Moffett Park Specific Plan

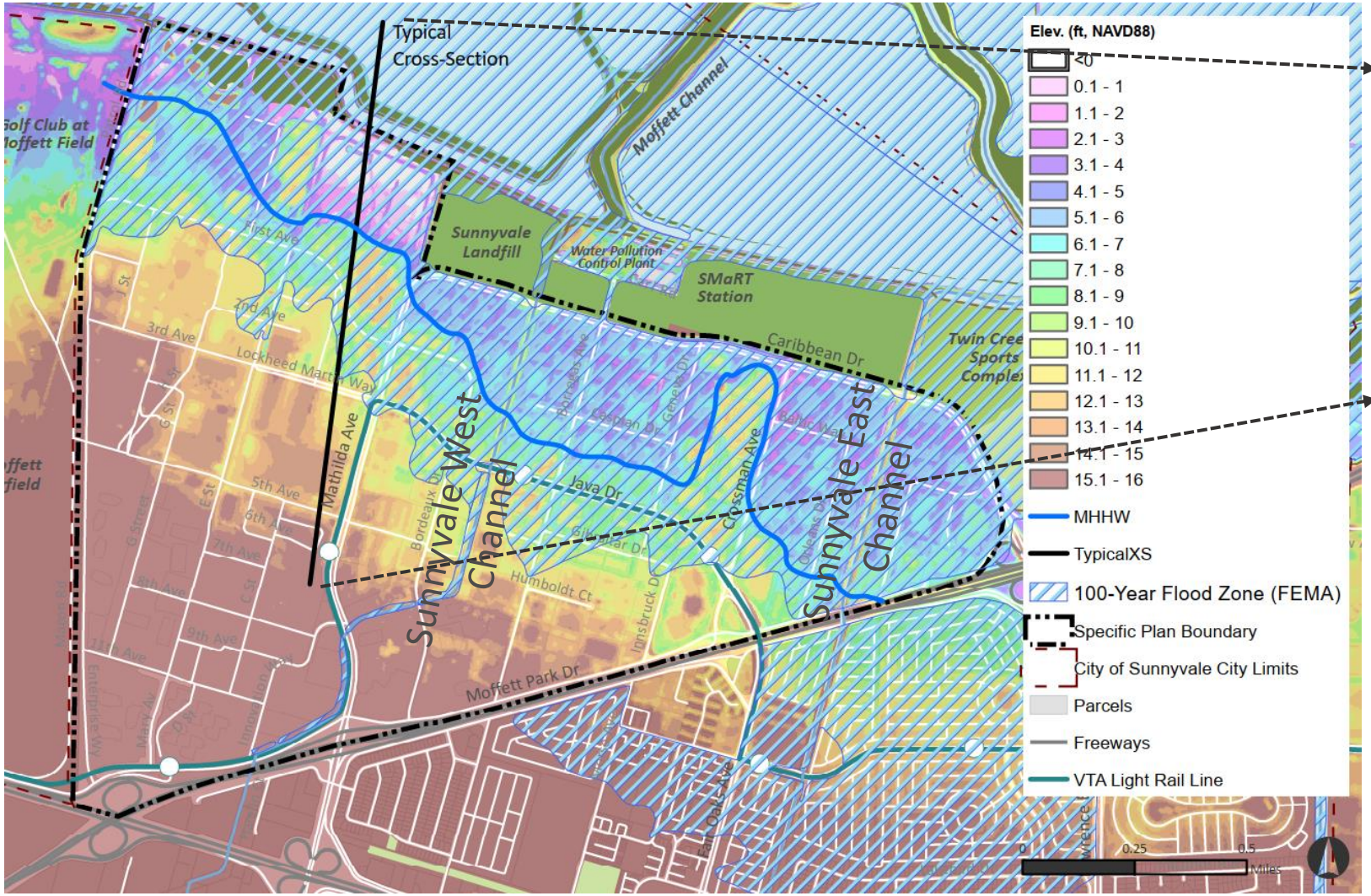
Understanding the Future:
Flood Hazard and Sea-level Rise Adaptation

