

Incorporating Sea Level Rise into Capital Planning in San Francisco

Review of Guidance Adopted by Capital Planning Committee

November 4, 2014

**San Francisco Municipal Transportation Agency
Board of Directors**

David Behar

**Climate Program Director, SFPUC
Chair, CCSF Sea Level Rise Committee**

Craig Raphael

**Transportation Planner, Capital Finance
SFMTA**

- Focus set by Mayor's Office in 2013:
 - Draft guidance for incorporating sea level rise into capital planning for the CCSF
 - Bring draft guidance to Capital Planning Committee for consideration
 - Maintain responsibility for assessment and adaptation within departments, with review and coordination by the CPC.



San Francisco
**Water
Power
Sewer**

STATE OF CALIFORNIA SEA-LEVEL RISE GUIDANCE DOCUMENT

Developed by the Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT) with science support provided by the Ocean Protection Council's Science Advisory Team and the California Ocean Science Trust
March 2013 update

Background, Purpose, and Intended Use

This document provides guidance for project decision making for project Working Group of the California Schwarzenegger's Executive Council (MPO) to issue

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**CALIFORNIA COASTAL COMMISSION
 DRAFT SEA-LEVEL RISE
 POLICY GUIDANCE**

**Public Review Draft
 Comment Period:
 October 14, 2013 - January 15, 2014**

SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION

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Resolution No. 11-08

Adoption of Bay Plan Amendment No. 1-08 Adding New Climate Change Findings and Policies to the Bay Plan; And Revising the Bay Plan Tidal Marsh and Tidal Flats; Safety of Fills; Protection of the Shoreline; and Public Access Findings and Policies

Whereas, Government Code Section 66652 states that “the Commission at any time may amend, or repeal and adopt a new form of, all or any part of the San Francisco Bay Plan but such changes shall be consistent with the findings and declaration of policy” contained in the McAteer-Petris Act; and

Whereas, the *San Francisco Bay Plan* (Bay Plan) policies pertaining to sea level rise and climate change have not been reviewed and updated comprehensively since their adoption in 1989; and

Whereas the Commission’s strategic plan included the initiation of the review and possible



Sea Level Rise Committee

Members

- David Behar, PUC (Chair)
- Lauren Eisele, Port
- Rosalyn Yu, SFO
- Frank Filice, DPW
- **Craig Raphael, MTA**
- AnMarie Rodgers, Planning
- Chris Kern, Planning
- Tania Shayner, Planning
- Nohemy Revilla, PUC/SSIP Liaison
- Anna Roche, PUC/Wastewater
- Brian Strong, Capital Planning
- Kris May, AECOM/SSIP
- Dilip Trivedi, Moffat & Nichol

