

**Spring Creek Aquatic Ecosystem Restoration
Continuing Authorities Program (CAP) 206**

**Appendix G
Economics Appendix**

U. S. Army Corps of Engineers
Albuquerque District

DRAFT

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1- AREAS OF CONSIDERATION

The proposed project site is in City of Colorado Springs, Colorado. The population of Colorado Springs, Colorado is 478,961 according to the 2020 census. The Spring Creek basin is within the larger Fountain Creek Watershed (HUC 8: 11020003 - Fountain; HUC 4: 1102 - Upper Arkansas). The defined stream channel generally slopes from the northeast to the southwest and is approximately 4 miles long, from just under half a mile upstream of the project area to its confluence with Fountain Creek.

For the purposes of this study, the area was divided into three reaches (shown in Figure 1):

- **Reach 1: Pikes Peak North** is bordered to the west by Wagner Park, to the south by Pikes Peak Ave., to the north by a city fire station, and to the east by commercial businesses.
- **Reach 2: Former Wetland** is located southwest of the intersection of Pikes Peak Ave. and S. Academy Blvd and directly south of Reach 1.
- **Reach 3: South Channel** is located directly south of Reach 2 and is bordered to the west and to the south by private land, and to the east by commercial businesses.

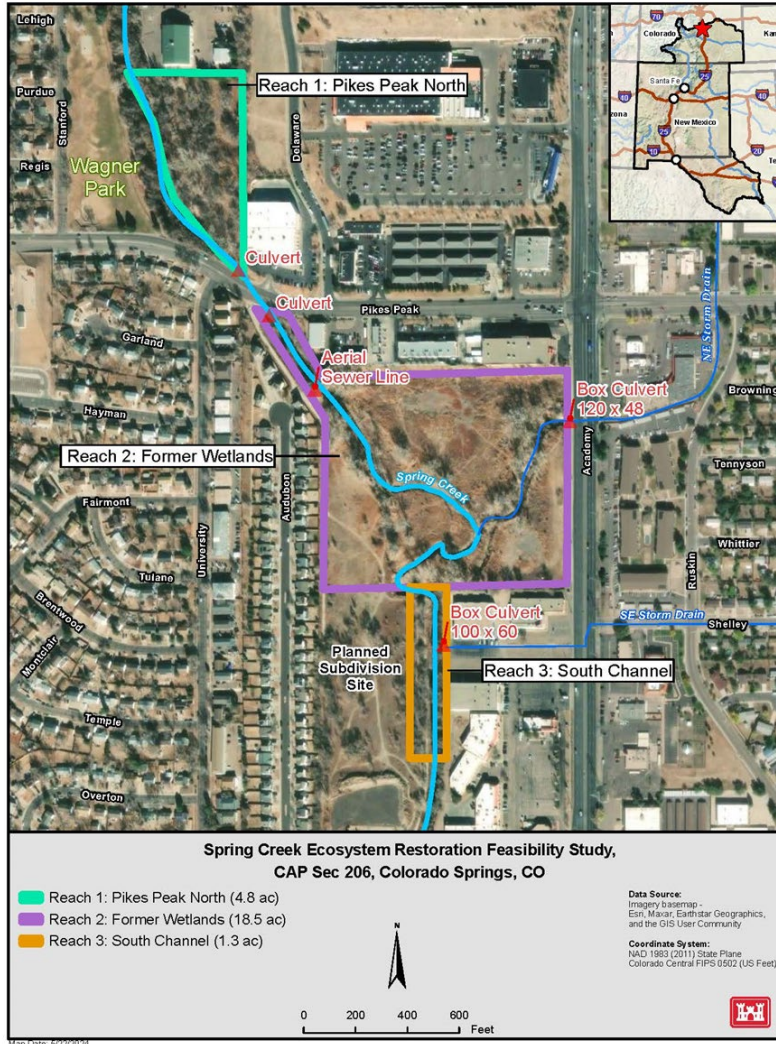


Figure 1: Spring Creek Proposed Project Site

2- NER PLAN SELECTION CRITERIA

United States Army Corps of Engineers (USACE) policy, presented in Engineer Regulation 1105-2-103, Policy for Conducting Civil Works Planning Studies, 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 CE/ICA modeling used in this appendix was done using the IWR-Planning Suite II (2.09.35), which is the current certified version of the software.

3- CE/ICA INPUTS

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.

The three reaches in Spring Creek face unique ecosystem restoration problems and the team formulated potential solutions for each reach. The proposed solutions are as follow:

Reach 1A Protect and Stewardship – Includes bank stabilization on the west side using boulder toe protection, riparian plantings behind the boulder toe, boulder clusters in the stream, and creating a walking/vehicle access and picnic area with signage.

