US Army Corps
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Appendix E

# Economics Appendix

Watsonville Slough Ecosystem Restoration Project
San Francisco District

Continuing Authorities Program (CAP), Section 1135

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# TABLE OF CONTENTS



# LIST OF FIGURES



# LIST OF TABLES

# 1 - AREAS OF CONSIDERATION

The proposed study at Watsonville Slough is located in Santa Cruz County and at the mouth of the Pajaro River, where the Pajaro River discharges to the Pacific Ocean at the Pacific Ocean. The Pajaro River watershed encompasses more than 1,300 square miles and the lower reach of the Pajaro forms the boundary between Santa Cruz and Monterey Counties in California. The study area is on the inland side by farmland; while on the seaward side it is bordered immediately by the Pajaro Dunes Community and then the Pacific Ocean. Figure 1 displays the study area.

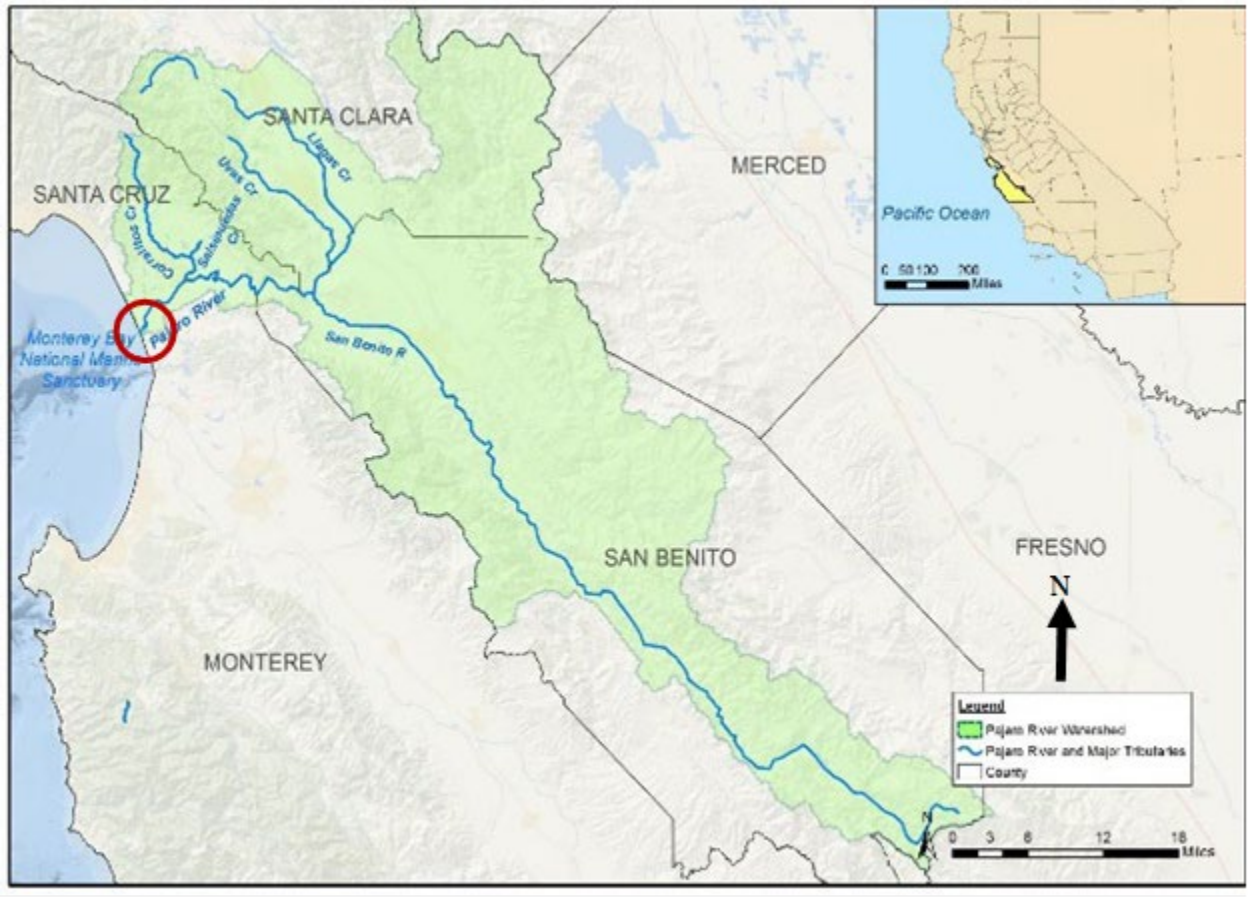


**Figure 1 - Study Area**

# 2 - NER PLAN SELECTION CRITERIA

United States Army Corps of Engineers (USACE) policy, presented in Engineer Regulation 1105-2-100, Planning Guidance Notebook, requires that potential ecosystem restoration projects be analyzed for cost effectiveness and incremental benefits gained from various restoration alternatives. The plan that reasonably maximizes ecosystem restoration benefits compared to costs, consistent with the federal objective, is selected and identified as the National Ecosystem Restoration (NER) Plan. Cost effectiveness and Incremental Cost