Meetings

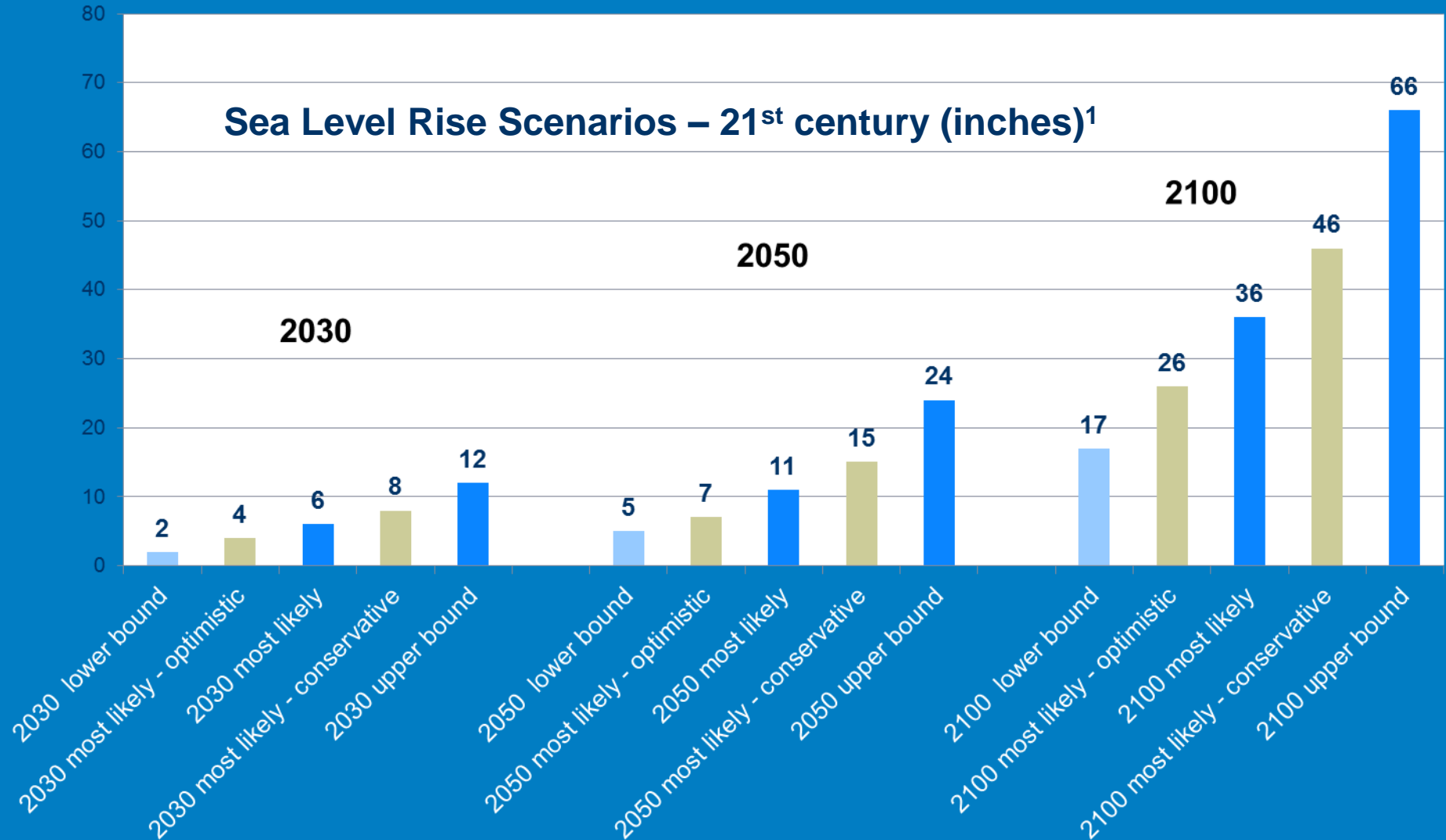
- Began September 27, 2013

Activities

- Benchmarking review of other jurisdictions: local, state and national
- Survey of CCSF activities with SLR nexus (many found)
- In-depth review of the science
- Survey of regulatory context
- One half-day workshop
- Writing Draft Guidance
- Revising Guidance from feedback

CCSF Draft Guidance: SLR Figures

Sea Level Rise Scenarios – 21st century (inches)¹



¹ from National Research Council 2012

Sea Level Rise and Extreme Tide Matrix

Sea Level Rise	Water Level above MHHW	Extreme Tide (Storm Surge) Levels						
		1-yr	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
0"	0	12	19	23	27	32	36	41
+6"	6	18	25	29	33	38	42	47
+12"	12	24	31	35	39	44	48	53
+18"	18	30	37	41	45	50	54	59
+24"	24	36	43	47	51	56	60	65
+30"	30	42	49	53	57	62	66	71
+36"	36	48	55	59	63	68	72	77
+42"	42	54	61	65	69	74	78	83
+48"	48	60	67	71	75	80	84	89
+54"	54	66	73	77	81	86	90	95
+60"	60	72	79	83	87	92	96	101
+66"	66	78	85	89	93	98	102	107