Reach 1B Protect, Stewardship, & Invasive Species Removal - Includes all features included in Reach 1A as well as invasive species removal along the east side of Spring Creek

Reach 1C Protect, Stewardship, Invasive Species Removal, Plant East Bench- Includes all features included in Reach 1B with the addition of east bench stone toe protection and riparian planting behind the added stone toe protection.

Reach 2A Wetland Creation, Riparian Plantings, Stewardship- Includes two constructed rock riffles will act as grade control structures to counter the incision that is occurring in the reach. Upstream, the banks will be laid back at varying elevations and degrees of slope) to create areas that will be permanently and periodically wet (wetlands) and planted with suitable wetland plants. Stone will be added to the banks where there are currently sharp bends to stop the erosion occurring and stabilize the stream. Access paths into the site will include a trail from the west, south, and northeast corner.

Reach 2B Larger Wetland Creation, Riparian Plantings, Stewardship- Includes features within 2A with larger wetland creation.

Reach 3A West Riparian Improvements – Includes removal of the concrete slabs on the west bank, cut of the west bank to adjust the slope to a 3:1 ratio, riprap on the west bank, riparian bench plantings, and instream habitat boulders.

Reach 3B West Riparian Improvements and Added Rock Riffle – Includes all features in Reach 3A with the addition of new rock riffle in the northern portion of the reach.

Benefits for this analysis are described as Habitat Units (HUs). The HUs are then annualized throughout the 50-year study period to provide an overall average annual HU, or AAHU. Habitat value is difficult to express in monetary terms, therefore the productive output of project features is measured in habitat units. 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. For this project, FAC-Stream and FAC-Wet environmental models were used to quantify the habit value. FAC-Stream was used for plan comparison in CE/ICA because it provides HUs for Reaches 1-3 while FAC-Wet only provides HUs for Reach 2 alternatives. Table 1 displays the AAHUs from the FAC-Stream model.

Table 1 : Spring Creek Reaches and Benefits (AAHUs)

| <i>FACStream</i> | |
|------------------|-------|
| <i>Reach 1A</i> | 0.396 |
| <i>Reach 1B</i> | 0.456 |
| <i>Reach 1C</i> | 0.514 |
| <i>Reach 2A</i> | 1.391 |
| <i>Reach 2B</i> | 1.673 |
| <i>Reach 3A</i> | 0.518 |
| <i>Reach 3B</i> | 0.542 |

To perform the CE/ICA, each of the reaches required annualized investment costs. Costs were provided by the cost engineer and include construction, planning engineering design, LERRDs, construction management, and monitoring and adaptive management costs. Interest during construction was calculated for all reaches with construction durations greater than 1 month using IWR Planning Suite. Middle of the period discounting was used for interest during construction calculations. The sum of these costs was annualized using FY25 Federal Interest Rate of 3.0% over a 50-year project life and added to the annual OMRR&R costs. OMRR&Rs costs, provided by the cost engineer, were annualized using the FY25 Federal Interest Rate of 3.0% and are presented in the assumed budget year FY27 price level. Table 2 displays the annualized costs for each reach.

Table 2: Spring Creek Annual Costs (\$, FY27 Price Level)

| <i>Measure</i> | <i>Project First Cost</i> | <i>Construction Duration</i> | <i>Interest During Construction</i> | <i>Total Investment Cost</i> | <i>Annualized First Cost</i> | <i>Annualized O&M</i> | <i>Total Annualized Cost</i> |
|-----------------|---------------------------|------------------------------|-------------------------------------|------------------------------|------------------------------|---------------------------|------------------------------|
| <i>Reach 1a</i> | \$1,061,200 | 4 mos | \$5,200 | \$1,066,400 | \$41,400 | \$16,900 | \$58,400 |
| <i>Reach 1b</i> | \$1,316,200 | 5 mos | \$8,100 | \$1,324,300 | \$51,500 | \$16,900 | \$68,400 |
| <i>Reach 1c</i> | \$1,915,100 | 6 mos | \$14,200 | \$1,929,300 | \$75,000 | \$31,300 | \$106,300 |
| <i>Reach 2a</i> | \$4,303,300 | 9 mos | \$48,100 | \$4,351,300 | \$169,100 | \$9,100 | \$178,200 |
| <i>Reach 2b</i> | \$6,796,200 | 14 mos | \$118,500 | \$6,914,700 | \$268,700 | \$10,400 | \$279,100 |
| <i>Reach 3a</i> | \$3,262,200 | 8 mos | \$32,400 | \$3,294,600 | \$128,000 | \$3,200 | \$131,300 |
| <i>Reach 3b</i> | \$3,265,700 | 8 mos | \$32,400 | \$3,298,100 | \$128,200 | \$3,200 | \$131,400 |

4- COST EFFECTIVE AND INCREMENTAL COST ANALYSIS

The PDT determined that to meet the plan objective to reconnect and restore native wetland habitats within the study area, the final array of alternatives must include Reach 2A or Reach 2B since these are the only group of measures that include wetland creation. Additionally, since the different reach variations include all features within the smaller plan in addition to an added feature, the different reach variations cannot be combined with one another i.e., Reach 1A cannot be combined with Reach 1B. To represent this in CE/ICA the costs and benefits of the 24 Reach 2 focused plans were combined outside of the CE/ICA and entered as ‘User-Entered Set’ in CE/ICA. There were two habitat models computed for this project, but the CE/ICA utilizes the FAC-Stream output so that the habitat and costs can be evaluated across all 3 reaches.

