Dorchester

Dorchester is the largest neighborhood in Boston in terms of both population and geographic area. It is bounded by South Boston to the north, Dorchester Bay to the east, the Neponset River to the south, and Mattapan and Roxbury to the west.

Dorchester was founded in 1630 and remained a predominately agricultural community for 200 years, although there was some waterfront industrial activity, especially in the Lower Mills area along the Neponset River and at Commercial Point. During the nineteenth century, Dorchester became a country retreat for wealthier Boston households, who built estates and second homes. In 1845, the Old Colony Railroad opened, with stations along Crescent Avenue (near the current JFK/U Mass Station), Savin Hill, and Harrison Square (near the current Fields Corner Station), thereby connecting Boston and Plymouth, Massachusetts. In 1870, Boston fully annexed Dorchester, and commercial and residential development accelerated. Supported by new streetcar and municipal water service, Dorchester's population increased from only 12,000 residents in 1870 to 150,000 by the 1920s.

From 1950 to 1980, Dorchester experienced disinvestment. In the 1950s, the Old Colony line was closed, and construction of the Southeast Expressway (I-93), which separated Dorchester's residential areas to the west from the waterfront, was completed. In 1964, the Columbia Point public housing complex, which included approximately 1,500 low-income units, opened. By the 1980s, the complex was in such disrepair that it was turned over to a private firm for redevelopment. However, there was some modest institutional investment during this time period, with University of Massachusetts Boston Harbor Campus opening on Columbia Point in 1974 and the John F. Kennedy Presidential Library and Museum in 1979.

Today, Dorchester consists of a number of distinct residential neighborhoods, anchored by commercial districts, including Uphams Corner, Fields Corner, and Codman Square. Dorchester has benefitted from the recent expansion of the Fairmount Line, which runs from Downtown to Readville, with three new stations in Dorchester (Newmarket, Four Corners/Geneva Avenue, and Talbot Avenue). The City is planning transit-oriented development along the Fairmount Line. In addition, the University of Massachusetts Boston is planning a significant expansion at Columbia Point on the former Bayside Exposition Center site.

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FLOOD PROGRESSION

DEFINITIONS

Near term: Beginning 2030s, assumes 9 inches of sea level rise

Midterm: Beginning 2050s, assumes 21 inches of sea level rise

Long term: Beginning 2070s or later, assumes 36 inches of sea level rise

Exposure: Can refer to people, buildings, infrastructure, and other resources within areas likely to experience hazard impacts. Does not consider conditions that may prevent or limit impacts.

Vulnerability: Refers to how and why people or assets can be affected by a hazard. Requires site-specific information.

Consequence: Illustrates to what extent people or assets can be expected to be affected by a hazard, as a result of vulnerability and exposure. Consequences can often be communicated in terms of economic losses.

Annualized losses: The sum of the probability-weighted losses for all four flood frequencies analyzed for each sea level rise scenario. Probability-weighted losses are the losses for a single event times the probability of that event occurring in a given year.

*For a full list of definitions, refer to the Glossary in the Appendix.

In the second half of the century, large areas of Dorchester will be exposed to high-probability flooding (10 percent annual chance). During this time frame, coastal flooding in Dorchester will be most prominent from Dorchester Bay near Joseph Moakley Park and along the Neponset River.

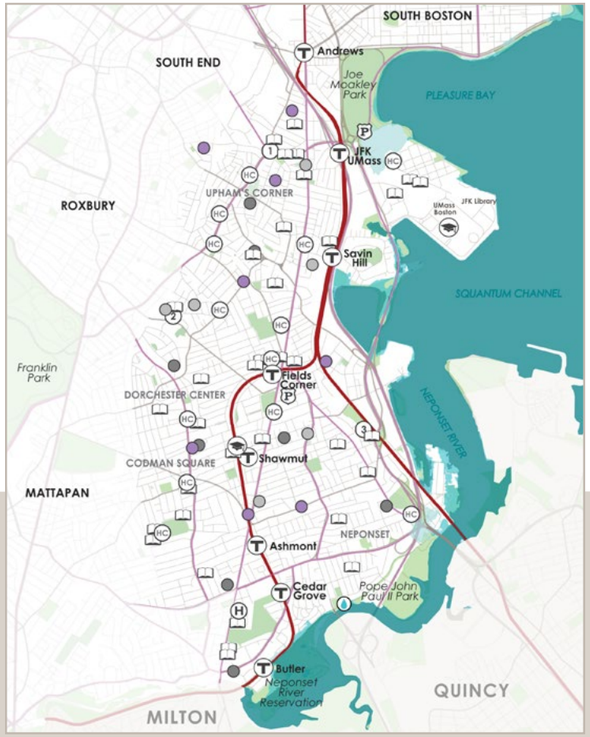
Dorchester is exposed to climate change impacts including heat, increased precipitation and stormwater flooding, and sea level rise and coastal and riverine flooding. Exposure to heat and stormwater flooding are addressed in the Citywide Vulnerability Assessment (see p.12), while exposure and consequences to coastal and riverine flood risk are further discussed in this section

In the near term and in the second half of the century, exposure to coastal flooding is primarily due to the low waterfront edge along Dorchester

