Central Iron County Water Conservancy District
Capital Facilities Plan and Impact Fee Analysis

Preliminary Working Draft – March 30, 2007

A. Executive Summary

Iron County, and in particular, the Cedar Valley is experiencing growth and will continue to experience growth. It is expected that the population of the Central Iron County Water Conservancy District (CICWCD) service area will triple by 2050. The existing water supplies serving the Cedar Valley are being utilized beyond their sustainable capacity. Water conservation initiatives and conversions of agricultural water to municipal and industrial uses will extend available resources, but will not address aquifer mining, nor meet the culinary water needs of the population through 2050. It is projected that 20,000 acre-feet of additional sources of water for users in the Cedar Valley must be developed to meet this need.

The Lake Powell Project (LPP) was developed to address the long-term water needs for Washington, Kane and Iron Counties. The LPP is currently funded to proceed with conceptual design and currently includes provisions for deliveries of 20,000 acre-feet of untreated water to the CICWCD service area by 2015. It is proposed that this water be initially utilized to provide groundwater recharge in the Cedar Valley in order to restore the depleted aquifer and enhance development potential for culinary wells to meet the drinking water needs of the growing population. It is recommended that Iron County participate in this project, as no other economically viable alternatives have been identified to provide additional needed water sources.

The CICWCD was created to fill the need for a regional water purveyor for the Cedar Valley. In order to meet this obligation, basic source, transmission/distribution, storage and treatment infrastructure is required to develop and manage the groundwater resources, to provide fire protection and emergency water reserves, and to move water from sources to users. A draft water system master plan, along with a proposed schedule for construction, have been developed to address the demand requirements of the CICWCD service area through 2050.

Funding for implementation of the LPP and CICWCD projects has been broken into two components: The LPP is intended to address long-term supply needs for the Cedar Valley and to restore the deficit in available aquifer capacity. This project will benefit all users in the Cedar Valley. Proposed funding for this project is through property tax revenues. Based upon current property values and an expected annual valuation increase, a property tax assessment of 0.00083 will retire project costs by 2050.

Funding for CICWCD projects is recommended through implementation of both property tax and impact fee revenues. The majority of proposed CICWCD infrastructure needs are intended to address population and water demand growth. A property tax assessment of 0.00017 and flat impact fee of $8750.00 per connection will fund new growth based infrastructure through 2050.

The pro-rata portion of the costs associated with participation in the LPP – Lake Powell to St. George segment are unknown at this time and will require an additional source of funding to retire those costs.

B. Background

Southwestern Utah has experienced rapid growth over the last 30 years. Much of this growth has been focused in the St. George and greater Washington County area, which has experienced an average annual growth rate of about 6% (Lewis, 2005). Real estate values have dramatically increased in Washington County as a result of the increased population and demand for developable property in the area. Iron County, due to its proximity to St. George and its location along the I-15 corridor, has been experiencing an increase in growth as a result of "spill over" from St. George as well as population increases resulting from internal growth.

Since it's inception in 1996, the Central Iron County Water Conservancy District (CICWCD) has been preparing to fulfill it's role as a regional water purveyor. The early years of the District were spent studying the available resources, developing plans to fully utilize the limited water resources and planning infrastructure needed to convey water supplies to the ever-expanding population base.

Iron County receives its water supply from a combination of minor surface water and groundwater aquifers within the Cedar Valley. These resources have provided for the County's water needs adequately in the past, but have been over-allocated and over-used for the past few decades. The current sustainable yield of available surface and ground water resources in the CICWCD surface area is being exceeded by usage. This is evidenced in the Cedar Valley Aquifer by declining elevations of groundwater. This condition, known as "mining" results in increases in pumping depths and costs. This is a very important issue when considering future operation and maintenance costs for groundwater users. It is likely that many wells will need to be lowered to allow continued pumping.

The Utah Governor's Office of Planning and Budget (GOPB) has projected that the annual population increase in Iron County will be approximately 3-4% through 2020 and will average approximately 2.3% through 2050. Based upon these projections, the population of Iron County is expected to double by about 2035. The CICWCD is responsible for providing culinary and secondary water to areas outside the municipal boundaries of Cedar City, Enoch and Kanaraville. It is expected that a large percentage of total County growth will occur within the service area of the CICWCD. It has been determined that the existing CICWCD water system infrastructure is not currently capable of providing adequate source, transmission and storage to serve the expected increase in demand resulting from growth.

The purpose of this study is to identify the requirements for CICWCD culinary source, transmission, storage and treatment facilities as well as secondary water source and transmission needs to provide an adequate level of service through 2050. In order to provide equitable cost allocation of the proposed facilities improvements, the expected capitol costs for system improvements and recommended funding alternatives are identified.

C. Planning Period and Scope of Study

For the purposes of identifying and evaluating expected population and water demand projections, required system improvements to service these demands, and to develop a reasonable capital outlay schedule, the planning period extends to year 2050. The study

area is defined as the service boundaries of the CICWCD. Refer to CICWCD boundary map on following page.

The scope of this study includes developing population projections through the planning period and using those projections to estimate water demands. Existing culinary and secondary source, transmission and storage facilities serving the project area are then evaluated for capacity and remaining working service life to determine the need for replacement or upgrades to meet increases in demand. Additional facilities are then identified to provide for expected service demands through the planning period. Several approaches are evaluated to determine the required facilities over the short and long term. This will allow the CICWCD to meet demand obligations while providing operational flexibility needed to respond to changes in growth patterns and water use over the next 45 years. These approaches are summarized as follows:

- Retiring agricultural lands and converting irrigation waters to Municipal and Industrial (M&I) use.
- Increasing sustainable yield of available source water resources through implementation of aquifer recharge facilities.
- Implementation of conservation initiatives to extend the existing and future water sources.
- Development of a regional secondary water system that utilizes water not suitable for culinary use (high nitrate, TDS, flood water reclamation)
- Importation of additional source capacity.
- Construction of either regional or “satellite” water treatment facilities to make use of imported raw water supplies, or a single “centralized” facility, based upon future economic analyses.

The existing source, storage and transmission infrastructure in the incorporated areas of Cedar City, Enoch, and Kanaraville are not included in the scope of this study. It is currently understood that these facilities will remain under the ownership and operational control of the respective communities. Future regional capital improvements required to accommodate growth in these areas is addressed as part of this study. The mechanism for funding, ownership and operational control of future source, storage and transmission requirements for Cedar City, Enoch and Kanaraville has not been defined at this time. For the purposes of this draft study, it is assumed that regional source and storage facilities required to accommodate future growth in these communities as well as CICWCD will be provided, owned and operated by CICWCD. This will allow the gradual evolution toward a comprehensive ground water management plan that efficiently uses and manages the resources of the water basin.

Detailed population growth estimates were not available at the time of preparation of this study. The State of Utah UPLAN model for the CICWCD planning area is to provide estimates of of growth patterns in the Cedar Valley based upon a variety of parameters including zoning densities, proximity to major arterials, and employer locations. The UPLAN model, when available, should be consulted to verify the general growth estimates developed herein and to provide a basis for periodic reevaluations of capital priorities.

IRON COUNTY
WATER DISTRICT MAP
MAP PROJECTION INFORMATION
PROJECTION: NAD 1983 StatePlan
ZONE: Utah South FIPS 4303
0 1 2 4 Miles
N
W
E
S
SUBDIVISIONS ARE
MAINTAINED BY IRON COUNTY
RAILROAD
LOCAL ROAD/TRAIL
PAVED ROAD
GRAVEL ROAD
DIRT ROAD
INTERSTATE 15
STATE HIGHWAY
SUBDIVISIONS
SECTIONS
TOWNSHIPS
BLM
FOREST
INDIAN
PARKS
STATE
WILDERNESS
CITY BOUNDARY
WATER BODIES
WATER DISTRICT 10
Iron County cannot be held responsible for the data shown on this map. Any corrections should be directed to the Iron County Data Processing Department and the GIS Lab. 435-477-8371. gislab@ironnet.org
IRON COUNTY
GIS
R20W
R19W
R18W
R17W
R16W
R15W
R14W
R13W
R12W
R11W
R10W
R09W
R08W
R07W
R06W
6.5W
8.5W
T31S
T32S
T33S
T34S
T35S
T36S
T37S
T38S
Lund
Lund Flats
Zane
Beryl
Mud Lake
Modena
Modena Draw Reservoir
New Castle
Newcastle Reservoir
Rush Lake
Little Salt Lake
Paragonah
Red Creek Reservoir
Parowan
Co-op Valley Sinks
Summit
Robinson Res
Yankee Meadows Res
Enoch
Cedar City
Brian Head
CEDAR
BREAKS
Quichapa Lake
Dry Lake
Kanarraville
ZION
NATIONAL
PARK

D. Current Facilities and Resources

- Cedar City

Within it's corporate limits Cedar City currently serves a population of approximately 26,000 plus a seasonal population of approximately 7,000 Southern Utah University students. System infrastructure consists of culinary supply wells, developed springs, pipelines and storage reservoirs. The system serves approximately 4500 residential connections, plus commercial and industrial customers. Current system source capacity (wells and springs) is 8,150 gpm. A total of 14,000,000 gallons of storage capacity is available.

- Enoch

Enoch serves a population of approximately 4,400. The Enoch culinary water system consists of five active wells, with a total production of 2,990 gallons per minute and two tanks with a total storage volume of 2,200,000 gallons. The system serves approximately 860 residential customers.

- Kanaraville

Kanaraville serves a population of approximately 350. Their system consists of two active wells, with a total source capacity of 440 gallons per minute and one tank with a capacity of 350,800 gallons. The current system serves approximately 160 residential customer connections.

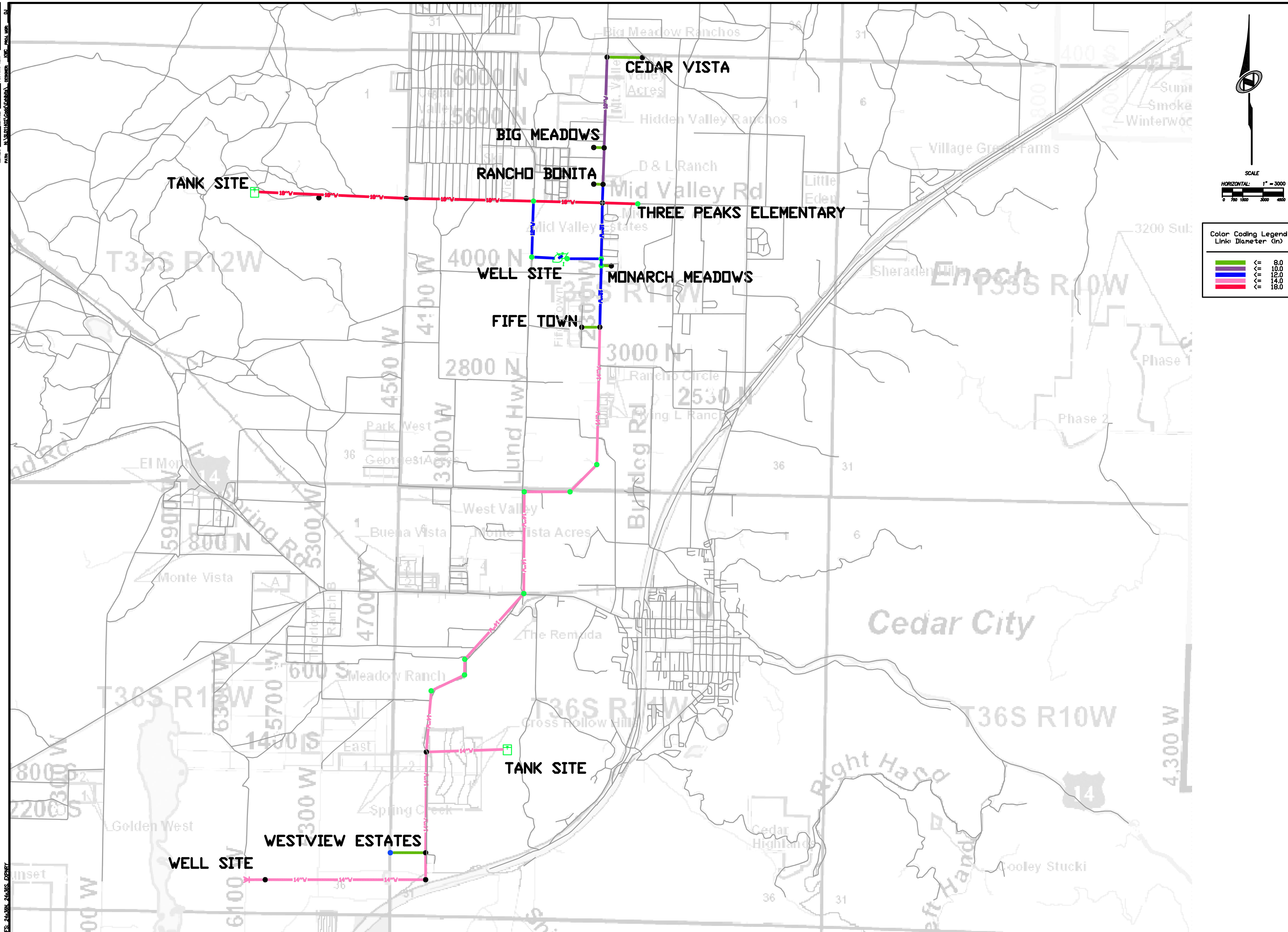
- Central Iron County Water Conservancy District

The CICWCD is a relatively new utility provider and does not have significant physical infrastructure in place as of the date of this study. The initial system source, storage, and connecting transmission/distribution lines have been designed and initial phases of construction are underway. Refer to the figure on the next page, prepared by Nolte and Associates, for the current and planned wells, tanks and connecting system piping. The initial system infrastructure includes two wells, with a combined source capacity of 2000 gpm, two tanks with combined storage of 2.4 million gallons, and approximately 10,000 LF of interconnecting 12", 14" and 18" piping.

- Groundwater and Surface Water Supplies

In 2005, the USGS completed a study of the available water sources for the Cedar Valley in Iron County, to establish the dependable capacity of ground and surface water sources. The majority of all water used in Iron County comes from sources in the Cedar Valley hydrogeologic system. This system is fed by snowmelt and large precipitation events via Coal Creek and Shurtz Creeks. Coal Creek provides almost all surface water used for irrigation in the Cedar Basin and much of the recharge water for the underlying aquifers. The average annual discharge from Coal Creek is approximately 24,200 ac-ft, of which most is contributed to aquifer recharge. The total recharge of the Cedar Valley aquifer was estimated as between 36,000 and 42,000 ac-ft/year, however, the USGS study noted that aquifer levels continue to decline, suggesting that the sustainable yield may be significantly less than this value.

DATE: 09/28/05 TIME: 5:06 p.m. DRAWING (NAME): CONSERVATION PLAN FIGURE 3
SERVER: NONE SERVICE: NONE PLOTTING VIEW: NONE
PATH: N:\SL011402\Cadd\Exhibits\ DESIGNER: KWC PROJ. MGR: DJ



XREFS: 24x36N, 24x36S, FXPNRY

NO.	BY	DATE	REVISIONS:

CAUTION

The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or uses of these plans. All changes to the plans must be in writing and must be approved by the preparer of these plans.

CICWCD

PHASE III PROJECT
FIGURE 3-c

PREPARED FOR: CENTRAL IRON COUNTY WATER CONS. DIST.

DATE SUBMITTED: 11-2005

NOLTE
BEYOND ENGINEERING
9671 SOUTH REDWOOD ROAD, SUITE 101, WEST JORDAN, UT. 84084
801.743.1300 TEL 801.743.0300 FAX WWW.NOLTE.COM

SHEET NUMBER

OF 0 SHEETS

SCALE
VERTICAL: 1"= NA
HORIZONTAL: 1"= N/A

JOB NUMBER
SLB011402

Subsequent model calibrations of the groundwater model by USGS staff have resulted in a revised sustainable yield estimate for ground and surface water sources of 33,600 ac-ft/yr. (DWRe, ca. 2005, USGS, 2005). This value has been adopted as the available source capacity for the project area for the purposes of this study.

E. Water Demand Estimates

Population Growth Estimates

Southwestern Utah is experiencing population growth as a result both natural increases and the influx from out-of-state, attracted by the temperate climate, recreational opportunities and relatively low real estate costs. Washington County has been one of the 5 fastest growing counties in the United States. Iron County has been affected by the "spill-over" of growth from Washington County as well as natural growth from long-term County residents who wish to remain in the area. According to the U.S. Census Bureau the population of Iron County increased from 20,789 to 34,079 from 1990 to 2000, an average growth rate of 6.4%.

Estimates of future growth in Iron County are based upon projections developed by the Governor's Office of Planning and Budget (GOPB). Current (2006) projections estimate a 2.3% average annual rate of change (AARC) in Iron County population through 2050. The actual growth rates experienced in Washington County indicate that GOPB estimates may be somewhat conservative. For the purposes of planning infrastructure needs, a range of population growth estimates are used. The base growth estimate uses an annual 2.3% growth rate for the duration of the planning period. A rate of 25% above the GOPB estimate is used to allow for conservatism in the base growth rate (2.88% AARC). In order to account for unanticipated recessions, depression or other downturns in the economy during the planning period, a lower bound growth rate of 25% below GOPB projections was developed (1.73% AARC). Refer to Table 1 for projected population estimates for the Central Iron County planning area over the project planning period.

Table 1 - Population Growth Projections for Iron County, Utah (2005-2050)

Year	Population					
	GOPB** Population	AARC, Period	AARC, Period +25%	AARC, Period -25%	GOPB + 25% Population	GOPB - 25% Population
2000	34,079				34079	34079
2005	40,212	3.37%	4.21%	2.52%	41875	38602
2010	48,772	3.94%	4.92%	2.95%	53239	44645
2020	65,607	3.01%	3.76%	2.26%	77022	55810
2030	77,493	1.68%	2.10%	1.26%	94803	63250
2040	90,268	1.54%	1.92%	1.15%	114684	70935
2050	103,920	1.42%	1.77%	1.06%	136718	78852

** Note GOPB Population growth over 2000-2050 Planning Period Averages 2.3%

The population growth within the service area boundaries of the CICWCD are expected to be approximately 90% of the population growth of Iron County in its entirety. The remaining 10% of County-wide growth will occur in the Parowan and Paragonah service

areas. Table 2 provides the "adjusted" population estimates for the CICWCD service area.

