

5. Alternatives to the Proposed Project

5.1 Introduction

This chapter presents the alternatives analysis for the project. Section 15126.6(a) of the CEQA Guidelines requires EIRs to “describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason.” Section 15126.6(b) of the CEQA Guidelines also identifies the purpose of an EIR’s discussion and analysis of project alternatives which is to identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.

5.2 Identifying Project Alternatives

A Planning and Design Study prepared for the project reported most of the existing septic systems are aging and are poorly suited for the soil and groundwater conditions that exist on the peninsula. Preventative maintenance is uncommon and failing systems are rarely identified until surface seepage is reported to the HCDEH. The North Coast Regional Water Quality Control Board (NCRWQCB) staff has raised concerns prior to and during the preparation of the *Samoa Peninsula Wastewater Project Planning and Design Study* (Preliminary Engineering Report) (GHD/SHN 2018), about the impacts to groundwater quality from continued use and potential future failure of existing private septic systems within Samoa Peninsula. Therefore, the project is considered to be a long-term measure to protect public health.

The Preliminary Engineering Report was prepared to evaluate the potential wastewater collection systems, treatment systems, and disposal options for the town of Samoa, Fairhaven, and Finntown. The main focus of the Preliminary Engineering Report was to evaluate the opportunities, identify approaches to address the constraints, and ultimately determine the path of future wastewater development on the Samoa Peninsula (GHD/SHN 2018). In addition, the report reviews potential alternatives for collection, treatment, and disposal systems. The alternatives identified by the Preliminary Engineering Report, but not carried forward are described in further detail in Section 5.6 below. In summary, alternative collection, treatment, and disposal systems were rejected due to fiscal, feasibility, or environmental impact reasons.

Regarding the location of the proposed Samoa Peninsula wastewater treatment improvements, seven sites were considered and were compared based on the constraints that the site: be zoned Public Facility or Industrial General, minimize impacts to environmentally sensitive habitat areas (ESHA), is available for purchase or lease for the lifetime of the project, minimize operational costs,

have approximately three acres of available space, and is placed north of Fairhaven to allow for potential use of the RMT II ocean outfall. For reasons described in Section 5.6, five of the sites reviewed were not carried forward.

Given the above, there are two remaining potential areas for a treatment site are: 1) the Approved Samoa WWTF within the STMP (proposed project), or 2) at the RMT II site (APN 401-112-21) currently zoned Industrial Coastal Dependent.

The alternatives analyzed in this chapter, in addition to the proposed project, include the No Project Alternative and the RTM II Site Alternative. The environmentally superior alternative is described in Section 5.5, and alternatives which were considered but were not carried forward are described in Section 5.6.

5.3 Description of Alternatives

5.3.1 Alternative 1: No Project Alternative

The CEQA Guidelines require that the alternatives be compared to the proposed project's environmental impacts and that the "no project" alternative be considered (Section 15126.6[d][e]). CEQA Guidelines Section 15126.6(e)(1) states that the purpose of describing and analyzing the no project alternative is "to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project." The no project analysis is required to "discuss the existing conditions at the time the notice of preparation is published...as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services (Section 15126.6[e][2]). The discussion would compare the environmental effects of the project site remaining in its existing state against environmental effects which would occur if the project is approved. In certain instances, the no project alternative means "no build" wherein the existing environmental setting is maintained. This would be the case for the proposed project. Under the No Project Alternative, the existing residences, recreational uses, and industrial uses within the PCSD, excluding the STMP area, would continue to be on individual septic systems and leachfields.

None of the short-term construction impacts or long-term operational impacts described in Chapter 4.0, Environmental Analysis, of this EIR would occur. The No Project Alternative would not result in the short-term construction period impacts associated with air quality, biological, cultural and tribal resources, hazardous materials, and hydrology and water quality. Operational impacts associated with operational noise would also be eliminated.

However, there are also negative environmental impacts that would occur under the No Project Alternative. The NCRWQCB has raised concerns about the impacts to groundwater quality from the existing system and would like to see an upgraded system in place. Under the No Project Alternative, the aging septic systems in the project area would likely continue to degrade, impacting ground and surface water quality in the area, negatively affecting public health and the environment, and limiting future residential and commercial development.

