

AMENDED 1/6/2015

**Mountain Regional Water Special Service District
Interview Schedule**

Wednesday, January 7, 2015

Richins Building

2 vacancies; 3 interviews

4:10 PM	Mike Todd
4:20 PM	Duncan Silver
4:30 PM	Mike Kobe
4:40 PM	Matt Lindon (reapplying)

Matt Lindon and Rick Krebs terms expired 12/31/14, resulting in two vacancies.

**Timberline Special Service District
Interview Schedule**

Wednesday, January 7, 2015
Richins Building
2 vacancies; 3 interviews

4:50 PM Todd Hoover (reapplying for a 2nd term)

5:00 PM Tor Boschen

5:10 PM Argan Johnson (out of country - phone interview 801-560-3178)

Liz Blackner resigned 12/31/14, and Todd Hoover's first term expired 12/31/14, resulting in two vacancies.

New Primaries

Parcel	Name	Date	Comments
325-DALY-1	Carol Anne Kret	8/18/2014	
3K-7-H	Sean & Terese Hagerty	11/20/2014	
830-NA-A	James E Smith JR.	9/12/2014	
830-NA-B	James E Smith JR.	9/12/2014	
ABT-18	Tim Whetsel	7/29/2014	
AC-67	Glenn Goldman	10/8/2014	New Construction
APRM-31	V. Jean Stack	7/11/2014	
BHVS-70	Lauren Nadler	9/4/2014	
BHVS-T3	Kara L Smith	8/27/2014	
BL-202-A	Richard & Suzanne Larko	9/15/2014	
BSHM-2-AM	Ryan Willden	6/18/2014	
CCOVE-4	Val Stephens	12/17/2014	
CCRK-D-12	Corinne Coniglio	9/19/2014	
CCRK-F-30	Chanz Skeffington/ Sebatien Propert	8/13/2014	W/lease
CCRK-J-13	Lillehammer 1213 LLC	7/17/2014	
CCRK-J-31	Timothy R Makoid	11/7/2014	
CCRK-N-20	Chantal Tousignant/ Kattina Tousign	7/8/2014	
CEM-1-64-AM	Melanie & Joseph Vickroy	9/23/2014	
CHC-118	Jennifer Geiger	12/15/2014	W/lease
CLC-303-AM	Michael Lee	11/7/2014	
CLJR-1-53	Anthony Golden	12/10/2014	
CLJR-2-74	Erin Smith	12/15/2014	
CLJR-2-75	Michael Kulig	12/17/2014	
CLJR-2-76	Patrick Howell	12/9/2014	
CLJR-2-77	Bonita & Douglas Vanderkodi	12/26/2014	
CLJR-2-78	Glen Perry	8/19/2014	
CQVC-1	Branden Hendricks	9/16/2014	
CQVC-3	Ann Colvin Hoover	9/12/2014	
CQVC-5	Jonathan Kantor	8/22/2014	
CQVC-6	Daniel Roby	9/30/2014	
CSP-5A-B	Robert Schultz	7/29/2014	
CT-122-A	Camillia Robbins	10/15/2014	
CT-75	Alan Milliner	11/26/2014	W/lease
CWPC-3A-102	Todd Bradley	10/29/2014	New Construction
CWPC-3C-138-1AM	Thomas Ponder	9/23/2014	
CWPC-4A-172	Mark & Gretchen McClan	10/30/2014	New Construction
CWPC-4B-219	Victoria Rishards	9/15/2014	
CWPC-4ELK-3-229	Heidi Boyle	9/4/2014	New Construction
DC-86	Brian Ehman	12/1/2014	
DLV-1-1B	Eve Armstrong Family Trust	12/29/2014	
DYECC-13-AM	Ray & Pamela Fitzgerald	12/11/2014	
DYECC-6-AM	Jane Wycoff	12/17/2014	
ELK-3B-1403	Alan S Congdon	11/25/2014	

FEN-11	Juan Norton	12/2/2014
FEN-24	Ira Braun	11/13/2014
FGC-14	Jerald Holm	8/20/2014
FHE-2	Schoenholz Living Trust	9/22/2014
FHE-II-66	Steven Kern	11/25/2014
FPRSV-11-H4	Susan E Raley& Kevin Samuelson	11/12/2014
FPRV-27-A-2	Christina Malcolm	8/21/2014
FPRV-4-D	David Rillie	11/10/2014 W/lease
FPRV-4-D	David W Rillie	11/26/2014
GCS-D-72	Mark Chytka	4/3/2014
GWLD-15	Michael Boyer	10/7/2014 New Construction
GWLD-II-106-AM	Robert Henderson	12/11/2014
GWLD-II-154-AM	Richard M Craig Jr	12/18/2014
GYS-1	Rustin Young	4/2/2014 New Construction
HE-A-356-A	Utah Rentals 1 Limited Partnership	11/19/2014 W/lease
HE-A-379-1	Michael & Marnie Dolan	2/14/2014 New Construction
HE-B-276	George Arakelian	7/3/2014 New Construction
HFRS-5	Gary & Patricia Mathews	10/21/2014
HMP-47	Bentley Peay	6/17/2014
HTC-5	Andrew Martin	10/20/2014
J&GE-2	Weston & Natasha Pearce	9/12/2014
JR-2-283	Thomas U Hannigan	10/20/2014
JR-5-5134	John Juraco	7/11/2014 New Construction
KK-6	Susan M Silva	9/4/2014
KT-274-C-1	Pamela Page	11/4/2014
LAREN-3	Travis Steadman	11/21/2014 New Construction
LARMOR-2-A	Elizabeth & Eric Jacobsen	9/23/2014
LBHV-1-1206	Jan J Debeucklaer	12/15/2014 W/lease
LR-2-144	Jeremy Greenberger	9/30/2014
LR-3-183-A	Stephen Max Kloeppel	11/6/2014
LR-3-299	Larry Fry	12/18/2014
LVC-5	Paul R Frye	9/5/2014
MOOSE-10-AM	Jerry Wasser	9/24/2014 New Construction
MR-13	Suzanne Honigman	1/6/2014 New Construction
MRR-2	Teton BarnLLC/ Suzanne Clark	9/5/2014
NBF-66	Lacey Clegg	11/10/2014
NPC-319	Roy Hopgood	12/2/2014
NPKTH-3-75	Carol Bolinger	11/4/2014
NSS-B-51	David & Jill Taylor	10/29/2014
PB-4-228	Matthew Ellis & Anastasia Areyera	7/18/2014
PB-4-228	Matthew Ellis & Anastasia Arteyera	7/18/2014
PCMC-104	Braden Bell	12/8/2014
PJS-1	Janel McInnes	4/24/2014 New Construction
PJS-12	T Jay Mitchell	12/17/2014 New Construction
PKM-40	Steve Stanton	3/14/2014 New Construction
PKM-6-A-19	Justin Manson& Jill Roberts	8/19/2014
POV-4	CD Family Trust Earl& Lori Wilson	8/20/2014 W/lease

PP-87-C	Grady Kohler	8/26/2014	New Construction
PR-3-116	John C Stevenson, III & Heather J Mc	8/28/2014	
PRESRV-1-8	Robert & Alesandra Altman	12/19/2014	New Construction
PRLW-1	Robert Preston	12/4/2014	
PSKY-21	Samuel Baptista & Denise Bell	9/29/2014	New Construction
PSSR-5	Andrew Estes	12/1/2014	
PWL-1-S-9-W	Nancy Bolender	9/10/2014	
PWL-1-S-9-X	Jason Brown & Kristin Tabke	11/18/2014	
QEC-2	Andrew & Wendy Cohen	10/28/2014	
QMR-24-2AM	Curt Futch	12/8/2014	
QMTH-3	Theresa P. Kroon	11/7/2014	
QMTH-9	Michel Deleage	9/2/2014	
RC-1-15	Matthew Baydala	7/18/2014	
RC-1-21	Joanne Watson	10/3/2014	
RC-3-95	Patricia Blake	6/6/2014	
RCS-1B-3	Carly Mueller & Brendan Coyle	10/22/2014	
REDMD-1	Gail Engvall	11/25/2014	
RIVBLF-A-24	Charles Galati	11/26/2014	
RIVBLF-A-2-LLA	Spencer & Jessie Jarvis	12/2/2014	
RP-G-2	Debbie Schubert	10/28/2014	W/lease
RPL-IV-169	Neil R & Laura B Johnson	10/20/2014	
RP-T-68	Andrew Drewatolitsch/ ADM Holding	8/29/2014	
RT-12-1AM	JPEARLE LLC/ Judy & Mike Collins	9/23/2014	
RUSTEN-1	Arnfinn & Jane Rusten	9/11/2014	
RV-61	Jonathan Klein	11/24/2014	New Construction
RV-T-1-A	Dawn Gallegos	8/21/2014	
SA-288-288-A-1	Jeff & Kari Hensien	10/20/2014	
SA-305	Anne & Jeffrey Livingston	11/20/2014	W/lease
SA-305	Anne Livingston	12/17/2014	W/lease
SC-5	Jenny Polloczek	9/4/2014	
SDL-C-16	Charles S David	12/8/2014	W/lease
SH-338	Jesse Robert Jordan	12/16/2014	
SHA-421	Henry Charles Haer	12/11/2014	
SL-C-138	Charles Lind	12/30/2014	
SL-H-470	Andrew Buckley	6/26/2014	
SP-15	Matthew Shier	10/8/2014	
SRC-4115	Christian Hansen & Holly Hansen/ Al	12/29/2014	W/lease
SRG-66	Aubrey Moll & Menjamin Meacham	11/7/2014	
SS-13-2	John H & Ann D Pfisterer	8/14/2014	
SSP-25-3	Hunter Ryan Metcalf	7/22/2014	
SU-C-47	Chris Price	3/10/2014	New Construction
SU-I-103	James & Jessica Huser	12/31/2014	
SU-J-17	Michael & Sonja Matson	7/25/2013	New Construction
SU-J-84	Daniel Mullins	4/3/2014	New Construction
TH-3	Cortney Johanson	10/7/2014	
TH-62	Lance & Susan Sharp	12/9/2014	New Construction
TH-62	Lance Sharp	12/15/2014	New Construction

TWL-11C	H Wayne Wells	11/20/2014
TWOLF-2	David Piccoli/ 2329 Aspen Ski Trail LI	12/15/2014
WD-1-4	David Pitkin	9/25/2014
WFS-8	Michael Buys	11/6/2014 New Construction
WV-22	Christine Gerner	9/11/2014

New Applications for Current Primaries

Parcel	Name	Date	Comments
13TH-A	Ed Lewis (ELCL LLC)	12/23/2014	w/lease
13TH-B	Ed Lewis (ELCL LLC)	12/23/2014	
AER-41	Henry H Wreden	11/17/2014	
BB-55	Lawrence Tomlinson	12/15/2014	
BHV-3-47A	Randi Jo Taurel Trustee	12/11/2014	
BHWKS-1-45-2AM	Spa Stone Properties LLC	12/15/2014	w/lease
BHWKS-2-102	Anne V Reynolds	11/21/2014	
BHWKS-2-146	John & Jennifer Longham	10/14/2014	
BHWKS-2-159	Eric Leblang	11/6/2014	
BHWKS-2-159	Eric Leblang	12/18/2014	
BN-B-3-86	Kevin Larsen	11/6/2014	
CAL-127B	John J Seliga JR	12/1/2014	W/Lease
CAL-127B	Magnet & Steel Properties LLC	12/23/2014	
CCRK-B-30	Mike Baker	11/12/2014	
CCRK-F-36	Ryan Butler & Julia Butler	12/5/2014	
CCRK-G-11	Michael & Katharine Sharp	11/7/2014	
CCRK-G-13	Anne V. Reynolds	10/24/2014	W/Lease
CCRK-G-13	Anne Voyer Reynolds	12/16/2014	W/Lease
CCRK-G-24	Billy Mendoza Cruz	11/14/2014	
CCRK-G-33	Alexandru Marica & Cristina Georian	12/3/2014	
CCRK-L-25	Betty Brown Bauwens	11/6/2014	
CCRK-P-22	Terri Cecil	10/15/2014	
CCRS-1-13	Clayton Stuard	11/20/2014	
CEM-II-84-1AM	Carol Refakis	11/6/2014	
CJ-363-L	Leah Kolb	11/5/2014	
CLJR-1-5	Kristin Griffin	12/17/2014	
CLJR-1-7	Laurel Aimpson-Roderick	10/14/2014	
CRQJ-26-AM	John Malloy	10/27/2014	
CRQJ-74-AM	Jill A. Frye	11/3/2014	
CT-10	Sherylyn Clark-Wade	11/25/2014	
CT-91	Rufino Patino	10/15/2014	
CVC-1-C-107	Susan M Adams	11/3/2014	
EKH-B-E68	Paul C Hewitt	12/16/2014	
ELK-3B-1103	Michael & Helaine O'Keefe	10/15/2014	
ELK-3B-1103	Michael O'Keefe	11/13/2014	
ELK-3B-1104	Thomas & Dianne Whitlock	11/20/2014	
ELK-4-2001	3077 Elk Run LLC	11/5/2014	

ER-PB-15-892	Kate Lynn Wooton Living Trust	12/9/2014
FGR-13	David M C Jepson	10/15/2014 W/Lease
FHE-II-58	Michael Krochmal	12/19/2014 W/Lease
FM-D-105	Bryan & Michelle Owen	12/4/2014 W/Lease
FPRSV-11-H7	Allison Page	11/19/2014
FPRV-13-C	Patricia Blazenwich	10/14/2014
FPRV-13-D	Park City Splendor LLC	11/26/2014 W/Lease
FPRV-19-A-1	Julie Ward	10/24/2014 W/Lease
FPRV-19-B-1	Joy Lyn Mitchell-Lake	11/13/2014
FPRV-1-F	Bryon Wilson	10/27/2014
FPRV-8-E	Julie Ward	10/27/2014 W/Lease
FVL-2-3	Mark R Lampe Living Trust	11/7/2014
FWM-34	Allen Gene Rouse	11/12/2014
GCS-C-80	Daniel Limb	11/5/2014
GRSPA-6&13-6-AM	Louis Cicalese Trustee	12/4/2014
HE-A-311-A	Luis Guevra Watts	11/10/2014
HE-A-312-A	Robert & Allison Zarkas	12/9/2014
HE-A-317	Joseph & Roseann Vokas	12/23/2014
HE-B-247-A	Alexander Brodil	10/24/2014
HE-B-253	Jennifer Lynn Heineman	12/23/2014 W/Lease
HE-B-291-B	Karen Klomp	10/28/2014
HE-B-291-B	Karen Klomp	11/4/2014
HE-B-291-B	Karen Klomp	11/4/2014
HMP-22	Lynne A Griggs & David C Brown	11/18/2014 w/lease
HMP-25	Benjamin & Jessica Doucette	11/14/2014
HT-2-A-1	Todd Geary	10/24/2014
HT-46	Justin Jones	11/10/2014
HVR-2	Lora K Hamilton	11/7/2014
IH-2-41	Alesana & Torrie Faavale	11/6/2014
IH-2-41	Alexana Faavale	12/19/2014
JH-3-AM	Marilyn Mortensen	11/5/2014
JR-2-223	Stephanie & John Carter	11/17/2014
JR-2-288	Craig Mayman & Louisa Pretorius	11/26/2014
JR-3-313	Andre Palai& Heather Mauro	11/13/2014
JR-3-316	Michael Bally	10/24/2014
JR-3-342	Michael Lane & Marina L Hudson	11/14/2014
JR-41	Jim Howell	12/2/2014
JR-4-4005	James & Julie Robideau	12/8/2014
JR-4-4040	Gregory Bradfield	11/4/2014
JR-5-5115	Arthur W Rice III Trustee	12/5/2014
JR-58	Christopher Cutler	11/7/2014
KE-A-92	Aleksander & Jessica Roising	12/30/2014
KPH-22	Joseph & Brandi Heywood	12/11/2014
KT-157-D	Rodney Paul Backus	11/24/2014
KT-281-A	Douglas Gines Trustee	10/14/2014
KT-59-60	Suzanne Harris	11/7/2014
LBHV-1-1207	Stefan Olsen	11/3/2014

LJE-2	Nicole Richins	11/6/2014
LR-2-104	Ann Marie Wilson	10/24/2014
LR-2-145	Timothy Burniski	12/1/2014
LV-1	Dru Langendorf	10/22/2014
MCL-4	D. Scott Bonney	12/12/2014
MH-13	Michael Cobble	12/31/2014
MH-II-50	Craig & Krista Lauer	11/14/2014
MH-II-66	Matthew Engel	10/24/2014
MH-II-66	Matthew Engel	11/7/2014
MMS-7	Duane Bailey	12/19/2014
MOOSE-5-AM	William & Jessica Strater	11/7/2014
MOOSE-5-AM	Jessica Strater	11/18/2014
MRE-20	Chris Murray	10/14/2014
MVSO-I-20-AM	MILLC Mountain Property LC	11/19/2014
NBF-25	Robert Reed Gempeler	12/15/2014
NBF-69	Arin & William Meade	11/7/2014
NE-6	Elizabeth & John Paul	12/17/2014
NS-1112-G	William Ercanbrack	12/18/2014
NS-1355-A	Beaver Creek Investments LC	12/17/2014
NS-167	Dwayne Pace	12/15/2014
NS-526-A	G & F Brown & Family Land	12/12/2014
NS-585-A	Louis A Stevens Trustee	11/4/2014
NS-651-1-A	Michael & Lynette Bosworth	11/5/2014
NS-651-3	Michael & Lynette Bosworth	10/28/2014
NS-698-A	William Roy Jacobsen	10/15/2014
NSHA-II-4-AM	Greg Averett	11/21/2014
NSS-B-75	Brittany Schuhmacher	11/4/2014
NSS-B-75	Paul & Brittany Schuhmacher	11/7/2014
NSS-B-84	Greg Whitehorse	11/5/2014
OT-30-A	Paul Woolstenhulme	11/4/2014
OTST-2-A	Craig Davis	10/29/2014
PAC-131-AM	Bart A DePetrillo	11/26/2014
PALSDS-62	Norman Jenkins	11/5/2014
PB-4-158	Jason Owen	12/23/2014
PB-4-198	Jonathon Strong	11/20/2014
PBC-1-27	2648 Cottage Loop LLC	11/5/2014
PBC-1-36	Merri Jodelle Fischer	12/16/2014
PBC-1-56	Jo Ann Howa Trustee	11/5/2014
PBC-2-25	Michael Mirza	11/13/2014
PBC-2-65	Nick Houchens	10/30/2014
PBP-B-L-1	Garyth Hull	11/25/2014
PBP-B-L-1	Garyth Hull	12/19/2014
PBP-B-R-21	Derek and Kaisa Nalewajko	12/11/2014
PC-442	Dorothy Emens	12/23/2014
PC-464-A-4	Bryn Carey	12/29/2014 W/Lease
PI-71	Brendan Campbell	11/6/2014
PKM-2-11	Karyn Barsa	11/4/2014

PKM-2-45-AM	Marianne Chaplin	11/4/2014
PKM-3-15	Craig Mogel	10/14/2014
PKM-5-84	David Ashworth	10/15/2014
PKM-6	Douglas A & Sally Ruth Thimm	11/3/2014
PKM-6-A-10	Anthony P Mahon Trustee	12/15/2014
PKM-6-A-18	Timothy Wakeling	12/23/2014
PKM-86	Mark & Robin Sletten	12/15/2014
PNCR-H-9	Roland Family Trust	10/15/2014 W/Lease
POV-112	David Barnes	10/16/2014
POV-112	David Barnes	11/4/2014
POV-133	Shelia Purdom	11/7/2014
POV-43	Tait Kirkham Trustee	11/20/2014 W/Lease
PR-2-79	Joanna Lamb	11/13/2014
PR-3-133	Kristin Ensley	12/15/2014
PR-40	Heather Horsley	10/16/2014
PRE-22	Ryan Moore	10/23/2014
PRE-45	Pete & Kelley Epstein	11/7/2014
PRESRV-1-12	Lorraine Waterhouse	12/23/2014
PS-10	Marie Richins Trustee	12/23/2014
PSC-627	Solid Sky LLC	11/10/2014
PT-14-D-1	Kirk E Benson	11/13/2014
PT-24-B	Micah Rosenfield	12/15/2014 w/lease
PWV-B-38-AM	Masako Masuda	12/2/2014
QM-II-14	Phillip G Thompson	10/29/2014
RC-1-26	Karin Davis	11/18/2014
RIS-26	Amir Vonsover	12/4/2014
RP-D-4	Christopher A.O'Neill	12/23/2014
RPL-43	Kristopher Fike	12/15/2014
RPL-II-77	Garrison 1997 Trust	11/10/2014
RPL-II-90	Martha S Tanner	10/15/2014
RPL-II-90	Martha Tanner	12/5/2014
RPL-IV-175	Douglas Ogilvy	11/10/2014
RV-22	Stacey Sayers	11/5/2014
RV-24	Anne & Jeffrey Livingston	10/27/2014 W/Lease
RV-24	Jeffrey Livingston	12/23/2014 W/Lease
SA-288-288-A	Patricia A and William Moore	10/14/2014
SA-307	John Whiteley	12/15/2014
SCT-211-AM	Boline Condo LLC	12/15/2014
SGR-1-19	Mark West	10/15/2014
SL-A-50	J'Ann Mader	10/14/2014
SL-A-51	William Stoddard	10/22/2014
SL-A-54	Christopher & Jennifer Campbell	11/7/2014
SL-B-124	David Schaede	11/13/2014
SL-E-281	Mary Parsons	11/12/2014
SL-I-6-4	Arnold Repta	10/14/2014
SLS-11	Keith Moore	11/3/2014
SLS-152-AMD	Richard & Jaime Pack Breza	11/4/2014

SLS-152-AMD	Richard Breza	12/17/2014
SLS-167	Peter McCoy	10/15/2014
SLS-49	Rand Alden Howard Trustee	11/4/2014
SLS-75	Jesse Tibbetts	11/4/2014
SLS-77	Frank Thomas	11/26/2014
SLS-81	Bryan Owen	12/4/2014
SMIL-II-112	Philip Najm	11/21/2014
SMIL-II-92	Frederick T Han	10/15/2014
SMS-8	Gregg Greenberg	11/26/2014
SOS-C-77	Lewis Barrett & Brittany Taylor	11/6/2014
SRG-50	Edwin Outlaw	11/18/2014
SS-145-I-1	Peter & Peggy Simeone	12/30/2014
SSP-35-10	Beau Hennings	11/26/2014
SSS-3-414	Paul Tarmina	11/4/2014
SSS-4-502	Elvis Cernjul	11/3/2014
SSS-4-515	Christian Waters	10/16/2014
SSS-4-515	Christian Waters	11/13/2014
SST-10	Chip McMullin	10/27/2014
SU-C-16	William Farinelli	12/4/2014 W/Lease
SU-G-14	Jo Ann Funseth Trustee	10/14/2014
SU-G-6	Joshua Pruitt	10/14/2014
SU-H-44-A	Gereald & Lisa Otto	11/7/2014
SU-H-48	Kevin Quapp	10/14/2014
SU-H-69	Evan Glenn	10/15/2014
SU-I-30	Barbara Jacobsen	10/22/2014
SU-J-22	Kai Beckett	10/24/2014
SU-J-93	Erik Gaugh	10/28/2014
SU-M-2-134	Tyffanne Jacob Fugate Trustee	10/14/2014
SU-M-2-25	Melissa Morris	11/12/2014
TH-2-15	Gwen Miller Trust	10/14/2014
TH-4-5	Myra Heilman Strauchen	12/1/2014
TL-1-21	Alexander Lanning	11/5/2014
TSP-4	Brandon Watts	10/14/2014
WA-13-4-A	Carl Westenskow	11/13/2014
WDCS-B-17	Bruce Cummings	12/16/2014
WDCS-B-8	Thomas Vonn	10/15/2014
WDCS-D-10	James Tidd & Vivian Jaimes-Tidd	11/3/2014
WFS-14	Lyman Metcalf	10/24/2014
WLCRK-63	Michael Fischer	10/16/2014
WLCRK-63	Melanie Nogawski	10/16/2014
WLCRK-63	Mlanie Gayle Nogawski	11/6/2014
WLCRK-68	Joseph Burkemper	12/18/2014
WR-23	Scott Jeffrey Loomis Trustee	10/14/2014
WWPD-A16-AM	Patricia Hartzell	11/26/2014
WWPD-A29-AM	Brad & Louise Rounds	11/4/2014
WWPD-C3-AM	David Knose	12/23/2014
WWPD-C9-AM	Caleb Martin	12/31/2014

WWS-2A-A25

Nanette Bush

10/28/2014

Non-Primary Properties

Parcel	Name	Date	Comments
279-DA-A	Julie Thurber	8/20/2014	
3K-6-B	Charles Sachs	7/30/2014	
3K-6-B	Charles Sachs	7/30/2014	
APRM-20	Bill Morris	8/18/2014	
AS-207	Sandra Jo Behnken	12/23/2014	
ASR-12	Jeffrey Alan Weissman	8/29/2014	
BC-4-AM	DKT Holdings, LLC	11/13/2014	
BDV-301	Nanci Fastre	10/1/2014	
BELARB-12	Gary & Wendy Wojtaszek	10/28/2014	
BHWKS-1-25-2AM	Peter McArthur	10/27/2014	
BJAY-ALL	Leigh Ann Reaves Trustee	8/22/2014	
BL-101-A	Louise McKee	9/10/2014	
BREW-1	Eric Wedbush	12/26/2014	
BSR-1-10	Dolph & Becky Woods	11/20/2014	
CBT-26-AM	Joni Campbell	9/10/2014	
CCRK-I-22	Greg & Tamara Hawkins/ Western Li	11/14/2014	
CCRK-K-17	Matthew Cavanaugh	12/31/2014	
CCRK-L-25	Betty Brown Bauwens	11/13/2014	
CEM-1-21	Keith A & Cindy Hadden Fleming	11/17/2014	
CEM-1-48-AM	Jeanne R Gillette Trustee	11/10/2014	
CEM-1-50	Denise A Cahalan Trust	10/15/2014	
CEM-1-50	Denise A Cahalan Trustee	11/7/2014	
CEM-II-95-1AM	Lisa Marie Casey	12/8/2014	
CEM-III-4	Frank and Sharon Semancik	12/29/2014	
CLJR-1-32	Martin Devos	12/23/2014	
CR-28-A-2AM	Neal & Colleen Wilson	11/20/2014	
CT-308	David Van Wagoner	8/29/2014	
CVC-1-C-207	Bill Wilsey	10/9/2014	
DMLC-6166-AM-RE	Keith Howell	12/26/2014	
EGC-A	Michael Wilsey	10/17/2014	
EGC-A	Michael Wilsey	12/29/2014	
FHE-II-38	Robert & Nancy Peiser	11/7/2014	
FP-1	Carlos & Sherri Lukac	11/3/2014	
FPRSV-11-G5	Nancy Ware	9/5/2014	
FPRV-14-E	Asher Enterprises, LLC	10/10/2014	
FSSGV-C-1	Randall & Jennifer Yei	12/29/2014	
FWM-8	James Offerdahl	11/18/2014	
GWLD-27	Daniel Skovronsky	8/22/2014	
GWLD-74	920 Empire Parnership LLC	11/18/2014	
HTC-2-207	Ronald Schmalzle	10/1/2014	
IWDV-I-D-12	Mashburn Family Trust	10/7/2014	

IWDV-I-D-12	James Mashburn	10/22/2014
JR-3-319	Lisa Mae Ballard	8/19/2014
JR-3-319	Lisa Mae Ballard	11/18/2014
LDVC-2-E-223	Mark Liberman	12/29/2014 Primary from Florida
MCL-4	D Scott Bonney	11/7/2014
MH-II-97	Edward King	9/17/2014
MH-II-97	E S King Trustee	10/16/2014
MH-II-97	ES King Trustee	11/18/2014
MV-2	Jeffrey Boroff	12/8/2014
NPKTH-1-15	Rolf Paeper Trustee	8/27/2014
NS-146	Michael & Karrie Richards	10/1/2014
NS-224-H	Saving Grace Equine Healing	11/10/2014
OTSM-2	Michael & Caron Keim	9/29/2014
PBP-A-H-13	Paul Peloso Trustee	11/10/2014
PC-488-A	Alcalde Properties LLC	11/10/2014
PC-518	Daniel Fischer	10/7/2014
PD-13-B	Daniel Paisner & Leslie Baliff	11/20/2014
PD-21-C	James Grossman	10/30/2014
PJS-13	Penelope O'Brien	12/26/2014 Non Primary per owner on phone
PKM-5-20	Phyllis Maizlish	8/25/2014
PNCR-H-4	Lyle Torrey	8/22/2014
PT-24-B	Rosenfield Living Trust	11/7/2014
PT-2-B	Secor Properties, LLC	9/12/2014
PWL-4-F	Julian Enterprises INC	8/21/2014
RC-12-129	Alison DeSano & Monte Blank	11/17/2014
RC-1-42	Bill Shipp	9/24/2014
RCLD-25	Anderes Family Partnership LTD	12/23/2014
RP-3-V-6	Sara Krebs Properties LLC	8/29/2014
RP-J-3	James Perry	9/29/2014
SA-295-A	Louis Hering	8/21/2014
SA-321-A	John Lopez	11/26/2014
SGR-1-5	Theodore Tsandes	8/29/2014
SL-A-88	H. Gary Aacerman/EDDRAS LLC	10/30/2014
SL-A-88	Edoras LLC	12/29/2014
SL-B-196	Carrie Sue McLain	9/18/2014
SNS-19	John Meneilly	12/29/2014
SOL-11	Butterfly Artistic Media I, LLC	12/2/2014
SOL-53	Multi-State Properties LLC	11/10/2014
SPIRO-A-1304-AM	Joel B. Seligstein Trust	12/23/2014
SRC-4208	Joel Davidowski	11/4/2014
SRC-4309	Heather Riley & Ashley Cooley	11/7/2014
SRC-4310	Wenzel Tirheimer, III	12/2/2014
SS-60-F-1	Thomas Story	12/18/2014
SSC-10	34 Sandstone Cove, LLC	10/15/2014
SU-C-42-AM	Lynn Clifford Trustee	10/20/2014
TCS-17	Lisa Foronda & Greg Harper	11/5/2014
TH-41	Thomas & Paula Hurd	9/2/2014

TH-82	Thaynes Hidden Splendor LLC	11/10/2014
TWL-1B	Western Ski Holdings LLC	11/17/2014
WHLS-29	Steven Richards Trustee	12/18/2014
WRVR-2	350 Wilde Road LLC	10/1/2014



MEMORANDUM:

Date: January 7, 2015

To: Council Members

From: Anita Lewis

Re: Recommendation to appoint member to the Public Arts Program and Advisory Board

Advice and consent of Assistant County Manager's recommendation to appoint Polly Hopkins to the Public Arts Program and Advisory Board. Polly's term to expire July 31, 2017.

MINUTES

SUMMIT COUNTY
BOARD OF COUNTY COUNCIL
WEDNESDAY, NOVEMBER 19, 2014
COUNCIL CHAMBERS
COALVILLE, UTAH

PRESENT:

Chris Robinson, Council Chair
Kim Carson, Council Vice Chair
Roger Armstrong, Council Member
Claudia McMullin, Council Member
David Ure, Council Member

Bob Jasper, Manager
Anita Lewis, Assistant Manager
David Thomas, Deputy Attorney
Kent Jones, Clerk
Karen McLaws, Secretary

CLOSED SESSION

Council Member Ure made a motion to convene in closed session to discuss personnel. The motion was seconded by Council Member Carson and passed unanimously, 3 to 0. Council Members Armstrong and McMullin were not present for the vote.

The Summit County Council met in closed session for the purpose of discussing personnel from 12:55 p.m. to 1:25 p.m. Those in attendance were:

Chris Robinson, Council Chair
Kim Carson, Council Vice Chair
David Ure, Council Member

Bob Jasper, Manager
Anita Lewis, Assistant Manager
David Thomas, Deputy Attorney

Council Member Carson made a motion to dismiss from closed session to discuss personnel and to convene in closed session to discuss property acquisition. The motion was seconded by Council Member Ure and passed unanimously, 3 to 0. Council Members Armstrong and McMullin were not present for the vote.

The Summit County Council met in closed session for the purpose of discussing property acquisition from 1:25 p.m. to 1:45 p.m. Those in attendance were:

Chris Robinson, Council Chair
Kim Carson, Council Vice Chair
Claudia McMullin, Council Member
David Ure, Council Member

Bob Jasper, Manager
Anita Lewis, Assistant Manager
David Thomas, Deputy Attorney
Jeff Jones, Economic Development

Council Member Ure made a motion to dismiss from closed session and to convene in work session. The motion was seconded by Council Member McMullin and passed unanimously, 4 to 0. Council Member Armstrong was not present for the vote.

WORK SESSION

Chair Robinson called the work session to order at 1:50 p.m.

- **Discussion regarding the proposed Summit County Fee Schedule and ordinance; Helen Strachan, Civil Attorney**

Deputy County Attorney Helen Strachan explained that State statute requires the County to adopt an ordinance that establishes all the fees for services provided by the County except for certain departments and fees set by State statute. She noted that most of the fees in the proposed fee schedule have already been established in one form or another and will now be consolidated into one schedule. She noted that there has previously been no process for fee waivers, and Staff recommends that the County Manager have the authority to waive County fees with some specific criteria that may be considered when waiving fees.

Council Member Carson noted that there are many types of non-profit organizations and expressed concern about waiving fees for one type of non-profit and another non-profit claiming that their fees should also be waived. Council Member McMullin suggested that they use the same criteria for granting fee waivers as they do for determining when a non-profit organization is tax exempt. Ms. Strachan offered to draft some language to address that concern. Deputy County Attorney Dave Thomas suggested that only those organizations that are eligible for tax exempt status should be eligible for a fee waiver if there is a prevailing public interest.

