SFMTA

Waterfront Resilience Program:

Addressing seismic and flood risk as we build more resilient communities and transportation infrastructure

PAG

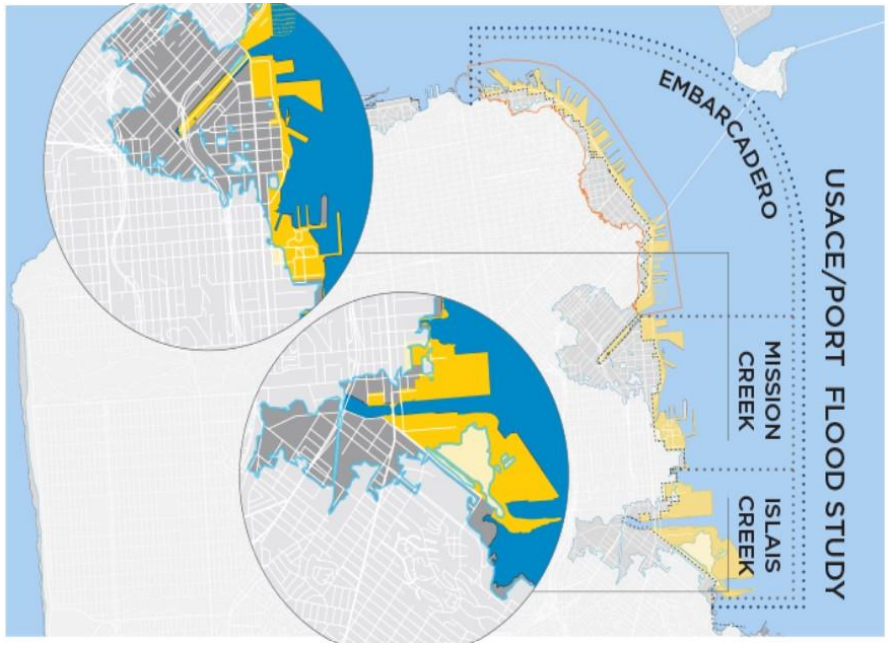
October 25, 2022

Agenda

- Overview
- Draft Waterfront Adaptation Strategies
- Mobility Impacts and Evaluation
- Next Steps

Increasing risk to critical infrastructure

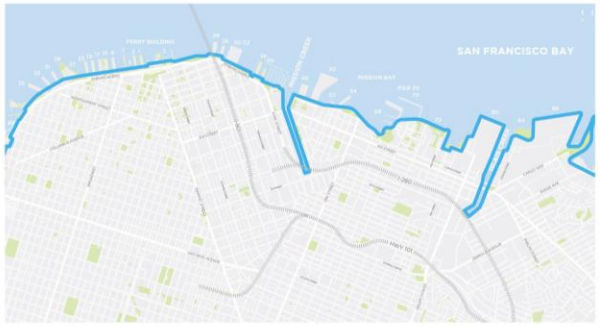
Waterfront Resilience Program



Waterfront Adaptation Strategies
Schedule

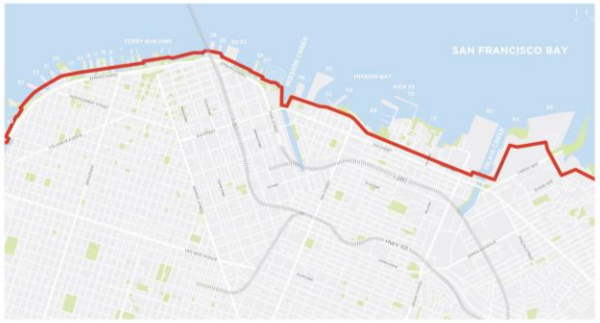
Waterfront Strategies

Strategy E



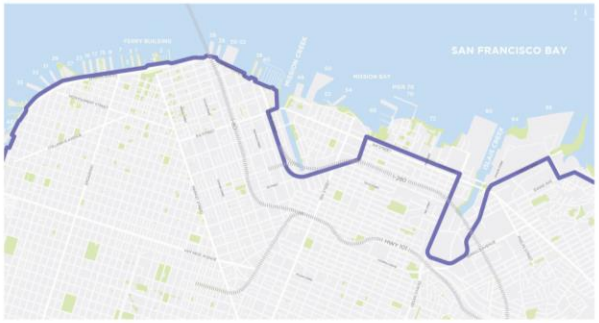
Preserve a waterfront that functions much as it does today, with major exceptions including stormwater management, bridges, roads, and railways.

