Platte River Programmatic Environmental Impact Statement Technical Appendix

Regional Economics

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Appendix
Regional Economic Impact Analysis for the Platte River Recovery Implementation Program

For the Platte River Environmental Impact Statement (EIS), a regional economic impact analysis was completed for 8 defined economic regions throughout the Platte River Basin. The regional impacts from changes in recreational spending, agricultural expenditures and net farm income as well as changes associated with the defined alternatives are analyzed using the IMPLAN (Impact Analysis for Planning) model, an input-output (I-O) modeling framework. IMPLAN was originally developed by the USDA Forest Service in cooperation with the Federal Emergency Planning Agency and the Bureau of Land Management to assist the Forest Service in land and resource management planning. MIG began work on IMPLAN databases in 1987 at the University of Minnesota. In 1993, Minnesota IMPLAN Group was formed to privatize the development of IMPLAN data and software. The IMPLAN system has been used since 1979 and has evolved from a mainframe, non-interactive application that ran in "batch" mode to a menu-driven microcomputer program that is completely interactive. The IMPLAN model uses the U.S. Department of Commerce national input-output matrices to estimate flows of commodities used by industries and commodities produced by industries. The data used in this analysis is 2002 IMPLAN data and structural matrices. Social accounts are included in the IMPLAN database for each region of consideration. Social accounts represent the flow of commodities to industry from producers and consumers as well as consumption of the factors of production from outside the region. Social accounts are converted into input-output accounts and the multipliers for each industry within the region, which considers the multiple effects of changes in spending described below. These multipliers are the tools that describe the demand generated for goods and services from an industry and, in response, generate demand for other goods and services from those industries, and so on. The percentage of expenditures in each category that would remain within the region and expenditures that would flow outside the region are also accounted for with the IMPLAN model.

Regional models are prepared to provide a detailed picture of a regional economy and predict the potential regional impacts from changes in spending and economic activity. I-O models are used to estimate changes in the value of regional output, employment and income brought on by changes in expenditures for final demand[1]. Regional impacts are determined by the interdependence of production and consumption sectors within a region. Industries must purchase inputs from other industries, or potentially from within their own industry, for use in the production of outputs which are sold either to other industries or final consumers. Thus, a set of I-O accounts can be thought of as a "snapshot" of an impact area's economic structure. Flows of industrial inputs can be traced via the I-O accounts to show linkages between the industries composing the regional economy. The accounts are also transformed into a set of simultaneous equations that permit the estimation of economic impacts (changes in employment, income, etc.) resulting from changes in purchases of

[1]Final demand represents purchases by the final consumer (households, government, investment, exports)

goods and services within the impact area. Economy wide regional impacts, measured as changes in sales, jobs and income, of each potential operational change can be measured by applying the direct effects of irrigation, recreation, and construction expenditures to the model for each region.

Direct effects are the initial changes in the industry to which there is a change in final demand. The direct effects are equal to the value of the change in final demand used to estimate regional impacts. For example, the direct effects of a management action resulting in water delivery changes may be changes in the value of agricultural production due to changes in irrigated acreage. Estimates of direct economic impacts are necessary to evaluate the overall effects of the action to that sector of the regional or local economy. Establishing direct impacts is a necessary and significant step to a Third Party Impact Analysis (TPI).

Indirect impacts are the secondary economic effects on regional and local economies that occur as a result of the direct impacts. Using the example above of changes in irrigated acreage, indirect impacts would be changes in final demand for industries needed to support the primary agricultural input requirements. These are analyzed with the regional I-O model. This requires detailed information on the alternatives, including the direct impacts. Induced impacts represent the impacts on local industries as a result of changes in household expenditures generated by the direct and indirect effects. The model generates estimates of the effects on all sectors in the region from a change in "economic activity" that takes place. It should be noted that I-O methodology provides an estimate of changes to a regional economy from changes in output and activities and is not an exact projection.

Regional model construction consisted of determining eight separate economic impact regions that represent the economy of the Platte River Basin. These economic regions are described below. These accounts describe the baseline economy in each region and form the basis for the regional models. The baseline economic activity (as defined by the IMPLAN model) for the indicators in the defined economic regions is available on CD.

Platte River Basin Economic Impact Regions

The eight economic regions used in this analysis include 48 counties in a three-state area: 18 counties in Colorado; 8 counties in Wyoming; and 22 counties in Nebraska. A visual representation of these regions is on Figure 4-AE-1.

1. Central Platte Habitat Area: Dawson, Buffalo, Gosper, Phelps, Kearney, Merrick, Hamilton, Hall, Adams
2. Lake McConaughy Area: Keith, Lincoln, Deuel, Garden, Arthur, McPherson, Custer, Cheyenne, Sedgwick*, Logan*
3. Scotts Bluff Area: Sioux, Scotts Bluff, Banner, Kimball, Morrill, Goshen*
4. Eastern WY: Laramie, Platte, Albany
5. North Platte Headwaters: Converse, Natrona, Fremont, Carbon, Jackson*
6. E. Central CO: Larimer, Weld, Morgan, Washington

7. South Platte Headwaters: Gilpin, Clear Creek, Park, Teller
8. Denver Metro: Boulder, Adams, Jefferson, Denver, Arapahoe, Douglas, Elbert

* denotes counties crossing state boundaries

These eight economic regions are groups of counties that allow economic evaluation of impacts in a smaller region than an entire state or basin. These regions were determined using a number of factors including the extent and type of irrigation, location of recreation areas, hydrologic features and the characteristics of the economy. The study area approximates as nearly as possible the counties and regions which could be affected by the Platte River Program or EIS alternatives.

The size of the impact area used in a regional economic impact analysis is important because the magnitude of impacts will generally increase as the size of the impact area increases. For example, the economic impacts on the state of Nebraska from retiring a given number of acres of land within, say, Buffalo County will be larger than the economic impacts on Buffalo county from retiring that same number of acres. This is the result of differences in the leakages that occur for different impact regions. Leakages are any payments made to imports or value added sectors which do not in turn re-spend the dollars within the region. The state of Nebraska has many different types of businesses and industry which can supply a wide variety of goods and services. Buffalo County does not have the variety of businesses that the state has, so consumers and businesses must go outside the county to purchase some of the inputs that aren't available. Spending that occurs outside of the study area represents leakages of expenditures, which reduces the economic impact of changes in activities within the county compared to all of Nebraska. The same holds true when using individual counties as the economic area. Buffalo County would not have the capacity to absorb all of the impacts, and those impacts to surrounding counties would not be accounted for due to those counties not being in the defined economic region. For this reason, a county-level analysis or a Basin-level analysis would not be an accurate method to estimate potential impacts for this Program.

When looking at the regional impacts for the Platte River Basin, it is important to note that the values are not additive since each represents impacts occurring in different regions. In order to evaluate the total impacts from the changes that occur, a larger region would need to be defined and substitution between specific sites and regions would need to be taken into account. This type of analysis was not performed for this study for the reasons described above.

Significance of Regional Economic Impacts

To provide context for the interpretation of the changes in the regional economic factors, the economic changes were translated into a percent change in the base regional economic activity for each variable.

The percentage of impacts was based on the IMPAN model with and without the elements of the proposed alternatives run through them. That is, the model's sales, income, indirect business taxes and employment without any impacts from the alternatives served as the denominator, while the model with impacts served as the numerator. The two were divided to estimate the percent change

in impacts, which were all less than or equal to one-tenth of one percent. The baseline economic activity files as well as the IMPLAN output files are available on CD.

Land Acquisition for Habitat:

A land acquisition for habitat element will occur in all of the alternatives that have been identified. The Governance Committee and Full Water Leasing alternatives have the same land acquisition plan. The acres, costs and restoration and management are the same for these two alternatives. The costs for land acquisition are illustrated in Table 4.1. The regional impacts associated with restoration and management of the habitat protection scenarios as well as the impacts of acquiring that land, were analyzed. All of the costs associated with restoration and management occur in the economic region labeled Central Platte Habitat Area. These restoration and management costs were estimated by the Governance Committee based on $1,500 per acre for clearing and $250,000 for annual maintenance[2]. The total restoration and management costs for the alternatives are illustrated in Table 4.2.