analyses (CE/ICA) is the technique used by the USACE to identify cost-effective restoration projects. Analysis of cost effectiveness, in general, compares the relative costs and benefits of alternative plans. The most efficient plans that provide the greatest increase in output for the least increase in cost are called the Best Buys. The least expensive Best Buy, which meets the restoration objective, is usually selected as the recommended plan. The CE/ICA modeling used in this appendix was done using the IWR-Planning Suite II (2.09.34), which is the current certified version of the software.

Specifically, cost-effectiveness analysis compares the costs and expected environmental outputs among various alternative plans. If different alternative plans can produce the same level of output, only the least expensive (least-cost) choice makes economic sense for that level of output; economically inefficient alternative plans can be eliminated from further consideration. Similarly, if one alternative plan can produce a greater level of output for the same or less cost than others (cost-effective), only the greater output choice makes economic sense; economically ineffective alternative plans can be eliminated. After elimination of inefficient and ineffective alternative plans, there remain several least-cost, cost-effective alternative plans offering a range of output values from which to identify the means of meeting the ecosystem restoration objective(s).

# 3 - PLAN GENERATION

In this analysis, a reach is described as a group of features or activities that can be implemented at a specific geographic site to, fully or partially, address one or more planning objectives, which combined make up alternative plans. An alternative plan can consist of a system of structural and/or non-structural sub-reaches/reaches, measures, strategies, or programs formulated to meet the identified study planning objectives subject to planning constraints. Restoration measures include ecosystem restoration work in a County-own Parcel (County), a State-owned parcel (State) a mile long reach located at the lowest land strip at the base of the Pajaro River and parallel of the beach. The measures include for analysis in each reach include Earthwork only (EW), Road Raise + Earthwork (RREW) and Road Raise (RR) only.

Benefits for this analysis are described as Habitat Units (HUs). Habitat value is difficult to express in monetary terms, therefore the productive output of project features is measured in habitat units. Habitat units were obtained from the project's environmental team and is described in the environmental appendix. HUs were entered into the IWR Planning Suite Annualizer module to compute the reaches AAHU (Average Annual Habitat Unit). Using AAHU as a metric, plans can be compared over time based on the forecast conditions. In this way, it is possible to quantify a change in habitat by implementing the project and if that change is cost effective.

To perform the CE/ICA, each of the reaches required a total cost associated with each of the measures. This total cost included the following:

- Construction cost. These costs were annualized at the FY24 Federal Interest Rate of 2.75% over a 50-year project life.
- Real Estate costs. The costs were included in the construction costs and annualized at the FY24 Federal Interest Rate of 2.75% over a 50-year project life

- Operation, Maintenance, Repair, Rehabilitation and Replacement (OMRR&R) costs. OMRR&R cost were annualized at the FY24 Federal Interest Rate with a 50-year timeframe.
- Monitoring and Adaptive Management costs.

**Table 1 - Habitat Restoration Reaches – Benefits and Costs, FY24 Price Level, 2.75% Discount Rate**

| Code | Scale | Name | Cost | Output |
|---|---|---|---|---|
| C | 0 | No Action | $0.00 | 0 |
| C | 1 | COUNTY RREW | $59.91 | 2.68 |
| S | 0 | No Action | $0.00 | 0 |
| S | 1 | STATE RREW | $34.65 | 5.4 |
| L | 0 | No Action | $0.00 | 0 |
| L | 1 | LOWER MILE RREW | $61.16 | 3.69 |
| R | 0 | No Action | $0.00 | 0 |
| R | 1 | ROAD RAISE | $237.55 | 0 |
| E | 0 | No Action | $0.00 | 0 |
| E | 1 | COUNTY EW | $59.60 | 0.09 |
| D | 0 | No Action | $0.00 | 0 |
| D | 1 | STATE EW | $34.91 | 0.11 |
| T | 0 | No Action | $0.00 | 0 |
| T | 1 | LOWER MILE EW | $61.16 | 0.06 |
| A | 0 | No Action | $0.00 | 0 |
| A | 1 | COUNTY RR | $54.66 | 2.72 |
| Q | 0 | No Action | $0.00 | 0 |
| Q | 1 | STATE RR | $29.39 | 5.45 |
| K | 0 | No Action | $0.00 | 0 |
| K | 1 | LOWER MILE RR | $58.00 | 3.71 |