Strategy F



Create an active water management system, designed and operated to limit the impacts of both coastal and inland flooding.

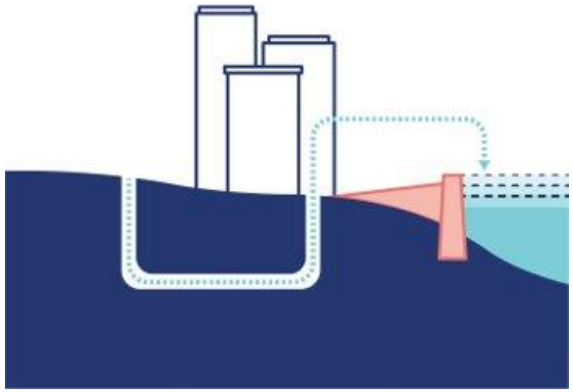
Strategy G

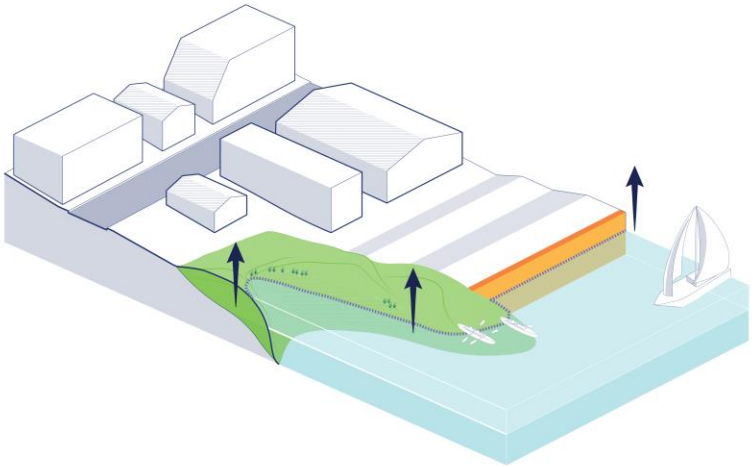


Transform the City's infrastructure to align with its natural watersheds, enabling a more passive and resilient approach to flood risk, particularly in the Southern Waterfront.

Strategy E: Hold the Line

Preserves a waterfront that looks and functions much as it does today by adapting the shoreline



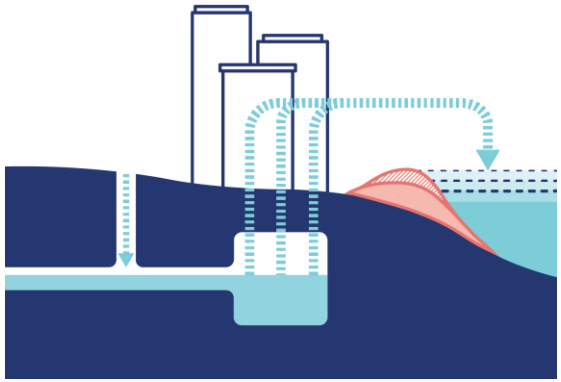


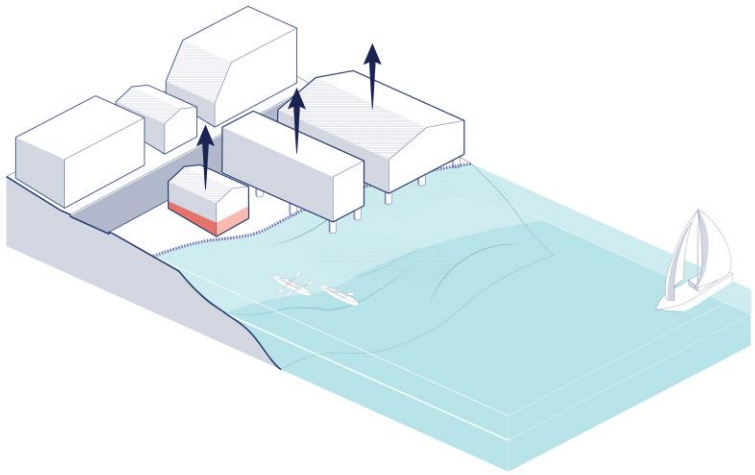
Defend against floods by raising the shoreline to keep the coastal water out