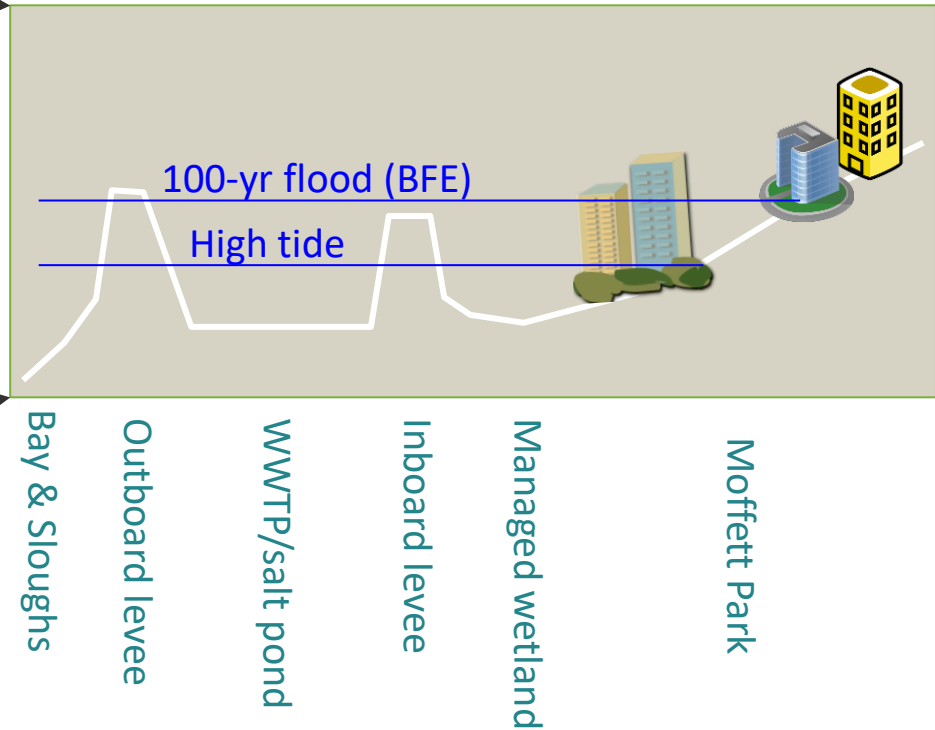
August 2020

Overview

- Existing Flood Hazards
- Future Flood Hazards with Climate Change
- Adaptation Plan

Existing Flood Hazard





Sources: NOAA (2014), FEMA (2009)

Projected Sea-level Rise

Scenario	2030	2050	2070	2100
66% Likely Occurrence: Low Risk Aversion	0.5	1.1	1.9	3.4
0.5% Chance of Exceedance: Medium-High Risk Aversion	0.8	1.9	3.5	6.9

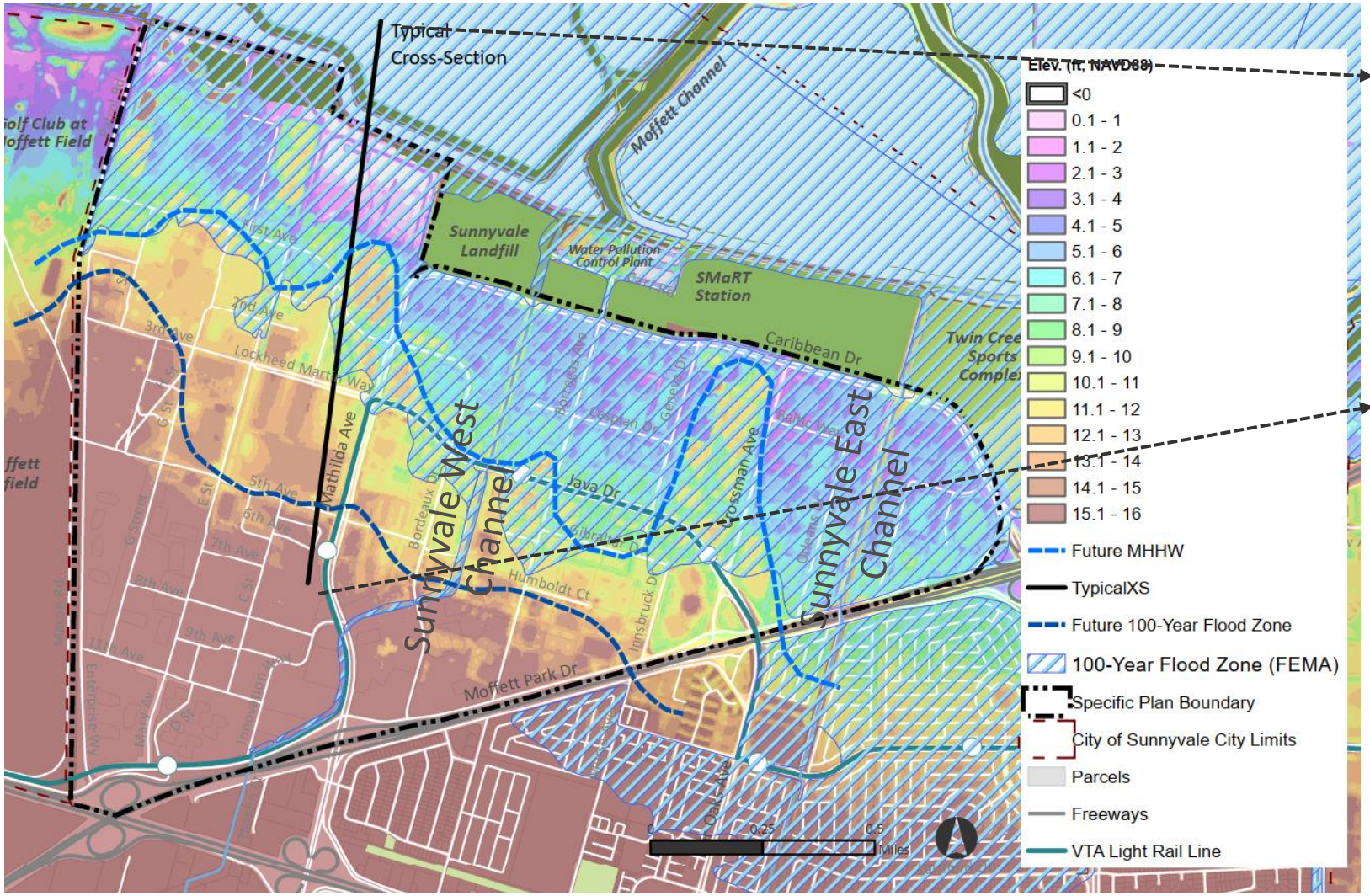
Source: OPC (2018) for high emissions scenario