The Land Committee's contractor, Hazen and Sawyer (H&S) performed an independent third party economic impact analysis from acquiring habitat land for the Program on the same economic region identified above as Central Platte Habitat Area. The analysis was finalized in 2000. Hazen and Sawyer's analysis was aimed more at the fiscal impacts in the habitat region, whereas the EIS analysis is more concerned with the overall impacts that may occur throughout the basin. Although the two analyses use similar inputs, there are some discrepancies in the land habitat acquisition impacts due to the period of analysis used (13 vs. 20 years), direct impacts analyzed (i.e., payments to landowners), the type of analysis performed (annual vs. average annual), the types of restoration and management activities (the EIS Team clears one-half of all acquired land), and the base year used to measure expenditures (i.e., the EIS analysis accounts for inflation but H&S does not in some cases). The H&S analysis used multipliers from IMPLAN and multiplied them by direct changes in expenditures, while the EIS analysis actually used the impact analysis component of the IMPLAN model. Therefore, the impacts estimated in the EIS analysis will account for purchases made outside the region rather than assuming all spending takes place within the area. In other words, the EIS analysis used the model's LPC's (Local Purchase Coefficients) to estimate the percentage of direct expenditures that are applied to the model. The acquisition plan has direct restoration and management effects, which are the direct effects that are input into the IMPLAN model in the Agriculture and Forestry Support Activities sector which represents the sector where restoration and management costs occur. Fifty percent of the costs for the actual land acquisition portion were input into the Personal Consumption Expenditure (PCE) category for medium income households. For the purpose of the regional analysis, the EIS Team has made the following assumptions regarding the acquisition of land for habitat purposes:

-The remaining habitat acquisitions (i.e., after Cottonwood Ranch and the Wyoming property) will be in fee simple title and will occur in the Central Platte Habitat region. (The cost to lease and/or purchase easements would be in the same range due to the annual costs that would likely be incurred

2 Based on NPPD's estimated annual maintenance at Cottonwood Ranch.

over the period of the first increment.)
-Outright purchase of land will cost approximately $2,500[3] per acre--this is a combination of 50% accretion, 25% grassland, and 25% cropland including surveys, appraisals, and administrative costs.[4]
-The loss of production from retiring or fallowing land is accounted for separately in the regional model.
-Approximately 50% of acquisition payments will stay within the region.

Table 4.1 Costs for Land Acquisition under the various scenarios

	Acres Acquired	Acres Acquired under Program[5]	Cost	Amount entered into IMPLAN
Governance Committee	10,000	6,976	$17,440,000	$8,720,000
Water Emphasis	7,474	4,450	$11,125,000	$5,562,500
Wet Meadow Restoration	17,053	14,029	$35,072,500	$17,536,250
Water Leasing	10,000	6,976	$17,440,000	$8,720,000

In addition, a managing entity will need to be developed to administer this program. Data and information on the level of effort and costs involved in creating this managing entity have not yet been provided to the EIS Team. However, it is recognized that there may be some currently unquantifiable impacts to the region from its implementation.

Assumptions associated with restoration and management:
-Restoration will only occur on approximately one-half of the acquired acres.
-There will be grazing on lands converted to lowland grasses in the managed habitat areas.
-There will be agricultural losses associated with land conversions from agriculture to lowland grasses.
-Costs associated with Cottonwood Ranch were determined from an existing study.[6]
-Management costs will occur all 13 years in the first increment.

[3]Estimate from Governance Committee that includes boundary surveys, appraisals, negotiations, and administration costs.

[4]Letter to Dale Strickland from Harvey L. Wittmier, Chief, Division of Realty, USFWS, for Finance Committee, February 11, 2000.

[5]Excluding 2,554 acres at Cottonwood Ranch and 470 acres in Wyoming already purchased.

[6]"Draft Habitat Management Methods for Least Terns, Piping Plovers, and Whooping Cranes." Western Ecosystems Technology, Inc. January 2000.

Table 4.2: Total Restoration and Management Costs for Alternatives

Governance Committee	
Restoration and Management Costs	$7,500,000
Total Maintenance Costs	$3,250,000
Total R&M	$10,750,000
Water Emphasis	
Restoration and Management Costs	$5,605,500
Total Maintenance Costs	$3,250,000
Total R&M	$8,855,500
Wet Meadow Restoration	
Restoration and Management Costs	$12,789,750
Total Maintenance Costs	$3,250,000
Total R&M	$16,039,750
Full Water Leasing	
Restoration and Management Costs	$7,500,000
Total Maintenance Costs	$3,250,000
Total R&M	$10,750,000

Additional costs associated with restoration and management include island leveling and sand moving and legal and administration costs. Island leveling and sand moving costs were estimated by the Governance Committee and are calculated based on the acres of acquired land. Legal and administration costs were also estimated by the Governance Committee and are approximately $281 per acre based on the number of acres acquired under the Program (See Table 4.1). Table 4.3 shows the estimated costs for island leveling and legal and administration fees related to land acquisition.

Table 4.3: Additional Costs Associated with Restoration and Management

	Island Leveling/Sand Moving	Legal and Admin. Costs
Governance Committee	$3,350,000	$1,960,000
Water Emphasis	$2,136,000	$1,250,450
Wet Meadow Restoration	$6,733,920	$3,942,149
Full Water Leasing	$3,350,000	$1,960,000

Agriculture

In order to estimate the regional impacts from changes in agricultural production associated with the alternatives, the changes in gross revenues derived from the agricultural model are estimated. The revenues were translated into an equivalent per irrigated acre basis and those changes were applied

to the changes in irrigated acreage for each alternative compared to the No Action alternative. For both with dryland substitution and without dryland substitution, changes in irrigated acres, irrigation deliveries, and gross revenues are analyzed. The regional analysis uses the changes in gross revenues with and without dryland substitution and estimates the range of regional impacts that may occur from these changes. The actual impacts are expected to fall somewhere within the range of all dryland substitution to no dryland substitution. The reason being is that under the alternatives, it is expected that there will be some conversion to dryland farming but it is not known exactly what amount or percent. The estimated changes in irrigated acreage for each alternative as well as the changes in gross revenues are presented in the Agriculture section.

The primary purpose of the irrigation model(s) is to estimate changes in agricultural production, given changes in water deliveries for irrigation. Historical data, including cropping patterns, water usage, irrigation technology, and costs and returns experienced by farmers in a given region are the basis for the irrigation model(s). This type of data is generally reported on a county level by the State Department of Agriculture.

Another important source of data comes from the State Department of Agriculture. Statistics are published each year regarding crop acreage, crop yields, and the marketing year average crop price received. The acreage and yield data are generally provided on a statewide and a county level basis while the crop price data are provided on a statewide basis. Natural Resource Conservation Service (NRCS) collects similar data on a periodic basis. NRCS collects cropping pattern, irrigation system, and water source data every five years. While this data is not directly comparable to Department of Agriculture statistics, it can be used to show the amount of lands receiving water supplies from wells, reservoirs, or directly from the river. Along with the source of water, there is data about how water is applied to cropland, ie., through sprinkler or gravity irrigation systems. Once croplands have been described relative to the irrigation systems in use, the costs associated with each system can be entered into the agricultural model. Crop enterprise budgets were used to estimate the cost of crop inputs and net farm revenues for a representative farm under each alternative scenario.

The outputs derived from the agricultural model, which include changes in gross output, are input into the IMPLAN model. These changes are input into their respective sectors of the economy to derive the indirect impacts that may occur from these changes. Changes in agricultural production are assumed to come online when water is no longer available for irrigation because of water leasing. Therefore, the annual impacts will occur for approximately 10 years of the first increment of the Program. The IMPLAN models' local purchases coefficient (LPC) was not used for the agricultural sectors as it was for recreation and construction. Instead, it was assumed that the regions can supply 100% of their own agricultural products such as feed grains and oil crops. This was done due to the models' domestic trade category outputting unrealistically high numbers when the model's LPC was used. This is a very reasonable assumption in that most of these areas are productive agricultural areas, and do not import these products.