Elevated seawall and new public promenade in Auckland, NZ

Strategy F: Manage the Water

Creates an active system for managing flooding by heavily relying on engineered solutions



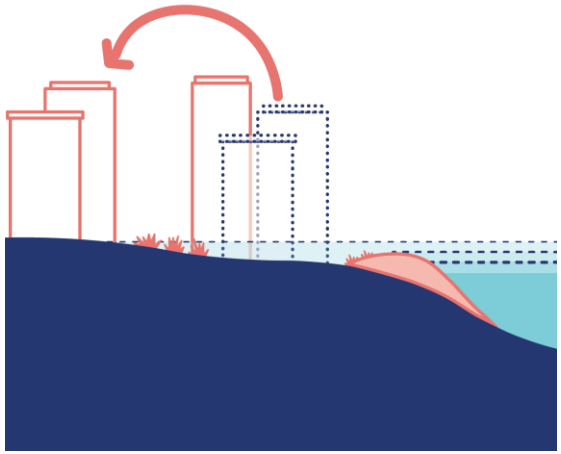


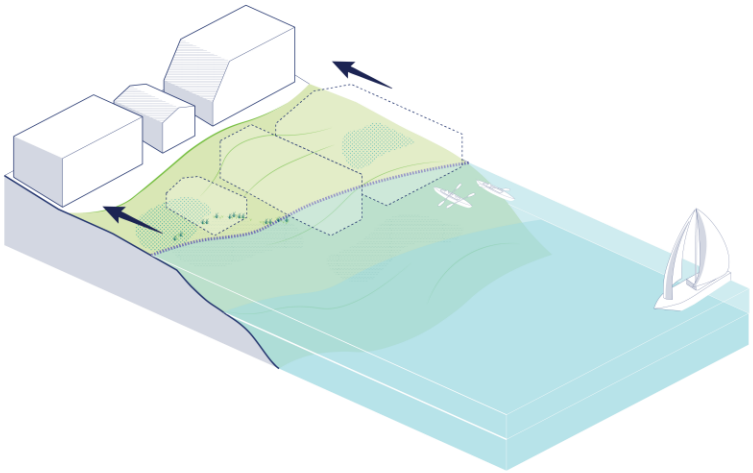
Accommodate flooding by letting the water in, adapting buildings and infrastructure in place

Elevated buildings, floodproofed lower levels, and floodable spaces in Hamburg, Germany

Strategy G: Align with Watersheds

Advances shoreline adaptation while working with natural inland flooding patterns to floodproof some buildings and infrastructure and move others away from the highest risk areas