Ms. Strachan noted that there is a separate appeal process for GRAMA fees, but this provision should cover all other fees. County Manager Bob Jasper suggested that they also include language stating that the County Manager shall advise the Council of proposed fee waivers. After further discussion, Chair Robinson suggested that they remove the fee waiver process from the document and leave it status quo.

Chair Robinson suggested that the fees for document requests be pro-rated in 15-minute increments rather than charging for 15 minutes and then jumping from 15 minutes to an hour. He also asked whether the Sign Code applies to campaign signs and noted that, if it does, there were egregious violations of the Sign Code this year. Ms. Strachan offered to provide clarifying language to indicate whether campaign signs are included in the Code.

The Council Members discussed the Animal Control fees. Council Member McMullin asked for a definition of what it means for a dog to attack, and she wanted to raise the fee for unsterilized female dogs at large. The Council Members suggested that the fees be raised for failure to obtain a kennel permit and failure to report a rabid animal. Chair Robinson suggested that they use the word “sterilized” rather than “altered” in the fee schedule. Brian Bellamy recalled that the Council discussed last week having a bigger fine for an unsterilized animal running at large and noted that is not addressed in the fee schedule. He offered to change the fee schedule to reflect the Council’s request. The Council requested that the fine be doubled for unsterilized dogs running at large.

The Council Members and Ms. Strachan discussed legal fees and discovery costs, and Chair Robinson recommended that the fees reflect the cost of employee time to prepare the documents.

Chair Robinson and County Clerk Kent Jones discussed soliciting fees. Mr. Jones explained that, after the litigation the County was involved in, they do not treat solicitors any differently than any other business. They pay a \$200 license fee, and the County cannot charge for a bond. He explained that he is looking at a method for recouping the costs of the time and the badges made for each individual, because he currently does not have a way to recoup those costs. Mr. Thomas suggested that this would be the time to put the badge fee into the fee schedule. Mr. Jones explained that he does not have an ordinance in place to back up the fee. The Council Members asked Mr. Jones to check with IT to determine the cost of issuing the badges and include it in the fee schedule.

The Council Members discussed facilities fees and how to determine who should pay fees to use facilities such as the arena. They also discussed the library fee schedule and requested that the fee for collections be the actual costs of the collections action. With regard to the Recorder's fees, Chair Robinson suggested that the County Recorder return to the Council and propose any necessary changes in the fees now that the current fees have been in place for a while.

The Council Members discussed the Planning, Zoning, and Engineering Department fees with Community Development Director Patrick Putt. Ms. Strachan noted that these fees will go to public hearing, and they may get some feedback on the fees during the public hearing process.

Ms. Strachan recommended that the fee schedule be placed on the agenda for a public hearing and asked when the Council would like to adopt them. Chair Robinson stated that he would like them to be adopted before the end of the year so they can be effective January 1, 2015.

- **Budget Presentation – North Summit Fire Service District**

North Summit Fire District Chief Ken Smith explained that the proposed 2015 budget is much the same as the current budget. He explained that salaries and benefits will increase next year, because he will have an officer on call with a truck who will respond immediately to all the calls in the Fire District. He will reduce the stipend and raise the money available for someone to take the shifts and be available for calls. He explained that the fire fighters are quite excited about this change. He hoped to start this program on June 1 and then evaluate it to see how it works. He explained that they have some extra money to do this because the District has paid down some debt. Council Member Carson noted that charges for services are significantly lower than what was budgeted in 2014. Chief Smith explained that the District still has a significant amount of money coming for the second Rockport Fire. He reported that the District has started the cost recovery process for trucks that overturn and spill diesel fuel into the creeks and onto the land. He reviewed the items included in the operating expenses portion of the budget.

- **Budget Presentation – Clerk, including Public Defender**

Mr. Jones explained that his budget includes both clerk and elections and is the same as 2014 except \$2,500 which was added to travel and training to allow his chief deputy, Ryan Cowley, to start working on his Master's Degree. He reported that all the other elections offices in the State call Mr. Cowley for help. Cassell was at UAC last week, and Mr. Cowley showed them the business license program he had programmed for the County's business license approval, and Cassell called yesterday and wants to meet with him to see the program. Mr. Jones reviewed the

Public Defender budget and noted that it will increase next year based on what they spent this year. County Manager Bob Jasper explained that the Public Defender function falls under the County Manager, but Mr. Jones has agreed to continue to do this and does a very good job.

Council Member Armstrong asked how the Public Defender selection process works. Mr. Jones explained that a number of jurisdictions put an RFP out for bid, and people will underbid just to get the job and then complain that they are underpaid. However, he advertises the position with a set contract amount and then accepts applications for the position. He explained that the two public defenders for District Court are paid \$75,000 per year, and drug court and justice court each receive a \$20,000 allocation. The conflict attorneys receive \$70 per hour. He explained that part of the increase is due to having more multiple-defendant cases, such as drug cases. Mr. Jasper explained that sometimes the judges get involved and tell the County how much they want the conflict attorneys to be paid. He noted that they have also had an increase in psychological evaluations, and he is now working with Valley Mental Health to cover the costs of those evaluations.

With regard to elections, Mr. Jones explained that they will have to go to a new system in the next three or four years, and no one is stepping up with money to cover those costs, so he may have to budget in two or three years to purchase new machines. He explained that there has been a push in the legislature the last two years to force everyone to do all mail-in ballots. However, it is more expensive, and the clerks have been resisting it. An all-mail election requires that ballots be mailed 30 days before the election, but people can register to vote up to a week before the election, so they must still be provided with a way to vote. Therefore, it will still be necessary to have polling locations. He reported that Davis County did an all-mail election in November and did not have any higher turnout than Summit County did. They also had 12,000 people show up at polling places to vote on election day, and 10,000 people walked in and turned in their mail-in ballots on election day. Of the 60,000 people to whom they mailed ballots, one-third of them still voted on election day, and the process is more costly. All of the mail-in ballots have to be opened, and Davis County had to hire temporary staff to verify signatures and process the paper ballots. On election night, they had 17,000 ballots that still had to be counted.

- **Budget Presentation – Community Development**

Community Development Director Patrick Putt reviewed what the Community Development Department does and explained that it is the one-stop service provider for anything in unincorporated Summit County related to planning, design, building, inspections, and other development services. He explained that his staff provides support for nine regularly scheduled boards and commissions. They also provide a significant amount of pre-development services and create, administer, and enforce the zoning regulations for two planning districts and administer the County's Administrative Law Judge program. In addition, they act as an inter-agency conduit. He reported that they are on track to surpass the number of building permits issued in 2013 and are approaching the levels of permit issuance at the height of the boom five or six years ago. Through the end of September, they have done over 10,000 building inspections. Typically they would see a tapering in inspections toward the middle of October, but they are actually increasing slightly in the number of building inspections.

Mr. Jasper recalled that the Homebuilders Association requested additional inspectors last year, and one position was added in 2014. He will propose that they add an assistant plan checker in 2015 and an additional building inspector.

Council Member Ure asked how much the County utilized inspectors from outside the department last year. Chief Building Official Robert Taylor recalled that they were given money in the budget to retain some consulting inspection help and someone to help answer the phones. They have tried to utilize outside resources for building inspections but found that the firms that provide that service are as heavily impacted by the construction boom as the County is, and they also provide services to Wasatch and Morgan Counties, so Summit County has to compete for those resources. Council Member Ure confirmed with Mr. Taylor that they are lacking inspectors more on the commercial side than on the residential side. Mr. Taylor explained that, if they were to hire a commercial inspector, he could inspect both commercial and residential. He noted that they are at 198% so far this year of where they were last year for building inspections. Even with the additional inspector they put on last year, they are at full capacity. Matt Leavitt with the County Auditor's Office noted that in 2009 the County had seven building inspectors, and now they only have five. Mr. Taylor explained that the inspectors get burned out and start to make mistakes, and he wants to keep the level of quality high, because it is a matter of public safety.

Mr. Putt reviewed the Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis for the Community Development Department. He stated that the department's strengths include a wide spectrum of expertise, long-time understanding of Summit County's communities, being a "one-stop shop," the enhanced on-line permit application program, staff availability, and problem solving. Weaknesses include the need for online building inspection requests, community outreach and education, more user-friendly portals to the website, and establishing measures/track/report key community elements related to growth, transportation, water, open space, energy, and housing. Opportunities include a Snyderville Basin General Plan update, the Eastern Summit County Development Code amendments, a Snyderville Basin Development Code update, partnering with stakeholders, redevelopment in key nodes such as Kimball Junction and Silver Creek as well as opportunities to redevelop on the east side of the County. Threats include a significant increase in development activity affecting service levels, increased front-line counter activities, the need for enhanced web-based plan review/permits tracking, staff members nearing retirement, highly competitive building inspection recruitment market.

- **Budget Presentation – Health**

Health Director Rich Bullough reported that the mission of the Health Department is to protect the health and safety of the citizens of Summit County, and considering visitors is a big part of what they do. He explained that they partner with all kinds of entities, including public, non-profit, and for-profit organizations. Their programs include immunizations, communicable and reportable diseases, women's and children's health, environmental health, health promotion, WIC, early intervention, and birth and death certificates. He elaborated that the Board of Health has focused heavily on environmental health this year. The WIC program is always at risk, and there may be a time when they will have to request County money to help with WIC. Mr. Bullough presented the SWOT analysis for the Health Department. The Health Department strengths include the fact that they are a convener of partners, they have an excellent staff, a very strong health board, incredible partners and community, the political will to do great things, and

they are ahead of the curve. Weaknesses include limited resources to enforce the health code, and low fees when compared to other counties. Opportunities include continuing to develop partners and relationships, exploring additional sources of revenue, and keeping the momentum. Threats include an unenforced health code, reliance on State and federal funding, and the impact of the State now having 13 health departments instead of 12.

Mr. Bullough explained that the Health Department is not proposing any new personnel. He reviewed the Health Department's budget analysis. He explained how mental health works for the County and how it is funded and commented that there are opportunities for the County to assist with funding, such as drug court. Council Member Carson explained that the State may be looking at new models and funding for drug court. Mr. Bullough reported that he has met Dodie Wilson, the new director with Valley Mental Health, and feels good about the direction they are going. He summarized that the Health Department has requested a \$200,000 increase in their budget for 2015, which is about a 2.3% increase. Mr. Jasper clarified that he added in more than they requested, such as salaries, and the percentage increase is actually 4.3%.

- **Budget Presentation – Information Technology**

IT Director Ron Boyer explained that his department gets records out to the public and makes sure other departments can communicate. They provide a centralized service for public records, and the GIS service helps people make decisions. Strengths include storing and publishing records to a worldwide audience; creating GIS data for property owners, Realtors, County staff, and other government agencies; and innovating communications with ports for County staff, the public, and other County stakeholders. Weaknesses include the need to digitize public records that have not been a part of their regular schedule, providing technical training for employees, employee mobility such as having access to critical information in the field or away from the office. Opportunities include consolidating records into a basic archive and retrieval system and improving online services and leveraging cloud computing for some projects. Threats include cyber security, which continues to change at a rapid pace, and more demand from the public for access to information. He noted that his budget request actually decreased this year and that some items have been moved to the capital budget.

CLOSED SESSION

Council Member Armstrong made a motion to convene in closed session to discuss property acquisition. The motion was seconded by Council Member McMullin and passed unanimously, 5 to 0.

The Summit County Council met in closed session for the purpose of discussing property acquisition from 5:20 p.m. to 6:00 p.m. Those in attendance were:

Chris Robinson, *Council Chair*
Kim Carson, *Council Vice Chair*
Roger Armstrong, *Council Member*
Claudia McMullin, *Council Member*
David Ure, *Council Member*

Bob Jasper, *Manager*
Anita Lewis, *Assistant Manager*
David Thomas, *Deputy Attorney*

Council Member McMullin made a motion to dismiss from closed session and to convene in regular session. The motion was seconded by Council Member Armstrong and passed unanimously, 5 to 0.

REGULAR MEETING

Chair Robinson called the regular meeting to order at 6:00 p.m.

- **Pledge of Allegiance**

PUBLIC INPUT

Chair Robinson opened the public input.

There was no public input.

Chair Robinson closed the public input.

ADVICE AND CONSENT OF COUNTY MANAGER'S RECOMMENDATION TO APPOINT MEMBERS TO THE SNYDERVILLE BASIN OPEN SPACE ADVISORY COMMITTEE (BOSAC)

Council Member Carson made a motion to consent to the Manager's appointment of Richard Pimentel and Connie Steffen, and the reappointment of Polly Ivers to the Snyderville Basin Open Space Advisory Committee (BOSAC), with terms to expire on the first Thursday of March 2018, and the appointment of Steve Spaulding to BOSAC to fill the unexpired term of Tom Brennan, with his term to expire the first Thursday of March 2017. The motion was seconded by Council Member Armstrong and passed unanimously, 4 to 0. Council Member McMullin was not present for the vote.

COUNCIL COMMENTS

Council Member Carson reported on a presentation regarding the Board of Equalization at the UAC meeting and explained that training is available for those appointed to the Board of Equalization, and there is now a required 4-hour training course. If someone was appointed prior to that requirement, they are not required to participate in the training. She suggested that the County's Board of Equalization hearing officers go through that training that is offered by the State Tax Commission. She noted that the Council Members are not required to take the training in their role as the Board of Equalization.

Council Member Armstrong reported that he received an e-mail from Steve Martin offering to meet with him to answer questions he had about the reports the Council gets from him. He suggested that Mr. Martin do that in a work session at some point. Council Member Carson commented that she does not believe Mr. Martin understands what the Council wants to see on his reports, and she believed it should be simple to put together a spreadsheet so the Council could see the changes in valuations from year to year over a 10-year period.

Council Member Carson reported that at UAC they also discussed the Utah Commission on Criminal and Juvenile Justice report that came out last week, and they will hear more about that during the legislative session this year. She did not believe substantial action would be taken this year, but it will be reviewed.

MANAGER COMMENTS

There were no Manager comments.

APPROVAL OF MINUTES

SEPTEMBER 24, 2014

Council Member Carson made a motion to approve the minutes of the September 24, 2014, County Council meeting as written. The motion was seconded by Council Member Ure and passed unanimously, 4 to 0. Council Member McMullin was not present for the vote.

The County Council meeting adjourned at 6:10 p.m.

Council Chair, Chris Robinson

County Clerk, Kent Jones

MINUTES

SUMMIT COUNTY
BOARD OF COUNTY COUNCIL
MONDAY, DECEMBER 1, 2014
SHELDON RICHINS BUILDING
PARK CITY, UTAH

PRESENT:

Chris Robinson, *Council Chair*
Kim Carson, *Council Vice-Chair*
Claudia McMullin, *Council Member*
David Ure, *Council Member*
Roger Armstrong, *Council Member*

9:00 AM Work Session – Budget Presentations

9:00 AM - Administration: Sustainability (15 min)

9:15 AM - Ambulance Services (20 min)

9:35 AM - Personnel (15 min)

9:50 AM - Animal Control (15 min)

10:05 AM - Emergency Management (10 min)

10:15 AM - Precinct Court (20 min)

10:35 AM - Assessor (15 min)

10:50 AM - Ag Extension (15 min)

11:05 AM – Recorder/Surveyor (15 min)

11:20 AM – Attorney (20 min)

11:40 AM – Summary review of program and 2015 budget request of Public Arts Program and Advisory Board (15 min)

The Council met with department heads to discuss 2015 budget requests. No action was taken.

All other business being completed, the Council adjourned at 12:10pm.

Chris Robinson, Council Chair

Kent Jones, Clerk

MINUTES

SUMMIT COUNTY
BOARD OF COUNTY COUNCIL
WEDNESDAY, DECEMBER 3, 2014
COUNCIL CHAMBERS
COALVILLE, UTAH

PRESENT:

Chris Robinson, Council Chair
Kim Carson, Council Vice Chair
Roger Armstrong, Council Member
Claudia McMullin, Council Member
David Ure, Council Member

Bob Jasper, Manager
Anita Lewis, Assistant Manager
David Thomas, Deputy Attorney
Karen McLaws, Secretary

CLOSED SESSION

Council Member Ure made a motion to convene in closed session to discuss litigation. The motion was seconded by Council Member Carson and passed unanimously, 5 to 0.

The Summit County Council met in closed session for the purpose of discussing litigation from 11:45 a.m. to 12:55 p.m. Those in attendance were:

Chris Robinson, Council Chair
Kim Carson, Council Vice Chair
Roger Armstrong, Council Member
Claudia McMullin, Council Member
David Ure, Council Member

Bob Jasper, Manager
Anita Lewis, Assistant Manager
David Thomas, Deputy Attorney
Tom Fisher
Robert Hilder

Council Member McMullin made a motion to dismiss from closed session to discuss litigation and to convene in closed session to discuss property acquisition. The motion was seconded by Council Member Carson and passed unanimously, 5 to 0.

The Summit County Council met in closed session for the purpose of discussing property acquisition from 12:55 p.m. to 1:15 p.m. Those in attendance were:

Chris Robinson, Council Chair
Kim Carson, Council Vice Chair
Roger Armstrong, Council Member
Claudia McMullin, Council Member
David Ure, Council Member

Bob Jasper, Manager
Anita Lewis, Assistant Manager
David Thomas, Deputy Attorney
Tom Fisher
Robert Hilder
Derrick Radke, Public Works Director
Jeff Jones, Economic Development

Council Member Armstrong made a motion to dismiss from closed session and to convene in work session. The motion was seconded by Council Member McMullin and passed unanimously, 5 to 0.

WORK SESSION

- **Discussion regarding self-insured initiative; Matt Jensen, Management Analyst**

Management Analyst Matt Jensen presented the staff report and noted which staff members served on the insurance review committee. He recalled that the County has been covered by the Utah Local Governments Trust for general liability, vehicle liability for County vehicles, property insurance, auto physical damage for high-value equipment, and workers' compensation. Current coverage is \$1,000 deductible per incident for general liability, \$1,000 deductible for property coverage, automobile physical damage deductible is \$500, and workers' compensation is first dollar coverage. In 2014, the County paid \$623,000 for that coverage. He noted that Summit County has been a good insurance risk, and claims have exceeded premiums only six times in the last 30 years. There has been frustration with the Trust placing reservation of rights on claims, with the possibility of property takings and land use issues being denied. The County would like better risk control and savings through a self-insurance program.

Mr. Jensen explained that the County hired Moreton & Company as a consultant to review the County's existing coverage and exposure and the County's risk management efforts, to determine appropriate levels of coverage, and to be the County's placement agents to review the options available. He emphasized that there are two sides to risk management—risk finance and risk control—and three legs to insurance—how much control the County wants, how much risk or exposure they can absorb, and the cost of the programs. With a deductible policy, there is less control and lower risk, but the cost of the program is higher. A self-insured retention programs provides more control, but there is higher exposure, and there is a possibility of recouping that through the lower cost of the program.

Mr. Jensen reported that Moreton reviewed the County's past insurance performance, and over the past 20 years with the Trust, the County has paid more than \$6 million in premiums and had about \$4.4 million in claims. In the last five years, the County paid \$340,000 in property premiums and had \$4,000 worth of claims. Moreton indicated that they could reduce the general liability costs. With regard to workers' compensation, the County is paying less than the claims that have been paid, and they should look at internal controls before making any changes there. There are not many claims for property and auto, so they should look at increasing those deductibles, and the premiums for that coverage are very competitive. He noted that for general liability, most of the claims are well below the premiums paid.

Mr. Jensen explained that Moreton approached 26 potential markets for insurance coverage and invited the Trust and the Utah Counties Indemnity Pool to provide figures, and the Trust and UCIP were very competitive. The Trust presented a deductible plan at the \$100,000 and \$250,000 level with a 3-year rate guarantee that beat the open market self-insured retention plan. It is recommended that the County carry a \$25,000 deductible on property, which would save them about \$30,000 in 2015. It is also recommended that the auto physical damage deductible be increased to \$1,000, which would decrease the premium by about \$10,000. The workers' compensation coverage would remain at first dollar coverage, and they will work internally to

cut down on workers' compensation claims. He reported that, if the County stays with the Trust with the current deductibles, the premium will decrease by \$50,000. If they use the Trust's high deductible program, the savings will be over \$200,000. He noted that average annual claims are \$133,000.

Deputy County Attorney Dave Thomas stated that he spoke with the Trust and asked how much flexibility the County would have. They indicated that the County could choose an attorney from those the Trust works with and co-counsel with them. For the most part, the County has been pretty good about supervising that, and the Trust has only become involved when they started talking about settlement. He explained that the Trust will still have the say with regard to the deductible in terms of settlement, even if the settlement is less than the deductible.

County Attorney Bob Jasper recalled that they started out by looking at self-insuring, and he sees this as a bridge to self-insurance. He does not want to open the door to lawsuits, and they still need to work out some things with the Trust on existing cases. Mr. Jensen explained that he finds it difficult to not look at a high-deductible program that provides adjustments and processing and costs less than a self-insured retention program, even if they lose a little control.

Chair Robinson asked Mr. Jensen to look at other deductible points between the current \$1,000 deductible and the \$250,000 high-deductible program, including the difference in premiums and how much the reserve fund would need to be.

Mr. Jensen discussed the self-insured retention program and explained that it becomes affordable at the \$1 million deductible mark. However, they would not save as much as the high-deductible plan, because the County would be open to more risk. Both options 2 (the high-deductible plan) and 3 (the self-insured retention fund) require a reserve fund, and Option 3 would include the cost of processing and adjusting claims.

Chair Robinson asked how much reserve the County would need under Option 2. Mr. Jensen replied that they recommend \$1 million for claims and legal fees and that the County choose Option 2. He also recommended that 2015 serve as a benchmark for considering how much to set aside for legal fees or to refill the fund in the future. Going forward, he suggested that they continue to work with Moreton and the Trust to review and establish appropriate risk control measures and return to the Council in 3 to 6 months to reconcile the decision.

- **Department Budget Presentation: Auditor, including special revenue amounts, risk management, and other budgets**
- **General discussion regarding proposed 2015 budget**

Matt Leavitt with the Auditor's Office presented the 2015 recommended budget and noted that the County's portion of property taxes collected remains at 15%. He reviewed the services provided by the County. He summarized that about 75% of the \$4.2 million increase in the budget for 2015 consists of capital projects, an additional pay period, and new employees.

Council Member Ure stated that he did not understand how they could justify a full-time employee for the County Fair in its present state. He could see having a full-time employee if they had a new fairground, but not for a two-week event as it exists now.

Mr. Leavitt stated that, for budget purposes, he needs to know as soon as possible which Council Members will take benefits for 2015. Council Member Carson verified with Mr. Leavitt that there is sufficient money in the Council budget to cover the Council Members' mileage.

Mr. Leavitt noted that there is a significant difference in the administration budget because two positions have been moved to that budget, and it includes a citizen survey and payment to Mountain Accord. He stated that the Council needs to discuss the energy efficiency program as it relates to the sustainability budget. He did not believe that program belongs in the operating budget, but he needs to know more details. He understood they are looking at a \$3 million bond, which is a significant amount. He noted that the economic development budget has also increased significantly because of the programs proposed by Jeff Jones. He suggested that they could bring Mr. Jones back if the Council is interested in discussing his budget further. Council Member Ure requested that some sort of evaluation be set up to determine the effectiveness of the proposed economic development programs.

Mr. Leavitt reported that the Auditor's Office budget will decrease by about \$166,000, and a good portion of that is the professional and technical services being transferred to the administration budget. Mr. Jasper recommended that they start to implement some internal audits in the Auditor's Office. Council Member Ure stated that they have also been lacking in internal audits for the special service districts and suggested that the Auditor train the special service districts regarding the open meetings law.

Mr. Leavitt noted that the biggest increase for the Clerk's Office is the additional pay period, but the Clerk has also asked for money to help pay for his chief deputy's master's program. He believed this was an opportunity for the Council to show that they are investing in their staff. He noted that the Recorder's Office has requested an increase of about \$15,000 for a contracted surveyor to focus on the section lines. He stated that the Attorney's budget has increased somewhat due to moving one employee from part-time to a full-time position. They have also requested funds for additional training, and that request was removed from the budget. Personnel Director Brian Bellamy explained that the additional training was for the Children's Justice Court personnel and victim advocate. The Council Members agreed to provide \$25,000 for training in the Attorney's budget.

Mr. Jasper reported that the Assessor asked for another position. The budget committee recommended it, and Mr. Jasper recommended that they not include it. He noted that the Assessor's Office got a new commercial appraiser this year and recommended that the Council put the money aside and take some time to study the situation.

Mr. Leavitt reported that the public defender increase was significant because of drug court and pre-trial services. This year's budget will have to be amended and increased, because the public defender budget is already over budget for pre-trial services. He pointed out that the Sheriff's budget is almost one-fourth of the entire budget, and there is no significant increase in that budget request.

Mr. Leavitt explained that the cost of living and merit increases are not included in the departmental budgets. He will include them when the Council approves the cost of living and merit increases. He also thanked Julie Booth for her help in preparing his presentation.

Council Member Carson questioned whether the increase of one part-time position to full-time in the Engineering Department would be sufficient because of what lies ahead for them. Mr. Leavitt noted that the Animal Control budget will increase by three personnel. He reported that the Community Development budget did not increase much, but they have added a plans examiner in the Building Department. The Council Members and Mr. Jasper discussed the advisability of adding another building inspector in that department.

Mr. Leavitt reported that the Library Director said there is a possibility of getting a grant through the RFID program to tag books for checkout, and he requested an additional employee. The committee recommended that they see how the RFID program goes first. Mr. Leavitt discussed the fleet lease request from the USU extension office for a copy machine. Council Member McMullin requested that they include it in the budget. Mr. Leavitt noted that the biggest change in the Health Department budget is the 27th pay period. Council Member Carson explained that the Health Department has some new people who need specialized training and requested that the County provide the amount they asked for. Chair Robinson requested that they include the funds for open space acquisition in the budget.

Mr. Leavitt requested discussion of the landfill budget. The Council members requested that a discussion of the landfill budget be put on the agenda as a separate item at the next Council meeting. Council Member Carson believed they need to seriously consider charging a fee for trash pickup and requested comparisons with what other counties are doing.

Mr. Leavitt discussed the estimated changes in fund balances based on the budget as presented today. He explained that, even with the transfers from fund balances, they are still at the upper end of the Manager's executive order setting lower and upper limits for fund balances. Mr. Jasper explained that the budget assumes every penny in the budget will be spent and that revenues come in at or below the projected revenue. In reality, they will not spend every penny in the budget, and revenues are likely to increase, so even with these transfers, the fund balances will continue to grow. Mr. Leavitt discussed other items that could be included in the budget and remain within the tolerance levels for the fund balances. He requested that the Council Members consider those items and let him know what they would like to do.

Mr. Leavitt stated that the recommended cost of living increase to be effective in January 2015 is 1.75 percent, which would be about \$280,000. Merit increases would be an average of 3% and would occur on the anniversary date, which is estimated to be \$285,000.

Jeff Jones discussed the business incentive program and explained that when the State Office of Economic Development tries to lure business to the State, they require a letter from GOED or EDC Utah that tells what the local jurisdiction is willing to do to incentivize a particular company. The State questions whether they should incent a company if the local jurisdiction does not want the business. He explained that the County does not have a source of incentive funds or a process in place, so he has asked for a \$20,000 allocation in the budget to be used as matching funds for the incentive process. The Manager was able to step in on a recent relocation to arrange for a fee waiver on permits that the County will use as its portion of the matching funds. He explained that they would not want the Community Development Department to come up short when they issue fee waivers, so they will transfer money from the Economic Development budget to the Community Development budget to cover the fees. Hopefully, as

new businesses move in, other fees will increase and new construction will result from the incentive that will more than make up for the \$20,000 that has been allocated.

Council Member Armstrong discussed the types of businesses the County might want to target and incentivize. He did not want to incentivize an incubator and have them spin off a business that will relocate to Salt Lake after the County has incentivized them to develop here. He believed they need post-performance measurements so that, the longer a company stays, the more it triggers additional funds. He stated that these funds need to be spent for something the County values. Mr. Jones reported that Pando Labs is reaching out to other areas of the County to provide mentoring and other types of services. Council Member Armstrong verified with Mr. Jones that this structure would be subject to a contract. Mr. Jones explained that Pando has agreed to that, and the County can include the metrics they want in the contract and track them. He also stated that he has asked for money in his budget to do infrastructure assessments to look at development in particular locations.

Mr. Jones explained the Ice House entrepreneurship program he would like to introduce and stated that he will need another facilitator to help teach the class. He stated that the curriculum is designed to help people who want to start a business learn more about entrepreneurship. He would also like to engage some high school students in the class. The cost is between \$200 and \$300 per student, and they may want to ask for some local participation to help offset the costs.

Council Member Carson asked how the committee came up with the 3% merit increase. Mr. Bellamy explained that he presented several choices to Mr. Jasper, and that was what he chose. He explained that people usually start at the bottom of their range, and the goal is to move them through the range as they become more efficient and better performers. He explained that 3% is the average, and individual employees could receive anywhere between 0% and 5%. Mr. Jasper explained that they do salary surveys and then typically hire below the market. If the employee is a good employee, they can work their way up. Eventually people top out and leave, and then they hire people below market again who work their way up. Council Member Carson expressed concern that the department heads would give everyone 3%, and then there is no merit incentive.

CLOSED SESSION

Council Member McMullin made a motion to convene in closed session to discuss personnel. The motion was seconded by Council Member Ure and passed unanimously, 5 to 0.

The Summit County Council met in closed session for the purpose of discussing personnel from 4:20 p.m. to 4:35 p.m. Those in attendance were:

Chris Robinson, *Council Chair*
Kim Carson, *Council Vice Chair*
Roger Armstrong, *Council Member*
Claudia McMullin, *Council Member*
David Ure, *Council Member*

Bob Jasper, *Manager*
Anita Lewis, *Assistant Manager*
Matt Jensen, *Management Analyst*

Council Member Armstrong made a motion to dismiss from closed session to discuss personnel and to convene in closed session to discuss property acquisition. The motion was seconded by Council Member McMullin and passed unanimously, 5 to 0.

The Summit County Council met in closed session for the purpose of discussing property acquisition from 4:35 p.m. to 4:50 p.m. Those in attendance were:

Chris Robinson, Council Chair
Kim Carson, Council Vice Chair
Roger Armstrong, Council Member
Claudia McMullin, Council Member
David Ure, Council Member

Bob Jasper, Manager
Anita Lewis, Assistant Manager

Council Member Carson made a motion to dismiss from closed session. The motion was seconded by Council Member McMullin and passed unanimously, 5 to 0.

CONVENE AS THE GOVERNING BOARD OF THE SNYDERVILLE BASIN SPECIAL RECREATION DISTRICT

Council Member Carson made a motion to convene as the Governing Board of the Snyderville Basin Special Recreation District. The motion was seconded by Council Member McMullin and passed unanimously, 4 to 0. Council Member Ure was not present for the vote.

The meeting of the Governing Board of the Snyderville Basin Special Recreation District was called to order at 5:00 p.m.

CONSIDERATION AND POSSIBLE APPROVAL OF EASEMENT DEED REGARDING PARCEL NUMBERS PP-57-A, PP-58-A, AND PP-58-A-1

Chair Robinson stated that it was confusing to list all the property through which the easement goes, and all they need in the deed is the description of the easement itself. He requested that they email the deed to him so he could edit it.

Board Member McMullin made a motion to approve the easement deed in a form that is satisfactory to the Chair, the County Attorney, and the District. The motion was seconded by Board Member Carson and passed unanimously, 5 to 0.

DISMISS AS THE GOVERNING BOARD OF THE SNYDERVILLE BASIN SPECIAL RECREATION DISTRICT AND CONVENE AS THE GOVERNING BOARD OF THE MOUNTAIN REGIONAL WATER SPECIAL SERVICE DISTRICT

Board Member McMullin made a motion to dismiss as the Governing Board of the Snyderville Basin Special Recreation District and to convene as the Governing Board of the Mountain Regional Water Special Service District. The motion was seconded by Board Member Carson and passed unanimously, 5 to 0.

The meeting of the Governing Board of the Snyderville Basin Special Recreation District adjourned at 5:05 p.m.

The meeting of the Governing Board of the Mountain Regional Water Special Service District was called to order at 5:05 p.m.

CONSIDERATION AND POSSIBLE ADOPTION OF RESOLUTION 2014-27MRW OF THE COUNTY COUNCIL OF SUMMIT COUNTY, UTAH, DESIGNATING AN ASSESSMENT AREA FOR THE PURPOSE OF (i) LEVYING ASSESSMENTS AGAINST PROPERTIES WITHIN THE ASSESSMENT AREA TO FINANCE THE CONSTRUCTION AND INSTALLATION OF CULINARY WATER AND RELATED IMPROVEMENTS, (ii) GENERALLY DESCRIBING THE PERIOD OVER WHICH THE ASSESSMENTS ARE TO BE PAID AND THE MANNER IN WHICH THE COUNTY INTENDS TO FINANCE SAID IMPROVEMENTS; AND RELATED MATTERS

CONSIDERATION AND POSSIBLE ADOPTION OF ORDINANCE #833 CONFIRMING THE ASSESSMENT LIST AND LEVYING AN ASSESSMENT AGAINST CERTAIN PROPERTIES IN THE PROMONTORY ASSESSMENT AREA 2014-1 (THE "ASSESSMENT AREA") TO FINANCE THE COSTS OF CONSTRUCTING AND INSTALLING CULINARY WATER IMPROVEMENTS AND RELATED IMPROVEMENTS, TO COMPLETE SAID IMPROVEMENTS IN A PROPER AND WORKMANLIKE MANNER; ESTABLISHING A STABILIZATION FUND; PROVIDING FOR CERTAIN REMEDIES UPON DEFAULT IN THE PAYMENT OF ASSESSMENTS; ESTABLISHING THE EFFECTIVE DATE OF THIS ORDINANCE; AND RELATED MATTERS

CONSIDERATION AND POSSIBLE ADOPTION OF RESOLUTION 2014-28MRW OF THE COUNTY COUNCIL OF SUMMIT COUNTY, UTAH, FINALIZING THE TERMS AND CONDITIONS OF THE ISSUANCE OF ITS MOUNTAIN REGIONAL WATER REVENUE BONDS, SERIES 2014, IN THE TOTAL PRINCIPAL AMOUNT OF NOT TO EXCEED \$8,800,000; AND RELATED MATTERS

Chief Financial Officer Scott Green explained that an ordinance and resolution need to be passed in order to establish an assessment area in Promontory to provide funding for repayment of part of the bond which the District is proposing.