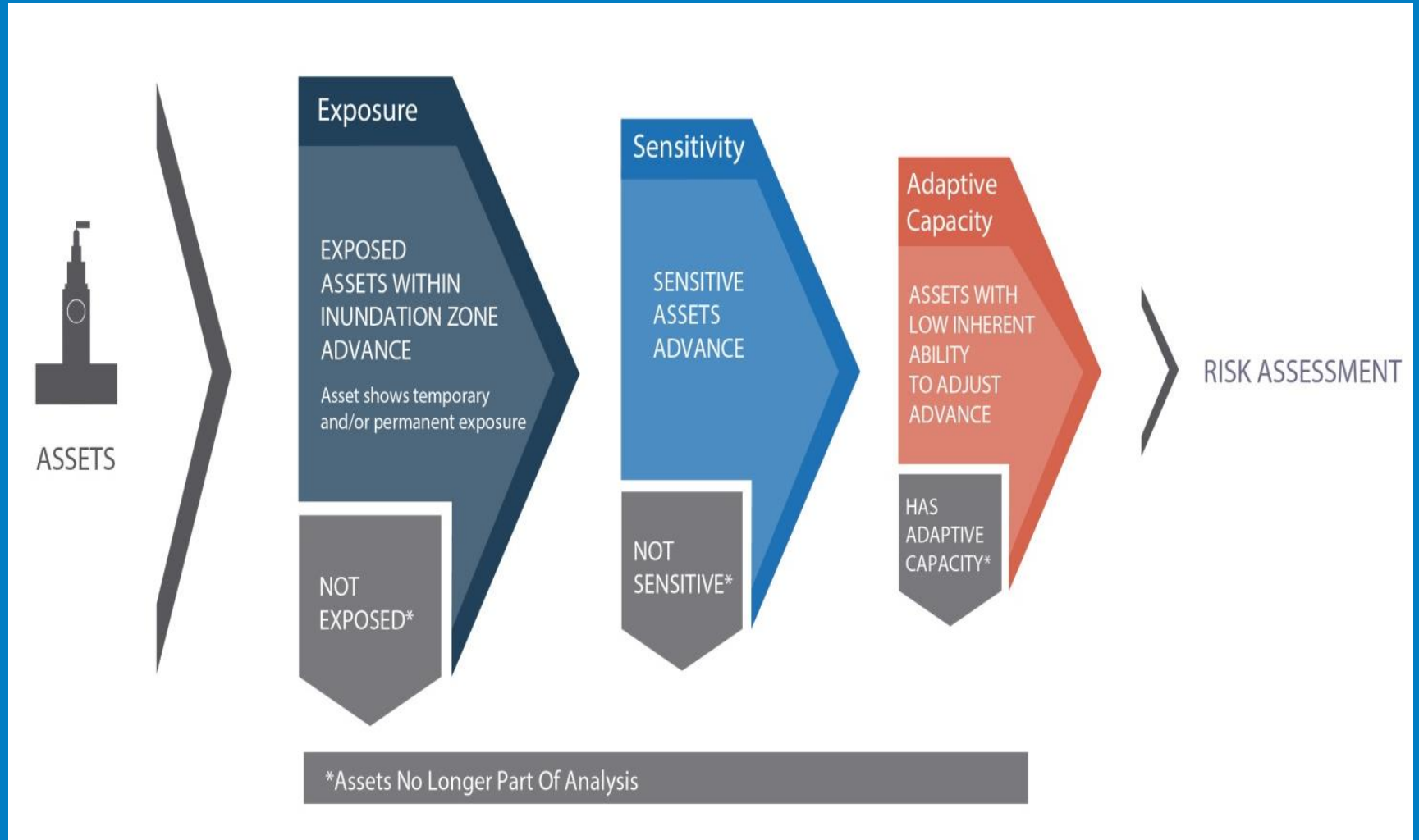


Overall Process (Figure 1 in Guidance)



* Not addressed in this guidance

Vulnerability Assessment Phase (Figure 3)





EDWIN M. LEE
Mayor

NAOMI KELLY
City Administrator

BRIAN STRONG
Director of Capital Planning



CAPITAL PLANNING PROGRAM



Guidance for Incorporating Sea Level Rise into Capital Planning in San Francisco DRAFT Sea Level Rise Checklist

This checklist is part of the SLR Guidance document, which should be used by CCSF departments to guide the evaluation of projects considered for funding through the CCSF capital planning process. This checklist should be filled out for projects near or within the SLR zone (see question 4).

1. Project Name: _____
2. Department's Project ID: _____
3. What is the project location? _____
4. The project is a capital project and located within the SLR zone [Note: a basic SLR Zone Map/weblink will be provided]. Yes No
If the answer to 4 is No, then the SLR checklist does not need to be filled out further, proceed to Section 3. If the answer is yes, please continue.
5. What is project elevation? _____
6. Type of asset or project proposed (e.g. building(s), roadway structure, utility structure, park, etc.):

7. What is potential maximum lifespan (functional working life)¹ of the project? _____ years

SECTION 1: Vulnerability Assessment for Potential Projects in the SLR inundation zone:

8. **Exposure** (see SLR Guidance for additional information):
 - a. Is the site currently subject to flooding during high tides/and or storms? Yes No
 - b. Using the SFPUC inundation zone maps or site-specific modeling, please assess if the project site, asset, or important supporting infrastructure is subject to inundation or temporary flooding during one of the mapped scenarios.
 Maps/ modeling used:
 - i. SFPUC Maps 2014
 - ii. Site Specific Modeling (please provide date and source of information)