Table 3: Spring Creek CE/ICA Inputs

| Plan Number | Alternative | Cost | FAC Stream Output |
|--------------------|--------------------|-------------|--------------------------|
| 1 | No Action | \$0 | 0 |
| 2 | Reach 2a Only | \$178,194 | 1.391 |
| 3 | Reach 2b Only | \$279,144 | 1.673 |
| 4 | Reach 2a1a | \$236,588 | 1.787 |
| 5 | Reach 2a1b | \$246,610 | 1.847 |
| 6 | Reach 2a1c | \$284,502 | 1.905 |
| 10 | Reach 2a3a | \$309,482 | 1.909 |
| 11 | Reach 2a3b | \$309,619 | 1.933 |
| 7 | Reach 2b1a | \$337,539 | 2.069 |
| 8 | Reach 2b1b | \$347,560 | 2.129 |
| 9 | Reach 2b1c | \$385,452 | 2.187 |
| 12 | Reach 2b3a | \$410,433 | 2.191 |
| 13 | Reach 2b3b | \$410,569 | 2.215 |
| 14 | Reach 2a1a3a | \$367,877 | 2.305 |
| 20 | Reach 2a1a3b | \$368,014 | 2.329 |
| 15 | Reach 2a1b3a | \$377,899 | 2.365 |
| 21 | Reach 2a1b3b | \$378,035 | 2.389 |
| 16 | Reach 2a1c3a | \$415,791 | 2.423 |
| 22 | Reach 2a1c3b | \$415,927 | 2.447 |
| 17 | Reach 2b1a3a | \$468,828 | 2.587 |
| 23 | Reach 2b1a3b | \$468,964 | 2.611 |
| 18 | Reach 2b1b3a | \$478,849 | 2.647 |
| 24 | Reach 2b1b3b | \$478,986 | 2.671 |
| 19 | Reach 2b1c3a | \$516,741 | 2.705 |
| 25 | Reach 2b1c3b | \$516,878 | 2.729 |