Brian Baker with Zions Bank explained that Resolution 2014-28MRW relates to the issuance of the bonds, which is a separate issue from the assessment area. He explained that the rating agencies based the bond almost entirely on expected revenues from the water system, which are more than satisfactory for repayment of the bond. Tonight the Governing Board is being asked to pass a resolution that authorizes the issuance of up to \$8.8 million in water revenue bonds and sets the terms. This resolution also appoints a pricing committee to sign off on the final terms. He explained that they anticipate selling the bonds on Monday, December 8, and closing the transaction on December 18. He stated that they are getting into the market at a good time, and circumstances are still favorable, with rates currently at about 3%.

Board Member McMullin made a motion to adopt Resolution 2014-28MRW of the County Council of Summit County, Utah, finalizing the terms and conditions of the issuance of its Mountain Regional Water Revenue Bonds, Series 2014, in the total principal amount of not to exceed \$8,800,000; and related matters. The motion was seconded by Board Member Carson and passed unanimously, 5 to 0.

Randy Larsen provided a copy of Resolution 2014-28MRW for the Council's review. He explained that the property owner, Promontory, has agreed to the assessment and to waive the typical due process. Without that, the process would be much longer. Rich Sonntag with Promontory explained that Promontory will pre-pay the assessment at the time each lot is sold.

Chair Robinson asked if the Attorney's Office has reviewed the documents. Mr. Thomas replied that he has looked at them but not in great detail. He confirmed that they follow the general format for an assessment district.

Board Member McMullin made a motion to approve Resolution 2014-27MRW of the County Council of Summit County, Utah, designating an assessment area for the purpose of (i) levying assessments against properties within the assessment area to finance the construction and installation of culinary water and related improvements, (ii) generally describing the period over which the assessments are to be paid and the manner in which the County intends to finance said improvements; and related matters. The motion was seconded by Board Member Ure and passed unanimously, 5 to 0.

The Board Members reviewed Ordinance #833. Chair Robinson noted that the assessment is collected at the time of lot sale. He asked what would happen if lots are not selling and how the debt service would be handled in that event. Mr. Sonntag explained that Promontory is on the hook for principal and interest payments annually, which is the same mechanism they used on the previous bonds. Chair Robinson asked if there is an agreement that states the developer will pay. Mr. Sonntag replied that it is assumed that they will make those payments. He explained that Promontory has over 10 times coverage on the current assessment bond based on County assessed values. Mr. Larsen explained that, if they had to foreclose on Promontory, and the property could not be sold to raise the revenues, Mountain Regional Water would have to raise their rates to cover the debt service.

Board Member McMullin made a motion to adopt Ordinance #833 confirming the assessment list and levying an assessment against certain properties in the Promontory Assessment Area 2014-1 (the "Assessment Area") to finance the costs of constructing and installing culinary water improvements and related improvements, to complete said improvements in a proper and workmanlike manner; establishing a stabilization fund; providing for certain remedies upon default in the payment of assessments; establishing the effective date of this ordinance; and related matters. The motion was seconded by Board Member Carson and passed unanimously, 5 to 0.

DISMISS AS THE GOVERNING BOARD OF THE MOUNTAIN REGIONAL WATER SPECIAL SERVICE DISTRICT AND RECONVENE AS THE SUMMIT COUNTY COUNCIL

Board Member McMullin made a motion to dismiss as the Governing Board of the Mountain Regional Water Special Service District and to reconvene as the Summit County Council. The motion was seconded by Board Member Armstrong and passed unanimously, 5 to 0.

The meeting of the Governing Board of the Mountain Regional Water Special Service District adjourned at 5:30 p.m.

REGULAR MEETING

Chair Robinson called the regular meeting to order at 5:30 p.m.

- **Pledge of Allegiance**

Vice Chair Carson assumed the chair while Chair Robinson signed documents.

COUNCIL COMMENTS

Vice Chair Carson reported that she attended the Board of Health meeting on December 1, and they are happy with the budget overall except for the training item. They reviewed the environmental health fees, which will be scheduled for a public hearing and adoption in January. She reported that they are working with a number of other groups on suicide prevention training and are putting together a coalition of interested people. Council Member Ure stated that he would be interested in participating in the coalition.

APPROVAL OF COUNCIL MINUTES

OCTOBER 8, 2014

OCTOBER 26, 2014

OCTOBER 27, 2014

OCTOBER 29, 2014

NOVEMBER 17, 2014

NOVEMBER 18, 2014

NOVEMBER 24, 2014

Council Member Armstrong made a motion to approve the minutes of the October 8, October 26, October 27, October 29, November 17, November 18, and November 24, 2014, County Council meetings as written. The motion was seconded by Council Member McMullin and passed unanimously, 5 to 0. Council Member McMullin abstained from voting on the October 8 minutes, as she did not attend the October 8 meeting, and Council Members Robinson, Carson, and Ure abstained from voting on the November 18 minutes, as they did not attend the November 18 meeting.

MANAGER COMMENTS

There were no Manager comments.

Chair Robinson resumed the chair.

PUBLIC INPUT

Chair Robinson opened the public input.

There was no public input.

Chair Robinson closed the public input.

The County Council meeting adjourned at 6:00 p.m.

Council Chair, Chris Robinson

County Clerk, Kent Jones

MINUTES

SUMMIT COUNTY
BOARD OF COUNTY COUNCIL
TUESDAY, DECEMBER 9, 2014
SHELDON RICHINS BUILDING
PARK CITY, UTAH

PRESENT:

Chris Robinson, *Council Chair*
Kim Carson, *Council Vice-Chair*
Claudia McMullin, *Council Member*
David Ure, *Council Member*
Roger Armstrong, *Council Member*

Robert Jasper, *Manager*
Derrick Radke, *Public Works Director*
Leslie Crawford, *Engineer*
Kent Jones, *Clerk*

Chair Robinson called the Council to order at 4:00pm.

**PRESENTATION AND UPDATE REGARDING LONG RANGE TRANSPORTATION
PLAN FOR SNYDERVILLE BASIN**

The Council met with representatives from Fehr and Peers for an update regarding long range transportation for the Snyderville Basin. Also present were staff members from the Planning and Engineering departments along with Council Members from Wasatch County, Park City and County Planning Commissioners.

The following power point presentation was reviewed and questions posed by the Council were answered.

The Council will continue to discuss future options with staff members. No action was taken.

All other business being completed, the Council adjourned at 5:40pm.

Chris Robinson, Council Chair

Kent Jones, Clerk



STAFF REPORT

To: Summit County Council
From: Sean Lewis, County Planner
Date of Meeting: January 7, 2014
Type of Item: Special Exception - Public Hearing, Possible Action
Process: Legislative Review

Recommendation:

Staff recommends that the SCC consider the issues outlined in this report regarding the application and vote to approve a Special Exception to expand the list of permitted uses allowed in the Home Savings Bank SPA to include General Offices, Moderate Offices, Intensive Offices, and Medical/Dental Offices as defined the Snyderville Basin Development Code.

Project Description:

Project Name:	Home Savings Bank
Applicant(s):	Douglas Clyde, representing Home Savings Bank
Property Owner(s):	Home Savings Bank
Location:	4580 North Silver Springs Drive
Zone District:	Specially Planned Area (SPA) – Rural Residential (RR)
Parcel Number and Size:	HSBSPA-A, 0.83 acres
Type of Process:	Special Exception
Final Land Use Authority:	Summit County Council

Proposal:

The applicant is requesting a Special Exception to allow additional office uses to the Home Savings Bank Specially Planned Area (SPA) located on Silver Springs Drive east of SR-224 near the Blue Roof Market and Parleys Elementary School. Currently, the only uses that are permitted per the SPA zoning designation are “community banking services and commercial/business office space” uses that are “low intensity traffic generators”. Medical, dental, and clinic office uses are not permitted.

Vicinity Map:



Background:

The Home Savings Bank building was developed using the Specially Planned Area (SPA) rezone process, and was approved by the Board of County Commissioners via ordinances 428 & 429 (Exhibits A & B) in 2002. The associated SPA Development Agreement limited the uses on the property to “community banking services and commercial/business office space” activities. The Development Agreement expired in 2007; however, the SPA zoning and specified community banking services and commercial/business office space uses remain in effect. A current business license exists for the property (Turnbury Mortgage). The applicant seeks to expand the palette of potential uses for the property so as to expand the potential pool of appropriate lessors for the property.

Staff has discussed various options to accomplish this goal with the applicant. A rezone was considered, however, rezoning the property could allow uses on the property that may be undesirable to the surrounding neighborhood. The applicant and Staff agree that the Special Exception process would best allow the applicant the desired flexibility while maintaining the expectation of the public to limit potentially high impact, commercial uses in this location.

The applicant is requesting the following uses to be allowed on parcel HSBSPA-A, the descriptions include the application process that would be used per the Snyderville Basin Development Code as well as the current development code definition for each use:

Offices, general – Low Impact – A room or a suite of rooms or portion of a building used for the practice of a profession or for the conduct of a business that involves the accessory sale of goods from the premises. If the goods or merchandise are sold for delivery on or from the premises, and constitutes a portion greater than twenty percent (20%) of the gross revenue from the office, then the premises shall be considered a store.

Offices, intensive – Conditional Use – A business offering executive, administrative, professional or clerical services with a high level of client interaction and traffic generated; and/or a business which employs five (5) or more persons per one thousand (1,000) square feet of net leasable office space.

Offices, medical and dental – Low Impact – A building used exclusively by physicians, dentists, and similar personnel for the treatment and examination of patients solely on an outpatient basis, provided that no overnight patients shall be kept on the premises.

Offices, moderate – Low Impact – A business offering executive, administrative, professional or clerical services with a moderate level of client interaction and traffic generated.

As the development agreement has expired, the height and setback requirements of the surrounding Rural-Residential zone will be applied to the property. No changes to the building are proposed as part of this request.

Analysis and Findings:

The SCC may approve, approve with conditions, or deny a Special Exception based upon written findings of fact according to each of the following standards. It is the responsibility of the applicant to provide written and graphic evidence demonstrating compliance:

Standard 1: The special exception is not detrimental to the public health, safety and welfare;
COMPLIES

Analysis: The proposed expansion of uses would allow various office uses. Employees are on site during traditional business hours. Staff does not anticipate any non-mitigatable impacts related to traffic, parking, lighting, or noise as a result of the proposal. The Summit County Engineering office reports that most office uses would result in a net decrease in traffic from a bank/drive through use.

Standard 2: The intent of the development code and general plan will be met; **COMPLIES**

Analysis: The property has been used for commercial and office uses for the past 12 years with no reported neighborhood impacts or nuisances. The proposed uses are

traditionally less intensive than that of a bank with an associated drive-through. Staff contends that the proposed expanded offices uses can be administered through the Development Code and Engineering Department standards, including Low Impact and Conditional Use standards, to mitigate and minimize traffic, noise, and lighting impacts on the adjacent neighborhood.

Standard 3: The applicant does not reasonably qualify for any other equitable processes provided through the provisions of this title; **COMPLIES**

Analysis: The property owner considered amending the SPA zoning to address this issue, however, the Development Agreement has expired and Specially Planned Areas are no longer permitted outside of Town Centers. A rezone to another possible zoning designation was also considered; however, a rezone to Community Commercial, Service Commercial, or Neighborhood Commercial is inconsistent with the current General Plan and pending General Plan update. Given the fact that the Board of Adjustment cannot grant use variances, the remaining remedy for the property is to request a Special Exception.

Standard 4: There are equitable claims or unique circumstances warranting the special exception. **COMPLIES**

Analysis: The expiration of the development agreement renders the existing structure non-conforming to zoning regulations. The non-conforming status and inability to rezone the property creates a unique circumstance that warrants a Special Exception.

Recommendation:

Staff recommends that the SCC consider the issues outlined in this report regarding the application and vote to approve a Special Exception allow office uses as permitted in the Community Commercial Zoning District as found in Section 10-2-10 of the Snyderville Basin Development Code.

Findings of Fact:

1. Home Savings Bank is the listed fee title owner of Parcel HSBSPA-A.
2. Parcel HSBSPA-A is 0.83 acres in size.
3. Parcel HSBSPA-A is located at 4580 North Silver Springs Drive.
4. According to Summit County assessment records, a commercial building was erected on parcel HSBSPA-A in 2002, in compliance with the Development Agreement in effect at that time.
5. Parcel HSBSPA-A was rezoned to Specially Planned Area in 2002 via Summit County Ordinance 428.

6. The structure on Parcel HSBSPA-A is considered to be “legal non-conforming” as it was developed as part of a SPA Process and the accompanying development agreement that sets forth use and bulk regulations has now expired, per the five year sunset clause written into the agreement.
7. The adjacent uses are commercial, office, and institutional in nature.
8. The proposed uses are office in nature.
9. Per section 10-3-7 of the Snyderville Basin Development Code, “Where the county council finds that an applicant has a unique circumstance or equitable claim which makes strict enforcement of the provisions of this title unduly burdensome, it may, after a public hearing, approve special exceptions to the zoning provisions of this title so that substantial justice may be done and the public interest secured; provided that the special exception does not have the effect of nullifying the intent and purpose of [the Snyderville Basin Development Code] or any provision thereof.”
10. Height and setback requirements of the surrounding Rural-Residential zone will be applied to the property.
11. The proposed expansion of uses allows expanded office uses.
12. Staff does not anticipate any non-mitigatable impacts related to traffic, parking, lighting, or noise as a result of the proposal.
13. The property has been used for commercial and office uses for the past 12 years with no reported neighborhood impacts or nuisances.
14. A rezone to another possible zoning designation was also considered by Staff.
15. A rezone to Community Commercial, Service Commercial, or Neighborhood Commercial is inconsistent with the current General Plan and pending General Plan update.

Conclusions of Law:

1. The proposed allowance of uses to allow office uses as permitted in the Community Commercial Zoning District as found in Section 10-2-10 of the Snyderville Basin Development Code is not detrimental to the public health, safety, and welfare.
2. The applicant does not reasonably qualify to apply for a rezone of the property.
3. The proposed office uses are compatible with the surrounding commercial buildings.

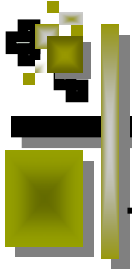
Public Notice, Meetings and Comments:

This item was noticed as a public hearing and possible action regarding a Special Exception in the December 27, 2014 issue of *The Park Record*. Postcard Courtesy notices were also mailed to property owners within 1,000 feet of parcel HSBSPA-A.

At the time of this report, Staff has received several inquiries from the public regarding this application. The inquiries have been curious as to what type of tenant is planning on moving into the building. Staff has explained that there is no current plan to change tenants in the building, as far as Staff is aware.

Attachments:

Exhibit A – Applicant Request Letter



DOUGLAS CLYDE
Mountain Resort Consulting Services, LLC

P.O. Box 561
5258 N. New Lane
Oakley, UT 84055

Project Description
Home Savings Bank Parcel
Special Exception Permit
October 4, 2014

Background

During the earlier years of the first enactment of the SPA zone within the Snyderville Basin Development Code (SBDC), SPAs could be applied for and granted within any geographical area within the limits of the SBDCs boundary.

This parcel was rezoned to a SPA with a DA in January of 2002. The DA contained provisions for an automatic expiration in five years from the date of adoption (see 8.4 Duration”), and options for additional five-year extensions. Subsequent to this SPA rezone and the adoption of the DA, the Land Development Code has limited the application of SPAs to the RC and TC zones. Development Agreements in general are similarly limited, so neither the Development Agreement (which has expired) nor the SPA zone (which remains in place) can be revised or replaced under the current SBDC.

The Property’s Uses

Because of this trifecta of conditions that are noted above, the Uses allowed on the property and the right to modify the building and site plan and the applicability of the current SBDC to the project is at best ambiguous. This ambiguity has made it difficult for the owner to propose a reuse of the property through redevelopment or sale to another party. The Uses that were stated for the site in the SPA and DA resulted from the following language where the DA stated that the County ...”*encouraged the Developer to employ innovative land planning concepts in the development of the Property in order to create a **commercial office project** which is consistent with the goals and objectives of the General Plan.*” (emphasis added). In response to this direction the Developer proposed project specific plans that were found to be consistent with these goals and objectives at the time the building was constructed as a branch office of Home Savings Bank. However, the DA gave no guidance as to how and under what criteria the site, building or Use could be modified in the future.

This is problematic, because Home Savings Bank has closed this branch and desires to facilitate an effective re-use of the project, which was narrowly constrained originally to serve as a bank office. Some prospective buyers of the project have approached County Staff for guidance as to the continued use, maintenance or redevelopment of the project, but have been unable to receive clear direction given the state of the expired DA and the inability to modify the SPA zone, clarify its meaning or determine the precise applicability of the SBDC. This uncertainty is understandable and, given the current conditions, there are limited avenues for Staff to bring clarity to these issues.

Exception being requested

In order to be maintained as a viable Use and Structure, the property would be best served by allowing it to be modified subject to the regulations on bulk, mass, architecture, setback and parking found in the Community Commercial Zone, which among other things, notes that its intent is to allow “existing commercial uses to remain”. While looking for clear understanding of regulations in bulk, mass, etc. as stated above, the Uses proposed are not requested to expand to all those found in the CC zone but be limited to those consistent with language in the SPA zone at the time of its creation. Specifically, the applicant requests an exception to allow Office uses including general, intensive, moderate, medical and dental offices, which are all uses that are appropriate for the Structure and which may be allowed with a Conditional Use Permit or Low-Impact Permit under the CC zone.

Need for a Special Exception and Criteria for Approval

Need for this Exception

As noted above the project is in a strange limbo in which it cannot fully avail itself of the general protection/rights afforded to similar uses under the SBDC in terms of bulk, mass, setbacks and other pertinent criteria that would normally be used to evaluate the proposed modification of an existing Structure or Use. In short the Use and Structure are somewhat strangely “frozen in time” due to the circumstances noted above.

Criteria for Approval

As described above the project meets the criteria for a Special Exception based on the following analysis:

1. **The Special Exception will not be detrimental to public health, safety and welfare.** The existing Use is not in conflict with the Code or the GP. The general use of commercial office space is one for which there is a continued and growing need within the County, and is similar to adjacent uses. There are no special circumstances that apply to this site that would render its existing use detrimental to the County as a whole or specifically with its respect to its given location. These uses are an integral part of the County land use policy and necessary to enact the goals and objective of the GP.

2. **Meet the intent of the SBDC and General Plan.** The Zoning for this use remains intact and has not been superseded by any rezone effort that would have done away with this or other similar SPAs. Both the SBDC and the GP encourage “commercial office use” as well as the general economic diversity of the County by allowing or encouraging a diversity of uses that are other than purely residential and those solely connected to the resort based economy. These uses include the commercial office uses that were initially contemplated at the time of this agreement.
3. **Special Circumstances.** The factors described above, including expiration of the DA that contemplated one narrow use for this property, and the restrictions on the availability of SPA zoning under the current SBDC, are the “special circumstances” that apply to this property and uniquely impact the options for this property to be modified as needed to evolve with the surrounding changing business environment within the County. While these “spot” spas were not uncommon, they are all unique and otherwise have no provisions within the current SBDC to allow for their orderly and reasonable reuse or adaptation due to the specific nature of their expired implementing agreements. No process under the SBDC, other than a special exception, exists to address this particular property and the challenges it faces for reuse.
4. **Qualification for Equitable Processes** (relief). The unique circumstances described above warrant the granting of a special exception. Without a special exception, the use of the property would be essentially limited to that in the DA without the benefit of the provisions of the DA that allows for reasonable modification of the Use or Structure making it impossible to respond to changes in the market that are otherwise allowed by the Code. The existing building is a relic of a bank use that now longer is viable. Potential purchasers or users of the property are unable to obtain any clear direction from the County as to what might be another acceptable use. The DA contemplated that there could be changes in use, so long as they were approved by the Planning Commission and County Council and documented with an amendment to the DA. This provided an avenue for relief to modify the building uses, but that avenue terminated with the DA and the applicant is left with no other recourse than to seek a Special Exception Permit.

Summit County Ordinance No. 826A

**A Land Use Regulation Amending Title 11,
Chapters 3 and 6 of the Summit County Code
relating to Hazardous Liquids or Materials Transmission Pipelines
and adopting Title 4, Chapter 6, Water Source Protection Zones**

PREAMBLE

WHEREAS, the Natural Gas Pipeline Safety Act of 1968, as amended, (NGPSA) authorizes the United States Department of Transportation (DOT) to regulate pipeline transportation of natural (flammable, toxic, or corrosive) gas and other gases, as well as the transportation and storage of liquefied natural gas (LNG); and the Hazardous Liquid Pipeline Safety Act of 1979, as amended, (HLPESA) authorizes DOT to regulate pipeline transportation of hazardous liquids (crude oil, petroleum products, anhydrous ammonia, and carbon dioxide), both of which are re-codified at 49 United States Code (U.S.C.) Chapter 601 and implemented at 49 Code of Federal Regulations (CFR) Parts 190 – 199; and,

WHEREAS, 49 U.S.C. 601 provides that the federal government is primarily responsible for developing, promulgating, and enforcing minimum uniform pipeline safety standards throughout the United States; and,

WHEREAS, 49 U.S.C. 60104(c) allows for an exemption from federal preemption where states assume regulatory, inspection, and enforcement responsibilities for intrastate pipelines, so long as the state participates in and is certified under the Federal/State Cooperative Gas and Hazardous Liquid Pipeline Safety Program in accordance with 49 U.S.C. 60105(a) (Certified Program); and,

WHEREAS, federal and state courts have determined that DOT exercises exclusive jurisdiction over safety standards regulating interstate transmission pipelines (Colorado Interstate Gas Co. v. Wright, 707 F.Supp.2d 1169 (D. Kansas 2010); Sneddon v. Torch Energy Services, Inc., 102 CalApp.4th 181, 125 Cal Rptr.2d 365 (2nd Dist 2002)); and,

WHEREAS, the majority of pipeline inspections in the nation are carried out by state inspectors who work for state agencies in accordance with the Certified Program; and,

WHEREAS, in circumstances where a state has a Certified Program, a state agency is responsible for conducting inspections of intrastate pipelines that lie entirely within a state's borders; and,

WHEREAS, the state of Utah is a participant in and has certification under the Certified Program for intrastate natural gas pipelines; and,

WHEREAS, the Liquid Integrity Management Rule and 49 CFR, Parts 195.0 – 195.12, Transportation of Hazardous Liquids by Pipelines, specifies how pipeline operators must identify, prioritize, assess, evaluate, repair and validate the integrity of hazardous liquid pipelines that could, in the event of a leak or failure, affect High Consequence Areas (HCAs) within the United States. HCAs include: population areas; areas containing drinking water and ecological resources that are unusually sensitive to environmental damage; and commercially navigable waterways; and,

WHEREAS, the Utah Public Service Commission’s Division of Public Utilities inspects, regulates and enforces intrastate gas pipeline safety requirements in accordance with R746-409, while the Office of Pipeline Safety (OPS), within the U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration (PHMSA) inspects, regulates and enforces interstate gas and liquid pipeline safety requirements; and,

WHEREAS, 49 U.S.C. §60104(e) “does not authorize the Secretary of Transportation to prescribe the location or routing of a pipeline facility,” instead leaving such subject to state and local regulation (See Washington Gas Light Company v. Prince George’s County Council, 711 F.3d 412, 422 (4th Cir. 2013); and,

WHEREAS, the HLPSA does not define “safety standard” within the federal statute; and,

WHEREAS, the protection from potential hazards is the primary purpose of regulatory standards; and,

WHEREAS, safety hazards are distinguished from environmental hazards, in that the latter generally relate to environmental health and substances which cause disease (29 CFR 1910.1200(c)); and,

WHEREAS, “[t]he Supreme Court has cautioned . . . that the presence of an express pre-emption clause in a federal statute does not immediately end the inquiry because the question of the substance and scope of Congress’ displacement of state law still remains. Indeed, when courts are called upon to address questions of express or implied pre-emption, the analysis always begins with the assumption that the historic police powers of the States [are] not to be superseded by the Federal Act unless that was the clear and manifest purpose of Congress (Island Park, LLC v. CSX Transportation and Consolidated Rail Corporation, 559 F.3d 96, 101 (2nd Cir. 2009) (citations omitted)); and,

WHEREAS, UCA §17-50-302(1)(a)(ii) expressly authorizes counties to “provide a service, exercise a power, or perform a function that is reasonably related to the safety, health, morals, and welfare of county inhabitants, except as limited or prohibited by statute;” and,

WHEREAS, since the Utah Public Service Commission has not promulgated rules concerning intrastate Hazardous Liquid Pipelines, the County is not pre-empted from enacting zoning regulations which regulate land uses, setbacks, environmental hazards (such as, water quality, watershed protection, jurisdictional wetlands, ridgeline protection, revegetation of

disturbed areas, wildlife habitat and fisheries), as well as aesthetics with respect to intrastate pipelines by either state or federal law (Washington Gas Light Co. v. Prince George's County Council, 711 F.3d 412 (4th Cir. 2013); Texas Midstream Gas Services, LLC v. City of Grand Prairie, 608 F.3d 200 (5th Cir. 2010); ANR Pipeline Company v. Iowa State Commerce Commission, 828 F.2d 465 (8th Cir. 1987)); and,

WHEREAS, pursuant to that certain letter from Jeffrey D. Wiese, Associate Administrator, U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, to TransCanada Corporation, dated May 28, 2014, local governments are authorized to regulate excavation, adjacent land uses, setbacks, and emergency response plans for both inter and intrastate pipelines; and,

WHEREAS, in accordance with Utah Administrative Code, R309-600 (Source Protection: Drinking Water Source Protection for Ground-Water Sources), R309-605 (Source Protection: Drinking Water Source Protection for Surface Water Sources), that certain Weber Basin Water Conservancy District Drinking Water Source Protection Plan (August 2001; July 2014), and that certain DWSP for the Provo River Basin Watershed (2013) (together, the "Water Source Protection Zones"), one thousand (1,000) foot water source protection zones have been established for the Weber River, the Provo River, and their tributaries; and,

WHEREAS, the County has engaged SWCA Environmental Consultants to perform environmental modeling of a pipeline failure with respect to the water sources within Summit County; and,

WHEREAS, the "Pipeline Spill Model Report"(SWCA, November 2014) ("Spill Analysis"), provides that the spill distance for a worst case analysis on a crude oil spill of 2,000 barrels on lands with a grade between 0% and 5% falls within a general range of 700 – 3,000 feet; and,

WHEREAS, a setback of 1,000 feet from water sources is consistent with both the Water Source Protection Zones and the Spill Analysis; and,

WHEREAS, in accordance with UCA §19-4-113(1), the Summit County Council has (a) considered Utah Administrative Code, R309-600 and R309-605, (b) consulted with Weber Basin Water Conservancy District, a wholesale water supplier, and Mountain Regional Water Special Service District, a retail water supplier, both of whom have drinking water source within Summit County, (c) considered the effect of any proposed source protection ordinance on agriculture production, manufacturing operations, industrial operations, and mining operations, and (d) held a public hearing on January 7, 2015, in accordance with the Utah Open and Public Meetings Act as set forth herein; and,

WHEREAS, UCA §19-4-113(3) & (4) provide statutory authority to designate drinking water source protection zones and regulate through zoning "the storage, handling, use or production of a hazardous or toxic substance," within those zones; and,

WHEREAS, pre-existing Summit County regulations regarding natural resources and infrastructure design and maintenance are applicable to Hazardous Liquids or Materials Transmission Pipelines, and were established to “protect the county’s rural, agricultural, small town character and lifestyle,” as well as to “protect the natural resources and ecology and environment,” while “facilitate[ing] the efficient use of the land” (Summit County Code §11-2-1); and,

WHEREAS, the Eastern Summit County Planning Commission held a lawfully noticed public hearing with respect to Hazardous Liquids or Materials Transmission Pipelines on November 20, 2014 and December 18, 2014, and thereafter forwarded a negative recommendation on such to the Summit County Council on December 18, 2014; and,

WHEREAS, the Summit County Council held a lawfully noticed public hearing with respect to Hazardous Liquids or Materials Transmission Pipelines and water source protection zones on January 7, 2015; and,

WHEREAS, conditions on permits issued pursuant to these regulations constitute “standard costs” within the meaning of UCA §54-14-103(c); and,

WHEREAS, it is in the best interests of Summit County to provide for standards and guidelines for intrastate Hazardous Liquid Pipelines located in the County so as to protect the public health and welfare of its residents;

NOW, THEREFORE, the County Council of the County of Summit, State of Utah, ordains as follows:

Section 1. **Adoption of Water Source Protection Zones** Title 4, Chapter 6, Water Source Protection Zones, is adopted in accordance with Exhibit A herein.

Section 2. **Adoption of Land Use Regulations.** The Amendments to Title 11, Chapter 6, Hazardous Liquids or Materials Transmission Pipeline, and the Use Table, Title 11, Chapter 3, are adopted in accordance with Exhibit B herein.

Section 3. **Severability.** If any provision of this ordinance or the application of any such provision thereunder to any person or circumstance, shall be held invalid by a court of competent jurisdiction, the remainder of the ordinance or the application of such provision thereunder to persons or circumstances other than those as to which it is held invalid, shall not be affected thereby.

Section 4. **Repealer.** Ordinance 826 is hereby repealed in its entirety.

Section 5. **Effective Date.** This Ordinance shall take effect fifteen (15) days after publication.

Enacted this _____ day of _____, 2015.

ATTEST:

SUMMIT COUNTY COUNCIL

Kent Jones
Summit County Clerk

Kim Carson, Chair

APPROVED AS TO FORM

David L. Thomas
Chief Civil Deputy

VOTING OF COUNTY COUNCIL:

Councilmember Carson	_____
Councilmember Robinson	_____
Councilmember Ure	_____
Councilmember Armstrong	_____
Councilmember McMullin	_____

EXHIBIT A

TITLE 11

EASTERN SUMMIT COUNTY DEVELOPMENT CODE

11-3-14

A.

Permitted Uses	AP	AG-100	AG-160	CA	HC	C	LI	I	
Hazardous Liquids or Materials Transmission Pipelines	C	C	C	C	C	C	C	C	Section 11-6-19

Telecommunication Facilities - Stealth	A	A	A	A	A	A	A	A	Section 11-6-7
Underground transmission lines exceeding 6" inches in diameter that are not considered Hazardous Liquids or Materials Transmission Pipelines as defined in Section 11-6-19 of this Title	L	L	L	L	L	L	L	L	
Underground transmission lines 6" or less in diameter such as, but not limited to transmission lines for natural gas, water, sewer, telephone, power, etc.	A	A	A	A	A	A	A	A	
Utility structures and related facilities	C	L	L	C	C	C	L	L	Section 11-6-6

11-6-19: HAZARDOUS LIQUIDS OR MATERIALS TRANSMISSION PIPELINES:

- A. Purpose: The purpose of this section is to mitigate the aesthetic and environmental impacts while minimizing potential damage to essential public

facilities from Hazardous Liquids or Materials Transmission Pipelines by:

1. Minimizing the likelihood of inadvertent or accidental damage from and to Hazardous Liquids or Materials Transmission Pipelines due to external forces, such as construction activity, by ensuring early communication between those developing property and Hazardous Liquids or Materials Transmission Pipeline Operators.
2. Minimizing the risk of injury or damage to essential public facilities in the event of a Hazardous Liquids or Materials Transmission Pipeline failure.
3. Mitigating potential adverse aesthetic impacts from the siting, construction, operation, and maintenance of a Hazardous Liquids or Materials Transmission Pipeline.
4. Ensuring adequate protection of the environment in the event of a Hazardous Liquids or Materials Transmission Pipeline failure.
5. Ensuring there is adequate protection of existing Hazardous Liquids or Materials Transmission Pipelines from damage.
6. Limiting the exposure of land uses with on-site populations that are difficult to evacuate, as well as land uses that serve emergency functions from the effects of a pipeline failure.
7. Supplementing existing federal and state regulations related to Transmission Pipeline Corridor management.

B. **Applicability:** Regulations in this section apply to all proposed pipelines. Applications to install Hazardous Liquids or Materials Transmission Pipelines shall be processed as Conditional Uses in all zone districts. To the extent any regulations within this section conflict with state or federal regulations or laws regulating Hazardous Liquids or Materials Transmission Pipelines, those state or federal regulations and laws shall take precedence over these regulations. The County adopts by reference the definitions set forth in the Hazardous Liquid Pipeline Safety Act of 1979, as amended, and re-codified in 49 USC 601 and 49 CFR 190-199.

C. **Definitions:**

1. **Essential Public Facilities** means those public facilities which are required in order to provide basic health and safety services to residents and visitors of Summit County, including water treatment plants, sewer treatment plants, water storage facilities, telecommunication towers, police stations, fire stations, and emergency operations centers.