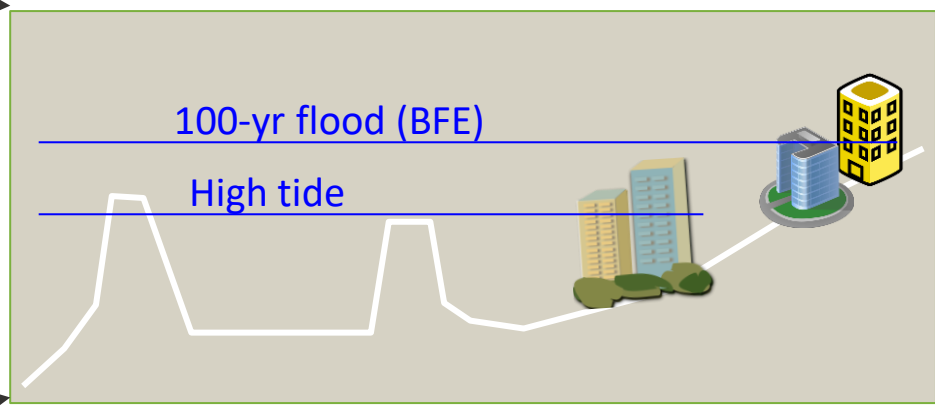
Change in Extreme Bay Water Levels with Projected Sea-level Rise

Annual Chance (Return Interval)	0 ft SLR	1 ft SLR	2 ft SLR	3 ft SLR	5 ft SLR
Daily high tide (MHHW)	7.4	8.4	9.4	10.4	12.4
1-year or king tide (99% annual chance)	8.6	9.6	10.6	11.6	13.6
10-year storm surge (10% annual chance)	9.8	10.8	11.8	12.8	14.8
100-year storm surge (base flood) (1% annual chance)	11.4	12.4	13.4	14.4	16.5

SOURCE: AECOM (2016)

