Contents

Executive Summary	ES-1
Standard Acronyms and Abbreviations	A-5
Definitions	A-9
Chapter 1 – Introduction	1-1
1.1 Background	1-1
1.2 General Description of Study Area	1-3
Chapter 2 – Existing Conditions, Water Supplies and Infrastructure	2-1
2.1 Background	2-1
2.2 Summit County Concurrency Requirements	2-1
2.3 Existing Water Systems and Source Descriptions	2-2
2.4 Existing Water Supply	2-9
Chapter 3 – Current Water Demands	3-1
3.1 Introduction	3-1
3.2 Data Collection & Methodology	3-1
3.3 M&I Water Use Classifications	3-1
3.4 M&I Water Use Data	3-3
Chapter 4 – Future Supply & Demand and Projected Needs	4-1
4.1 Introduction	4-1
4.2 Population Projections	4-1
4.3 Projected M&I Demands	4-3
4.4 Projected Reliable Supplies	4-7
4.5 Projected Future Needs	4-10
Chapter 5 – Future Development	5-1
5.1 Introduction	5-1
5.2 Potential Future Development Options	5-1
5.3 Additional In-Basin Surface Water Storage (Option 1)	5-3
5.4 Conjunctive Management of Surface and Groundwater (Option 2)	5-7
5.5 Water Reuse (Option 3)	5-9
5.6 Provo River - JSSD (Option 4)	5-17
5.7 East Canyon Pipeline (Option 5)	
5.8 Brown's Canyon Pipeline (Option 6)	5-26
5.9 Lost Creek Canyon Pipeline (Option 7)	5-28
5.10 Weber River via Weber-Provo Canal (Option 8)	5-32
5.11 Lost Creek Canvon and Weber-Provo Canal (Option 9)	
5.12 Future Development Options Summary	5-37

Chapter 6 – Evaluation and Preferred Plan	6-1
6.1 Evaluation Criteria	6-1
6.2 Option Evaluation	6-1
6.3 Selection of Preferred Plan	6-6
6.4 Preferred Plan	6-10
References	R-1
Appendix A - Cost Estimates	A-1

List of Tables

Table No.	Title
ES-1	2003 Annual Water Production EstimateES-2
ES-2	Snyderville Basin Projected Future M&I NeedsES-3
ES-3	Development Options SummaryES-4
ES-4	Economic Conditions Evaluation SummaryES-5
ES-5	Option Cost Estimate Summary by MethodES-6
ES-6	Preferred Plan – Development Option Priority and NeedsES-7
ES-7	Study SummaryES-9
2-1	Reported Concurrency Capacities
2-2	2003 Annual Water Production Estimate Method One2-10
2-3	2003 Annual Water Production Estimate Method Two2-11
2-4	2003 Annual Water Production Estimate Method Three2-11
3-1	2001 Potable Water Use for Public Community Water Systems
3-2	2001 Secondary Water Use in Public Community Systems
3-3	2001 Water Use for Public Non-Community Water Systems,
	Self-Supplied Industries and Private Domestic Systems
3-4	2001 M&I Water Use Summary
4-1	Snyderville Basin Population Projections4-2
4-2	Projected Future M&I Water Demands (Without Conservation)4-3
4-3	Projected Future M&I Water Demands (With Conservation)4-3
4-4	Adjusted M&I Demands4-7
4-5	Projected M&I Needs4-10
5-1	Current and Projected Discharges from SBRWD Facilities5-10
5-2	East Canyon Pipeline Cost Summary5-21
5-3	Summary of Water Rights Available for Importation (SWDC)5-23
5-4	Lost Creek Canyon Pipeline Cost Summary
5-5	Summary of Water Rights Available for Importation (Lost Creek)
5-6	Summary of Needs and Development Options5-37
6-1	Economic Evaluation Summary6-2
6-2	Development Options Summary
6-3	Option Cost Estimate Summary by Method6-8
6-4	Preferred Plan - Development Option Priority and Needs
6-5	Study Summary