5.3.2 Alternative 2: RMT II Site Alternative

Under Alternative 2, the project WWTF improvements would be constructed at the RMT II site instead of the Approved Samoa WWTF site. The RMT II site is located on an approximately 0.5-acre portion of APN 401-112-021 east of Vance Avenue and adjacent to the ocean outfall connection at Manhole

5. The Alternative 2 wastewater treatment improvements would be the same as described in Section 3.5.3, except that Alternative 2 would require construction of a headworks and primary treatment system of screening and grit removal (the proposed project would utilize the Approved Samoa WWTF headworks and primary treatment system). The long-Term Phase, as described in chapter 3.0 Project Description would be the same under Alternative 2. Alternative 2 would satisfy all objectives except the project objective of consolidating wastewater collection and treatment services within the PCSD service area or minimizing project costs by improving the Approved Samoa WWTF.

The location and type of conveyance and disposal improvements would remain as described in Chapter 3 Project Description. The Alternative 2 site is currently zoned Industrial Coastal Dependent which does not allow public facilities. Therefore, this alternative would require a rezone to Industrial General. There is adequate of previously disturbed (i.e., non-ESHA) land available for purchase or lease at the RMT II site. Under Alternative 2 the wetlands at the Approved Samoa WWTF site would not be filled and, therefore, Alternative 2 would not require a Section 404 Permit from the U.S. Army Corps of Engineers. It is currently unknown if a Section 401 Water Quality Certification from North Coast Regional Water Quality Control Board would be required. Alternative 2 would require the following permits, which are also required of the proposed project:

- Certify Humboldt Bay Area Plan amendments by the California Coastal Commission
- Coastal Development Permit by the California Coastal Commission
- Encroachment Permits by Humboldt County
- Grading Permit by Humboldt County
- Construction General Permit by the State Water Resources Control Board
- NPDES Report of Waste Discharge
- Lease by the California State Lands Commission

Because Alternative 2 differs from the project only in the location and extent of the WWTF improvements, the follow analysis focuses on the change from locating the proposed WWTF improvements from the Approved Samoa WWTF site to the RMT II site.

Aesthetics

Alternative 2 would locate the WWTF improvements in an industrial area similar to the Approved Samoa WWTF site. In addition, as with the Samoa Approved WWTF site, the RMT II site would be screened with fencing. The view of the improvements would be the same in both places, and in the case of the RMT II site blend with existing industrial uses. As with the proposed project, the collection system and disposal system would be constructed within existing roadways. Similarly, the pump stations would be constructed below ground surface, each with an approximately 8-foot by 12-foot building near the pump station to house an emergency generator, the power service, and control panel.

Air Quality

The air quality impacts associated with construction of Alternative 2 would generally be similar to the proposed project for both air pollutants and air contaminants, as approximately the same construction effort would be put into each. The operational air quality impacts with this alternative would also be approximately the same as the proposed project because of the similarity in operations. As with the

proposed project, Mitigation Measure AQ-1 Implement Air Quality Construction Control Measures would be required.

Biological Resources

Alternative 2 would have less impacts on biological resources than the proposed project, including no wetland fill. Both alternatives would entail trenching in the same areas for construction of the collection system. However, construction at the RMT II site would occur at a highly disturbed industrial location and the site is assumed to contain fewer biological resources that would be impacted by project construction. As with the proposed project, Mitigation Measures BIO-1a, Bio-1b, BIO-2a, Bio-2b, and HWQ-1 would be required to protect biological resources during construction. However, Mitigation Measures Bio-3a and Bio-3b, related to protection of wetlands and creating compensatory mitigation wetlands, would not be required.

Cultural and Tribal Cultural Resources

The potential impacts on cultural and tribal cultural resources with Alternative 2 would be similar or less than those of the proposed project. The Alternative 2 collection system would be similar to the proposed project, except for the alignment portion along the northernmost portion of Vance Avenue, which would not be required under Alternative 2. Additionally, the disposal system would be shorter as the site is adjacent to manhole 5, where the project would tie in to the existing ocean outfall. Therefore, Alternative 2 would not have potential construction-period impacts to cultural and tribal cultural resources at the northern portion of Vance Avenue or within the Approved Samoa WWTF. As with the proposed project, Mitigation Measures CTR-1, CTR-2, CTR-3, CTR-4, and CTR-5 to reduce impacts to cultural and tribal resources would be required.

Geology and Soils

Alternative 2 would require excavation, backfilling, and structures to be built in the same areas as the proposed project. With the two alternatives being constructed in a similar manner in the same soils, the construction of Alternative 2 would be expected to result in the same potential seismic and erosion hazards that would be anticipated with construction of the proposed project. As with the proposed project, Mitigation Measure GEO-2, Reduce Geologic Hazards through Design and Construction, would be required.

Greenhouse Gas Emissions

During construction, this alternative would have similar GHG emissions as the proposed project. Construction efforts would be approximately equal, and the same equipment would be used for each alternative.