Flood Hazard with 3 ft Sea-level Rise





Bay & Sloughs

Outboard levee

WWTP/salt pond

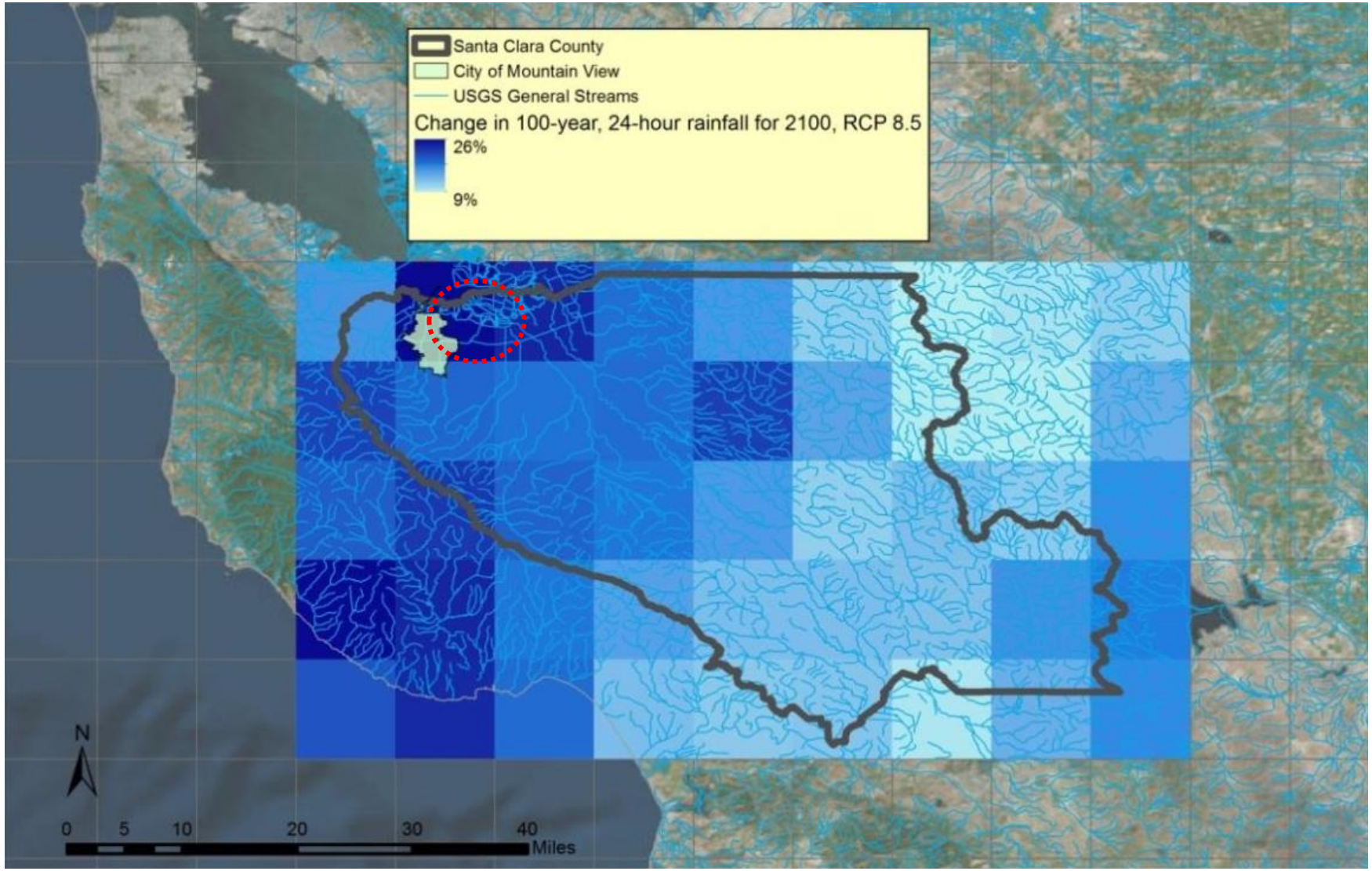
Inboard levee

Managed wetland

Moffett Park

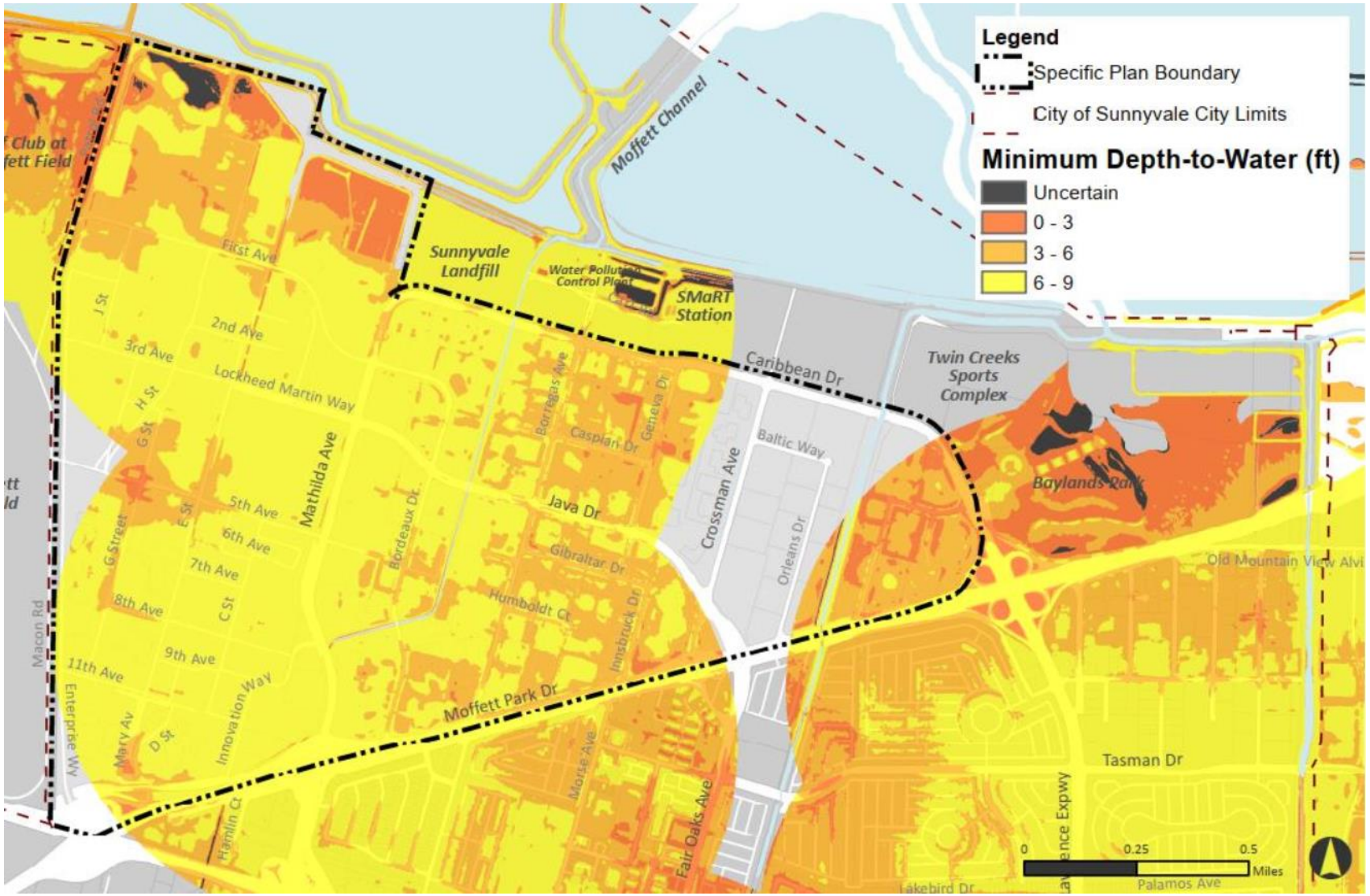
Sources: NOAA (2014), FEMA (2009)