List of Figures

Figure No.	e Title	Page
ES-1	Preferred Plan Implementation	ES-8
1-1	Vicinity Map	1-4
2-1 2-2	Present Distribution Areas Snyderville Basin Safe Yield vs. Available	2-5 2-14
3-1	Snyderville Basin Current M&I Use vs. Available Supply	3-6
4-1 4-2	Projected M&I Water Demands Comparison of Demands to Current Demand and Available Supply	4-2 4-4
5-1	Options Map	5-2
5-1 5-2	Option 1 – Additional In-Basin Surface Water Storage	5-2 5-6
5-3	Supply vs Initial Reuse Demand	5 0
5-4	Probable Future Reuse Volume	5-14
5-5	Option 3 – Water Reuse	5-16
5-6	Option 4 - Provo River -JSSD	5-19
5-7	Option 5 - East Canyon Reservoir Pipeline	5-25
5-8	Option 7 –Lost Creek Canyon Pipeline	5-31
5-9	Option 8 - Weber River via Weber-Provo Canal	5-34
5-10	Option 9 - Lost Creek Canyon and Weber-Provo Canal	5-36
6-1	Preferred Plan Implementation	6-12

Standard Acronyms and Abbreviations

AF	acre-feet
ASCE	American Society of Civil Engineers
ASIM	American Society for Testing and Materials
BC&A	Bowen, Collins & Associates
BOD	Biochemical Oxygen Demand
BOD ₅	five-day biochemical oxygen demand
BMP	Best Management Practices
С	degrees Celsius (or centigrade)
CAD	computer aided design
cfm	cubic feet per minute
CFR	Code of Federal Regulations
cfs	cubic feet per second
cm/sec	centimeters per second
COE	U.S. Army Corps of Engineers
CWA	Clean Water Act
cu yd	cubic yard
4:-	diamatan
	dissolved evugen
	Davis and Waber Counties Canal Company
Daweee	Davis and weber Counties Canal Company
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ERC	Equivalent Residential Connection
ESA	Endangered Species Act
F	degrees Fahrenheit
FONSI	Finding of No Significant Impact
ft	feet or foot
ft ²	square feet
ft/ft	feet per foot
ft/h	feet per hour
ft/min	feet per minute
ft/s	feet per second
FWS	US Fish and Wildlife Service
FY	Fiscal Year
g	gram
GIS	Geographical Information System
GOPB	Governor's Office of Planning and Budget

gpcd	gallons per capita per day
gpd	gallons per day
gpm	gallons per minute
gps	gallons per second
hp	horsepower
hvac	heating, ventilation, and air conditioning
JSSD	Jordanelle Special Service District
ka	kilogram
kg	kilovalt
KV Izvo	kilovolt
KVa	kilovoit-ainpere
KW	kilowatt
kwh	kilowatt hour
1	liter
lh	pound
LF	lineal feet
	lump sum
LO	tump sum
mg	milligram
MG	million gallons
mgd	million gallons per day
mg/kg	milligrams per kilogram
mg/l	milligrams per liter
M&I	Municipal and Industrial
MHZ	megahertz
MOU	Memorandum of Understanding
msl	mean sea level
MRWSSD	Mountain Regional Water Special Service District
MWH	Montgomery Watson Harza
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
	outside diameter
OWN	operation and maintenance
OM&R	operation, maintenance and replacement
OSHA	Occupational Safety and Health Administration
PE	Professional Engineer or Project Engineer
PIP	Public Involvement Plan
PM	Project Manager
POC	point of contact
100	point of contact

POTW	publicly owned treatment works
PPE	personal protective equipment
ppb	parts per billion
ppm	parts per million
PRWUA	Provo River Water Users Association
psf	pounds per square foot
psig	pounds per square inch gauge
pvc	polyvinyl chloride
QA	Quality Assurance
QC	Quality Control
Reclamation	Bureau of Reclamation
RFP	Request for Proposal
ROW	Right-of-Way
SBWRD	Snyderville Basin Water Reclamation District
SCSA3	Summit County Service Area No. 3
SDWA	Safe Drinking Water Act
SDWS	Safe Drinking Water Standard
SHPO	State Historic Preservation Office
SOW	Scope of Work
STP	Sewage Treatment Plant
SWDC	Summit Water Distribution Company
tbc	to be considered
TMDL	Total Maximum Daily Load
µg/g	micrograms per gram
µg/l	micrograms per liter
µg/kg	micrograms per kilogram
μm	micrometer
UDDW	Utah Division of Drinking Water
UDOT	Utah Department of Transportation
UDWQ	Utah Division of Water Quality
UDWLR	Utah Division of Wildlife Resources
UDWR	Utah Division of Water Resources
UGS	Utah Geological Survey
UPDES	Utah Pollutant Discharge Elimination System
USCS	Unified Soil Classification System
USDA	U.S. Department of Agriculture