## 3.1 Combinability and Dependability

Combinability and dependency are two types of relationships used in the CE/ICA analysis. In a typical USACE study, management measures or areas may or may not be mutually exclusive, and it is the property of combinability that allows planners to mix and match measures into different plans. Conversely, some measures may preclude others, and this will limit the ability to mix and match the measures. In consideration of combinability, two measures might be mutually exclusive because of:

- Location, where two different measures cannot occupy the same space at the same time
- Function, where two different measures may work against one another
- In addition to being combinable, many measures may be dependent on other measures in order to be implemented. Dependency relationships between two measures may exist for several reasons, including:

- *Necessary to function;*
- *Reduce risk or uncertainty;*
- *Improve performance.*

In this analysis the Combinability and Dependency rules were used to ensure that interactions between the measures were accurately captured. Parcel costs were developed for each cell as well, but the road raise cost was kept separate, and used only once in plans that utilized the road raise benefits These measures were combined in CE/ICA to generate plans, but not all of them could be combined at once. First, no parcel treatment could be combined with any other treatment on the same parcel. For instance, no plan could combine County EW with County RR because they inhabit the same space. In addition, no plan could combine a parcel treatment that included a road raise with a treatment for a different parcel that excluded the road raise (e.g., County EW could not be combined with State RR). Once the road was raised for one parcel, it was raised for all of them. However, plans could combine a road raise for one parcel with "No Action" on another.

The Project Delivery Team (PDT) has been advised that even if the changes to inundation will occur to any parcels in the lagoon, the study can only claim them as project benefits if the land is purchased and monitored. Therefore, if a parcel is not included in a road raise alternative, that simply means that the real estate costs associated with controlling the parcel were not part of the plan, and therefore the benefits are not being counted, even though they are likely occurring. Figures 2 and 3 below are examples of how the combinability and dependency functions were used in this analysis.

| Solution: | Is **Not** Combinable With: |
|---|---|
| Name | |
| COUNTY RREW | COUNTY EW |
| COUNTY RREW | OR STATE EW |
| COUNTY RREW | OR LOWER MILE EW |
| COUNTY RREW | OR COUNTY RR |
| STATE RREW | COUNTY EW |
| STATE RREW | OR STATE EW |
| STATE RREW | OR LOWER MILE EW |
| STATE RREW | OR STATE RR |
| LOWER MILE RREW | COUNTY EW |
| LOWER MILE RREW | OR STATE EW |
| LOWER MILE RREW | OR LOWER MILE EW |
| LOWER MILE RREW | OR LOWER MILE RR |

**Figure 2 - Example of the combinability function was used in the analysis.**

| Solution: | Is Dependent Upon: |
|---|---|
| Name | |
| COUNTY RREW | ROAD RAISE |
| STATE RREW | ROAD RAISE |
| LOWER MILE RREW | ROAD RAISE |
| COUNTY RR | ROAD RAISE |
| STATE RR | ROAD RAISE |
| LOWER MILE RR | ROAD RAISE |

**Figure 3 - Example of how the dependency function was used in the analysis.**

# 4 - PRELIMINARY FINDINGS AND INCREMENTAL ANALYSIS

CE/ICA generated 35 total alternatives there were a result of the rules described in the previous section. Eight were identified as cost effective, and the only best buy alternatives were the No Action Alternative and Alternative 7 (Table 2). Combined, these eight best-buy and cost-effective alternatives were included in the preliminary array of alternatives under consideration. All costs were calculated at the FY 24 Federal Interest Rate of 2.75%. Table 2 shows the preliminary array of alternatives and CE/ICA results. Note that the first three alternatives, those without the road raise, offer very little expansion of marsh hydrology and therefore very high Average Annual Cost per AAHU. The road raise and consequent change in the breaching threshold of the lagoon positively affect the hydrology much more on each parcel than the excavation of channels does (e.g., compare Alternative 1 and Alternative 4, or compare Alternative 2 and Alternative 5).