2. **Hazardous Liquids or Materials** means any hazardous or toxic waste, substance or material, including petroleum, petroleum products, and anhydrous ammonia as defined by the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C.A. Section 9601, et seq.; the Hazardous Materials Transportation Act, 49 U.S.C.A. Section 5101, et seq.; the Resource Conservation and Recovery Act, 42 U.S.C.A. Section 6901, et seq.; the Toxic Substances Control Act, 15 U.S.C.A. Section 2601, et seq.; the Federal Water Pollution Control Act, 33 U.S.C.A. Section 1251, et seq.; the Hazardous Liquid Pipeline Safety Act, 49 U.S.C.A. Section 60101, et. seq.; the Utah Safe Drinking Water Act, Utah Code Ann. §19-4-101, et. seq.; the Utah Water Quality Act, Utah Code Ann. §19-5-101, et. seq.; the Utah Solid & Hazardous Waste Act, Utah Code Ann. §19-6-101, et. seq., 49 CFR 195.2, and any successor State or Federal environmental laws which define hazardous substances. Hazardous Material shall include Hazardous Liquids as defined by 49 CFR Part 195.2, but shall not include natural gas, including liquefied natural gas.
3. **Hazardous Liquids or Materials Transmission Pipeline or Transmission Pipeline** means a pipeline, whether above or below ground, which transports or is designed to transport Hazardous Liquids or Materials. As used herein, a Transmission Pipeline includes all parts of those physical facilities through which hazardous material moves in transportation, including pipes, valves, and other appurtenances attached to pipes, compressor units, pumping stations, metering stations, regulator stations, delivery stations, holders, breakout tanks, fabricated assemblies, and other surface pipeline appurtenances. A Hazardous Liquids or Materials Transmission Pipeline includes a Hazardous Liquid Pipeline as defined in 13-1-2.
4. **High Consequence Land Use** means a land use that if located in the vicinity of a Hazardous Materials Transmission Pipeline represents an unusually high risk to life in the event of a Transmission Pipeline failure due to the characteristics of the inhabitants or functions of the use. High Consequence Land Uses include:
 - a. Commercial Child Care;
 - b. Houses of Worship, including churches and other religious institutions;
 - c. Hospitals;
 - d. Residential Care Facilities;
 - e. Institutional Uses including private schools and public or quasi-public buildings; and

f. Essential Public Facilities.

5. **Hazardous Liquids or Materials Transmission Pipeline Corridor or Transmission Pipeline Corridor** means the pipeline pathway defined by rights-of-way and easements in which the pipelines and facilities of a Hazardous Liquids or Materials Transmission Pipeline are located, including rights-of-way and easements over and through public or private property.
6. **Source Protection Zone** means the water source protection zones as set forth in Title 4, Chapter 6.
7. **Transmission Pipeline Operator** means the company or person responsible for the operation, maintenance and management of the Transmission Pipeline.
8. **Quasi-Public Buildings** means buildings that are open to the general public.
9. **Jurisdictional Wetlands** means an area delineated and approved as a wetland by the United States Army Corps of Engineers consistent with UCA §17-27-a-520.
10. **Man-Made or Natural Reservoir** means a natural or artificial water body where water is collected and stored for use.

D. Development Standards for the Construction of new Hazardous Liquids or Materials Transmission Pipelines:

1. Hazardous Liquids or Materials Transmission Pipeline Corridor: A fifty (50) foot easement or right-of-way (or such other widths as shall be approved and accepted by the Director and County Engineer for any given property along the course of the Transmission Pipeline, based upon individual topographical and/or site condition requirements) shall be recorded in the office of the County Recorder for all new Hazardous Liquids or Materials Transmission Pipelines.
2. In order to mitigate the aesthetic and environmental impacts of Hazardous Liquids or Materials Transmission Pipelines, while minimizing potential damage to Essential Public Facilities caused by Transmission Pipelines, the following setbacks shall be observed:
 - a. Except as set forth in 11-6-19(D)(3) or unless approved by the County Engineer as part of the conditional use permit process, where adequate mitigation measures have been demonstrated by the applicant, Hazardous Liquids or Materials Transmission

Pipeline Corridors shall not be located closer than one thousand (1,000) feet from (i) the Weber River and its tributaries, as set forth in the established Source Protection Zone, and/or (ii) the Provo River and its tributaries, as set forth in the established Source Protection Zone, and/or (iii) any man-made or natural reservoir along the Weber River.

- b. Except as set forth in 11-6-19(D)(3), Hazardous Liquids or Materials Transmission Pipelines shall not be located closer than one hundred (100) feet from (i) any Jurisdictional Wetland and (ii) any year round naturally occurring creek, stream, river, private or public well, or pond, unless approved by the County Engineer as part of the Conditional Use Permit process where adequate mitigation measures have been demonstrated by the applicant.
 - c. An above ground Hazardous Liquids or Materials Transmission Pipeline facility or appurtenance shall not be located closer than one thousand (1,000) feet from any High Consequence Land Use structure or Essential Public Facility structure, unless otherwise approved by the County Engineer based upon independent modeling.
3. Crossings of jurisdictional wetlands, year round naturally occurring creeks, streams, ponds, the Weber River and its tributaries, the Provo River and its tributaries, or man-made or natural reservoirs along the Weber River may be allowed as part of the conditional use permit process, on the following basis:
- a. Open cut trench excavation of jurisdictional wetlands, and year round naturally occurring creeks, streams, rivers or ponds (except for the Weber River, the Provo River, and natural or man-made reservoirs along the Weber River) based upon the best engineering practices is permitted at the discretion of the County Engineer. However, if in the opinion of the County Engineer, circumstances warrant, horizontal directional drilling or jack and bore construction methods as set forth in 11-6-19(D)(3)(b) may be required.
 - b. Crossing of the Weber River, the Provo River, or natural or man-made reservoirs along the Weber River, unless otherwise approved by the County Engineer, shall be by horizontal directional drilling or jack and bore construction methods. Jack and bore sending and receiving pits must be located outside of the ten (10) year frequency storm limits and/or the required clearance distances from the thalweg, whichever is greater, and must have the approval of the FEMA Floodplain Administrator if within the 1% chance annual

floodplain (100-year storm). Directional drilling pits shall be constructed well beyond the top of the bank. A soils engineering report and/or engineering geology report may be required at the discretion of the County Engineer. Armoring of the pipeline may be required as determined by hydraulic modeling and approved by the County Engineer. The consultant designing the crossing shall assure proper depth of utility to prevent exposure from localized scouring caused by improvements in the stream corridor. Applicant shall coordinate with the local Floodplain Administrator to determine appropriate scour protection depths. Pipeline minimum depth is ten (10) feet under channel grade to the top of the pipeline.

- c. County Engineer shall review the engineering spill analysis and associated hydraulic reports and may require additional isolation valves immediately adjacent to both sides of Jurisdictional Wetlands, year round naturally occurring creeks, streams, rivers, ponds, the Weber River, the Provo River, or man-made or natural reservoir crossings in order to minimize spills or leaks.
4. Every effort shall be made so that pipeline related equipment enclosures and other structures shall be appropriately designed to mitigate their visual impact on the natural environment. This may include stealth design techniques and/or other visual screening methods as approved by the Director.
5. Unless otherwise modified by this section, all criteria set forth in 11-2-4 (Natural Resources) and 11-2-5 (County Infrastructure, Facilities, and Services) shall apply to Hazardous Liquids or Materials Transmission Pipelines.
 - a. In the event that it becomes necessary for a Hazardous Liquids or Materials Transmission Pipeline to traverse a hillside or natural grade slope of greater than thirty percent (30%), adequate mitigation shall be required to ensure the alignment is sensitively sited so as to encourage stabilization of the disturbed slopes, minimize excavation, and the conservation of the natural appearance and grade of the hillside. The Transmission Pipeline alignment shall be integrated into the site, using topography, vegetation and other reasonable techniques, in a manner that causes it to blend into the hillside.
- E. Hazardous Liquids or Materials Transmission Pipeline Corridor Protection: No significant land disturbance or construction or expansion of structures is allowed within the Hazardous Liquids or Materials Transmission Pipeline Corridor without the express written consent of the Transmission Pipeline Operator.

EXHIBIT B

TITLE 4
CHAPTER 6
WATER SOURCE PROTECTION ZONES

SECTION:

4-6-1: Adoption of Water Source Protection Zones:

4-6-2: Regulation:

4-6-3: Enforcement:

4-6-1: ADOPTION OF WATER SOURCE PROTECTION ZONES:

- A. The "Water Source Protection Zones" as identified in the following Drinking Water Source Protection Plans, as such as amended from time to time ("DWSPP"), are incorporated herein and adopted by this reference: that certain Weber Basin Water Conservancy District DWSPP (August 2001; July 2014); the DWSPP for the Provo River Basin Watershed (2013); and any other DWSPP for the protection of drinking water sources within Summit County on file with the Utah Division of Drinking Water.

4-6-2: REGULATION:

- A. Zoning regulations pertaining to Water Source Protection Zones shall be as set forth in Title 10 and Title 11.
- B. Engineering regulations pertaining to Water Source Protection Zones shall be as set forth in Title 13.

4-6-3: ENFORCEMENT:

- A. In the event of a violation of this chapter where the County affirmatively elects not to pursue an enforcement action, the County shall provide written notification to all retail water suppliers and/or wholesale water

suppliers within the Water Source Protection Zones of the County's election not to pursue enforcement action. Such notification shall be delivered within ten (10) calendar days of when the violation was first discovered by the County. Such notification shall have the effect of conferring judicial standing upon any retail water supplier and/or wholesale water supplier within the Water Source Protection Zones to seek enforcement of this chapter in the Third District Court in and for Summit County.

- B. In the event of a violation of this chapter where (i) the County affirmatively elects not to pursue an enforcement action, and (ii) the violation may cause irreparable harm to the groundwater or surface water source, the County shall provide written notification to all retail water suppliers and/or wholesale water suppliers within the Water Source Protection Zones of the County's election not to pursue enforcement action. Such notification shall be delivered within two (2) calendar days of when the violation was first discovered by the County. Such notification shall have the effect of conferring judicial standing upon any retail water supplier and/or wholesale water supplier within the Water Source Protection Zones to seek enforcement of this chapter in the Third District Court in and for Summit County.

Summit County Ordinance No. 827A

**A Land Use Regulation Amending Title 10,
Chapters 2 and 8 of the Summit County Code
relating to Hazardous Liquids or Materials Transmission Pipelines**

PREAMBLE

WHEREAS, the Natural Gas Pipeline Safety Act of 1968, as amended, (NGPSA) authorizes the United States Department of Transportation (DOT) to regulate pipeline transportation of natural (flammable, toxic, or corrosive) gas and other gases, as well as the transportation and storage of liquefied natural gas (LNG); and the Hazardous Liquid Pipeline Safety Act of 1979, as amended, (HLPSA) authorizes DOT to regulate pipeline transportation of hazardous liquids (crude oil, petroleum products, anhydrous ammonia, and carbon dioxide), both of which are re-codified at 49 United States Code (U.S.C.) Chapter 601 and implemented at 49 Code of Federal Regulations (CFR) Parts 190 – 199; and,

WHEREAS, 49 U.S.C. 601 provides that the federal government is primarily responsible for developing, promulgating, and enforcing minimum uniform pipeline safety standards throughout the United States; and,

WHEREAS, 49 U.S.C. 60104(c) allows for an exemption from federal preemption where states assume regulatory, inspection, and enforcement responsibilities for intrastate pipelines, so long as the state participates in and is certified under the Federal/State Cooperative Gas and Hazardous Liquid Pipeline Safety Program in accordance with 49 U.S.C. 60105(a) (Certified Program); and,

WHEREAS, federal and state courts have determined that DOT exercises exclusive jurisdiction over safety standards regulating interstate transmission pipelines (Colorado Interstate Gas Co. v. Wright, 707 F.Supp.2d 1169 (D. Kansas 2010); Sneddon v. Torch Energy Services, Inc., 102 CalApp.4th 181, 125 Cal Rptr.2d 365 (2nd Dist 2002)); and,

WHEREAS, the majority of pipeline inspections in the nation are carried out by state inspectors who work for state agencies in accordance with the Certified Program; and,

WHEREAS, in circumstances where a state has a Certified Program, a state agency is responsible for conducting inspections of intrastate pipelines that lie entirely within a state's borders; and,

WHEREAS, the state of Utah is a participant in and has certification under the Certified Program for intrastate natural gas pipelines; and,

WHEREAS, the Liquid Integrity Management Rule and 49 CFR, Parts 195.0 – 195.12, Transportation of Hazardous Liquids by Pipelines, specifies how pipeline operators must

identify, prioritize, assess, evaluate, repair and validate the integrity of hazardous liquid pipelines that could, in the event of a leak or failure, affect High Consequence Areas (HCAs) within the United States. HCAs include: population areas; areas containing drinking water and ecological resources that are unusually sensitive to environmental damage; and commercially navigable waterways; and,

WHEREAS, the Utah Public Service Commission’s Division of Public Utilities inspects, regulates and enforces intrastate gas pipeline safety requirements in accordance with R746-409, while the Office of Pipeline Safety (OPS), within the U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration (PHMSA) inspects, regulates and enforces interstate gas and liquid pipeline safety requirements; and,

WHEREAS, 49 U.S.C. §60104(e) “does not authorize the Secretary of Transportation to prescribe the location or routing of a pipeline facility,” instead leaving such subject to state and local regulation (See Washington Gas Light Company v. Prince George’s County Council, 711 F.3d 412, 422 (4th Cir. 2013); and,

WHEREAS, the HLPESA does not define “safety standard” within the federal statute; and,

WHEREAS, the protection from potential hazards is the primary purpose of regulatory standards; and,

WHEREAS, safety hazards are distinguished from environmental hazards, in that the latter generally relate to environmental health and substances which cause disease (29 CFR 1910.1200(c)); and,

WHEREAS, “[t]he Supreme Court has cautioned . . . that the presence of an express pre-emption clause in a federal statute does not immediately end the inquiry because the question of the substance and scope of Congress’ displacement of state law still remains. Indeed, when courts are called upon to address questions of express or implied pre-emption, the analysis always begins with the assumption that the historic police powers of the States [are] not to be superseded by the Federal Act unless that was the clear and manifest purpose of Congress (Island Park, LLC v. CSX Transportation and Consolidated Rail Corporation, 559 F.3d 96, 101 (2nd Cir. 2009) (citations omitted); and,

WHEREAS, UCA §17-50-302(1)(a)(ii) expressly authorizes County’s to “provide a service, exercise a power, or perform a function that is reasonably related to the safety, health, morals, and welfare of county inhabitants, except as limited or prohibited by statute;” and,

WHEREAS, since the Utah Public Service Commission has not promulgated rules concerning intrastate Hazardous Liquid Pipelines, the County is not pre-empted from enacting zoning regulations which regulate land uses, setbacks, environmental hazards (such as, water quality, watershed protection, jurisdictional wetlands, ridgeline protection, revegetation of disturbed areas, wildlife habitat and fisheries), as well as aesthetics with respect to intrastate pipelines by either state or federal law (Washington Gas Light Co. v. Prince George’s County

Council, 711 F.3d 412 (4th Cir. 2013); Texas Midstream Gas Services, LLC v. City of Grand Prairie, 608 F.3d 200 (5th Cir. 2010); ANR Pipeline Company v. Iowa State Commerce Commission, 828 F.2d 465 (8th Cir. 1987)); and,

WHEREAS, pursuant to that certain letter from Jeffrey D. Wiese, Associate Administrator, U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, to TransCanada Corporation, dated May 28, 2014, local governments are authorized to regulate excavation, adjacent land uses, setbacks, and emergency response plans for both inter and intrastate pipelines; and,

WHEREAS, East Canyon Creek, which runs through the Snyderville Basin, has been delineated since 1992 by the State of Utah under the Clean Water Act (303d listing) as an impaired water body (East Canyon Reservoir and East Canyon Creek TMDL Study (May 2010)) requiring protection from contaminants; and,

WHEREAS, pre-existing Summit County regulations regarding the environment are applicable to Hazardous Liquids or Materials Transmission Pipelines, and were established to “ensure that the quality and character of all development undertaken in the Snyderville Basin will be compatible with the mountain environment and the resort natural of the area,” while “protect[ing] the environmentally sensitive nature of the land” (Summit County Code §10-1-1(D)); and,

WHEREAS, the Snyderville Basin Planning Commission held a lawfully noticed public hearing with respect to Hazardous Liquids or Materials Transmission Pipelines on November 18, 2014 and December 16, 2014, and thereafter forwarded a positive recommendation on such to the Summit County Council on December 16, 2014; and,

WHEREAS, the Summit County Council held a lawfully noticed public hearing with respect to Hazardous Liquids or Materials Transmission Pipelines on January 7, 2015; and,

WHEREAS, conditions on permits issued pursuant to these regulations constitute “standard costs” within the meaning of UCA §54-14-103(c); and,

WHEREAS, it is in the best interests of Summit County to provide for standards and guidelines for intrastate Hazardous Liquid Pipelines located in the County so as to protect the public health and welfare of its residents;

NOW, THEREFORE, the County Council of the County of Summit, State of Utah, ordains as follows:

Section 1. Adoption of Land Use Regulations. The Amendments to Title 10, Chapter 8, Hazardous Liquids or Materials Transmission Pipeline, and the Use Table, Title 10, Chapter 2, are adopted in accordance with Exhibit A herein.

Section 2. **Severability.** If any provision of this ordinance or the application of any such provision thereunder to any person or circumstance, shall be held invalid by a court of competent jurisdiction, the remainder of the ordinance or the application of such provision thereunder to persons or circumstances other than those as to which it is held invalid, shall not be affected thereby.

Section 3. **Repealer.** Ordinance 827 is hereby repealed in its entirety.

Section 4. **Effective Date.** This Ordinance shall take effect fifteen (15) days after publication.

Enacted this ____ day of _____, 2015.

ATTEST:

SUMMIT COUNTY COUNCIL

Kent Jones
Summit County Clerk

Kim Carson, Chair

APPROVED AS TO FORM

David L. Thomas
Chief Civil Deputy

VOTING OF COUNTY COUNCIL:

Councilmember Carson _____
Councilmember Robinson _____
Councilmember Ure _____
Councilmember Armstrong _____
Councilmember McMullin _____

EXHIBIT A

TITLE 10

SNYDERVILLE BASIN DEVELOPMENT CODE

10-2-10

A.

Hazardous Liquids or Materials Transmission Pipelines	C	C	C	C	C	C	C	C	Section 10-8-3
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10-8-13 : HAZARDOUS LIQUIDS OR MATERIALS TRANSMISSION PIPELINES:

- A. Purpose: The purpose of this section is to mitigate the aesthetic and environmental impacts while minimizing potential damage to essential public facilities from Hazardous Liquids or Materials Transmission Pipelines by:
1. Minimizing the likelihood of inadvertent or accidental damage from and to Hazardous Liquids or Materials Transmission Pipelines due to external forces, such as construction activity, by ensuring early communication between those developing property and Hazardous Liquids or Materials Transmission Pipeline Operators.
 2. Minimizing the risk of injury or damage to essential public facilities in the event of a Hazardous Liquids or Materials Transmission Pipeline failure.
 3. Mitigating potential adverse aesthetic impacts from the siting, construction, operation, and maintenance of a Hazardous Liquids or Materials Transmission Pipeline.
 4. Ensuring adequate protection of the environment in the event of a Hazardous Liquids or Materials Transmission Pipeline failure.
 5. Ensuring there is adequate protection of existing Hazardous Liquids or Materials Transmission Pipelines from damage.
 6. Limiting the exposure of land uses with on-site populations that are difficult to evacuate, as well as land uses that serve emergency functions from the effects of a pipeline failure.
 7. Supplementing existing federal and state regulations related to

Transmission Pipeline Corridor management.

- B. **Applicability:** Regulations in this section apply to all proposed pipelines. Applications to install Hazardous Liquids or Materials Transmission Pipelines shall be processed as Conditional Uses in all zone districts. To the extent any regulations within this section conflict with state or federal regulations or laws regulating Hazardous Liquids or Materials Transmission Pipelines, those state or federal regulations and laws shall take precedence over these regulations. The County adopts by reference the definitions set forth in the Hazardous Liquid Pipeline Safety Act of 1979, as amended, and re-codified in 49 USC 601 and 49 CFR 190-199.
- C. **Definitions:**
1. **Essential Public Facilities** means those public facilities which are required in order to provide basic health and safety services to residents and visitors of Summit County, including water treatment plants, sewer treatment plants, water storage facilities, telecommunication towers, police stations, fire stations, and emergency operations centers.
 2. **Hazardous Liquids or Materials** means any hazardous or toxic waste, substance or material, including petroleum, petroleum products, and anhydrous ammonia as defined by the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C.A. Section 9601, et seq.; the Hazardous Materials Transportation Act, 49 U.S.C.A. Section 5101, et seq.; the Resource Conservation and Recovery Act, 42 U.S.C.A. Section 6901, et seq.; the Toxic Substances Control Act, 15 U.S.C.A. Section 2601, et seq.; the Federal Water Pollution Control Act, 33 U.S.C.A. Section 1251, et seq.; the Hazardous Liquid Pipeline Safety Act, 49 U.S.C.A. Section 60101, et. seq.; the Utah Safe Drinking Water Act, Utah Code Ann. §19-4-101, et. seq.; the Utah Water Quality Act, Utah Code Ann. §19-5-101, et. seq.; the Utah Solid & Hazardous Waste Act, Utah Code Ann. §19-6-101, et. seq., 49 CFR 195.2, and any successor State or Federal environmental laws which define hazardous substances. Hazardous Material shall include Hazardous Liquids as defined by 49 CFR Part 195.2, but shall not include natural gas, including liquefied natural gas.
 3. **Hazardous Liquids or Materials Transmission Pipeline or Transmission Pipeline** means a pipeline, whether above or below ground, which transports or is designed to transport Hazardous Liquids or Materials. As used herein, a Transmission Pipeline includes all parts of those physical facilities through which hazardous material moves in transportation, including pipes, valves, and other appurtenances attached to pipes, compressor units, pumping stations, metering stations, regulator stations, delivery stations, holders, breakout tanks, fabricated assemblies, and

other surface pipeline appurtenances. A Hazardous Liquids or Materials Transmission Pipeline includes a Hazardous Liquid Pipeline as defined in 13-1-2.

4. **High Consequence Land Use** means a land use that if located in the vicinity of a Hazardous Materials Transmission Pipeline represents an unusually high risk to life in the event of a Transmission Pipeline failure due to the characteristics of the inhabitants or functions of the use. High Consequence Land Uses include:
 - a. Commercial Child Care;
 - b. Houses of Worship, including churches and other religious institutions;
 - c. Hospitals;
 - d. Residential Care Facilities;
 - e. Institutional Uses including private schools and public or quasi-public buildings; and
 - f. Essential Public Facilities.
5. **Hazardous Liquids or Materials Transmission Pipeline Corridor or Transmission Pipeline Corridor** means the pipeline pathway defined by rights-of-way and easements in which the pipelines and facilities of a Hazardous Liquids or Materials Transmission Pipeline are located, including rights-of-way and easements over and through public or private property.
6. **Source Protection Zone** means the water source protection zones as set forth in Title 4, Chapter 6.
7. **Transmission Pipeline Operator** means the company or person responsible for the operation, maintenance and management of the Transmission Pipeline.
8. **Quasi-Public Buildings** means buildings that are open to the general public.
9. **Jurisdictional Wetlands** means an area delineated and approved as a wetland by the United States Army Corps of Engineers consistent with UCA §17-27-a-520.
10. **Man-Made or Natural Reservoir** means a natural or artificial water body

where water is collected and stored for use.

- D. Development Standards for the Construction of new Hazardous Liquids or Materials Transmission Pipelines:
1. Hazardous Liquids or Materials Transmission Pipeline Corridor: A fifty (50) foot easement or right-of-way (or such other widths as shall be approved and accepted by the Director and County Engineer for any given property along the course of the Transmission Pipeline, based upon individual topographical and/or site condition requirements) shall be recorded in the office of the Summit County Recorder for all new Hazardous Liquids or Materials Transmission Pipelines.
 2. In order to mitigate the aesthetic and environmental impacts of Hazardous Liquids or Materials Transmission Pipelines, while minimizing potential damage to Essential Public Facilities caused by Transmission Pipelines, the following setbacks shall be observed:
 - a. Except as set forth in 10-8-13(D)(3) or unless approved by the County Engineer as part of the conditional use permit process, where adequate mitigation measures have been demonstrated by the applicant, Hazardous Liquids or Materials Transmission Pipeline Corridors shall not be located closer than one thousand (1,000) feet from (i) East Canyon Creek and any other water sources as set forth in the established Source Protection Zone, and/or (ii) any man-made or natural reservoir.
 - b. Except as set forth in 10-8-13(D)(3), Hazardous Liquids or Materials Transmission Pipelines shall not be located closer than one hundred (100) feet from (i) any jurisdictional wetland and (ii) any year round naturally occurring creek, stream, river, private or public well, or pond unless approved by the County Engineer as part of the conditional use permit process where adequate mitigation measures have been demonstrated by the applicant.
 - c. An above ground Hazardous Liquids or Materials Transmission Pipeline facility or appurtenance shall not be located closer than one thousand (1,000) feet from any High Consequence Land Use structure or Essential Public Facility structure, unless otherwise approved by the County Engineer based upon independent modeling.
 3. Crossings of jurisdictional wetlands, year round naturally occurring creeks, streams, ponds, East Canyon Creek and any other water sources as set forth in the established Source Protection Zone, or man-made or

natural reservoirs may be allowed as part of the conditional use permit process, on the following basis:

- a. Open cut trench excavation of jurisdictional wetlands, and year round naturally occurring creeks, streams, rivers or ponds (except for the East Canyon Creek, Weber River, the Provo River, and natural or man-made reservoirs along the Weber River) based upon the best engineering practices is permitted at the discretion of the County Engineer. However, if in the opinion of the County Engineer, circumstances warrant, horizontal directional drilling or jack and bore construction methods as set forth in 10-8-13(D)(3)(b) may be required.
 - b. Crossing of East Canyon Creek and any other water sources as set forth in the established Source Protection Zone or natural or man-made reservoirs along the Weber River, unless otherwise approved by the County Engineer, shall be by horizontal directional drilling or jack and bore construction methods. Jack and bore sending and receiving pits must be located outside of the ten (10) year frequency storm limits and/or the required clearance distances from the thalweg, whichever is greater, and must have the approval of the FEMA Floodplain Administrator if within the 1% chance annual floodplain (100-year storm). Directional drilling pits shall be constructed well beyond the top of the bank. A soils engineering report and/or engineering geology report may be required at the discretion of the County Engineer. Armoring of the pipeline may be required as determined by hydraulic modeling and approved by the County Engineer. The consultant designing the crossing shall assure proper depth of utility to prevent exposure from localized scouring caused by improvements in the stream corridor. Applicant shall coordinate with the local Floodplain Administrator to determine appropriate scour protection depths. Pipeline minimum depth is ten (10) feet under channel grade to the top of the pipeline.
 - c. County Engineer shall review the engineering spill analysis and associated hydraulic reports and may require additional isolation valves immediately adjacent to both sides of Jurisdictional Wetlands, year round naturally occurring creeks, streams, ponds, rivers, East Canyon Creek and any other water sources as set forth in the established Source Protection Zone, or man-made or natural reservoir crossings in order to minimize spills or leaks.
4. Every effort shall be made so that pipeline related equipment enclosures and other structures are appropriately designed to mitigate their visual impact on the natural environment. This may include the incorporation of

stealth design techniques and/or other visual screening methods as approved by the Director.

5. Unless otherwise modified by this section, all criteria set forth in 10-4-2 (Environmental Criteria) and 10-4-3 (Critical Lands) shall apply to Hazardous Liquids or Materials Transmission Pipelines.

a. In the event that it becomes necessary for a Hazardous Liquids or Materials Transmission Pipeline to traverse a hillside or natural grade slope of greater than thirty percent (30%), adequate mitigation shall be required to ensure the alignment is sensitively sited so as to encourage stabilization of the disturbed slopes, minimize excavation, and the conservation of the natural appearance and grade of the hillside. The Transmission Pipeline alignment shall be integrated into the site, using topography, vegetation and other reasonable techniques, in a manner that causes it to blend into the hillside.

E. Hazardous Liquids or Materials Transmission Pipeline Corridor Protection: No significant land disturbance or construction or expansion of structures is allowed within the Hazardous Liquids or Materials Transmission Pipeline Corridor without the express written consent of the Transmission Pipeline Operator.



Utah Department of Environmental Quality
 Division of Water Quality
 TMDL Section

East Canyon Creek TMDL

Waterbody ID	East Canyon Creek
Hydrologic Unit Code	16020102
Location	Summit & Morgan Counties, Northern Utah
Pollutants of Concern	Total Phosphorus Dissolved Oxygen
Impaired Beneficial Uses	Class 3A: Protected for cold water species of game fish and other cold water aquatic life
Average Concentrations of Total Phosphorus (Aug. - Sept.) Current Concentration TMDL Target Concentration Concentration Reduction	Above Res. 0.12 mg/l Above Res. 0.05 mg/l .07 mg/l (58% reduction)
Defined Targets/Endpoints	- 0.04 mg/l Total Phosphorus in stream concentration above the WWTP - .05 mg/l Total phosphorus concentration in stream below WWTP. - Dissolved Oxygen at or above Utah Standards - Macrophyte Growth limited to less than 50% - Periphyton (to be developed)
Implementation Strategy	WWTP Plant Upgrade and nonpoint source BMP's

**Total Maximum Daily Load
for
East Canyon Creek**

**Utah Department of Environmental Quality
Division of Water Quality**

Final April 1, 2000

INTRODUCTION

The upper East Canyon watershed is located in north central Utah approximately 20 miles east of Salt Lake City (see fig. 2). The watershed drains 144 square miles of mountainous terrain on the eastern slope of the Wasatch Mountains. The elevation of the watershed ranges from over 10,000 feet in the southern end to approximately 5,600 feet at the reservoir. East Canyon Creek is the principal drainage flowing to the north into the East Canyon Reservoir. The principal drainage channel of the upper part of the watershed in the area of Park City is made up of McLeod Creek which turns into Kimball Creek and subsequently joins East Canyon Creek near the intersection of Interstate 80 and Kimball Creek.

Climate & Streamflow - Average annual precipitation in the watershed ranges from 44 inches in the southern highest elevations to approximately 19 inches in the lower portion of the watershed adjacent to the reservoir (Brooks and others 1998). Approximately 65 to 75% of the annual precipitation occurs during the winter months principally in the form of snow. Streamflows generally peak during the snow melt between March and June. Summer stream flows are mostly derived from ground water discharges.

Water Quality Impairments - The East Canyon Creek from the East Canyon Reservoir to the headwaters is listed on Utah's 1998 303d list of impaired water bodies. The specific pollutants or stressors are total phosphorus and dissolved oxygen. This segment of the creek has been on the 303d list since 1992 for the same reasons. This waterbody is included in the "high priority" group for Utah's impaired waters in the 1998 list and thus requires a Total Maximum Daily Load (TMDL) plan to restore beneficial uses and water quality standards.

Portions of this watershed are undergoing explosive growth and development over the last decade. The population has increase over 52% from 1980 to 1990 (Brooks 1998). Growth from 1990 to present appears to be at even a greater rate, particularly in light of preparations for the 2002 winter Olympics. Park City will host several venues for these Olympic games.

Statement of Intent - This TMDL will address the water quality impairments for the East Canyon Creek for dissolved oxygen and total phosphorus and is submitted to the Environmental Protection Agency in accord with the requirements of section 303d(1) of the Clean Water Act.

WATER QUALITY STANDARDS & IMPAIRMENTS

The Utah Division of Water Quality (DWQ) has classified significant waterbodies in Utah in order to assure protection of beneficial uses as follows:

Table 1: Utah Water Quality Classifications/Beneficial Uses

Class 1	Class 1C: Protected for uses as a raw water source for domestic water systems
Class 2	<u>Recreational and Aesthetic Use</u>
	Class 2A: Protected for primary contact recreation such as swimming.
	Class 2B: Protected for secondary contact recreation such as boating, wading, or similar uses.
Class 3	<u>Protected for use by aquatic wildlife.</u>
	Class 3A: Protected for cold water species of game fish and other cold water aquatic life, including the necessary aquatic organisms in their food chain.
	Class 3B: Protected for warm water species of game fish and other warm water aquatic life, including the necessary aquatic organisms in their food chain.
	Class 3C: Protected for non- game fish and other aquatic life, including the necessary aquatic organisms in their food chain.
	Class 3D: Protected for waterfowl, shore birds and other water-oriented wildlife not included in Classes 3A, 3B, or 3C, including the necessary aquatic organisms in their food chain.
	Class 3E: Severely habitat-limited waters. Narrative standards will be applied to protect these waters for aquatic wildlife.
Class 4	Protected for agricultural uses including irrigation of crops and stock watering.
Class 5	The Great Salt Lake. Protected for primary and secondary contact recreation, aquatic wildlife, and mineral extraction.

East Canyon Creek has been classified with beneficial uses of 1C, 2B, 3A and 4

In addition, Utah DWQ has promulgated state rules that define acceptable water quality in “Standards of Quality for Waters of the State” (Utah Administrative Code R317-2). The applicable standards of focus for this TMDL for East Canyon Creek are noted in Table 2.

Table 2. Water Quality Standards Impaired in East Canyon Creek

Parameter (units are mg/l)	Class 3A Cold Water Fisheries
Total Phosphorus * (mg/l)	.05 (stream) .025 (lake)
Dissolved Oxygen (mg/l)	6.5 (30 day Avg.) 9.5/5.0 (7 day Avg.) 8.0/4.0 (1 day Avg.)

*Total Phosphorus is a pollution indicator that is considered along with other corroborating parameters in order to determine if impairment exists

East Canyon Creek from the reservoir to the headwaters has been listed on Utah's 303d list for total phosphorus and dissolved oxygen. It is the position of DWQ that the dissolved oxygen problem is caused for the most part by excessive nutrients, principally phosphorus, in the water column. This segment of the creek was first listed on the 1992 303d list for nutrients. Dissolved Oxygen was added to the impairments for this segment of the creek on the 1998 303d list.