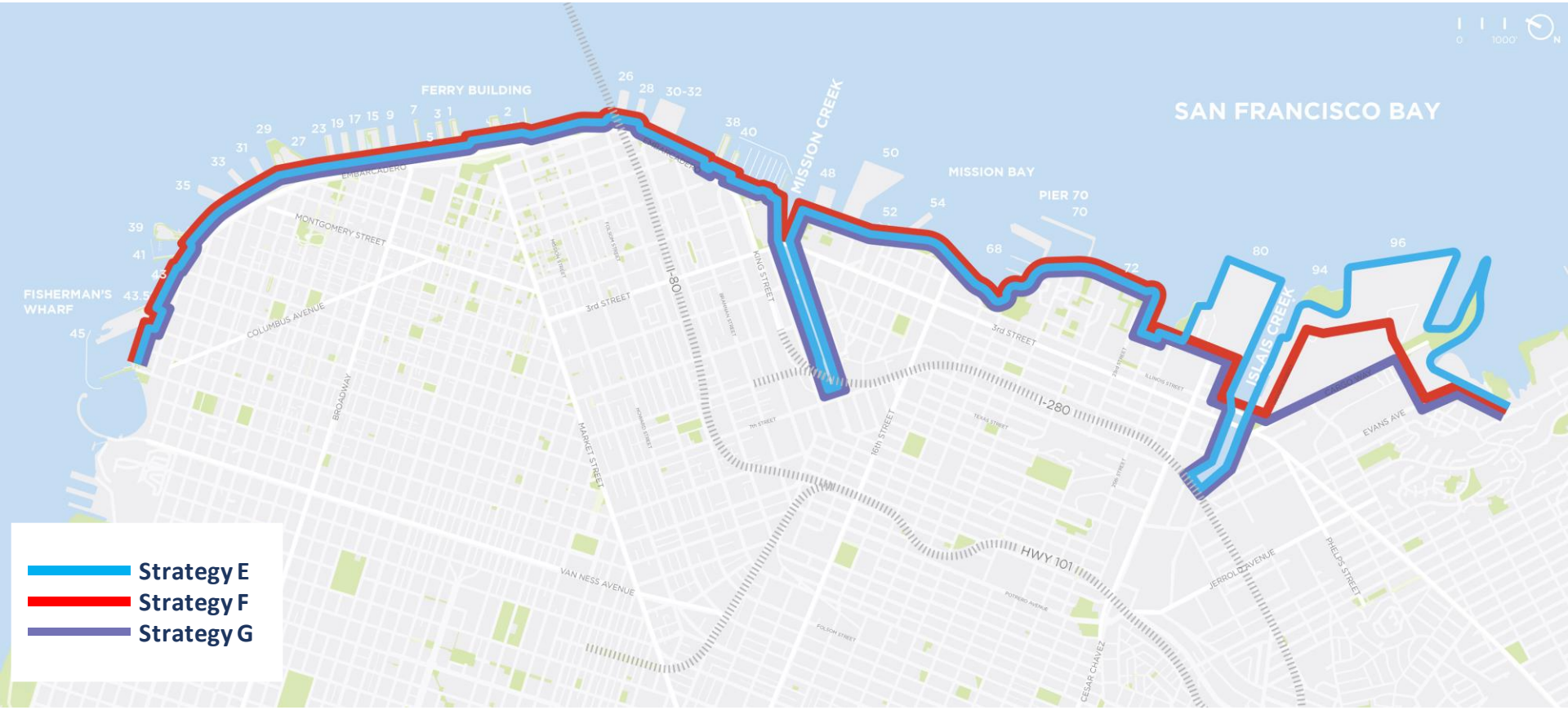


Retreat from the current shoreline by moving buildings and infrastructure inland

Repurposed land for public parks after an earthquake in Christchurch, New Zealand