TABLE 2 - Water Demand Projections for CICWCD, Iron County, Utah (2005-2050)

Year	Population Projections*			Per-Capita	Demand Projections		
	GOPB (- 25%)	GOPB	GOPB (+ 25%)	M&I Demand (ac-ft/yr)**	(- 25%) (ac-ft/yr)	GOPB (ac-ft/yr)	(+ 25%) (ac-ft/yr)
2000	30,671	30,671	30,671	0.320	9,815	9,815	9,815
2005	34,742	36,191	37,688	0.315	10,944	11,400	11,872
2010	40,180	43,895	47,915	0.310	12,456	13,607	14,854
2020	50,229	59,046	69,320	0.300	15,069	17,714	20,796
2030	56,925	69,744	85,322	0.290	16,508	20,226	24,743
2040	63,841	81,241	103,216	0.280	17,876	22,748	28,900
2050	70,967	93,528	123,046	0.270	19,161	25,253	33,222

* Population Projections based upon 90% of County-Wide Estimates from Table 1

** Value reflects reduction in per-capita demand resulting from Conservation Initiatives

Projected Water Demands

The projected water demands for CICWCD customers through 2050 will depend upon several factors; population growth, the effects of conservation initiatives, and conversion of agricultural lands to municipal and industrial use. Population growth will be impacted by cost and availability of dependable sources of culinary, irrigation and process water. Exhausting available water sources will severely limit additional growth, however, because the purpose of this document is to identify and plan for future water needs, it is assumed that sources identified herein to satisfy future needs will be available when that time comes.

Projected water demands for the study area are based primarily upon increases in population. No expected large-demand industries have been identified as relocating to or expanding operations in the study area at the current time. Total water demand is calculated as the product of per-capita usage and expected total population, adjusted for conversion of agricultural lands as well as water conservation initiatives over the planning period. The current per-capita usage in the planning area is 0.320 ac-ft per year (DWRe, 2005). The current total water demand for the planning area, including both M&I and agricultural use, is approximately 41,000 ac-ft/yr and exceeds the sustainable yield of available sources by about 7,500 ac-ft/yr. This has been evidenced by the decline of the groundwater elevation in the area.

- Conversion of Agricultural Lands

It is anticipated that as growth occurs, significant agricultural land and associated water right holdings within the CICWCD service area will be converted to municipal or industrial use. If all agricultural lands within the study area were converted to M&I use, the source needs of the CICWCD would be met through 2050 and importation of water from beyond the study area would not be required (based upon current population projections). It is felt that complete conversion of agricultural lands over the next 40 to 50 years is not likely.

Figure 2 - Population Estimates for Iron County, Utah (2005-2050)

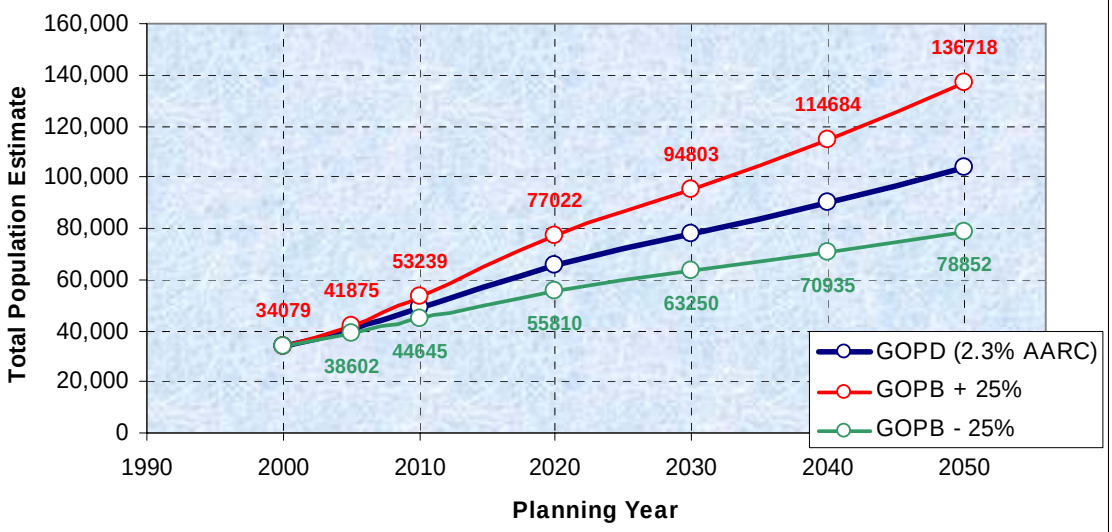


Figure 3 - Water Demand Projections for CICWCD (2005-2050)

It is estimated that approximately 4140 acres of agricultural land will be converted to municipal and industrial use over the planning period. This estimate of converted acreage is based upon several factors, including the trends away from family-based agriculture and the expected increase in farm land value as development property. The UPLAN model developed by DWR indicates that, based upon expected development

patterns in the planning area, conversion of about 30% of available agricultural land (ie; 4140 acres ±) will be required. It is recognized that Iron County has a long tradition in family-based farming and that some owners will wish to preserve their properties in their current use classification to provide an agricultural heritage for future generations.

The current irrigated agricultural acreage in the planning area is approximately 13,735 acres. Each acre of agricultural land is estimated as accounting for 4.08 ac-ft per year in demand at an approximate overall irrigation system efficiency of 53%. If converted to M&I use, it is expected that the final consumptive use factor will be 1.00, resulting in 2.12 ac-ft per year available source capacity for each acre of agricultural land converted to M&I use. Because the timing of agricultural conversion will be related to factors not readily identifiable, it is assumed for the purposes of this report that conversion will occur linearly over the planning period. Refer to Table 3 for increase in available supplies due to agricultural conversions.

Table 3: Total Supply and Demand Summary

Year	Sustainable Supply (ac-ft/yr)	Cedar Valley Demand				Total (+ 25%) (ac-ft/yr)
		M&I (GOPB) (ac-ft/yr)	M&I (+ 25%) (ac-ft/yr)	Agriculture* (ac-ft/yr)	Total (GOPB) (ac-ft/yr)	
2000	33,600	9,815	9,815	29,118	38,933	38,933
2005	33,600	11,400	11,872	29,118	40,518	40,990
2010	33,600	13,607	14,854	28,143	41,750	42,997
2020	33,600	17,714	20,796	26,192	43,906	46,988
2030	33,600	20,226	24,743	24,242	44,468	48,985
2040	33,600	22,748	28,900	22,292	45,040	51,192
2050	33,600	25,253	33,222	20,341	45,594	53,563

* 13,735 acres irrigated farmland @ 4.08 ac-ft/yr irrigation demand (53% efficiency).
4.08 x 0.53 = 2.12 ac-ft/acre for M&I use(4140 acres converted over planning period = 8,777 ac-ft available for M&I use)

- Water Conservation Offsets

In order to make best use of limited water resources in the arid Intermountain West, the State of Utah Governor's Office and Division of Water Resources have taken a leadership role in promoting water conservation in Utah. The Utah Board of Water Resources currently requires implementation of water conservation initiatives as a condition for funding of major projects. The current requirement is a 25% per capita reduction in culinary and irrigation consumption by year 2050 using 1995 consumption rates as the baseline quantity. The total per-capita M&I demand goal for 2050 is 0.270 ac-ft per year. (DWRe, 2003). It should be noted that the CICWCD area is currently using about 0.320 ac-ft/capita-yr (DWRe, 2003), which is less than the State-wide average of 0.360 ac-ft/capita-yr. For the purposes of this study it is assumed that the State conservation plan goal will be realized and that progress toward that goal will be more or less linear over the project planning period. Refer to Table 3 for conservation impacts upon total projected M&I demand.

- Total County and CICWCD Water Demand Estimates

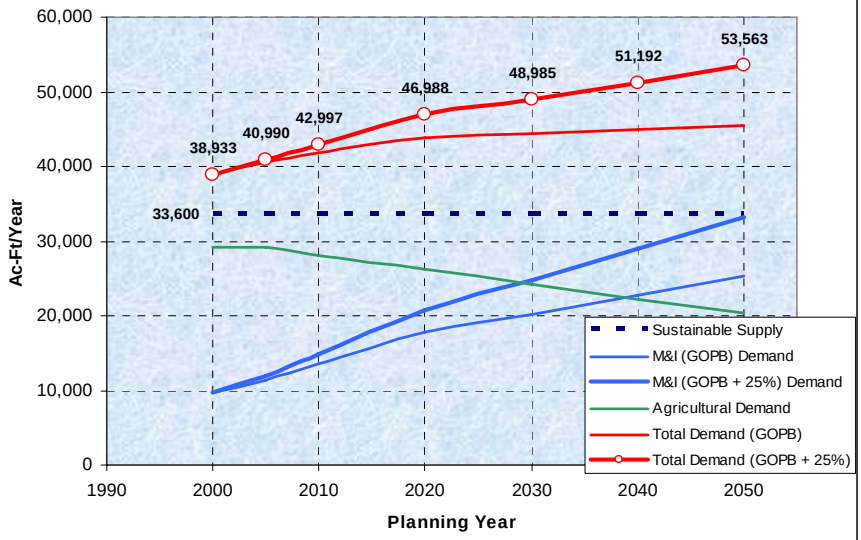
Total water demand estimates for the CICWCD were developed to consider two alternatives: M&I alone, or M&I as well as irrigation within the CICWCD service area. The first alternative considers service to growth-related customers; residences, businesses and supporting infrastructure resulting from population growth. Total water demands over the planning period for M&I customers is indicated in Table 3 and Figure 4. It is expected that total M&I demand will increase from about 11,400 ac-ft/yr (current) to approximately 25,000 to 33,000 ac-ft/yr by 2050.

Should the CICWCD elect to provide secondary or irrigation supply to the agricultural interests in the service area, total water demands upon the District will increase significantly as indicated on Figure 4. Current combined M&I and irrigation for the CICWCD service area is approximately 41,000 ac-ft/yr and is expected to increase to between 46,000 to 54,000 ac-ft/yr by 2050. For the purposes of this study, agricultural demands will not be served by the CICWCD. The CICWCD will provide for only the additional demands resulting from M&I growth.

Based upon the assumed sustainable yield of existing water sources in the study area (33,600 ac-ft/yr), between 12,500 and 20,500 acre-feet of new source will be required to meet the needs of users in the CICWCD service area through 2050. Additional sources, in addition to the shortfalls estimated, will be required to meet the needs of CICWCD customers beyond 2050.

It is noted that if agricultural conversions and conservation initiatives were implemented immediately, a reduction of approximately 10,870 acre-feet in overall usage would be realized in the study area. Under this scenario, total demand upon the available sources in the study area would be reduced to approximately 30,120 ac-ft/yr. However, by 2010 to 2015, expected increases in population would again create demands in excess of the sustainable water supplies of the area. New sources would be required prior to that time to sustain the needs of customers in the study area.

Figure 4 - CICWCD Supply and Demand Summary 2005 - 2050



F. Projected Facilities and Resource Requirements

- Evaluation of Alternatives

Several alternatives were evaluated as part of this study to determine the most feasible approach to satisfying the needs of the CICWCD through 2050. Previous studies have concluded that securing water rights and pursuing development of sufficient groundwater source(s), able to meet the needs of the Cedar Valley, within a reasonable distance of Cedar Valley is not administratively or economically feasible at the present time. It was concluded that development of surface water, specifically from the Colorado River, provides the most dependable new source of water for the planning area. All alternatives divide overall infrastructure development requirements into two components: the LPP project from St. George to delivery in the Cedar Valley, and source development, transmission and distribution piping, and storage facilities serving CICWCD customers. Costs related to serving CICWCD customers is based primarily on property tax assessments. Costs related to funding the LPP project costs are allocated primarily through impact fees, with a smaller funding component addressed through property tax assessment.

Three basic approaches were evaluated to determine the most cost-effective alternative. Alternative ‘A’ is based upon the importation of untreated water from the LPP, ‘banking’ of this water in the Cedar Valley aquifers, then development of new groundwater sources within Cedar Valley. This alternative addresses the current overdraft of available groundwater and allows for some restoration of historic groundwater levels through beneficial utilization of the full 20,000 ac-ft/yr from the LPP. Source capacity to serve growth needs is developed as it is needed. Distribution and storage facilities are constructed as growth requires new source, storage and supply infrastructure.

Alternative ‘B’ is based upon a shortcoming of Alternate ‘A’, which is the difficulty in recovering costs from beneficiaries of ‘banking’ LPP water in the Cedar City aquifers. Because it is expected that groundwater levels in the Cedar Valley will be increased as a result of significant recharge initiatives, all groundwater users will see a benefit in pumping costs, source development costs and overall operational costs. This alternative assumes that direct groundwater recharge will not occur and that all imported LPP water will be processed at a regional water treatment facility and finished water will be metered and delivered to CICWCD customers. Periodic capacity upgrades to the water treatment facility are funded as part of the LPP project cost. Raw water storage is provided near the treatment facility to provide reserve capacity in the event of loss of delivery from the LPP. Distribution and storage facilities will be developed as customer needs increase over the planning period and are funded as part of CICWCD infrastructure costs. This alternative was the most expensive of the approaches evaluated.

Alternative ‘C’ examines a means to reduce the costs associated with Alternative ‘B’. Similar to Alternative ‘B’, the LPP transmission system, raw water storage and initial water treatment plant facilities are funded as part of the LPP component. Costs associated with periodic water treatment plant capacity upgrades and system storage required to serve growth is funded as part of CICWCD infrastructure costs. Distribution and transmission piping improvements within the CICWCD service area are not included in the overall project development funding. It is assumed that system pipeline facilities will be provided as part of development requirements as development occurs. This

alternative resulted in combined property tax assessment and impact fee revenues that did not vary significantly from Alternative 'A' while potentially increasing the difficulty of the CICWCD in providing service to new customers in a timely manner.

Of the three major alternatives evaluated, Alternative 'A' provided the best overall approach to meeting the objectives of the CICWCD in providing dependable, cost-effective service to system customers over the planning period. Refer to Table 4 for a summary of the projected impact fee and property tax revenue requirements to fund the alternatives identified. Refer to Appendix for infrastructure development projections and financial calculations associated with Alternatives 'A' through 'C'

Table 4 - Funding Summary for Alternatives Evaluated

	Description	Property Tax Revenue		Impact Fee
		LPP	CICWCD	LPP
Alternative 'A'	LPP used for recharge, well sources developed as needed, CICWCD provides distribution, transmission, storage	0.00017	0.00083	$8,250
Alternative 'B'	LPP used as supply for regional water treatment plant, finish water metered, CICWCD provides distribution, transmission, storage	0.00025	0.00075	$15,250
Alternative 'C'	LPP water metered through WTP, CICWCD provides WTP upgrades, storage. Development funds transmission and distribution	0.00058	0.00042	$8,250

- The Lake Powell Pipeline

The proposed Lake Powell Pipeline project is intended to provide for long-term source requirements of Kane, Washington and Iron Counties by utilizing available portions of the Utah State allocation of Colorado River water. The CICWCD has the opportunity to participate in this project and secure delivery of 20,000 ac-ft/yr (or more) from Lake Powell to the Cedar Valley by participating in this State Water Resource Project. The other entities to receive water are Kane County Water Conservancy District (10,000 ac-ft/yr), and Washington County Water Conservancy District (70,000 ac-ft/yr). The CICWCD will receive the benefit of an incremental facilities cost for the pipeline from Lake Powell to St. George, which consists of the majority of the overall pipeline length, and will be able to increase its source capacity, redundancy and dependability as well as to mitigate or reverse the effects of overuse of currently available water sources in the Cedar Valley.

Participation in the Lake Powell project is time limited. If the CICWCD elects not to participate in the project during initial design and construction phases, the project will not be designed to include sufficient excess transmission capacity to meet the needs of the CICWCD at a future date. The incremental cost of increasing pipe sizes and capacity to serve the CICWCD at the projects inception will be dramatically less than the cost of a similar future project sized to provide for the needs of CICWCD alone.

The major issues associated with participation in this regional water supply project are largely related to the ability to utilize the resource immediately after it is available so that revenues can be applied to the capital indebtedness incurred by the project. It is recommended that the imported water be beneficially utilized as soon as it is available. In order to stabilize the Cedar basin water supplies, to restore the storage capacity of the aquifer and to minimize short-term costs of the Lake Powell Pipeline (LPP) project, it is

recommended that the raw water imported via the LPP not be treated to culinary quality until such time as M&I demands are sufficiently great to warrant construction of raw water storage, treatment facilities, finished water storage and connecting transmission pipelines. By utilizing LPP water initially for groundwater recharge, the resource can be beneficially used throughout the CICWCD service area without incurring costs associated with terminal surface storage and water treatment plant facilities. The dependability and costly investment of existing culinary and irrigation wells can be extended through groundwater recharge, and additional wells can be placed into operation as the sustainable withdrawal rate of the Cedar Valley aquifers is increased. Utility costs associated with reduced pumping lift will be an additional benefit of increasing groundwater levels in the aquifer.

A significant issue raised with aquifer recharge is the question of what entity will be charged with responsibility for management of the aquifer. A second issue is whether the value to all users can be quantified and recovered through some type of assessment or fee so that costs associated with aquifer recharge facilities (Lake Powell Pipeline, distribution piping and recharge facilities) can be recovered.

It is anticipated that the CICWCD will participate in the Lake Powell project to prevent additional groundwater aquifer mining, restore storage capacity in the aquifer, reduce pumping lift and costs, secure a needed source of new water and to gain the benefit of "economies of scale" for all water users in the basin. It is assumed, for the purposes of this report, the nominal share of total project delivery to the CICWCD system will be 20,000 ac-ft/yr of the total project delivery of 100,000 ac-ft/yr.

The anticipated schedule, as described in the enabling legislation, for the completion of the Lake Powell Pipeline features is 2015. The CICWCD has made an application for 20,000 ac-ft of water rights from the Colorado River to be supplied via the LPP. At this time, the application has not completed the approval process.

- Cedar City, Enoch, Kanaraville

It is expected that Cedar City, Enoch and Kanaraville will provide infrastructure improvements required to provide service to customers within their respective service areas, independent of the efforts of the CICWCD, for the immediate future. As major source and storage facilities needs arise, the CICWCD will construct the shared regional wells, tanks and treatment facilities to meet the respective community's needs. The CICWCD will then provide bulk water delivery to Cedar City, Enoch or Kanaraville or the various independent water companies for subsequent delivery through individual customer service connections. The customer connections, metering and billing for service will continue to be maintained by each community.