An industry's multipliers may not capture forward linkages. These are industries that rely on the previous industry for business. Examples of these types of industries include processing, exports and transportation. The assumption was made that the forward linkages in the processing, transportation and warehousing sectors would occur locally. That is, those industries that rely on processing,

transporting and storing their goods, adding further value to the good, would also have local impacts.

Land Retirement

Acquiring land for habitat or for water and/or water rights may result in land retirement. The Program will attempt to keep this acreage at a minimum to avoid the TPI's associated with retiring agricultural lands. To estimate the regional economic impacts from changes in agricultural production associated with each alternative, the change in expenses and farm income derived from crop production must be estimated. The affected environment and agriculture section presents agricultural background information, including the primary crops in each of the regions identified. The regional economic impacts resulting from land retirement can be separated into four categories: impacts from reduced agricultural production inputs, impacts from reduced farm income; impacts from income received from land payments; and impacts from habitat restoration and annual maintenance expenditures. The net changes in area and revenues resulting from habitat acquisition are shown in Tables 4.4-4.6. Retiring land from privately owned agricultural production may have some impact on county governments through reduced property tax payments. For the Platte River Governance Committee alternatives, the Governance Committee has agreed to offset any losses in property taxes associated with the land habitat program as long as the Program is in place. Therefore, changes in land tax revenues are not considered in the regional impact analysis.

Reducing agricultural production resulting from land retirement leads to reduced demand for inputs needed to grow crops, such as fertilizer and machinery, and reduced farm revenues. Agricultural production input demands generate income and employment within the various input sectors. Income generated within these input sectors is then spent on other goods and services, multiplying the impacts of the original change in farm production input expenditures. Reduced farm income represents reduced demand for household goods and services and reduced income and employment for these goods and services.

Payments made to landowners for leasing or retiring land represent a positive regional economic impact because of the "new" income flowing into the region from outside. If those individuals receiving payments stay within the impact region and spend a portion of those payments on local goods and services, then these land payments would generate positive regional impacts. However, if those receiving payments move outside the impact area or invest their payments outside the region, then those payments will generate little or no regional impacts. It is assumed that 50%[7] of the income generated from land and water sales can be used as an estimate of the amount of money that may stay and be spent in the region.

Expenditures made locally for habitat restoration represent a positive economic impact to the region. Similar to agricultural production impacts, expenditures for seed, land modifications, labor, and other expenses represent demands for goods and services. Therefore, these restoration activities may partially mitigate the economic impacts of land retirement and should be considered.

7 Piper, Steven "Estimating the Regional Economic Impacts of Retiring Agricultural Land: Methodology and an Application in California." Impact Assessment and Project Appraisal, December 2003.

In order to estimate the regional impacts from retiring agricultural land, certain information must be known. The number of acres and location of land that will be retired must be estimated in order to define the impact area (Ag. Section). The types of crops grown or land use on the proposed retired acreage must be known and the input costs and net revenues for those crops must be estimated (Ag. Section). Land payments to be offered to the landowners for retiring their land and the proportion of landowners remaining in the area must be estimated (discussed above). The cost of habitat restoration and annual O&M costs also need to be estimated (Regional Economic Appendix). As stated previously, the EIS Team will assume that 50% of landowner payments will be spent within the region. The tables below show the estimated changes in agricultural area and revenues from habitat acquisition for each alternative. Dollar figures are rounded to the nearest $1,000.

Table 4.4. Net Changes in Agricultural Area and Gross Revenue from Habitat Acquisition Governance Committee and Full Water Leasing Alternatives

IMPLAN Sector	**Acres**	**Gross Revenue**
Forage	4,131.2	$374,000
Feed Grains	-1,016.6	-$372,000
Food Grains	0	0
Vegetables	0	0
Oil Crops	-94.6	-$27,000
Sugar Crops	0	0
Total	3,020.0	-$25,000

Table 4.5. Net Changes in Agricultural Area and Gross Revenue from Habitat Acquisition Water Emphasis

IMPLAN Sector	**Acres**	**Gross Revenue**
Forage	2817.7	$264,000
Feed Grains	-394.9	-$144,000
Food Grains	0	0
Vegetables	0	0
Oil Crops	-36.7	-$11,000

Sugar Crops	0	0
Total	2440.0	$109,000

Table 4.6. Net Changes in Agricultural Area and Gross Revenue from Habitat Acquisition Wet Meadow Restoration

IMPLAN Sector	**Acres**	**Gross Revenue**
Forage	7,966.2	$712,000
Feed Grains	-2,791.6	-$1,021,000
Food Grains	0	0
Vegetables	0	0
Oil Crops	-259.7	-$74,000
Sugar Crops	0	0
Total	4915.0	-$384,000

Recreational Impacts

Regional impacts occurring from changes in water related recreation can be estimated by approximating the levels of spending associated with these activities. Recreation related spending influences the regional economy through expenditures for goods and services during the trip. Spending on food, lodging, gasoline, souvenirs and other goods and services related to recreation visitation within the area of the site generates income and employment that would not exist otherwise. The primary source of recreational expenditure data for this analysis is the 2001 National Survey of Fishing, Hunting and Wildlife Associated Recreation (National Survey) which was conducted by the US Fish and Wildlife Service and the Bureau of the Census. This survey included detailed expenditure information at the state level for fishing, hunting, and wildlife viewing activities. Some expenditure data are modified to represent other types of activities such as swimming, motorized boating, and water skiing. All of the expenditures are in 2001 dollars and represent expenditures by US residents for hunting, fishing, and wildlife viewing trips within Nebraska and Wyoming. Colorado's recreation was not modeled due to limited visitation data.

Some of the recreation expenditure data need to be broken down into more specific categories in order to estimate regional impacts more accurately. For example, food expenditures need to be broken down into expenditures at grocery stores and expenditures at restaurants. Transportation costs, which are primarily related to automobile costs, need to be broken down into gasoline and oil costs and repair/maintenance costs.

Average food expenditure data from a 1998 Corps of Engineers recreation impact study (Corps of Engineers, Waterways Experiment Station, 1998) were used to divide food expenditures into grocery and restaurant expenditures. The Corps of Engineers data indicated that approximately 55 percent of food expenditures on recreational trips are for groceries and 45 percent are in restaurants. Transportation costs are broken down into gas and oil and maintenance costs using 2004 average vehicle driving cost data from the American Automobile Association (AAA) (2005). The AAA data indicates that about 54 percent of the variable costs of driving an automobile are for gas and oil and the remaining 46 percent are maintenance related. Gasoline and oil costs were then halved because these automobile related expenditures generally occur both inside and outside the site area.

The local spending area is defined here as spending within the defined economic region where the recreation area is located. Information on the number of recreationists who originate from outside of the local spending area was obtained from the site managers for Lake McConaughy, from WGFD for Wyoming reservoir and stream fisheries, and from Wyoming State Parks and Historic Sites surveys for Wyoming reservoirs. From these sources, it was estimated that over 75 percent of recreation visits to Lake McConaughy originate from outside the spending area. The Visitor's Survey for Wyoming State parks and Historic Sites estimates that approximately 70-75 percent of recreationists are from outside the region, while non-local recreation participants estimates for Wyoming fisheries range from 30 percent to 85 percent depending on the fishery (Table 4.7). It is assumed that the changes that occur in these recreation areas would not change the percentage of regional visitation. These percentages are accounted for in the expenditure tables.

Table 4.7: Percent Non-local Visitation to Wyoming Fisheries

Fishery	% visitation outside economic impact area
Cardwell Fishery	30
Miracle Mile	85
NPR below Grey Reef	85
Pathfinder Reservoir	75
Seminoe Reservoir	75
Glendo Reservoir	75

The expenditure data presented in the tables below are entered into the IMPLAN model into the sector of the economy represented by that expenditure. The change in visitation or visitor days is multiplied by the total expenditures to estimate the direct changes in recreation and to, in turn, estimate the indirect impacts that may occur throughout the region from the direct change. Since recreation changes occur on an annual basis, the number of years that recreation would change (i.e., after the particular element associated with the change in recreation is implemented) is applied. This is similar to the methodology employed for annual O&M costs. It is assumed that changes in recreation at Lake McConaughy would occur in all thirteen years of the program, due to immediate fluctuations at Lake McConaughy to operate the environmental account. It is also assumed that

changes in recreation at Wyoming reservoirs would occur nine (9) years in the first increment of the Program since projects associated with these changes are not immediately realized. Recreational visits to Wyoming fisheries will come online depending on the fishery. Loss and recovery periods for Wyoming reservoir and stream fisheries were estimated by WGFD.