Eight alternatives were included in the preliminary array for initial comparison, including a No Action alternative. The eight alternatives were identified by CE/ICA as either cost effective (Alternatives 1-6) or best buy (No Action and Alternative 7) plans. The non-federal sponsor did not request consideration of a Locally Preferred Plan.

**No Action Alternative –** in this scenario, the federal government would take no action to address ecosystem restoration in Watsonville Slough. Ecosystem degradation associated with truncated hydrology will persist over time.

**Alternative 1: State Parcel Earth Work Only –** Alternative 1 restores previously removed tidal side channels in the State Parcel to facilitate tidal conveyance through the existing marsh, as well as several breaches in the existing side cast berms. This results in the expansion of marsh hydrology to 0.11 formerly “high and dry” acres or roughly <1% of the parcel. Because the modification of the hydrology is so limited, it’s unclear whether removal of exotics and planting with native marsh species would be successful.

**Alternative 2: State and County Parcel Earth Work Only –** Alternative 2 restores previously removed tidal side channels in the State and County Parcels to facilitate tidal conveyance through the existing marsh, as well as several breaches in the existing side cast berms. This results in the expansion of marsh hydrology to 0.2 formerly “high and dry” acres or roughly 1%

of the area of the two parcels. Because the modification of the hydrology is so limited, it's unclear whether removal of exotics and planting with native marsh species would be successful.

**Alternative 3: County, State, and Lower Mile Parcels Earth Work Only –** Alternative 3 restores previously removed tidal side channels in the County, State, and Lower Mile Parcels to facilitate tidal conveyance through the existing marsh, as well as several breaches in the existing side cast berms. This results in the expansion of marsh hydrology to 0.26 formerly "high and dry" acres on the County, State, Lower Mile Parcels, or roughly 1% of the area of the three parcels. Because the modification of the hydrology is so limited, it's unclear whether removal of exotics and planting with native marsh species would be successful.

**Table 2 - Preliminary Array of Cost-Effective and Best Buy Alternatives, FY24 Price Level, 2.75% Discount Rate. Best Buy Alternatives highlighted in yellow.**

| Alternative | Reaches and Measures | Expansion of Acreage with Marsh Hydrology (AAHU) | Total Investment Cost ($1000) | Average Annual Cost ($1000) | Average Annual Cost Per AAHU ($1000/AAHU) | Incremental Average Annual Cost | Incremental Output (AAHU) | Incremental Average Annual Cost Per Output |
|---|---|---|---|---|---|---|---|---|
| 0 | No Action | NA | | | | | | |
| 1 | State – Earth Work/Channels | 0.110 | 298.89 | 34.910 | 317.364 | 34.910 | 0.110 | 317.364 |
| 2 | State, County – Earth Work/Channels | 0.200 | 628.11 | 94.510 | 472.550 | 59.600 | 0.090 | 662.222 |
| 3 | State, County, Lower Mile – Earth Work/Channels | 0.260 | 875.67 | 155.670 | 598.731 | 61.160 | 0.060 | 1,019.333 |
| 4 | Road Raise, State – No Earth Work | 5.450 | 5,752.72 | 266.940 | 48.980 | 111.270 | 5.190 | 21.439 |
| 5 | Road Raise, County, State – No Earth Work | 8.170 | 5,956.04 | 321.600 | 39.364 | 54.660 | 2.720 | 20.096 |
| 6 | Road Raise, State, Lower Mile – No Earth Work | 9.160 | 6,046.55 | 324.940 | 35.474 | 3.340 | 0.990 | 3.374 |
| 7 | Road Raise, County, State, Lower Mile – No Earth Work | 11.880 | 6,249.87 | 379.600 | 31.953 | 54.660 | 2.720 | 20.096 |

**Alternative 4: Raise Beach Road and State Parcel with NO Earth Work–** Alternative 5 includes the raising of Beach Road to change the breaching threshold of the lagoon from 8.0 NAVD to 9.2 NAVD, restoring marsh hydrology by improving inundation of "high and dry" portions of the marsh plain. The crossing of the slough will include an open-bottomed culvert design to improve fish passage potential. This results in the expansion of marsh hydrology to 5.5 formerly "high and dry" acres on the State Parcel, or roughly 40% of the parcel. In addition, the project will remove exotics and xeric species from the formerly "high and dry" areas and plant them with native marsh species.