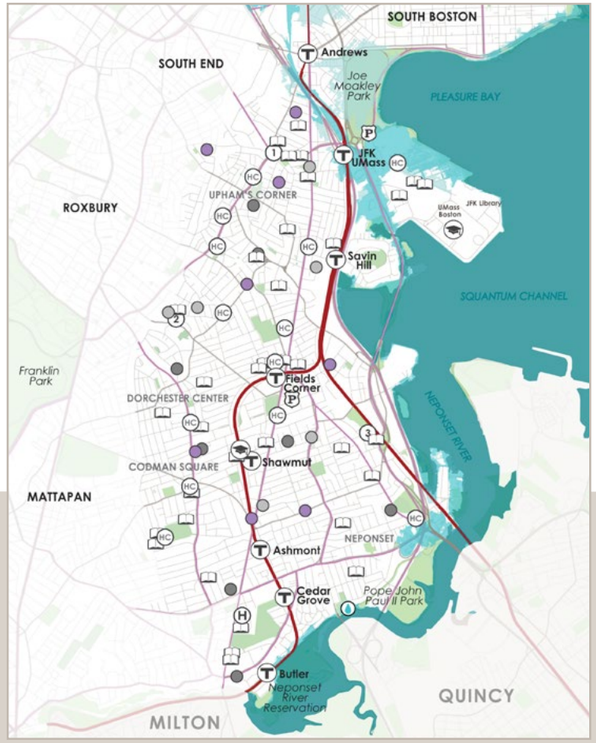
LEGEND

- Average Monthly High Tide
- 10% Annual Chance Storm
- 1% Annual Chance Storm
- Parks
- Roads
- Major Roads
- Major Tunnels
- Evacuation Route
- Evacuation Route Tunnels
- MBTA Blue Line
- MBTA Station
- College or University
- School
- Police Station
- Fire Station
- Healthcare Center
- Cleveland Community Center
- Holland Community Center
- Leahy-Holloran (Murphy) Community C
- Senior Housing
- Longterm Care Facility
- BHA Public Housing

9 INCHES SEA LEVEL RISE



21 INCHES SEA LEVEL RISE



36 INCHES SEA LEVEL RISE

Bay and the Neponset River. Though exposure is largely limited in the near term, approximately 10 percent of the land areas in Dorchester have a high probability of flooding as soon as the 2050s (10 percent annual chance). Areas around Joseph Moakley Park are additionally exposed to low-probability flood events (1 percent annual chance) as soon as the 2050s.

In the late century, Dorchester exposure will change significantly, with large areas exposed to high-probability flood events (10 percent annual chance). More critically, **in the late century, Northern Dorchester is expected to become a flood pathway to South Boston, the South End, and Roxbury.** Areas around Joseph Moakley Park, created using fill in the late 1800s, tend to be low lying, leading to the exposure in Dorchester and surrounding areas.

The topography around Joseph Moakley Park and I-93 is low lying, potentially allowing floodwaters to propagate inland. Flood protection solutions targeted toward this area in northern Dorchester may provide benefits in South Boston, the South End, and Roxbury.

The greatest concentration of land area exposed is on the northern end of Dorchester, due to coastal flooding from Dorchester Bay through Joseph Moakley Park.

In the late century, flooding from Dorchester Bay will extend from Dorchester into South Boston, the South End, and Roxbury.

DORCHESTER ASSET EXPOSURE

SEA LEVEL RISE SCENARIO

ASSET	9" 2030s to 2050s			21" 2030s to 2050s			36" 2070s or later		
TRANSPORTATION									
MBTA	HT	10%	1%	HT	10%	1%	HT	10%	1%
JFK/UMass (T)	○	○	○	○	●	●	○	●	●
Butler Street (T)	○	○	○	○	○	○	○	●	●
New Market Station (T)	○	○	○	○	○	○	○	○	●
EMERGENCY RESPONSE									
EMS									
Private Ambulance Provider 1 - North	○	○	○	○	○	○	○	○	●
Private Ambulance Provider 1 - South	○	●	●	●	●	●	●	●	●
HOSPITALS									
Geiger Gibson Community Health Center (1)	○	○	○	○	○	●	●	●	●
Boston Globe (2)	○	○	○	○	●	●	○	●	●
Leah Holleran Murphy Comunity Center (3)	○	○	○	○	○	○	○	●	●
McCormick Middle School Emergency Shelter (HC)	○	○	○	○	○	●	○	●	●
POLICE & FIRE STATIONS									
Engine 20 (F)	○	○	○	○	○	○	○	●	●
State Police Station H-6 (P)	○	○	●	●	●	●	●	●	●
OTHER FACILITIES									
SCHOOLS, COLLEGES, AND UNIVERSITIES									
Paul A Dever School (book)	○	○	○	○	○	○	○	●	●
Boston Collegiate High School (book)	○	○	○	○	●	●	○	●	●
Small Wonders Nursery School (book)	○	○	○	○	○	○	○	●	●
HISTORICAL/CULTURAL ASSETS									
Neponset River Reservation	●	●	●	●	●	●	●	●	●
Joe Moakley Park	○	○	○	○	○	●	○	●	●
Commercial Point	○	○	●	○	●	●	●	●	●

