ONESF
Building Our Future

CAPITAL PLANNING PROGRAM

London Breed
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Guidance for Incorporating Sea Level Rise into Capital Planning in San Francisco
Sea Level Rise Checklist *(Version 2.0)*

This checklist should be used in conjunction with the SLR Guidance document ("Guidance") for use by City departments to guide the evaluation of capital planning projects in light of sea level rise.

Pre-Checklist check:

The checklist is only required if the following 3 conditions are ALL met. If the answer is 'No' to ANY of these questions, do not complete the SLR checklist at this time. The pre-checklist should be retained for your records.

1. **Project has a location identified** *(some projects are so early in planning that they do not yet have a specific location within CCSF)*   Yes   No

2. **Project is within the SLR Vulnerability Zone**   Yes   No
   (see the Supplementary Document "SLR Vulnerability Zone Map" at:
   http://onesanfrancisco.org/staff-resources/sea-level-rise-guidance/; contact Hemiar Alburati (hemiar.alburati@sfgov.org) to request a Geodatabase (GIS file) of the SLR Vulnerability Zone Map (overlaid on San Francisco base layers).

3. **Anticipated total project costs[1] equal or exceed 5 million dollars**   Yes   No

Only projects answering 'Yes' for questions 1, 2 AND 3 must complete the following checklist.
As noted above, if the answer to questions 1, 2 OR 3 is 'No', the SLR checklist does not need to be submitted. However, it is recommended that the project manager retain this document in their project records.

Preparer and Project Information

Department Name:	
Project Name:	
Project ID:	
Name of Project Mgr:	
Name of Preparer:	
Dept. Director:	
Date prepared:	

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[1] Project costs include planning, design, and construction costs.

Department Name: _____
Project ID (if available): _____*Date prepared:* _____

SLR checklist – only for projects meeting all 3 pre-checklist conditions above:

Project Information

1.	**What is the project location?** *(Please provide the street address or GIS coordinates):*
2.	**What type of asset or project is being proposed?** *(e.g., new construction, rehabilitation or modification of existing structure, building(s), roadway structure, utility structure, park, etc.):*
3.	**What is the remaining or potential future functional lifespan of the project?** *(The functional lifespan is the period for which a structure can still meet the purposes for which it was constructed. It refers to the time the asset may realistically be in use at this location, including routine repair and maintenance cycles. (See Guidance for more information).* **Construction completion year (past or planned): _____** **Remaining or potential functional lifespan in years:_____** **Please provide a brief explanation of how this number was derived:**
4.	**What is the planning horizon?** *(The construction completion year + functional life span = planning horizon year; e.g., 2017 construction completion year + 60 year functional life span = 2077.)* **Planning horizon year: _____**

Site Information
Past/Current

5.	**Has the site historically been flooded due to high tides/and or storms?** *(If yes, please describe conditions: e.g., King tide, storm surge, rainstorm event)* **Yes** **No** _____

6.	**What is the lowest ground elevation at your project location (in feet)?**
	 (Please select the elevation baseline used for all calculations (NAVD88 or City Datum).
	 This assessment is based on:
	      a) existing grade
	      b) proposed grade (e.g., with fill)
	      c) other*? (*If "other", please add explanation under Question 22.)
	
	 _____ft ☐ **NAVD88** ☐**City Datum**

7.	**What map/ modeling is used for this assessment?** ☐ SFPUC 2014 Maps and the Supplementary Document "Sea Level Rise Scenario Selection and Design Calculation" found at *http://onesanfrancisco.org/staff-resources/sea-level-rise-guidance/* ☐ Site Specific Modeling (*please provide date and source of information*): _____
8.	**What is the Mean Higher High Water (MHHW) elevation closest to your project location?** *(Use the data source in question 7; e.g., from Figure 1 in Supplementary Document cited in Question 7) or site-specific modeling).* **MHHW Elevation (year 2000):_____ft** ☐ **NAVD88** ☐**City Datum**

Department Name: _____
Project ID (if available): _____Date prepared: _____

9. **What is the 100-year extreme tide elevation (in feet) closest to your project location?**
(Use the Supplementary Document cited in Question 7 or site-specific modeling.)

   100-year extreme tide elevation (in feet):_____ft ☐ NAVD88 ☐ City Datum

10. **Is the project located within 100 ft of the shoreline?**
(If the project is located directly along the shoreline, the 100-year total water level -- which includes wave hazards at the shoreline -- must be considered.)

