

5. IMPACTS OF COMBINATIONS OF ALTERNATIVES

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INTRODUCTION AND PURPOSE OF CHAPTER

This EIR evaluates the environmental impacts of five alternatives for implementing the SSP. These alternatives are described in detail in Chapter 2 of this EIR. None of the alternatives would be able individually to achieve the Project objective of providing a total seasonal storage capacity of approximately 500 MG, and therefore full implementation of the SSP would require the selection of more than one alternative. Following certification of the SSP EIR, the City may select alternatives that have been considered in the EIR for implementation. The selection process may consider one or a combination of alternatives to arrive at a complete project that meets the SSP objectives.

Because it is possible that the City may select a combination of the alternatives, it is necessary to understand the range of environmental impacts that would be expected to occur, from minimum or no impact to maximum or most severe impact, due to the combining of alternatives. That is the purpose of this chapter. The intent of the combinations outlined in the Chapter is not to include all potential combinations of alternatives, but rather to identify the minimum and maximum impacts that could occur with the combinations. This approach is intended to assist the City in identifying the environmentally superior combinations of alternatives and to ensure that the maximum potential impact of any combination selected by the City will have been evaluated in this EIR.

The No Project alternative is not included in this evaluation, because it is not subject to combining with any other SSP alternative.

METHODOLOGY

Ponds may be combined in a number of ways. Only one combination of two ponds is sufficient to provide the 500 MG objective (KF1 plus BF1). Therefore, a maximum impact combination should include three ponds, even though the total capacity may be somewhat over 500 MG. This evaluation includes the impacts of a combination of three full-sized ponds, because it is unknown which pond would be reduced in capacity to meet the “approximately 500 MG” capacity objective. Pond capacities are shown in Table 5-1.

TABLE 5-1
Seasonal Storage Capacity of Alternatives

Alternative	Storage Capacity (MG)	Permanent Footprint (acres)
Kelly Farm 1	282	62.1
Kelly Farm 2	185	48.1
Brown Farm 1	226	49.1

TABLE 5-1
Seasonal Storage Capacity of Alternatives

Alternative	Storage Capacity (MG)	Permanent Footprint (acres)
Brown Farm 2	105	41
Alpha Farm	177	50

The following steps were followed to develop the evaluation in this chapter.

- The level of environmental impact for each of the five SSP alternatives was identified from the summary impact table under each environmental topic in Chapter 4. The levels of impact are as follows: significant impact both before and after mitigation (i.e., significant unavoidable impact); significant impact before mitigation but less than significant after mitigation; less than significant impact with no mitigation required or proposed; and no impact. The alternative with greatest number of significant unavoidable impacts (counting the storage and Pump station components together and not counting cumulative impacts) was determined to represent the “maximum impact” alternative for that environmental resource, and the alternative with the fewest number of impacts was determined to represent the “environmental superior” alternative for that environmental resource.
- An environmentally superior combination and maximum impact combination were then developed, depending upon the severity of impacts, rather than the number of significant unavoidable impacts.

ENVIRONMENTALLY SUPERIOR AND MAXIMUM IMPACT COMBINATION OF ALTERNATIVES

Identification

Based upon the alternatives impact analysis in Chapter 4 of this EIR, the alternatives with the potential for the greatest number of significant unavoidable environmental impacts after mitigation are KF1 (eight impacts), KF2 (eight impacts) and AF (nine impacts). Therefore, the KF1, KF2 and AF combination of alternatives is the maximum impact scenario.

The BF1 and BF2 alternatives would have the least number of significant unavoidable environmental impacts after mitigation (seven impacts) and therefore are the environmentally superior (least impact) combination of alternatives. Because the combined storage capacity of the BF1 and BF2 alternatives is only 331 MG, this combination would not provide the required 500 MG of storage capacity. Therefore, the BF1 and BF2 combination would also need to include either the KF1 or KF2 alternative.

The KF1 and KF2 ponds differ relative to a number of impacts:

- The permanent footprint for KF1 is 62.1 acres, while KF2 is 48.1 acres. Loss of farmland and loss of habitat would be greater for KF1 than KF2. However, KF1 provides more capacity per acre of footprint, and therefore could decrease the overall agricultural and habitat impacts for 500 MG of storage.
- The permanent footprint for KF2 is within the California tiger salamander Kelly Conservation Area designated by the CTS Strategy; KF1 has some temporary impacts within the Conservation Area, but no permanent impacts.
- Energy use, and therefore greenhouse gas emissions, is expected to be 20 percent greater at KF1 than KF2. However, KF1 is over 50 percent larger than KF2 and uses energy more efficiently, and therefore could decrease the overall energy and greenhouse gas impacts for 500 MG of storage.