Water Quality monitoring at several stations along East Canyon Creek and upstream main stem tributaries has been ongoing since 1980. The period of record selected for this TMDL is from January 1, 1993 to September 30, 1999. This period is reflective of more recent water quality for the creek and is concurrent with the most recent growth pattern of this area. The data set is comprised principally of data collected through the Division of Water Quality sampling program. Some of the more recent samples have been collected by the Snyderville Basin Sewer Improvement District and BIO/WEST Inc. (a consultant for DWQ). Except for samples collected in the spring of 1999 by SBSID, all of the laboratory analysis has been conducted by the Utah State Laboratory. Figure A is a map of the watershed that includes sampling stations included in the monitoring program.

Total Phosphorus - Data for total phosphorus at stations 519, 523, 525, and 526 are shown in time series plots in Figures 1-4. While concentrations of total phosphorus below the East Canyon Waste Water Treatment Plant are significantly above the Utah water quality indicator value of 0.05 mg/l, stations above the plant also exhibit values above this indicator. This supports the 303d listing of the creek from the reservoir to the headwaters.

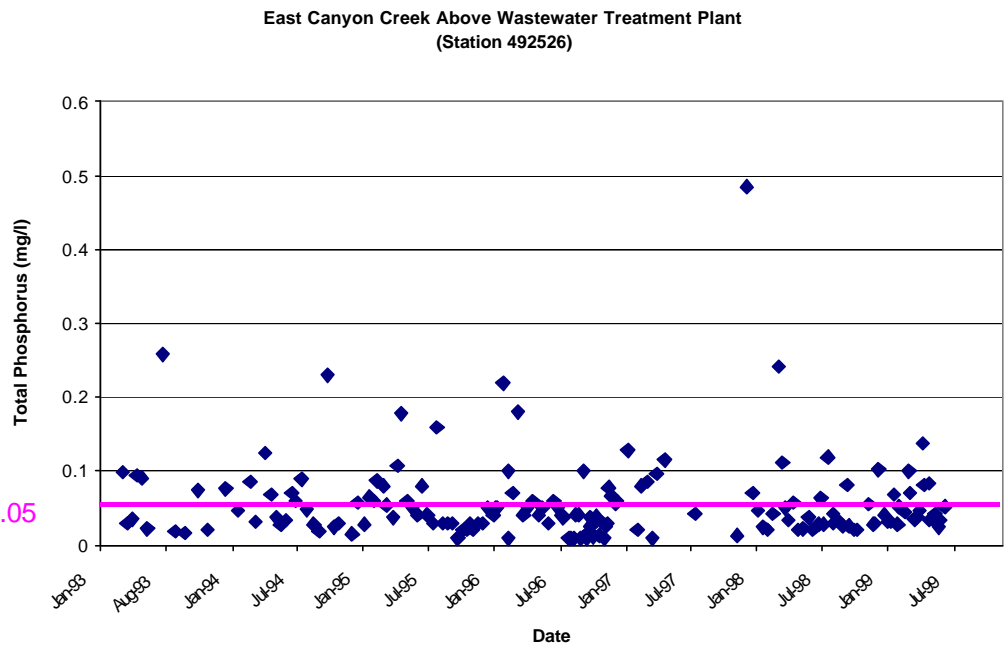


Figure 1. Total Phosphorus Concentration Above WWTP

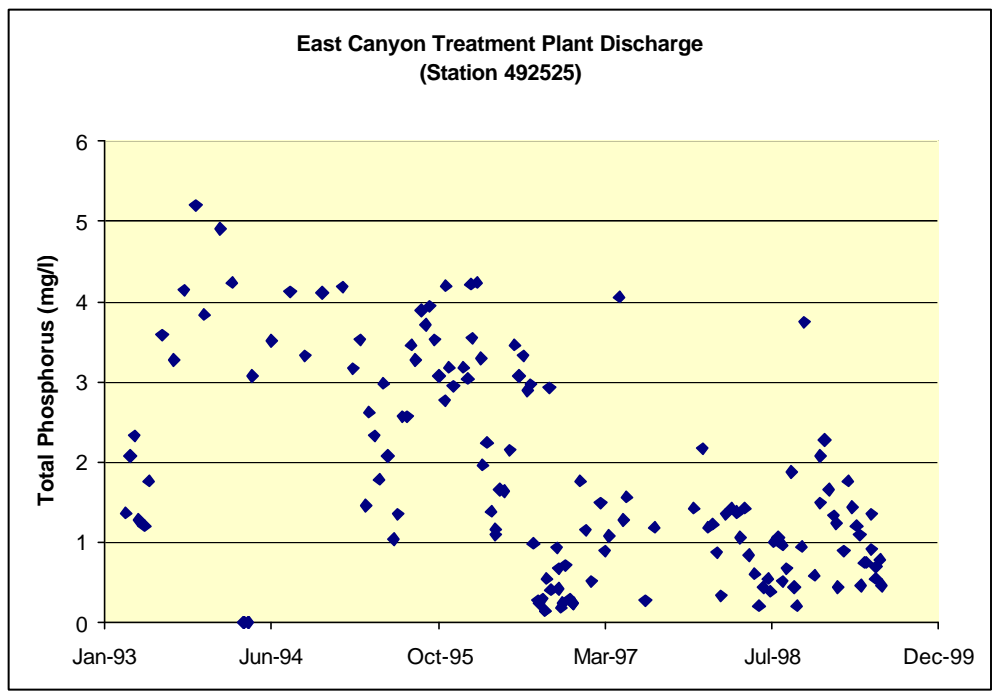


Figure 2. Total Phosphorus Concentrations from WWTP Discharges

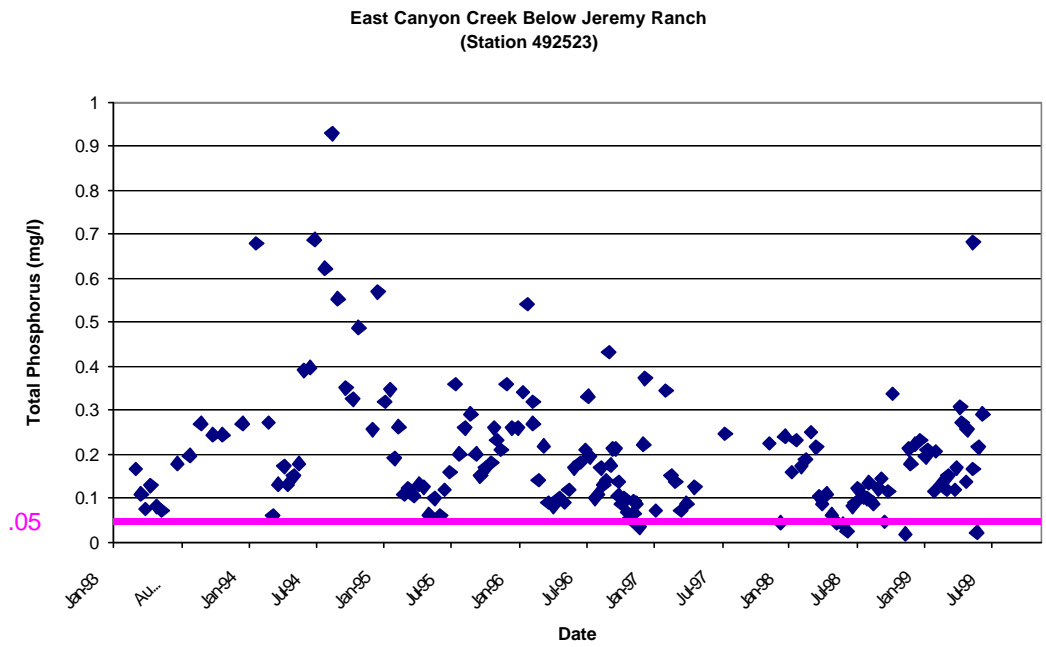


Figure 3. Total Phosphorus Concentration Below WWTP

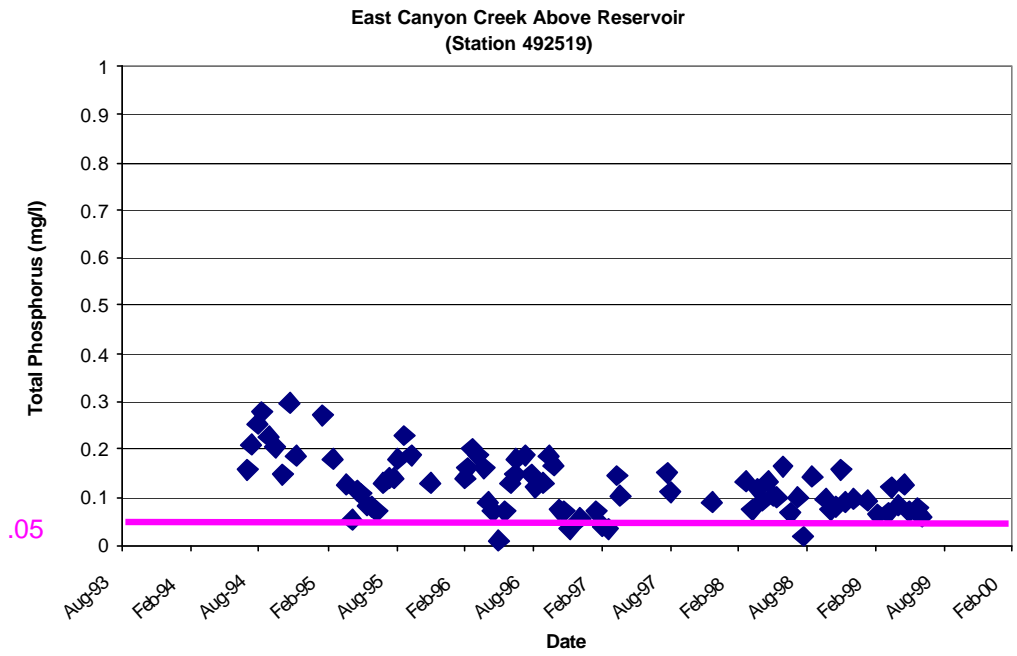


Figure 4. Total Phosphorus Concentrations above East Canyon Reservoir

Dissolved oxygen - Dissolved oxygen data for the period of record is routinely collected during daylight hours and thus does not reflect the diurnal sag believed to be present during baseflow summertime stress periods. A diurnal DO study was undertaken in August of 1996 to assess night time DO levels. Figure 5 shows DO sags over a nine day period in two locations; above the WWTP and at the USGS gaging station near Big Bear Hollow. This lower location is over 2 miles below the plant and should reflect influences from the WWTP, Jeremy Ranch Development & golf course, as well as tributaries such as Toll Creek. This information supports a dissolved oxygen impairment in the creek during the low flow summer season.

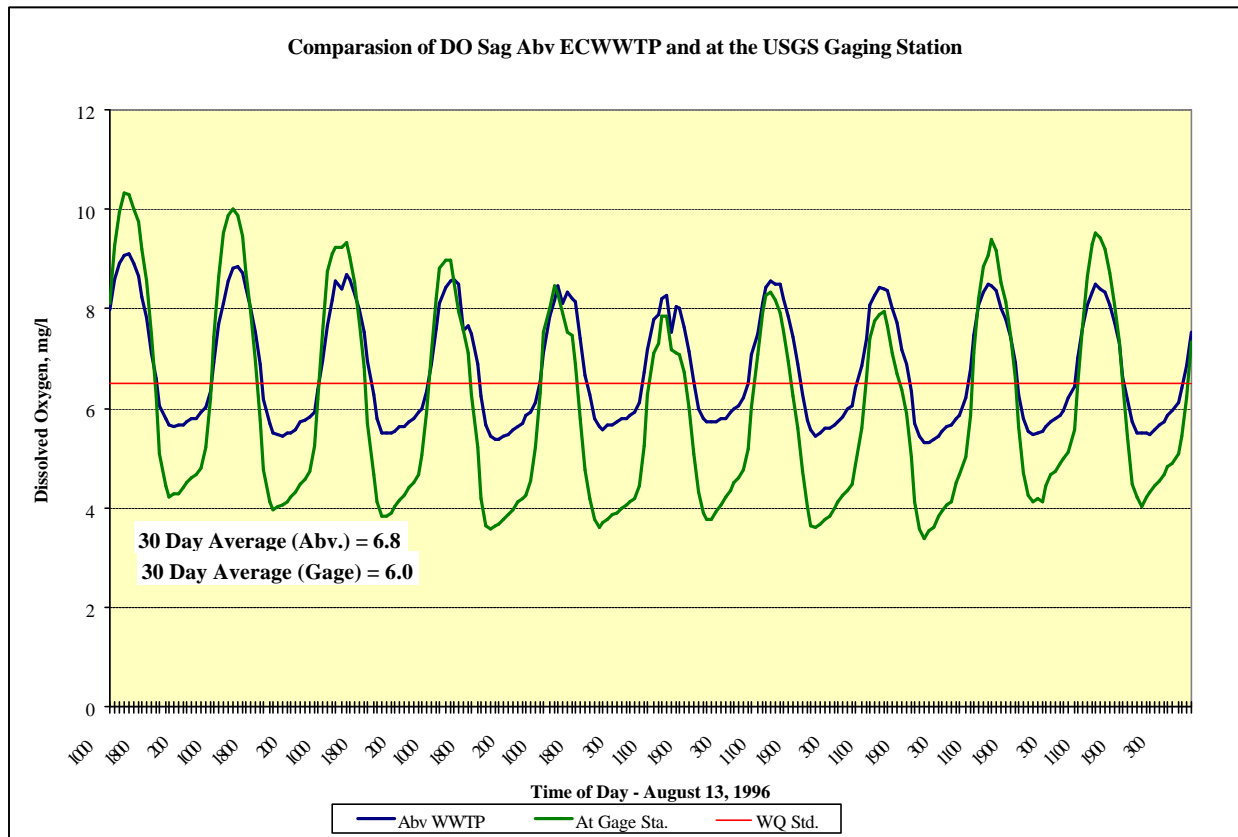


Figure 5. Dissolved Oxygen Sag Above and 3 miles below the East Canyon WWTP, Aug. 1996

The diurnal dissolved oxygen data set will need to be augmented to provide specificity as to the full extent of this impairment along the stream corridor.

Sediment - Although the primary focus of this TMDL is on phosphorus, the available data suggests that the stream channel in many places is impacted by increased deposits of finer grade materials that provides a rooting medium for macrophyte growth and is typically associated with phosphorus that is sorbed onto the sediment. EPA notes that phosphorus is primarily transported in surface runoff with eroded sediments (EPA 1999). Initial storm flow sampling in the upper East Canyon Watershed in the fall of 1999 revealed some stations where concentrations of total phosphorus were

0.3 mg/l Total Nitrogen

-Tulatin River, Oregon 0.07 mg/l Total Phosphorus (monthly mean May - Oct.)

The report also includes a brief literature review of studies completed on the issue of phosphorus endpoints in stream systems. Based on this report's findings, 0.05 mg/l is a reasonable endpoint that is supported by findings in other locations. However, as will be discussed later in this report, the assimilative capacity of East Canyon Creek to handle nutrient loads should be better understood after some of the implementation measures contained in this TMDL are completed. At that time a more refined endpoint regarding total phosphorus can be adopted for this TMDL.

The measurement of D.O. must occur when worst case conditions exist since a very short period of time where D.O. values fall below state standards can determine the biological health of a system for the remainder of the year. An example of this is if D.O. levels become toxic for fish during the warm low flow period of July and August, fish populations could be diminished or eliminated for the remainder of the year. Diurnal D.O. measurements must be the basis for assessing progress towards restoring the beneficial uses of East Canyon Creek.

The supplemental endpoints that will be used for measuring success in the East Canyon Creek TMDL will be macrophyte and periphyton growth. This approach is a reasonable indicator of several of the other endpoints including phosphorus, dissolved oxygen, and channel conditions. The BIO/WEST NPS (Olsen & Stamp 2000) study indicated that high macrophyte densities appeared to be associated with poor channel conditions. An endpoint for periphyton needs to be investigated and developed. The endpoint for periphyton will more accurately represent the relationship between nutrient availability and biological productivity in the stream.

Table 3. East Canyon TMDL Endpoints

East Canyon Creek TMDL Endpoints	
Total Phosphorus	0.05 mg/l (30 day average)
Dissolved Oxygen	6.5 (30 day Avg.) 9.5/5.0 (7 day Avg.) 8.0/4.0 (1 day Avg.)
Macrophyte Growth	25 to 50% density (coverage)
Periphyton	To be developed

SIGNIFICANT SOURCES

The summer low flow season of August and September is the critical season for the creek system. The rationale for this season of interest is detailed further in the “Technical Analysis” section of this document. Accordingly, the creek TMDL focuses on concentrations and biological activity during this period rather than on total annual loads of pollutants of interest. A total annual load assessment which takes into account the entire year is used for the East Canyon Reservoir TMDL.

Total Phosphorus -Table 4 shows the average concentration of total phosphorus for four stations on East Canyon Creek along with average flow estimates to portray the relative proportion of total phosphorus contributions along points of interest on the creek. It should be noted that the flow estimates are derived using average flow data over 1991 through 1996 extrapolated from USGS gage data above Big Bear Hollow. Concentrations of total phosphorus are calculated from DWQ sampling results for 1996 through 1999. The range for calculating average phosphorus values was selected based on the installation of a biological treatment process at the East Canyon WWTP in July 1996. The concentrations of total phosphorus in the effluent from the East Canyon WWTP were significantly reduced following installation of this process. Accordingly, the most accurate way to evaluate the creek system is after July 1996.

The concentration of total phosphorus at station 526 above the WWTP was evaluated for the period 1993 through 1995. Concentrations of total phosphorus were slightly higher during this interval at 0.05 mg/l compared to 1996 through 1999 time period. The data in Table 4 indicates that the treatment plant provides the largest portion of total phosphorus to the system during the low flow season. It should be noted that this assessment does not include an accurate accounting of the impact and resulting phosphorus contributions from rainfall events that can occur during this time period.

Table 4. Average Total Phosphorus Concentrations and flows Aug. - Sept., 1996-1999

Station	526 Above WWTP	525 East Cyn. WWTP	523 Below Jeremy Ranch	519 Above East Cyn. Res.
Average Total Phos. (mg/l)	0.04	0.97	0.22	0.12
Standard Deviation	0.02	0.85	0.13	0.04
Number of Samples	18	18	18	12
Maximum Value Observed	0.12	2.96	0.52	0.19
Minimum Value Observed	0.02	0.14	0.09	0.02

Average Flow Estimate (cfs)	8	2.6	9	17.5
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Based on storm event sampling conducted by BIO/WEST in the fall of 1999, significant loads from rainfall events are likely. This suggests that the contribution of total phosphorus loads from nonpoint sources could be more significant than the current data set indicates. Future sampling will need to address this aspect, however none of the conclusions of this TMDL would be significantly altered by this factor for the stream TMDL. Both nonpoint sources and point sources must be addressed by this TMDL to restore beneficial uses in the creek. Assuming future storm event sampling demonstrates significant loads occur during storms, the BMP's included in the implementation portion of this TMDL would not likely be different. A more detailed discussion of nonpoint sources is contained in the BIO/WEST NPS report.

Dissolved Oxygen - The diurnal data set for dissolved oxygen (D.O.) is limited, however analysis above the East Canyon Treatment Plant and at a point over two miles below the plant during August 1996 does show periods of several hours each day where dissolved oxygen levels fall below state standards. This phenomenon would either stress or prove fatal to biota sensitive to dissolved oxygen such as salmonid fish and their food chain. Figure 5 illustrates the D.O sag observed at these two sites. As noted previously in this document, the D.O. data set will need to be augmented with multiple sampling sites to ascertain the sources of D.O. sag.

TECHNICAL ANALYSIS

The impairments identified with East Canyon Creek are primarily expressed in excessive biological activity. Specifically, periphyton and macrophyte growth during the optimal growing season results in dissolved oxygen levels falling below state standards during the night when these organisms are actually consuming oxygen rather than producing it as occurs during daytime photosynthetic activity. The low dissolved oxygen levels impair other biological communities such as fish and benthic macro-invertebrates along with reducing habitat and inhibiting movement. The relationship between excessive biological activity and levels of nutrients available is documented in the literature. In this TMDL, one of the primary focuses is on total phosphorus as a source component to the indications of excessive biological activity. However, DWQ reserves the right to further refine this analysis in the future if the need arises. This may involve additional linkage analysis to identify any other parameters that may be contributing to the impairments identified in this TMDL.

Seasonality - The impairments observed in East Canyon Creek are exhibited seasonally, occurring when day length affords sufficient light inputs, when temperatures in the stream are at their maximum, and when flows are at their minimums. Intuitively, this would be in the summer months. Analysis of temperature data, typical flows, and day length shows that August and September are the

months when optimal conditions for excessive biological activity occur, specifically, periphyton and macrophyte growth. At other times of the year day length and temperature constraints do not allow for as much biological growth. Accordingly, this TMDL analysis will focus on August and September as the critical season with the understanding that if impairments are addressed in the critical season, other parts of the year should not present impairment problems as far as the creek is concerned.

Average August concentrations of total phosphorus are shown in Table 4 for monitoring stations 526, 525, 523 and 519.

The station below Jeremy Ranch is sufficiently far below the discharge of the WWTP that good mixing is achieved by the time flows reach this station. It is notable that the average concentration of total phosphorus from the WWTP was substantially reduced through the implementation of biological treatment that was implemented in July 1996. It is also important to note that East Canyon Creek runs through the Jeremy Ranch Golf Course which lies between station 525 and station 523 below the WWTP. Thus impacts from the golf course and tributaries such as Toll Creek would be reflected in samples from station 523.

Growth - The upper portion of the East Canyon Watershed has experienced explosive growth over the last 5 to 10 years. Projections for growth compiled by the Mountainlands Association of Governments show projected population growth from the years 2000 to 2020 for the Park City area of 52% (6,750 to 10,246 residents). The Snyderville Basin area outside Park City boundaries is not specifically noted in the growth projections available. However, the same projections show unincorporated portions of Summit County growing 103% between the years 2000 to 2020. From the Jeremy Ranch area downstream to the East Canyon Reservoir (over half of the watershed) little growth is presently occurring. The land use information compiled in the NPS study performed by BIO/WEST shows virtually all of the lower portion of the watershed as forested and semi-active agriculture. Most of the lower watershed is contained in Morgan County. Growth projections for Morgan County compiled by Wasatch Front Regional Council between 2000 and 2020 show projections of around 50%. However, the majority of this growth will most likely occur below the East Canyon Reservoir, indicating that the growth rate of the lower half of the watershed between the Snyderville Basin and the reservoir will be quite modest. Using a population weighted average for Park City (52% growth rate) and the Snyderville Basin (103% growth rate) and not factoring in the much smaller growth rates expected for the lower watershed, a growth rate of 80% will be used for purposes of this TMDL. This growth rate is expected to be somewhat overestimated for the overall watershed and is consistent with use of conservative assumptions to allow for a margin of safety in TMDL calculations.

The estimation of overall growth incorporates the assumption that future land disturbing activities will be in proportion with population growth. Several high profile projects are either under construction or are planned for construction over the next several years. These include a proposed

pipeline project to bring water back up into the Snyderville Basin from East Canyon Reservoir, 2002 Olympics related venues, road construction projects, as well as recreational sites such as golf courses. Careful focus will need to be given to these higher profile projects to assure that impacts to water quality is minimal. Coordination with the Snyderville Basin Planning Commission to assure that new projects include comprehensive stormwater controls for both the construction and operation phases must be undertaken to assure that the cumulative impacts of these projects does not erode the assumptions used for growth or the margin of safety set aside for uncertainty. In addition, DWQ will need to utilize all provisions of the UPDES Stormwater program to assure projects implement needed controls and design to minimize water quality impacts.

East Canyon WWTP Growth - The Snyderville Basin Sewer Improvement District East Canyon Wastewater Treatment Plant annual discharges are presently just under 2 MGD average annual flow. The final build-out of the plant has not been officially determined. The current expansion design for the plant is for 4 MGD with ultimate build out at 8 MGD. Projected growth of the plant indicates the 8 MGD capacity could be reached close to the year 2020. Growth of plant discharges from the current 2 MGD capacity to 8 MGD capacity would be a growth rate in excess of 100% which is higher than population growth projections for this area. The actual flows that are processed by the plant are controlled by several factors not directly tied to population growth. The capacity of the plant is affected by the number of nonresident recreational visitors to this area. There are two plants operated by SBSID for this area. The flows from portions of the upper watershed can be directed to either plant. Water rights restrictions dealing with transfer of waters to another basin may also determine the ultimate build out for the WWTP. Further, August flows during the critical season for this TMDL will range from about 70 to 80% of plant capacity.

Simple Mixing Model - A simple flow weighted mixing calculation was used to evaluate the critical season conditions and establish what the effluent limit for the WWTP would need to be to produce an in stream value of Total Phosphorus below the plant discharge after mixing under a variety of scenarios. The inputs used are shown in the following table.

Table 6. Mixing Calculation Inputs and Variables

Model Inputs/Outputs	Concentration of Total Phos.	Flow
Station 526 (upstream of WWTP)	Average Aug. concentration varied from 0.03 to 0.06 mg/l	3.5 cfs (2.26 MGD) or 8 cfs (5.2 MGD)
East Canyon WWTP Discharge	Derived from model	Varied from 1 to 9 MGD
Creek downstream of WWTP after mixing	Fixed at 0.05 mg/l or 0.07 mg/l	Sum of upstream flow and WWTP discharge

The rationale for average August concentration of upstream phosphorus values evaluated are:

0.03 mg/l is the current value (0.04 mg/l) reduced by 25% to reflect implementation of BMPs to address nonpoint source inputs.

0.04 mg/l is the current value of upstream total phosphorus concentration assuming no action is taken.

0.05 mg/l reflects the current concentration with a 25% reduction of nonpoint sources and an 80% growth factor.

0.06 mg/l is derived from the 0.05 conditions but with a 100% growth factor instead of 80%.

Two upstream flow conditions were analyzed. The **3.5 cfs** value is from the 7Q10 flow rate used in the latest DWQ waste load analysis for the East Canyon WWTP UPDES permit. This value reflects a worst case scenario assuming toxic parameters are discharged into the creek. The **8 cfs** value reflects the average low flow from USGS gage data for 1991 through 1996 for August through September.

The two endpoints evaluated of 0.05 and 0.07 mg/l were selected to reflect the current DWQ water quality advisory value for total phosphorus (0.05 mg/l) and the higher value (0.07 mg/l) to reflect an optimistic perspective that stream enhancements with shading, stream bank stabilization, decreased width to depth ratios could increase the creek assimilative capacity to handle nutrient inputs.

The following simple diagram illustrates the conceptual set up of the model. Essentially, if the outcomes of the concentration for the stream following mixing are fixed at the endpoint selected for total phosphorus and the upstream flow and concentration are known then the concentration of the effluent required to achieve the downstream endpoints is a simple mathematical calculation.

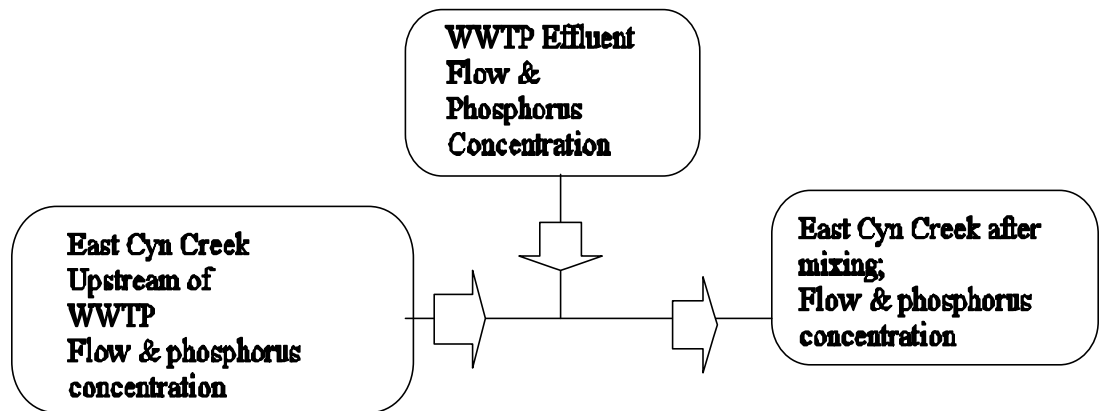


Figure 7. Conceptual Simple Flow Weighted Calculation for East Canyon Creek

To illustrate this approach, the calculations using the following inputs were completed.

Upstream flow	3.5 cfs
Upstream total phosphorus	0.03 mg/l
WWTP flow	Varied from 1 to 9 MGD
Downstream flow	3.5 cfs + WWTP flow
Downstream total phosphorus	0.05 mg/l

A plot of the model outputs for these conditions (Figure 8) shows the result of this scenario. For any given WWTP output (located on the horizontal axis), the required concentration of total phosphorus in the WWTP effluent can be determined from the curve on the graph. For instance, at a WWTP flow rate of 2 MGD, the concentration of total phosphorus in the WWTP effluent would need to be 0.072 mg/l to achieve the downstream 0.05 mg/l phosphorus outcome. The arrows on the graph show this example.

Similar plots of the outcome from each of the scenarios is shown in figures 9-12 . These plots show multiple curves for each upstream concentrations of total phosphorus under the scenarios chosen for this analysis.

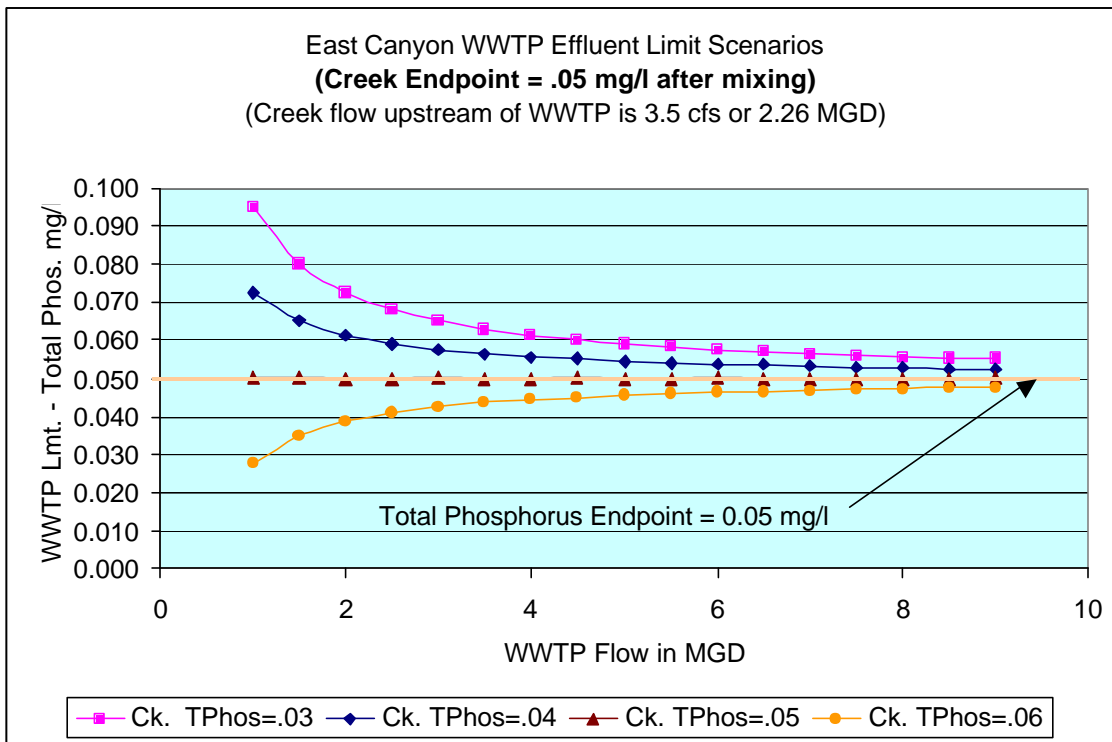


Figure 9. Upstream flow is 3.5 cfs. Downstream total phos. after mixing is 0.05 mg/l
 East Canyon WWTP Effluent Limit Scenarios
 (Creek Endpoint = .05 mg/l after mixing)
 (Creek flow upstream of WWTP = 3.5 cfs or 2.26 MGD)

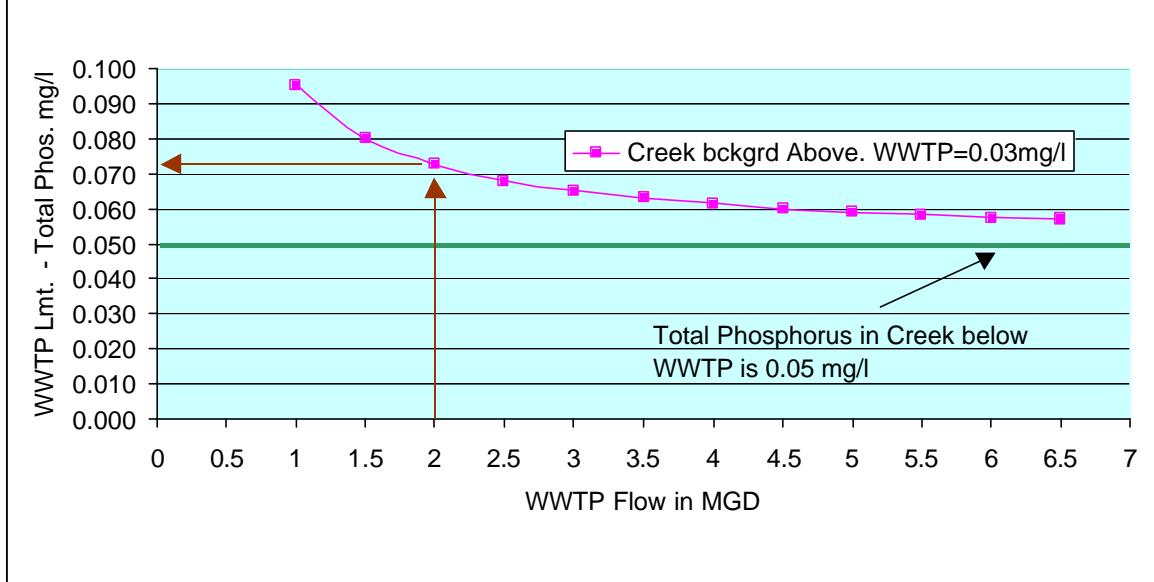


Figure 8. Plot of WWTP flows and required WWTP phosphorus concentrations to meet a 0.05 mg/l total phosphorus concentration in the creek after mixing.