Projected Change in 100-Year 24-Hour Rainfall for Santa Clara County



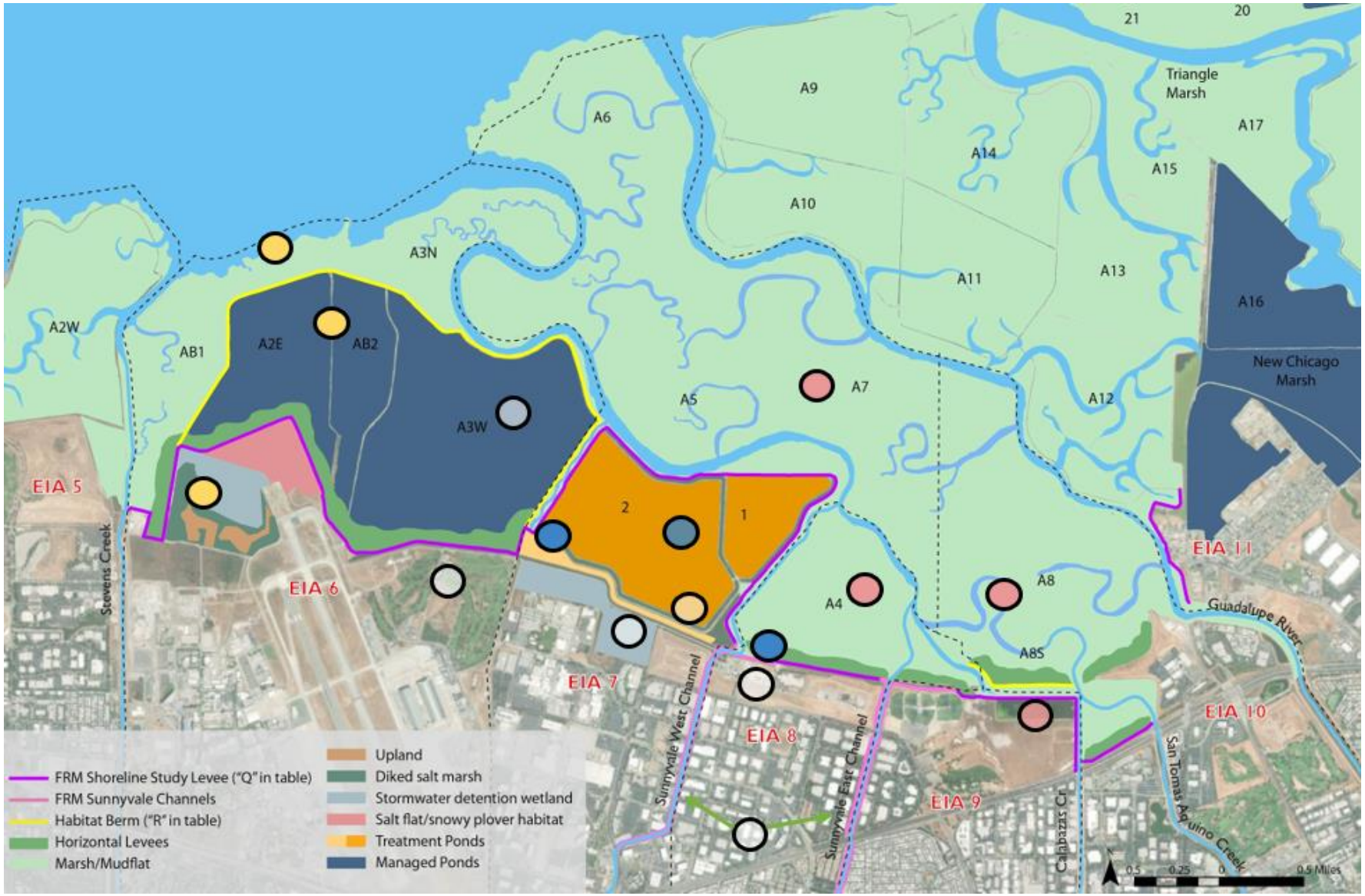
SOURCE: Schaaf & Wheeler and ESA (2017)