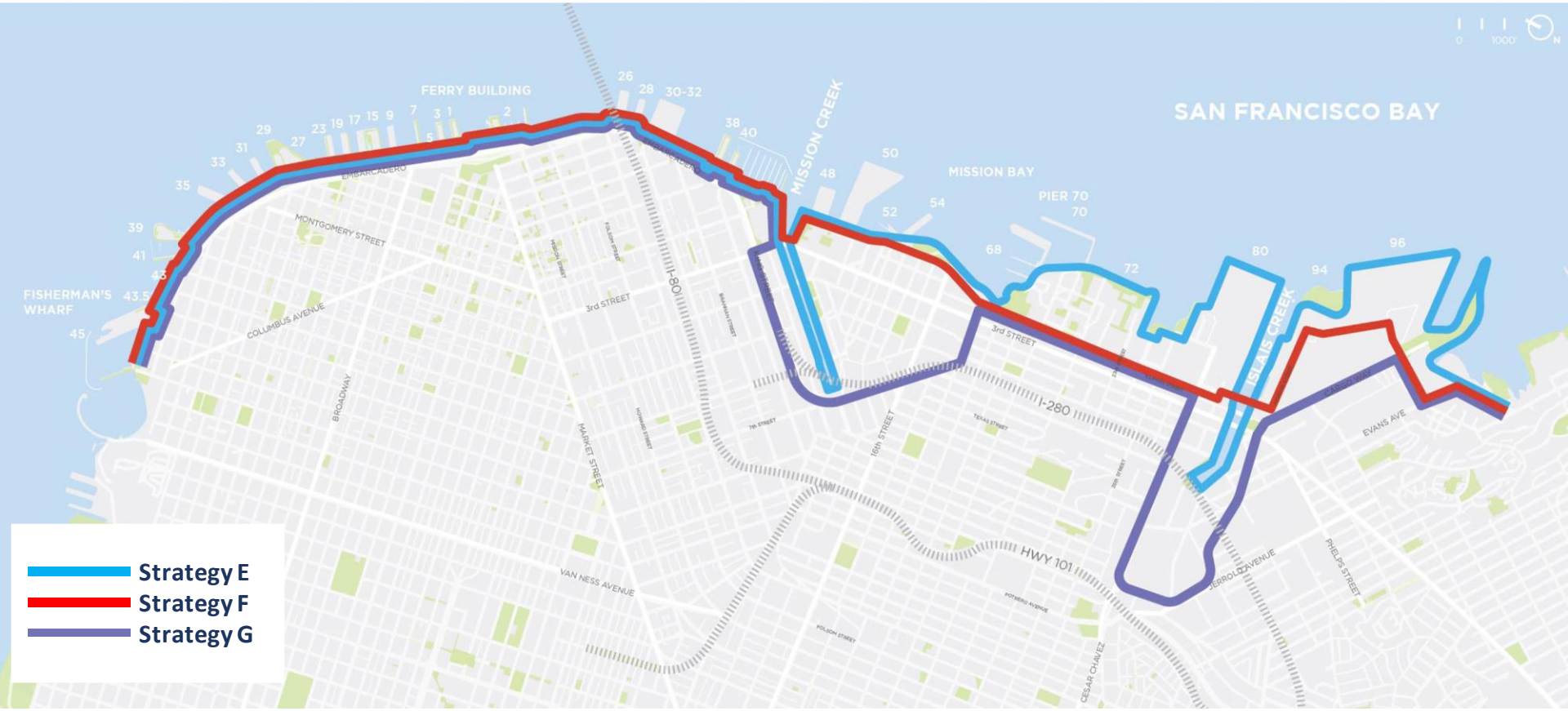
Timeline – Waterfront Strategies

2040 Strategies

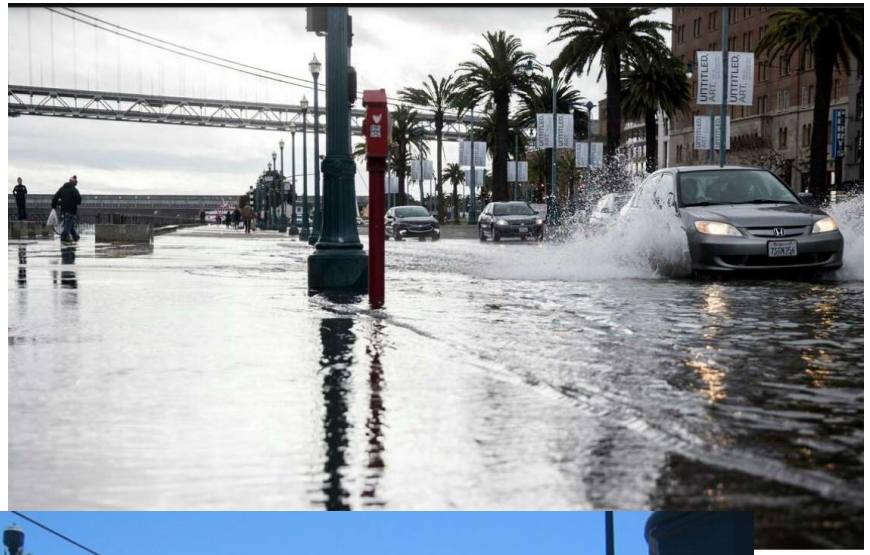


Timeline – Waterfront Strategies

2100 Strategies



Critical facilities and corridors are at risk today and in the future



- The Embarcadero is the cornerstone of city's multimodal system and connects San Francisco neighborhoods to Financial District and the region and has low flood tolerance given critical infrastructure.