- Central Iron County Water Conservancy District

The available water sources within the CICWCD service area boundary have been utilized beyond their sustainable withdrawal rates for at least 30 years (USGS, 2005). The CICWCD is addressing the need to restore or enhance the ability of water sources in the planning area to provide for the needs of future customers. The CICWCD's immediate needs are to provide core infrastructure with sufficient future capacity upon which a larger regional system serving the system's overall service area can be built. This core regional infrastructure will consist of the initial wells, storage reservoirs and

distribution piping required to tie source and storage facilities to customer service connections. The location of this regional well network needs to be strategically distributed throughout the aquifer to minimize stress from additional groundwater pumping. Well locations should be selected to maximize benefit from recharge and to avoid an increase in areas of poor groundwater quality. For the purposes of this study, immediate needs are defined as the period 2006-2015, intermediate needs will occur from 2015 to 2025, and long-term needs are those projected for after 2025.

As the CICWCD customer base grows, additional source, storage and transmission/distribution piping will be required. Because existing water sources in the planning area are already used beyond their sustainable yield, the intermediate needs of the CICWCD will include aquifer recharge, development of additional wells and construction of additional regional storage tanks. The strategic location of these additional regional wells will gradually evolve toward an overall groundwater management plan for the basin. In order to offset the additional demands upon existing source capacity, it is recommended that imported water be initially utilized for surface irrigation and groundwater recharge. Surface irrigation from the imported water would utilize existing canal and ditch systems to the extent practical, and would effectively extend the availability of water from ditch systems beyond that currently provided by runoff from Coal Creek.

To maximize recharge opportunities and to provide an environmental enhancement to the Cedar City a pipeline will be extended from the Lake Powell Pipeline to the mouth of Coal Creek Canyon. A portion of the Lake Powell Pipeline water will be discharged directly into Coal Creek, providing additional flows in this highly seasonal stream. Seepage from the stream bed provides for much of the natural recharge to the area aquifer. Enhancements to stream flow will increase aquifer recharge and could be used by irrigators once the flows pass through Cedar City. A free flowing stream through Cedar City would provide both aesthetic and environmental benefits.

The pipeline serving Coal Creek will be further extended to the area near Fiddlers Canyon where two additional recharge sites could be developed. These sites could double as recreational sites for area users. Recreational use will need to address water rights, diversion and riparian issues in order to be implemented effectively. Agricultural operations would largely benefit from reduced well operation and pumping costs. The Cedar Valley aquifer system will benefit from both reduced withdrawals from irrigation pumps and increased recharge from ditch losses and infiltration from irrigated acreage.

It is expected that growth during the initial and intermediate planning period (to 2025±) will be distributed over a relatively wide area, and that infill development will occur later in the study period. These growth patterns will favor distributed infrastructure, constructed in the areas experiencing growth. Groundwater wells and storage reservoirs will be constructed to serve specific developing areas. In this case, augmenting the groundwater resource provides two major benefits: By utilizing groundwater recharge near the terminus of the Lake Powell Pipeline, new groundwater wells can be provided to meet source requirements without the need to provide a terminal reservoir and regionalized treatment during the initial and intermediate phases of development in the CICWCD service area. The second benefit is that sources can be developed near the point of need, reducing the requirement of piping system interconnections to a central treatment facility site. As individual, dispersed, areas develop in the system, infrastructure can be provided to meet the needs of the specific area without necessarily

requiring large or lengthy interconnections to other 'sub-systems' within the CICWCD. This approach is dependent upon further study to determine that the quality of Lake Powell Water does not diminish the quality of existing ground water.

Long-term improvements will include interconnection of the distributed infrastructure constructed during initial and intermediate phases of development, as in-fill development closes the gaps between 'sub-systems'. These interconnections will be important to allow more efficient use of water sources and to provide system redundancy and operational flexibility as the system customer base grows and to develop a coordinated, efficient groundwater management strategy. Additional source and storage capacity will be required, as indicated in Figures 5 and 6. As the source needs of Cedar City, Enoch, Kanaraville and some outlying development communities increase, the CICWCD should be prepared to provide bulk water to those entities through a developed regional system. It is recommended that smaller, local membrane-type water treatment facilities be constructed on an as-needed basis rather than a larger, centralized conventional treatment facility requiring relatively long pipeline connections to the point of use. This approach is attractive since treatment facilities capital costs are not incurred until the treated water is actually needed and that facilities can be sited in areas of need, thereby avoiding the expense of pipeline connections to a regional facility. The type of treatment system recommended (ie; membrane) is based upon the assumption that membrane treatment technology is constantly improving and becoming more cost-effective compared to a conventional process. The smaller, local treatment plants will also greatly reduce or eliminate the need for a large terminal raw water storage facility that would be required for a conventional treatment facility. As growth patterns emerge over time and as water treatment technology improves, additional economic analysis will need to be performed to determine if cost economies of scale will favor smaller localized or larger regional treatment facilities.

G. Projected Timetable for Construction of Required New Facilities and Resource Development

The projected timeline for construction of new facilities provided herein is based upon growth assumptions discussed previously. Current growth rates in southwestern Utah indicate that the GOPB average annual growth rates may be too low and that actual growth in the CICWCD service area will occur at a faster rate than projected. For the purposes of this study, it is assumed that growth will occur at a rate at least 25% above current GOPB projections. Total source and storage to be provided by the CICWCD through 2050 are indicated in Figures 5 and 6, along with the proposed time table for placing new storage and source facilities in operation.

- Immediate Needs (2006 – 2015)

The immediate needs of the CICWCD have been identified in previous studies prepared by Stanley Consultants and Nolte and Associates. These immediate needs consist primarily of construction of base infrastructure such as initial source, transmission and storage facilities. Refer to Exhibit A for proposed initial CICWCD system infrastructure. Phase I, which includes the well near Monarch Meadows, the tank west of Rancho Bonita, and the connecting pipeline which are currently under construction. Remaining Phases II through IV have been designed and are scheduled for construction within the next 10 years.

Other facilities considerations during the 2006-2015 period relate primarily to the construction of the Lake Powell Pipeline and receiving beneficial use of that new source. It is expected that some new sources will be developed during that period, but that these sources will be culinary wells located at or near the point of use to the extent possible while still providing for efficient groundwater management. Lake Powell (raw) water will not be immediately needed to address the culinary needs of CICWCD customers. It is proposed that water deliveries from the Lake Powell Pipeline project be initially dedicated to replenishing existing groundwater supplies and to extend or enhance surface irrigation sources. All users within the CICWCD service area will benefit from groundwater recharge. These recharge areas need to be identified and evaluated as part of a future study and included in both the County and Cities' planning efforts. Additional growth will result in higher acquisition costs for these critical sites and transmission corridors. As aquifers are replenished, pumping water levels will rise, thereby decreasing costs to all users. The approach outlined herein allows well over 30,000 acre-feet of water to be "banked" in the existing Cedar Valley aquifer for future drought periods and as a back-up supply if importation of Lake Powell water were to be interrupted.

Eleven wells are proposed as part of the initial 10 years of the basin water management strategy. These wells should be located to benefit from groundwater recharge efforts and aquifer characteristics. Pipelines of adequate capacity to convey produced groundwater should be provided along existing public right of way to feed storage tanks located at sufficient elevation to provide adequate pressure to the majority of developable land in the planning area. Initial storage tanks are recommended near Enoch, southwest of Cedar City and north of the Industrial area. Refer to Exhibit A for proposed facilities through 2015.

- Intermediate Needs (2015 – 2025)

The intermediate needs of the CICWCD consist of two primary system improvements: the first is to continue to replenish the groundwater resource and to provide for additional source and storage facilities to serve growth. Wells to the northwest of Enoch to capture basin outflow and to the west of Cedar City to take advantage of prevailing groundwater flow direction will be developed. Additional storage and transmission capacity will be provided to serve the Cedar City and Industrial areas.

Deliveries of water from the Lake Powell Project are currently planned for 2015. The construction of an initial 10,000 ac-ft of recharge facility capacity should be completed on or near 2015 to take immediate advantage of recharge water. An additional 10,000 ac-ft of recharge facility capacity should be developed soon after deliveries begin. These recharge sites should consider aquifer characteristics, the proximity to the Lake Powell Pipeline corridor, the cost of property, and the potential to provide good recharge potential for the culinary well system. Refer to Exhibit B for proposed facilities improvements through 2025.

- Long-Term Needs (2025 – 2050)

Long-term improvements are primarily intended to address increases in population and the associated needs for additional source, storage and distribution system service area. The most significant change from the "intermediate" time period is the expectation that local culinary water treatment facilities will be required to serve high demand areas as

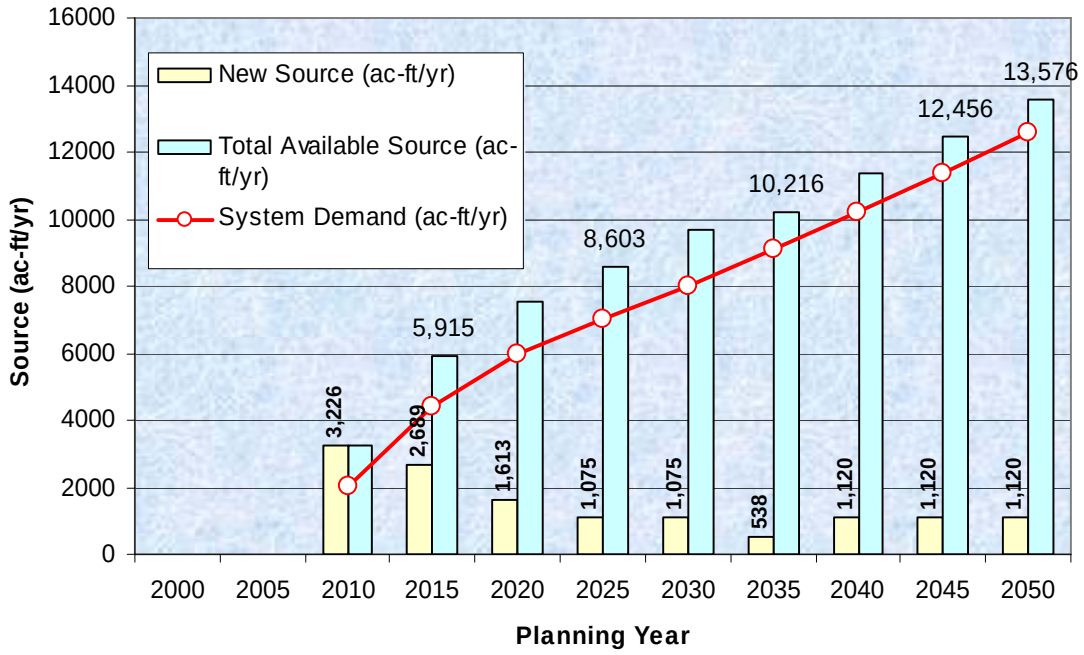
development pushes into areas that are not readily served by groundwater resources. These treatment facilities will be provided raw source water directly from the Lake Powell Pipeline. Future economic analysis will be required as growth patterns emerge to determine whether small local or larger regional water treatment facilities are the better approach.

Based upon overall population projections, an additional 3000 gpm of well capacity and 3.0 MGD of treatment plant capacity are required to meet the needs of the planning area through 2050. Three wells are proposed for the area around Quichapa Lake. Additional pipelines are provided to link this well field more directly to the Industrial area and to provide a large redundant feed to the northern areas of the District. System storage capacity is increased to a total of 19 million gallons. New tanks are proposed northeast and southwest of Cedar City and north of the Industrial area. Water treatment plants are proposed near Kanarraville and west of Cedar City. The Cedar City site is to be located to provide service to both Cedar City and to Enoch. The locations of proposed long-term facilities improvements are indicated in Exhibit C.

- Facility Need Projections

Several initial design assumptions are made to develop the general requirements for new source and storage facilities. Existing culinary water wells in the study area range in approved capacity from 40 gpm to 2000 gpm. For planning purposes, it is recognized that well production may vary widely with location and developed depth. A nominal value of 1000 gpm is used to project the source capacity developed from each new well. It is assumed that this production rate is developed for an average of 8 hours per day over each year period, to allow for seasonal use fluctuations and to provide higher production capacity during peak use periods. Based upon these initial assumptions, each new well will be capable of providing approximately 538 acre-foot of source per year. Utah Division of Drinking Water (DDW) regulations require a peak day source capacity of 800 gallons per residential connection or ERC (Equivalent Residential Connection, for customers other than “residential”), and a total culinary source capacity of 0.45 ac-ft/yr-connection. Existing well capacities are treated similarly, in that total annual production is assumed to be based upon the well operating a rated capacity for 8 hours per day. This approach allows for full-time production to meet peak demand requirements, which is typically three times average demand. Figure 5 identifies total source demand, required total groundwater sources (wells), and requirements of new sources to meet demand over the planning period.

Figure 5 - Required New Source Capacity



It is difficult to quantify storage requirements because the relative contributions of indoor, outdoor, fire storage and emergency reserves will depend upon the makeup of the individual areas served. A minimum of 400 gallons of storage per connection or ERC is required for indoor use only. Where secondary or reclaimed water sources are available, storage for irrigation supplies may not be required. If the culinary system is to provide for lawn irrigation, a value of 2,528 gallons per irrigated acre is required for the study area under DDW regulations.

Fire reserve requirements are dependent upon the type of construction, proximity to fire stations, and extent or type of commercial or industrial facilities in the area served. Typical fire reserve capacity is sufficient to provide two to three hours of fire- fighting capacity at a delivery rate of 1500 to 2000 gallons per minute, resulting in fire storage of between 180,000 and 360,000 gallons per reservoir. It is assumed that fire storage will account for 10% of new storage volume.

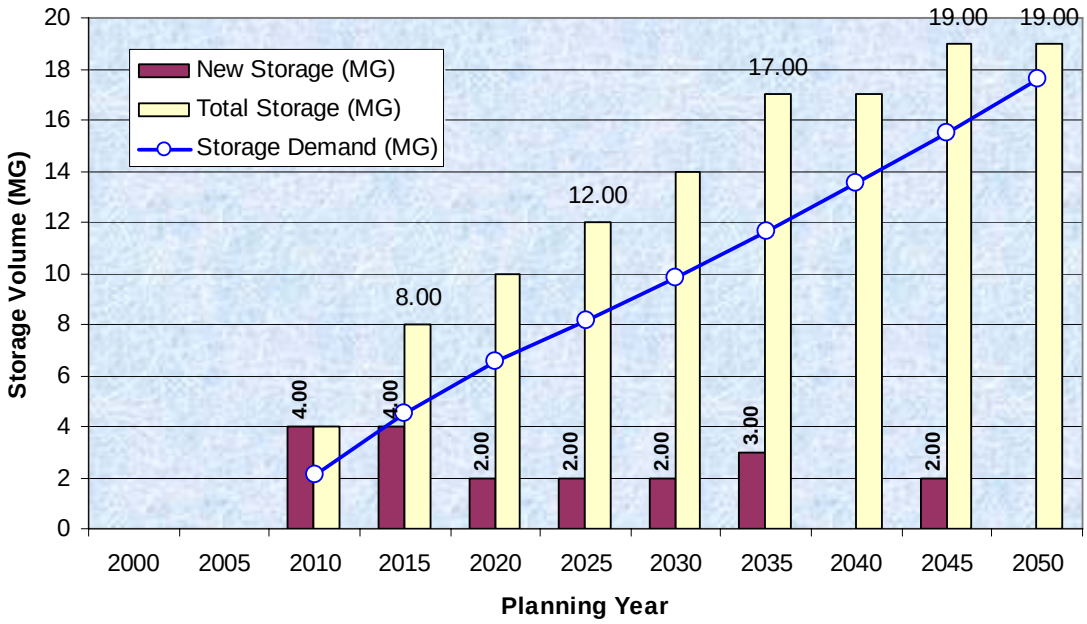
Emergency reserve storage varies with the needs of customers served (for example, hospitals or emergency services, water-critical industry, etc.) and system dependability or redundancy considerations. Emergency reserves are typically 10-20% of the total storage volume. It is assumed that emergency reserves will account for 15% of new storage volume.

System source and storage requirements are based upon population increase projections. For the purposes of this study, it is assumed that one residential connection serves 3.5 persons. Source requirements are calculated as 800 gallons per day per connection, or about 230 gallons per day per capita population. Storage requirements are estimated as approximately 650 gallons per residential connection. This value

includes the DDW indoor storage requirement of 400 gallons per connection plus provisions for irrigating 0.10 acre per connection. It is recommended that future development include provisions limiting allowable irrigated acreage for each new lot to promote prudent use of available resources. Based upon DDW requirements, current per capita usage in the planning area, and fire and emergency storage assumptions indicated above, required new source and storage criteria are defined as follows:

Source:	230 gallons per day per capita population
Storage:	815 gallons per capita population (650 gallons + 25% fire and emergency storage)

Figure 6 - Required New Storage Capacity



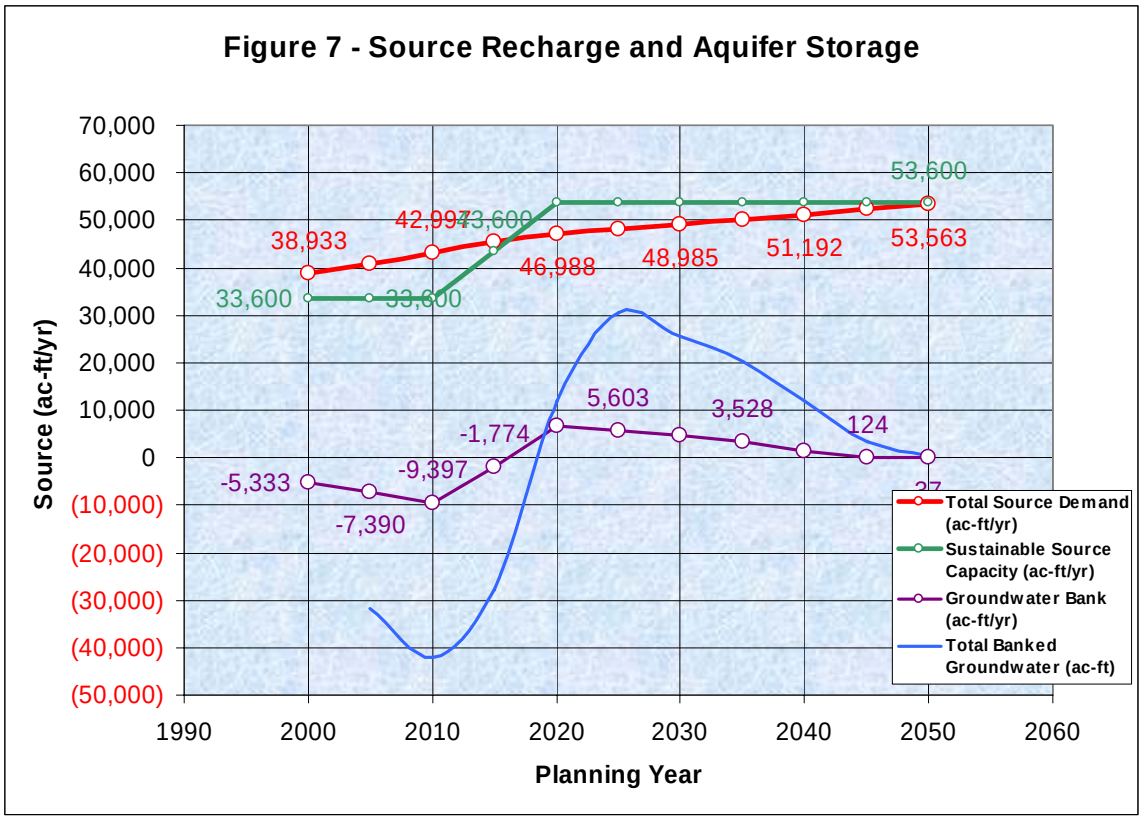
In order to address the current shortfall in sustainable source and to keep new source and storage capacity above projected needs, it is recommended that the CICWCD implement a facilities improvements program on a five-year cycle. For the purposes of this study new source and storage infrastructure will be placed on line in five year increments. Refer to Table 5 for a projected schedule of source and storage needs for the CICWCD through 2050.