   Yes (Go to Question 11).   **No** (Go to Question 12).

11. **If the project is within 100 ft of the shoreline, what is your 100-year total water level elevation?**
(Use the Supplementary Document cited in Question 7 or site-specific modeling.)

   100-year total water level elevation (in feet): _____ft ☐ NAVD88 ☐ City Datum

SECTION 1 - Vulnerability Assessment for Potential Projects in the SLR Vulnerability Zone

A. Exposure (see SLR Guidance for additional information)**:**
Assess if the project site or asset could be subjected to sea level rise inundation, temporary coastal flooding, or wave hazards. Some fields below will auto-calculate based on the information entered.

Future Sea Level Rise Calculations

12. **Calculate projected sea level rise at the end of the planning horizon year _____ (from Question 4.)**
(If your project is within 500 feet of the shoreline, or if it provides a critical service for the City, please select RCP 8.5 for all following calculations. If RCP 4.5 is selected, please provide justification for this selection below.)

   RCP 4.5 a) _____ in inches and _____in feet -- likely value
   b) _____ in inches and _____in feet -- 1-in-200 chance value

   RCP 8.5 c) _____ in inches and _____in feet -- likely value
   d) _____ in inches and _____in feet -- 1-in-200 chance value

Assess Project Vulnerability to *Permanent Inundation* from Sea Level Rise

13. **Subtract MHHW (8) from the Project elevation (6)**

   Difference in feet: _____ft
   (If the answer is negative, the project is below MHHW and could be vulnerable today.)

   a) Is the project vulnerable to permanent inundation during the functional lifespan using <u>the likely SLR scenario</u>? *(Is the answer to Question 12a greater than the answer to Question 13?).*

   Yes: The project could be inundated by likely sea level rise and will require adaptation strategies.
   No: Not vulnerable.

   b) Is the project vulnerable to permanent inundation during the functional lifespan using <u>the 1-in-200 chance SLR scenario</u>? *(Is the answer to Question 12b is greater than the answer to Question 13).*

   Yes: The project could be inundated by 1-in-200 chance sea level rise and adaptation strategies are recommended.
   No: Not vulnerable.

Department Name: _____
Project ID (if available): _____*Date prepared:* _____

Assess Project Vulnerability to *Temporary Flooding* from 100-year Coastal Flood

14. Subtract 100-year extreme tide elevation (9) from the Project elevation (6):

Difference in feet: _____ ft

(If the answer is negative, the project could be vulnerable to temporary flooding by the 100-year extreme tide event today.)

a) Is the project vulnerable to temporary coastal flooding coupled with likely sea level rise during the functional lifespan? *(Is the answer to Question 14 less than the answer to Question 12a?)*

> **Yes**: The project could be inundated by a 100-year extreme tide coupled with likely sea level rise. Flood-proofing adaptation strategies may be required.
> **No**: Not vulnerable.

b) Is the project vulnerable to temporary coastal flooding coupled with 1-in-200 chance sea level rise?
(Is the answer to Question 14 less than the answer to Question 12b?)

> **Yes:** The project could be inundated by a 100-year extreme tide coupled with 1-in-200 chance sea level rise. Flood-proofing adaptation strategies are recomended.
> **No:** Not vulnerable.

15. For projects within 100 ft of the shoreline *(If project is not within 100 ft of the shoreline, go to Question 16.)*
Subtract 100-year total water elevation (11) from the Project elevation (6):
Difference in feet: _____ ft
(If the answer is negative, the project could be vulnerable to wave inundation if the 100-year total water level can overtop the adjacent shoreline under existing conditions.)

a) Is the project vulnerable to potential wave inundation with likely sea level rise during the functional functional lifespan? *(Is the answer to Question 15 less than the answer to Question 12a?)*

> **Yes**: The project could be inundated by wave hazards with likely sea level rise. Adaptation strategies may be required.
> **No**: Not vulnerable.

b) Is the project vulnerable to potential wave inundation with 1-in-200 chance sea level rise?
(Is the answer to Question 15 less than the answer to Question 12b?)

> **Yes:** The project could be inundated by wave hazards with 1-in-200 chance sea level rise. Adaptation strategies are recommended.
> **No:** Not vulnerable.