Based on these differences, KF1 is found to be environmentally superior to KF2, and the environmentally superior combination of alternatives for three ponds is identified as BF1, BF2, and KF1. However, BF2 and KF1 together have sufficient capacity to achieve the Project objectives, and the two ponds are necessarily environmentally superior to the three ponds (111 acres of footprint for BF1/KF1 as compared to 152 acres for BF1, BF2, and KF1). The least environmental impact would therefore result from the combination of two ponds: BF1 and KF1.

Potential Impacts of the Maximum Impact Combination of Alternatives

To ensure that the maximum potential impacts of any combination selected by the City will have been evaluated in this EIR, the following table (Table 5-2) identifies the potential environmental impacts that could result from implementation of the KF1, KF2 and AF alternatives combined, which is the maximum impact combination. The mitigation measures and project measures identified in Chapter 4 for the KF1, KF2 and AF alternatives would also be applied to the KF1, KF2 and AF alternatives as they are combined. After reviewing the impacts of the maximum impact combination, we have found that no further mitigation measures need to be assigned beyond those already assigned to the individual alternatives. As a worst-case scenario, it is assumed that construction at the KF1, KF2 and AF sites would take place concurrently.

The potential impacts from any combination selected of three alternatives would be the same as or less than described for the KF1, KF2 and AF combination as shown in Table 5-2.

TABLE 5-2
Seasonal Storage Project Alternatives Combination - Maximum Impact Scenario^(a)

Evaluation Criteria	KF1 Alternative	KF 2 Alternative	AF Alternative	KF1, KF2 and AF Alternatives Combined
Land Use				
1.3	○- Facilities located in Community Separator; but not an inappropriate land use	○-Facilities located in Community Separator; but not an inappropriate land use	==	○-Facilities at KF1 and KF2 sites located within a Community Separator; but not an inappropriate land use
1.4	○- Facilities at KF1 site visible from existing and planned recreational trails	○-Facilities at KF2 site visible from planned recreational trails	○-Facilities at AF site visible from planned recreational trails	○- Facilities at KF1, KF2 and AF sites visible from existing and planned recreational trails
1.6	⊙-Facilities not consistent with restrictions on open space uses; approx. 1.8	⊙-Facilities not consistent with restrictions on open space uses; approx 4.9	⊙-Facilities not consistent with restrictions on open space uses; approx. 21.8	⊙-Facilities not consistent with restrictions on open space uses; approx. 28.5 acres
Agriculture				
2.1	●-Loss of 62.1 acres of farmland	●- Loss of 48.1 acres of farmland	●-Loss of 50 acres of farmland	●-Loss of 160.2 acres of farmland
2.6	○-Potential to increase glassy-winged sharpshooter populations	○-Potential to increase glassy-winged sharpshooter populations	○-Potential to increase glassy-winged sharpshooter populations	○-Greater potential to increase glassy-winged sharpshooter populations
Geology				
3.1, 3.3, and 3.5 through 3.8	○-Little or no potential for unstable slopes; damage from earthquakes, expansive or corrosive soils, or liquefaction; or erosion	○-Little or no potential for unstable slopes; damage from earthquakes, expansive or corrosive soils, or liquefaction; or erosion	○-Little or no potential for unstable slopes; damage from earthquakes, expansive or corrosive soils, or liquefaction; or erosion	○-Little or no potential for unstable slopes; damage from earthquakes, expansive or corrosive soils, or liquefaction; or erosion

TABLE 5-2
Seasonal Storage Project Alternatives Combination - Maximum Impact Scenario^(a)