Table 5 - Schedule of Improvements (CICWCD)

Year	Pipeline				Source		Storage	Land
	12" (LF)	16" (LF)	18" (LF)	24" (LF)	Wells (gpm)	WTP (MGD)	Tanks (MG)	Acquisition (ac)
2005*	10500	13500	40000		2000		2.0	
2010			49000		4000		2.0	10.0
2015	15000	34500	44000	9500	5000		4.0	11.0
2020		3500	23000		3000		2.0	6.0
2025	7500	15500	33500		2000		2.0	5.0
2030	1000		29500		2000		2.0	5.0
2035			11500		1000		3.0	5.0
2040			1000			1.0		4.0
2045	1000	1000				1.0	2.0	6.5
2050	1000	1000				1.0		4.5

* Included in Nolte (2006)

Before new groundwater sources can be developed for dependable long-term use, the overuse of the existing Cedar Valley aquifer must be addressed. One of the immediate needs for the system is to provide additional culinary sources. Groundwater recharge is recommended. The amount of recharge capacity that can be developed, along with the "recapture rate" for recharge water has not been determined at this time. It is recommended that a study of aquifer recharge potential be undertaken by the CICWCD at the earliest possible time. Potential recharge sites have been identified as part of previous studies (USGS, 2005) and are indicated on Exhibits A through C. Subsurface geology at or near the sites identified should be studied in greater detail with the purpose of determining the long-term recharge that can be sustained at each site and upon the effects upon the overall aquifer and high nitrate and total dissolved solids (TDS) areas. The DDRe will need to be involved as part of such studies to determine the recapture rate that will be allowed (typically 90% recovery is allowable, but is dependent upon aquifer geology). Recharge rates vary widely with local geology, but values between 2 and 6 ac-ft/acre-day are typical for infiltration-type recharge facilities. For the purposes of this study, the initial estimate of recharge capacity is 2.5 feet per day, or 2.5 ac-ft of recharge per day for each acre of recharge area (or about 900 ac-ft per year per acre of recharge area). During the initial and intermediate planning periods, it is assumed that all imported water will be utilized to enhance groundwater resources and to extend or enhance surface water irrigation sources. Up to 20,000 ac-ft per year will be imported and utilized for these purposes. If implemented as proposed, groundwater recharge will exceed withdrawals and begin to address years of groundwater "mining" by within 5 years. From that time through the end of the planning period, approximately 30,000 acre-feet will be added to the groundwater supply reserves. Figure 7 indicates the total demand, total sustainable supply and groundwater recharge values through 2050.



It is assumed that groundwater recharge will not meet the needs for new source capacity through 2050. The quantity of recharge that can reasonably be accomplished is not known at this time, although the potential for recharge at some level has been estimated. As an initial estimate, it is assumed that groundwater recharge will be a viable means to sustain available groundwater resources through 2040. Beyond that date, localized package water treatment facilities, using imported or existing surface water as a source, will provide for additional capacity needs. These systems may also be utilized where local geology, aquifer impacts or the development area is not conducive to drilling a new culinary well.

- Schedule

Refer to Table 5 for the proposed schedule of improvements required to meet anticipated system demands. Refer to Appendix C for Alternative 'A' financial calculations and schedule of improvements.

H. Opinion of Probable Costs Associated with Required New Facilities and Resource Development

Several types of water supply, delivery and storage facilities have been identified as needed for the current and future needs of the CICWCD. Probable construction costs for each of these facilities are highly dependent upon fluctuations in market prices for labor, equipment and materials. These fluctuations cannot be predicted with any certainty, but long-term indices can be used to estimate inflation of construction costs over the planning period.

All cost estimates presented in this report are Stanley Consultants' opinions of probable project, construction, and/or operation and maintenance costs. Cost estimates are made on the basis of our experience and represent our best judgment. We have no control over cost of labor, materials, equipment, contractor's methods, or over competitive bidding or market conditions. Therefore, we do not guarantee that proposals, bids, or actual construction costs will not vary from estimates of project costs, construction, and/or operation and maintenance costs presented. The Construction costs are based on an Engineering News Record Construction Cost Index (ENR-CCI) of September 2006. The estimates include inflation at an annual rate of 3.0%. Estimated project costs for each five year planning period is adjusted to account for inflation between the 2006 base year and the planning year.

Overall capital improvements costs for water supply, storage, treatment, metering and transmission/distribution facilities are divided into two components: 1) raw water supply, transmission and recharge facilities associated with the Lake Powell Project providing benefit to all users in the basin; and 2) wells, piping and storage tanks associated with providing the needs for growth in the planning area. Because of the time-sensitive nature of the Lake Powell Project, it is expected that construction of capital facilities associated with providing a long-term source of raw water to the Cedar Basin will be substantially completed by 2020. Deliveries of Lake Powell water are projected to begin by 2015. The expected costs associated with the construction of the Cedar City contribution to the Lake Powell Project are shown in Table 6.

Table 6: Opinion of Probable Cost - Lake Powell Project

Planning Year	Pipeline				Pump Sta.	Recharge Sites	Land Acq.	Metering Stations	Total (x $1000)
	30"	24"	18"	16"					
2010	$ 88,967	$11,309	$ -	$ 3,798	$ 25,319	$ 1,055	$ 1,900	$ 422	$ 132,769
2015	$ -	$ -	$ 9,149	$ -	$ -	$ 1,233	$ 1,500	$ 247	$ 12,129

Projected costs associated with construction of CICWCD culinary source, transmission and storage infrastructure have been developed for 5 year planning intervals. Itemized cost estimates for each planning period are included in the Appendix. Refer to Table 7 for a summary CICWCD facilities project costs over the planning period.

Table 7: Opinion of Probable Cost - CICWCD

Planning Year	Pipeline				Wells (WTP)	Tanks Sites	Land Acq.	Metering Stations	Total (x $1000)
	24"	18"	16"	12"					
2010	$ -	$ 26,505	$ 3,829	$ 2,234	$ 8,509	$ 5,673	$ 500	$ -	$ 47,249
2015	$ 3,748	$ 15,191	$ 11,344	$ 3,699	$ 8,220	$ 6,576	$ 550	$ 986	$ 50,314
2020	$ -	$ 9,205	$ 1,334	$ -	$ 5,718	$ 3,812	$ 300	$ 381	$ 20,750
2025	$ -	$ 15,543	$ 6,849	$ 2,486	$ 4,419	$ 4,419	$ 250	$ 442	$ 34,408
2030	$ -	$ 15,867	$ -	$ 384	$ 5,123	$ 5,123	$ 250	$ 512	$ 27,259
2035	$ -	$ 7,171	$ -	$ -	$ 2,969	$ 8,908	$ 250	$ 594	$ 19,892
2040	$ -	$ 723	$ -	$ -	$ 8,606	$ -	$ 200	$ 1,205	$ 10,733
2045	$ -	$ -	$ 798	$ 599	$ 9,976	$ 7,981	$ 325	$ 1,796	$ 21,474
2050	$ -	$ -	$ 925	$ 694	$ 11,565	$ -	$ 225	$ 2,082	$ 15,491

I. Funding Alternatives

- o Impact Fees

Summary of Impact Fee Statutory Requirements

The Utah State Code, Title 11, Chapter 36, Sections 1-5 (Impact Fees Act) includes current legislation regarding the implementation of Impact Fees by municipalities and special service districts. The key statutory requirements for implementation of Impact Fees by the CICIWCD are summarized as follows:

- A Capital Facilities Plan must be prepared as a condition of imposing an Impact Fee because the CICWCD will serve a population in excess of 5000. The CICWCD shall provide written notice of its intent to prepare a Capitol Facilities Plan and provide such notice to:

  Iron County
  The Automated Geographic Reference Center (AGRC)
  Each City, Town or Community within the CICWCD service area
  Utah State Planning Coordinator

- The Capitol Facilities Plan shall identify demands upon existing facilities caused by new development activity, and the means by which the CICWCD will meet those demands. An impact fee analysis shall be prepared to identify each component of the Capitol Facilities Plan, whether that component will benefit existing or future customers, and the equitable distribution of benefits (Proportionate Share Analysis) of the component to existing and future customers.

- Provide a minimum 14 days public notice of the Capital Facilities Plan and make copies of the plan available for review by the public. Hold a public hearing in compliance with the requirements of notice and hearing requirements defined by State Statute such that public comment on the plan can be heard.

- Impact fees may only be charged as a condition for development if those fees are a reasonable charge for the service provided. Impact fees may only recover the proportionate share of system improvements costs that can be reasonably attributed to development activity. Impact fees collected shall be kept in a separate interest-bearing account until expended on facilities improvements identified in the Capitol Facilities Plan. Impact fees are to be spent within six years of collection unless encumbered for a specific purpose.

- Impact fees must be adopted by a District resolution.

- o Water Development Surcharges

Water development surcharges were not considered as part of the financing plan because these fees were considered analogous to impact fees. A water development surcharge generally allocates the cost of developing a new source to the entities that

gain benefit from that source. It is recommended that water development costs be included in the overall CICWCD water system development impact fees.

- Wholesale Delivery Charges

Wholesale delivery charges are not included in the proposed funding plan for the LPP or CICWCD capital infrastructure projects. It is expected that wholesale delivery charges will include variable costs associated with energy, operations and maintenance, metering facilities, administration of deliveries, contracts, billings, annual maintenance fees for water rights and related "cost of delivery" items. Wholesale delivery charges will be dependent upon the location of point of delivery. If servicing a particular delivery point entails major delivery infrastructure costs not included in part of the overall system master plan, the additional construction cost sharing arrangements or impact fee adjustments will need to negotiated before being implemented.

- Property Tax Assessments

A property tax assessment is currently being levied by the CICWCD, and will provide revenue to address the costs associated with implementation of the LPP. The current levy rate is 0.00055 and will not provide adequate revenue to retire the majority of costs for developing the LPP by 2050. Projected revenues from the property tax assessments are indicated in Table 8 and Figure 8 and are based upon a levy rate of 0.00083 and an average annual property value increase of 7.0%. Should property values increase at a differing rate, or the levy rate change, it is recommended that the revenues from property taxes be reevaluated so that financial planning is current with growth and appreciation trends.

Revenue from all sources should be evaluated at no greater than five year intervals to ensure that adequate revenue is available to implement infrastructure improvements and cover operations and administrative costs for each planning period.

J. Capital Facilities Finance Plan

The proposed capital facilities required to provide for the long term supply, storage, transmission, distribution, metering and aquifer recharge needs of the study area are identified in Exhibits A through C. The expected capital costs associated with the LPP and CICWCD infrastructure projects are identified in Tables 6 and 7. In order to provide adequate revenue to finance these capital projects, it is proposed that a combination of impact fees and property tax revenues be utilized. The Lake Powell Project provides benefits to all users in the planning area and is proposed to be funded through a combination of property tax revenue (benefit to all users) and impact fee assessments (benefit to new growth). The capital projects identified as "CICWCD facilities" (Table 7) are primarily intended to serve new growth in the planning area. These projects are to be funded through levy of a property tax assessment.

Assumptions used to develop the finance plan associated with the Lake Powell Project may be summarized as follows:

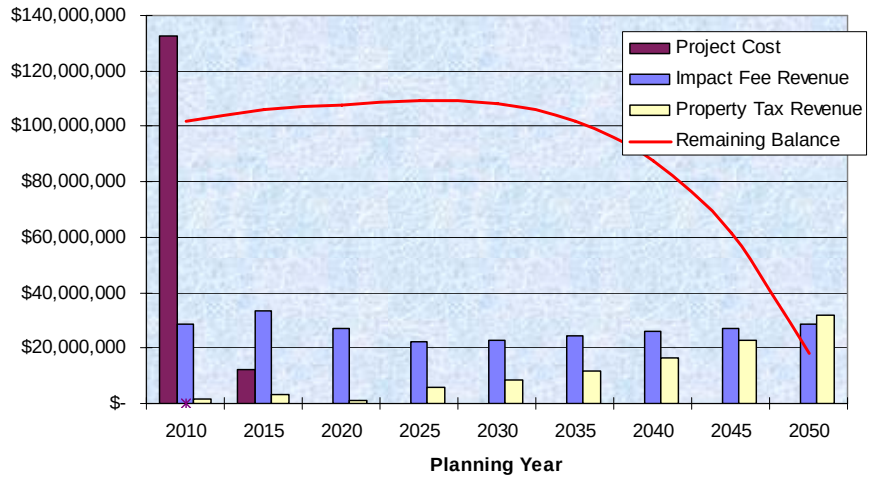
- Current Property Valuation Within the Planning Area: $2,517,000,000
- Annual Rate of Property Valuation Increase: 7.0%
- Property Tax Rate for CICWCD: 0.00017
- Interest Rate on Outstanding Loan Amount: 3.5%
- 3.25 Persons per Equivalent Residential Connection
- Impact Fee for New Connections: $8,250.00

Based upon these assumptions, the required revenues required to finance the Lake Powell Project raw water supply, transmission and aquifer recharge facilities are summarized in Table 8 and Figure 8.

Table 8: Lake Powell Project Revenue Requirements

Planning Year	Project Cost	New Connections (ERC)	Impact Fees	Property Tax Revenues	Outstanding Balance
2010	$132,628,298	3497	$ 28,850,250	$ 1,711,560	$102,066,488
2015	$ 12,128,552	4026	$ 33,214,500	$ 3,000,689	$106,178,940
2020		3291	$ 27,150,750	$ 841,724	$107,521,749
2025		2702	$ 22,291,500	$ 5,902,810	$109,033,716
2030		2768	$ 22,836,000	$ 8,278,996	$108,042,725
2035		2987	$ 24,642,750	$ 11,611,721	$101,638,467
2040		3130	$ 25,822,500	$ 16,286,039	$ 87,610,762
2045		3304	$ 27,258,000	$ 22,842,012	$ 61,715,988
2050		3475	$ 28,668,750	$ 32,037,104	$ 18,061,124

Figure 8: Lake Powell Project Revenue Requirements



Assumptions used to develop the finance plan associated with the CICWCD culinary water source, transmission/distribution and storage facilities may be summarized as follows: Note that all capital facilities and related interest costs are to be funded through revenue realized from impact fees alone.

- Current Property Valuation Within the Planning Area: $2,517,000,000
- Annual Rate of Property Valuation Increase: 7.0%
- Property Tax Rate for CICWCD: 0.00083
- Interest Rate on Outstanding Loan Amount: 3.5%
- 3.25 Persons per Equivalent Residential Connection

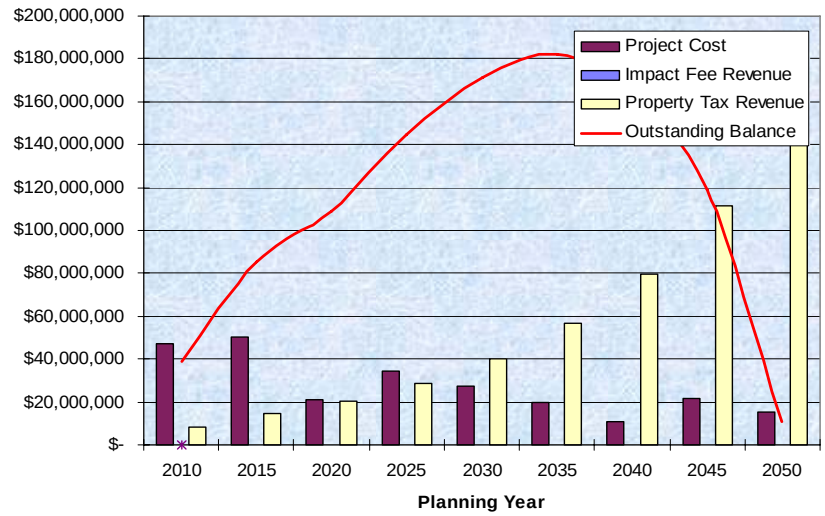
Based upon these assumptions, the required revenues required to finance the Lake Powell Project are summarized in Table 9 and Figure 9.

Table 9: CICWCD Capital Improvements Revenue Requirements

Planning Year	Project Cost	New Connections (ERC)	Impact Fees	Property Tax Revenues	Outstanding Balance
2010	$ 47,249,021	3497	$ -	$ 8,356,440	$ 38,892,581
2015	$ 50,314,310	4026	$ -	$ 14,650,424	$ 85,301,770
2020	$ 20,749,911	3291	$ -	$ 20,547,978	$109,071,010
2025	$ 34,407,597	2702	$ -	$ 28,819,602	$144,793,313
2030	$ 27,259,125	2768	$ -	$ 40,420,983	$171,635,179
2035	$ 19,891,738	2987	$ -	$ 56,692,519	$182,254,033
2040	$ 10,733,134	3130	$ -	$ 79,514,191	$163,826,406
2045	$ 21,474,406	3304	$ -	$111,522,766	$119,040,261
2050	$ 15,490,899	3475	$ -	$156,416,448	$ 11,003,341

Note: 3.25 persons per ERC assumed

Figure 9: CICWCD Project Revenue Requirements



K. Conclusions and Recommendations

1. Additional study is recommended to identify and evaluate potential recharge areas associated with the Lake Powell Project. These recharge areas need to be sited to take advantage of areas of high surface recharge potential (alluvial fans, gravel pits), while minimizing the potential for migration of groundwater from areas with poor water quality (TDS, nitrate). The study should identify site location, subsurface geology and hydrogeology, an evaluation of groundwater mounding and movement associated with recharge, the expected magnitude of vertical recharge, and an evaluation of potential chemical interactions between Lake Powell water and existing groundwater.