Minimum depth-to-water Below Ground Surface

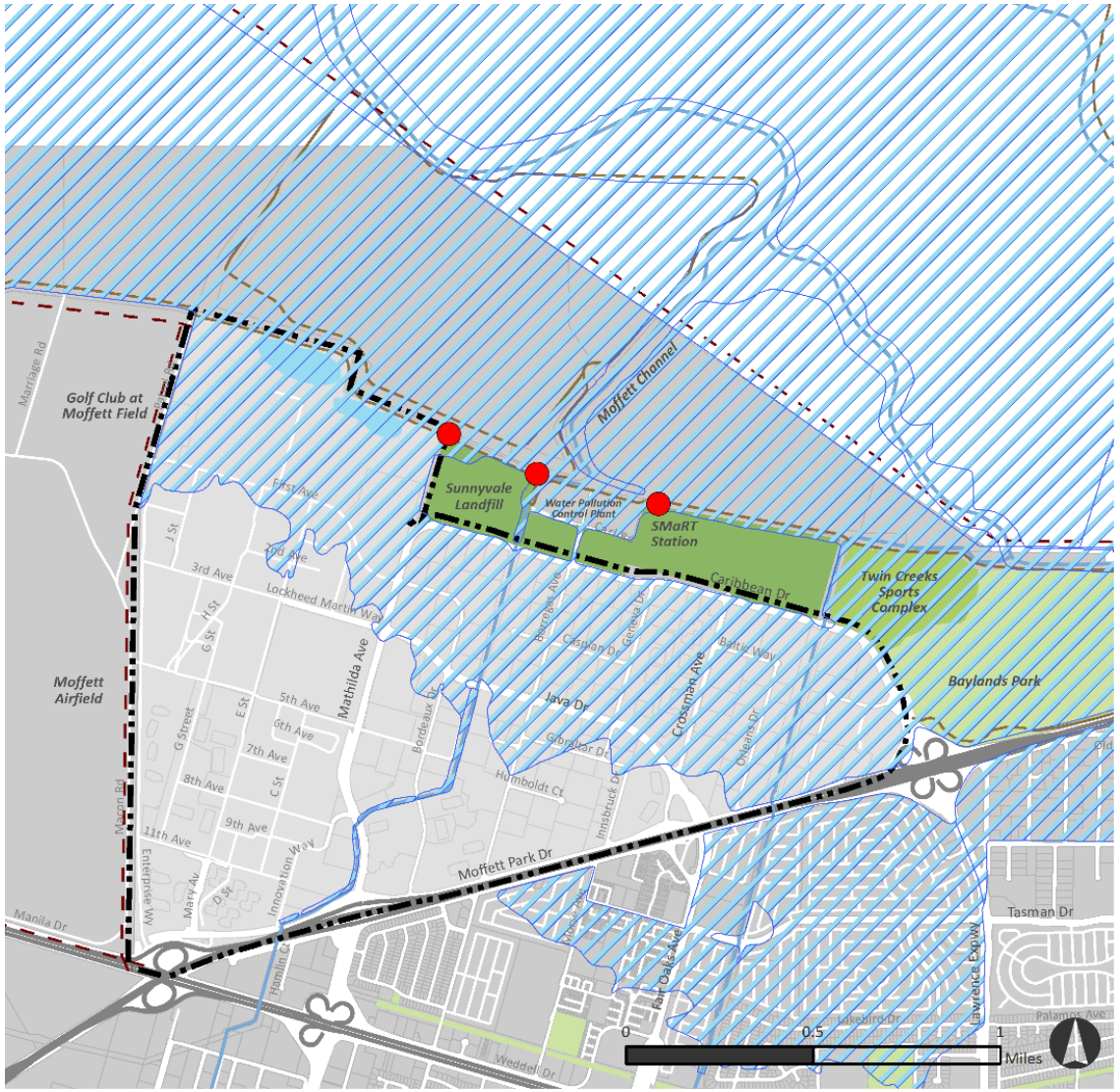


Source: Plane et al 2019

Regional Baylands Management



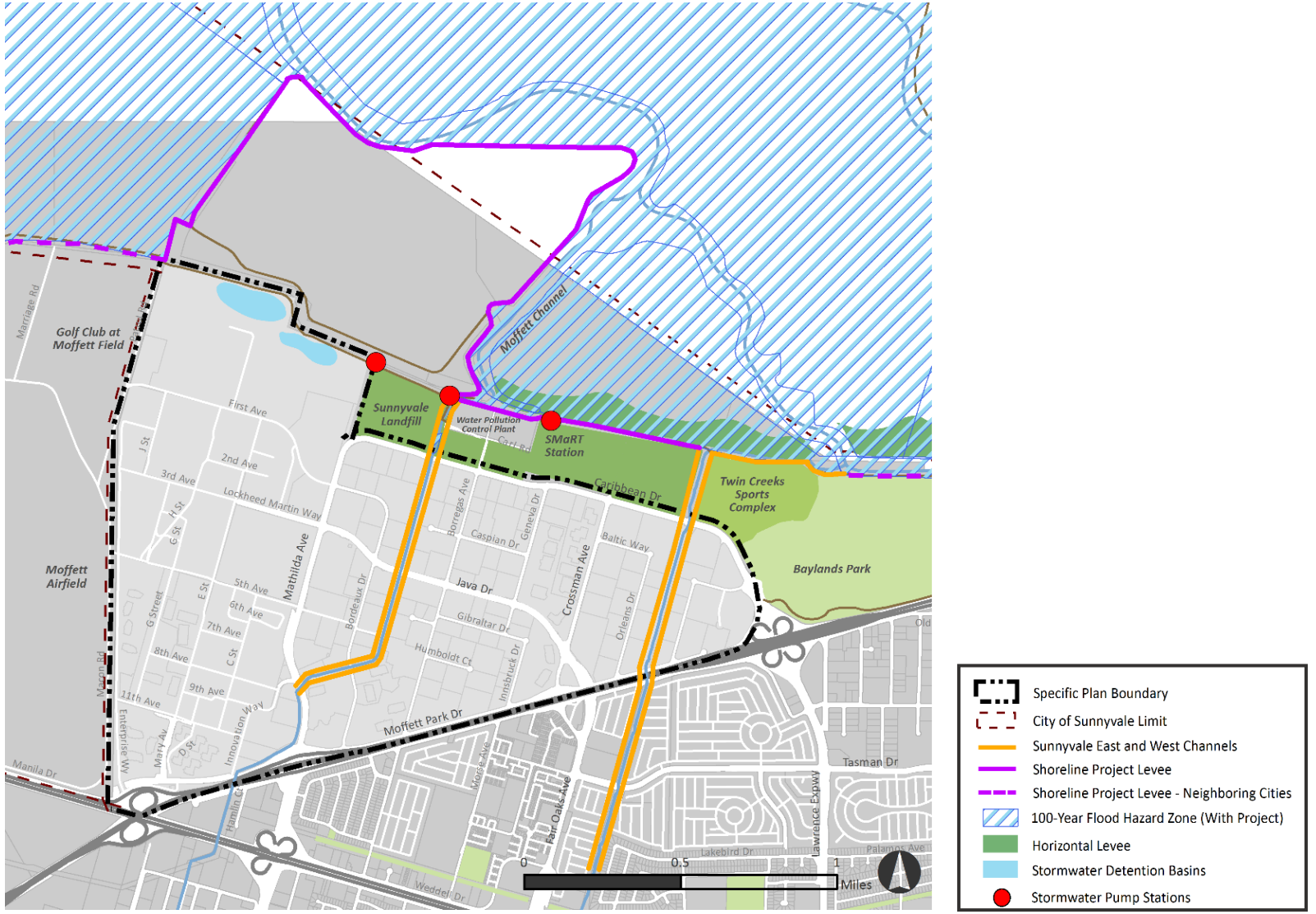
Moffett Park Existing Flood Hazard



- Specific Plan Boundary
- City of Sunnyvale Limit
- Sunnyvale East and West Channels
- Shoreline Project Levee
- Shoreline Project Levee - Neighboring Cities
- 100-Year Flood Hazard Zone (With Project)
- Horizontal Levee
- Stormwater Detention Basins
- Stormwater Pump Stations