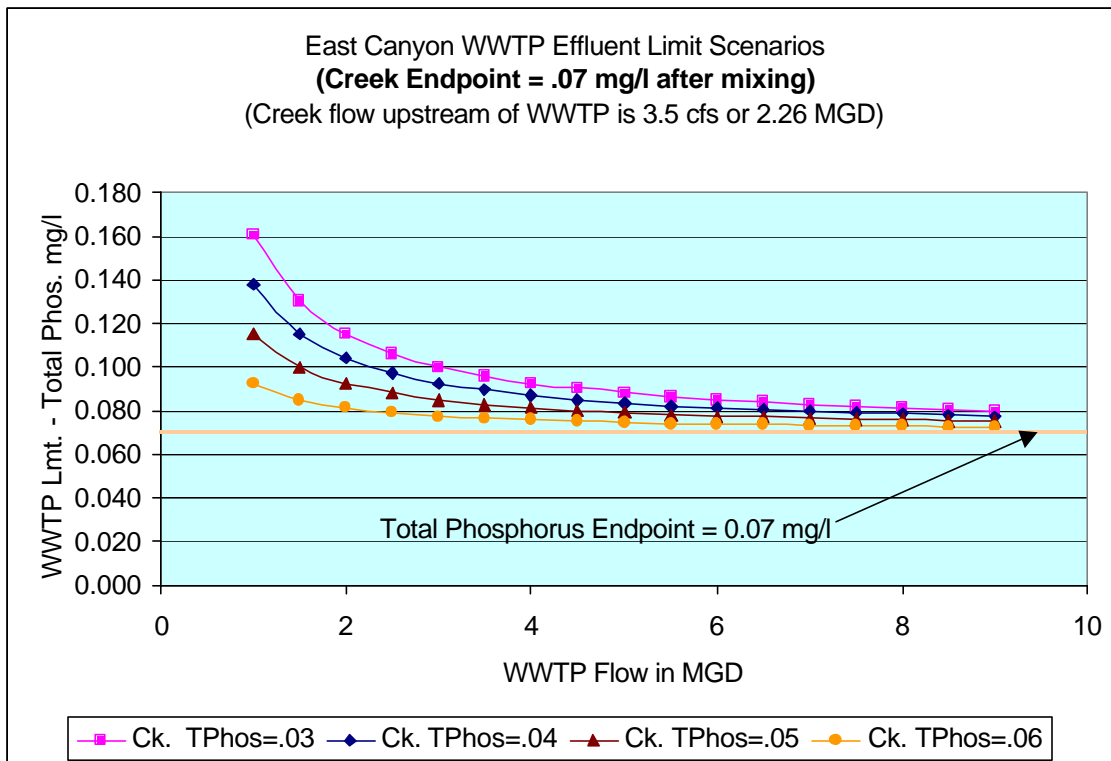


Figure 11. Upstream flow is 3.5 cfs; Downstream total phos. after mixing is 0.07 mg/l

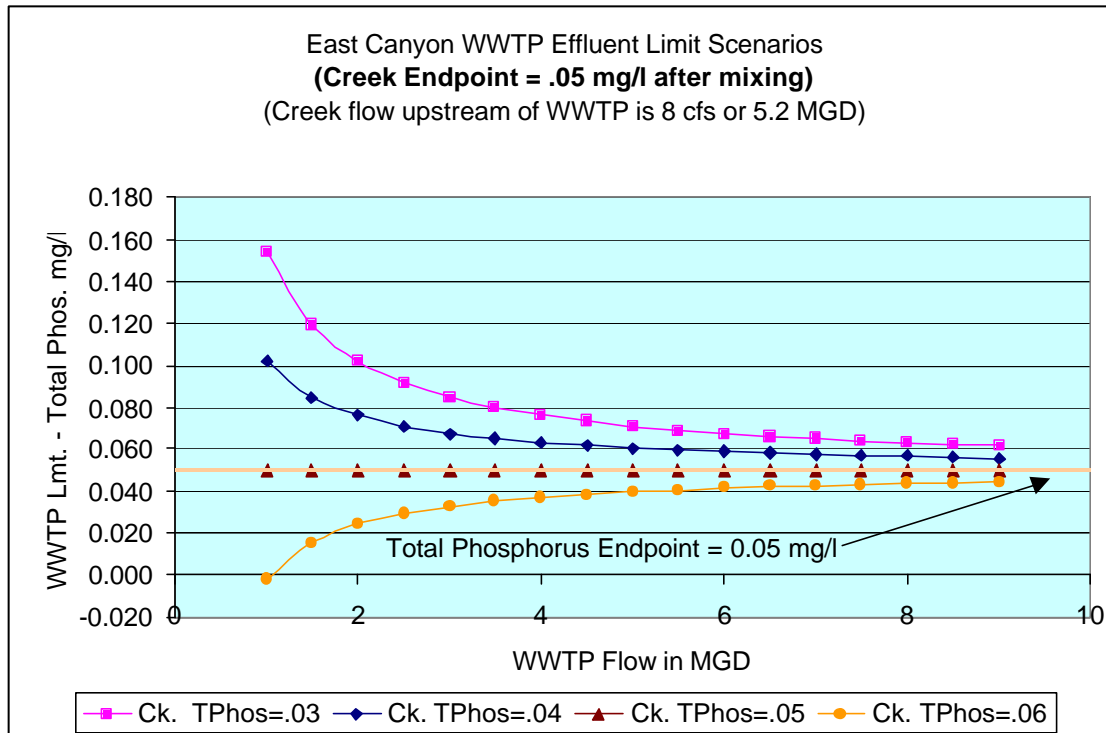


Figure 10 Upstream flow is 8 cfs; Downstream total phos. after mixing is 0.05 mg/l

Figures 11 and 12 show the effect on the phosphorus limit curves if the assimilative capacity of the creek could be shifted to handle 0.07 mg/l of phosphorus with stream channel enhancements such as

stabilizing eroding banks, establishment of woody species such as willows to provide shading, and narrowing and deepening the channel profile to minimize summer

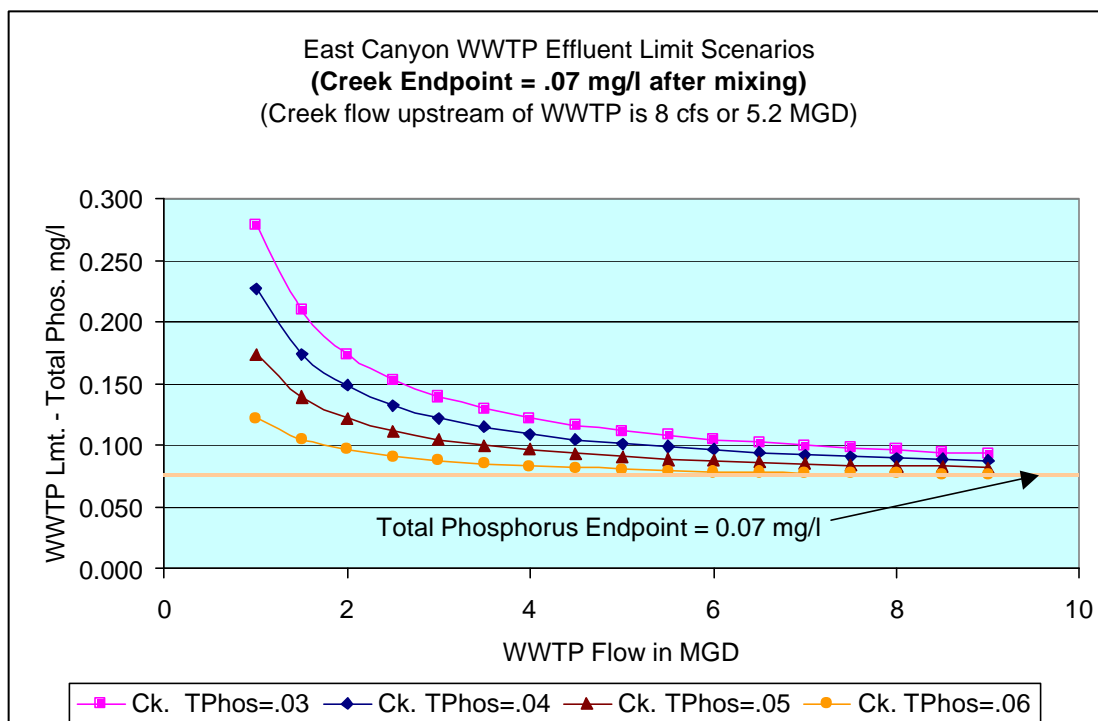


Figure 12 Upstream flow is 8 cfs; Downstream total phos. after mixing is 0.07 mg/l.

heating potential.

This analysis shows there are five variables that can be addressed to achieve the total phosphorus endpoints for this TMDL:

1. Reduction of Effluent Concentration from the East Canyon WWTP - The effluent concentration for the East Canyon WWTP needs to be lowered to levels as indicated on the preceding plots.
2. Reduction of Nonpoint Sources of Phosphorus - The upstream concentration of total phosphorus needs to be reduced as much as possible for two reasons. The stream above the WWTP is impaired in some reaches and the endpoints for total phosphorus and dissolved oxygen must be attained. Additionally, the upstream concentration of total phosphorus should be minimized to allow the treatment plant opportunity to meet what will be a stringent effluent limit given the best availability technology.
3. Reduction of East Canyon WWTP Flows During Critical Season - Means to reduce the discharge flows of the treatment plant during the critical summer season **if the stream flow is not diminished** need to be explored. This could be accomplished by land applying treatment plant effluent on golf courses or parks and allowing the water normally used to irrigate these areas to flow the creek as replacement flow.
4. Stream Stabilization and Enhancements - Measures to shift the assimilative capacity of the creek to a higher level would allow for a higher endpoint of total phosphorus concentration in the creek. These include stabilizing eroding banks, establishment of woody species such as willows to provide shading, and narrowing and deepening the channel profile to minimize summer heating potential.
5. Augmentation of Creek Flow During Critical Season - Any measures that would increase the summer low flows in the creek above the WWTP without increasing the upstream total phosphorus concentration would improve downstream concentrations of phosphorus due to increased dilution of WWTP flows.

TOTAL MAXIMUM DAILY LOAD

The approach adopted in this TMDL is to have the East Canyon Treatment WWTP incorporate best available technology for removal of phosphorus as soon as possible. This process will probably take around three years for design and construction and another year for optimization of the process. Given the uncertainty of the concentration of total phosphorus that this process will yield after plant optimization, a specific permit limit for the East Canyon WWTP will not be set at this time, but will be set following construction and optimization of BAT and based on achievable phosphorus levels. Whatever difference remains between the achievable WWTP total phosphorus concentration and the necessary endpoint to restore beneficial use in the stream will be addressed by the other variables identified in the technical analysis (nonpoint source reductions of phosphorus loads, reduction of

plant discharges during the critical season, stream enhancements, augmentation of low flows during the critical season). Stakeholders in the watershed will want to evaluate each of the variables noted and the associated costs and constraints for each to determine what actions will need to be taken to assure the beneficial uses of the creek are restored.

Much of the focus of this TMDL is on the East Canyon WWTP, however, the impact of nonpoint sources to the impairment of the creek, particularly above the WWTP must be addressed in order to assure restoration of beneficial uses of the creek. Given the growth that is anticipated in the upper watershed, and the capability of the technology to be implemented at the WWTP, the stream above the wastewater treatment plant must at a minimum maintain a total phosphorus level during the critical low flow season of 0.04 mg/l. Accordingly, one of the targets of this TMDL will be an in stream concentration of total phosphorus above the WWTP of 0.04 mg/l. Hopefully with effective implementation of BMP's to address nonpoint sources of phosphorus, a value lower than 0.04 mg/l can be achieved.

Table 7. TMDL allocation with various WWTP flows and variations of NPS BMP effectiveness scenarios.

		Load Allocation		Wasteload Allocation				TMDL Allocation
Upstream Flow (cfs)	Upstream T. Phos. (mg/l)	Upstream NPS lbs./day	WWTP Flow (mgd)	WWTP T. Phos. (mg/l)	WWTP Load lbs./day	Down stream Flow (cfs)	Down stream T. Phos. (mg/l)	Down stream lbs./day
8	0.040	1.73	1.7	0.081	1.13	10.6	0.05	2.86
8	0.030	1.29	1.7	0.112	1.56	10.6	0.05	2.86
8	0.024	1.04	1.7	0.130	1.82	10.6	0.05	2.86
8	0.040	1.73	4	0.063	2.10	14.2	0.05	3.83
8	0.030	1.29	4	0.076	2.53	14.2	0.05	3.83
8	0.024	1.04	4	0.084	2.79	14.2	0.05	3.83
8	0.040	1.73	8	0.056	3.77	20.4	0.05	5.50
8	0.030	1.29	8	0.063	4.20	20.4	0.05	5.50
8	0.024	1.04	8	0.067	4.46	20.4	0.05	5.50

Table 7 depicts TMDL allocations for some of the most likely scenarios that will occur over the next several years. WWTP Flows are currently at 1.7 MGD(2.6 cfs), but with the planned expansions to the WWTP will grow to 4 mgd (6.2 cfs), and possibly to 8 MGD (12.4 cfs). The stream above the WWTP is impaired and will need to be addressed through the application of BMP's as outlined in the Implementation section of this TMDL. The effectiveness of BMP's on nonpoint source controls is estimated at three levels: no effect (0.04 mg/l), 25% effective (0.03

mg/l), and 40% effective (0.024 mg/l). Table 7 illustrates that the upstream concentrations of total phosphorus must be controlled in spite of significant growth and at worst must not increase over current levels. The concentration of total phosphorus that will be allowed from the WWTP will need to be in the range of 0.05 to 0.08 mg/l to assure a downstream concentration after mixing no greater than 0.05 mg/l. All of these values are subject to change following further analysis, sampling, assessment of the effectiveness of BMP application, and determination of the actual assimilative capacity of the creek.

Dissolved oxygen shall achieve the endpoint specified per Utah State Water Quality Standards. The stream shall be measured in August using diurnal measurements with the minimum D.O. measured equal to or above the standard.

MARGIN OF SAFETY

The Margin of Safety used in this TMDL is achieved through the incorporation of conservative assumptions in the calculations and approaches utilized and in the use of multiple endpoints. These include the following:

1. This TMDL incorporates multiple endpoints including: Total Phosphorus, Dissolved Oxygen, Macrophytes, & Periphyton. Use of multiple endpoints provides additional assurance that the beneficial uses that are impaired will be restored.
2. Use of conservative values of 25% to 40% to reflect NPS load reductions from the implementation of Best Management Practices to reduce nonpoint source pollution sources. The range of values from the BIO/WEST NPS report were from 40% to 90% reductions of total phosphorus for all land uses except active agriculture. Impacts of active agriculture are diminishing with land use changes in the watershed from agriculture to more development and recreational uses. The NPS report shows active agriculture comprises 2% of the land use in the watershed. Effectiveness of agriculture land use BMP's for reduction of NPS total phosphorus ranged from 10 to 70% in the BIO/WEST report.
3. An ongoing monitoring program will be implemented to assure that the specified endpoints are being achieved. If monitoring reveals that the TMDL values selected in this document are not being achieved, this TMDL will be revisited and revised limits derived to assure endpoints will be achieved.

IMPLEMENTATION MEASURES

The following implementation measures need to be undertaken to successfully achieve the endpoints identified in this TMDL:

1. *Treatment Plant BAT Upgrade* - The SBSID East Canyon Wastewater Treatment Plant must expeditiously plan, construct and optimize best available technology to remove

phosphorus from the plant effluent. This will include chemical phosphorus removal coupled with biological treatment.

2. *Local Storm Water Programs* - Local Storm Water Programs need to be implemented to minimize phosphorus and sediment contributions to East Canyon Creek. Storm Water Controls for storm water runoff, particularly from construction areas must be implemented to minimize sediment and associated phosphorus. Additionally, the use of stormwater detention ponds as outlined in the Clean Lakes Report (Judd 1999) should be included in this effort. This program should be a locally driven and implemented. Utah DEQ Division of Water Quality can require Summit County and Park City to develop a Storm Water Program that includes:

- formal storm water permit program that will review storm water plans and facilities, and formal enforcement in accordance with the UPDES Storm Water Program requirements. These programs must incorporate strict adherence to best management practices, at least weekly inspections of disturbed construction sites and vigorous enforcement actions for those sites that either violate the terms of their permit or fail to properly obtain a storm water permit.

3. *Ski Hill Watershed Management Plans* - The Park City Ski Hill and the Canyons Ski Hill will be required to submit formal storm water control plans (Watershed Management Plans) to minimize sediment and related phosphorus losses from their respective properties. These plans will need to assess the phosphorus loading resulting from their operations including snow-making and use of fertilizers to stabilize high traffic areas such as chair lift exits etc.

4. *Stream Channel Restoration* - The BIO/WEST NPS Report identified several stream channel reaches that are degraded and are contributing additional amounts of sediment and total phosphorus. A locally led effort to work with landowners is needed to implement stream channel restoration and rehabilitation measures. This should include measures to restore natural shading along with narrowing & deepening the channel to promote cooler water temperatures as well as reduce light inputs needed for macrophyte growth. This measure should include the following aspects:

- fencing the stream channel and riparian areas from livestock
- stream channel reconstruction to achieve appropriate channel and floodplain dimensions
- stabilizing eroding streambanks
- removal of fine materials from the streambed
- re-establishing woody vegetation along streambanks to provide bank shading

5. *Nutrient Management Plans* - All golf courses and other large areas with intensive turf management such as public parks will need to develop management plans to reduce phosphorus loads to the watershed. Aspects of these plans should include:

- Types of fertilizers used
- application rates and timing
- restrictions near stream channels and riparian & wetlands areas such as buffer strips and “no mow” zones.
- irrigation rates including water quality analysis of return flows

Local phosphate detergent bans should also be implemented by local entities.

6. *Road Drainage Controls* - The dirt road that runs from Jeremy Ranch down East Canyon until it intersects with State Route 65 appears to be significant source of sediment for the creek below the Jeremy Ranch Golf Course. The sediment provides additional phosphorus and sediments in the channel that allow macrophyte rooting habitat. The drainage controls for this road need to either be upgraded to minimize sediment contributions or the road should be paved to address this sediment problem.

7. *Nutrient Loading Study* - The phosphorus loads estimated for the tributary that drains the Silver Creek Estates area suggest that abnormally high loads are coming from this area. Coincidentally, this area is not sewerred but is served by individual septic systems. A study needs to be conducted to ascertain what the source of these loads are and what implementation measures need to be undertaken to minimize phosphorus loading from this area.

8. *Ongoing Water Monitoring Program* - An ongoing water monitoring program needs to be conducted to further refine loading sources and to monitor stream responses to the preceding implementation actions.

The East Canyon Watershed is considered a high priority watershed for receipt of Section 319 nonpoint source program funding purposes. It is the Division’s intent to facilitate and support project proposals for 319 funding for implementation projects in concert with this TMDL.

PUBLIC PARTICIPATION

The public participation process for this TMDL was addressed through the use of a series of public meetings and a local watershed committee. The East Canyon Water Quality Steering Committee has been in operation for several years prior to this TMDL. The committee is comprised of individuals that represent a broad based and diverse cross section of the interested stake holders in the watershed. All of the committee meetings are open to the public. The focus of the most recent meetings held on January 5 and February 9, 2000 was the nonpoint source study completed by BIO/WEST and the draft TMDL.

In addition the Division of Water Quality in coordination with the East Canyon Water Quality Steering Committee held public meetings to provide information and education on the TMDL process and to take comment on the draft TMDL. The first set of meetings were held on the evenings of December 7 and 14, 1999 in the Park City area and in Morgan Utah respectively. The

primary purpose of these meetings was to advise the public that a TMDL was being compiled, the issues to be considered and addressed, and the time frames for compiling the TMDL. Attendance at these two meetings was good with over 75 people at the Park City meeting and over 28 at the Morgan meeting.

A second public meeting was held on February 28, 2000 in the Park City area to discuss and take comment on the draft TMDL. Attendance at this meeting was over 60 people.

Each of the public meetings were advertised in local news media. A letter of invitation and Information Update was also sent to over 80 interested citizens advising them of the meetings.

A formal 30 day public comment period was held (February 18 through March 19) to allow input and comment on the draft TMDL.

In addition the draft TMDL document was available on the Division of Water Quality's web site for review during the 30 day public comment period.

Attached to both of the TMDL's for the East Canyon Watershed are the comments and a summary of responsiveness for those comments received during the comment period on the draft TMDL's. The Division received 11 comment letters during the 30 day comment period.

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Provo River Watershed Plan

Introduction

Public water systems (PWSs) in the State of Utah who treat surface water or groundwater under the direct influence of surface water are required by the Drinking Water Source Protection (DWSP) Rule, to develop, submit and implement a DWSP Plan for all sources of public drinking water. All PWSs are required to delineate watershed protection zones, develop a listing of potential contamination sources within the protection zones, and subsequently prepare and implement management plans to provide protection for surface water sources within the watershed protection zones.

The following PWSs along the Wasatch Front have formed the Watershed Protection Coalition (Coalition) and have initiated a cooperative project to develop their DWSP Plans for the Provo River Basin Watershed:

Central Utah Water Conservancy District
Jordan Valley Water Conservancy District
Metropolitan Water District of Salt Lake & Sandy

The mission of the Watershed Protection Coalition is to:

- Work cooperatively to understand the watershed, identify priorities, and develop and implement long-term strategies to protect the drinking water source(s) from contamination, as a primary safeguard to protect the public health.
- Support federal, state and local agencies that are empowered with the authority and jurisdiction necessary to protect the watershed(s) and drinking water source(s) through regulations, rules and ordinances.

The members of the Coalition, all of whom are active signing and funding members of the Provo River Watershed Council (PRWC), are working together to protect regional surface water resources. By working together in cooperation with other agencies and programs, the Coalition is able to maximize efficiency, and jointly manage potential contamination sources. Nearly all of the surface water sources and watershed protection zones fall in areas outside of the PWSs jurisdiction. For this reason, as well as to reduce duplicated efforts, a cooperative, large-scale approach is needed to develop a DWSP plan for all surface water sources attributed to the Coalition. This cooperative approach will allow the PWSs to participate in the approval process for new potential contamination sources proposing to locate within the designated watershed protection zones, for surface water sources located outside the respective PWSs boundaries.

Provo River Watershed Plan

Chapter 1 Watershed Overview

The Provo River is a major source of public drinking water for the growing areas of Salt Lake, Utah, Wasatch, and Summit Counties. The Central Utah Water Conservancy District (CUWCD), the Jordan Valley Water Conservancy District (JVWCD), and the Metropolitan Water District of Salt Lake & Sandy (MWDSLS) all divert water from the Provo River to water treatment facilities for treatment and delivery for potable use as shown in Table 1.0. The preservation of high source water quality is an important part of a multiple barrier approach to improve the overall quality of drinking water and also reduces the costs of treatment.

Table 1.0 Information for Systems Diverting Water from the Provo River

Utility Name	Water System Number	Utility Address	Type of System	Existing Source Number
JVWCD	18027	Main Office 8215 S 1300 W West Jordan, UT 84088 JVWTP 15305 S 3200 W Herriman, UT 84065 SERWTP 11574 S Wyndcastle Dr Sandy, UT 84092	CWS	Source 02
CUWCD	25112	Main Office 355 W University Pkwy Orem, UT 84058 UVWTP 1120 E. Cascade Dr. Orem, UT 84057	CWS	Source 01
MWDSLS	18016	Main Office 3430 E Danish Rd Cottonwood Heights, UT 84093 Little Cottonwood Water Treatment Plant (LCWTP) 9000 S Danish Rd Cottonwood Heights, UT 84093 Point of the Mountain Water Treatment Plant (POMWTP) 235 W Marion Vista Dr Draper, UT 84020	CWS	Source 01

Provo River Watershed Plan

1.1 General Watershed Description

1.1.1 Climate

The climate of the Provo River Basin varies from its headwaters in the Uintah Mountains to the Heber Valley. The average annual rainfall for the area varies from 16 inches in Heber Valley to 22 inches in the Uintah Mountains. Most of the precipitation at the headwaters falls as snow. The peak runoff at higher elevations generally occurs in May as the snow melts. Average temperatures range from 29^oC in the summer to 1^oC in the winter. The frost-free period is from 27 to 129 days in Heber with an average frost-free period of 90 days.

1.1.2 Geology and Geomorphology

The Upper Provo River Basin watershed includes part of the east side of the Central Wasatch Mountains and part of the western end of the Uintah Mountains. The transitional area between the two mountain ranges includes the West Hills and the Rhodes Plateau. Elevations range from 5,400 feet at Deer Creek Reservoir to slightly over 10,000 feet at some of the watershed boundaries.

Much of the Upper Provo River Basin watershed was formed from Tertiary volcanic activity, most of which has been covered by Pleistocene glacial tills and moraines. The valleys within the watershed are made up of unconsolidated Quaternary fill deposits, possibly from glacial outwashes. Tufa deposits (from thermal springs), near Midway intermix with the valley fill deposits.

Rocks throughout the Upper Provo Watershed range in age from Precambrian to Quaternary through Triassic. These rocks are primarily sedimentary, and metasedimentary with several intrusions of igneous stocks of monzonite. More specifically the rocks consist of Pennsylvanian and Permian-aged limestones, sandstones, and quartzites.

1.1.3 Soils

In general, soils in the Upper Provo Basin watershed are characterized by loamy textures. Soils in the high mountains (above 6800 feet) on the east, south, and west sides of the watershed are loams, gravelly loams, or cobbly loams derived from residuum, colluvium, or glacial deposits. Soils on mountain slopes at lower elevations and on the plateau areas are clay loams, silt loams, sandy loams, or cobbly loams derived from sedimentary

Provo River Watershed Plan

or volcanic rocks. The foothills and alluvial fans bordering the three main valleys are mainly cobbly loams, silt loams, or clay loams formed in residuum and alluvium from sedimentary rocks. Soils on stream terraces and in the valley bottoms are comprised of loams or gravelly loams.

The fine-grained texture of most of these soils means that a significant percentage of the material eroded from upland areas will ultimately become part of the sediment yield to the Provo River and the reservoirs. Most of the fine silt and clay derived from these loams will be delivered over time as suspended sediment in streamflow, and much of the sand will be carried in the bedload.

The erosion potential of soils in Heber Valley was computed for use in the *Guide for Erosion and Sediment Control* prepared for Wasatch County (see Appendix A). The erosion potential is a combination of the erodibility of the soils, the slope of the terrain, the proximity to perennial and intermittent streams and the potential rainfall. Due to the variances associated with parameters, typical erosion potentials varies from low to very high for the Heber Valley area.

1.2 Water Quality within the Watershed

1.2.1 Tributary Streams

There are four principle tributary streams that empty into Deer Creek Reservoir. These tributary streams include:

- Provo River
- Snake Creek
- Daniels Creek
- Main Creek

1.2.2 Streams Classification

The State of Utah classifies the water bodies in the state according to the beneficial use of the water. The water quality standards are different for each beneficial use category. A description of each beneficial use category found in Wasatch County is included below:

Class 1C: Protected for domestic purposes with prior treatment processes as required by Utah Department of Environmental Quality.

Class 2A: Protected for primary contact recreation such as swimming.

Class 2B: Protected for boating, water skiing and similar uses,

Provo River Watershed Plan

excluding swimming.

Class 3A: Protected for cold water species of game fish and other cold water aquatic life, including the necessary aquatic organisms in their food chain.

Class 4: Protected for agricultural uses including stock watering and irrigation of crops.

The Provo River and tributaries from Murdock Diversion to the headwaters have been classified by the State of Utah for the following beneficial use categories: 1C, 2B, 3A and 4. Deer Creek Reservoir has been classified as 1C, 2A, 2B, 3A and 4. Jordanelle Reservoir has been classified as 1C, 2A, 3A, and 4.

Water quality standards are violated if the chronic or acute values are exceeded more than once in three years. The State of Utah water quality criteria for each different classification in the Upper Provo River Basin are summarized in Table 1.1 and Table 1.2.

Provo River Watershed Plan

Table 1.1 Beneficial Use Water Quality Criteria for Waters in Wasatch County.

PARAMETER	CLASS 1C	CLASS 2A	CLASS 2B	CLASS 4
BACTERIOLOGICAL				
E. Coli (30-day geo. Mean)	206	126	206	N/A
E. coli (max)	668	409	668	N/A
PHYSICAL				
pH (Range)	6.5-9.0	6.5-9.0	6.5-9.0	6.5-9.0
Turbidity Increase (NTU)	N/A	10	10	N/A
METALS (Dissolved max mg/l)				
Arsenic	0.01	N/A	N/A	0.1
Barium	1.0	N/A	N/A	N/A
Beryllium	<0.004	N/A	N/A	N/A
Cadmium	0.01	N/A	N/A	0.01
Chromium	0.05	N/A	N/A	0.10
Copper	N/A	N/A	N/A	0.2
Lead	0.015	N/A	N/A	0.1
Mercury	0.002	N/A	N/A	N/A
Selenium	0.05	N/A	N/A	0.05
Silver	0.05	N/A	N/A	N/A
INORGANICS (mg/l)				
Bromate	0.01	N/A	N/A	N/A
Boron	N/A	N/A	N/A	0.75
Chlorite	<1.0	N/A	N/A	N/A
Fluoride	1.4-2.4	N/A	N/A	N/A
Nitrates as N	10	N/A	N/A	N/A
TDS	N/A	N/A	N/A	1200
RADIOLOGICAL (pCi/l)				
Gross Alpha	15	N/A	N/A	15
Gross Beta (mrem/yr)	4	N/A	N/A	N/A
Radium 226, 228	5	N/A	N/A	N/A
Strontium 90	8	N/A	N/A	N/A
Tritium	20000	N/A	N/A	N/A
URANIUM	30	N/A	N/A	N/A
Organics (UG/L)				
Chlorophenoxy Herbicides:				
2,4-D	70	N/A	N/A	N/A
2,4,5-TP	10	N/A	N/A	N/A
Methoxychlor	40	N/A	N/A	N/A
POLLUTION INDICATORS				
BOD (mg/l)	N/A	5	5	5
Nitrate as N (mg/l)	N/A	4	4	N/A
Phosphate as P (mg/l)	N/A	0.05	0.05	N/A

Provo River Watershed Plan

Table 1.2 Numeric Criteria for Aquatic Wildlife Use in Wasatch County.

PHYSICAL	4 DAY AVE.	1 HOUR AVE.
DO (mg/l) - 30 Day Ave.	6.5	N/A
DO (mg/l) - 7 Day Ave.	9.5/5.0	N/A
DO (mg/l) - 1 Day Ave.	8.0/4.0	N/A
Max. Temp (C)	20	N/A
Max. Delta Temp (C)	2	N/A
pH (Range)	6.5-9.0	N/A
Turbidity Increase (NTU)	10	N/A
METALS (Dissolved ug/l)	4 DAY AVE.	1 HOUR AVE.
Aluminum	87	750
Arsenic (Trivalent)	150	340
Cadmium	0.25	2.0
Chromium (Hexavalent)	11	16
Chromium (Trivalent)	74	570
Copper	9	13
Cyanide (free)	5.2	22
Iron (Maximum)	1000	1000
Lead	2.5	65
Mercury	0.012	0.012
Nickel	52	468
Selenium	4.6	18.4
Silver	1.6	1.6
Tributyltin	0.072	0.46
Zinc	120	120
INORGANICS	4 DAY AVE.	1 HOUR AVE.
Ammonia	Temp / pH based	Temp / pH based
Chlorine (Total Residual)	0.011	0.019
Hydrogen Sulfide (Undissociated Max. ug/l)	2.0	N/A
Phenol (Maximum)	0.01	N/A
RADIOLOGICAL (MAXIMUM pCi/l)		
Gross Alpha	15	

Provo River Watershed Plan

Table 1.2 Numeric Criteria for Aquatic Wildlife Use in Wasatch County. (cont).

ORGANICS (g/l)	4 DAY AVE.	1 HOUR AVE.
Acrolein	3.0	3.0
Aldrin	N/A	1.5
Chlordane	0.0043	1.2
Chlorpyrifos	0.041	0.083
DDT and Metabolites	0.0010	0.55
Diazinon	0.17	0.17
Dieldrin	0.056	0.24
Endosulfan	0.056	0.11
Endrin	0.036	0.086
Heptachlor	0.0038	0.26
Hexachlorocyclohexane (Lindane)	0.08	1.0
Methoxychlor (Maximum)	0.03	N/A
Mirex (Maximum)	0.001	N/A
Nonylphenol	6.6	28.0
Parathion	0.013	0.066
PCB's	0.014	
Pentachlorophenol	15	19
Toxaphene	0.0002	0.73
POLLUTION INDICATORS		
Gross Beta (pCi/l)	50	N/A
BOD (mg/l)	5	N/A
Nitrate as N (mg/l)	4	N/A
Phosphate as P (mg/l)	0.05	N/A

1.2.3 Streams Monitoring

Because of its importance as a drinking water source, there have been a number of long-term monitoring programs on the Provo River and its various tributaries. The PRWC in coordination with the Division of Water Quality (DWQ) compiles the yearly monitoring program. During 2012, PRWC took samples from 23 stream sample locations and 7 reservoir stations for the purpose of water quality analysis.