The expenditure data presented in Table 4.8 are for Wyoming fishing activities for both reservoir and stream fishing. However, types of recreation in the study area reservoirs affected by the alternatives also include motorized boating, water skiing, and swimming. Corps of Engineers information was used to adjust the fishing expenditure estimates at Wyoming fishing to represent motorized boating and water skiing activities. The 1998 Corps of Engineers, Waterways Experiment Station Study was used to compare expenditures for activities with boating to activities without boating. Expenditures for activities with boating were 33 to 63 percent greater than expenditures for activities without boating. Based on the range of higher expenditures for boating activities, it was estimated that the expenditures associated with motorized boating and water skiing were 50 percent higher than the fishing expenditures and all of the additional costs were attributed to boat costs. Therefore, the expenditures used for motorized boating are the same as fishing except fishing equipment and the change in boating costs. The boating cost for motorized boating and water skiing is estimated to be $25.18 per visit (Table 4.9), for a total expenditure of $62.99 per trip.

Table 4.8: Trip Related Fishing Expenditures* for Wyoming Reservoirs (2001)

Expenditure	Avg exp per trip
Food-groceries	$7.86
Food-restaurant	$6.43
Lodging	$4.94
Gasoline and oil	$8.06
Automobile repair	$6.86
Privileges and fees	$1.29
Boating costs	$4.18
Bait	$1.31
Ice	$0.67
Heating and cooking fuel	$0.39
Total	$41.99

* Fishing equipment such as reels, rods, lines, hooks, sinkers, lures, flies, creels, stringers and tackle boxes were not included; only expenditures directly related to the Wyoming trip.

Table 4.9: Trip Related Boating/water skiing Expenditures for Wyoming Reservoirs (2001)

Expenditure	Avg exp per trip
Food-groceries	$7.86
Food-restaurant	$6.43
Lodging	$4.94
Gasoline and oil	$8.06
Automobile repair	$6.86
Privileges and fees	$1.29
Boating costs	$25.18
Bait	$1.31
Ice	$0.67
Heating and cooking fuel	$0.39
Total	$62.99

Expenditures associated with swimming and other beach related activities are estimated using the fishing expenditure information presented in Table 4.8 and deducting the expenditures for boating costs, bait, heating & cooking fuel, and fishing equipment. Using this technique, the total expenditures associated with shoreline activity at reservoirs in Wyoming were estimated to be $36.10 per trip (Table 4.10). These expenditures will be used to represent reservoir sightseeing, picnicking and camping as well.

Table 4.10: Trip Related Shoreline Activities Expenditures for Wyoming Reservoirs (2001)

Expenditure	Avg exp per trip
Food-groceries	$7.86
Food-restaurant	$6.43
Lodging	$4.94
Gasoline and oil	$8.06
Automobile repair	$6.86
Privileges and fees	$1.29
Ice	$0.67
Total	$36.10

Expenditure data for Lake McConaughy in Nebraska were also taken from the 2001 National Survey. Fishing was used as the major activity at Lake McConaughy. There have not been any studies conducted to show the percent of types of activities engaged in at Lake McConaughy. Therefore, it is assumed that the fishing expenditure data are an average cost for the more expensive motorized boating and water skiing and the less expensive swimming and picnicking. These data are displayed in Table 4.11.

Table 4.11: Trip Related Fishing Expenditures* for
Lake McConaughy, Nebraska (2001)

Expenditure	Avg exp per trip
Food-groceries	$3.32
Food-restaurant	$2.72
Lodging	$1.69
Gasoline and oil	$2.90
Automobile repair	$2.47
Privileges and fees	$0.79
Boating costs	$1.61
Bait	$1.66
Ice	$0.35
Heating and cooking fuel	$0.08
Total	$17.60

* Fishing equipment such as reels, rods, lines, hooks, sinkers, lures, flies, creels, stringers and tackle boxes were not included; only expenditures directly related to the Nebraska trip.

Changes in annual recreation visitor days for Lake McConaughy and Wyoming's reservoirs were estimated based on the amount of change in surface area acreage between the present condition and alternatives as discussed in the recreation section. The changes in surface area acreage at reservoirs are translated into changes in visitor days using a simple regional recreation visitation model (Piper, 1999). The changes in visitation at Wyoming fisheries were based on the elevation of upstream reservoirs and whether the reservoirs fell below certain threshold levels. The estimated changes in recreation visitor days for all recreation-related elements throughout the Basin as well as descriptions of the models employed are displayed in the Recreation Section and Appendix.

The proportion of visitation originating inside the defined impact area compared to the proportion coming from outside the area is an important consideration because the amount of spending attributed to these two groups has a significant impact on the estimated regional impacts from recreation expenditures. If spending by visitors residing in the impact area is included in the impact estimates, it is implicitly assumed that those people would not have spent that money on other types of entertainment within the region. In other words, if a person would like to go fishing, but the nearby lake is not suitable, it is assumed that the person would not participate in a substitute activity within the region and that spending would be lost to the region. If spending only by visitors whose trips originate from outside the impact area is included in the impact analysis, it is assumed that visitors residing in the impact area would spend the same amount of money on some other type of recreational activity or entertainment within the region regardless of the lake characteristics.

The change in recreation expenditures is based on the estimated recreation expenditures per trip for each type of activity where available, the change in recreation visitation associated with each

alternative, and the percentage of visitors to each site from within the defined economic region. The change in recreational expenditures by activity is the source of the regional economic impacts. The estimated impacts for each of the alternatives are included in Table 5-RE-2 which shows the total regional impacts from implementing each of the alternatives.

Model Input/direct effects

The costs in the tables below are the construction-related direct costs that are associated with each project analyzed for the alternatives. Along with the identified information in the tables above, these are the costs that are entered into the IMPLAN model to estimate the impacts that may occur within that region. The IMPLAN model contains over 500 sectors of the economy. The direct costs were broken down into categories and distributed into the IMPLAN sector that best corresponds to the expenditure category. Because project costs may occur in different years, the model inflates or deflates the costs accordingly to adjust all costs to a common base year. In the regional model, construction costs are converted to 2002 dollars because the model uses 2002 data. Some of the costs include annual OM&R costs and some do not because they were unavailable. Where OM&R is included, these costs have been added to the total for the number of years in the first increment of the program that they are expected to occur. For example, if construction project x is not built until 2007, annual O&M would begin in 2008 and last only for seven years, the remaining number of years in the first increment, not the entire life of the project. All costs are rounded to the nearest $1,000.

Structural Projects

Pathfinder Modification

The costs associated with Pathfinder Modification were broken down to the level of detail needed for this analysis and updated by USBR estimators from the 3-Brick Proposal prepared by USBR, Wyoming Area Office in 1996. Construction cost indices[8] were used for the construction projects if price levels needed to be updated. Pathfinder Modification is included in all of the alternatives identified.

The impacts from enlarging Pathfinder occur in the economic region labeled North Platte Headwaters and consist of impacts from construction and some recreational impacts. It is assumed that the safety of dams modification and the Kendrick selenium remediation for the Pathfinder Modification will not be included as a cost of the Program for the EIS analysis. It is also assumed that Pathfinder would take four years to implement beginning in the first year of the Program.

[8]Bureau of Reclamation Construction Cost Trends for indexing Field Costs, 1999.

