



Appendix C

Asset Questionnaire Example - Wastewater Treatment Plant

SAN MATEO COUNTY SEA LEVEL RISE VULNERABILITY ASSESSMENT Asset Questionnaire

Asset Name:

Asset Type: Wastewater Treatment Plant

Thank you for participating in San Mateo County's Sea Level Rise Vulnerability Assessment. As an asset manager, owner, or subject matter expert, your responses to this questionnaire provides the County with critical insight on the specific vulnerabilities to and potential consequences of present day and future hazards (such as flooding or erosion) due to sea level rise. The information you provide will support the development of an Asset Vulnerability Profile that describes the exposure, sensitivity, and adaptive capacity of this facility and others like it.

INSTRUCTIONS

Please fill out the questionnaire below and answer all of the questions to the best of your ability. This should take approximately 1-2 hours. Once completed, please return the survey via email to Hilary Papendick. If you have any questions while filling out the questionnaire please do not hesitate to contact Hilary Papendick by phone or email.

Disclaimer: No information from this questionnaire will be published or released without prior review and approval by the asset owner or operator. However, please indicate if any of the information you share below is sensitive or confidential. For more information, or if you have questions about how information from this questionnaire will be used in the County's Vulnerability Assessment, please contact Hilary Papendick.

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FACILITY FUNCTION AND SERVICE

1. **Briefly describe the function of the facility and type of wastewater treated.**
(industrial, residential, commercial)

2. **Please describe the service area, jurisdiction, and population served by the facility.**

Service area:

Jurisdiction(s):

Population served (# of people):

3.
 - a) **What is the level of use or capacity of the facility?** *(i.e., average treatment in MGD)*

 - b) **Is the facility functioning at capacity, or is there additional capacity to meet future conditions?** *(Yes/no)*

4.
 - a) **How many staff or other individuals are on site during the day?**

 - b) **At night?**

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FACILITY CHARACTERISTICS AND EXISTING CONDITIONS

5. a) What year was this facility built and what is its expected remaining service life?

Year built:

Remaining service life (in years):

b) When and what was the last major repair or improvement?

Year:

Improvement/repair:

6. What is the ground floor elevation (in feet) of the facility? (provide datum if known)

7. a) Please identify the major components of this facility (i.e., screen buildings, pump stations, substations, etc.). Please provide the elevation and building material of each major component if known.

<i>Component and Description</i>	<i>Elevation</i>	<i>Building Material</i>

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- b) Which of the above are *essential** components or are interdependent?**
*(*Essential components are those that are required for maintaining the level of service; loss of essential components may impact other parts of the facility and ultimately disrupt the level of service; i.e., conveyance and collection system into plant or treatment bypass; conveyance through the plant or disinfection; primary/secondary treatment; etc.)*

Essential components:

Please explain any interdependencies:

- 8. What additional external services, assets, or materials does the facility rely on? (Such as power/fuel/materials/supply chain issues, and/or any nearby assets or roads etc.) Explain, or write "none."**

- 9. Briefly describe the power supply and backup power supply to the facility.**

Power Supply:

Backup Power Supply:

- 10. How large is the facility/asset site? (Square feet)**

- 11. What is the general condition of facility? (Check one)**

(1) *Newly Constructed* (2) *Excellent* (3) *Good* (4) *Fair* (5) *Poor*

- 12. Does the facility have any special historical or cultural designation? If yes, please explain.**

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13. **What is the most recent valuation of the facility** (and its components, if applicable)?

Facility:

Other Components:

Source and year of valuation:

COASTAL HAZARD EXPOSURE AND PHYSICAL VULNERABILITIES

Consider the following coastal hazards and exposures that are associated with sea level rise when completing this section. If your facility has previously experienced any coastal flooding or related hazards, please answer the following questions based on what happened. If your facility has not experienced any of the following hazards, please answer to the best of your ability based on what you think could reasonably happen if the following hazards were to occur.

- Rising water table
- Temporary flooding
- Wave impacts
- Beach/cliff erosion
- Saltwater intrusion
- Permanent flooding
- High winds impacts

14. **a) Has this facility or site experienced any flooding or disruption from any other coastal hazard in the past?** *(Yes/no)*

b) If yes, please describe the following.

What happened?

When?

c) How did flood water enter the site? *How might floodwater enter the facility/site?*

d) If known, how deep/high was the floodwater? *(Height of water if possible; otherwise, relative to some landmark, i.e., top of doorway)*

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- 15. Which components from question 14 were flooded? If never flooded, which components might you expect to be flooded/affected by another coastal hazard?**
- 16. If flooded, did/would water drain from the site, or did/would it have to be pumped from the facility? (Yes/no)**
- 17. If known, please identify any additional site vulnerabilities or pathways for floodwaters. (not mentioned in Question 14c above)**
- 18. a) Does the facility have openings at-grade or below-grade that are entry points for coastal flooding or saltwater intrusion? (Yes/no)**
- b) Are there other ways might it be possible for this asset or its essential components to be affected by flooding or other coastal hazards? (i.e., creek overflow, stormwater backup, sewage back-up etc. Yes/no)**
- 19. a) Please share any relevant information related to groundwater at your facility; or, write “does not apply.” (i.e., has groundwater ever been the source of flooding? Are there concerns about contaminants from this facility getting into the groundwater?)**
- b) Are there any systems in place to keep water away from below-grade systems, basements, and foundations? (Yes/no)**
- c) If yes, would systems have adequate capacity to remove additional groundwater if levels increase? (Yes/no)**
- 20. Have there been locally observed changes in land elevation? If yes, describe location, degree subsidence or uplift, and timeframe over which it occurred.**

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POTENTIAL IMPACTS FROM COASTAL FLOODING AND OTHER HAZARDS RELATED TO SEA LEVEL RISE

Consider the following coastal hazards and exposures that are associated with sea level rise when completing this section. If your facility has previously experienced the effects from any coastal hazards, please answer the questions based on what happened. If your facility has not previously experienced coastal flooding or related hazards, please answer to the best of your ability based on either some prior disruption, or on what could reasonably occur in the future as a result from the hazards below.