The DWQ is currently updating the water quality database so current exceedence lists for each water quality monitoring station are unavailable.

Provo River Watershed Plan

The 2012 Water Quality Implementation Report (Appendix G) prepared for Wasatch County and PRWC contains current water quality status and trends throughout the Provo River basin.

1.2.4 Groundwater Monitoring Study

In 1995, the State Water Quality Board classified the aquifer in the Heber Valley as Class 1A pristine. From recommendations made in previous implementation reports, PRWC has been working with Wasatch County and the U.S. Geological Survey (USGS) to monitor groundwater in Heber Valley. The 2005 through 2012 results of this program are shown in Appendix N. A cost-share funding program with USGS has been on-going to collect and analyze samples from selected existing observation wells in the valley. This monitoring will help determine groundwater quality returning to Provo River and Deer Creek Reservoir, detect existing or future problems, and define trends in the groundwater.

1.2.5 Division of Water Quality's 303(d) List

The DWQ is also responsible for determining areas of the watershed which are not supporting their beneficial use criteria. This list of non-supporting streams is contained in the 303(d) report, which is compiled every other year. The 303(d) list for Utah Lake – Jordan River including Provo River Basin was updated in 2010 as shown on Map 1.2 and available from DWQ at:
<http://www.waterquality.utah.gov/WQAssess/currentIR.htm>.

1.3 Land Use of the Watershed

1.3.1 Primary Land Uses

The primary land uses for the Provo River Basin watershed are shown in Table 1.3. Map 1.1 (Provo River Basin General Land Use) shows the geographical distribution of the many land uses with the Provo River Basin watershed area.

Provo River Watershed Plan

Table 1.3 Primary Watershed Land Uses.

Land Use	Percentage of Watershed Area
Forest	59%
Agriculture (pasture and row crops)	35%
Residential, Commercial and industrial uses	2%
Riparian/wetlands	1%
Various Other Uses	3%

1.3.2 Population Within Watershed Area

The Provo Basin Watershed encompasses Summit, Utah and Wasatch counties. The populations of each county based upon the 2010 census.

Table 1.4 Population Of Counties Within Watershed.

County	2010 Census Population
Summit	36,324
Utah	516,564
Wasatch	23,530
Total Population	576,418

**Provo River
Watershed Plan**

Map 1.1

**Provo River
Watershed Plan**

Map 1.2

Provo River Watershed Plan

1.3.3 Demographics, Land Use, and Recreation of the Watershed

The federal government oversees about 40 percent of the 324,600 acres of total land area in the Utah Lake Basin in Wasatch County. Federally administered land is under the jurisdiction of five agencies, the Forest Service, Bureau of Land Management, National Park Service, U.S. Army and the Bureau of Reclamation. Private and State ownership of land in Wasatch County is approximately 158,100 acres and 35,100 acres respectively.

The largest recreational attraction in the area is the Wasatch Mountain State Park near Midway. The park has a number of campgrounds for overnight use but the primary attraction is its golf course. In the winter the park also attracts a number of snowmobilers and cross-country skiing enthusiasts.

Outside of the Heber Valley most of the human impact is due to recreation. The two large reservoirs in the basin (Jordanelle and Deer Creek) draw the largest number of visitors to the area, but other sites draw visitors as well. In the upper areas of the Provo River, the land is under the jurisdiction of the National Forest Service being part of the Wasatch-Cache National Forest.

1.3.4 Hydrology of the Watershed

The Provo River Watershed consist of 825 square miles or approximately 528,000 acres. The Provo River Basin above Deer Creek Reservoir has been divided into nine hydrologic sub-basins. Snow melt provides most of the runoff for these sub-basins and is the main hydrologic factor. Because of this, spring runoff is one of the predominant factors in determining the water quality for the Provo River.

The hydrology of the Provo River is significantly altered by the presence of two large water storage reservoirs. The recently completed Jordanelle Reservoir lies just north of Heber Valley. The reservoir started filling in 1989 and making initial deliveries in 1994. The operational capacity of the Jordanelle Reservoir is over 300,000 acre-feet of water. Deer Creek Reservoir lies just below the Heber Valley and has been in operation since the early 1950's. This reservoir holds 150,000 acre-feet of water.

1.3.4.1 Weber River

As the water flows into the Heber Valley there are many diversions for irrigation. Almost 55,000 acre-feet of the water is

Provo River Watershed Plan

diverted yearly from the Provo for agricultural use. Water is also diverted from Daniels Creek, Snake Creek and Lake Creek.

In addition to the natural runoff of the Provo River basin, there are two transbasin diversions which import water into the basin above Jordanelle Reservoir. Water is diverted from the Weber River approximately three quarters of a mile east of Oakley and conveyed to a discharge point on the Provo River approximately four and one half miles northwest of Woodland. For the period 1961 through 1990, historical annual diversions near Oakley have averaged about 38,000 acre-feet and historical discharges to the Provo River from 1941 to 1990 have averaged about 35,000 acre-feet. More than 90 percent of the annual diversions occur during the period of April through July. Map 4.2 (Provo River Basin Contribution from Weber River Basin) shows the Weber River as well as the protection zones surrounding it.

Weber Basin Water Conservancy District has developed a DWSP Plan for the Weber River and surrounding watershed area (see Appendix C).

1.3.4.2 Duchesne Tunnel

The second transbasin diversion diverts water from the Duchesne River into the Provo River, approximately 14 miles upstream of Woodland. Historical diversions for the period 1954 through 1984 have averaged about 23,900 acre-feet per year. Map 4.3 (Provo River Basin Contribution from Duchesne Tunnel) shows the location of the tunnel as well as the protection zones near the tunnel.

1.3.4.3 Strawberry Reservoir and Syar Tunnel

A third transbasin diversion diverts water from the Strawberry Reservoir to the Diamond Fork and Utah Lake system pipelines and tunnels and will eventually be available as source water to water treatment plants. Map 4.4 (Strawberry Reservoir and tributaries above Syar Inlet) shows the location of the tunnel as well as the protection zones around Strawberry Reservoir.

Provo River Watershed Plan

1.3.5 Current Water Users and Activities

1.3.5.1 Municipal

The Provo River is a major source of public drinking water for the growing areas in Salt Lake, Utah, Wasatch and Summit Counties. The CUWCD, the JWCD, the MWDSL, all divert water from the Provo River to water treatment facilities for treatment and delivery for potable use. The preservation of good water quality is important to reduce the costs of expensive water treatment and improve the overall drinking water quality.

1.3.5.2 Agricultural

The Provo River is also a source of irrigation water used for agricultural purposes. In Heber Valley, there are fourteen irrigation companies that have water rights to the Provo River. The Provo River Water Users Association (PRWUA) and several irrigation companies in Utah and Salt Lake Valleys also have water rights to much of the water contained in Deer Creek Reservoir.

1.3.5.3 Recreation and Fisheries

Jordanelle and Deer Creek Reservoirs along with the Provo River and its tributaries, are a source of recreation for many. State Parks are located on Jordanelle and Deer Creek Reservoirs to provide basic services for the recreationists that visit. The reservoirs provide for water skiing, swimming, boating, fishing and more. Jordanelle opened its waters to fishing in 1995. Deer Creek and Jordanelle Reservoirs, along with the Provo River and its tributaries, provide excellent fisheries for anglers.

1.3.5.3.1 Deer Creek State Park

Deer Creek State Park offers boating, water skiing, jet skiing, wind surfing, fishing, camping and other recreational activities at its sites. These sites include Island Beach, Sailboat Beach, Rainbow Bay (day use), and Wallsburg Bay. These facilities have been upgraded to improve water quality.

Provo River Watershed Plan

1.3.5.3.2 Jordanelle State Park

Camping, fishing, boating, hiking and other recreational activities are available at the two developed recreation sites of Jordanelle State Park.

The Rock Cliff Recreation Site is located at the east end of the reservoir and has accommodations which include a nature center, elevated boardwalk systems, modern restrooms with showers, group-use pavilions, 50 walk-in camping sites, and limited non-motorized trails.

The Hailstone Recreation Site and Jordanelle Reservoir opened its park gates and launch ramps at the end of June 1995. The 400 acre tract of land located on the west shore of the reservoir provides facilities for 180 camping units, individual powerboats and personal water craft launching sites, 30 individual day use cabanas, beach house facility, 3 large group-use pavilions, playgrounds, laundromats, visitor center and a convenience store/restaurant.

The Ross Creek site is located on the east shore of the north arm of the reservoir. The Ross Creek Recreation Area has had limited development serving as a trailhead to the Perimeter Trail with a self-pay fee box in a gravel parking area, vault toilet restrooms and a hitching post. No permanent facilities are being designed at present because of its limited use due to reservoir fluctuation, and because full development cannot proceed until a sewer system is developed and extended to this location.

The perimeter trail system opened in conjunction with the Hailstone facilities. The park now offers 13 miles of trails available for hiking, jogging, mountain biking, equestrian use, and cross-country skiing.

1.3.5.3.3 North Fork Canyon

The North Fork of Provo Canyon is home of the Sundance Ski Resort which provides year-round recreation activities: skiing, horseback riding, mountain biking, summer theater/plays, and many

Provo River Watershed Plan

hiking trails. This canyon also is home to the Brigham Young University Timp Lodge which offers many recreational activity opportunities to BYU alumni and their guests. The past 15 years have seen an influx of recreational cabins/properties, bringing many more people into the watershed to enjoy its beauty.

1.3.5.3.4 South Fork Canyon

Similar to the North Fork, South Fork of the Provo Canyon experiences many recreational activities also, but it is much less developed. The Girl Scouts of America operate a year-round girls camp, Trefoil, which provides camping and hiking experiences to young women ages 8 to 20 years old. Provo City has two city parks located within South Fork. These parks are heavily used in the spring, summer and fall. Provo City also owned and operated the Big Springs Riding Stables in South Fork, but after considering the potential impact manure may have on the watershed, the operation was discontinued and the horses were removed from the canyon.

1.3.5.4 Jordanelle Reservoir Operation

Jordanelle Reservoir retains sediments and phosphorus which helps lower total phosphorus concentrations in the Provo River and Deer Creek Reservoir below. The 1984 PRWC management plan called for the retention of 50% of all phosphorus originating above Jordanelle Reservoir. Current data indicate that the goal has been met or surpassed through the operation of the Selective Level Outlet Works (SLOW) on Jordanelle Dam by selecting the depth from which water is released from the reservoir.

1.3.5.5 Jordanelle Special Service District - Water System

Jordanelle Special Service District water system design (including waterlines, pump stations, intake structures, treatment plant, and storage tanks) began in 1997. Construction of some of the tanks and waterlines also began in 1997. Final design of the initial system needed to operate much of the Deer Crest area was substantially completed in 1998.

Provo River Watershed Plan

1.3.5.6 Jordanelle Special Service District - WRF

Jordanelle Special Service District Water Reclamation Facility has a design flowrate of 1.0 million gallons per day (MGD). The facility serves the developments in the area of Jordanelle Reservoir north of Heber City in Wasatch County, UT. The facility's flow passes through; fine screens, and then through a series of anaerobic and aerobic tanks (which is a biological aid in the removal of phosphorous), then through a membrane bio-reactor (which includes the addition of alum for further phosphorous removal), then through an ultra violet (UV) disinfection system. The solids handling consist of an aerated solids handling basin and a belt press for dewatering. There has not been a discharge from the facility to this point but the UPDES permit will be renewed, including interim start-up limits, to expire on November 30, 2018.

1.3.5.7 Heber Valley Special Service District - Sewer System

The Heber Valley Special Service District was constructed to treat the sewage flows from Heber. The treatment effluent does not discharge into any water body. Instead it is stored in holding ponds where it is pumped to irrigate several acres of fields. Some of this effluent is lost to evaporation and natural percolation. Recently, a rapid infiltration basin was constructed to reduce the need for the expansion of winter holding ponds.

1.3.5.8 Mayflower Resort

Mayflower Mountain Resort has been monitoring stream flows and water quality parameters in the McHenry Canyon drainage area and reporting the results in an annual report to Wasatch County since 1984. The DWQ had issued a Ground Water Quality Discharge Permit for the stabilization of the three tailing ponds located adjacent to US Highway 40. This 5-year permit expired in 1998. DWQ did not renew the permit because of failure by Mayflower to address a Notice of Violation (NOV) issued in 1996.

The NOV addressed the issue of stabilizing the tailing ponds. Plans and specifications have been prepared for the stabilization of the tailing ponds. The tailing ponds have not yet been capped because an economical source of random fill has not been obtained. Mayflower is presently attempting to identify an alternative source of random fill.

Provo River Watershed Plan

In the meantime, Mayflower has implemented interim storm water controls around the tailing ponds to control the migration of tailing material. The interim storm water controls consist of diversion channels and detention basins which are inspected, with DWQ oversight, twice a year and maintained as necessary. Biannual inspection reports are prepared and submitted to the DWQ identifying inspection observations and recommendations, and summarizing any maintenance performed on the interim storm water controls.

1.3.5.9 Soldier Hollow: Winter Sports Park

Soldier Hollow was used as a site during the 2002 Winter Olympics for all Cross-country, Biathlon, and Nordic combined events. The site is located on the southern end of Wasatch Mountain State Park and directly west of the northern tip of Deer Creek Reservoir. In order to facilitate hosting of these Olympic events it was necessary to construct 23 kilometers of trail, a shooting range for small caliber rifles, a stadium area and a Competition Management facility.

In the fall of 1998 the first 5 kilometers of trail were constructed. The trails consist primarily of 5 to 11 meter wide trails bladed into the hillside, following existing contours. Drainage culverts were installed at drainage crossings and erosion control measures were incorporated to prevent erosion of the newly bladed areas into the existing waterways and streams. The trail areas were re-seeded using a native seed mixture approved by the Department of Natural Resources (DNR).

During 1999 an additional 18 kilometers of trail were completed including the installation of a snow making system; installation of water, sewer, gas, electrical and telecommunications lines; and the construction of a shooting range and a Competition Management building. Bridges and culverts were built to bridge streams and trail crossings. The design team worked with the Army Corps of Engineers to obtain the necessary permits to allow construction of trails across existing wetlands and streams. Drainage channel improvements were created to keep surface flows in drainage channels and away from the shooting range and stadium areas.

Provo River Watershed Plan

As part of the snow making system, a small holding pond was constructed at the end of the Midway Irrigation Company pipeline. This pond serves as a cooling pond for snow making and serves as a holding pond for irrigation for the two existing golf courses.

With the completion of the Midway Irrigation piping, the West Bench Ditch was abandoned and serves only as a storm drainage collection ditch. The ditch has been breached just north of the main drainage channel running through the venue to prevent flows north of the drainage from contributing to the erosion potential along the newly constructed trails south of the drainage.

Overflows from the Midway Irrigation Piping are allowed to flow through the Epperson to the main drainage just east of the stadium area, where they join with natural flows running through an existing detention basin and then into Deer Creek Reservoir.

1.3.5.10 Midway Fish Hatchery

The Midway Fish Hatchery's Utah Pollutant Discharge Elimination System (UPDES) permit UT0025879 was renewed on March 25, 2010 and will expire in February 2015. It specifically limits the total suspended solids (TSS) maximum concentration to 25 mg/l, pH to a range of 6.5 to 9.0, and net increase of total phosphorus to 400 kg/yr. The permit requires the hatchery to monitor the influent springs and the effluent springs for the determination of net increase of total phosphorus.

1.3.5.11 Kamas Fish Hatchery

The Kamas Fish Hatchery is authorized to discharge under the UPDES General Permit UTG 1300006 for concentrated aquatic animal production facilities (CAAPF). The permit became effective March 25, 2010 and will expire in February 2015.

1.3.5.12 Jordanelle Special Service District (JSSD)

On the west side of Jordanelle Reservoir, JSSD manages the discharge water from their treatment facilities at Keetley Station. This water originates from old mines in Park City that are drained through the Ontario #2 Drain Tunnel. The UPDES

Provo River Watershed Plan

permit sets specific limitations on daily maximum concentrations of TSS, aluminum, copper, lead, mercury, zinc, oil and grease. Limitations are also placed on 30-day average concentrations of TSS, lead, aluminum, and mercury. This mine water is treated through the JSSD Treatment Plant before being discharged. The drain tunnel is not a significant source of phosphorus and phosphorus is not limited in the permit although the State monitors the effluent. The current permit was effective on June 1, 2013 and will expire on May 31, 2018.

Provo River Watershed Plan

Chapter 2 Designated Person(s)

2.1 General

Each designated person is responsible to ensure compliance to the DWSP rule for surface water sources rule, and is also responsible to receive and respond to communications from the Division of Drinking Water (DDW). The designated person information will be updated directly by the individual PWSs as changes occur. Any and all changes will be officially updated every six (6) years as required by the rule.

The following individuals have been assigned by their respective PWSs, as the "designated person(s)":

Table 2.1 Designated Persons

Designated Person	Utility	Utility Address	Designated Person's Phone Number	Utility's Fax Number	Designated Person's Email Address
Shazelle Terry	Jordan Valley Water Conservancy District (JVWCD)	Jordan Valley Water Treatment Plant 15305 South 3200 West Herriman, UT 84065	(801)446-2004	(801)254-5485	ShazelleT@jvwcd.org
Reed Oberdorfer	Central Utah Water Conservancy District (CUWCD)	355 West University Parkway Orem, UT 84058	(801)226-7160	(801)226-7111	Reed@CUWCD.com
Claudia Wheeler	Metropolitan Water District of Salt Lake & Sandy (MWDSLs)	3430 East Danish Road Cottonwood Heights, UT 84093	(801)942-9651	(801)942-3674	wheeler@mwdsls.org

Provo River Watershed Plan

Chapter 3 Source Protection Rule Requirements

3.1 General

PWSs in the State of Utah who treat surface water or ground water under the direct influence of surface water are required by the DWSP Rule, to develop, submit and implement a DWSP Plan for all sources of public drinking water. All PWSs are required to delineate watershed protection zones, develop a listing of potential contamination sources within protection zones, and subsequently prepare and implement management plans to provide protection of the surface water sources within the watershed protection zones.

3.2 Delineation Zones

The information for the delineation maps for surface water sources was acquired from the DDW. The delineation maps were prepared to meet the requirements of the DWSP Rule. The preferred delineation procedure requires that four zones be delineated for management purposes as follows:

- Zone 1 (for streams, rivers, and canals) encompasses the area on both sides of the source, ½ mile on each side measured laterally from the high water mark of the source (bank full), and from 100 feet downstream of the point of diversion (POD) to 15 miles upstream (or to the limits of the watershed or to the State line, whichever comes first). If a natural stream or river is diverted into an uncovered canal or aqueduct for the purpose of delivering water to a system or a water treatment facility, the entire canal will be considered to be part of Zone 1, and the 15 miles measurement upstream will apply to the stream or river contributing water to the system from the diversion.
- Zone 1 (for reservoir or lakes) is considered to be the area ½ mile from the high water mark of the source. Any stream or river contributing to the reservoir or lake will be included in Zone 1 for a distance of 15 miles upstream, and a half mile laterally on both sides of the source. If a reservoir is diverted into an uncovered canal or aqueduct for the purpose of delivering water to a system or a water treatment facility, the entire canal will be considered to be part of Zone 1, and the 15 miles measurement upstream will apply to the stream or river contributing water to the system from the diversion.

Provo River Watershed Plan

- Zone 2 is defined as the area from the end of Zone 1 to a point an additional 50 miles upstream (or to the limits of the watershed or to the State line, whichever comes first), and for a width of 1,000 feet on each side measured from the high water mark of the source.
- Zone 3 is defined as the area from the end of Zone 2 to the limits of the watershed or to the State line, whichever comes first, and for a width of 500 feet on each side measured from the high water mark of the source.
- Zone 4 is defined as the remainder of the area of the watershed contributing to the source that does not fall within the boundaries of Zones 1 through Zone 3.

Map 4.1 (Provo River Basin Protection Zones), Map 4.2 (Weber River Basin above Weber-Provo Canal), Map 4.3 (Duchesne River above Duchesne Tunnel), and Map 4.4 (Strawberry Reservoir and tributaries above Syar Inlet) show the watershed protection zones for all watershed areas included in this plan.

3.3 Intake Susceptibility

An intake receives water from the source which is then conveyed to the treatment plant. The design and operation of an intake becomes a crucial element in reducing a PWSs susceptibility to contamination. Each member of the Coalition has evaluated the susceptibility and structural integrity of the intake(s) which supply source water to their respective treatment plants. This evaluation considered the physical conditions of the intake regarding its ability to adequately protect from contamination events. In addition, the physiographic and/or hydrogeologic factors influencing the intake sensitivity will also be considered to assess the likelihood of decreasing a contamination event. (Refer to Chapter 4 for the completed intake evaluations as well as a discussion regarding the physical conditions surrounding each intake.)

3.4 Management Programs

The purpose of the management program is to provide the members of the Coalition with a means to protect the drinking water source from existing and future potential contamination source (PCS). Members of the Coalition are actively involved in the Provo River Watershed Council (PRWC) and other committees working to implement the many existing management programs to protect the Provo River Basin Watershed. Chapters 7 and 8 of this document provide a detailed explanation of the proposed management program and strategies.

This DWSP Plan utilizes the listing of PCSs provided by the DDW. These PCSs are presented and addressed in Chapter 5.

Provo River Watershed Plan

The completed management program will be made accessible to the public for their viewing at each Coalition member's offices. The public will be notified of this report's availability through the annual Consumer Confidence Reports that are generated and distributed by each member of the Coalition. Members of the Coalition hosting web pages will also post public notification bulletins there as well.

3.5 Contingency Plans

Contingency plans provide an overview of how the utilities can and should respond to a contamination event. This plan also identifies resources that are available to the Coalition members. It also identifies alternative sources of water that may be provided on a temporary need to the PWSs customers.

If a contamination event occurred within a watershed or upstream of an intake, each PWS has developed a contingency plan to address the issues of emergency response, public notification, rationing and remediation. Each contingency plan is specific to the needs and resources of each member of the Coalition. (Refer to sections 12.2, 12.3, and 12.4 for contingency plans for CUWCD, JWCD and MWDSLS respectively.)

Provo River Watershed Plan

Chapter 4 Intake Information, Susceptibility Assessment & Delineation Zones

4.1 General

An intake receives water from the source which is then conveyed to the treatment plant. The design and operation of an intake becomes a crucial element in reducing a PWSs susceptibility to contamination. Each member of the Coalition has evaluated the susceptibility and structural integrity of the intakes(s) which supply water to their respective treatment plants. This evaluation considered the physical conditions of the intake regarding its ability to adequately protect source water from contamination events. In addition to this, the physiographic and/or hydrogeologic factors influencing the intake sensitivity have also been considered to assess their likelihood of decreasing a contamination event.

Table 4.1 assesses the design and construction of each intake according to the requirements outlined in the *Administrative Rules for Public Drinking Water Systems, Part II, R309-204.5.(5)*.

**Provo River
Watershed Plan**

Table 4.1 Intake Assessment.

	SLA Intake	Olmsted Intake	Murdock Diversion/Intake
Does the intake allow for water withdrawal from more than one level if water quality varies with depth?	No	No	No
Is the lowest intake withdrawal elevation located at a sufficient depth to be submerged at the low elevation of the reservoir?	Yes	N/A	N/A
Does the intake have a separate facility for the release of less desirable water held in storage?	Yes	N/A	N/A
Does the intake allow for occasional cleaning of the inlet line?	Yes	Yes	Yes
Is the diversion device capable of keeping fish and/or debris from entering the intake?	Yes	Yes	Yes A new automatic rake system and four large traveling screen were added in 2013.
If you use pumps to transfer diverted water, do the pumps have suitable protection?	N/A	N/A	N/A
If you have an impoundment reservoir, have brush and trees been removed to the high water level?	No	There is not a reservoir, but water can back up above diversion structure and inundate streamside vegetation.	N/A
Has the impoundment provided adequate precautions to limit nutrient loads?	No	N/A	N/A
Can the intake be closed to allow contamination to pass by?	Yes	Yes	Yes
Do the physical conditions of the intake provide adequate protection from contamination events?	No	Yes	No

Provo River Watershed Plan

4.2 Physiographic and Hydrogeologic Factors

Listed below are the physiographic and/or hydrogeologic factors that influence the sensitivity of the intake to potential contamination. These factors may be natural or man-made and may increase or decrease the likelihood of contamination.

4.2.1 Salt Lake Aqueduct Intake

The intake into the Salt Lake Aqueduct is located in the tail race of the Deer Creek Dam and was re-constructed in 2001. The Deer Creek reservoir is open to the public for recreation. There are also several runoff streams that enter the reservoir from agricultural lands as well as new and established residential developments. The intake does not have the ability to control the quality of the water that it may divert, only whether or not the water is actually diverted. The area surrounding the intake is natural vegetation with the exception of the dam itself, and the facilities onsite associated with the intake and the hydroelectric plant of the dam. The reconstructed highway passes across the downstream side of the dam. The dam and intake are located in a mountainous canyon so runoff from the hillsides on both sides as well as from the highway are likely to enter the tail race area.

4.2.2 Olmsted Intake

The majority of the water reaches the intake from the dam release at Deer Creek Reservoir. However, there are tributary streams (Provo Deer Creek (Little Deer Creek), North Fork and South Fork) that can at times contribute to contamination. Also, the river is adjacent to the Provo Canyon highway and therefore is susceptible to contamination from accidental spills, salt, etc.

4.2.3 Murdock Intake

The Murdock Diversion is located near the entrance of Provo Canyon, and diverts water from the Provo River into the Provo River Aqueduct, formerly the Murdock Canal. The aqueduct is only operated from April through October. At this location, the Provo River is adjacent to the Provo Canyon highway and is therefore susceptible to contamination from accidental spills, road salts, etc. The canal was completely enclosed in 2012 and the Murdock Diversion was rebuilt in 2013.

Provo River Watershed Plan

4.3 Delineation and Protection Zones

Maps 4.1 (Provo River Basin Protection Zones), 4.2 (Provo River Basin Contribution from Weber Basin), 4.3 (Provo River Basin Contribution from Duchesne Tunnel) and 4.4 (Strawberry Reservoir and tributaries above Syar Inlet) show the delineation and protection zones for the Provo River Basin as a whole, as well as zones surrounding the Weber River Basin, the Duchesne Tunnel, and above the Murdock Diversion.

**Provo River
Watershed Plan**

Map 4.1

**Provo River
Watershed Plan**

Map 4.2

**Provo River
Watershed Plan**

Map 4.3

**Provo River
Watershed Plan**

Map 4.4

Provo River Watershed Plan

Chapter 5 Potential Contamination Source Inventory

5.1 General

Development of the Potential Contamination Source Inventory (PCSI) involved the listing of all existing activities that have a potential for causing contamination of the drinking water source. Such activities include the use, storage, transportation, or handling of hazardous/toxic substances that are detrimental to the watershed and to the quality of the drinking water. The PCSs identified in the Provo River Basin Watershed have been categorized by type. PCSs within each category create similar risks and have similar control strategies. A list of the categories with their specific issues, controls and risk is presented in Table 5.0. The following sections explain the information given in Table 5.0. The tables in section 5.2 identify the specific PCSs located within the Provo River Basin Watershed.

5.1.1 Related Issues and Contributing Factors

This column of the table identifies why a specific PCS is of concern in the watershed and what type of contamination may occur. It also identifies the associated activities that contribute to the PCS.

5.1.2 Assessment of Controls, Applicable Regulations and Agencies

Using the existing controls summarized in Tables 6.1 and 6.2, the Coalition determined which PCSs were already subject to an existing regulation or rule, the name of the agency regulating that PCS, and whether or not the control provided an adequate level of protection in preventing contamination within the watershed protection zones. In most cases, where a PCS is controlled, a permit or identification number is issued by the regulating agency, and the contamination risk is minimized by requiring best management practices, pollution prevention measures, or physical barriers to provide adequate control. Assessment of the existing Federal and State requirements indicate that nearly all PCSs in the watershed are adequately controlled.

5.1.3 Susceptibility Analysis

The table outlines how susceptible the watershed is to each PCS by labeling it highly susceptible (1), moderately susceptible (2), or minimally susceptible (3). Members of the Coalition determined how susceptible the watershed is to each PCS category based upon intake integrity (Chapter 4, Table 4.1); watershed hydrogeology, climate, and land use (Chapter 1); and existing controls (Chapter 6). High susceptibility indicates that the PCS occurs more frequently in the watershed, that controls may not be as effective at minimizing risk, and the hydrogeology and climate are likely to increase the impact.

Provo River Watershed Plan

5.1.4 Priority Rankings

The Coalition determined a priority ranking (see Table 5.0) of PCS categories based upon the susceptibility ranking, water quality data, regulatory controls, and best management practices currently in place.

Accidental spills were determined to be the number one priority since there is currently no way to control or predict a spill. Response, according to established Emergency Response Plans, is mainly reactive as opposed to preventive.

Because of the ever increasing development in the watershed, and the associated impacts, development was determined to be the second highest priority to address in protecting the watershed. There are many projects, management plans, and ordinances in place to address these issues.

Agricultural Non-point source runoff was determined to be priority number three. Although agricultural activities are decreasing in the watershed, they still account for the largest land use, and have significant impact on phosphorus, nitrogen, and sediment levels.

5.1.5 Best Management Practices

Best Management Practices (BMPs) which address the PCS categories listed in the Table 5.0 are discussed in detail in the text of Chapter 7, the appendices referenced in Chapter 7, and the text of Chapter 8.

Provo River Watershed Plan

Table 5.0 Susceptibility Determination and Priority Ranking Table

PCS	Related Issues	Contributing Factors	Adequately Controlled	Rule or Regulation	Regulating Agency	Location	Susceptibility Ranking	Priority	Management Strategies
Underground Storage Tanks	1. Petroleum 2. Chemicals	1. Leaking Tanks	yes	Underground Storage Tank Rule	Utah Division of Environmental Response and Remediation, Department of Environmental Quality	Zone 1 and 2	3	6	<p>Tanks that are on the UST list are regularly inspected and often have safeguards such as secondary containment or continuous monitoring.</p> <p>Tanks on the LUST list are required to empty the leaking tank and fix or remove the tank before being used again.</p> <p>The Coalition will rely on existing government controls.</p>
Agricultural Non-point Source Runoff	1. Phosphorus 2. Nitrogen 3. Microbial 4. Cryptosporidium 5. Erosion and Sediment Control	1. Livestock 2. Irrigation Practices 3. Storm Runoff	yes	Concentrated Animal Feeding Operation Rule Total Maximum Daily Load Requirements	Department of Agriculture Utah Division of Water Quality, Department of Environmental Quality	Zone 1 and 2	2	3	<p>Heber Valley Storm Water Management Plan</p> <p>Wasatch County Water Efficiency Plan</p> <p>Erosion and Sediment Control Guide</p> <p>Pasture and Hayland Management Plan</p> <p>WQ Monitoring</p>

Provo River Watershed Plan

PCS	Related Issues	Contributing Factors	Adequately Controlled	Rule or Regulation	Regulating Agency	Location	Susceptibility Ranking	Priority	Management Strategies
Development	<ol style="list-style-type: none"> 1. Erosion and Sediment Control 2. Phosphorus 3. Nitrogen 4. Chemicals 	<ol style="list-style-type: none"> 1. Household Chemical Use and Disposal 2. Storm Runoff 3. Golf Courses 4. Industry 5. Development Construction 6. Septic Systems 	yes	City/County Ordinances	Wasatch, Summit, and Utah Counties	Zone 1 and 2	2	2	<p>Jordanelle Boundary Zone (USBR, UT State Parks)</p> <p>Management plans are required by Wasatch County for all proposed golf courses. These plans are prepared by the developers and reviewed by PRWC and the County.</p> <p>Wasatch Co./PRWC review of development issues</p> <p>The Murdock Canal was enclosed into the Provo Reservoir Aqueduct in 2012.</p>
Wastewater	<ol style="list-style-type: none"> 1. Nitrogen 2. Phosphorus 3. Microbial 4. Other pollutants 	<ol style="list-style-type: none"> 1. Septic System 2. WW Treatment Discharge 	yes	UPDES Permitting 208 CWA WQ Plans Standards for Quality of Waters of the State	Utah Division of Water Quality, Department of Environmental Quality	Zone 1 and 2	3	4	DWQ and MAGPRWC have to approve 208 plans and new discharges through the TMDL requirements.
Recreation	<ol style="list-style-type: none"> 1. Erosion and Sediment Control 2. Petroleum 3. Nitrogen 4. Phosphorus 5. Microbial 6. Cryptosporidium 	<ol style="list-style-type: none"> 1. Human Impacts 2. Water craft use 3. Waste Disposal Practices 	yes	Reservoir Management Plans	United States Forest Service	Zone 1 and 2	3	5	<p>Provo Canyon Scenic By-way Plan</p> <p>Deer Creek Recreation Management Plan</p> <p>Jordanelle Recreation Management Plan The Murdock Canal was enclosed into the Provo Reservoir Aqueduct in 2012.</p>

Provo River Watershed Plan

PCS	Related Issues	Contributing Factors	Adequately Controlled	Rule or Regulation	Regulating Agency	Location	Susceptibility Ranking	Priority	Management Strategies
Accidental or Intentional Spills	1. Petroleum 2. Chemicals	1. Roadways near Waterways and Reservoirs 2. Human Impacts	no	Federal and State Hazmat Regulations for transportation and storage	Utah Division of Environmental Response and Remediation, Department of Environmental Quality	Zone 1 and 2	1	1	Early warning systems Interagency and Agency specific Emergency Response Plans The Murdock Canal was enclosed into the Provo Reservoir Aqueduct in 2012.
Mining	Metals	1. Tailing Ponds	yes	Mine permit requirements and abandon mine requirements	Utah Division of Oil, Gas, and Mining, Department of Natural Resources	Zone 1 and 2	3	7	The Coalition will rely on existing government controls.