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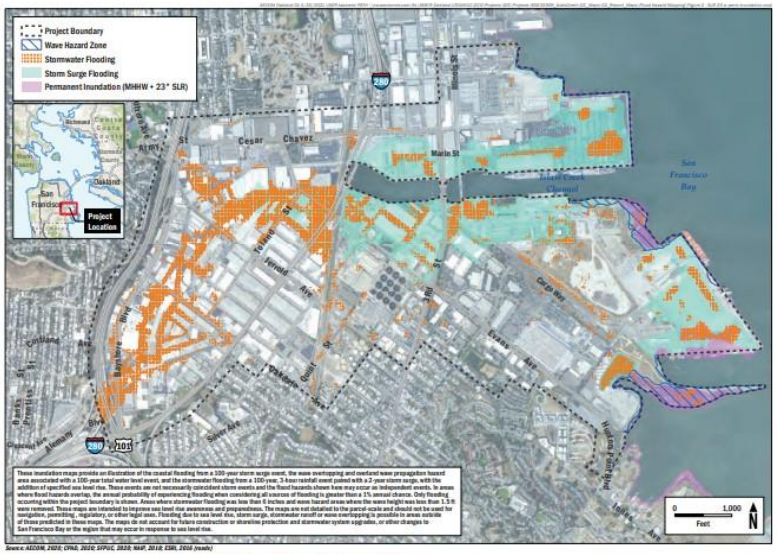


FIGURE 8: 2050 COMBINED FLOOD HAZARD MAPPING
MHHW + 23" permanent SLR inundation (assuming 1:200 Chance SLR scenario)
plus 100-year coastal storm surge (up to 41"), wave hazards and stormwater flooding

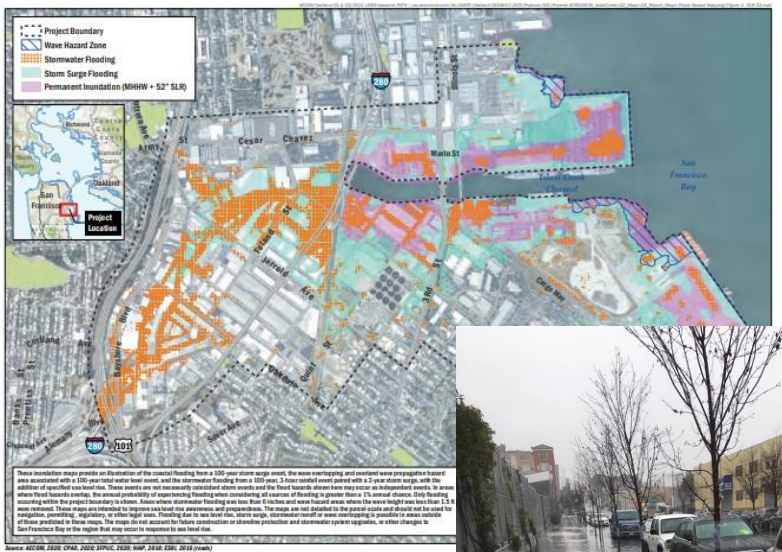
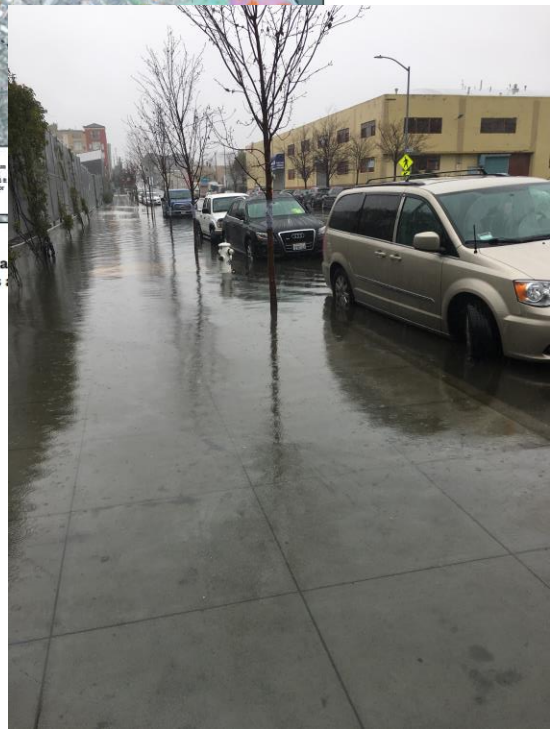