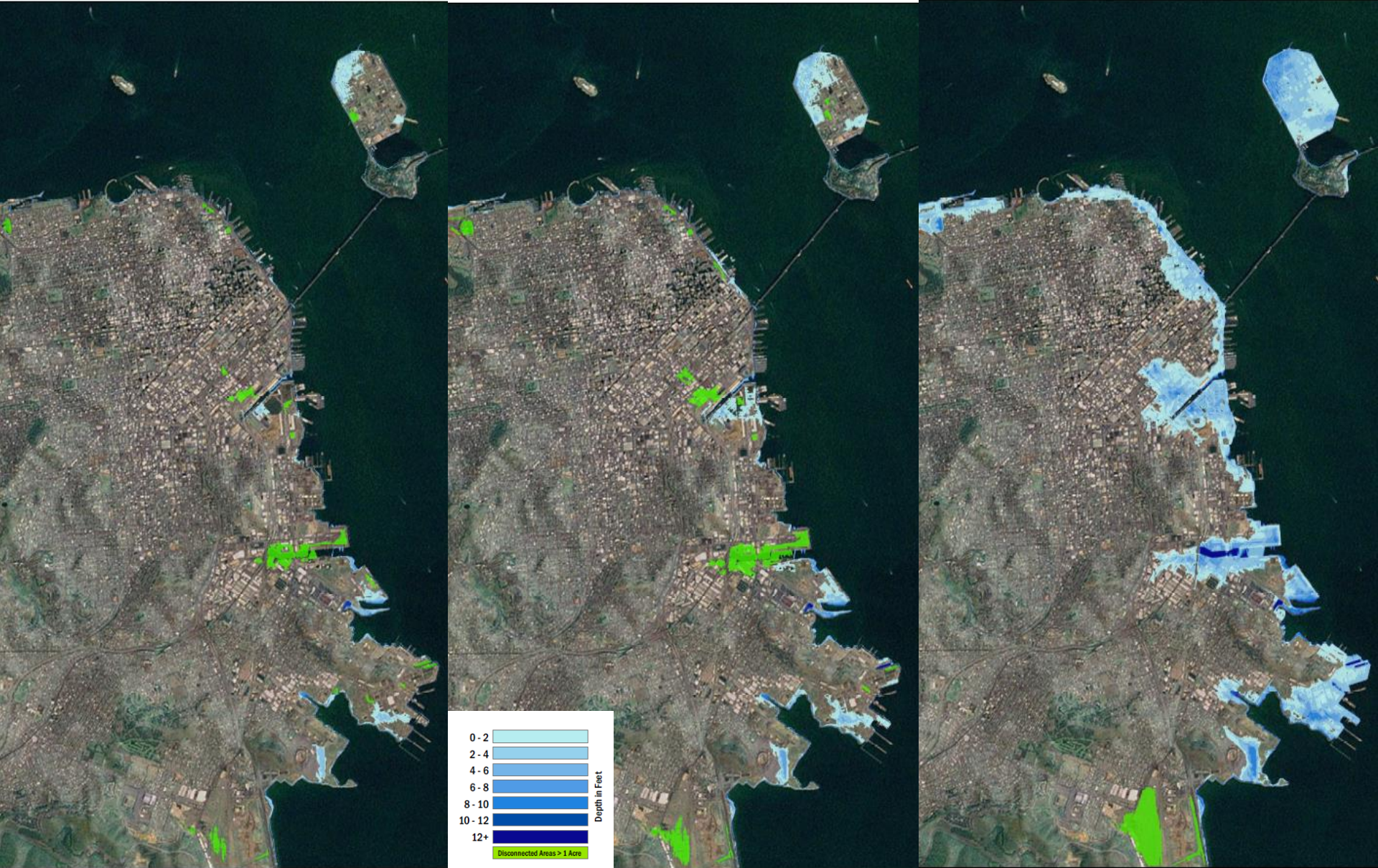
SLR Scenario	Storm Surge	Site is subject to temporary flooding	Site is subject to permanent inundation
MHHW + 0"	plus 100 yr storm surge	YES <input type="checkbox"/> NO <input type="checkbox"/>	
MHHW + 6"	plus 100 yr storm surge	YES <input type="checkbox"/> NO <input type="checkbox"/>	
MHHW + 12"	plus 100 yr storm surge	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>

2100 Most Likely SLR + Events

36" SLR

36" SLR + King Tide (48" total)

36" SLR + 100 year flood (77" total)





San Francisco Municipal Transportation Agency
**Framework for Incorporating Sea Level Rise (SLR)
 into SFMTA Planning Processes**

DRAFT, 11/14