B. Sensitivity (see SLR Guidance for definition):

16. Is the project/asset(s) sensitive to inundation (i.e., is it physically or functionally impaired if it gets wet?)

Low Sensitivity: sea level rise and temporary flooding would have little or impact on the project asset(s) physically or functionally.

Moderate Sensitivity: sea level rise and temporary flooding would have an impact on the project/ assets(s) physically or functionally, but the project would recover quickly one floodwaters subside. The project would retain partial function while inundated.

High Sensitivity: sea level rise and storm surge inundation have a significant influence on the project/asset(s) physically or functionally, and the project would not recover quickly once floodwaters subside. The project would lose major function while inundated.

Please explain briefly*:

(If more space is required, please provide on separate page)

C. Adaptive Capacity (see SLR Guidance for definition):

17. Does the project/asset(s) have adaptive capacity (i.e., can it easily be adapted to mitigate potential damage or functional impairment, or does it have redundancy to minimize potential consequences?)

High Adaptive Capacity: Project/asset(s) has little inherent capacity to adapt to future inundation or flooding without additional capital investments.

Moderate Adaptive Capacity: Project/asset(s) has some inherent capacity to adapt to inundation or flooding without additional capital investments (e.g., the project includes redundancy, or a reasonable alternate route is available).

High Adaptive Capacity: Project/asset(s) has substantial capacity to adapt to inundation or flooding without additional capital investments (e.g., the ability to adapt to higher sea level rise has been designed into the project, such as automatic flood barriers on doorways).

Please explain briefly*:

(If more space is required, please provide on separate page).

Department Name: _____

Project ID (if available): _____Date prepared: _____

SECTION 2 – Risk Assessment for Projects identified as vulnerable to sea level rise or temporary coastal flooding.

18. What is the anticipated level of **DAMAGE** to the project/ asset(s)?

Low Damage: Asset(s) could be repaired/ partially replaced
Moderate Damage: Asset(s) would require complete replacement or very costly repairs
High Damage: Asset(s) would not repairable or replaceable in the existing location
Unknown

Please explain briefly*:

19. What is the level of **DISRUPTION**?

Low: no or little disruption in service or function
Moderate: disruption in service or function that doesn't threaten public health & safety (non-critical)
High: disruption of service and/or function that threatens public health & safety (critical)
Unknown

Please explain briefly*:

20. What are the **COSTS** (to replace/repair or for health & safety)?

Low: no or little cost to return asset(s) or minor secondary service disruption costs
Moderate: moderate costs to repair/ replace asset(s)
High: high costs to fully replace asset(s) in new location and/ or high secondary costs attributed to asset being out of service
Unknown

Please explain briefly*:

If all answers to Section 2, Questions 18, 19, and 20 are Low, project likely has sufficient adaptation planning. If any answers are Medium, additional adaptation planning may be required. If any answers are High, alternatives should be considered.

21. Please briefly summarize sea level rise adaptation measures associated with this project or program*:

22. Additional Comments*:

(If more space is required, please provide on separate page)

Department Name: _____

Project ID (if available): _____*Date prepared:* _____

SECTION 3 – Department Certification Submittal

(This section is for the Dept's Director and Deputy Director level only. Please submit signed copy to the Capital Planning Program for processing.)

_____ (Dept Name) certifies that the information provided herein is complete and is consistent with CCSF Sea Level Rise Guidance.

Dept. Director: _____

Signature[2]: _____ Date: _____

SECTION 4 – Capital Planning Committee

(This section is for City Engineer, Capital Planning Committee, or Designee completion only.)

This project is certified as consistent with the CCSF Sea Level Rise Guidance and
_____ will not be exposed to expected sea level rise and related flooding impacts during its functional lifespan
_____ is exposed but is not vulnerable due to low sensitivity or high adaptive capacity
_____ is exposed, is vulnerable, but includes sufficient adaptation planning to address sea level rise
_____ will require additional adaptation planning

Comments: _____

City Engineer Name (please type/print): _____

Signature[2]: _____ Date:_____

Capital Planning Committee Chair Name (please type/print):_____

Signature[2]: _____ Date:_____

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[2] *(Digital Signatures are preferred; if this file needs to be printed and scanned for signatures, please ensure high resolution document print and scan for legibility. Thank you.)*

Department Name: _____
Project ID (if available): _____ *Date prepared:* _____