Operation of this alternative would result in slightly less GHG emissions as the proposed project. The operational parameters and energy consumption of pumps and the wastewater treatment plant would be the same as under the proposed project. The pumping of raw or treated effluent would be slightly less than under the proposed project because the Alternative 2 wastewater treatment improvements would be closer to the ocean outfall.

Hazards and Hazardous Materials

Alternative 2 would include the same uses on the same scale as the proposed project. Therefore, this alternative would generally have the same potential hazards and hazardous materials impacts as the proposed project. As with the proposed project, Mitigation Measure HAZ-3, Soil and Groundwater Management during Construction, would be required.

Hydrology and Water Quality

Because Alternative 2 would generally have the same construction footprint as the proposed project (except for the wastewater treatment facility sites), they would both have similar impacts on stormwater runoff and erosion. The collection system piping would generally be placed within existing roadways, so there would be minimal impacts on hydrology and water quality within the Samoa Peninsula. The wastewater treatment improvements at the RMT II site would create slightly more area of additional impervious surfaces and would retain stormwater on site. Both the proposed project and Alternative 2 would use the existing ocean outfall for treated effluent disposal, and would have similar water quality impacts to the Pacific Ocean.

Land Use and Planning

The land use and planning implications, with regard to physically dividing a community and habitat conservation plans, of Alternative 2 would be the same as those described for the proposed project. The RMT II site is currently zoned Industrial Coastal Dependent. Development of the site would require a zone change. It is assumed that a zone change would occur prior to, or as part of, Alternative 2; therefore, the land use and planning impacts for Alternative 2 would be similar to the proposed.

Noise

Similar to the proposed project, development of this alternative would generate construction noise associated with the use of heavy equipment for demolition, site grading and excavation, installation of utilities, paving, and building fabrication.

Under the proposed project, there would be noise generated at the wastewater treatment plant from pumps and the operation of equipment necessary for hauling away dried solids on a regular basis. This would take place approximately 1,000 feet from existing residences. Conversely, Alternative 2 would generate the same operational noise, but at a greater distance from existing residences, thus having less effects on noise sensitive receptors in the project area. As with the proposed project, Mitigation Measure NOI-1 Noise Attenuation Design for Pump Stations would be required to reduce operational noise from pump stations.

Population and Housing

The potential for direct impacts related to population and housing for Alternative 2 would be limited to the short-term increase in employees required to construct the project, which would be similar to that of the proposed project. No new employees would be needed under Alternative 2, same as the proposed project. The service population and assumed infill development parameters for Alternative 2 would be the same as the proposed project, as provided in Section 3.5.1.

Public Services and Recreation

As with the proposed project, Alternative 2 would not result in any new need for additional or altered public/government facilities and services. Impacts would be similar to the proposed project. Similarly, Alternative 2 would not significantly impact recreational resources within the project area.

Transportation

Transportation impacts associated with this alternative would be similar to those of the proposed project. During construction, Alternative 2 and the proposed project would both have minimal traffic impacts in the Samoa Peninsula area. Construction activities for each alternative would impact the same areas, with the exception of the wastewater treatment improvements which would be located at RMT II with Alternative 2. Operationally, the impacts of either alternative on transportation would be minimal.

Utilities and Service Systems

Alternative 2 would cause similar utilities impacts as the proposed project because the function and operation of the WWTF would be the same as the proposed project.

5.4 Comparison of Alternatives Analyzed

Table 5-1 summarizes the environmental advantages and disadvantages associated with the proposed project and the alternatives analyzed above. CEQA Guidelines Section 15126.6(e)(2) states that if the environmentally superior alternative is the No Project Alternative, then the EIR shall also identify an environmentally superior alternative from among the other alternatives.

Table 5-1 Comparison of Alternatives

| Resource Category | Alternative 1 No Project Alternative | Alternative 2 RMT II Site Alternative |
|---|--|---|
| Aesthetics | Less | Equal |
| Air Quality | Less | Equal |
| Biological Resources | Less | Less |
| Cultural and Tribal Cultural Resources | Less | Less |
| Geology and Soils | Less | Equal |
| Greenhouse Gas Emissions | Less | Less |
| Hazards and Hazardous Materials | Less | Equal |
| Hydrology and Water Quality | More | More |
| Land Use and Planning | Less | Equal |
| Noise | Less | Less |
| Population and Housing | Less | Equal |
| Public Services and Recreation | Less | Equal |
| Transportation and Traffic | Less | Equal |

| Resource Category | Alternative 1 No Project Alternative | Alternative 2 RMT II Site Alternative |
|--------------------------------------|--|---|
| Utilities and Service Systems | Less | Equal |