Costs associated with the Pathfinder Dam Modification (1999)

	Labor	Equipment	Materials	Total
Total Project Costs[9]	$630,000	$416,000	$853,000	$1,900,000
Annual O&M				$21,000
Periodic Capital Equipment replace (~10 yrs)				$22,000
Bladder Dam replace-annual sinking fund cost	$5,000	$3,000	$7,000	$17,000

Tamarack (Tamarack I)

The Northern Colorado Water Conservancy District estimated the costs associated with the Tamarack project as well as the Enlarged Tamarack project. The impacts that may result from implementing the Tamarack Plan include construction cost impacts and impacts to recreation due to increased wildlife habitat. These impacts occur in the economic region labeled Lake McConaughy Area. It is assumed that Tamarack will take four years to construct beginning in the first year of the Program and incur 10 years of O&M.

Costs associated with Tamarack-23 wells (1999)

	Labor	Equipment	Materials	Total
Total construction costs	$425,000	$567,000	$442,000	$1,434,000
Total Annual costs	$95,000	$55,000	50,000	$200,000

Enlarged Tamarack (Tamarack III)

The impacts that may result from implementing the Enlarged Tamarack Plan include construction cost impacts and qualitative impacts to recreation due to increased wildlife habitat. These results will occur in the same economic region as the original Tamarack (Lake McConaughy Area) and assumes the same implementation schedule.

[9]Total costs include unlisted items, contingencies and non-contract costs

Costs associated with Enlarged Tamarack (1999)

	Labor	Equipment	Materials	Total
Capital Costs	$1,137,000	$1,356,000	$1,748,000	$4,241,000
Annual O&M				$403,000

Channel Maintenance Projects

Construction costs for conjunctive management of the Central Platte groundwater mounds were estimated by USBR groundwater hydrologists, 1999. The impacts will occur in the economic region entitled Central Platte Habitat Area. It is assumed that the O&M costs will begin in year seven.

Costs associated with the Groundwater Mound (1999)

Capital Costs[10]	$3,500,000
Annual O&M	$175,000

Costs for riverside drains were estimated by USBR groundwater hydrologists, 1999. The impacts will occur in the economic region entitled Central Platte Habitat Area. It is assumed that the O&M costs will begin in year seven.

Costs associated with Riverside Drains (1999)

Capital Costs	$9,726,000
Annual O&M	$100,000

North Platte Channel Modification

Costs associated with channel modification include construction equipment and labor as well as land easements and contingencies from USBR engineers.

Costs associated with North Platte Channel Modification (2005)

Capital Costs	$1,000,000

Kingsley EA

This element is included in all of the alternatives identified. Although there will be administrative costs associated with implementing and running the EA, these may not produce substantial regional

[10]Capital costs consist of labor, equipment and materials

impacts since it is assumed that these costs will be similar to a reprogramming of funds rather than an influx of money into the economy. The impacts to recreation from operating the EA account are captured in the alternatives. As water is stored and released from McConaughy, impacts to recreation may occur in the economic region labeled Lake McConaughy Area.

North Platte Excess to Ownership (ETO) 100 kaf Right

Although there will be some administrative costs associated with implementing ETO, these should not produce substantial regional impacts. The water from Glendo is currently being leased to either irrigators or for M&I purposes. Therefore, money to lease this water or file for a one time right to use it is not considered new money into the region.

Central Platte Power Interference

The TPI's from power interference are not considered to be quantifiable from a regional standpoint.

Water Leasing

A water bank is an institutionalized process that seeks to bring together buyers and sellers of water. A water bank may be used to facilitate transfers that improve attainment of the correct target flows reaching endangered species in the Platte River Basin. A Platte River water bank would more than likely consist of three separate water banks i.e., one in each state of and take approximately three years to implement. It is expected that reservoir storage will be a component of these water banks.

Research revealed an average price of approximately $60 per AF to lease water in Colorado, Nebraska and Wyoming. This value is used throughout the basin, regardless of the region, although prices may actually vary. Outright purchase of water rights may be less expensive in the long run than water leasing but is not evaluated at this time. The amount of water needed to deliver water to the habitat area will have to consider return flows (50%) and transit losses (10%).

The EIS alternatives lease water for the Governance Committee, Water Emphasis, and Full Water Leasing alternatives. The impacts from water leasing will likely occur in those areas where water is conserved, purchased, leased, etc. and will consist mainly of agricultural and recreational impacts. Payments to water rights lessors, sellers, etc. are treated in the same manner as those to habitat landowners. That is, it is assumed that 50% of the money paid to the water rights holders will remain in the region, as reflected in Table 4.12. These annual costs are spent in the Habitat region over a ten-year period, as a program would take approximately three years to implement.

Table 4.12: Water Leasing Illustrative Scenario (Direct Impacts from Water Leasing Entered into IMPLAN Model)

	Habitat	Lake McConaughy	NPH	EWY	ECO	ScottsBluff
Governance Committee	$9,750,000	$0	$8,073,000	$897,000	$0	$0
Water Emphasis	$23,400,000	$19,383,000	$4,056,000		$7,917,000	$11,544,000
Wet Meadow Restoration	$0	$0	$0	$0	$0	$0
Full Water Leasing	$46,800,000	$38,766,000	$7,410,000	$0	$15,834,000	$51,480,000

IMPLAN assumes that when this money goes into the region, the effects filter through the economy. This holds true for water and/or land payments but the combination of impacts may be different from what may actually occur. For example, although these owners may spend their money in the region, they may spend it on other goods and services and cease to spend it on agricultural goods and services that they did previously. The induced effects reflect changes in household expenditures based on income, but may not capture the specific transactions that may occur. Therefore, the total impacts may be accurate, but the division of the direct, indirect and induced may not reflect actual purchases within the region.

Water Action Plan

The Water Action Plan is included in the Governance Committee alternative only. The Water Committee's contractor, Boyle Engineering, has qualitatively analyzed and evaluated a Water Action Plan to be implemented as part of that alternative. The EIS Team incorporated many of Boyle's costs into the Third Party Impact analysis for the Governance Committee alternative. The elements contained in Boyle's analysis may differ slightly in costs and/or assumptions than those used in the alternatives analyzed for the EIS analysis. These discrepancies are stated under the individual elements described below. Due to some uncertainty of costs and options and length of time of the water acquisitions, the TPI's associated with the Water Action Plan are also more uncertain. These impacts will most likely occur in the economic regions where the respective element is located or occurs, and will include of impacts from construction costs and changes in agriculture and recreation.

Boyle Engineering's cost estimates were based on a number of sources.[11] As stated previously, some of the elements in the Water Action Plan may differ in costs. All of Boyle's costs are in 1998 dollars.

[11]See Final Water Action Plan, Boyle Engineering, May, 2000.

CNPPID Re-regulating Reservoir

Costs associated with CNPPID re-regulating reservoir would occur in the Central Platte Habitat Area region. It is assumed that O&M costs would begin in year eight.

	Labor	Equipment	Materials	Total
Capital Costs	$2,438,000	$2,980,000	$1,692,000	$7,110,000
Annual O&M	$14,000	$17,000	$9,000	$40,000

Water Management Incentives

Boyle provided four options incorporating water management incentives. These options are conservation cropping, deficit irrigation, land fallowing, and on-farm changes in irrigation techniques and offer a range of costs and acres affected. Conservation is difficult to quantify due to uncertainty and lack of detailed information regarding the various approaches. The EIS Team will analyze and evaluate conservation employing the same methodology as for a water lease, assuming the acquired water is $60 per AF. It is also assumed that the percentage of leased water is based on the quantity of water diverted in each region and that 50% of the money paid to the water rights holders will remain in the region. These annual costs are spent in those regions over a ten-year period.

Lake McConaughy region	$500,000
Central Platte Habitat region	$400,000

Groundwater Management

Boyle provided four options for groundwater management. These options offer a range of costs. However, active pumping was the option selected by Boyle Engineering. It was assumed that these impacts would take place in the region identified as Central Platte Habitat Area. The O&M associated with this option would be incurred for 9 years.

Capital Costs	$590,000
Annual O&M	$14,000

Dry Creek/Fort Kearny Cutoff Project

Costs associated with Dry Creek/Fort Kearny Cutoffs would occur in the Central Platte Habitat Area region. It is assumed that O&M costs would begin to occur in year three of the Program.