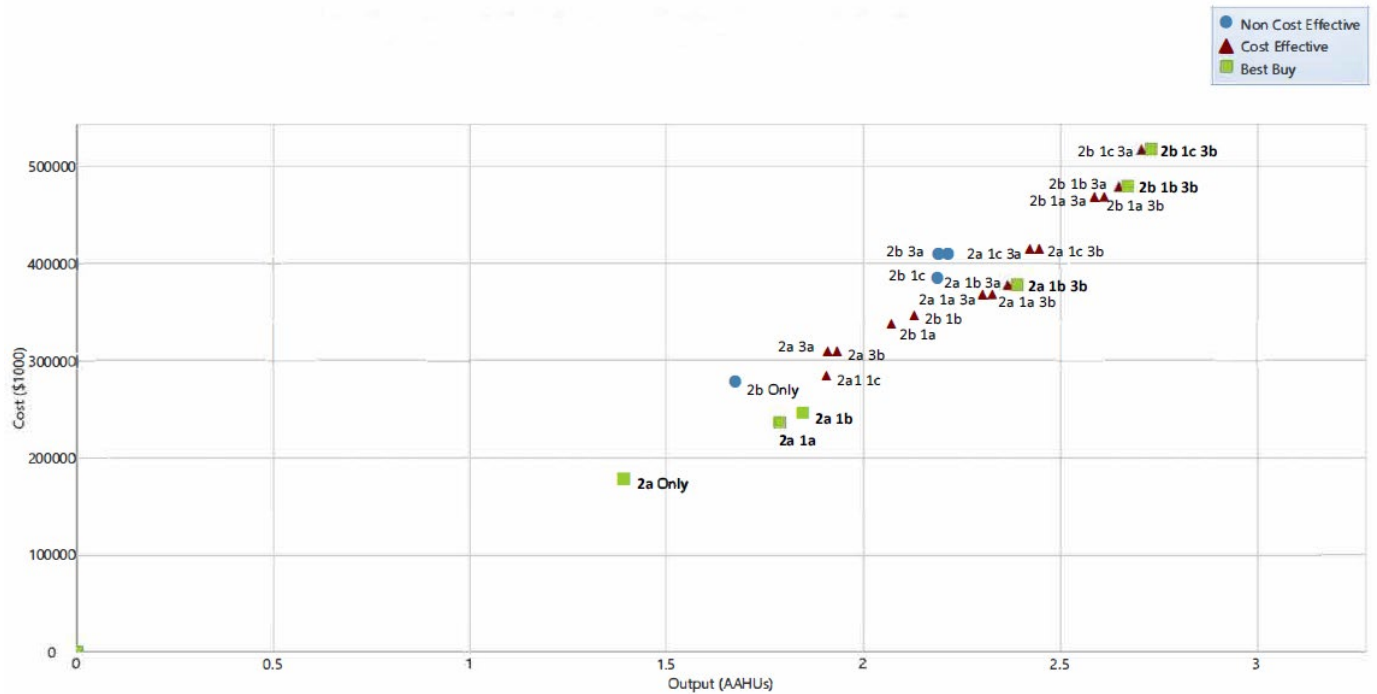
4.1 Cost Effective Analysis

Cost effectiveness is the first step in the CE/ICA analysis. An alternative is considered cost effective when no other plan provides equal or greater benefit for equal or lesser cost. Of the 25 plans inputted into CE/ICA, 14 plans were cost effective. Table 4 displays the alternatives in CE/ICA and the cost effectiveness of each of the alternatives. Figure 4 displays the alternatives and their cost effectiveness in graphical form. The NER Plan cannot be a plan that is non-cost effective, so all the plans that were deemed non-cost effective were not carried forward to further consideration.

Table 4: Spring Creek Alternatives Cost Effectiveness

| Alternative Number | Alternative | Average Annual Habitat Units | Annualized Cost | Annualized Cost/AAHU | Cost Effective (Y/N) |
|--------------------|---------------|------------------------------|-----------------|----------------------|----------------------|
| 1 | No Action | 0 | 0 | - | Y |
| 2 | Reach 2a Only | 1.391 | \$178,194 | \$128,105 | Y |
| 3 | Reach 2b Only | 1.673 | \$279,144 | \$166,852 | N |
| 4 | Reach 2a1a | 1.787 | \$236,588 | \$132,394 | Y |
| 5 | Reach 2a1b | 1.847 | \$246,610 | \$133,519 | Y |
| 6 | Reach 2a1c | 1.905 | \$284,502 | \$149,345 | Y |
| 10 | Reach 2a3a | 1.909 | \$309,482 | \$162,117 | N |
| 11 | Reach 2a3b | 1.933 | \$309,619 | \$160,175 | Y |
| 7 | Reach 2b1a | 2.069 | \$337,539 | \$163,141 | Y |
| 8 | Reach 2b1b | 2.129 | \$347,560 | \$163,251 | Y |
| 9 | Reach 2b1c | 2.187 | \$385,452 | \$176,247 | N |
| 12 | Reach 2b3a | 2.191 | \$410,433 | \$187,327 | N |
| 13 | Reach 2b3b | 2.215 | \$410,569 | \$185,359 | N |
| 14 | Reach 2a1a3a | 2.305 | \$367,877 | \$159,600 | Y |
| 20 | Reach 2a1a3b | 2.329 | \$368,014 | \$158,014 | Y |
| 15 | Reach 2a1b3a | 2.365 | \$377,899 | \$159,788 | Y |
| 21 | Reach 2a1b3b | 2.389 | \$378,035 | \$158,240 | Y |
| 16 | Reach 2a1c3a | 2.423 | \$415,791 | \$171,602 | Y |
| 22 | Reach 2a1c3b | 2.447 | \$415,927 | \$169,974 | Y |
| 17 | Reach 2b1a3a | 2.587 | \$468,828 | \$181,224 | Y |
| 23 | Reach 2b1a3b | 2.611 | \$468,964 | \$179,611 | Y |
| 18 | Reach 2b1b3a | 2.647 | \$478,849 | \$180,903 | Y |
| 24 | Reach 2b1b3b | 2.671 | \$478,986 | \$179,328 | Y |
| 19 | Reach 2b1c3a | 2.705 | \$516,741 | \$191,032 | Y |
| 25 | Reach 2b1c3b | 2.729 | \$516,878 | \$189,402 | Y |