2. Additional study is recommended to identify and evaluate potential culinary water well locations associated with CICWCD source development infrastructure. The study will need to evaluate the effects of recharge upon groundwater levels and direction of flow, well development potential, likely effects of pumping new wells upon existing production wells in the planning area, groundwater quality and the effects of pumping new wells upon existing groundwater quality.

3. Upon completion of the UPLAN model for the project area, it is recommended that the assumptions made herein be verified for agreement with UPLAN population growth pattern projections. The Capital Facilities Plan should then be revised as appropriate to update source, transmission and storage needs and to re-prioritize capital facilities needs.

4. The Capital Facilities Plan provided herein should be reevaluated, updated and revised at periods not exceeding 5 year intervals. Source, storage, and transmission/distribution requirements can then be adjusted to account for future growth patterns, conservation initiatives, and demand requirements.

5. Future water treatment facilities have been identified as part of this study, based upon an assumption that groundwater supplies cannot be developed indefinitely or that groundwater development may not be cost-effective to meet the needs of the CICWCD through the planning period. The actual selection of source supply facilities will be dependent upon future growth patterns, performance of aquifer recharge initiatives, sustainable production capacity of future wells and location of supply points. It is recommended that source facilities requirements be periodically reevaluated to develop the most cost-effective alternative.

6. The Lake Powell Project is based upon an estimated need to provide 20,000 acre feet of raw water annually to the Cedar Valley. This volume is the projected additional supply needed to serve the planning area through 2050, and is based upon population growth assumptions. Actual growth rates may vary significantly from the projections made herein (GOPB + 25%) over the next 40 years, and it is expected that growth will likely continue beyond the end of the planning period. The Lake Powell Project will have a nominal design life of 100 years. It is recommended that requirements for additional source capacity from the Lake Powell Project be evaluated to consider design life of supply infrastructure and population/water supply demand growth over and beyond the planning period assumptions. Expansion of Lake Powell Project

delivery capacity in the future may not be cost-effective compared to including provisions for additional delivery capacity as part of the initial scope of project construction.

7. This study does not address water rate revenue requirements. It is recommended that an additional study be prepared to identify costs and revenue requirements for water rights administration, cost of operation and maintenance, metering, billing and administrative costs. These costs are not included in the scope of this study.

8. Land acquisition requirements are identified as part of the cost estimates developed for each 5 year increment of the planning period. It is recommended that well and recharge site investigations be completed as soon as practical to allow sites to be identified and purchased well before they are required for facilities construction. It is expected that land costs in the planning area will increase over time, and the availability of some sites may be lost as areas develop.

9. The District needs to evaluate the benefits of the introduction of additional surface irrigation water via the proposed Coal Creek enhancements. Although the intent of these enhancements is to provide aesthetic benefit to the community while providing additional raw water for aquifer recharge from the natural stream bed, there are existing surface irrigators with diversions along Coal Creek who will benefit from the increased flows in the creek. No analysis has been performed to determine the value to surface irrigators benefiting from increased flows, nor is there a mechanism in place to recover revenues from surface irrigators receiving this potential benefit.

10. A system-wide computer-based water system model should be developed to provide the District with a tool for evaluating and prioritizing the system capitol facilities and infrastructure program. As the UPLAN study for the Cedar Valley is completed and growth patterns emerge, this model would be used to reevaluate required pipeline sizes, pressure zone boundaries, firefighting capacity and other factors that should be evaluated during the detailed facility design process.

11. Cost data provided herein reflect materials and installation costs during the time frame that this Capital Facilities Plan was developed. Materials costs can escalate quickly during periods of shortage. Labor rates, inflation rates, and other variable costs will change over time. It is recommended that unit price data be periodically verified and revised to provide decision-makers with the best available information over time.

12. The LPP pipeline costs evaluated herein only consider the Cedar City segment of the LPP. Construction and operational costs associated with the Lake Powell to St. George segment have not been determined at this time. The CICWCD will need to develop a means to fund the proportional cost associated with their participation in this segment. Based upon an early projection of $500 million±, it is estimated that the CICWCD share of this project will be approximately 20%, or $100 million±.

M. References

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Appendix A: Planning and Zoning Maps

Cedar City
Enoch
Kanarraville

Kanarraville

ZION NATIONAL

KANARRAVILLE ZONING

MAP PROJECTION INFORMATION
PROJECTION: (UTM) Universal Transerse Mercator
ZONE: 12 - Utah South
UNITS: Meters

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0 0.25 0.5 Miles

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

Section Numbering System

SUBDIVISIONS ARE MAINTAINED BY IRON COUNTY AND WERE LAST UPDATED ON FEBRUARY 25, 2001

- TIER BOUNDRY
- ANNEX BOUNDRY
- RAILROAD
- PAVED ROAD
- GRAVEL ROAD
- DIRT ROAD
- INTERSTATE 15
- STATE / MJR HWY
- SUBDIVISION
- PARCELS
- CITIES
- Tier 2-Future Development
- AGRICULTURAL 20 ACRE
- COMMERCIAL
- INDUSTRIAL
- LIGHT INDUSTRIAL
- RESIDENTIAL 1 ACRE
- RESIDENTIAL 1/2 ACRE
- RESIDENTIAL 2 ACRE
- RESIDENTIAL 5 ACRE
- SECTIONS
- TOWNSHIPS

IRON COUNTY GIS

Summit

Enoch

ENOCH ZONING

MAP PROJECTION INFORMATION
PROJECTION: (UTM) Universal Transerse Mercator
ZONE: 12 - Utah South
UNITS: Meters

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18	17	16	15	14	13	
19	20	21	22	23	24	
30	29	28	27	26	25	
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- CITIES
- AGRICULTURAL 20 ACRE
- COMMERCIAL
- INDUSTRIAL
- LIGHT INDUSTRIAL
- RESIDENTIAL 1 ACRE
- RESIDENTIAL 1/2 ACRE
- RESIDENTIAL 2 ACRE
- RESIDENTIAL 5 ACRE
- SECTIONS
- TOWNSHIPS

IRON COUNTY GIS

Enoch

Cedar City

CEDAR CITY ZONING

MAP PROJECTION INFORMATION
PROJECTION: (UTM) Universal Transerse Mercator
ZONE: 12 - Utah South
UNITS: Meters

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19	20	21	22	23	24
30	29	28	27	26	25
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Section Numbering System

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- SUBDIVISION
- PARCELS
- CITIES
- Tier 2-Future Development
- AGRICULTURAL 20 ACRES
- COMMERCIAL
- INDUSTRIAL
- LIGHT INDUSTRIAL
- RESIDENTIAL 1 ACRE
- RESIDENTIAL 1/2 ACRE
- RESIDENTIAL 2 ACRE
- RESIDENTIAL 5 ACRE
- SECTIONS
- TOWNSHIPS

IRON COUNTY GIS

Paragonah

PARAGONAH ZONING

MAP PROJECTION INFORMATION
PROJECTION: (UTM) Universal Transerse Mercator
ZONE: 12 - Utah South
UNITS: Meters

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7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

Section Numbering System

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- PARCELS
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- Tier 2-Future Development
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- COMMERCIAL
- INDUSTRIAL
- LIGHT INDUSTRIAL
- RESIDENTIAL 1 ACRE
- RESIDENTIAL 1/2 ACRE
- RESIDENTIAL 2 ACRE
- RESDIENTIAL 5 ACRE
- SECTIONS
- TOWNSHIPS

IRON COUNTY GIS

Appendix B: Preliminary Opinions of Probable Construction Costs

Lake Powell Project

Central Iron County Water Conservancy District Projects

Central Iron County WCD
Capital Facilities Plan
Appendix B
Financial Calculations

A: Lake Powell Project

Interest on Balance:	5.00	%			
Impact Fee:	$ 8,250.00				
Annual Property Inflation:	7	%			
Property Valuation (2004):	$ 2,517	x $Million	Beginning Year:	2006	
Property Tax Rate:	0.00017				

Table 8: Lake Powell Project Revenue Requirements

Planning Year	Project Cost	New Connections (ERC)	Impact Fees	Property Tax Revenues	Outstanding Balance
2010	$ 132,628,298	3497	$ 28,850,250	$ 1,711,560	$ 102,066,488
2015	$ 12,128,552	4026	$ 33,214,500	$ 3,000,689	$ 106,178,940
2020		3291	$ 27,150,750	$ 841,724	$ 107,521,749
2025		2702	$ 22,291,500	$ 5,902,810	$ 109,033,716
2030		2768	$ 22,836,000	$ 8,278,996	$ 108,042,725
2035		2987	$ 24,642,750	$ 11,611,721	$ 101,638,467
2040		3130	$ 25,822,500	$ 16,286,039	$ 87,610,762
2045		3304	$ 27,258,000	$ 22,842,012	$ 61,715,988
2050		3475	$ 28,668,750	$ 32,037,104	$ 18,061,124
		Total:	$ 240,735,000	$ 102,512,656	
		Portion of Total:	70%	30%	

B: CICWCD Projects

Interest on Balance:	5.00	%			
Impact Fee:	$ -				
Base Year 2005 Population:	0				
Annual Property Inflation:	7	%			
Property Valuation (2004):	$ 2,517	x $Million	Beginning Year:	2006	
Property Tax Rate:	0.00083				

Table 9: CICWCD Capital Improvements Revenue Requirements

Planning Year	Project Cost	New Connections (ERC)	Impact Fees	Property Tax Revenues	Outstanding Balance
2010	$ 47,249,021	3497	$ -	$ 8,356,440	$ 38,892,581
2015	$ 50,314,310	4026	$ -	$ 14,650,424	$ 85,301,770
2020	$ 20,749,911	3291	$ -	$ 20,547,978	$ 109,071,010
2025	$ 34,407,597	2702	$ -	$ 28,819,602	$ 144,793,313
2030	$ 27,259,125	2768	$ -	$ 40,420,983	$ 171,635,179
2035	$ 19,891,738	2987	$ -	$ 56,692,519	$ 182,254,033
2040	$ 10,733,134	3130	$ -	$ 79,514,191	$ 163,826,406
2045	$ 21,474,406	3304	$ -	$ 111,522,766	$ 119,040,261
2050	$ 15,490,899	3475	$ -	$ 156,416,448	$ 11,003,341

Note: 3.25 persons per ERC assumed

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Phase 3: Long Term Needs (2026-2050)
Planning Year: 2050
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	267.15

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 165,000.00	$ 165,000.00
2		LF	24" Welded Steel Water Main	$ 240.00	$ -
3		LF	18" Welded Steel Water Main	$ 210.00	$ -
4	1000	LF	16" Welded Steel Water Main	$ 200.00	$ 200,000.00
5	1000	LF	12" Ductile Iron Water Main	$ 150.00	$ 150,000.00
5		EA	1000 gpm Culinary Wells	$ 1,000,000.00	$ -
6		MG	Culinary Storage Tanks	$ 1,000,000.00	$ -
7		EA	24" Metering Station	$ 250,000.00	$ -
8	1	EA	18" Metering Station	$ 150,000.00	$ 150,000.00
9	3	EA	12" Metering Station	$ 100,000.00	$ 300,000.00
10	1	MGD	Water Treatment Facility	$ 2,500,000.00	$ 2,500,000.00

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 3,465,000.00
			Total Construction (Adjusted for Inflation):		$ 12,721,582.13
			Engineering and Site Investigations (15%) :		$ 1,908,237.32
			Legal and Financial Services (5%) :		$ 636,079.11
4.50	AC		Land Acquisition	$ 50,000.00	$ 225,000.00
			Total Project Cost:		**$ 15,490,898.55**
4.00	%		Estimated Annual Operations Costs:		$ 508,863.29

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Phase 3: Long Term Needs (2026-2050)
Planning Year: 2045
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	216.70

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 265,000.00	$ 265,000.00
2		LF	24" Welded Steel Water Main	$ 240.00	$ -
3		LF	18" Welded Steel Water Main	$ 210.00	$ -
4	1000	LF	16" Welded Steel Water Main	$ 200.00	$ 200,000.00
5	1000	LF	12" Ductile Iron Water Main	$ 150.00	$ 150,000.00
5		EA	1000 gpm Culinary Wells	$ 1,000,000.00	$ -
6	2	MG	Culinary Storage Tanks	$ 1,000,000.00	$ 2,000,000.00
7		EA	24" Metering Station	$ 250,000.00	$ -
8	1	EA	18" Metering Station	$ 150,000.00	$ 150,000.00
9	3	EA	12" Metering Station	$ 100,000.00	$ 300,000.00
10	1	MGD	Water Treatment Facility	$ 2,500,000.00	$ 2,500,000.00

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 5,565,000.00
			Total Construction (Adjusted for Inflation):		$ 17,624,505.16
			Engineering and Site Investigations (15%) :		$ 2,643,675.77
			Legal and Financial Services (5%) :		$ 881,225.26
6.50	AC		Land Acquisition	$ 50,000.00	$ 325,000.00
			Total Project Cost:		**$ 21,474,406.19**
4.00	%		Estimated Annual Operations Costs:		$ 704,980.21

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Phase 3: Long Term Needs (2026-2050)
Planning Year: 2040
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	173.19

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 153,000.00	$ 153,000.00
2		LF	24" Welded Steel Water Main	$ 240.00	$ -
3	1000	LF	18" Welded Steel Water Main	$ 210.00	$ 210,000.00
4		LF	16" Welded Steel Water Main	$ 200.00	$ -
5		LF	12" Ductile Iron Water Main	$ 150.00	$ -
5		EA	1000 gpm Culinary Wells	$ 1,000,000.00	$ -
6		MG	Culinary Storage Tanks	$ 1,000,000.00	$ -
7		EA	24" Metering Station	$ 250,000.00	$ -
8	1	EA	18" Metering Station	$ 150,000.00	$ 150,000.00
9	2	EA	12" Metering Station	$ 100,000.00	$ 200,000.00
10	1	MGD	Water Treatment Facility	$ 2,500,000.00	$ 2,500,000.00

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 3,213,000.00
			Total Construction (Adjusted for Inflation):		$ 8,777,611.71
			Engineering and Site Investigations (15%) :		$ 1,316,641.76
			Legal and Financial Services (5%) :		$ 438,880.59
4.00	AC		Land Acquisition	$ 50,000.00	$ 200,000.00
			Total Project Cost:		**$ 10,733,134.06**
4.00	%		Estimated Annual Operations Costs:		$ 351,104.47

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Phase 3: Long Term Needs (2026-2050)
Planning Year: 2035
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	135.66

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 330,750.00	$ 330,750.00
2		LF	24" Welded Steel Water Main	$ 240.00	$ -
3	11500	LF	18" Welded Steel Water Main	$ 210.00	$ 2,415,000.00
4		LF	16" Welded Steel Water Main	$ 200.00	$ -
5		LF	12" Ductile Iron Water Main	$ 150.00	$ -
5	1	EA	1000 gpm Culinary Wells	$ 1,000,000.00	$ 1,000,000.00
6	3	MG	Culinary Storage Tanks	$ 1,000,000.00	$ 3,000,000.00
7		EA	24" Metering Station	$ 250,000.00	$ -
8		EA	18" Metering Station	$ 150,000.00	$ -
9	2	EA	12" Metering Station	$ 100,000.00	$ 200,000.00
10		MGD	Water Treatment Facility	$ 2,500,000.00	$ -

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 6,945,750.00
			Total Construction (Adjusted for Inflation):		$ 16,368,114.86
			Engineering and Site Investigations (15%) :		$ 2,455,217.23
			Legal and Financial Services (5%) :		$ 818,405.74
5.00	AC		Land Acquisition	$ 50,000.00	$ 250,000.00
			Total Project Cost:		**$ 19,891,737.84**
4.00	%		Estimated Annual Operations Costs:		$ 654,724.59

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Phase 3: Long Term Needs (2026-2050)
Planning Year: 2030
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	103.28

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 527,250.00	$ 527,250.00
2		LF	24" Welded Steel Water Main	$ 240.00	$ -
3	29500	LF	18" Welded Steel Water Main	$ 210.00	$ 6,195,000.00
4		LF	16" Welded Steel Water Main	$ 200.00	$ -
5	1000	LF	12" Ductile Iron Water Main	$ 150.00	$ 150,000.00
5	2	EA	1000 gpm Culinary Wells	$ 1,000,000.00	$ 2,000,000.00
6	2	MG	Culinary Storage Tanks	$ 1,000,000.00	$ 2,000,000.00
7		EA	24" Metering Station	$ 250,000.00	$ -
8		EA	18" Metering Station	$ 150,000.00	$ -
9	2	EA	12" Metering Station	$ 100,000.00	$ 200,000.00
10		MGD	Water Treatment Facility	$ 2,500,000.00	$ -

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 11,072,250.00
			Total Construction (Adjusted for Inflation):		$ 22,507,604.55
			Engineering and Site Investigations (15%) :		$ 3,376,140.68
			Legal and Financial Services (5%) :		$ 1,125,380.23
5.00	AC		Land Acquisition	$ 50,000.00	$ 250,000.00
			Total Project Cost:		**$ 27,259,125.45**
4.00	%		Estimated Annual Operations Costs:		$ 900,304.18

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Phase 2: Intermediate Needs (2016-2025)
Planning Year: 2025
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	75.35

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 773,000.00	$ 773,000.00
2		LF	24" Welded Steel Water Main	$ 240.00	$ -
3	33500	LF	18" Welded Steel Water Main	$ 210.00	$ 7,035,000.00
4	15500	LF	16" Welded Steel Water Main	$ 200.00	$ 3,100,000.00
5	7500	LF	12" Ductile Iron Water Main	$ 150.00	$ 1,125,000.00
5	2	EA	1000 gpm Culinary Wells	$ 1,000,000.00	$ 2,000,000.00
6	2	MG	Culinary Storage Tanks	$ 1,000,000.00	$ 2,000,000.00
7		EA	24" Metering Station	$ 250,000.00	$ -
8		EA	18" Metering Station	$ 150,000.00	$ -
9	2	EA	12" Metering Station	$ 100,000.00	$ 200,000.00
10		MGD	Water Treatment Facility	$ 2,500,000.00	$ -

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 16,233,000.00
			Total Construction (Adjusted for Inflation):		$ 28,464,663.76
			Engineering and Site Investigations (15%) :		$ 4,269,699.56
			Legal and Financial Services (5%) :		$ 1,423,233.19
5.00	AC		Land Acquisition	$ 50,000.00	$ 250,000.00
			Total Project Cost:		**$ 34,407,596.51**
4.00	%		Estimated Annual Operations Costs:		$ 1,138,586.55

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Phase 2: Intermediate Needs (2016-2025)
Planning Year: 2020
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	51.26