	Labor	Equipment	Materials	Total
Capital Costs	$124,000	$118,000	$91,000	$333,000
Annual O&M				$6,000

Dawson and Gothenburg Canal Groundwater Recharge

Costs associated with Dawson and Gothenburg Canal Groundwater Recharge would occur in the Central Platte Habitat Area region. It is assumed that O&M costs would begin to occur in year five of the Program.

Capital Costs	Annual O&M Dawson	Annual O&M Gothenburg
$40,000	$51,800	$38,000

Pathfinder Modification

Boyle assumed, through the suggestion of the State of Wyoming, that the Program will pay for 50% of the Pathfinder Modification project since they will only be receiving approximately half of the water- the other half going to the State. The EIS Team assumed that the impacts from Pathfinder were from 100% of the money from construction going into the region. Impacts occur in the region entitled North Platte Headwaters and it is assumed that O&M costs would begin to occur in year five of the Program.

	Labor	Equipment	Materials	Total
Total Project Costs[12]	$630,000	$416,000	$853,000	$1,900,000
Annual O&M				$21,000
Periodic Capital Equipment replace (~10 yrs)				$22,000
Bladder Dam replace-annual sinking fund cost	$5,000	$3,000	$7,000	$17,000

[12]Total costs include unlisted items, contingencies and non-contract costs

Tamarack III

Costs associated with Tamarack III[13] occur in the Lake McConaughy region. It is assumed that O&M costs would begin to occur in year five of the Program.

	Labor	Equipment	Materials	Total
Capital Costs	$1,137,000	$1,356,000	$1,748,000	$4,241,000
Annual O&M				$403,000

Central Platte Power Interference

Costs associated with Central Platte Power Interference are taken from the Boyle Report (2000). These costs were not entered into the regional analysis since it is assumed to have an insignificant effect on the regional economy.

Central Platte Power Interference	$1,790,000

Other elements included in the Water Action Plan are Net Controllable Conserved Water, Glendo Storage, Pathfinder Municipal Account and La Prele Reservoir. These elements were assumed to have an insignificant effect on their respective region due to little or no new money coming into their region during the first increment of the Program.

IMPLAN Output

The output data files from the IMPLAN model runs are attached to the Economics Appendix.

[13]Includes canals and wells

Other Third Party Impacts

There may be some additional third party impacts from the alternatives that are unquantifiable or not within the scope of this project, but should be noted. These are bulleted below along with an example of the element where the impact may occur (the accompanying examples are not exclusive).

- **Recreation**-changes in recreation may occur due to elements such as the CNPPID re-regulating reservoir, groundwater management, and power interference.
- **Wildlife and Habitat**-impacts to wildlife and wildlife habitat may occur due to elements such as the CNPPID re-regulating reservoir and water leasing.
- **Wetlands**-impacts to wetlands may occur due to elements such as the CNPPID re-regulating reservoir, groundwater management, and power interference.
- **Water quality**-changes in water quality may occur due to elements such as the CNPPID re-regulating reservoir, groundwater management, and power interference and/or from the sediment augmentation plan.
- **Hydrologic conditions**-changes in hydrology such as streamflow changes, canal flow changes, and return flows may occur as a result of due to elements such as the CNPPID re-regulating reservoir and water leasing.
- **Adjacent Properties**-impacts may occur to adjacent properties and/or property owners from the Land Habitat Acquisition plans.

Hydrology changes between the PRDEIS and the PRFEIS

The modeling of the central Platte in Nebraska is essentially the same as in the DEIS. The only change was to increase the channel capacity at North Platte to 3,500 cfs rather than 3,000 cfs.

The North Platte model contained several errors that spilled excessive amounts water from the system. These errors have been corrected with the result that the reservoirs in the North Platte tend to remain at higher levels. The method used to calculate water leasing was also changed because the method used in the DEIS spilled water from the system. Water leasing know only comes from deliveries from storage. The assumption is that the Program could not lease water the in Natural Flow as that water would accrue in priority to another irrigation district.

In addition to the above changes, the model inputs have been modified to include leasing of a portion of the Pathfinder Municipal Account and the Wyoming Account in Glendo Reservoir to the Program in every alternative. This results in greater impacts to irrigation.

All alternatives also include delivery of 7,000 acre-feet to the City of Casper from the Kendrick Project.

The bottom line is that there have been several changes to the North Platte Model between the DEIS and the FEIS. The result of these changes is to increase overall storage and to increase demand in all alternatives. However, the changes made to the method used to calculate water leasing reduces spills of ownership storage, which increases storage. With several changes working against each other in impact to irrigation deliveries, it is impossible to say how deliveries would change.

South Platte River Basin modeling-changes between DPREIS and FPREIS

Substantial changes were made in the modeling of South Platte hydrology between the Draft and Final EIS. Most significantly, inflows to the OpStudy model at Julesburg, Colorado, were modified for every month of the 1947-1994 period to reflect estimated changes associated with projected population growth in the South Platte basin of Colorado (through 2020), corresponding changes in the mix of Colorado water supplies and usage, and implementation of *Colorado's Plan for Future Depletions.*

A detailed description of how monthly flows were modified is provided in the FEIS Hydrology Appendix. Descriptions of activities provided in *Colorado's Plan for Future Depletions* were used as the basis for simulating these changes. Various "worst-case" assumptions were made with respect to the potential for adverse effects on months of high flow in the South Platte River; peak flow impacts during the First Increment may not be as severe as modeled for the FEIS.

In addition, assumptions were modified regarding the leasing of water for Program purposes under the Water Emphasis and Full Water Leasing alternatives. Specifically, two of the reservoirs which were assumed to be sources of water for the Water Leasing alternative in the DEIS (Fossil Creek Reservoir and Boyd Lake) were eliminated as sources in the FEIS, as it was deemed unlikely that water for Program purposes would be leased upstream of the Poudre River confluence (near Kersey). In the Final EIS, all leased water (whether from storage water rights and/or direct-flow rights) is assumed to be derived from rights associated with water downstream of Kersey. In addition, the total amount of water leasing in Colorado was increased relative to the DEIS: roughly 70,000 acre-feet of gross leasing was assumed under the Water Emphasis alternative (translating to about 31,000 acre-feet of net to the Program), and nearly 100,000 acre-feet under the Full Water Leasing alternative.

The six reservoirs from which storage rights were assumed to be leased are: North Sterling, Julesburg, Prewitt, Jackson, Riverside, and Empire. In a change from the DEIS, a disproportionate share of leased storage water was assumed to come from North Sterling Reservoir because of that reservoir's large capacity and its location along the lower reach of the South Platte River in Colorado; the Julesburg and Prewitt Reservoirs were also disproportionately relied on as sources because of their downstream locations. An assumption was made that water leased for Program purposes probably would be less expensive and would be more likely to reach the state line if leased from these downstream reservoirs rather than from reservoirs located farther upstream (e.g., Jackson, Riverside, and Empire).

Changes in regional impacts from DPREIS to FPREIS

Changes in the regional impacts between the DPREIS and FPREIS are mostly a result of changes in water leasing and agricultural gross revenues. Other changes that occurred are the deletion of impacts associated with hunting and birding blinds in the Habitat region, and the insertion of a fisheries analysis for the North Platte system. Several smaller changes also occurred due to changes in assumptions associated with the hydrology and present condition scenario14. These changes that occurred from the DPREIS to the FPREIS are reflected in the direct costs (Table 1) as well as the regional economic impacts (Tables 2 and 3) and listed in the bullets below.