Figure 2: Spring Creek CE/ICA Cartesian Plot



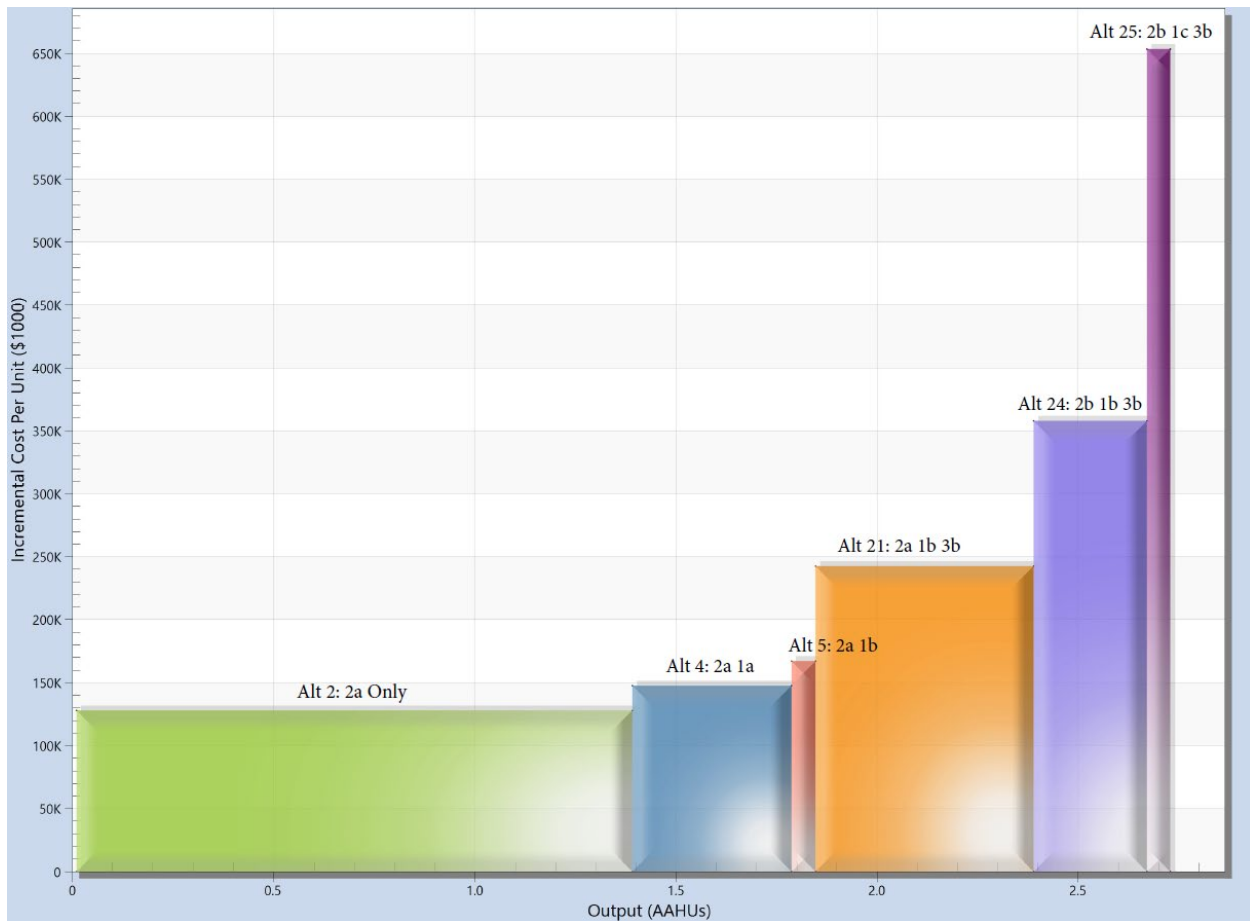
4.2 Best Buys

The next step of the CE/ICA is the incremental cost analysis. The incremental cost analysis measures the change in cost divided by the change in benefits to determine the plans that are incrementally justified. Plans that are considered incrementally justified are called ‘Best Buys’. Of the 14 cost effective plans, seven were ‘Best Buy’ alternatives. The No-Action and max plan are always considered ‘Best Buys’. The remaining ‘Best Buy’ plans include Reach 2a Only, Reach 2a1a, Reach 2a1b, Reach 2a1b3b, and Reach 2b1b3b. Table 5 displays the Spring Creek ‘Best Buy’ alternatives and Figure 3 shows the same alternatives on a box plot for visual reference. All ‘Best Buy’ alternatives were carried forward into the final array.