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 536,500.00	$ 536,500.00
2		LF	24" Welded Steel Water Main	$ 240.00	$ -
3	23000	LF	18" Welded Steel Water Main	$ 210.00	$ 4,830,000.00
4	3500	LF	16" Welded Steel Water Main	$ 200.00	$ 700,000.00
5		LF	12" Ductile Iron Water Main	$ 150.00	$ -
5	3	EA	1000 gpm Culinary Wells	$ 1,000,000.00	$ 3,000,000.00
6	2	MG	Culinary Storage Tanks	$ 1,000,000.00	$ 2,000,000.00
7		EA	24" Metering Station	$ 250,000.00	$ -
8		EA	18" Metering Station	$ 150,000.00	$ -
9	2	EA	12" Metering Station	$ 100,000.00	$ 200,000.00
10		MGD	Water Treatment Facility	$ 2,500,000.00	$ -

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 11,266,500.00
			Total Construction (Adjusted for Inflation):		$ 17,041,592.14
			Engineering and Site Investigations (15%) :		$ 2,556,238.82
			Legal and Financial Services (5%) :		$ 852,079.61
6.00	AC		Land Acquisition	$ 50,000.00	$ 300,000.00
			Total Project Cost:		**$ 20,749,910.56**
4.00	%		Estimated Annual Operations Costs:		$ 681,663.69

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Lake Powell Pipeline Project
Planning Year: 2015
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	30.48

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 323,250.00	$ 323,250.00
2		LS	Pumping Stations	$ 4,500,000.00	$ -
3		LF	30" Welded Steel Water Main	$ 275.00	$ -
4		LF	24" Welded Steel Water Main	$ 240.00	$ -
5	26500	LF	18" Welded Steel Water Main	$ 210.00	$ 5,565,000.00
6		LF	16" Welded Steel Water Main	$ 200.00	$ -
7	10000	AC-FT	Recharge Facility	$ 75.00	$ 750,000.00
8		EA	24" Raw Water Metering Station	$ 200,000.00	$ -
9	1	EA	18" Raw Water Metering Station	$ 150,000.00	$ 150,000.00
10		EA	16" Raw Water Metering Station	$ 100,000.00	$ -

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 6,788,250.00
			Total Construction (Adjusted for Inflation):		$ 8,857,126.57
			Engineering and Site Investigations (15%) :		$ 1,328,568.98
			Legal and Financial Services (5%) :		$ 442,856.33
30.00	AC		Land Acquisition	$ 50,000.00	$ 1,500,000.00
			Total Project Cost:		**$ 12,128,551.88**
4.00	%		Estimated Annual Operations Costs:		$ 354,285.06

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Phase I: Immediate Needs (2006-2015)
Planning Year: 2015
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	30.48

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 1,513,500.00	$ 1,513,500.00
2	9500	LF	24" Welded Steel Water Main	$ 240.00	$ 2,280,000.00
3	44000	LF	18" Welded Steel Water Main	$ 210.00	$ 9,240,000.00
4	34500	LF	16" Welded Steel Water Main	$ 200.00	$ 6,900,000.00
5	15000	LF	12" Ductile Iron Water Main	$ 150.00	$ 2,250,000.00
6	5	EA	1000 gpm Culinary Wells	$ 1,000,000.00	$ 5,000,000.00
7	4	MG	Culinary Storage Tanks	$ 1,000,000.00	$ 4,000,000.00
8	1	EA	24" Metering Station	$ 250,000.00	$ 250,000.00
9	1	EA	18" Metering Station	$ 150,000.00	$ 150,000.00
10	2	EA	12" Metering Station	$ 100,000.00	$ 200,000.00
11		MGD	Water Treatment Facility	$ 2,500,000.00	$ -

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 31,783,500.00
			Total Construction (Adjusted for Inflation):		$ 41,470,258.49
			Engineering and Site Investigations (15%) :		$ 6,220,538.77
			Legal and Financial Services (5%) :		$ 2,073,512.92
11.00	AC		Land Acquisition	$ 50,000.00	$ 550,000.00
			Total Project Cost:		**$ 50,314,310.19**
4.00	%		Estimated Annual Operations Costs:		$ 1,658,810.34

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Lake Powell Pipeline Project
Planning Year: 2010
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	12.55

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 3,752,000.00	$ 3,752,000.00
2	4	LS	Pumping Stations	$ 4,500,000.00	$ 18,000,000.00
3	230000	LF	30" Welded Steel Water Main	$ 275.00	$ 63,250,000.00
4	33500	LF	24" Welded Steel Water Main	$ 240.00	$ 8,040,000.00
5		LF	18" Welded Steel Water Main	$ 210.00	$ -
6	13500	LF	16" Welded Steel Water Main	$ 200.00	$ 2,700,000.00
7	10000	AC-FT	Recharge Facility	$ 75.00	$ 750,000.00
8	1	EA	24" Raw Water Metering Station	$ 200,000.00	$ 200,000.00
9		EA	18" Raw Water Metering Station	$ 150,000.00	$ -
10	1	EA	16" Raw Water Metering Station	$ 100,000.00	$ 100,000.00

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 96,692,000.00
			Total Construction (Adjusted for Inflation):		$ 108,940,248.74
			Engineering and Site Investigations (15%) :		$ 16,341,037.31
			Legal and Financial Services (5%) :		$ 5,447,012.44
38.00	AC	Land Acquisition		$ 50,000.00	$ 1,900,000.00
			Total Project Cost:		**$ 132,628,298.49**
4.00	%	Estimated Annual Operations Costs:			$ 4,357,609.95

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Phase I: Immediate Needs (2006-2015)
Planning Year: 2010
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	12.55

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 1,648,250.00	$ 1,648,250.00
2		LF	24" Welded Steel Water Main	$ 240.00	$ -
3	89000	LF	18" Welded Steel Water Main	$ 210.00	$ 18,690,000.00
4	13500	LF	16" Welded Steel Water Main	$ 200.00	$ 2,700,000.00
5	10500	LF	12" Ductile Iron Water Main	$ 150.00	$ 1,575,000.00
6	6	EA	1000 gpm Culinary Wells	$ 1,000,000.00	$ 6,000,000.00
7	4	MG	Culinary Storage Tanks	$ 1,000,000.00	$ 4,000,000.00
8		EA	24" Metering Station	$ 250,000.00	$ -
9		EA	18" Metering Station	$ 150,000.00	$ -
10		EA	12" Metering Station	$ 100,000.00	$ -
11		MGD	Water Treatment Facility	$ 2,500,000.00	$ -

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 34,613,250.00
			Total Construction (Adjusted for Inflation):		$ 38,957,517.82
			Engineering and Site Investigations (15%) :		$ 5,843,627.67
			Legal and Financial Services (5%) :		$ 1,947,875.89
10.00	AC		Land Acquisition	$ 50,000.00	$ 500,000.00
			Total Project Cost:		**$ 47,249,021.38**
4.00	%		Estimated Annual Operations Costs:		$ 1,558,300.71

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Appendix C: CICWCD System Facilities Improvements

Exhibit A: Capital Improvements (2006-2015)
Exhibit B: Capital Improvements (2015-2025)
Exhibit C: Capital Improvements (2025-2050)

Appendix D: Alternative 'B' Facilities Plan

Exhibit D: Capital Improvements (2006-2015)
Exhibit E: Capital Improvements (2015-2025)
Exhibit F: Capital Improvements (2025-2050)

Central Iron County WCD
Capital Facilities Plan
Appendix D
Financial Calculations

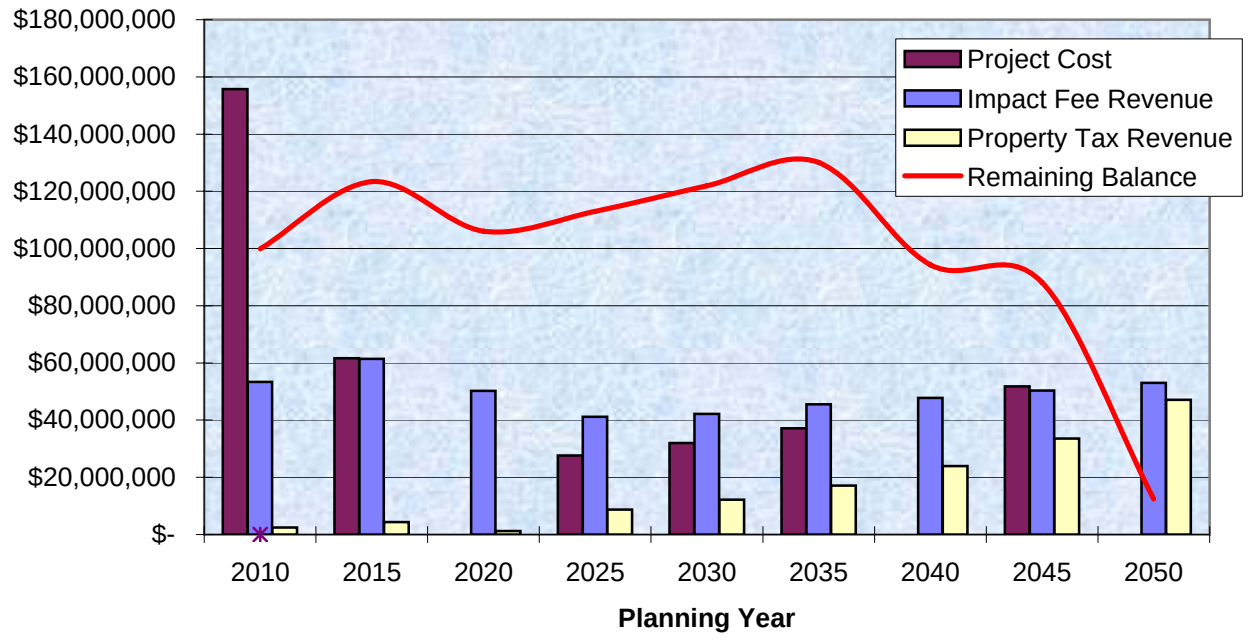
A: Lake Powell Project

Interest on Balance:	5.00 %			
Impact Fee:	$ 15,250.00			
Annual Property Inflation:	7 %			
Property Valuation (2004):	$ 2,517	x $Million	Beginning Year:	2006
Property Tax Rate:	0.00025			

Table 7: Lake Powell Project Revenue Requirements

Planning Year	Project Cost	New Connections (ERC)	Impact Fees	Property Tax Revenues	Outstanding Balance
2010	$ 155,760,733	3497	$ 53,329,250	$ 2,517,000	$ 99,914,483
2015	$ 61,650,533	4026	$ 61,396,500	$ 4,412,778	$ 123,360,267
2020	$ -	3291	$ 50,187,750	$ 1,237,830	$ 106,016,854
2025	$ 27,617,720	2702	$ 41,205,500	$ 8,680,603	$ 113,038,974
2030	$ 32,016,507	2768	$ 42,212,000	$ 12,174,995	$ 121,899,071
2035	$ 37,115,907	2987	$ 45,551,750	$ 17,076,060	$ 130,065,633
2040	$ -	3130	$ 47,732,500	$ 23,950,057	$ 94,317,812
2045	$ 51,780,675	3304	$ 50,386,000	$ 33,591,194	$ 88,179,565
2050	$ -	3475	$ 52,993,750	$ 47,113,388	$ 12,434,815
Total:			$ 444,995,000	$ 150,753,906	
Portion of Total:			75%	25%	

Figure 8: Lake Powell Project Revenue Requirements



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Central Iron County WCD
Capital Facilities Plan
Appendix D
B: CICWCD Projects

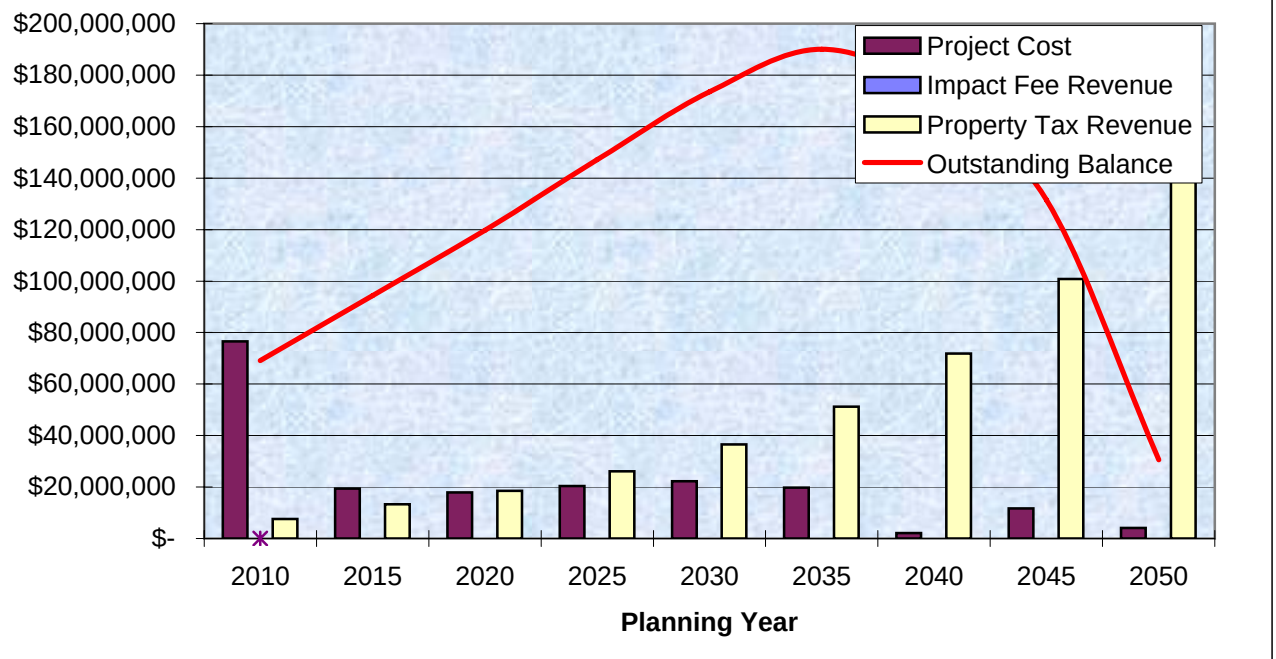
Interest on Balance:	5.00 %				
Impact Fee:	$ -				
Base Year 2005 Population:	41875				
Annual Property Inflation:	7 %				
Property Valuation (2004):	$ 2,517	x $Million	Beginning Year:	2006	
Property Tax Rate:	0.00075				

Table 8: CICWCD Capital Improvements Revenue Requirements

Planning Year	Project Cost	New Connections (ERC)	Impact Fees	Property Tax Revenues	Outstanding Balance
2010	$ 76,629,360	3497	$ -	$ 7,551,000	$ 69,078,360
2015	$ 19,406,843	4026	$ -	$ 13,238,335	$ 94,331,945
2020	$ 17,900,645	3291	$ -	$ 18,567,450	$ 119,727,317
2025	$ 20,444,077	2702	$ -	$ 26,041,809	$ 147,208,036
2030	$ 22,226,131	2768	$ -	$ 36,524,984	$ 173,580,048
2035	$ 19,728,428	2987	$ -	$ 51,228,180	$ 190,037,263
2040	$ 2,127,632	3130	$ -	$ 71,850,172	$ 172,818,515
2045	$ 11,677,842	3304	$ -	$ 100,773,583	$ 131,469,342
2050	$ 4,133,995	3475	$ -	$ 141,340,164	$ 30,585,729

Note: 3.25 persons per ERC assumed

Figure 9: CICWCD Project Revenue Requirements



Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Phase 3: Long Term Needs (2026-2050)
Planning Year: 2050
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	267.15

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 42,250.00	$ 42,250.00
2		LF	36" Welded Steel Water Main	$ 300.00	$ -
3		LF	24" Welded Steel Water Main	$ 240.00	$ -
4	1000	LF	18" Welded Steel Water Main	$ 210.00	$ 210,000.00
5	1000	LF	12-16" Ductile Iron Water Main	$ 185.00	$ 185,000.00
5		EA	1000 gpm Culinary Wells	$ 350,000.00	$ -
6		MG	Culinary Storage Tanks	$ 1,000,000.00	$ -
7		EA	24" Metering Station	$ 250,000.00	$ -
8	1	EA	18" Metering Station	$ 150,000.00	$ 150,000.00
9	3	EA	12" Metering Station	$ 100,000.00	$ 300,000.00
10		MGD	Water Treatment Facility	$ 2,500,000.00	$ -

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 887,250.00
			Total Construction (Adjusted for Inflation):		$ 3,257,496.03
			Engineering and Site Investigations (15%) :		$ 488,624.40
			Legal and Financial Services (5%) :		$ 162,874.80
4.50	AC		Land Acquisition	$ 50,000.00	$ 225,000.00
			Total Project Cost:		**$ 4,133,995.24**
4.00	%		Estimated Annual Operations Costs:		$ 130,299.84

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Lake Powell Pipeline Project
Planning Year: 2045
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	216.70

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 625,000.00	$ 625,000.00
2		LS	Pumping Stations	$ 4,500,000.00	$ -
3		LF	30" Welded Steel Water Main	$ 275.00	$ -
4		LF	24" Welded Steel Water Main	$ 240.00	$ -
5		LF	18" Welded Steel Water Main	$ 210.00	$ -
6		Ac-Ft	Raw Water Storage Reservoir	$ 3,350.00	$ -
7	5	MGD	Water Treatment Facility	$ 2,500,000.00	$ 12,500,000.00
8		EA	24" Raw Water Metering Station	$ 200,000.00	$ -
9		EA	18" Raw Water Metering Station	$ 150,000.00	$ -
10		EA	16" Raw Water Metering Station	$ 100,000.00	$ -

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 13,125,000.00
			Total Construction (Adjusted for Inflation):		$ 41,567,229.15
			Engineering and Site Investigations (15%) :		$ 6,235,084.37
			Legal and Financial Services (5%) :		$ 2,078,361.46
38.00	AC	Land Acquisition		$ 50,000.00	$ 1,900,000.00
			Total Project Cost:		**$ 51,780,674.97**
4.00	%	Estimated Annual Operations Costs:			$ 1,662,689.17

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Phase 3: Long Term Needs (2026-2050)
Planning Year: 2045
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	216.70

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 142,250.00	$ 142,250.00
2		LF	36" Welded Steel Water Main	$ 300.00	$ -
3		LF	24" Welded Steel Water Main	$ 240.00	$ -
4	1000	LF	18" Welded Steel Water Main	$ 210.00	$ 210,000.00
5	1000	LF	12-16" Ductile Iron Water Main	$ 185.00	$ 185,000.00
5		EA	1000 gpm Culinary Wells	$ 350,000.00	$ -
6	2	MG	Culinary Storage Tanks	$ 1,000,000.00	$ 2,000,000.00
7		EA	24" Metering Station	$ 250,000.00	$ -
8	1	EA	18" Metering Station	$ 150,000.00	$ 150,000.00
9	3	EA	12" Metering Station	$ 100,000.00	$ 300,000.00
10		MGD	Water Treatment Facility	$ 2,500,000.00	$ -