**Alternative 5: Raise Beach Road, County Parcel with NO Earth Work, and State Parcel with NO Earth Work–** Alternative 6 includes the raising of Beach Road to change the breaching threshold of the lagoon from 8.0 NAVD to 9.2 NAVD, restoring marsh hydrology by improving inundation of "high and dry" portions of the marsh plain. The crossing of the slough will include an open-bottomed culvert design to improve fish passage potential. This results in the expansion of marsh hydrology to 2.7 formerly "high and dry" acres on the County Parcel, or roughly 56% of the parcel, and the expansion of marsh hydrology to 5.5 formerly "high and dry" acres on the State Parcel, or roughly 40% of the parcel. In addition, the project will remove exotics and xeric species from the formerly "high and dry" areas and plant them with native marsh species.

**Alternative 6: Raise Beach Road, State Parcel with NO Earth Work, and Lower Mile Parcels with NO Earth Work–** Alternative 7 includes the raising of Beach Road to change the breaching threshold of the lagoon from 8.0 NAVD to 9.2 NAVD, restoring marsh hydrology by improving inundation of "high and dry" portions of the marsh plain. The crossing of the slough will include an open-bottomed culvert design to improve fish passage potential. This results in the expansion of marsh hydrology to 5.5 formerly "high and dry" acres on the State Parcel, or roughly 40% of the parcel, and to 3.7 formerly "high and dry" acres on the Lower Mile Parcels, or roughly 16% of those parcels. In addition, the project will remove exotics and xeric species from the formerly "high and dry" areas and plant them with native marsh species.

**Alternative 7: Raise Beach Road, County Parcel with NO Earth Work, State Parcel with NO Earth Work, and Lower Mile Parcels with NO Earth Work–** Alternative 8 includes the raising of Beach Road to change the breaching threshold of the lagoon from 8.0 NAVD to 9.2 NAVD, restoring marsh hydrology by improving inundation of "high and dry" portions of the marsh plain. The crossing of the slough will include an open-bottomed culvert design to improve fish passage potential. This results in the expansion of marsh hydrology to 2.7 formerly "high and dry" acres on the County Parcel, or roughly 56% of the parcel. It results in the expansion of marsh hydrology to 5.5 formerly "high and dry" acres on the State Parcel, or roughly 40% of the parcel. And it results in expansion of marsh hydrology to 3.7 formerly "high and dry" acres on the Lower Mile Parcels, or roughly 16% of those parcels. In addition, the project will remove exotics and xeric species from the formerly "high and dry" areas and plant them with native marsh species.

## 4.1 Incremental Analysis and Final Array Comparison

The results of the CE/ICA analysis only included two Best Buy alternatives (the no action and the "Do All" alternative), so the PDT considered cost-effective alternatives in the final array comparison. Figure 4 displays the alternatives considered in this analysis. Alternatives 1-3 only included earthwork which produced very little benefits and substantial cost. Because of this, the PDT eliminated cost-effective alternatives 1,2, and 3 from further consideration. Additionally, Alternatives 6 and 7 were screened from further consideration. Although

Alternative 7 and Alternative 6 appear to be more efficient, the restoration in Lower Mile is largely edge habitat abutted against the road and while it restores hydrology to more acreage, the quality of the restored marsh habitat is less when compared to alternatives that restore hydrology to entire parcels. This, combined with challenges in acquiring real estate, made these alternatives less attractive and were, therefore, not included in the final array.

After this final screening, the three alternatives advanced in the final array of alternatives:

- No Action
- Alternative 4: Crossing Improvements at W. Beach Road and State-owned Parcel with No Earthwork
- Alternative 5: Crossing Improvements at W. Beach Road, County-owned Parcel with no Earthwork, and State-owned Parcel with No Earthwork

It was important to the PDT that NER alternative include the road raise of Beach Road, which would change the lagoon breaching threshold from 8 ft NAVD to 9.2 ft NAVD, allowing higher and longer closure events that more closely mimic natural lagoon hydrology and contribute to the natural hydrology of the marsh. In addition, raising the road results in important public safety benefits. The existing road is low, frequently flooded (triggering lagoon breaches) and has no guard rails. Replacing it restores hydrology to the marsh, but also reduces the risk of cars driving into the marsh during these flood events.

Alternative 4 restores natural lagoon hydrology to portions of the study area that experience the negative effects of truncated hydrology; however, this alternative excludes key portions of study area with significant amounts of stressed marsh vegetation and xeric non-native species.