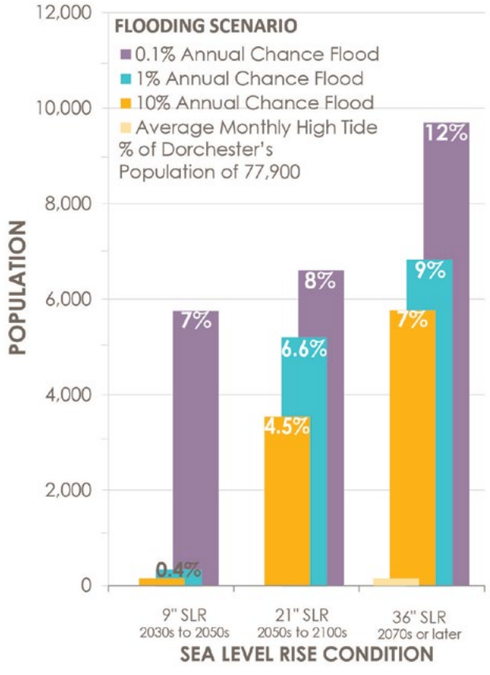
EXPOSURE
POPULATION & INFRASTRUCTURE

POPULATION AND SOCIAL VULNERABILITIES

There are about 87,000 residents in Dorchester, about 14 percent of Boston's overall population. In total, 24 percent of Dorchester households have children, compared to 17 percent citywide. Dorchester also has a diverse population that is 72 percent people of color, compared to 52 percent citywide.

Approximately 6,820 people live in housing that is projected to be at risk in a low-probability flood scenario (1 percent annual chance) as soon as the 2070s, generating need for shelter beds for an estimated 750 individuals. Seven public emergency shelters are located within Dorchester and have the capacity for 1,000 individuals. McCormick Middle School, located on Columbia Point, is northern Dorchester's only emergency shelter, and as soon as the 2050s, it will be exposed to low-probability flood events (1 percent annual chance). If this shelter is impacted by flooding, all roads leading out of Columbia Point are also expected to be flooded, potentially isolating residents in the northern portion of Dorchester without shelter. As soon as the 2070s, the Leahy Holloran Community Center will also be exposed to high-probability flood events (10 percent annual chance), which would reduce the shelter capacity by an additional 140 individuals.

DORCHESTER POPULATION EXPOSURE



INFRASTRUCTURE

Damage to exposed roads and the MBTA Red Line could isolate Columbia Point from the rest of Dorchester and impact transportation connections to North Quincy.

Within this century, all of Dorchester's evacuation routes, including I-93 South, Morrissey Boulevard, Neponset Avenue, and Gallivan Boulevard, will be exposed to coastal flooding and sea level rise. In the near term, portions of Morrissey Boulevard near the Dorchester Bay Basin and the Neponset Avenue/I-93 South junction are exposed to high-probability flood events (1 percent annual chance). As soon as the 2050s, all of Morrissey Boulevard, as well as sections of I-93 South in the same area, will be exposed to high-probability flood events (10 percent annual chance). Road closures due to flood damage could isolate Columbia Point from the rest of Dorchester, impacting a major university (University of Massachusetts Boston) and three K–12 schools, affecting delivery of resources into the area, and affecting major transportation links between Downtown Boston, Dorchester, and the South Shore.

In the second half of the century, the MBTA Red Line JFK/UMass Station will be exposed to high-probability flood events, meaning that approximately 8,000 riders may need alternative transportation options. In addition, portions of the Fairmount commuter rail line in South Boston are exposed to high-probability storms, potentially limiting the transportation options of those who commute from Dorchester to South Boston or Downtown using this line. As soon as the 2070s, sections of the Fairmount line in northern Dorchester and the Newmarket Station will be exposed to flooding. Low- to no-income populations that might depend disproportionally on public transportation may also be disproportionally affected by the impacts for coastal flooding and sea level rise in the mid- to late century.

Dorchester's emergency response facilities are exposed to sea level rise and coastal flood impacts throughout the century.

Private ambulance service providers have two facilities located in the Dorchester neighborhood. In the near term, one facility is exposed to flood impacts due to high-probability storms (10 percent annual chance). As soon as the 2050s, it will be exposed to monthly tides. If the station is damaged or has reduced response capacity, then the remaining station may be expected to cover the service area. As soon as the 2070s, the remaining station will become exposed to flooding from low-probability events (1 percent annual chance).

In the near term, the Boston State Police Station H-6 will be exposed to low-probability storm events, while the Engine 20 Fire Station will be exposed to high-probability storm events (10 percent annual chance) as soon as the 2070s and may require support from other stations in the neighborhood.

Commercial Point is exposed to low-probability storms in the near term. This is not expected to disrupt distribution of liquid natural gas to and from National Grid's storage tank.

Commercial Point, nested between Dorchester Bay and the Neponset River, is home to a liquid natural gas (LNG) storage tank, solar panels, and a commercial marina. National Grid's LNG storage tank on Commercial Point is elevated to provide protection against storm surge and is not expected to be exposed to flood impacts this century. Though other portions of Commercial Point and surface roads that connect the plant inland are exposed to flooding in the near term, National Grid has operational contingencies and plans in place to keep the natural gas plant operational. The solar power–generating facility on Commercial Point is not expected to be exposed to coastal flooding during this century but may be at risk of wind damage during storm events.