USGS	U.S. Geological Survey
UV	ultraviolet

- WBWCD Weber Basin Water Conservancy District
- WRF Waste Water Reclamation Facility
- WTP Water Treatment Plant
- WWTP Waste Water Treatment Plant

Definitions

Some water terms peculiar to the water industry are briefly defined here in order to better understand the information presented.

Water Supply Terms

Water is supplied by a variety of systems for many users. The general term "supply" is defined as the amount of water available. A public agency owns most water supply systems, but in some cases the owner/operator is a private company. Thus, a "public" water supply may be either publicly or privately owned. Also, systems may supply treated and/or untreated water.

Concurrency – A process established by Summit County Ordinance to ensure adequate capacity for community water systems located in the Snyderville Basin.

Community Water System – A public water system that serves at least 15 service connections used by year-round residents or regularly services at least 25 year-round residents.

Equivalent Residential Connection (ERC) – A term used to evaluate service connections, other than typical residential domicile, and is an estimate of the equivalent volume or rate of flow to that of a typical residential connection.

Maximum Water Supply Available Under Present Conditions – The annual volume of water that is the lesser of the hydrologic capacity of the water source, the physical capacity of the water system, or the use allowed by water rights.

Municipal Water Supply – A municipal supply is that which provides water for residential, commercial, and institutional uses. The terms municipal, community and city are often used interchangeably.

Municipal and Industrial Water Supply – Includes all water (potable and non-potable) supplied for residential, commercial, institutional, light industry, and large self-supplied industries. This supply is available from community systems, non-community (transient and non-transient) systems, self-supplied industrial systems, and private wells.

Non-Potable Water Supply – Non-potable water does not meet safe drinking water requirements. Secondary irrigation companies and self-supplied industries usually supply this water. Sometimes referred to as non-culinary water supply, but usually referred to as secondary water.

Potable Water Supply – Potable water is that which meets all applicable federal and state safe drinking water requirements for residential, commercial, institutional and industrial uses. Potable is also referred to as culinary or drinking water supply.

Public Community Water Supply – This includes potable water supplied by either privately or publicly owned community systems which serve at least 15 service connections or 25 individuals with year round usage. Water from public community supplies may be used for residential, commercial, institutional, and industrial purposes. This can include both indoor and outdoor uses.

Public Non-Community Water Supply – Includes potable water supplied by either privately or publicly owned systems of two types: transient and non-transient. Transient systems are systems that do not serve 25 of the same non-resident persons per day for more than six months per year. Examples include campgrounds, RV parks, restaurants, convenience stores, etc. Non-transient systems are systems that regularly serve 25 of the same non-resident persons per day for more than six months per year. Examples include campgrounds, RV parks, restaurants, convenience stores, etc. Non-transient systems are systems that regularly serve 25 of the same non-resident persons per day for more than six months per year. Examples include churches, schools and industries. This report combines transient and non-transient systems together and calls them all public non-community systems.

Reliable System Source Capacity – The portion of the annual water supply that is available to meet peak demands. When this number is divided by the average per capita usage, the result approximates the maximum population that the water system can serve.

Secondary Water Supply – This water is usually a pressurized or open ditch water supply system with untreated water for irrigation of privately and publicly owned lawns, gardens, parks, cemeteries, golf courses and other open areas. These systems, sometimes called "dual" water systems, are installed to provide an alternative to irrigating with culinary water for outdoor areas. Irrigation companies often provide this supply. Self-supplied industries can also use secondary water for industrial processes.

Self-supplied Industrial Supply – This category includes potable or non-potable water, usually from their own wells or springs, supplied by individual privately owned industries.