Alternative 5 meets the primary objectives of improving marsh habitat by effectively restoring natural lagoon hydrology to areas currently experiencing truncated hydrology and thus supporting exotic and xeric species. Removal of the exotics and planting with native marsh species in the formerly “high and dry” areas will expand the native marsh plain. The longer and higher closure periods will not only help support marsh species across a larger part of the marsh plain but will also allow fish species better and more regular access to the marsh plain when it’s inundated, improving foraging habitat.

By retaining the lagoon closures, the system can remain brackish into the future, forestalling the encroachment of salt water into the shallow aquafers. The higher and longer lagoon closures will also help hydrologically support any future expansion of the marsh.

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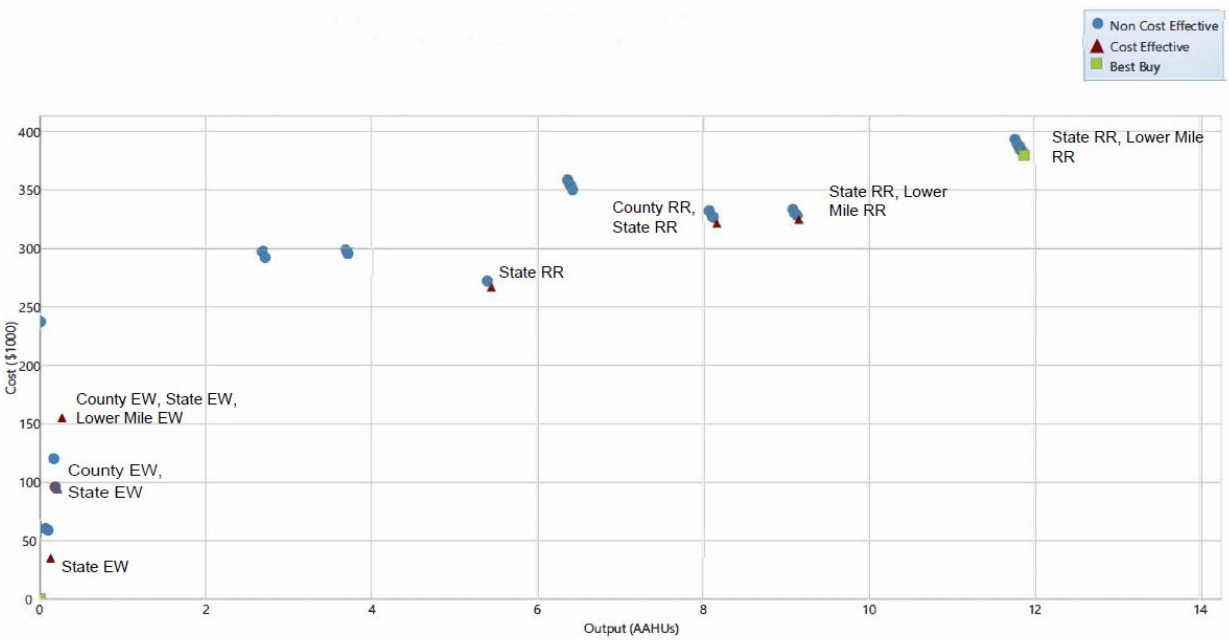


**Figure 4 - Summary of Cost Effective & Best Buy CE/ICA Results**

# 5 - FINAL FINDINGS

The evaluation of the Final Array of Alternatives for how effective, efficient, and acceptable they are summarized in Table 2. The team used existing analysis, collective expertise, and professional judgement to assess and evaluate the alternatives. Where the metrics are qualitative, the rationale for ranking is explained. Effectiveness measures how well the plans meet the primary ecosystem restoration objectives and the secondary recreation objective of the project. Effectiveness at meeting objectives was discussed by the team for each objective. Efficiency was evaluated using CE/ICA results. Of the final array of alternatives, alternative 5 is the most efficient. All the action alternatives were assessed to be acceptable, which refers to whether the alternative is legally implementable. All alternatives are also considered to be complete, where benefits can be realized without further action from others. According to this analysis, Alternative 5 was identified as the NER alternative.

# 6 - ADDRESSING 4 ACCOUNTS (NED, NER, OSE, RED)

The Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (March 10, 1983) establishes four accounts to facilitate the evaluation and display of effects of alternative plans. They are described in ER 1105-2-100, Planning Guidance Notebook, paragraph 2-3. The evaluation of the recommended plan against those accounts follows:

- The National Economic Development (NED) account displays changes in the economic value of the national output of goods and services.

- The Environmental Quality (EQ) account displays non-monetary effects on ecological, cultural, and aesthetic resources including the positive and adverse effects of ecosystem restoration plans. The arrays of plans described in this appendix have ecosystem restoration as their stated goals.