Evaluation Criteria	KF1 Alternative	KF 2 Alternative	AF Alternative	KF1, KF2 and AF Alternatives Combined
Surface Water Hydrology				
4.1 and 4.2	○-Little or no potential for streambank erosion and flooding	○-Little or no potential for streambank erosion and flooding	○-Little or no potential for streambank erosion and flooding	○-Little or no potential for streambank erosion and flooding
Groundwater				
5.1 ^(b)	○-3 percent or less cumulative recycled water contribution in existing or future wells	○-3 percent or less cumulative recycled water contribution in existing or future wells	○-3 percent or less cumulative recycled water contribution in existing or future wells	○-3 percent or less cumulative recycled water contribution in existing or future wells
5.2	==	==	⊙-Increase groundwater levels in vicinity of the AF pond	⊙-Increase in groundwater levels in the vicinity of the AF pond
5.3 and 5.4	⊙-Lower groundwater levels in vicinity of the KF1 pond	⊙-Lower groundwater levels in vicinity of the KF2 pond	○-No lowering of groundwater	⊙-Lower groundwater levels in the vicinity of the K1 and KF2 ponds
Surface Water Quality				
6.3	○-Little or no potential for degradation of surface water quality	○-Little or no potential for degradation of surface water quality	○-Little or no potential for degradation of surface water quality	○-Little or no potential for degradation of surface water quality

TABLE 5-2
Seasonal Storage Project Alternatives Combination - Maximum Impact Scenario^(a)

Evaluation Criteria	KF1 Alternative	KF 2 Alternative	AF Alternative	KF1, KF2 and AF Alternatives Combined
Public Health and Safety				
7.1 ^{(b)(c)}	○-Incremental cancer risk and non-cancer hazard indices from exposure to recycled water in storage ponds less than the significance threshold.	○-Incremental cancer risk and non-cancer hazard indices from exposure to recycled water in storage ponds less than the significance threshold.	○-Incremental cancer risk and non-cancer hazard indices from exposure to recycled water in storage ponds less than the significance threshold.	○-Incremental cancer risk and non-cancer hazard indices from exposure to recycled water in the KF1, KF2, and AF storage ponds combined less than significance threshold.
7.2	○-Little potential for impacts to human health from 3 known hazardous release sites within 500 feet	○-Little potential for impacts to human health from a Historical UST possibly within 500 feet	==	○-Little potential for impacts to human health from 3 known hazardous release sites within 500 feet of the KF1 site and from a Historical UST possibly within 500 feet of the KF2 site.
7.3	○-Minimal risk from storage and use of hazardous materials during construction or maintenance.	○-Minimal risk from storage and use of hazardous materials during construction or maintenance	○-Minimal risk from storage and use of hazardous materials during construction or maintenance	○-Minimal risk from storage and use of hazardous materials during construction or maintenance
7.4	○-Less than significant risk to public safety from hazards from equipment operation or creation of an accessible excavation or water body.	○-Less than significant risk to public safety from hazards from equipment operation or creation of an accessible excavation or water body.	○-Less than significant risk to public safety from hazards from equipment operation or creation of an accessible excavation or water body.	○-Less than significant risk to public safety from hazards from equipment operation or creation of an accessible excavation or water body.

TABLE 5-2
Seasonal Storage Project Alternatives Combination - Maximum Impact Scenario^(a)

Evaluation Criteria	KF1 Alternative	KF 2 Alternative	AF Alternative	KF1, KF2 and AF Alternatives Combined
7.5	○-Low probability of exposure of the public to a flooding hazard	○-Low probability of exposure of the public to a flooding hazard	○-Low probability of exposure of the public to a flooding hazard	○-Low probability of exposure of the public to a flooding hazard
7.7	○-Creation of potential mosquito habitat. Compliance with regulatory requirements would maintain mosquito populations below disease transmission and nuisance threshold levels.	○-Creation of potential mosquito habitat. Compliance with regulatory requirements would maintain mosquito populations below disease transmission and nuisance threshold levels.	○-Creation of potential mosquito habitat. Compliance with regulatory requirements would maintain mosquito populations below disease transmission and nuisance threshold levels.	○-Creation of potential mosquito habitat. Compliance with regulatory requirements would maintain mosquito populations below disease transmission and nuisance threshold levels.
Biological Resources				
8.1	⊙-8.1 Potential impact to 3 plant and 2 animal T&E species	⊙-8.1 Potential impact to 3 plant and 2 animal T&E species	⊙-8.1 Potential impact to 3 plant and 2 animal T&E species	⊙- An increased potential for impact to 3 plant and 2 animal T&E species
8.3	⊙-Loss of raptor nesting habitat	⊙-Loss of raptor nesting habitat	⊙-Loss of raptor nesting habitat	⊙-An increased potential for loss of raptor nesting habitat
8.4	⊙-Potential impact to 15 special status animal species	⊙- Potential impact to 21 special status animal species	⊙- Potential impact to 17 special status animal species	⊙-An increased potential for impact to 21 special status animal species
8.5	⊙-Loss of sensitive habitat and protected trees	⊙-Loss of sensitive habitat and protected trees	⊙-Loss of sensitive habitat and protected trees	⊙-An increased loss of sensitive habitat and protected trees
8.6	⊙- Storage pond is a potential barrier to CTS movement	⊙- Storage pond is a potential barrier to CTS movement	○-Storage pond not expected to impede animal movement	⊙-Two storage ponds at Kelly Farm as potential barriers to CTS movement