EXPOSURE AND CONSEQUENCES
BUILDINGS AND ECONOMY

RISK TO BUILDINGS

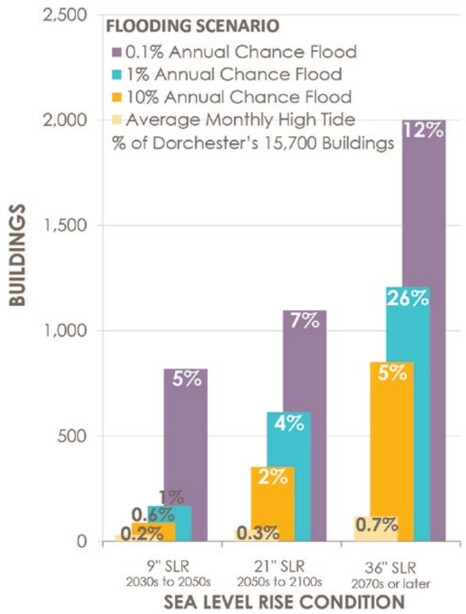
In the near term, close to 170 structures in Dorchester can expect some level of flooding from a low-probability event (1 percent annual chance) leading to $6 million in annualized direct physical damage costs to structures and their contents. Loss is expected to be concentrated most heavily in commercial (including office) and industrial uses. Exposure to high tide is also significant, with over 30 structures exposed in the near term (about $11 million in real estate market value).

As soon as the 2070s, close to 4,500 of Dorchester's structures can expect some level of flooding from a low-probability event resulting in direct physical damage costs of $86 million. Over half of all annualized losses expected in the late century are attributed to commercial and office buildings averaging three stories tall.

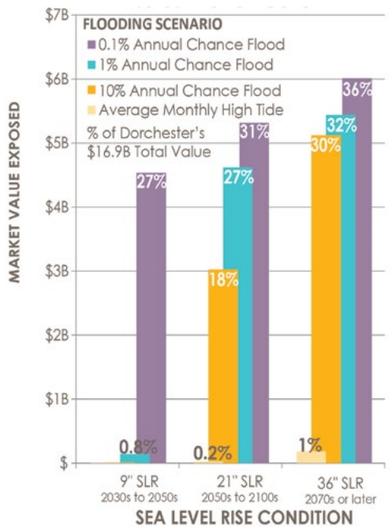
In addition, close to 120 structures (close to $200 million in real estate market value) are expected to be exposed to high tide later in the century. Also expected to be exposed to high tide later in the century is the former Bayside Exposition Center, where University of Massachusetts Boston has planned expansion and redevelopment.

Close to 4,500 structures can expect some level of flooding from a low-probability event in the late century.

DORCHESTER BUILDING EXPOSURE



DORCHESTER MARKET VALUE EXPOSURE



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Over $200 million in current real estate market value is expected to be exposed to high tides in the late century.

RISK TO THE ECONOMY[1]

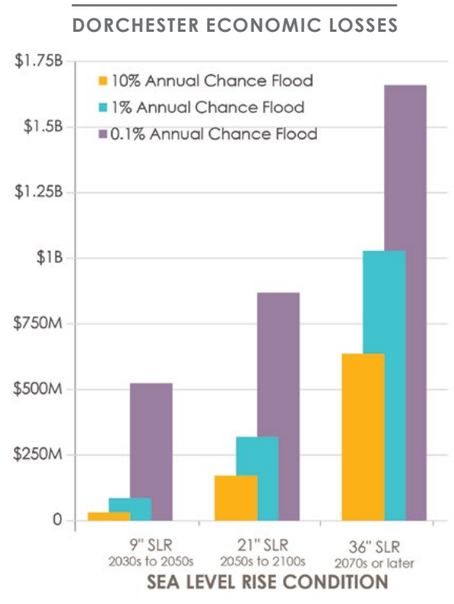
Dorchester provides Boston with close to 35,000 jobs and over $7 billion in annual output. Top employers in the community include public education, hospitals, and grocers, though no one industry seems to dominate. The economy is heavily service oriented. As with other service-oriented neighborhood economies, restaurants are expected to be most heavily impacted in a flood event, particularly considering expected loss of employment. This is expected to be the case throughout the century. As soon as the 2070s, coastal flood impacts to Dorchester are expected to result in 110 annualized jobs lost and about $15 million in annualized output loss to the current Boston economy. Restaurants are expected to comprise roughly 40 percent of job loss and 20 percent of output loss. Restaurants tend to employ low- to moderate-income personnel, and business interruption to such assets can exacerbate impacts to already vulnerable populations.