Table 5: Spring Creek 'Best Buy' Alternatives

| Alternative Number | Best Buy Alternative | AAHUs | Annualized Cost | Incremental AAHU | Incremental Costs | Incremental Cost/AAHU |
|--------------------|----------------------|-------|-----------------|------------------|-------------------|-----------------------|
| 1 | No-Action | 0 | \$ - | - | - | - |
| 2 | Reach 2a Only | 1.391 | \$178,200 | 1.391 | \$178,200 | \$128,100 |
| 4 | Reach 2a1a | 1.787 | \$236,600 | 0.396 | \$58,400 | \$147,500 |
| 5 | Reach 2a1b | 1.847 | \$246,600 | 0.06 | \$10,000 | \$167,000 |
| 21 | Reach 2a1b3b | 2.389 | \$378,000 | 0.542 | \$131,400 | \$242,500 |
| 24 | Reach 2b1b3b | 2.671 | \$478,900 | 0.282 | \$101,000 | \$358,000 |
| 25 | Reach 2b1c3b | 2.729 | \$516,800 | 0.058 | \$37,900 | \$653,300 |

Figure 3: Best Buy Box Plot



4.2.1 Incremental Justification – Is It Worth It?

An important step in determining the TSP is taking the information from the incremental analysis and determining if the added benefits are worth the additional cost.

Alternative 1 No-Action – The No-Action alternative costs \$0 but it also provides no benefits to the project site. The future without project conditions will remain unchanged and current trends will continue over the period of analysis.

Alternative 2 Reach 2a Only – Alternative 2 has an incremental cost of \$178,200 and an incremental output of 1.39 AAHUs. It provides benefits to the Reach 2 portion of the Spring Creek project site. Reach 2a Only has the lowest incremental cost per incremental output; this is largely due to it being the first ‘Best Buy’ plan after the No-Action plan and, while it is cost efficient, it is also limited in the geographic scope of the benefits it provides.

Alternative 4 Reach 2a 1a – Alternative 5 has an incremental cost of \$58,400 and incremental output of 0.396 AAHUs. It provides benefits to Reach 1 and Reach 2. It has a relatively low incremental cost per incremental output but does not include any benefits to the Reach 3 portion of the Spring Creek project therefore it ranked lower than the other alternatives in the final array.

Alternative 5 Reach 2a1b – Alternative 7 has an incremental cost of \$10,000 and an incremental output of 0.06 AAHUs. It provides benefits the Reach 1 and Reach 2 portions of the Spring Creek project site. This

alternative has the lowest incremental output of any of the alternative in the final array and it is still limited in scope because it does not include any features in Reach 3, for these reasons it was ranked lower for the other alternatives in the final array.

Alternative 21 Reach 2a1b3b – Alternative 18 has an incremental cost of \$131,400 and an incremental output of 0.54 AAHUs. While it is less cost efficient than Alternatives 1, 2, 5, and 7 it has the desirable benefit of providing restoration features to all reaches in the Spring Creek project site and it was therefore ranked higher than the other alternatives.

Alternative 24 Reach 2b1b3b – Alternative 24 has an incremental cost of \$101,000 and an incremental output of 0.28 AAHUs. Alternative 24 provides benefits to all reaches in the Spring Creek project site, adds additional acreage of wetlands to the Reach 2 portion Spring, and has lower incremental cost when compared to Alternative 18. For these reasons Alternative 24 has very highly ranked compared to the other alternatives in the final array.

Alternative 25 Reach 2b1c3b – Alternative 25 has an incremental cost of \$37,900 and an incremental output of 0.06 AAHUs. Alternative 25 is the ‘max’ alternative. It includes the highest of amount of ecosystem restoration features of the alternatives in CE/ICA. However, compared to the other alternatives the incremental benefit of this alternative is very small, so the added cost of the max alternative was not highly ranked when compared to the other alternatives.

5- ADDRESSING THE FOUR ACCOUNTS (NER, EQ, 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 1105-2-103, Planning Policy for Conducting Civil Works Planning Studies. The evaluation of the recommended plan against those accounts follows:

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

The National Ecosystem Restoration (NER) account documents increase (or decrease) in the net quantity and/or quality of desired ecosystem resources.

(2) The environmental quality (EQ) account displays non-monetary effects on ecological, cultural, and aesthetic resources including the positive and adverse effects of aquatic ecosystem restoration plans.

(3) The Regional Economic Development (RED) account displays changes in the distribution of regional economic activity (for example, income and employment).

(4) The OSE account displays plan effects on social aspects such as community resilience, public health, life safety, displacement, energy conservation, and similar effects.

The NER account is evaluated using CE/ICA; discussion of the NER evaluation is documented in section 4.

5.1 Environmental Quality (EQ)

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. 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.

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.

Aesthetics – The riparian and wetland features in the final array add aesthetic improvements to the area. Alternatives 18, 24, and 25 have added EQ benefit because they include partial concrete wall removal in Reach 3 which significantly improves the environmental aesthetics of the area.

5.2 Regional Economic Development (RED)

The 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 using income and employment multipliers via the Regional Economic System (RECONs) model. RECONs used IMPLAN software and data to estimate the economic impact of Civil Works spending projects. For this analysis, the project first cost for construction was inputted into the RECONs software as the project expenditure. The results are based on using Colorado Springs, CO as the local area, environment as the business line, and construction ENV as the work activity. Table 6 displays the economic impact to the local economy as a result of implementing the various alternatives in the final array. In the table below ‘Output’ refers to the total value of purchases by intermediate and final consumers and ‘Value Added’ refers to the gross regional product or the sum of employee compensation, proprietor income, other property type income, and indirect business taxes.