TABLE 5-2
Seasonal Storage Project Alternatives Combination - Maximum Impact Scenario^(a)

Evaluation Criteria	KF1 Alternative	KF 2 Alternative	AF Alternative	KF1, KF2 and AF Alternatives Combined
8.7	○-Less than significant ecological risk to plant and animal populations	○-Less than significant ecological risk to plant and animal populations	○-Less than significant ecological risk to plant and animal populations	○-Less than significant ecological risk to plant and animal populations
8.8	==	==	⊙-Decreased stream flows	⊙-Decreased stream flows at the AF site
8.9	⊙- Potential to increase Invasive plant species	⊙- Potential to increase Invasive plant species	⊙- Potential to increase Invasive plant species	⊙-Slightly greater potential for increase in Invasive plant species
Jurisdictional Wetlands				
9.1 and 9.2	⊙- Temporary impact to 0.79 acre wetlands; permanent impact to 1.06 acre wetlands	⊙-Temporary impact to 0.95 acre wetlands & 0.04 mile waters; permanent impact to and 1.16 wetlands & and 0.17 mile waters	⊙- Temporary impact to 0.79 acre wetlands & 0.07 mile waters; permanent impact to 1.05 acre wetlands & 0.28 mile waters	⊙-Temporary impact to 2.53 acres wetlands & 0.11 mile waters; permanent impact to 3.27 acres wetlands & 0.45 mile waters
Transportation				
10.1 ^(d)	○-Project construction traffic would not cause an exceedence of roadway capacity	○-Project construction traffic would not cause an exceedence in roadway capacity	●- Project construction traffic plus baseline traffic on Highway 12 eastbound would exceed lane capacity in the PM peak hour by 405 vehicles	●- Project construction traffic plus baseline traffic on Highway 12 eastbound would exceed lane capacity in the PM peak hour by 405 vehicles.
10.4 and 10.5	○- Increase traffic hazards to motor vehicles, bicyclists, or pedestrians during construction	○- Increase traffic hazards to motor vehicles, bicyclists, or pedestrians during construction	○- Increase traffic hazards to motor vehicles, bicyclists, or pedestrians during construction	○- The use of Highway 12 for construction access to all three sites would slightly increase traffic hazards to motor vehicles, bicyclists, or pedestrians during construction.

TABLE 5-2
Seasonal Storage Project Alternatives Combination - Maximum Impact Scenario^(a)

Evaluation Criteria	KF1 Alternative	KF 2 Alternative	AF Alternative	KF1, KF2 and AF Alternatives Combined
Air Quality				
11.1	○- Increase in dust and equipment exhaust during construction	○-Increase in dust and equipment exhaust during construction	○-Increase in dust and equipment exhaust during construction	○-A greater increase in dust and equipment exhaust from construction at three sites concurrently
11.2, 11.3 and 11.4	○-Minor air emissions associated with routine maintenance of SSP facilities; no TACs or other pollutants that would create a health risk or hazard.	○-Minor air emissions associated with routine maintenance of SSP facilities; no TACs or other pollutants that would create a health risk or hazard.	○-Minor air emissions associated with routine maintenance of SSP facilities; no TACs or other pollutants that would create a health risk or hazard.	○-Minor air emissions associated with routine maintenance of SSP facilities at three sites; no TACs or other pollutants that would create a health risk or hazard.
11.5	○-No odors that would be detectable beyond project boundaries, except for diesel exhaust odors during construction.	○-No odors that would be detectable beyond project boundaries, except for diesel exhaust odors during construction.	○-No odors that would be detectable beyond project boundaries, except for diesel exhaust odors during construction.	○-No odors that would be detectable beyond project boundaries at three sites, except for diesel exhaust odors during construction.
11.6	●-Increase in eCO2 emissions	●-Increase in eCO2 emissions	●-Increase in eCO2 emissions	●-Increase in eCO2 emissions
Noise				
12.1 and 12.4	●- Construction noise levels exceed the daytime noise standard of 60 dBA L_{eq} .	●- Construction noise levels exceed the daytime noise standard of 60 dBA L_{eq} .	●- Construction noise levels exceed the daytime noise standard of 60 dBA L_{eq} .	●-Because of the proximity of the KF1 and KF2 sites, concurrent construction could generate higher noise levels at receptor locations than would be generated by construction at one site alone.