In general, habitat restoration costs changed because the EIS adopted the updated restoration costs estimated by the Governance Committee. Blind construction costs as well as Middle Platte recreation visitation were omitted from the FPREIS because the Governance Committee did not allocate funding for recreational blinds as part of the Program. Legal and administration fees associated with land acquisition were added to the FPREIS to be consistent with those costs estimated by the Governance Committee. Changes in agricultural gross revenues and agricultural impacts from habitat acquisition were a result of changes in water leasing15 and land plans, respectively. Reservoir recreation changes to Lake McConaughy and Wyoming reservoirs were a result of changes made to the hydrology

14 See "Changes in hydrology from DPREIS to FPREIS."
15 See "Changes in hydrology from DPREIS to FPREIS."

model that generally left elevation levels slightly higher under the FPREIS than under the FPREIS. A North Platte fisheries analysis was conducted with the assistance of GFD and added to the FPREIS. Changes in water leasing occurred due to changes in hydrology and due to changes in the alternatives (e.g.,ll Water Leasing alternative leases twice as much water). Land acquisition costs were changed to reflect land costs estimated by the Governance Committee. In addition, two structural projects (Pathfinder Enlargement and Tamarack) are no longer included in what now is referred to as the Full Water Leasing alternative.

Governance Committee Alternative

Habitat
- Restoration and Management costs increased
- Blind Construction costs deleted
- Middle Platte recreation visitation deleted
- Legal and administration fees for land acquisition added
- Agricultural gross revenues decreased slightly
- Agricultural impacts from habitat acquisition improved

Lake McConaughy
- Lake McConaughy recreation visitation increased

North Platte Headwaters
- Agricultural gross revenues increased
- Seminoe recreation visitation increased
- North Platte fisheries analysis added shows decreased visitation for anglers

Eastern Wyoming
- Wyoming reservoir visitation increased
- Agricultural gross revenues increased slightly

Scotts Bluff
- Agricultural impacts decreased slightly

Water Emphasis Alternative

Habitat
- Restoration and Management costs more than doubled
- Blind Construction costs deleted
- Middle Platte recreation visitation deleted
- Legal and administration fees for land acquisition added
- Agricultural impacts from habitat acquisition improved considerably

Lake McConaughy
- Lake McConaughy recreation visitation increased
- Agricultural gross revenues decreased
- CO water leasing more than doubled

North Platte Headwaters
- Agricultural gross revenues decreased slightly
- Seminoe recreation visitation increased
- North Platte fisheries analysis added shows decreased visitation for anglers
- Water leasing AF increased slightly

Eastern Wyoming
- Wyoming reservoir visitation increased

Scotts Bluff
- Agricultural gross revenues increased
- Water leasing AF decreased by approximately one-half

Eastern Colorado
- Agricultural gross revenues increased considerably
- Water leasing AF decreased by approximately one-half

Wet Meadow Alternative

Habitat
- Restoration and Management costs increased
- Blind Construction costs deleted
- Middle Platte recreation visitation deleted
- Legal and administration fees for land acquisition added
- Agricultural impacts from habitat acquisition improved slightly
- Land acquisition acres and costs increased

Lake McConaughy
- Lake McConaughy recreation visitation increased

North Platte Headwaters
- Agricultural gross revenues increased slightly
- Seminoe recreation visitation increased
- North Platte fisheries analysis added shows decreased visitation for anglers

Eastern Wyoming
- Wyoming reservoir visitation increased

Scotts Bluff
- Agricultural impacts decreased slightly
- Water leasing AF decreased by approximately one-half

Full Water Leasing Alternative

Habitat
- Restoration and Management costs increased
- Blind Construction costs deleted
- Middle Platte recreation visitation deleted
- Legal and administration fees for land acquisition added
- Agricultural gross revenues decreased considerably
- Agricultural impacts from habitat acquisition improved

Lake McConaughy
- Agricultural gross revenues decreased considerably
- Lake McConaughy recreation visitation increased
- Tamarack construction no longer included in alternative
- CO water leasing more than tripled

North Platte Headwaters
- Agricultural gross revenues decreased
- Seminoe recreation visitation increased

- Water leasing more than doubled
- Pathfinder construction no longer included in alternative

Eastern Wyoming
- Wyoming reservoir visitation increased

Scotts Bluff
- Agricultural gross revenues decreased considerably
- Water leasing more than doubled

Eastern Colorado
- Agricultural gross revenues decreased with dryland substitution and increased without dryland substitution
- Water leasing AF increased slightly

Table 1: DPREIS and FPREIS Direct Economic Effects

	DPREIS						FPREIS			
Element*	Governance Committee, Scenario 1	Governance Committee, Scenario 2	Water Emphasis	Wet Meadow	Water Leasing		Governance Committee	Water Emphasis	Wet Meadow	Full Water Leasing
Program Expenditures and Payments										
Blind Construction (Including Cottonwood Ranch)	$58,000	$289,000	$39,000	$327,000	$289,000		$0	$0	$0	$0
Central Platte Groundwater Mound - Conjunctive Use			$4,725,000					$4,725,000		
Central Nebraska Public Power and Irrigation District Re-regulated Reservoir	$7,350,000	$7,350,000					$7,350,000			
Dry Creek Cutoff Project	$399,000	$399,000					$399,000			
Gothenburg Canal Groundwater Recharge	$848,000	$848,000					$848,000			
Groundwater Management (Groundwater Mound)	$716,000	$716,000					$716,000			
Land Acquisition Payments	$8,517,000	$8,469,000	$5,277,000	$14,225,000	$8,469,000		$8,720,000	$5,563,000	$17,536,000	$8,720,000
North Platte Channel		$1,875,000	$1,875,000	$1,875,000	$1,875,000			$1,000,000	$1,000,000	$1,000,000

Capacity Restoration										
Pathfinder Enlargement	$2,243,000	$2,243,000	$2,243,000	$2,243,000	$2,243,000		$2,243,000	$2,243,000	$2,243,000	
Habitat Land Restoration and Management (Including Cottonwood Ranch)	$6,157,000	$8,708,000	$2,591,000	$14,353,000	$8,708,000		$10,750,000	$8,856,000	$16,040,000	$10,750,000
Riverside Drains			$10,426,000					$10,426,000		
Tamarack Project Construction	$7,868,000	$7,868,000	$7,868,000	$3,434,000	$3,434,000		$7,868,000	$7,868,000	$3,434,000	
Water Leasing Payments - Colorado			$23,400,000		$23,400,000			$27,300,000		$54,600,000
Water Leasing Payments - Nebraska	$9,750,000	$9,750,000	$23,400,000		$23,400,000		$9,750,000	$23,400,000		$46,800,000
Water Leasing Payments - Wyoming	$8,970,000	$8,970,000	$23,400,000		$23,400,000		$8,970,000	$15,600,000		$58,890,000
Water Management Incentives	$4,500,000	$4,500,000					$4,500,000			
Island leveling/sand moving	Included in R&M	Included in R&M	Included in R&M	Included in R&M	Included in R&M		$3,350,000	$2,136,000	$6,734,000	$3,350,000
Legal and admin fees associated with land acquisition and management activities	$0.00	$0.00	$0.00	$0.00	$0.00		$3,350,000	$1,250,000	$3,942,000	$3,350,000
Recreation Visitation Impacts										

McConaughy Recreation (Average Annual Visitor Days)	-34,356	-33,136	-25,467	-36,268	-16,086		-13,609	-1,378	-8,935	5,883
Middle Platte Birdwatching (Average Annual Visitor Days)	2,400	12,000	1,600	13,600	12,000		0	0	0	0
Middle Platte Hunting (Average Annual Visitor Days)	285	1,425	190	1,615	1,425		0	0	0	0
Glendo Recreation (Average Annual Visitor Days)	-734	-734	842	801	-481		-2,985	-4,253	-4,985	-1,959
Guernsey Recreation (Average Annual Visitor Days)	-2	-2	0	0	0		-41	-103	-121	192
Seminoe Recreation (Average Annual Visitor Days)	-1,737	-1,737	-3,025	-3,166	-1,308		-315	-666	-1,063	664
North Platte Fisheries (Change in Average Annual Angler Days)	0	0	0	0	0		-14,946	-14,946	-14,946	0
Agricultural Revenue Impacts										
Agriculture With Dryland (Average Annual)	-$3,224,000	-$3,224,000	-$11,288,000	-$175,000	-$11,163,000		-$3,024,000	-$8,149,000	-$160,000	-$16,489,000

Agriculture Without Dryland (Average Annual)	-$5,283,000	-$5,283,000	-$17,981,000	-$175,000	-$17,817,000		-$5,088,000	-$13,907,000	-$192,000	-$28,560,000