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 2,987,250.00
			Total Construction (Adjusted for Inflation):		$ 9,460,701.35
			Engineering and Site Investigations (15%) :		$ 1,419,105.20
			Legal and Financial Services (5%) :		$ 473,035.07
6.50	AC		Land Acquisition	$ 50,000.00	$ 325,000.00
			Total Project Cost:		**$ 11,677,841.62**
4.00	%		Estimated Annual Operations Costs:		$ 378,428.05

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Phase 3: Long Term Needs (2026-2050)
Planning Year: 2040
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	173.19

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 28,000.00	$ 28,000.00
2		LF	36" Welded Steel Water Main	$ 300.00	$ -
3		LF	24" Welded Steel Water Main	$ 240.00	$ -
4	1000	LF	18" Welded Steel Water Main	$ 210.00	$ 210,000.00
5		LF	12-16" Ductile Iron Water Main	$ 185.00	$ -
5		EA	1000 gpm Culinary Wells	$ 350,000.00	$ -
6		MG	Culinary Storage Tanks	$ 1,000,000.00	$ -
7		EA	24" Metering Station	$ 250,000.00	$ -
8	1	EA	18" Metering Station	$ 150,000.00	$ 150,000.00
9	2	EA	12" Metering Station	$ 100,000.00	$ 200,000.00
10		MGD	Water Treatment Facility	$ 2,500,000.00	$ -

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 588,000.00
			Total Construction (Adjusted for Inflation):		$ 1,606,360.31
			Engineering and Site Investigations (15%) :		$ 240,954.05
			Legal and Financial Services (5%) :		$ 80,318.02
4.00	AC		Land Acquisition	$ 50,000.00	$ 200,000.00
			Total Project Cost:		**$ 2,127,632.38**
4.00	%		Estimated Annual Operations Costs:		$ 64,254.41

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Lake Powell Pipeline Project
Planning Year: 2035
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	135.66

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 625,000.00	$ 625,000.00
2		LS	Pumping Stations	$ 4,500,000.00	$ -
3		LF	30" Welded Steel Water Main	$ 275.00	$ -
4		LF	24" Welded Steel Water Main	$ 240.00	$ -
5		LF	18" Welded Steel Water Main	$ 210.00	$ -
6		Ac-Ft	Raw Water Storage Reservoir	$ 3,350.00	$ -
7	5	MGD	Water Treatment Facility	$ 2,500,000.00	$ 12,500,000.00
8		EA	24" Raw Water Metering Station	$ 200,000.00	$ -
9		EA	18" Raw Water Metering Station	$ 150,000.00	$ -
10		EA	16" Raw Water Metering Station	$ 100,000.00	$ -

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 13,125,000.00
			Total Construction (Adjusted for Inflation):		$ 30,929,922.27
			Engineering and Site Investigations (15%) :		$ 4,639,488.34
			Legal and Financial Services (5%) :		$ 1,546,496.11
	AC		Land Acquisition	$ 50,000.00	$ -
			Total Project Cost:		**$ 37,115,906.72**
4.00	%		Estimated Annual Operations Costs:		$ 1,237,196.89

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Phase 3: Long Term Needs (2026-2050)
Planning Year: 2035
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	135.66

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 328,000.00	$ 328,000.00
2		LF	36" Welded Steel Water Main	$ 300.00	$ -
3		LF	24" Welded Steel Water Main	$ 240.00	$ -
4	16000	LF	18" Welded Steel Water Main	$ 210.00	$ 3,360,000.00
5		LF	12-16" Ductile Iron Water Main	$ 185.00	$ -
5		EA	1000 gpm Culinary Wells	$ 350,000.00	$ -
6	3	MG	Culinary Storage Tanks	$ 1,000,000.00	$ 3,000,000.00
7		EA	24" Metering Station	$ 250,000.00	$ -
8		EA	18" Metering Station	$ 150,000.00	$ -
9	2	EA	12" Metering Station	$ 100,000.00	$ 200,000.00
10		MGD	Water Treatment Facility	$ 2,500,000.00	$ -

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 6,888,000.00
			Total Construction (Adjusted for Inflation):		$ 16,232,023.21
			Engineering and Site Investigations (15%) :		$ 2,434,803.48
			Legal and Financial Services (5%) :		$ 811,601.16
5.00	AC		Land Acquisition	$ 50,000.00	$ 250,000.00
			Total Project Cost:		**$ 19,728,427.85**
4.00	%		Estimated Annual Operations Costs:		$ 649,280.93

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Lake Powell Pipeline Project
Planning Year: 2030
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	103.28

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 625,000.00	$ 625,000.00
2		LS	Pumping Stations	$ 4,500,000.00	$ -
3		LF	30" Welded Steel Water Main	$ 275.00	$ -
4		LF	24" Welded Steel Water Main	$ 240.00	$ -
5		LF	18" Welded Steel Water Main	$ 210.00	$ -
6		Ac-Ft	Raw Water Storage Reservoir	$ 3,350.00	$ -
7	5	MGD	Water Treatment Facility	$ 2,500,000.00	$ 12,500,000.00
8		EA	24" Raw Water Metering Station	$ 200,000.00	$ -
9		EA	18" Raw Water Metering Station	$ 150,000.00	$ -
10		EA	16" Raw Water Metering Station	$ 100,000.00	$ -

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 13,125,000.00
			Total Construction (Adjusted for Inflation):		$ 26,680,422.65
			Engineering and Site Investigations (15%) :		$ 4,002,063.40
			Legal and Financial Services (5%) :		$ 1,334,021.13
0.00	AC		Land Acquisition	$ 50,000.00	$ -
			Total Project Cost:		**$ 32,016,507.18**
4.00	%		Estimated Annual Operations Costs:		$ 1,067,216.91

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Phase 3: Long Term Needs (2026-2050)
Planning Year: 2030
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	103.28

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 429,000.00	$ 429,000.00
2		LF	36" Welded Steel Water Main	$ 300.00	$ -
3		LF	24" Welded Steel Water Main	$ 240.00	$ -
4	29500	LF	18" Welded Steel Water Main	$ 210.00	$ 6,195,000.00
5	1000	LF	12-16" Ductile Iron Water Main	$ 185.00	$ 185,000.00
5		EA	1000 gpm Culinary Wells	$ 350,000.00	$ -
6	2	MG	Culinary Storage Tanks	$ 1,000,000.00	$ 2,000,000.00
7		EA	24" Metering Station	$ 250,000.00	$ -
8		EA	18" Metering Station	$ 150,000.00	$ -
9	2	EA	12" Metering Station	$ 100,000.00	$ 200,000.00
10		MGD	Water Treatment Facility	$ 2,500,000.00	$ -

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 9,009,000.00
			Total Construction (Adjusted for Inflation):		$ 18,313,442.11
			Engineering and Site Investigations (15%) :		$ 2,747,016.32
			Legal and Financial Services (5%) :		$ 915,672.11
5.00	AC		Land Acquisition	$ 50,000.00	$ 250,000.00
			Total Project Cost:		**$ 22,226,130.53**
4.00	%		Estimated Annual Operations Costs:		$ 732,537.68

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Lake Powell Pipeline Project
Planning Year: 2025
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	75.35

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 625,000.00	$ 625,000.00
2		LS	Pumping Stations	$ 4,500,000.00	$ -
3		LF	30" Welded Steel Water Main	$ 275.00	$ -
4		LF	24" Welded Steel Water Main	$ 240.00	$ -
5		LF	18" Welded Steel Water Main	$ 210.00	$ -
6		Ac-Ft	Raw Water Storage Reservoir	$ 3,350.00	$ -
7	5	MGD	Water Treatment Facility	$ 2,500,000.00	$ 12,500,000.00
8		EA	24" Raw Water Metering Station	$ 200,000.00	$ -
9		EA	18" Raw Water Metering Station	$ 150,000.00	$ -
10		EA	16" Raw Water Metering Station	$ 100,000.00	$ -

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 13,125,000.00
			Total Construction (Adjusted for Inflation):		$ 23,014,766.95
			Engineering and Site Investigations (15%) :		$ 3,452,215.04
			Legal and Financial Services (5%) :		$ 1,150,738.35
0.00	AC		Land Acquisition	$ 50,000.00	$ -
			Total Project Cost:		**$ 27,617,720.34**
4.00	%		Estimated Annual Operations Costs:		$ 920,590.68

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Phase 2: Intermediate Needs (2016-2025)
Planning Year: 2025
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	75.35

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 457,000.00	$ 457,000.00
2		LF	36" Welded Steel Water Main	$ 300.00	$ -
3		LF	24" Welded Steel Water Main	$ 240.00	$ -
4	7500	LF	18" Welded Steel Water Main	$ 210.00	$ 1,575,000.00
5	29000	LF	12-16" Ductile Iron Water Main	$ 185.00	$ 5,365,000.00
5		EA	1000 gpm Culinary Wells	$ 350,000.00	$ -
6	2	MG	Culinary Storage Tanks	$ 1,000,000.00	$ 2,000,000.00
7		EA	24" Metering Station	$ 250,000.00	$ -
8		EA	18" Metering Station	$ 150,000.00	$ -
9	2	EA	12" Metering Station	$ 100,000.00	$ 200,000.00
10		MGD	Water Treatment Facility	$ 2,500,000.00	$ -

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 9,597,000.00
			Total Construction (Adjusted for Inflation):		$ 16,828,397.59
			Engineering and Site Investigations (15%) :		$ 2,524,259.64
			Legal and Financial Services (5%) :		$ 841,419.88
5.00	AC		Land Acquisition	$ 50,000.00	$ 250,000.00
			Total Project Cost:		**$ 20,444,077.11**
4.00	%		Estimated Annual Operations Costs:		$ 673,135.90

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Phase 2: Intermediate Needs (2016-2025)
Planning Year: 2020
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	51.26

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 461,750.00	$ 461,750.00
2		LF	36" Welded Steel Water Main	$ 300.00	$ -
3		LF	24" Welded Steel Water Main	$ 240.00	$ -
4	33500	LF	18" Welded Steel Water Main	$ 210.00	$ 7,035,000.00
5		LF	12-16" Ductile Iron Water Main	$ 185.00	$ -
5		EA	1000 gpm Culinary Wells	$ 350,000.00	$ -
6	2	MG	Culinary Storage Tanks	$ 1,000,000.00	$ 2,000,000.00
7		EA	24" Metering Station	$ 250,000.00	$ -
8		EA	18" Metering Station	$ 150,000.00	$ -
9	2	EA	12" Metering Station	$ 100,000.00	$ 200,000.00
10		MGD	Water Treatment Facility	$ 2,500,000.00	$ -

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 9,696,750.00
			Total Construction (Adjusted for Inflation):		$ 14,667,204.41
			Engineering and Site Investigations (15%) :		$ 2,200,080.66
			Legal and Financial Services (5%) :		$ 733,360.22
6.00	AC		Land Acquisition	$ 50,000.00	$ 300,000.00
			Total Project Cost:		**$ 17,900,645.30**
4.00	%		Estimated Annual Operations Costs:		$ 586,688.18

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Lake Powell Pipeline Project
Planning Year: 2015
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	30.48

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 1,875,000.00	$ 1,875,000.00
2		LS	Pumping Stations	$ 4,500,000.00	$ -
3		LF	30" Welded Steel Water Main	$ 275.00	$ -
4		LF	24" Welded Steel Water Main	$ 240.00	$ -
5		LF	18" Welded Steel Water Main	$ 210.00	$ -
6		Ac-Ft	Raw Water Storage Reservoir	$ 3,350.00	$ -
7	15	MGD	Water Treatment Facility	$ 2,500,000.00	$ 37,500,000.00
8		EA	24" Raw Water Metering Station	$ 200,000.00	$ -
9		EA	18" Raw Water Metering Station	$ 150,000.00	$ -
10		EA	16" Raw Water Metering Station	$ 100,000.00	$ -

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 39,375,000.00
			Total Construction (Adjusted for Inflation):		$ 51,375,444.11
			Engineering and Site Investigations (15%) :		$ 7,706,316.62
			Legal and Financial Services (5%) :		$ 2,568,772.21
0.00	AC		Land Acquisition	$ 50,000.00	$ -
			Total Project Cost:		**$ 61,650,532.94**
4.00	%		Estimated Annual Operations Costs:		$ 2,055,017.76

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Phase I: Immediate Needs (2006-2015)
Planning Year: 2015
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	30.48

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 573,500.00	$ 573,500.00
2	23000	LF	36" Welded Steel Water Main	$ 300.00	$ 6,900,000.00
3		LF	24" Welded Steel Water Main	$ 240.00	$ -
4		LF	18" Welded Steel Water Main	$ 210.00	$ -
5	2000	LF	12-16" Ductile Iron Water Main	$ 185.00	$ 370,000.00
6		EA	1000 gpm Culinary Wells	$ 350,000.00	$ -
7	4	MG	Culinary Storage Tanks	$ 1,000,000.00	$ 4,000,000.00
8		EA	24" Metering Station	$ 250,000.00	$ -
9		EA	18" Metering Station	$ 150,000.00	$ -
10	2	EA	12" Metering Station	$ 100,000.00	$ 200,000.00
11		MGD	Water Treatment Facility	$ 2,500,000.00	$ -

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 12,043,500.00
			Total Construction (Adjusted for Inflation):		$ 15,714,035.84
			Engineering and Site Investigations (15%) :		$ 2,357,105.38
			Legal and Financial Services (5%) :		$ 785,701.79
11.00	AC		Land Acquisition	$ 50,000.00	$ 550,000.00
			Total Project Cost:		**$ 19,406,843.01**
4.00	%		Estimated Annual Operations Costs:		$ 628,561.43

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Lake Powell Pipeline Project
Planning Year: 2010
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	12.55

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 3,665,000.00	$ 3,665,000.00
2	4	LS	Pumping Stations	$ 4,500,000.00	$ 18,000,000.00
3	230000	LF	30" Welded Steel Water Main	$ 275.00	$ 63,250,000.00
4		LF	24" Welded Steel Water Main	$ 240.00	$ -
5		LF	18" Welded Steel Water Main	$ 210.00	$ -
6	3000	Ac-Ft	Raw Water Storage Reservoir	$ 3,350.00	$ 10,050,000.00
7		MGD	Water Treatment Facility	$ 2,500,000.00	$ -
8		EA	24" Raw Water Metering Station	$ 200,000.00	$ -
9		EA	18" Raw Water Metering Station	$ 150,000.00	$ -
10		EA	16" Raw Water Metering Station	$ 100,000.00	$ -

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 94,965,000.00
			Total Construction (Adjusted for Inflation):		$ 106,883,944.14
			Engineering and Site Investigations (15%) :		$ 16,032,591.62
			Legal and Financial Services (5%) :		$ 5,344,197.21
550.00	AC		Land Acquisition	$ 50,000.00	$ 27,500,000.00
			Total Project Cost:		**$ 155,760,732.97**
4.00	%		Estimated Annual Operations Costs:		$ 4,275,357.77

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Phase I: Immediate Needs (2006-2015)
Planning Year: 2010
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	12.55

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 2,684,125.00	$ 2,684,125.00
2	36500	LF	36" Welded Steel Water Main	$ 300.00	$ 10,950,000.00
3	9500	LF	24" Welded Steel Water Main	$ 240.00	$ 2,280,000.00
4	113000	LF	18" Welded Steel Water Main	$ 210.00	$ 23,730,000.00
5	58500	LF	12-16" Ductile Iron Water Main	$ 185.00	$ 10,822,500.00
6	2	EA	1000 gpm Culinary Wells	$ 750,000.00	$ 1,500,000.00
7	4	MG	Culinary Storage Tanks	$ 1,000,000.00	$ 4,000,000.00
8	1	EA	24" Metering Station	$ 250,000.00	$ 250,000.00
9	1	EA	18" Metering Station	$ 150,000.00	$ 150,000.00
10		EA	12" Metering Station	$ 100,000.00	$ -
11		MGD	Water Treatment Facility	$ 2,500,000.00	$ -

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 56,366,625.00
			Total Construction (Adjusted for Inflation):		$ 63,441,133.03
			Engineering and Site Investigations (15%) :		$ 9,516,169.95
			Legal and Financial Services (5%) :		$ 3,172,056.65
10.00	AC		Land Acquisition	$ 50,000.00	$ 500,000.00
			Total Project Cost:		**$ 76,629,359.63**
4.00	%		Estimated Annual Operations Costs:		$ 2,537,645.32

Stanley Consultants INC.