Moffett Park Flood Management Strategy to Adapt to Sea-Level Rise

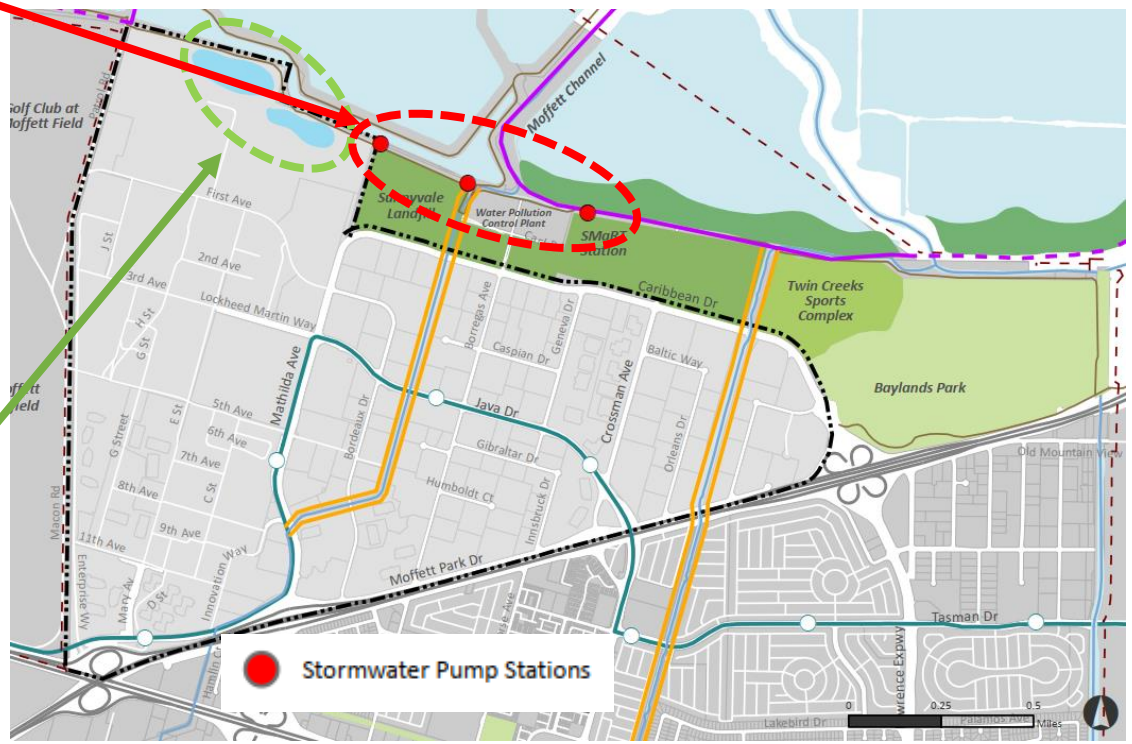
- Shoreline Project
  - Protect from Bay events up to 100-yr storm surge + 2.6 ft SLR + 2 ft freeboard
  - Integrate with horizontal levee in outboard ponds
  - Coordinate with neighboring cities to provide contiguous protection
- East & West Channels
  - Protect from fluvial discharge, concurrent storm surge + 2 ft SLR and 3 ft freeboard
  - Explore additional levee setbacks and riparian habitat enhancements



West Channel Enhancement Option – Levee Setback & Riparian Habitat

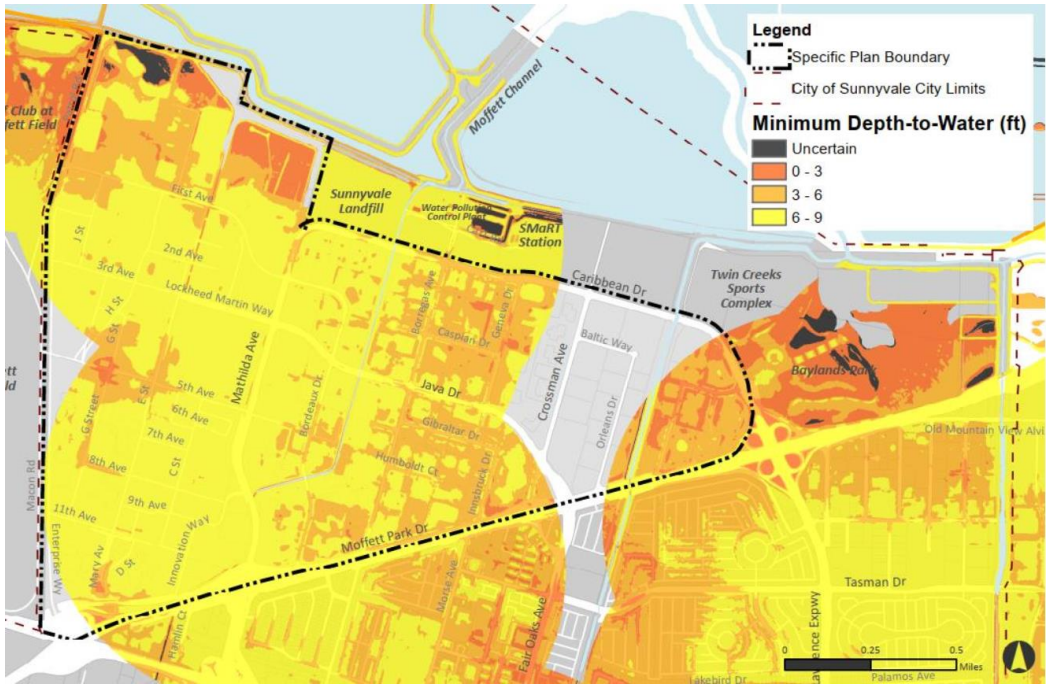
Moffett Park Flood Management Strategy to Adapt to Sea-Level Rise