All the best buy plans would contribute to the EQ account by increasing the amount and quality of high value habitat in the study area by their respective quantity of outputs. All best buy plans provide an increase in habitat and therefore benefits to the EQ account as quantified by AAHU's discussed in this appendix. Benefits to the EQ account increase with plan outputs as does the costs for the project and incremental costs for each AAHU. Benefits would increase in the following criteria as the amount and quality of habitat increases.

Water Quality – Restoration of both the riparian and wetland areas would provide some improvements to water quality through natural filtration and biogeochemical processes in the wetland and riparian areas. With the proposed pump the project will also improve existing lake water not just water intercepted prior to entering the lake.

Air Quality – An increase in the number and acres of plants a would contribute to absorption of carbon dioxide and release of oxygen in this urbanized area.

Wildlife – The increase in habitat diversity would provide for an increase diversity and density of wildlife species.

Essentially the larger the project is the more benefits to this account would be. The cost-effective analysis has provided a measure of efficiency to determine what the cost of incremental of these outputs would be.

- The Regional Economic Development (RED) account displays changes in the distribution of regional economic activity (e.g., income and employment). This account is typically used to capture the regional impacts of a large capital infusion of project implementation dollars on income and employment throughout the study area through the use of income and employment multipliers. The important point to be made here is that a large infrastructure project in the Watsonville Slough area will have a positive impact on local income and employment. While all alternatives will have a positive impact on the RED account, alternatives 4-7 include a road raise which requires a greater federal investment and in turn generate a greater level of RED benefits.

- The Other Social Effects (OSE) account displays plan effects on social aspects such as community impacts, health and safety, displacement, energy conservation and others. In most cases, impacts of proposed projects not covered in other accounts are described and evaluated here. Primary affects to OSE from the proposed restoration would benefit health, standard of living and education by providing a public area of improved aesthetics, air quality and providing recreational and educational opportunities. There would be significant benefits to the community from the facilities provided from the recreation component of the project, increase in quality of the recreational experience and educational opportunities within the project area.

# 7 - RECREATION ANALYSIS

This recreation analysis follows the National Economic Development (NED) benefit evaluation procedures contained in ER 1105-2-100, Appendix E, Section VII. Because the recreation features identified in the proposed project are of a small scale and incidental to the project purpose, the unit day value (UDV) method of benefit evaluation, based off EGM 23-03, was selected for this analysis.

The Watsonville study area provides a venue for public recreation and education. The lake provides wetland and riparian habitat for animals, public open space for hiking, biking, water activities and it offers educational opportunities for the general public.

The UDV calculations require an estimate of 5 criteria when evaluating the without and with-project recreation experience. A discussion of each of those 5 criteria follows:

Recreation Experience – This criterion tries to explore what recreation opportunities exist at the site. In the case of The Watsonville study area, there are some general activities common to the region such as hiking (walking, running) and water activities. Proposed features within the recreation plan are additional educational signage, which would add to the increased positive experiences and increased health benefits for the residents within the Watsonville study area.

Availability of opportunity – This criterion evaluates the uniqueness of the recreation experience by identifying the number and proximity of available substitutes. There are a number of marsh restoration sites within 1 hour of the Watsonville study area. This criterion will remain the same with the proposed plan.

Carrying capacity – This criterion evaluates the ability of the recreation facilities to handle the existing and projected demand. The thinking behind this criterion is that excessively crowded facilities diminish the recreation experience for users. Similarly, facilities that cannot handle the increased visitation also experience a diminished recreation experience. The existing lake infrastructure includes bare essentials to handle human visitation (parking, trash receptacles, cleared footpaths). The proposed plan includes a new educational signage. While these features both guide users through the natural environment, they do not add any additional facilities that would benefit the carry capacity of the recreation experience.

Accessibility – This criterion examines the relative ease by which users can get to and through the recreation site. The main access road to the Watsonville study area is low lying and often flooded. The proposed plan includes a road raise for ecosystem restoration that also provides incidental recreation benefits via improved access to the recreation site.

Environmental – This criterion measures the esthetic value of the recreation experience. The proposed habitat improvements, as mentioned throughout this report, represents a unique and highly-prized habitat that exists within the Watsonville study area. Efforts to improve the marsh habitat are naturally expected to increase that esthetic value. Table 5 displays the UDV in the present condition value, highlighted in blue, and the proposed condition value, highlighted in green. For instances where the present and proposed condition are the same the value is highlighted in blue.