Table 6: Final Array RECONs Results

| Reach 2a Only | Local Capture | Output | Jobs | Labor Income | Value Added |
|---------------------|---------------|---------------|------|--------------|--------------|
| Direct Impact | | \$ 4,154,558 | 46 | \$ 2,888,369 | \$ 2,544,375 |
| Secondary Impact | | \$ 3,029,955 | 17 | \$ 944,562 | \$ 1,709,300 |
| Total Impact | \$ 4,154,558 | \$ 7,184,513 | 63 | \$ 3,832,931 | \$ 4,253,675 |
| Reach 2a1b | | | | | |
| Direct Impact | | \$ 5,425,230 | 59 | \$ 3,771,777 | \$ 3,322,572 |
| Secondary Impact | | \$ 3,956,668 | 22 | \$ 1,233,457 | \$ 2,232,090 |
| Total Impact | \$ 5,425,230 | \$ 9,381,898 | 82 | \$ 5,005,234 | \$ 5,554,662 |
| Reach 2a1b3b | | | | | |
| Direct Impact | | \$ 8,578,074 | 94 | \$ 5,963,725 | \$ 5,253,468 |
| Secondary Impact | | \$ 6,256,064 | 35 | \$ 1,950,274 | \$ 3,529,257 |
| Total Impact | \$ 8,578,074 | \$ 14,834,138 | 129 | \$ 7,913,999 | \$ 8,782,725 |
| Reach 2b1b3b | | | | | |

| | | | | | |
|---------------------|---------------|---------------|-----|---------------|---------------|
| Direct Impact | | \$ 10,984,815 | 120 | \$ 7,636,961 | \$ 6,727,428 |
| Secondary Impact | | \$ 8,011,322 | 45 | \$ 2,497,460 | \$ 4,519,457 |
| Total Impact | \$ 10,984,815 | \$ 18,996,137 | 166 | \$ 10,134,422 | \$ 11,246,885 |
| Reach 2b1c3b | | | | | |
| Direct Impact | | \$ 11,563,050 | 127 | \$ 8,038,967 | \$ 7,081,556 |
| Secondary Impact | | \$ 8,433,034 | 48 | \$ 2,628,925 | \$ 4,757,359 |
| Total Impact | \$ 11,563,050 | \$ 19,996,084 | 174 | \$ 10,667,892 | \$ 11,838,915 |

*Jobs are presented in full-time equivalents

5.3 Other Social Effects (OSE)

The Other Social Effects (OSE) account displays plan effects on social aspects such as health and safety, economic vitality, social connectedness, identity, leisure and recreation etc., In most cases, impacts of proposed projects not covered in other accounts are described and evaluated here.

Primary affects to OSE of proposed recreation include would benefit health, social connectedness and educational and recreational opportunities by providing a public access to the improved site. Under the No-Action alternative the site will experience increased environmental degradation, and site will continue to be fenced off and the community will not be able to access the site for recreational or educational opportunities. Additionally, illegal trash dumping occurs on the site further decreasing the aesthetic value of the site for recreational enjoyment. All the alternatives with proposed restoration would positively benefit the community and is intended to foster a sense of environmental stewardship so that the site can be a place that can be enjoyed by wildlife and community members alike.

6- 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.

Under current conditions the Spring Creek project site is not used for recreation. Reach 2 was previously owned by the Audubon Society and functioned as a wetlands bird sanctuary. During this the time there was public access to the site and nearby residents benefited from the natural green space – utilizing the space for birdwatching and wildlife viewing. Since the closure of the sanctuary in 1982, there has been no sanctioned public access to any locations in the project site. Throughout the years, the project site has suffered from ecosystem degradation and has become a dumping ground for trash and debris.

The UDV calculations require an estimate of 5 criteria when evaluating the without and with-project recreation experience. Table 5 displays the UDV in the present condition value, highlighted in yellow, and the proposed condition value, highlighted in green. A discussion of each of those 5 criteria follows:

Recreation Experience – This criterion explores the recreation opportunities that exist at the site. Under the existing condition, there is no public access to the site and therefore no opportunity to recreate within the site. Proposed features in the recreation plan are gravel trails and signage that would guide users through Reach 1 and Reach 2 as well as picnic benches in Reach 2. The added recreation features allow for the opportunity to participate in several general activities such as walking, running, biking, picnicking, and wildlife viewing. The restoration and added recreation features at Spring Creek offer public access to

the upland, headwaters of Spring Creek. This is unique in an urbanized area and represents a high-quality opportunity for hiking and wildlife viewing experience.