Appendix E: Alternative 'C' Facilities Plan

Exhibit G: Capital Improvements (2006-2015)
Exhibit H: Capital Improvements (2015-2025)
Exhibit I: Capital Improvements (2025-2050)

Central Iron County WCD
Capital Facilities Plan
Appendix E
Financial Calculations

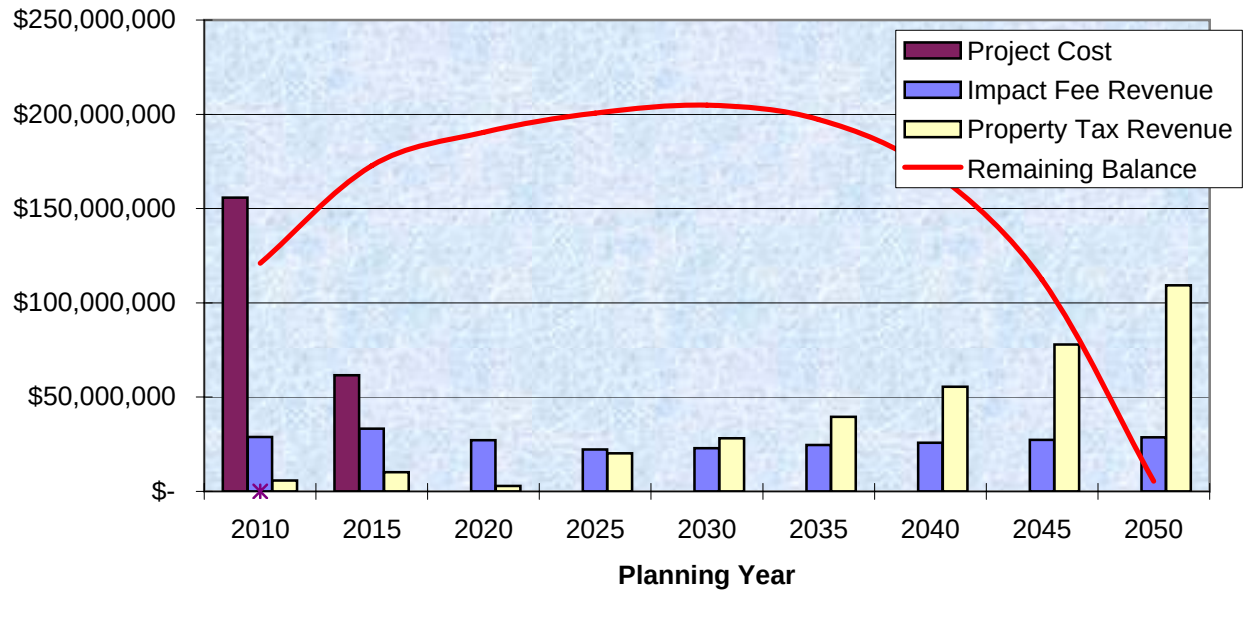
A: Lake Powell Project

Interest on Balance:	5.00 %			
Impact Fee:	$ 8,250.00			
Annual Property Inflation:	7 %			
Property Valuation (2004):	$ 2,517	x $Million	Beginning Year:	2006
Property Tax Rate:	0.00058			

Table 7: Lake Powell Project Revenue Requirements

Planning Year	Project Cost	New Connections (ERC)	Impact Fees	Property Tax Revenues	Outstanding Balance
2010	$ 155,760,733	3497	$ 28,850,250	$ 5,839,440	$ 121,071,043
2015	$ 61,650,533	4026	$ 33,214,500	$ 10,237,646	$ 172,719,127
2020	$ -	3291	$ 27,150,750	$ 2,871,766	$ 190,415,722
2025	$ -	2702	$ 22,291,500	$ 20,138,999	$ 200,593,576
2030	$ -	2768	$ 22,836,000	$ 28,245,988	$ 204,931,895
2035	$ -	2987	$ 24,642,750	$ 39,616,459	$ 197,291,590
2040	$ -	3130	$ 25,822,500	$ 55,564,133	$ 170,412,985
2045	$ -	3304	$ 27,258,000	$ 77,931,571	$ 112,305,380
2050	$ -	3475	$ 28,668,750	$ 109,303,060	$ 5,361,475
Total:			$ 240,735,000	$ 349,749,062	
Portion of Total:			41%	59%	

Figure 8: Lake Powell Project Revenue Requirements



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Central Iron County WCD
Capital Facilities Plan
Appendix E
B: CICWCD Projects

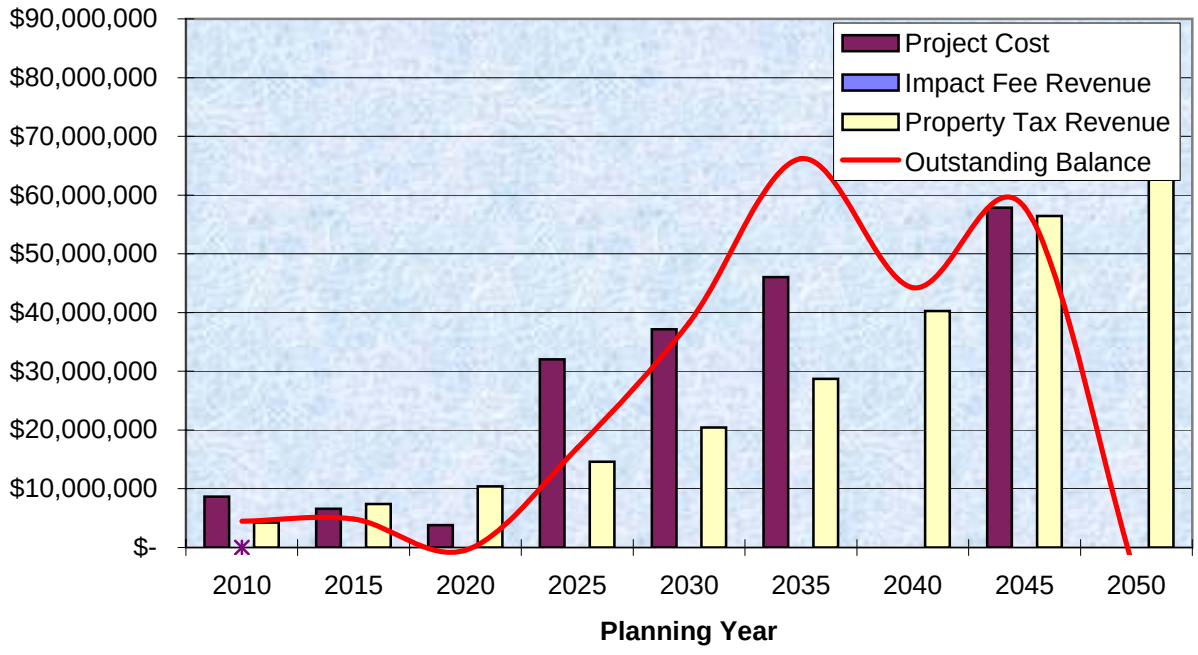
Interest on Balance:	5.00 %				
Impact Fee:	$ -				
Base Year 2005 Population:	41875				
Annual Property Inflation:	7 %				
Property Valuation (2004):	$ 2,517	x $Million	Beginning Year:	2006	
Property Tax Rate:	0.00042				

Table 8: CICWCD Capital Improvements Revenue Requirements

Planning Year	Project Cost	New Connections (ERC)	Impact Fees	Property Tax Revenues	Outstanding Balance
2010	$ 8,672,564	3497	$ -	$ 4,228,560	$ 4,444,004
2015	$ 6,576,057	4026	$ -	$ 7,413,468	$ 4,834,390
2020	$ 3,811,726	3291	$ -	$ 10,397,772	$ (416,003)
2025	$ 32,036,556	2702	$ -	$ 14,583,413	$ 16,922,206
2030	$ 37,139,148	2768	$ -	$ 20,453,991	$ 38,282,656
2035	$ 46,023,724	2987	$ -	$ 28,687,781	$ 66,195,392
2040	$ -	3130	$ -	$ 40,236,096	$ 44,247,862
2045	$ 57,861,583	3304	$ -	$ 56,433,207	$ 57,901,106
2050	$ -	3475	$ -	$ 79,150,492	$ (5,252,377)

Note: 3.25 persons per ERC assumed

Figure 9: CICWCD Project Revenue Requirements



Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Phase 3: Long Term Needs (2026-2050)
Planning Year: 2045
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	216.70

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 725,000.00	$ 725,000.00
2		LF	36" Welded Steel Water Main	$ 300.00	$ -
3		LF	24" Welded Steel Water Main	$ 240.00	$ -
4		LF	18" Welded Steel Water Main	$ 210.00	$ -
5		LF	12-16" Ductile Iron Water Main	$ 185.00	$ -
5		EA	1000 gpm Culinary Wells	$ 350,000.00	$ -
6	2	MG	Culinary Storage Tanks	$ 1,000,000.00	$ 2,000,000.00
7		EA	24" Metering Station	$ 250,000.00	$ -
8		EA	18" Metering Station	$ 150,000.00	$ -
9		EA	12" Metering Station	$ 100,000.00	$ -
10	5	MGD	Water Treatment Facility	$ 2,500,000.00	$ 12,500,000.00

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 15,225,000.00
			Total Construction (Adjusted for Inflation):		$ 48,217,985.81
			Engineering and Site Investigations (15%) :		$ 7,232,697.87
			Legal and Financial Services (5%) :		$ 2,410,899.29
	AC		Land Acquisition	$ 50,000.00	$ -
			Total Project Cost:		**$ 57,861,582.97**
4.00	%		Estimated Annual Operations Costs:		$ 1,928,719.43

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Phase 3: Long Term Needs (2026-2050)
Planning Year: 2035
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	135.66

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 775,000.00	$ 775,000.00
2		LF	36" Welded Steel Water Main	$ 300.00	$ -
3		LF	24" Welded Steel Water Main	$ 240.00	$ -
4		LF	18" Welded Steel Water Main	$ 210.00	$ -
5		LF	12-16" Ductile Iron Water Main	$ 185.00	$ -
5		EA	1000 gpm Culinary Wells	$ 350,000.00	$ -
6	3	MG	Culinary Storage Tanks	$ 1,000,000.00	$ 3,000,000.00
7		EA	24" Metering Station	$ 250,000.00	$ -
8		EA	18" Metering Station	$ 150,000.00	$ -
9		EA	12" Metering Station	$ 100,000.00	$ -
10	5	MGD	Water Treatment Facility	$ 2,500,000.00	$ 12,500,000.00

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 16,275,000.00
			Total Construction (Adjusted for Inflation):		$ 38,353,103.61
			Engineering and Site Investigations (15%) :		$ 5,752,965.54
			Legal and Financial Services (5%) :		$ 1,917,655.18
	AC		Land Acquisition	$ 50,000.00	$ -
			Total Project Cost:		**$ 46,023,724.33**
4.00	%		Estimated Annual Operations Costs:		$ 1,534,124.14

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Phase 3: Long Term Needs (2026-2050)
Planning Year: 2030
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	103.28

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 725,000.00	$ 725,000.00
2		LF	36" Welded Steel Water Main	$ 300.00	$ -
3		LF	24" Welded Steel Water Main	$ 240.00	$ -
4		LF	18" Welded Steel Water Main	$ 210.00	$ -
5		LF	12-16" Ductile Iron Water Main	$ 185.00	$ -
5		EA	1000 gpm Culinary Wells	$ 350,000.00	$ -
6	2	MG	Culinary Storage Tanks	$ 1,000,000.00	$ 2,000,000.00
7		EA	24" Metering Station	$ 250,000.00	$ -
8		EA	18" Metering Station	$ 150,000.00	$ -
9		EA	12" Metering Station	$ 100,000.00	$ -
10	5	MGD	Water Treatment Facility	$ 2,500,000.00	$ 12,500,000.00

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 15,225,000.00
			Total Construction (Adjusted for Inflation):		$ 30,949,290.27
			Engineering and Site Investigations (15%) :		$ 4,642,393.54
			Legal and Financial Services (5%) :		$ 1,547,464.51
	AC		Land Acquisition	$ 50,000.00	$ -
			Total Project Cost:		**$ 37,139,148.33**
4.00	%		Estimated Annual Operations Costs:		$ 1,237,971.61

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Phase 2: Intermediate Needs (2016-2025)
Planning Year: 2025
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	75.35

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 725,000.00	$ 725,000.00
2		LF	36" Welded Steel Water Main	$ 300.00	$ -
3		LF	24" Welded Steel Water Main	$ 240.00	$ -
4		LF	18" Welded Steel Water Main	$ 210.00	$ -
5		LF	12-16" Ductile Iron Water Main	$ 185.00	$ -
5		EA	1000 gpm Culinary Wells	$ 350,000.00	$ -
6	2	MG	Culinary Storage Tanks	$ 1,000,000.00	$ 2,000,000.00
7		EA	24" Metering Station	$ 250,000.00	$ -
8		EA	18" Metering Station	$ 150,000.00	$ -
9		EA	12" Metering Station	$ 100,000.00	$ -
10	5	MGD	Water Treatment Facility	$ 2,500,000.00	$ 12,500,000.00

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 15,225,000.00
			Total Construction (Adjusted for Inflation):		$ 26,697,129.66
			Engineering and Site Investigations (15%) :		$ 4,004,569.45
			Legal and Financial Services (5%) :		$ 1,334,856.48
	AC		Land Acquisition	$ 50,000.00	$ -
			Total Project Cost:		**$ 32,036,555.59**
4.00	%		Estimated Annual Operations Costs:		$ 1,067,885.19

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Phase 2: Intermediate Needs (2016-2025)
Planning Year: 2020
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	51.26

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 100,000.00	$ 100,000.00
2		LF	36" Welded Steel Water Main	$ 300.00	$ -
3		LF	24" Welded Steel Water Main	$ 240.00	$ -
4		LF	18" Welded Steel Water Main	$ 210.00	$ -
5		LF	12-16" Ductile Iron Water Main	$ 185.00	$ -
5		EA	1000 gpm Culinary Wells	$ 350,000.00	$ -
6	2	MG	Culinary Storage Tanks	$ 1,000,000.00	$ 2,000,000.00
7		EA	24" Metering Station	$ 250,000.00	$ -
8		EA	18" Metering Station	$ 150,000.00	$ -
9		EA	12" Metering Station	$ 100,000.00	$ -
10		MGD	Water Treatment Facility	$ 2,500,000.00	$ -

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 2,100,000.00
			Total Construction (Adjusted for Inflation):		$ 3,176,438.42
			Engineering and Site Investigations (15%) :		$ 476,465.76
			Legal and Financial Services (5%) :		$ 158,821.92
	AC		Land Acquisition	$ 50,000.00	$ -
			Total Project Cost:		**$ 3,811,726.11**
4.00	%		Estimated Annual Operations Costs:		$ 127,057.54

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Lake Powell Pipeline Project
Planning Year: 2015
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	30.48

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 1,875,000.00	$ 1,875,000.00
2		LS	Pumping Stations	$ 4,500,000.00	$ -
3		LF	30" Welded Steel Water Main	$ 275.00	$ -
4		LF	24" Welded Steel Water Main	$ 240.00	$ -
5		LF	18" Welded Steel Water Main	$ 210.00	$ -
6		Ac-Ft	Raw Water Storage Reservoir	$ 3,350.00	$ -
7	15	MGD	Water Treatment Facility	$ 2,500,000.00	$ 37,500,000.00
8		EA	24" Raw Water Metering Station	$ 200,000.00	$ -
9		EA	18" Raw Water Metering Station	$ 150,000.00	$ -
10		EA	16" Raw Water Metering Station	$ 100,000.00	$ -

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 39,375,000.00
			Total Construction (Adjusted for Inflation):		$ 51,375,444.11
			Engineering and Site Investigations (15%) :		$ 7,706,316.62
			Legal and Financial Services (5%) :		$ 2,568,772.21
0.00	AC		Land Acquisition	$ 50,000.00	$ -
			Total Project Cost:		**$ 61,650,532.94**
4.00	%		Estimated Annual Operations Costs:		$ 2,055,017.76

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Phase I: Immediate Needs (2006-2015)
Planning Year: 2015
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	30.48

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 200,000.00	$ 200,000.00
2		LF	36" Welded Steel Water Main	$ 300.00	$ -
3		LF	24" Welded Steel Water Main	$ 240.00	$ -
4		LF	18" Welded Steel Water Main	$ 210.00	$ -
5		LF	12-16" Ductile Iron Water Main	$ 185.00	$ -
6		EA	1000 gpm Culinary Wells	$ 350,000.00	$ -
7	4	MG	Culinary Storage Tanks	$ 1,000,000.00	$ 4,000,000.00
8		EA	24" Metering Station	$ 250,000.00	$ -
9		EA	18" Metering Station	$ 150,000.00	$ -
10		EA	12" Metering Station	$ 100,000.00	$ -
11		MGD	Water Treatment Facility	$ 2,500,000.00	$ -

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 4,200,000.00
			Total Construction (Adjusted for Inflation):		$ 5,480,047.37
			Engineering and Site Investigations (15%) :		$ 822,007.11
			Legal and Financial Services (5%) :		$ 274,002.37
	AC		Land Acquisition	$ 50,000.00	$ -
			Total Project Cost:		**$ 6,576,056.85**
4.00	%		Estimated Annual Operations Costs:		$ 219,201.89

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Lake Powell Pipeline Project
Planning Year: 2010
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	12.55

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 3,665,000.00	$ 3,665,000.00
2	4	LS	Pumping Stations	$ 4,500,000.00	$ 18,000,000.00
3	230000	LF	30" Welded Steel Water Main	$ 275.00	$ 63,250,000.00
4		LF	24" Welded Steel Water Main	$ 240.00	$ -
5		LF	18" Welded Steel Water Main	$ 210.00	$ -
6	3000	Ac-Ft	Raw Water Storage Reservoir	$ 3,350.00	$ 10,050,000.00
7		MGD	Water Treatment Facility	$ 2,500,000.00	$ -
8		EA	24" Raw Water Metering Station	$ 200,000.00	$ -
9		EA	18" Raw Water Metering Station	$ 150,000.00	$ -
10		EA	16" Raw Water Metering Station	$ 100,000.00	$ -

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 94,965,000.00
			Total Construction (Adjusted for Inflation):		$ 106,883,944.14
			Engineering and Site Investigations (15%) :		$ 16,032,591.62
			Legal and Financial Services (5%) :		$ 5,344,197.21
550.00	AC		Land Acquisition	$ 50,000.00	$ 27,500,000.00
			Total Project Cost:		**$ 155,760,732.97**
4.00	%		Estimated Annual Operations Costs:		$ 4,275,357.77

Stanley Consultants INC.

OPINION OF PROBABLE CONSTRUCTION COST

Project: CICWCD Capitol Facilities
Phase I: Immediate Needs (2006-2015)
Planning Year: 2010
Owner: Central Iron County Water Conservancy District
Project #: 19199
Date: 30-Mar-07

Annual Inflation Rate (%):	3.00
Beginning Year:	2006
Total Inflation (%):	12.55

Item	Qty.	Unit	Description	Unit Cost**	Total
1	1	LS	Mobilization, Bonding, Insurance (5%)	$ 200,000.00	$ 200,000.00
2		LF	36" Welded Steel Water Main	$ 300.00	$ -
3		LF	24" Welded Steel Water Main	$ 240.00	$ -
4		LF	18" Welded Steel Water Main	$ 210.00	$ -
5		LF	12-16" Ductile Iron Water Main	$ 185.00	$ -
6		EA	1000 gpm Culinary Wells	$ 750,000.00	$ -
7	4	MG	Culinary Storage Tanks	$ 1,000,000.00	$ 4,000,000.00
8		EA	24" Metering Station	$ 250,000.00	$ -
9		EA	18" Metering Station	$ 150,000.00	$ -
10		EA	12" Metering Station	$ 100,000.00	$ -
11		MGD	Water Treatment Facility	$ 2,500,000.00	$ -

**Note: Unit Costs Indexed to 2006

			Total Construction (2006 dollars):		$ 4,200,000.00
			Total Construction (Adjusted for Inflation):		$ 4,727,137.00
			Engineering and Site Investigations (15%) :		$ 709,070.55
			Legal and Financial Services (5%) :		$ 236,356.85
60.00	AC		Land Acquisition	$ 50,000.00	$ 3,000,000.00
			Total Project Cost:		**$ 8,672,564.40**
4.00	%		Estimated Annual Operations Costs:		$ 189,085.48

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