QUAIL CREEK RESERVOIR ECONOMIC IMPACT

WASHINGTON COUNTY WATER CONSERVANCY DISTRICT

APPLIED ANALYSIS

ECONOMIC IMPACTS

The Quail Creek Reservoir represented a significant investment in Washington County's future when it was dedicated 30 years ago on September 20th, 1985. At the time, the county's population was just 35,761 that had supported the $23.5 million ($52.1 million in today's dollars) project in recognition of the growing needs of the rapidly expanding community.

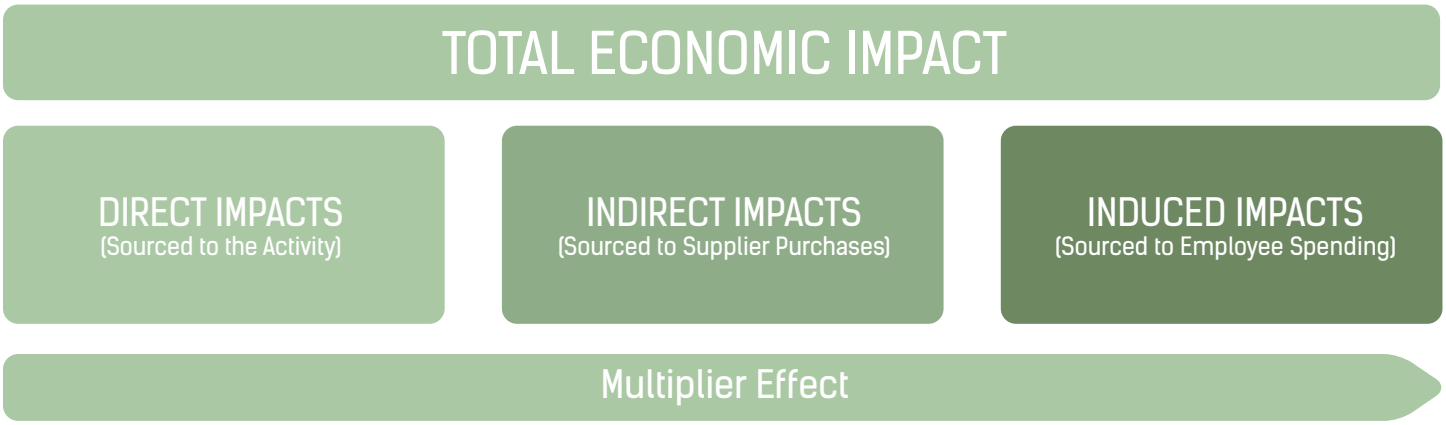
The forward-thinking approach of the residents of Washington County has allowed population growth to continue, reaching 151,948 residents in 2014, just over a four-fold increase in the past 30 years. This represents an astonishing compound annual population growth rate of 5.1 percent during the period. Water from Quail Creek has no doubt allowed Washington County's growth to continue up to this point without having to worry about where the water will come from.

Also during this time, residents have learned to use the Quail Creek State Park's various recreational amenities. The site includes not only a boat ramp for the use of the water, but also campgrounds and picnic areas along the shore. The residents of Washington County have benefited greatly in the past 30 years thanks to the Quail Creek Reservoir, with enough water to drink and a new place to play. As Washington County continues to grow, so will the demands on its existing water infrastructure. The Quail Creek Reservoir will be an integral part of that system for years to come.

MEASURING ECONOMIC IMPACTS

In economic impact modeling, the "outputs" of one industry become the "inputs" of others, and vice versa. This relationship is sometimes referred to as the "multiplier effect," illustrating how changes in one sector of the economy can affect other sectors. The sum of these impacts is the total economic impact.

The notion of multipliers rests upon the difference between an "initial effect" and the "total effects" of that change or stimulus. Generally speaking, these effects are segmented into direct impacts, indirect impacts and induced impacts. Each is described below.



DIRECT IMPACTS measure the effects of the specific impacting force being considered. In this case, for example, the value of water produced and used by residents of Washington County is considered an indirect impact.

INDIRECT IMPACTS consider how other businesses respond to the impacting condition. The value added by industry and other users of water in the area would be considered the indirect impact in this case.

INDUCED IMPACTS measure the effects of increased (or decreased) consumer expenditures resulting from wage and salary payments sourced to an impacting condition. In the present case, for example, if a person were employed by a company using the water provided by Quail Creek Reservoir, she might be expected to spend a portion of her monthly salary at a supermarket, a local movie theater or at a restaurant. Induced effects capture the impacts of this spending as it "ripples" through the local economy.