Availability of opportunity – This criterion evaluates the uniqueness of the recreation experience by identifying the number and proximity of available substitutes. There are several urban parks with 30 minutes of the project site.

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. There are no facilities under the future without project condition because there is no sanctioned public access within the site. The proposed recreation features are limited but they provide adequate facilities to conduct recreation without deterioration of the natural environment or 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 Spring Creek site is well maintained and in good condition. As mentioned previously under the FWOP condition there is no sanctioned public access to the site. There is metal fencing around the perimeter deterring the general public from accessing the site. With the proposed recreation features in place, the site will be open to the public and gravel paths will guide users through the site.

Environmental – This criterion measures the aesthetic value of the recreation experience. Under the existing condition the ecosystem is degraded. With the implementation of the ecosystem restoration features the aesthetic value of the site will significantly improve. The site is still in an urbanized environment so it will not be a pristine natural area free from the influences of the urbanized setting that surrounds it, but it will be a significant improvement.

Table 7 - Unit Day Valuation

| Criteria | Judgment factors | | | | |
|--|--|---|---|--|---|
| Recreation experience ¹ Total Points: 30 Point Value: | Two general activities ² 0-4 0 | Several general activities 5-10 | Several general activities: one high quality value activity ³ 11-16 11 | Several general activities; more than one high quality high activity 17-23 | Numerous high quality value activities; some general activities 24-30 |
| Availability of opportunity ⁴ Total Points: 18 Point Value: | Several within 1 hr. travel time; a few within 30 min. travel time 0-3 0 | Several within 1 hr. travel time; none within 30 min. travel time 4-6 3 | One or two within 1 hr. travel time; none within 45 min. travel time 7-10 | None within 1 hr. travel time 11-14 | None within 2 hr. travel time 15-18 |
| Carrying capacity ⁵ Total Points: 14 Point Value: | Minimum facility for development for public health and safety 0-2 0 | Basic facility to conduct activity(ies) 3-5 | Adequate facilities to conduct without deterioration of the resource or activity experience 6-8 6 | Optimum facilities to conduct activity at site potential 9-11 | Ultimate facilities to achieve intent of selected alternative 12-14 |

| | | | | | |
|---|---|--|--|--|---|
| Accessibility Total Points: 18 Point Value: | Limited access by any means to site or within site 0-3 | Fair access, poor quality roads to site; limited access within site 4-6 4 | Fair access, fair road to site; fair access, good roads within site 7-10 | Good access, good roads to site; fair access, good roads within site 11-14 12 | Good access, high standard road to site; good access within site 15-18 |
| Environmental quality Total Points: 20 Point Value: | Low aesthetic factors ⁶ that significantly lower quality ⁷ 0-2 2 | Average aesthetic quality; factors exist that lower quality to minor degree 3-6 | Above average aesthetic quality; any limiting factors can be reasonably rectified 7-10 10 | High aesthetic quality; no factors exist that lower quality 11-15 | Outstanding aesthetic quality; no factors exist that lower quality 16-20 |

The total value of the without project point values is 6 and the point values for the with project including the proposed recreation is 46. The point values were converted to dollar values using *Economic Guidance Memorandum 24-02 , Unit Values for Recreation for Fiscal Year 2024* general recreation values. These values are show in Table 8 below. The conversion was \$5.62 for the without project and \$10.23 for the with project. This totals to \$4.61 in added benefit due to the added recreation features.

Table 8 - Conversion of Points to Dollar Values

| Point Values | General Recreation Values |
|--------------|---------------------------|
| 0 | \$5.05 |
| 6 | \$5.62 |
| 10 | \$6.00 |
| 20 | \$6.63 |
| 30 | \$7.58 |
| 40 | \$9.47 |
| 46 | \$10.23 |
| 50 | \$10.73 |
| 60 | \$11.68 |
| 70 | \$12.31 |
| 80 | \$13.57 |
| 90 | \$14.52 |

Since the Spring Creek site is not currently space to recreate there was no existing recreation data on the site. Using US Census Track information and best professional judgement it's estimated that roughly

17,000 individuals live near the proposed recreation site. It was estimated that one-third of individuals would use the trail each year and they would visit at least two times throughout the year. For computational purposes it was estimated that the trails would be used 11,500 visits annually. Using the \$4.61 in benefits, described above, the total benefits of the would be \$53,015. The cost of the recreation features was calculated by SPA Cost Engineering Division. The estimated cost of the recreation features is \$318,153 (FY27 price level) and annualizing that figure using the FY25 discount rate of 3.0%- and 50-year period analysis, the total annualized cost is \$12,365. The benefit to cost ratio of the recreation features is 4.29 exceeding the 1.0 requirement and justifying the recreation components of the plan.