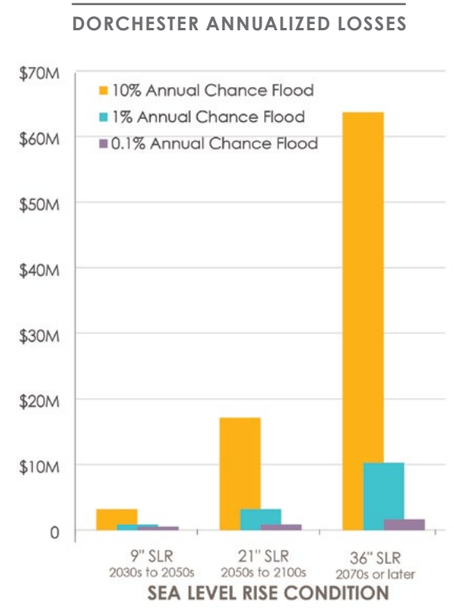
[1] Economic data is provided at the zip code level. One of the South Dorchester zip codes overlaps with Mattapan. As such, the base economic data, and thus annual jobs and output production, for South Dorchester includes some of Mattapan. This is expected to have minimal impact on calculated results, which are based on average output and employment by industry per square foot within neighborhood zip codes.

ECONOMIC RISK ASSUMPTIONS

Job and output loss includes direct, indirect, and induced consequences of flood impacts. Direct results are impacts felt within a neighborhood, while indirect and induced results are those expected to be felt throughout Suffolk County as a result of changes in spending patterns. Results for both job and output losses are the sum of annualized values for the four flood frequencies analyzed for each sea level rise scenario. This represents a lower-bound estimate for several reasons. First, not all probabilistic events are considered. Second, the analysis assumes that all impacted businesses eventually reopen, though FEMA estimates that almost 40 percent of small businesses—and up to 25 percent of all businesses—never reopen after experiencing flood impacts. Third, only building areas directly impacted by floodwater are assumed to experience business interruption. This does not consider interruptions of businesses due to loss of power or utility functions. Finally, the analysis only considers existing populations, businesses, and buildings and does not include projections for future growth. Refer to the Appendix for a more detailed explanation of the exposure and consequence analysis.

INDUSTRY	ANNUALIZED LOSS OF ECONOMIC OUTPUT
Restaurants	$3,200,000
Real Estate	$1,400,00
Recreation facilities, including bowling centers, sports centers, and parks	$790,000
Wholesale trade and retail	$1,700,000
All other industries	$7,900,000
Total	**$14,900,000**