TABLE 5-2
Seasonal Storage Project Alternatives Combination - Maximum Impact Scenario^(a)

Evaluation Criteria	KF1 Alternative	KF 2 Alternative	AF Alternative	KF1, KF2 and AF Alternatives Combined
12.2	⊙-Potential infrequent ground-borne vibration levels during construction from blasting to remove rock.	⊙-Potential infrequent ground-borne vibration levels during construction from blasting to remove rock.	⊙-Potential infrequent ground-borne vibration levels during construction from blasting to remove rock.	⊙-Potential infrequent ground-borne vibration levels during construction from blasting to remove rock.
12.3	○-Pump Station operation would result in noise levels below those in County General Plan policies.	○-Pump Station operation would result in noise levels below those in County General Plan policies.	○-Pump Station operation would result in noise levels below those in County General Plan policies.	○-Pump Station operation would result in noise levels below those in County General Plan policies.
Cultural Resources				
13.1 and 13.2 and	⊙-Potential historical and archaeological resources impacts	⊙-Potential historical and archaeological resources impacts	⊙-Potential historical and archaeological resources impacts	⊙-Potential historical and archaeological resources impacts
13.3 and 13.4	●-Potential impacts to human remains or grave goods	●-Potential impacts to human remains or grave goods	●-Potential impacts to human remains or grave goods	●-Potential impacts to human remains or grave goods
13.5	⊙-Potential paleontological resources impacts	⊙-Potential paleontological resources impacts	⊙-Potential paleontological resources impacts	⊙-Potential paleontological resources impacts

TABLE 5-2
Seasonal Storage Project Alternatives Combination - Maximum Impact Scenario^(a)

Evaluation Criteria	KF1 Alternative	KF 2 Alternative	AF Alternative	KF1, KF2 and AF Alternatives Combined
Visual Resources				
14.1 and 14.2	●- Visual impacts along Highway 12, the Joe Rodota Trail, and residences along Ver-ni Drive from SSP facilities.	●- Visual impacts along Highway 12, the Joe Rodota Trail, Occidental Road, Ver-ni Drive, and proposed recreational trails from SSP facilities.	●-Visual impacts along Llano Road and proposal recreational trails from SSP facilities.	●-Increased visual impacts along Highway 12, the Joe Rodota Trail, and along Ver-ni Drive from SSP facilities at both the KF1 site and KF2 site. Increased visual impacts along proposed recreational trails from SSP facilities at both the KF2 and AF sites.
14.3	○-Pump Station lighting used only when needed for facilities maintenance	○-Pump Station lighting used only when needed for facilities maintenance	○-Pump Station lighting used only when needed for facilities maintenance	○-Pump Station lighting used only when needed for facilities maintenance. Not likely to be needed at all three sites at the same time.
Public Services, Utilities, and Recreation				
15.1	○ Slight increase in demand for public services; utilities, and park and recreation facilities	○ Slight increase in demand for public services, utilities, and park and recreation facilities. 29,600 CY of soil, vegetation, demolition debris needing off-site reuse or disposal	○ Slight increase in demand public services, utilities, and park and recreation facilities. 12,600 CY of soil, vegetation, demolition debris needing off-site reuse or disposal	○ Slightly greater increase in demand public services, utilities and park and recreation facilities, but not to such a degree that service standards would not be met. Sufficient capacity available to accept 42,200 CY of soil, vegetation, demolition debris. It is possible that come of this soil could be used for the KF1 pond embankment.