Table 2: FPREIS Impacts

Average Annual Total Impacts for Governance Committee Alternative (direct, indirect and induced in 2002 $'s)	Habitat		McConaughy		EWY		NPHeadwaters		ECO		ScottsBluff	
	with dryland	without dryland	with dryland	without dryland	with dryland	without dryland	with dryland	without dryland	with dryland	without dryland	with dryland	without dryland
Sales	$1,776,223	($693,089)	$243,906	$243,906	($180,215)	($180,215)	($584,543)	($584,543)	$0	$0	$8,541	$8,541
Income	$455,423	($47,533)	($57,451)	($57,451)	($56,067)	($56,067)	($228,067)	($228,067)	$0	$0	$3,109	$3,109
Indirect Business Taxes	$35,617	($53,395)	($19,345)	($19,345)	($12,779)	($12,779)	($63,434)	($63,434)	$0	$0	($43)	($43)
Employment	14.6	(5.0)	(4.0)	(4.0)	(3.0)	(3.0)	(13.4)	(13.4)	0.0	0.0	0.1	0.1
Average Annual Impacts for Water Emphasis Alternative (direct, indirect and induced in 2002 $'s)	Habitat		McConaughy		EWY		NPHeadwaters		ECO		ScottsBluff	
	with dryland	without dryland	with dryland	without dryland	with dryland	without dryland	with dryland	without dryland	with dryland	without dryland	with dryland	without dryland
Sales	$475,495	($3,835,468)	$60,332	($1,555,802)	($185,469)	($185,469)	($906,810)	($906,810)	($329,410)	($638,323)	$274,153	($304,902)
Income	$138,471	($739,597)	$34,829	($244,674)	($64,843)	($64,843)	($304,115)	($304,115)	($71,581)	($127,193)	$70,278	($41,272)
Indirect Business Taxes	($21,621)	($177,019)	($6,147)	($62,051)	($15,920)	($15,920)	($78,517)	($78,517)	($15,954)	($27,407)	$8,817	($12,972)
Employment	(4.3)	(38.4)	1.7	(14.2)	(3.6)	(3.6)	(16.4)	(16.4)	5.0	0.1	3.7	(3.1)
Average Annual Impacts for Wet Meadow Alternative (direct, indirect and induced in 2002 $'s)	Habitat		McConaughy		EWY		NPHeadwaters		ECO		ScottsBluff	
	with dryland	without dryland	with dryland	without dryland	with dryland	without dryland	with dryland	without dryland	with dryland	without dryland	with dryland	without dryland
Sales	$3,833,335	$3,833,335	$152,185	$152,185	($217,415)	($217,415)	($922,093)	($922,093)	$0	$0	$12,687	($24,921)
Income	$897,682	$897,682	($29,646)	($29,646)	($76,012)	($76,012)	($323,314)	($323,314)	$0	$0	$13,706	$6,461
Indirect Business Taxes	$91,332	$91,332	($10,709)	($10,709)	($18,662)	($18,662)	($81,161)	($81,161)	$0	$0	($2,725)	($4,140)
Employment	39.9	39.9	(2.2)	(2.2)	(4.2)	(4.2)	(17.0)	(17.0)	0.0	0.0	0.6	0.2
Average Annual Impacts for Full Water Leasing Alternative (direct, indirect and induced in 2002 $'s)	Habitat		McConaughy		EWY		NPHeadwaters		ECO		ScottsBluff	
	with dryland	without dryland	with dryland	without dryland	with dryland	without dryland	with dryland	without dryland	with dryland	without dryland	with dryland	without dryland
Sales	($2,857,199)	($11,647,154)	$464,206	($1,906,725)	($75,784)	($75,784)	$33,173	$33,173	($148,355)	($762,315)	$1,011,005	($1,545,852)
Income	($307,399)	($2,097,759)	$241,650	($168,393)	($26,522)	($26,522)	$35,998	$35,998	($16,693)	($126,453)	$230,238	($262,315)
Indirect Business Taxes	($100,490)	($417,343)	$33,679	($48,335)	($6,514)	($6,514)	$5,029	$5,029	($5,346)	($28,107)	$42,167	($54,042)
Employment	(33.3)	(103.0)	10.3	(13.0)	(1.5)	(1.5)	1.2	1.2	5.9	(3.8)	13.0	(17.0)
total average annual impacts represent less than one-tenth of one percnet of total economic activity in the region												

Table 3: DPREIS IMPACTS

	Central Platte Habitat Area		Lake McConaughy		North Platte Headwaters		Eastern Wyoming		Eastern Colorado		Scotts Bluff	
	With Dryland	Without Dryland	With Dryland	Without Dryland	With Dryland	Without Dryland	With Dryland	Without Dryland	With Dryland	Without Dryland	With Dryland	Without Dryland
Average Annual Total Impacts for Governance Committee Alternative, Scenario1 (direct, indirect, and induced in 1995 dollars)												
Sales	4,596,212	-1,706,169	-281,659	-281,659	121,760	121,760	-93,316	-93,316	0	0	21,224	21,224
Income	-53,013	-563,211	-239,672	-239,672	23,272	23,272	-17,853	-17,853	0	0	-7,968	-7,968
Indirect Business Taxes	50,362	-18,369	-73,076	-73,076	22,950	22,950	-1,177	-1,177	0	0	1,228	1,228
Employment	45	-5	-17	-17	6	6	-2	-2	0	0	0	0
Average Annual Impacts for Governance Committee Alternative, Scenario 2 (direct, indirect, and induced in 1995 dollars)												
Sales	869,576	-1,070,252	-90,549	-90,549	121,760	121,760	-93,316	-93,316	0	0	21,224	21,224
Income	85,875	-370,809	-206,698	-206,698	23,272	23,272	-17,853	-17,853	0	0	-7,968	-7,968
Indirect Business Taxes	82,427	20,412	-65,448	-65,448	22,950	22,950	-1,177	-1,177	0	0	1,228	1,228
Employment	56	9	-15	-15	6	6	-2	-2	0	0	0	0
Average Annual Impacts for Water Emphasis Alternative (direct, indirect, and induced in 1995 dollars)												
Sales	-443,916	-4,236,138	-1,062,424	-1,994,992	-152,754	-152,754	24,560	24,560	-2,203,949	-3,342,740	-510,250	-1,353,874
Income	-366,305	-1,259,649	-606,080	-727,260	-48,270	-48,270	7,752	7,752	-130,515	-272,149	-406,723	-487,839
Indirect Business Taxes	15,450	-104,895	-63,571	-77,648	-2,326	-2,326	2,427	2,427	-66,808	-107,690	4,556	-5,886
Employment	53	-35	-10	-53	-8	-8	1	1	-45	-56	25	-18
Average Annual Impacts for Wet Meadow Alternative (direct, indirect, and induced in 1995 dollars)												
Sales	3,352,639	3,352,639	-353,317	-353,317	-139,686	-139,686	23,359	23,359	0	0	35,703	35,703
Income	838,179	838,179	-243,225	-243,225	-55,317	-55,317	7,373	7,373	0	0	-13,390	-13,390
Indirect Business Taxes	150,404	150,404	-74,418	-74,418	-10,882	-10,882	2,308	2,308	0	0	2,065	2,065

Employment	49	49	-17	-17	-6	-6	1	1	0	0	0	0
Average Annual Impacts for Water Leasing Alternative (direct, indirect, and induced in 1995 dollars)												
Sales	-734,623	-4,528,982	-997,903	-1,929,068	24,828	24,828	-14,040	-14,040	-2,203,949	-3,342,740	-410,091	-1,219,884
Income	-255,493	-1,149,342	-528,739	-649,739	-5,095	-5,095	-4,431	-4,431	-130,515	-272,149	-374,224	-452,087
Indirect Business Taxes	48,284	-72,129	-40,401	-54,458	8,759	8,759	-1,387	-1,387	-66,808	-107,690	8,242	-1,782
Employment	70	-18	-5	-48	-5	-5	0	0	-45	-56	25	17