Notes: “Less“ indicates an impact that is less than the proposed project (environmentally superior)
 “More” indicates an impact that is greater than the proposed project (environmentally inferior)
 “Equal” indicates an impact that is equal to the proposed project (neither environmentally superior nor inferior)

5.5 Environmentally Superior Alternative

CEQA Guidelines Section 15126.6(e)(2) states that if the environmentally superior alternative is the No-Project Alternative, then the EIR shall also identify an environmentally superior alternative from among the other alternatives. The No Project Alternative would have the least impacts; however, it would fail to meet the project objectives of providing sewerage service to the service area, and reducing and avoiding degradation of groundwater quality. The No Project Alternative would require the existing conditions to continue, which pose a potential risk to groundwater quality from continued use and potential future failure of existing private septic systems within Samoa Peninsula.

Accordingly, based on the analysis presented above, Alternative 2 would be considered the Environmentally Superior Alternative, as it would satisfy the project objectives of providing wastewater treatment for structures in Fairhaven, Finntown and other areas of the Samoa Peninsula, and reducing and avoiding degradation of groundwater and surface water quality. Alternative 2 would not satisfy the project objective of consolidating wastewater collection and treatment services within the PCSD service area or minimizing project costs by improving the approved Samoa WWTF.

5.6 Alternatives Considered but Rejected

Section 15126.6(c) of the State CEQA Guidelines requires EIRs to identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process, and briefly explain the reasons underlying the lead agency’s determination.

There are four main components that are involved in a new central wastewater system: the collection system, treatment system, disposal system, and solids handling. The following alternatives were identified during the early planning phases of the project and during project scoping. The lead agency has considered the following alternatives and rejected them for the reasons described below.

5.6.1 Alternative Locations

In accordance with CEQA Guidelines Section 15126.6(f)(2) Alternative Locations, research was conducted to determine if suitable alternative locations are available nearby. The sites needed to be zoned Public Facility or Industrial General, minimally impact ESHAs, be available for purchase or lease for the lifetime of the project, minimize operational costs, have approximately 3 acres of available space, and be north of Fairhaven to facilitate use of the RMT II ocean outfall.

Seven sites were considered for placement of the wastewater treatment plant, including the proposed site. The southernmost site is the easiest to purchase as it is already owned by the Samoa Peninsula Fire District, but it would be difficult and costly to permit as there are known ESHA on site and it is located immediately adjacent to Fairhaven, which would likely lead to public opposition due to perceived odor issues. Three of the remaining four sites would also be difficult and costly to permit

as there are known ESHAs on the sites. The final alternative site is owned by Security National, Inc. The site has been previously used as a soil storage location. Security National has stated that they would consider the long-term lease of this site for use as a wastewater treatment plant, but they likely would not sell the land to the District (GHD/SHN 2018). Finally, a potential site at the RMT II located west of the Alternative 2 site is zoned appropriately as Industrial General, but the site is on an ash landfill and near both overhead PG&E power lines and underground municipal water lines, making this a poor site choice.

Given the current peninsula zoning, presence of ESHA across the undeveloped portions of the peninsula, purchase options, and poor site conditions, the five disposal location alternatives discussed above were not analyzed further (GHD/SHN 2018).

5.6.2 Collection System Alternatives

Gravity system (proposed project) and pressure network collection system alternatives for the residential areas of Fairhaven and Finntown were considered. The pressure network collection system was rejected as described below.

Pressure Sewer

A pressure system would eliminate the need for deeper trenching to accommodate sloped gravity pipes, reducing the overall depth of the pipe network to approximately 5 feet. Because a pressure sewer is not dependent on pipe slope to maintain proper flows, the risk of system upset or failure during an earthquake is less than for a traditional gravity system. Pressure sewers also consist of water-tight pipe connections, reducing the potential for exfiltration and groundwater pollution, while virtually eliminating groundwater infiltration. There are two options for a pressurized sewer system: septic tank effluent pump (STEP) and grinder pump (GP).

STEP systems include septic tanks that receive residential wastewater, settle out solids, and then pump the liquid into a pressurized sewer pipe. STEP systems significantly reduce solids and biochemical oxygen demand (BOD) loading to a WWTF by removing primary solids prior to pumping supernatant to the WWTF. Sludge accumulated in each septic tank needs to be removed periodically and disposed of. The cost of pumping septic tanks may be offset by reducing the costs of treatment at the centralized WWTF. The condition of the septic tanks on the peninsula is unclear, however, it is assumed that the majority of the existing tanks would need to be replaced to eliminate potential contamination of groundwater from failing systems. A STEP system could consist of individual septic tanks at each residence, or larger septic tanks that serve multiple homes.