- Stormwater-specific Hazard Assessments
  - What is the potential for increased inflow to the pump station due to climate change?
  - Is design discharge capacity diminished due to elevated Bay water levels?
  - Is the pump station itself and its supporting infrastructure vulnerable to inundation from greater flood hazards due to sea-level rise?
- Stormwater Detention Basins
  - Preserve stormwater storage capacity
  - Enhance wetlands habitat



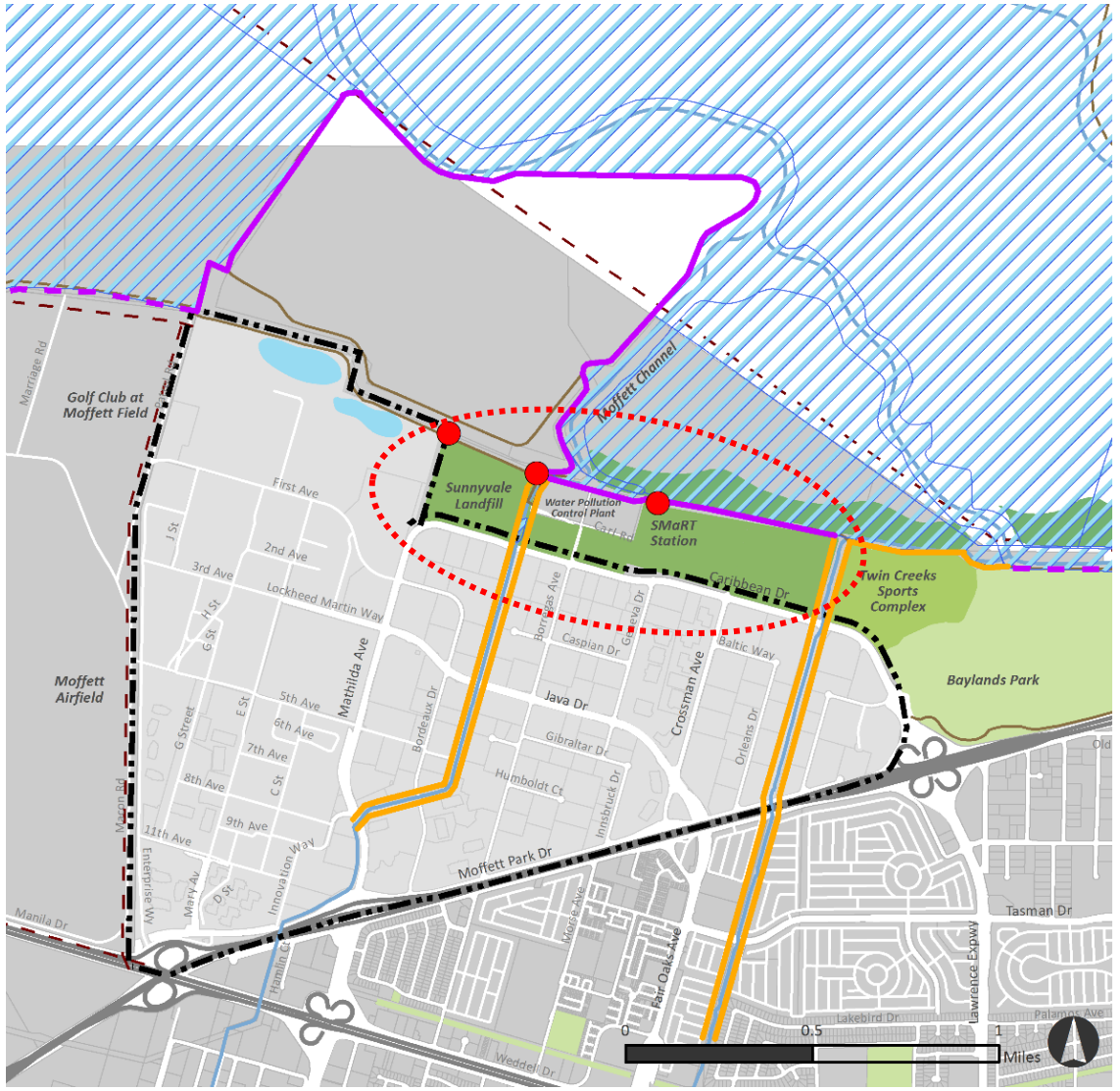
Moffett Park Flood Management Strategy to Adapt to Sea-Level Rise

- Groundwater
  - Local monitoring and assessment
  - Plan and manage for additional groundwater in stormwater system
    (e.g. more efficient low-flow pumping)
  - Consider measures for northeast portion of Plan Area (e.g. seepage cutoff)
  - Account for possible reduced storage capacity of detention wetlands



Moffett Park / Sunnyvale Flood Management Strategy to Adapt to Sea-Level Rise

- Water Pollution Control Plant
  - Landward of Shoreline Project Levee
  - Determine flood safe elevation when making facilities improvements
  - Maintain current flood protection when modifying Ponds 1 & 2, levees
- Landfill (closed)
  - Landward of Shoreline Project Levee
  - City ongoing monitoring & maintenance as per State Department of Resources Recycling and Recovery (CalRecycle) regulations



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