- Rising water table
- Temporary flooding
- Wave impacts
- Beach/cliff erosion
- Saltwater intrusion
- Permanent flooding
- High winds impacts

21. What is your primary concern related to sea level rise and this facility?

22. a) Has facility been disrupted in the past due to any unplanned event? (i.e., flood, weather-related closure, emergency repair or improvement, or other event, etc. Yes/no)

If yes, when did this event occur and what happened? (If this is the same event described in Question 14 above, please write "same event")

How long did disruption last?

b) What types of damages or consequences were caused or, what types of damages might be caused? If possible, please quantify.

23. a) If the facility experienced or were to experience any of the above hazards, did/could it perform its primary function? (Yes/no)

b) Was there (would there be) an impact on the level of service? (Yes/no)

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- c) If yes, for how long? Please check one and explain if necessary.**
- (i) Maintained with minimal disruption
 - (ii) Use of facility is maintained, but ingress or egress is lost; costs are limited to emergency protective measures only
 - (iii) Use of facility or service is lost and restored within 24 hours
 - (iv) Use of facility or service is lost and inoperable for 1-7 day
 - (v) Use of facility/service is lost and inoperable for 7 days or more *Please provide details as necessary.*
- d) If the facility were disrupted for any reason, please describe the previously experienced or potential consequences from partial or complete loss of service.**
- e) Were (or could there be) other assets or systems at risk due to a loss of service of this facility? If yes, please list and provide details.**
- f) If known, roughly how much revenue (in dollars) was/would be lost per day?**
- g) How many people were/(would you expect) to be affected? (number of employees, customers, etc.)**
- h) Were there (could there be) any injuries? If yes, how many?**

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- i) If the facility or its site experienced flooding, would vehicle or foot access to the facility/site be limited/restricted? (Yes/no)**
- j) Is there a potential for impacts to water quality if the facility were damaged, disrupted, or failed? (e.g., release of pollutants to nearby waters, release of hazardous materials stored on site) Please explain.**
- k) Please list/describe any other damages, if any, that could/did occur to the immediate surroundings or to the community due to flooding or a loss of service (i.e., injuries, fatalities, or other cascading impacts; such as impacts to power supply that may damage electrical components and result in power loss to facility; fuel shortage jeopardizing ability to operate generators over extended period of time, then causing impairment in removing influent wastewater from collection system, etc...)**
- l) If known, how were any vulnerable populations affected (could any vulnerable populations be affected) as a result of this facility being flooded, or out of service from a coastal hazard? (Yes/no/unknown) Please explain.**
- m) How much would it cost to repair or replace this facility if it were significantly-damaged? If this facility has been exposed to flooding or other coastal hazard in the past, how much did it cost to repair/replace? (Please provide a dollar range if you know it; if you do not know, or if your facility has never been damaged, then please state the price per square foot of your facility)**

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COASTAL HAZARD MITIGATION AND RISK REDUCTION

24. a) Is there a backup system or backup facility available to maintain function/level of service if this facility were disrupted for any reason? *(Yes/no)*
- b) If yes, is that asset also vulnerable to flooding?
- c) If yes, what percentage of customers does the backup facility serve?
- d) What is the cost to operate the back-up system? *(per day, customer, etc.)*

25. Are there any emergency response, or flood mitigation measures in place in order to maintain the asset's function/level of service, or to minimize damage in the event of a flood or other disruption? If your facility experienced flooding in the past, were there measures in place? *(i.e., components flood-proofed, barriers to water entry-points, sand bags, critical equipment stored at higher elevation, etc.) Please explain.*

26. Are there any future improvements, capital investments, mitigation, or proposed developments/modifications to the facility or to the site? *If yes, please explain.*

If yes, do future plans consider sea level rise? How? Are there any related planning documents you could share with us?

27. Does this facility or any of its components on the site carry flood insurance? *(Yes/no)*

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FACILITY MANAGEMENT

28. a) **Who owns and manages this facility?** *Please note if owner and manager are different.*
- b) **If facility owner and manager are different, what is the relationship between them?** *(i.e., a legal agreement: lease, right-of-way, access easement, JPA, MOU, MOA)*
29. **Are there any other organizations or stakeholders that have management, decision-making, funding, or other responsibilities related to this facility?** *If so, what are they?*
30. **What are the total annual operation and maintenance costs of the facility?**
31. **What types of permits (and from which agencies) are necessary to maintain, repair, or improve the facility? Are there special processes for emergency repairs?**
32. **Please describe any management or permitting challenges that might be expected with adaptation.** *(i.e., building codes not up to date, endangered species, angry neighbors, etc.)*
33. **Are there any other stakeholders we should know about who may be concerned with this facility?** *If yes, please list.*
34. **If known, what funding sources currently exist that may be used to assess hazard risk or vulnerability to climate change?**

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ANYTHING ELSE

Is there anything else you would like to share about the impacts from coastal flooding and sea level rise to your facility?

Draft

DOCUMENTATION

If available, please provide any/all of the following:

- Photos of asset and its critical elements
- Documentation or photos of previous flooding
- Site plans (*structure locations, sizing, interconnections between structures*)

Thank you very much for your participation and involvement in our ongoing vulnerability assessment.