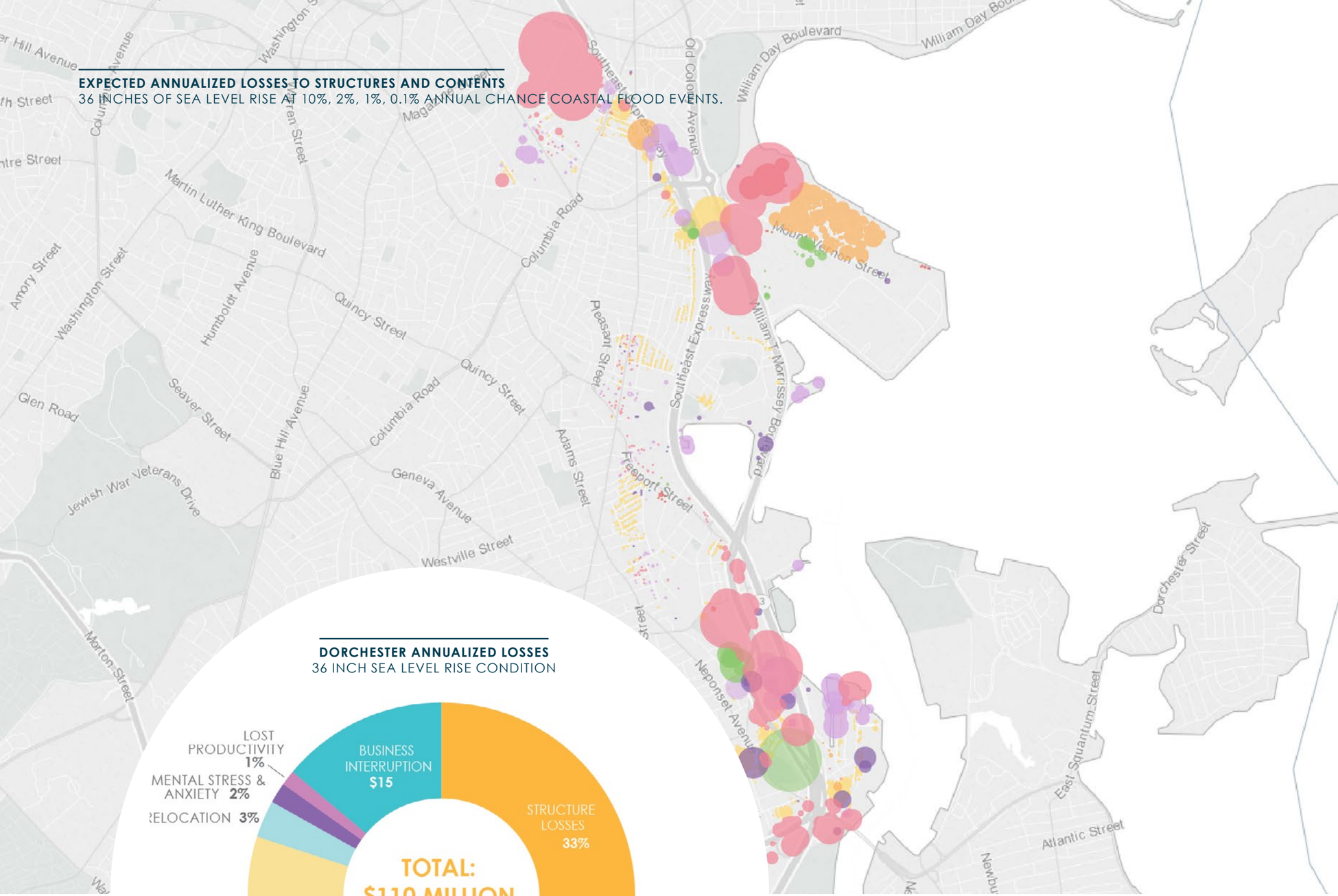


Direct physical damages to structures are expected to be heavily concentrated in commercial and office use buildings.

EXPECTED ANNUALIZED LOSSES TO STRUCTURES AND CONTENTS

36 INCHES OF SEA LEVEL RISE AT 10%, 2%, 1%, 0.1% ANNUAL CHANCE COASTAL FLOOD EVENTS.

Probable annualized losses are based on generalized assumptions, as opposed to site-specific assessment of structures. Site-specific evaluations of vulnerability are beyond the scope of this assessment and should be reserved for detailed evaluation of specific resilience initiatives or a next phase of this project.



DORCHESTER ANNUALIZED LOSSES

36 INCH SEA LEVEL RISE CONDITION

- Commercial ($48.7M)
- Cultural/Religious, Edu, Rec ($8.3M)
- Essential Services ($2.4M)
- General Government ($0M)
- Industrial/Transportation($14.01M)
- Mixed Use ($10.5M)
- Residential ($8.6M)

Total ($93M)

Each circle represents annualized losses suffered by an individual building. Larger circle size indicates higher contents and structures losses. Annualized losses take into consideration the annual probability of an event occurring, as well as the projected impacts of such an event.

DORCHESTER
APPLICATION OF RESILIENCE INITIATIVES

PROTECTED SHORES

DEVELOP LOCAL CLIMATE RESILIENCE PLANS TO SUPPORT DISTRICT-SCALE CLIMATE ADAPTATION

The City should develop a local climate resilience plan for Dorchester to support district-scale climate adaptation. The plan should include the following:

- **Community engagement** through a local climate resilience committee, leveraging existing local organizations and efforts.
- **Land-use planning for future flood protection systems,** including Flood Protection Overlay Districts in strategically important "flood breach points" identified below (see Potential Flood Protection Locations).
- **Flood protection feasibility studies,** evaluating district-scale flood protection, including at locations identified below (see Potential Flood Protection Locations).
- **Infrastructure adaptation planning** through the Infrastructure Coordination Committee. For Dorchester, key partners include the Department of Conservation and Recreation, which controls Morrissey Boulevard, and the Boston Parks and Recreation Department, which controls Joseph Moakley Park.
- **Coordination with other plans,** including Imagine Boston 2030, GoBoston 2030, Special Planning Areas, the Morrissey Boulevard redesign, the Joseph Moakley Park master plan, and any potential Municipal Harbor Plan process.
- **Development of financing strategies and governance structures** to support district-scale adaptation.

ESTABLISH FLOOD PROTECTION OVERLAY DISTRICTS AND REQUIRE POTENTIAL INTEGRATION WITH FLOOD PROTECTION

The Boston Planning and Development Agency (BPDA) should petition the Boston Zoning Commission to create new Flood Protection Overlay Districts in areas that are strategically important for potential future flood protection infrastructure (see Potential Flood Protection Locations below). Within a Flood Protection Overlay District, a developer would be required to submit a study of how a proposed project could be integrated into a future flood protection system; options may include raising and reinforcing the development site or providing room for a future easement across the site.

PRIORITIZE AND STUDY THE FEASIBILITY OF DISTRICT-SCALE FLOOD PROTECTION

To reduce the risk of coastal flooding at major inundation points, the City should study the feasibility of constructing district-scale flood protection at the primary flood entry points in Dorchester (see Potential Flood Protection Locations below for a preliminary identification of locations and potential benefits).

These feasibility studies should take place in the context of local climate resilience plans, featuring engagement with local community stakeholders, coordination with infrastructure adaptation, and considerations of how flood protection would impact or be impacted by neighborhood character and growth. Examples of prioritization criteria include the timing of flood risk, consequences for people and economy, social equity, financial feasibility, and potential for additional benefits beyond flood risk reduction.

POTENTIAL DISTRICT-SCALE FLOOD PROTECTION LOCATIONS[2]

See District-Scale Flood Protection Systems section for a citywide perspective on district-scale flood protection. District-scale flood protection is only one piece of a multi-layered solution that includes prepared and connected communities, resilient infrastructure, and adapted buildings.

In the near term, coastal flood risk Dorchester is limited to very low-probability, severe events and likely does not require district-scale flood protection.