TOTAL EFFECTS are the sum of direct, indirect and induced effects.

TOTAL IMPACTS

The total annual economic impact of the Quail Creek Reservoir in Washington County is estimated at $77.2 million of output. Total output is sourced to approximately $75.7 million of output sourced to water-related activity and another $1.6 million is sourced to recreation-related impacts (each is discussed on pages 4 and 5, respectively). The reservoir's stable water provisions and recreational amenities are responsible for the creation of 536 jobs in the county where workers earn $35.0 million per year in labor income from the reservoir.

The majority of these impacts are sourced to the estimated 6.5 billion gallons that the Quail Creek Reservoir reliably provides for Washington County residents every year. A smaller portion of the impacts also originates from the use of the reservoir for recreation purposes.

Quail Creek Reservoir produces enough economic impact for residents to offset its' total construction costs every eight months each year, relative to the inflation-adjusted cost of $52.1 million ($23.5 million in 1985). Stated otherwise, the reservoir's annual, recurring benefits of $77.3 million (in annual output) far outweighs the one-time construction cost.

Creation of
536 jobs

Total construction costs in 1985
$23.5 million

Annual worker earnings
$35.0 million

Annual output
$77.2 million

Provides Washington County
6.5 billion gallons annually

	Employment	Labor Income	Economic Output
Direct	137	$11,590,000	$30,643,000
Indirect	141	$7,874,000	$18,643,000
Induced	258	$15,534,000	$27,972,000
TOTAL	**536**	**$34,998,000**	**$77,258,000**

WATER IMPACTS

The Quail Creek Reservoir is capable of holding 40,325 acre-feet of water, enabling the residents of Washington County to tap into Virgin River water throughout the year. The dam acts as a critical hedge against dry spells that deplete water resources heading into the region by storing water for these periods. The water is then able to be accessed at any time by Washington County residents.

When the reservoir was initially constructed, it was capable of providing approximately 20,000 acre-feet of water per year. Assuming that each acre-foot has a worth of $1,500 for Washington County residents,[1] the total value of water provided by the reservoir is $30 million dollars.
This leads to a total output in the region of $75.7 million annually due to the reservoir's water supply. Business and industry in the area are able to provide 518 jobs as a result of the additional water. All workers employed as a result of the additional water earn approximately $34.4 million annually in total.

Additionally, the full value of water is likely not captured by these estimates, as Washington County residents and businesses may be willing to pay more for a secure supply of water.

Capable of holding
40,325 acre-feet

The value of each acre-foot
$1,500

Total annual output
$75.7 million

Provides
518 jobs

Capable of providing each year
20,000 acre-feet

Estimated value of water provided
$30 million dollars

	Employment	Labor Income	Economic Output
Direct	127	$11,325,000	$30,000,000
Indirect	140	$7,822,000	$18,433,000
Induced	251	$15,283,000	$27,220,000
TOTAL	**518**	**$34,430,000**	**$75,653,000**

1. Assumption based on An Evaluation of Economic Impacts of Quail Creek and Sand Hollow Reservoirs, John D. Groesbeck, Ph.D., May 2012.

RECREATIONAL IMPACTS

In 2014, over 75,000 visitors enjoyed the amenities that Quail Creek State Park has to offer. The visitor count is down considerably from its peak in 1998, when there were over 700,000 visitors to the state park during the year. While overall visitation may not be as robust as it was nearly two decades ago (the peak), Washington County residents have enjoyed relaxing on the waters of Quail Creek Reservoir throughout its' 30 year existence.

Last year, visitors spent an estimated $2.4 million on visits to the reservoir, gearing up at local retailers for their boating, fishing, hiking, and camping. After retailer margins were considered, this led to a direct economic output approximately of $643,000 and total economic output in the county of $1.6 million. A total of 19 jobs are generated by this economic activity, with workers earning $568,000 in labor income for their efforts.

Worker earnings
$568,000

Direct economic output
$643,000

Peak visitation in 1998
Over 700,000

Total economic output
$1.6 million

In 2014, there were
75,000 visitors

Visitors spent an estimated
$2.4 million

	Employment	Labor Income	Economic Output
Direct	10	$265,000	$643,000
Indirect	2	$52,000	$210,000
Induced	7	$251,000	$752,000
TOTAL	**19**	**$568,000**	**$1,605,000**