**Table 3 - Unit Day Valuation**

| Criteria | Judgment factors | | | | |
|---|---|---|---|---|---|
| Recreation Experience | **Two general activities** | **Several General Activities** | Several General Activities: One High Quality Activity | Several General Activities: more than one high quality activity | Numerous high quality value activities: some general activities |
| Total Points: 30 | **0-4 Points** | **5-10 Points** | 11-16 Points | 17-23 Points | 24-30 Points |
| **Without Point Value:** | **4.0** | | | | |
| **With Project Point Value:** | **6.0** | | | | |
| Availability of Opportunity | **Several within 1 hour; a few within 30 minutes travel time** | Several within 1 hour travel time; none within 30 minutes travel time | One or two within 1 hour travel time: none within 45 minutes travel time | None within 1 hour travel time | None within 2 hours travel time |
| Total Points: 18 | **0-3 Points** | 4-6 Points | 7-10 Points | 11-14 Points | 15-18 Points |
| **Without Point Value:** | **1.0** | | | | |
| **With Project Point Value** | **1.0** | | | | |
| Carrying Capacity | **Minimum facility development for public health and safety** | Basic facility to conduct activity(ies) | Adequate facilities to conduct without deterioration of the resource or activity experience | Optimum facilities to conduct activity at site potential | Ultimate facilities to achieve intent of selected alternative |
| Total Points: 14 | **0-2 Points** | 3-5 Points | 6-8 Points | 9-11 Points | 12-14 Points |
| **Without Point Value:** | **3.0** | | | | |
| **With Project Point Value** | **3.0** | | | | |
| Accessibility | Limited access by any means to site or within site | **Fair access, poor quality roads to site; limited access within site** | Fair access, fair road to site; fair access, good roads within site | **Good access, good roads to site; fair access, good roads within site** | Good access, high standard road to site; good access within site |
| Total Points: 18 | 0-3 Points | **4-6 Points** | 7-10 Points | **11-14 Points** | 15-18 Points |
| **Point Value:** | **5.0** | | | | |
| **With Project Point Value** | **11.0** | | | | |

| Environmental quality | Low aesthetic factors that significantly lower quality | **Average aesthetic quality: factors exist that lower quality to minor degree** | **Above average aesthetic quality: any limiting factors can be reasonably rectified** | High aesthetic quality; no factors exist that lower quality | Outstanding aesthetic quality; no factors exist that lower quality |
|---|---|---|---|---|---|
| Total Points: 18 | 0-3 Points | **4-6 Points** | **7-10 Points** | 11-14 Points | 15-18 Points |
| **Without Point Value:** | **6.0** | | | | |
| **With Project Point Value:** | **8.0** | | | | |
| **Total Without Point Total:** | | **19.0** | | | |
| **Total With Project Point Value:** | | **29.0** | | | |

The without project recreation valuation is 19 points and the with-project valuation is 29 points. Converting those points to dollar values in Table 6, the benefit of the project is expected to be $0.92 per an annual visit.

**Table 4 - Conversion of Points to Dollar Values**

| Point Values | General Recreation Values (1) | General Fishing and Hunting Values (1) | Specialized Fishing and Hunting Values (2) | Specialized Recreation Values other than Fishing and Hunting (2) |
|---|---|---|---|---|
| 0 | $5.05 | $7.26 | $35.36 | $20.52 |
| 10 | $6.00 | $8.21 | $36.30 | $21.78 |
| 20 | $6.63 | $8.84 | $36.93 | $23.36 |
| 30 | $7.58 | $9.79 | $37.88 | $25.25 |
| 40 | $9.47 | $10.73 | $38.83 | $26.83 |
| 50 | $10.73 | $11.68 | $42.62 | $30.31 |
| 60 | $11.68 | $12.94 | $46.41 | $33.46 |
| 70 | $12.31 | $13.57 | $49.25 | $40.41 |
| 80 | $13.57 | $14.52 | $53.03 | $47.04 |
| 90 | $14.52 | $14.84 | $56.82 | $53.67 |
| 100 | $15.15 | $15.15 | $59.98 | $59.98 |

Recreation data from the adjacent recreation site Palm Beach State was utilized to determine the annual number of visits to the Watsonville Slough. Based on existing recreation data, average annual visitation for this site is 37,315. Utilizing the existing recreation data and the latest Unit Day Values it was determined that recreation benefits of the proposed alternative are $34,330.