As soon as the 2050s, combined flood protection at multiple locations will be critical:

- At **Dorchester Bay,** addressing inland flood pathways originating from the Old Harbor and Savin Hill Cove
- At the **South Boston Waterfront,** addressing inland flood pathways originating from Fort Point Channel, Boston Harbor, and the Reserve Channel
- At the **New Charles River Dam,** addressing potential overtopping or flanking of the dam

SLR SCENARIO	DISTRICT SCALE FLOOD PROTECTION FOR 1% ANNUAL CHANCE FLOOD[3]
9" SLR (2030s–2050s)	None[4]
21" SLR (2050s–2100s)	The South Boston Waterfront and Dorchester Bay locations combined
36" SLR (2070s or later)	The New Charles River Dam, South Boston Waterfront, and Dorchester Bay locations combined

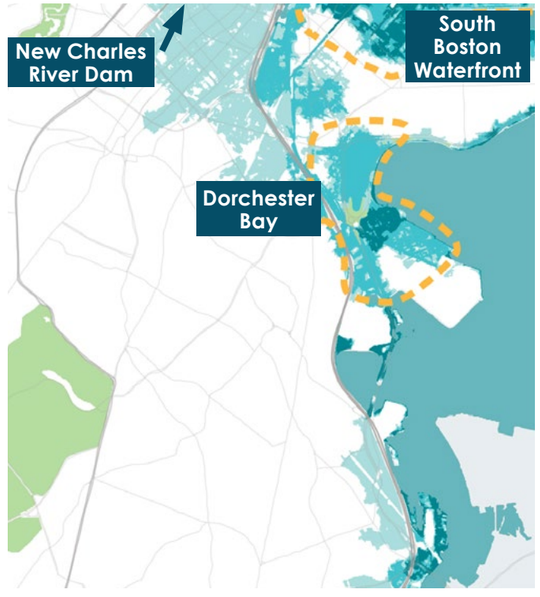
[2]These preliminary coastal flood protection concepts are based on a high-level analysis of existing topography, rights-of-way, and urban and environmental conditions. Important additional factors, including existing drainage systems, underground transportation and utility structures, soil conditions, and zoning as well as any potential external impacts as a result of the project have not been studied in detail. As described in Initiatives 5-2 and 5-3 (see pp. 106,110), detailed feasibility studies, including appropriate public and stakeholder engagement, are required in order to better understand the costs and benefits of flood protection in each location.

[3]Additional flood protection may be required for flood events more severe than the 1% annual chance flood. See Appendix for more detailed information on expected effectiveness of flood protection systems, including analysis of additional flood protection locations and flood frequencies.

[4]Benefits of district-scale flood protection would be modest.

LOCATIONS

- The **Dorchester Bay location** focuses on flood pathways along the Old Harbor and Savin Hill Cove. Potential flood protection solutions could include a landscaped berm or full elevation of Joseph Moakley Park, a waterside alignment along William Day Boulevard, an alignment along Harbor Point, a landscaped berm or alignment running along the waterfront through Old Harbor Park, and an alignment along Old Colony Avenue.
- The **New Charles River Dam location,** described in the Charles River and Downtown focus areas (see pp. 174, 216), addresses potential overtopping or flanking of the dam.
- The **South Boston Waterfront location,** described in the South Boston focus area (see p.282), addresses flood entry points along the edge of the district.



DETAILED CONSIDERATIONS

- **Independently effective in the near term:** Dorchester Bay flood protection is expected to be independently effective in protecting portions of Dorchester in the near term until the 0.1 percent annual chance event. Nevertheless, impacts to Dorchester residents are modest in the near term, as the 1 percent annual chance event and higher probability events are not expected to affect residential buildings.
- **Multiple protection locations required in the second half of the century:** Dorchester and areas in South Boston surrounding Joseph Moakley Park may be exposed to flooding from Fort Point Channel as soon as the 2050s. At this point, flood protection at the South Boston Waterfront may be required to supplement flood protection at Dorchester Bay. The combination of flood protection at these two locations will benefit Dorchester, South Boston, Downtown, the South End, and even northern Roxbury. Later in the century, interventions at the New Charles River Dam will be required to protect the aforementioned neighborhoods against the 1 percent annual chance event.

PREPARED & CONNECTED COMMUNITIES

CONDUCT AN OUTREACH CAMPAIGN TO PRIVATE FACILITIES THAT SERVE VULNERABLE POPULATIONS TO ENSURE THAT THEY ENGAGE IN EMERGENCY PREPAREDNESS AND ADAPTATION PLANNING.

The City should conduct outreach to managers of facilities in Dorchester that serve significant concentrations of vulnerable populations and are not required to have operational preparedness and evacuation plans under current regulations. Targeted facilities should include affordable housing complexes, substance abuse treatment centers, daycare facilities, food pantries, small nonprofit offices, and others. Illustrative examples of the types of facilities to which the City should conduct outreach are the Harbor Point mixed-income development and Columbia Point Infant Toddler Daycare. These facilities will be exposed to damage from mid-century sea level rise and coastal flooding, in addition to access issues related to stormwater flooding in the near term.[5]

EXPAND BOSTON'S SMALL BUSINESS PREPAREDNESS PROGRAM

The City should reach out to small businesses in Dorchester exposed to stormwater flooding risk in the near term or coastal flooding risk at 9 inches of SLR to help them develop business continuity plans, evaluate additional insurance coverage needs, and identify low-cost physical adaptations. In Dorchester, there are 34 commercial or mixed-use buildings that could host small businesses exposed to flooding under 1 percent annual chance flood event with 9 inches of SLR. Furthermore, three Main Street districts, Upham's Corner, Bowdoin/Geneva, and Field's Corner, are expected to have isolated portions exposed to stormwater flooding in the near term and throughout the century.

