion
- ⑧ Chelsea Creek
- ⑨ Rumney Marsh

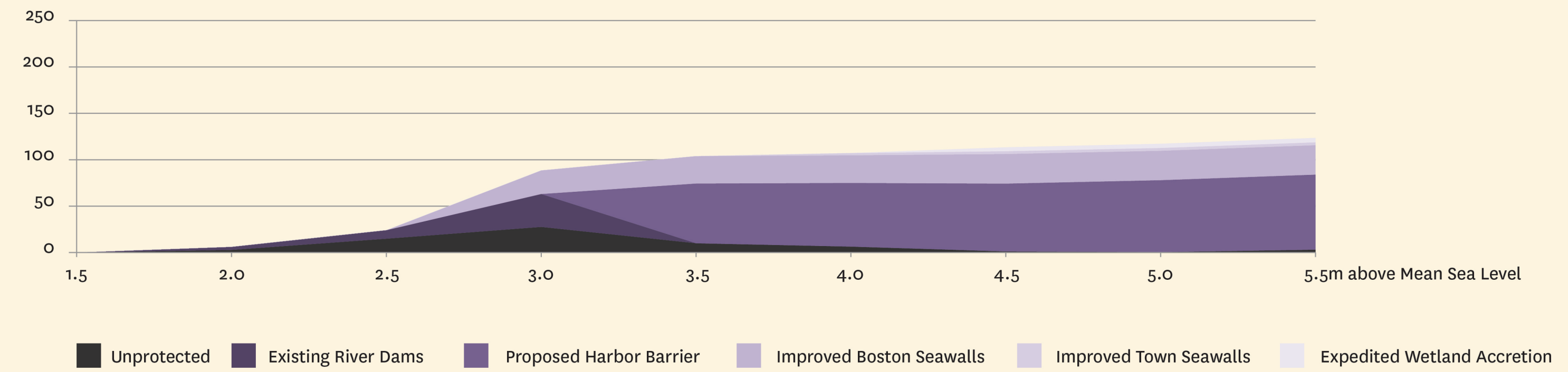
Population (in '000s)



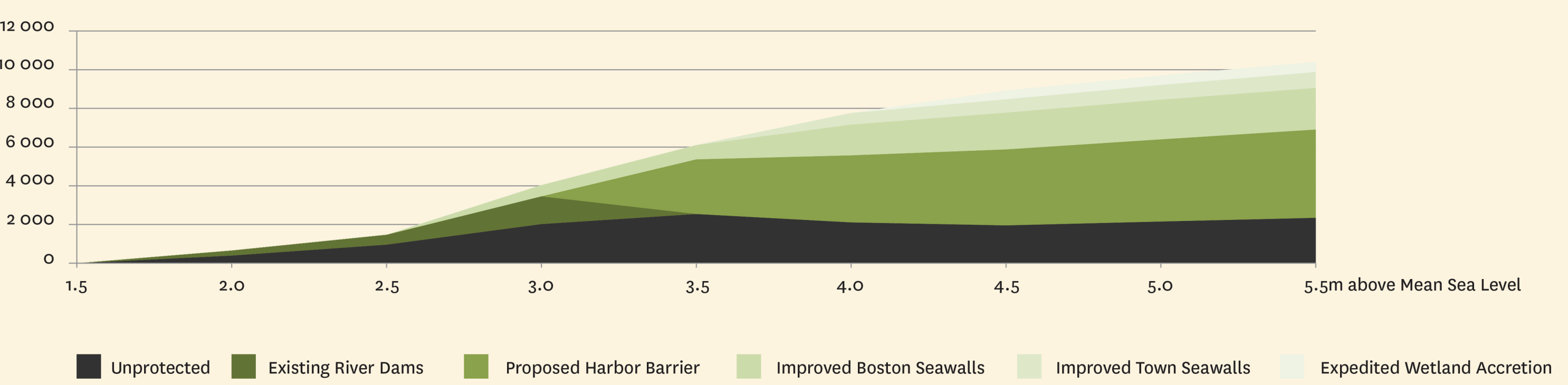
Residential Area (in M sq. ft.)



Commercial Area (in M sq. ft.)



Total Land Area (in hectares)



Shifting Ground: Redefining Boston's Landscape Infrastructure reconceptualizes the topographic, hydrologic, ecologic, and socioeconomic relationships amongst Boston's Charles River, artificial basin, regulating dam, and engineered harbor. The metro area was analyzed for susceptibility to climate change induced sea level rise. The present tidal dams on the Charles and Mystic Rivers provide only a 3.5m level of protection above MSL, a condition that with storm surge could be exceeded with as little as 0.5m of sea level rise, increasing risks of catastrophic loss. Using a variety of phased strategies, the thesis protects 77% of the land area, while only 10% of the population, 11% of the residential area, and 3% of the commercial area remain at risk, even with up to 2m of sea level rise.