FIGURE 9: 2080 COMBINED FLOOD HAZARD MAPPING
MHHW + 52" permanent SLR inundation (assuming 1:200 Cha
plus 100-year coastal storm surge (up to 41"), wave hazards

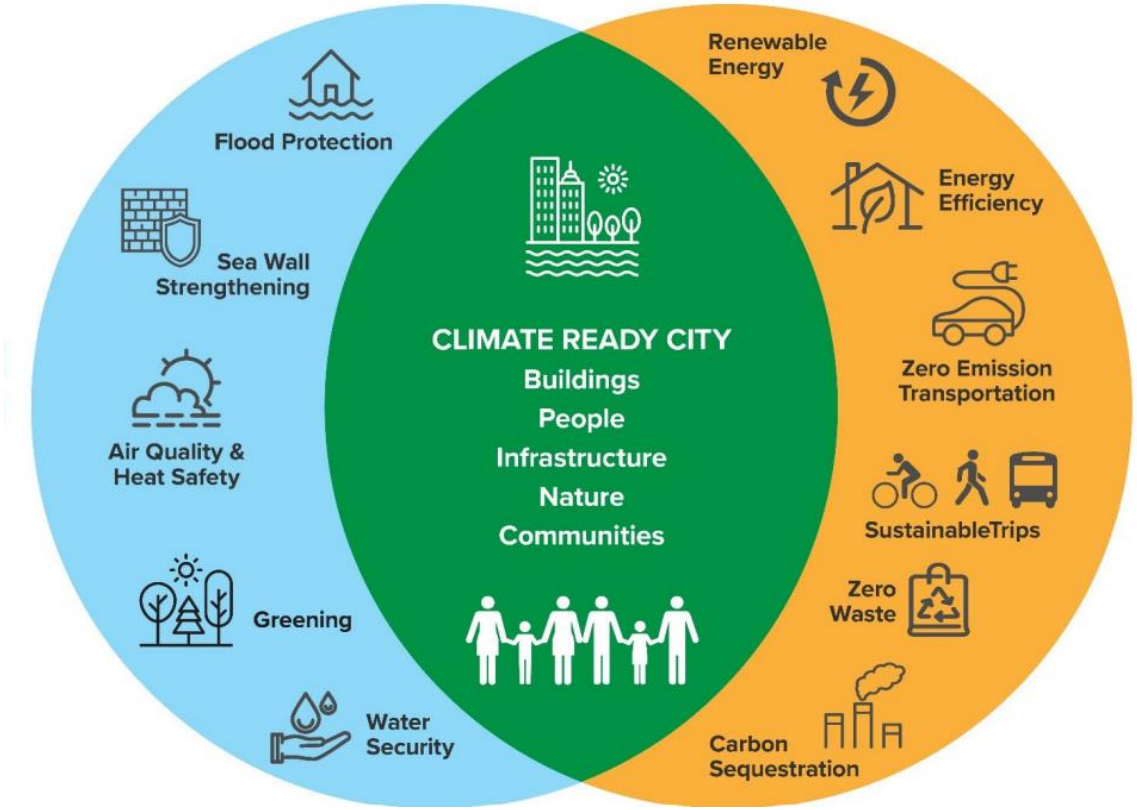


- Local, regional and statewide transportation infrastructure
- Compound flood risk due to elevated water table, stormwater and coastal flooding
- High concentration of facilities and municipal operations

Waterfront Adaptation Planning

- Conducting network analysis to identify impacts to system including construction impacts
- Identifying burdens and equity impacts to communities
- Evaluate cost/benefit of different strategies
- Community engagement
- Future corridor-level planning
- Integrate climate risk into capital planning
- Elevate, Floodproof and possibly relocation

Going forward, we must both adapt to changing conditions and reduce harmful emissions from the City's transportation sector.



Thank you!

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