[5] The City did not review the extent of existing preparedness planning as part of this study.

RESILIENT INFRASTRUCTURE

ESTABLISH INFRASTRUCTURE COORDINATION COMMITTEE ADAPTATION PLANNING.

The Infrastructure Coordination Committee (ICC) should support coordinated adaptation planning for Dorchester's key infrastructure systems, including transportation, water and sewer, energy, telecommunications, and environmental assets. In the near term, the City will support the MBTA in conducting a full asset-level vulnerability assessment of its system, including the Red Line. The JFK/UMass Red Line Station will be exposed under a 10 percent annual chance flood event with 21 inches of SLR.

PROVIDE GUIDANCE ON PRIORITY EVACUATION AND SERVICE ROAD INFRASTRUCTURE TO THE ICC

The Office of Emergency Management should work with Boston Transportation Department, Department of Public Works, and private utilities to provide guidance on critical roads to prioritize for adaptation planning, including evacuation routes and roads required to restore or maintain critical services. Under 9 inches of SLR, four evacuation routes are exposed under a 1 percent annual chance flood event. These evacuation routes include I-93 South, Morrissey Boulevard, Neponset Avenue, and Gallivan Boulevard.

CONDUCT FEASIBILITY STUDIES FOR COMMUNITY ENERGY SOLUTIONS

The 2016 Boston Community Energy Study identified five sites in Dorchester as feasible locations for emergency microgrids due to their concentration of critical facilities. These sites are the intersection of Gallivan Boulevard and Neponset Avenue, Fields Corner, Codman Square, Four Corners/Geneva, and along Blue Hill Avenue. The Environment Department should work with local stakeholders and utility providers to explore this location. The proposed Gallivan Boulevard and Fields Corner sites are exposed to extensive stormwater flooding in the near term. The Gallivan Boulevard site also may be exposed to the 1 percent annual chance event as soon as the 2050s.

ADAPTED BUILDINGS

PROMOTE CLIMATE READINESS FOR PROJECTS IN THE DEVELOPMENT PIPELINE

Upon amending the zoning code to support climate readiness (see Initiative 9-2, p.135), the Boston Planning and Development Agency (BPDA) should immediately notify all developers with projects in the development pipeline in the future floodplain that they may alter their plans in a manner consistent with the zoning amendments (e.g., elevating their first-floor ceilings without violating building height limits), without needing to restart the BPDA permitting process. Currently, 39 residential and 18 commercial buildings are under construction or permitted in Dorchester, representing 3,067 additional housing units and six million square feet of new commercial space.

PREPARE MUNICIPAL FACILITIES FOR CLIMATE CHANGE

The Office of Budget Management should work with City departments to prioritize upgrades to municipal facilities in Dorchester that demonstrate high levels of vulnerability (in terms of the timing and extent of exposure), consequences of partial or full failure, and criticality (with highest priority for impacts on life and safety) from coastal flooding. Exposure to municipal facilities located in Dorchester is minimal in the near term. Later in the century, the McCormack Middle School, Paul A. Dever School, Boston Collegiate Middle School, and Engine 20 Fire Station will be exposed to flood impacts during the 1 percent annual chance event. To address extreme heat risks, the City should prioritize backup power installation at municipal facilities that demonstrate high levels of criticality, including specific Boston Centers for Youth and Family and Boston Public School facilities that serve as emergency shelters.

ESTABLISH A CLIMATE READY BUILDINGS EDUCATION PROGRAM FOR PROPERTY OWNERS, SUPPORTED BY A RESILIENCE AUDIT PROGRAM

The City should develop and run a Climate Ready Buildings Education Program and a resilience audit program to inform property owners about their current and future climate risk and actions they can undertake to address these risks. To prepare for the most immediate risks, the City should prioritize audits for buildings with at least a 1 percent annual chance of exposure to coastal and riverine flooding in the near term, under 9 inches of sea level rise. In Dorchester, this includes almost 170 structures, 35 percent of which are exclusively residential and 24 percent of which are industrial. A resilience audit should help property owners identify cost-effective, building-specific improvements to reduce flood risk, such as backflow preventers, elevation of critical equipment, and deployable flood barriers; promote interventions that address stormwater runoff or the urban heat island effect, such as green roofs or "cool roofs" that reflect heat; and encourage owners to develop operational preparedness plans and secure appropriate insurance coverage. The resilience audit program should include a combination of mandatory and voluntary, market-based and subsidized elements.

INCORPORATE FUTURE CLIMATE CONDITIONS INTO AREA PLANS AND ZONING AMENDMENTS

The City should incorporate future climate considerations (long-term projections for extreme heat, stormwater flooding, and coastal and riverine flooding) into major planning efforts in Dorchester. The City is conducting a planning process for Glover's Corner and plans to update the Joseph Moakley Park master plan. The Department of Conservation and Recreation is planning redesign and reconstruction of Morrissey Boulevard.