The pressurized system within the residential areas option was rejected due to high annual operation and maintenance costs for the pressurized system, which would include maintenance of numerous small individual residential pump stations, which can require a significant amount of maintenance as the system ages.

5.6.3 Secondary Treatment System Alternatives

Three types of wastewater treatment alternatives were considered for this project: a sequencing batch reactor (SBR) system (proposed project), an AdvanTex system, and a recirculating gravel filter (RGF) system. For the reasons described below, the AdvanTex system and RFG were not carried forward as alternatives.

Recirculating Gravel Filter

A recirculating gravel filter system is a non-proprietary system that uses a community septic tank for primary treatment. After the initial settling of solids, the pre-treated wastewater flows to a recirculation tank and is applied uniformly to gravel filters in small doses, to alternately rest and load the gravel media. The application of wastewater to the filter media results in the development of a thin film of microorganisms, similar to a trickling filter. As the wastewater percolates down through the gravel filter, it comes into contact with this film. The slow-growing organisms that compose the film can exhibit very good rates of BOD, and suspended solids removal. As with an SBR, a recirculating gravel filter would output secondary treated wastewater, so the two alternatives would have the same impacts on water quality. With the environmental impacts of both systems being equal, an SBR system was chosen as part of the proposed project because it is a more robust system that can ensure the level of treatment required for permitting. Additionally, SBR systems can respond better to changes in flow and a new module can be installed with peninsula build-out (GHD/SHN 2018).

AdvanTex

The AdvanTex process is a proprietary technology that uses a textile membrane for the filtration process. Primary treatment is provided by a community septic tank, and septic tank effluent then enters a two-compartment processing tank. In the first compartment, the septic tank effluent separates into three zones: 1) a sludge layer, 2) a scum layer, and 3) a clear layer. Effluent from the clear layer flows into the second compartment of the tank through holes in the tank's baffle wall. A proprietary Biotube pumping package in the second compartment then pumps the filtered effluent to a distribution manifold in the AdvanTex pod. This effluent then percolates through the textile membrane media and is collected at the bottom of the filter basin by a drain pipe. The drain pipe returns the treated water to the recirculating splitter valve (RSV), where it is then split between the processing tank and the final discharge. AdvanTex units are designed to meet effluent ammonia levels of 2 mg/L or less, and they can be coupled with an upflow filter to meet total nitrogen requirements of less than 10 mg/L. The environmental impacts of the two systems (Advantex and the proposed project) would generally be equal, with the exception of water quality. An AdvanTex system could potentially produce slightly higher quality effluent than the proposed project; however, constructing a system of this type would be cost prohibitive and was not considered further (GHD/SHN 2018).

5.6.4 Disinfection Treatment System Alternatives

The project also considered using chlorine disinfection versus ultraviolet disinfection (proposed project). However, chlorine disinfection is not as effective as ultraviolet disinfection, is toxic in aquatic environments, and has a high cost associated with purchasing chlorine for small treatment facilities. Therefore, it was not considered further (GHD/SHN 2018).

5.6.5 Disposal Location Alternatives

Two options for disposal were identified: land disposal and ocean disposal (proposed project). However, the land disposal alternative is harder to permit, has higher capital and energy costs, requires tertiary treatment, expansion with peninsula buildout, and annual groundwater monitoring. As the ocean disposal would be easier to permit, requires less treatment, uses existing infrastructure, and would be able to accommodate both existing and projected build-out flows, the land disposal alternative was not considered further (GHD/SHN 2018).

5.6.6 Solids Handling Alternatives

The following solids handling alternatives were considered but rejected for this project:

- Contracting a local septic pumping service to remove and dispose of solids
- Constructing a facultative sludge lagoon with land application of the stabilized solids
- Constructing a thermal solids treatment system

The facultative sludge lagoon was eliminated as an option due to potential odor generation impacts and thermal treatment was eliminated due to high costs. A cost comparison of contracting a local septic pumping service versus the proposed batch process handling revealed significant lifetime savings by dewatering the solids on-site, making that the preferred alternative. Contracting a local septic pumping service would not require construction, and the proposed solids handling method would require some minor construction. However, the fuel that would be used by the septic pumping service to travel and pump the community septic tank would negatively impact air quality and create GHG emissions (GHD/SHN 2018).

5.7 References

GHD/SHN. 2018. Samoa Peninsula Wastewater Project, Planning and Design Study. May.