Provo River Watershed Plan

5.2 PCS Location Data

The tables and maps discussed in the following subsections include all the PCSs located in the Provo River Basin Watershed as of August 2013. The PCSs were identified using the State's comprehensive GIS system as well as through contacts at various agencies including the Utah Division of Oil, Gas, and Mining, and the Division of Water Quality

5.2.1 Underground Storage Tanks (UST)

The UST sites listed in Tables 5.1 and 5.2 have been identified as PCSs within the Provo River Basin watershed area. All have corresponding permit numbers indicating regulation by the appropriate State agency and therefore considered "controlled" by the Coalition. Maps 5.1 (Active Underground Storage Tank Facilities within the Provo River Basin Protection Zones), 5.2 (Inactive Underground Storage Tank Sites within the Provo River Basin Protection Zones), 5.3 (PCSs with the Syar Tunnel Contribution Protection Zones), and 5.9 (PCSs within the Weber Provo Canal Protection Zones) show the location of each listed UST site.

Provo River Watershed Plan

Table 5.1 Active UST Sites located within source water protection zones.

Zone	Facility Name	Type of Facility	State ID Number	Address	City
1	Mountainland One Stop	Gas Station	1100001	1175 S Main St	Heber City
1	K and T's Last Stop Silver Eagle	Gas Station	1100019	1590 S Hwy 40	Heber City
1	UDOT Station 3431	State Government	1100027	JCT US-40 & US-189	Heber City
1	Hailstone Maintenance Facility	State Government	1100064	Jordanelle Dam	Heber City
1	Jordanelle Hailstone Marina	Gas Station	1100065	Mayflower Exit Hwy 40	Heber City
1	7-Eleven #53611	Gas Station	1100069	800 S Main St	Heber City
1	Midway 7-Eleven	Gas Station	1100029	10 W Main St	Midway
1	Charleston North Merc	Gas Station	1100080	3715 S 3600 W	Charleston
1	Strawberry Bay	Gas Station	1100044	20 Miles E on HWY 40	Heber City
2	Mirror Lake Service Chevron	Gas Station	7000029	2 N Main St	Kamas
2	South Summit School District Bus Garage	Local Government	7000105	50 S 300 E	Kamas
2	Kamas Food Town Sinclair	Gas Station	7000142	145 W 200 S	Kamas
2	Kamas 7-Eleven	Gas Station	7000066	220 S Main St	Kamas
2	UDOT Station 2437	State Government	7000090	192 E 400 S	Kamas
4	7-Eleven #53604	Gas Station	1100016	215 N Main St	Heber City
4	Heber Light & Power	Utilities	1100383	350 S 700 W	Heber City
4	Ridleys Express	Gas Station	1100073	51 W Main	Midway
4	Maverick #361	Gas Station	1100081	435 N Main ST	Heber City
4	Smiths #63	Gas Station	1100079	550 N Main St	Heber City

**Provo River
Watershed Plan**

Map 5.1 Active Underground Storage Tank Facilities within the Provo River Basin Protection Zones.

Provo River Watershed Plan

Table 5.2 Inactive UST Facilities within source water protection zones.

Zone	Facility Name	Type of Facility	State ID Number	Address	City
1	Cottage Mkt & Goodies Inc.	Commercial	1100004	3650 S Hwy 40	Heber City
1	Circle K Management	Gas Station	1100006	595 S Main	Heber City
1	P.D.Q. Gas & Grocery	Commercial	1100009	Junction of Hwy # 189	Heber City
1	Wasatch County Hospital	Commercial	1100012	55 S 500 E	Heber City
1	7-Eleven #53605	Gas Station	1100018	750 S Main St	Heber City
1	U.H.P. Port of Entry	State Government	1100034	E Hwy 40	Heber City
1	Wasatch Aero Services	Not Listed	1100035	Heber Airport	Heber City
1	Snow's Marina, Melvin Snow	State Government	1100039	Deer Creek Reservoir Wallsburg Junction	Heber City
1	Charleston City Garage	Local Government	1100045	Charleston City; C/O Cheryl Lambert	Heber City
1	Crossroads Service Center	Commercial	1100005	1500 S Main	Heber City
1	Heber City Corporation	Local Government	1100046	345 N 400 W	Heber City
1	Public Works Department	Local Government	1100047	805 W 100 S, P.O. Box 69	Heber City
1	Larry J. Coet Chevrolet, Pontiac, Buick	Auto Dealership	1100050	901 S Main St	Heber City
1	Golden West Livestock	Truck/Transporter	1100055	168 W 3000 S	Heber City
1	Abandoned Site	Railroad	1100070	Approx 100 S 700 W	Heber City
1	Wasatch Rentals	Not Listed	1100071	845 S Main St	Heber City
1	Deer Creek Lake State Park	State Government	1100022	Hwy 189, Wallsburg Point	Midway
1	Deer Creek Island Resort	Gas Station	1100033	Island Beach/Highway 189	Midway
1	Midway City Shop	Local Government	1100038	50 N 100 W	Midway
1	Wasatch Mtn. State Park	State Government	1100062	1281 N Warm Springs Rd	Midway
1	Elmo Ford	Commercial	1100037	20 N Center St	Wallsburg
1	Givens Round Valley Market	Gas Station	1100041	154 N Main Canyon Rd	Wallsburg

Provo River Watershed Plan

Table 5.2 Inactive UST Facilities within source water protection zones (cont.).

Zone	Facility Name	Type of Facility	State ID Number	Address	City
1	Wasatch Mtn. State Park Golf Shop	State Government	1100063	1281 N Warm Springs Rd	Midway
1	Strawberry Field Office	Federal Government	1100024	N/A	Heber City
1	Soldier Creek Field Station	Local Government	1100056	US HWY 40 1/2 Mile E of Mile Marker #51	Fruitland
1	UDOT Station 3445	State Government	1100028	US 40 Mile Post 41.95 Strawberry Valley	Heber City
2	Current Creek Dam	Local Government	1100023	S End of Current Creek Reservoir	Fruitland
2	Kamas Valley CO-OP	Gas Station	7000024	3186 N HWY 189	Marion
2	Blizzard Lumber Company	Commercial	7000007	525 N Main St	Kamas
2	Smith Lumber Co.	Industrial	7000104	412 N Main St	Kamas
2	F.D.I.C. Property Kamas Lumber	Industrial	7000115	205 N Main St	Kamas
2	Blizzard Lumber	Truck/Transport	7000027	100 N 40 E	Kamas
2	Sinclair Service	Gas Station	7000044	23 N Main St	Kamas
2	Kamas City	Local Government	7000023	Main & Center	Kamas
2	South Summit School District	Local Government	7000105	50 S 300 E	Kamas
2	TR's Auto Repair	Auto Dealership	7000082	110 S Main St	Kamas
2	Leavitt Lumber Co.	Truck/Transport	7000026	395 SR 32	Kamas
2	Kamas Road Shed	Local Government	7000050	210 E 400 S	Kamas
4	Barnes Excavating - Stop Sinclair	Contractor	1100003	150 N 500 W	Heber City
4	Hilton Service	Gas Station	1100010	106 N Main St	Heber City
4	Hilton 66 Service	Commercial	1100011	510 N Main St	Heber City
4	Mountain Fuel Supply Co.	Utilities	1100014	167 W Center St	Heber City
4	Timpanogos Pottery Co.	Commercial	1100015	150 N Main St	Heber City

Provo River Watershed Plan

Table 5.2 Inactive UST Facilities within source water protection zones (cont.).

Zone	Facility Name	Type of Facility	State ID Number	Address	City
4	Sunmart #901 Phillips 66	Gas Station	1100020	95 S Main St	Heber City
4	Horner's Corner	Gas Station	1100021	391 N Main St	Heber City
4	Royal Solutions LLC	Gas Station	1100030	315 N Main St	Heber City
4	Newman C. Petty Property	Federal, Non-Military	1100036	Keetley Store	Heber City
4	Mike Witt Excavating	Contractor	1100042	725 S 600 W	Heber City
4	David Early Tire	Gas Station	1100052	110 S Main St	Heber City
4	Wagon Wheel Inc.	Gas Station	1100054	210 N Main St	Heber City
4	Cloyes Gear Company	Industrial	1100059	300 W 600 S	Heber City
4	Heber Motor	Auto Dealership	1100061	164 S Main St	Heber City
4	Mill Hollow Center	Local Government	1100066	State Rd 35 11 miles from Woodland	Heber City
4	Founders Title Company	Former Gas St.	1100068	45 S Main St	Heber City
4	Midway Automotive	Commercial	1100043	201 E Main St	Midway
4	Phoston Siding Site	Industrial	1100067	5 miles E of Park City	Park City

**Provo River
Watershed Plan**

Map 5.2 Inactive Underground Storage Tank Sites within the Provo River Basin Protection Zones

**Provo River
Watershed Plan**

Map 5.3 Syar Tunnel PCSs

Provo River Watershed Plan

5.2.2 Leaking Underground Storage Tanks (LUST)

The LUST sites listed in Table 5.3 have been identified as PCSs within the Provo River Basin watershed area. All have corresponding permit numbers indicating regulation by the appropriate State agency and therefore considered "controlled" by the Coalition. Map 5.4 (Leaking Underground Storage Tank Sites within the Provo River Basin Protection Zones) shows the location of each listed LUST site.

Table 5.3 LUST Sites within source water protection zones.

Zone	Facility Name	Type of Facility	State ID Number	Address	City
1	Abandoned Site	Railroad	1100070	Approx 100 S 700 W	Heber City
1	Heber City Corporation	Local Government	1100046	345 N 400 W	Heber City
1	Mountainland One-Stop	Gas Station	1100001	1175 S Main St	Heber City
1	Crossroads Service Center	Commercial	1100005	1500 S Main	Heber City
1	Public Works Department	Local Government	1100047	805 W 100 S, P.O. Box 69	Heber City
1	Snow's Marina, Melvin Snow	State Government	1100039	Deer Creek Reservoir, Wallsburg	Heber City
1	UDOT Station #631	State Government	1100027	Jct US - 40 & US - 89	Heber City
1	Wasatch County Hospital	Commercial	1100012	55 S 500 E	Heber City
1	Midway City Shop	Local Government	1100038	50 N 100 W	Midway
1	Jordanelle Hailstone Marina	Gas Station	1100065	Mayflower Exit Highway 40	Heber City
1	Wasatch Mtn. State Park Golf Shop	State Government	1100063	1281 N Warm Springs Rd	Midway
1	Givens Round Valley Market	Gas Station	1100041	154 N Main Canyon Rd	Wallsburg
4	Cloyes Gear Company	Industrial	1100059	300 W 600 S	Heber City
4	Heber Light & Power	Utilities	1100383	350 S 700 W	Heber City
4	Hilton Service	Gas Station	1100010	106 N Main St	Heber City
4	David Early Tires	Gas Station	1100052	110 S Main St	Heber City
4	Royal Solutions	Gas Station	1100030	315 N Main St	Heber City

**Provo River
Watershed Plan**

Table 5.3 LUST Sites within source water protection zones (cont.).

Zone	Facility Name	Type of Facility	State ID Number	Address	City
4	Timpanogos Pottery Co.	Commercial	1100015	150 N Main St	Heber City
4	SunMart #901 Phillips 66	Gas Station	1100020	95 S Main St	Heber City
4	Chalet Cafe	Gas Station	1000698	3630 E Provo Canyon	Provo
4	Wildwood Resort	State Government	1000515	Provo Canyon	Provo
4	7-Eleven #53605	Gas Station	1100018	750 S Main St	Heber City
4	Ennis Gibbs	Farm	7000138	3262 E Hwy 35	Woodland
4	Midway Automotive	Commercial	1100043	201 E Main St	Midway
4	Phoston Siding Site	Industrial	1100067	5 miles E of Park City	Park City

**Provo River
Watershed Plan**

Map 5.4 Leaking Underground Storage Tank Sites within the Provo River Basin Protection Zones

Provo River Watershed Plan

5.2.3 National Priority List Sites (NPL)

No NPL sites were located in the Provo River Basin watershed as of August 2013. The Coalition will check this listing periodically and revise the DWSP Plan as necessary.

5.2.4 Toxic Release Inventory Sites (TRI)

No TRI sites were located in the Provo River Basin watershed as of August 2013. The Coalition will check this listing periodically and revise the DWSP Plan as necessary.

5.2.5 Voluntary Clean-Up Sites

The voluntary clean-up sites listed in Table 5.4 have been identified as PCSs within the Provo River Basin watershed area. All entities having corresponding permit numbers indicate regulation by the appropriate State agency and are therefore considered "controlled" by the Coalition. For all sources listed which do not have a current permit or state ID number, the Coalition assumes that the State is either aware of and is controlling the entity if active or that the entity is dormant and is not considered to be a PCS. Map 5.5 (Superfund Sites (CERCLA and Voluntary Clean-up) within the Provo River Basin Protection Zones) shows the location of each listed voluntary clean-up site.

Table 5.4 Voluntary Clean-up Program Sites within Source Water Protection Zones.

Zone	Facility Name	Type of Facility	State ID Number	Address	City
1	Mayflower Substation	N/A	N/A	Approx 7 miles N of Heber City; East of U.S. Hwy 4, Mayflower Exit	Heber City

**Provo River
Watershed Plan**

Map 5.5 Superfund Sites (CERCLA and Voluntary Clean-up) within the Provo River Basin Protection Zones

Provo River Watershed Plan

5.2.6 Site Assessments

The site assessments listed in Table 5.5 have been identified as PCSs within the Provo River Basin watershed area. All have corresponding permit numbers indicating regulation by the appropriate State agency and therefore considered "controlled" by the Coalition. Map 5.5 (Superfund Sites (CERCLA and Voluntary Clean-up) within the Provo River Basin Protection Zones) shows the location of each listed site assessment.

Table 5.5 Site Assessments within Source Water Protection Zones

Zone	Facility Name	Type of Facility	State ID Number	Address	City
1	Olsen/Neihart Reservoir	N/A	UTD980951412	6.5 miles N of Heber City, near Hailstone Junction	Heber City
1	Historic Heber Creeper Rail Yard	N/A	UTSFN7577542	600 W 100 S	Heber City
1	Mayflower Mountain Tailings Pond	N/A	UTD980951438	7 miles N of Heber City	Mayflower Mountain
4	Soapstone Basin Sinkhole	N/A	UTD980960074	P.O. Box 1428	Provo
4	American Fork Canyon Uintah National	N/A	UTD988074951	American Fork Canyon	Pleasant Grove

Provo River Watershed Plan

5.2.7 Utah Pollutant Discharge Elimination System (UPDES)

The UPDES sites listed in Tables 5.6 and 5.7 have been identified as PCSs within the Provo River Basin watershed area. All entities having corresponding permit numbers indicate regulation by the appropriate State agency and are therefore considered "controlled" by the Coalition. For all sources listed which do not have a current permit or state ID number, the Coalition assumes that the State is either aware of and is controlling the entity if active or that the entity is dormant and is not considered to be a PCS. Maps 5.6 (UPDES Sites within the Provo River Basin Protection Zones) and 5.9 (PCSs within the Weber Provo Canal Protection Zones) show the location of each listed UPDES site.

Table 5.6 UPDES Locations Within Provo River Basin.

Zone	Facility Name	Type of Facility	State ID Number	Address	City
1	Wasatch County Weed Dept	General Permit Facility	UTG170049	1891 W 3000 S	Heber City
1	Midway City Corporation	General Permit Facility	UTG170065	75 N 100 W	Heber City
1	Jack B. Parson Companies	General Permit Facility	UTR001042	3 Miles S of Heber HWY 189	Heber City
1	JSSD Water Reclamation Facility	Municipal	UT0025747	5400 N Old Hwy 40	Heber City
1	JSSD Keetely Water Treatment Plant	Municipal	UT0022403	10500 N 1420 W	Heber City
1	Midway Fish Hatchery	General Permit Facility	UT0025879	850 S 140 E	Midway
1	Van Rok, LLC	General Permit Facility	UTR000897	1127 Provo Canyon	Provo
2	Francis Pit, Staker Parson Companies	General Permit Facility	UTR262293	2750 S Spring Hollow Rd	Francis
4	Thompson Logging	General Permit Facility	UTR000605	2054 S HWY 35	Francis

**Provo River
Watershed Plan**

Table 5.7 UPDES Locations within Weber River Basin.

Zone	Facility Name	Type of Facility	State ID Number	Address	City
1	Lewis W. Chappell	General Permit Facility	UTR000549	HWY 248 1 3/4 Miles W of Kamas	Kamas
1	Kamas Fish Hatchery	General Permit Facility	UTG130006	2722 E Mirror Lake Hwy	Kamas

**Provo River
Watershed Plan**

Map 5.6 UPDES Sites within Provo River Basin Protection Zones

Provo River Watershed Plan

5.2.8 Resource Conservation and Recovery Information System (RCRIS)

The RCRIS sites listed in Table 5.8 have been identified as PCSs within the Provo River Basin watershed area. All have corresponding permit numbers indicating regulation by the appropriate State agency and therefore considered "controlled" by the Coalition. Map 5.7 (RCRIS Sites within the Provo River Basin Protection Zones) shows the location of each listed site assessment.

Table 5.8 RCRIS Sites in the Provo River Watershed

Zone	Facility Name	Type of Facility	State ID Number	Address	City
1	Chevron Resources Company	N/A	UTD000716415	12 Miles N of Heber City on HWY 40	Heber City
1	Environmental Hydrocarbon Recovery, Inc	N/A	UTD121214233	94 W Main St	Heber City
1	Heber City Hospital	N/A	UTR000002758	55 South 500 East	Heber City
1	Tri-Valley Distributing	N/A	UT0000872671	1690 S HWY 40	Heber City
1	Walmart Supercenter #4696	N/A	UTR000011585	1274 S HWY 189	Heber City

**Provo River
Watershed Plan**

Map 5.7 RCRIS Sites within the Provo River Basin Protection Zones

Provo River Watershed Plan

5.2.9 Mineral Producers

The mineral producing sites listed in Table 5.9 and Table 5.10 have been identified as PCSs within the Provo River Basin watershed area. All entities having corresponding permit numbers indicate regulation by the appropriate State agency and are therefore considered "controlled" by the Coalition. For all sources listed which do not have a current permit or state ID number, the Coalition assumes that the State is either aware of and is controlling the entity if active or that the entity is dormant and is not considered to be a PCS. Maps 5.8 (Mineral Production Sites within the Provo River Basin Protection Zones) and 5.9 (Potential Contamination Sites within the Weber Provo Canal Protection Zones) show the location of each listed mineral producing site.

Provo River Watershed Plan

Table 5.9 Mineral Producers above Deer Creek Reservoir.

Zone	Name	Status	Type	Commodity	County
1	Bone Hallow Claims	Past Producer	Surface	Iron	Wasatch
1	East Ontario Mine	Past Producer	Underground	Silver	Wasatch
1	East Utah Shaft	Past Producer	Underground	Silver	Wasatch
1	Heber City Mine	Past Producer	Underground	Silver	Wasatch
1	Keeler Tunnel	Past Producer	Underground	Silver	Wasatch
1	Keetley Prospect	Past Producer	Surface	Stone	Wasatch
1	McCune Tunnel	Past Producer	Underground	Silver	Wasatch
1	Midway Hot Pot	Past Producer	Surface	Geothermal	Wasatch
1	Ontario Drain Tunnel No. 2	Past Producer	Underground	Gold	Wasatch
1	Park Heber Tunnel	Past Producer	Underground	Silver	Wasatch
1	Park King Shaft	Past Producer	Underground	Silver	Wasatch
1	Park Premier Shaft	Past Producer	Underground	Silver	Wasatch
1	Phoston Operation Mill	Producer	Proc Plant	Phosphate	Wasatch
1	Ross Todd Hollow Adit	Past Producer	Surface	Stone	Wasatch
1	Sphinx Prospect	Past Producer	Underground	Silver	Wasatch
1	UT Dept of Hwys No 26002	Producer	Surface	Sand & Gravel	Wasatch
1	UT Dept of Hwys No 26028	Producer	Surface	Sand & Gravel	Wasatch
1	UT Dept of Hwys No 26003	Producer	Surface	Sand & Gravel	Wasatch
1	UT Dept of Hwys No 26004	Producer	Surface	Sand & Gravel	Wasatch
1	UT Dept of Hwys No 26010	Producer	Surface	Sand & Gravel	Wasatch
1	UT Dept of Hwys No 26012	Producer	Surface	Sand & Gravel	Wasatch
1	UT Dept of Hwys No 26015	Unknown	Unknown	Sand & Gravel	Wasatch
1	UT Dept of Hwys No 26017	Producer	Surface	Sand & Gravel	Wasatch
1	UT Dept of Hwys No 26018	Producer	Surface	Sand & Gravel	Wasatch
1	UT Dept of Hwys No 26022	Producer	Surface	Sand & Gravel	Wasatch
1	UT Dept of Hwys No 26023	Producer	Surface	Sand & Gravel	Wasatch
1	UT Dept of Hwys No 26024	Producer	Surface	Sand & Gravel	Wasatch
1	UT Dept of Hwys No 26027	Producer	Surface	Sand & Gravel	Wasatch
1	UT Dept of Hwys No 26006	Past Producer	Surface	Sand & Gravel	Wasatch
2	UT Dept of Hwys No 26032	Producer	Surface	Sand & Gravel	Wasatch
2	UT Dept of Hwys No 22036	Past Producer	Surface	Sand & Gravel	Summit

Provo River Watershed Plan

Table 5.9 Mineral Producers above Deer Creek Reservoir (cont.).

Zone	Name	Status	Type	Commodity	County
2	UT Dept of Hwys No 22058 Wasatch National Forest	Past Producer	Surface	Sand & Gravel	Summit
2	UT Dept of Hwys Pit No 22057	Past Producer	Surface	Sand & Gravel	Summit
4	Cunningham Tunnel	Past Producer	Underground	Silver	Wasatch
4	Glencoe Mine	Past Producer	Underground	Silver	Wasatch
4	Gravel Pit in Sec 20	Past Producer	Surface	Sand & Gravel	Summit
4	Grey Hawk Property Fred and Charles Haun	Exp Prospect	Unknown	Mangan	Wasatch
4	Hawkeye - McHenry Mine	Past Producer	Underground	Silver	Wasatch
4	Jones Shaft Mine	Past Producer	Underground	Lead	Wasatch
4	Mayflower Mine New Park Resources Inc.	Past Producer	Underground	Zinc	Wasatch
4	Mountain Lake Mine	Past Producer	Underground	Copper	Salt Lake
4	Murdock Hollow Prospects	Past Producer	Surface	Iron	Wasatch
4	Park Konold Mine	Past Producer	Underground	Silver	Wasatch
4	Quarry Near Woodland Cemetery	Past Producer	Surface	Stone	Summit
4	South Quincy Tunnels	Exp Prospect	Underground	Lead	Wasatch
4	Star Tunnel	Past Producer	Underground	Silver	Wasatch
4	UT Dept of Hwys No 22053	Past Producer	Surface	Sand & Gravel	Wasatch
4	UT Dept of Hwys No 26005	Producer	Surface	Sand & Gravel	Wasatch
4	UT Dept of Hwys No 26007	Producer	Surface	Sand & Gravel	Wasatch
4	UT Dept of Hwys No 26008	Producer	Surface	Sand & Gravel	Wasatch
4	UT Dept of Hwys No 26009	Producer	Surface	Sand & Gravel	Wasatch
4	UT Dept of Hwys No 26026	Producer	Surface	Sand & Gravel	Wasatch
4	UT Dept of Hwys Pit No 26062, US Forest Service	Past Producer	Surface	Sand & Gravel	Summit
4	UT Dept of Hwys No 26013	Producer	Surface	Sand & Gravel	Wasatch
4	Valeo Mine	Past Producer	Underground	Copper	Wasatch
4	Wasatch Mine	Past Producer	Underground	Silver	Wasatch
4	Wasatch Tunnels Mine	Past Producer	Underground	Silver	Wasatch
4	West Quincy Property	Exp Prospect	Underground	Copper	Wasatch
4	Western Uinta Range Group	Exp Prospect	Surface	Phosphate	Duchesne

Provo River Watershed Plan

Table 5.10 Mineral Producers above Weber Canal.

Zone	Name	Status	Type	Commodity	County
4	Hidden Lake Phosphate	Past Producer	Surface	Phosphate	Summit
4	Marion Cemetery	Past Producer	Surface	Sand & Gravel	Summit
4	Shale Pit in Section 1	Past Producer	Surface	Stone	Summit
4	Shale Pit in Section 6	Past Producer	Surface	Stone	Summit
4	Slader Basin Quad	Past Producer	Surface	Phosphate	Summit
4	South Fork Weber River	Past Producer	Surface	Phosphate	Summit
4	UT Dept of Hwys Pit	Past Producer	Surface	Sand & Gravel	Summit
4	UT Dept of Hwys Gravel	Past Producer	Surface	Stone	Summit
4	UT Dept of Hwys Pit & Gravel	Past Producer	Surface	Sand & Gravel	Summit

**Provo River
Watershed Plan**

Map 5.8 Mineral Production Sites within the Provo River Basin Protection Zones

**Provo River
Watershed Plan**

Map 5.9 PCSs within the Weber Provo Canal Protection Zones

Provo River Watershed Plan

Chapter 6 Summary of Existing Regulations and Programs

6.1 General

Surface water from reservoirs, rivers, and canals is one of the primary sources of drinking water for the communities supplied by the Coalition members. As such, it is important that these resources be protected from contamination. Preventing contamination is the easiest and most cost effective way to keep the water supply safe. Because management controls can serve as an important component of a DWSP program, it is the objective of the Coalition that protection of the water supply is through preventive measures. Developing management strategies for PCSs will help minimize possible contamination.

The purpose of the DWSP program is to provide utilities with the means to assess the adequacy of existing environmental regulations and to implement management programs to enhance such controls to improve adequate protection. The first step required in developing appropriate management programs is to identify and understand existing governmental controls. Table 6.1 and Table 6.2 are included to present a general summary of each existing rule or regulation.

6.2 Existing Controls

Several Federal, State, and local regulations and ordinances have been developed to help protect water quality. Most regulations protect water indirectly by governing the generation, use, storage, transportation, recycling and disposal of hazardous materials and wastes

The Safe Drinking Water Act and the Clean Water Act along with other Federal guidelines have been established to protect surface water resources. Most government regulations control activities that are potential contamination sources through permitting, monitoring, and enforcing penalties. Some regulations require that the facility notify the regulating agency of what chemicals they use and how much they store. Other regulations set specific concentration, toxicity, discharge or other limits on the facility.

6.2.1 Permitting

Permitting is the process by which activities addressed by existing regulations are managed and operational standards are established. The regulating agency can require the regulated community to obtain permits to ensure compliance with a specific regulation. Businesses must usually register their facilities with the regulating agency and obtain permits to handle, store, or dispose of hazardous materials. The permits can set maximum concentration levels or other limits on waste streams, set treatment requirements for wastes, limit the type and use

Provo River Watershed Plan

of chemicals, require the facility to develop safety procedures, educational programs or emergency response procedures, or comply with other requirements (Woodside 1993).

6.2.2 Monitoring

Almost all Federal and State regulations require that facilities monitor and keep records of their compliance, or noncompliance, with issued permits. Some regulations require periodic submittal of monitoring records while others only require notification of violations of the permit. The monitoring is often augmented with regular inspections by the regulating agency to verify that the facility is following the provisions of the permit. The submitted monitoring records usually become public record. Other data pertinent to a facility can be reviewed by the regulating agency but are not public record.

6.2.3 Enforcing Penalties

Enforcement of the requirements of the regulation is usually the responsibility of the regulating agency. The regulating agency has the right to inspect the facility site and to audit its records. If the facility is not complying with the requirements of the regulation, penalties (e.g., citations of non-compliance, orders to cease operations or administrative penalties) can be issued. Many regulations have fines for non-compliance. These fines can vary from a few hundred dollars for accidental or minor infractions, to several thousand dollars per day for major or intentional violations. Major and intentional violations can also result in criminal charges involving legal action.

6.2.4 Key Regulations

Several regulations have been established by both the Federal and State government levels to help protect surface water resources. The regulations listed below are the key laws that regulate the types of potential contamination sources likely to locate within the watershed protection zones.

6.2.4.1 Federal Regulations

There are Federal regulations that either directly or indirectly protect surface water resources. These regulations are listed below and are briefly described in Table 6.1.

Provo River Watershed Plan

Table 6.1 Existing Federal Regulations and Regulating Agencies.

Federal Regulations and Regulating Agencies		
Federal Regulations	Description	Regulating Agency
CWA	Controls chemical discharges into surface water.	Utah Division of Water Quality
SDWA	Sets safe water standards for public drinking water.	Utah Division of Drinking Water
LT2	Regulates additional drinking water treatment based on source water <i>Cryptosporidium</i> levels.	Utah Division of Drinking Water
GWR	Regulates ground waters used as drinking water sources	Utah Division of Drinking Water
RCRA	Controls the use and disposal of hazardous wastes.	Utah Division of Solid and Hazardous Waste
CERCLA	Regulates the cleanup of existing spills.	Utah Division of Environmental Response and Remediation
SARA Title III or EPCRA	Regulates chemicals and activities included under both RCRA and CERCLA.	U.S. Environmental Protection Agency
FIFRA	Controls manufacturing, labeling and sales of insecticides and herbicides.	U.S. Environmental Protection Agency
TSCA	Establishes use, storage and disposal requirements for new chemical substances or mixtures.	U.S. Environmental Protection Agency
CAFO	Develop and implement comprehensive nutrient management plans to minimize the impact from concentrated animal feeding operations.	U.S. Environmental Protection Agency

6.2.4.2 State Rules

In addition to the Federal regulations, the State of Utah has adopted several rules to protect water quality. Many of these rules are the State equivalent to the Federal regulations cited above. Each is briefly described in Table 6.2.

Provo River Watershed Plan

Table 6.2 Existing State Rules and Responsible Agencies.

State Rules and Responsible Agencies		
State Rule	Description	Responsible Agency
Underground Storage Tank Rule (USTR)	Underground storage tanks are registered with the State and are periodically checked for leaks.	Utah Division of Environmental Response and Remediation
Utah Pollutant Discharge Elimination System (UPDES)	State-wide program for issuing permits for discharges of biologically, chemically or physically altered water to the surface water of the State.	Utah Division of Water Quality
Standards of Quality for Waters of the State	Establishes a policy to conserve, protect, maintain, and improve the quality of public water supplies by designating classifications for all surface water sources. Also, establishes an anti-degradation policy.	Utah Division of Water Quality
Underground Injection Control Rule (UIC)	Regulates discharges directly into the groundwater through injection wells.	Utah Division of Water Quality
Used Oil Management Rule	Regulates the handling and disposal of used motor oil and other petroleum fluids used by private and public vehicles and in industries.	Utah Division of Solid and Hazardous Waste
Utah Pesticide Control Act	Requires pesticide users to be certified. Prohibits the transportation, storage and disposal of pesticides or pesticide containers in such a manner that may pollute any water way.	Department of Agriculture
Hazardous Material Rule	State law adopting the provisions of SARA Title III. Establishes State and local emergency response centers.	Utah Division of Environmental Response and Remediation
Hazardous and Solid Waste Permitting and Management Rules	State law adopting the provisions of RCRA. Regulates hazardous and solid waste streams and landfills.	Utah Division of Solid and Hazardous Waste
Concentrated Animal Feeding Operation Rule	Requires concentrated animal feeding operations to develop and implement comprehensive nutrient management plans to minimize the impact.	Department of Agriculture
TMDL	Establish pollutant loadings for waterbodies of the State.	Division of Water Quality

Provo River Watershed Plan

6.2.4.3 County Regulations

Wasatch City-County Health Department adopted Rule 00-1 entitled "Rule Governing Ground Water Requirements for Onsite Wastewater Systems". This ruling was adopted on September 19, 2001 and was created to ensure that there is adequate separation between the bottom of the adsorption system excavation for a septic tank drain field and the groundwater table. A copy of this rule is included in Appendix F. The primary purpose of this rule is to provide adequate protection of the groundwater which discharges into Deer Creek Reservoir and the Provo River.

6.2.5 Adequacy of Existing Controls

It is important to appreciate the scope and limits of existing regulations. Although there are numerous Federal and State requirements, there may be potential contamination sources that could either be inadequately controlled or uncontrolled under the existing regulations. This is especially true for very small generators and users of hazardous materials.

Using the existing controls summarized in Tables 6.1 and 6.2, the Coalition assessed the adequacy of these controls in preventing contamination from the types of PCSs located within the watershed protection zones. Each potential contamination source has a permit number and therefore has been registered with the State and is being regulated and managed by the appropriate state agency according to current regulations. Each agency is controlling the contamination risk by requiring each PCS to employ best management practices, pollution prevention measures, or physical barriers to provide adequate control. Assessment of all existing Federal and States requirements indicate that all PCSs are adequately controlled and require no further action by the Coalition.

Provo River Watershed Plan

Chapter 7 Managing Existing Contamination Hazards

7.1 General

Strategies are needed to manage existing land use activities that have the potential to contaminate surface water sources within the watershed protection zones. The intent of management strategies, which are mostly incentive-based and educationally focused, is to provide the ways in which to encourage the protection of watershed protection zones through adoption and implementation of best management practices for potential contamination sources. Many management strategies are developed to inform and educate the community about source protection and how to be an active participant in achieving it. Management controls that focus on preventive measures are often the most successful strategies to reduce the risk of possible contamination within the watershed. The effectiveness of each strategy depends upon several factors, such as: available resources, cost, manpower, cooperation of the PCSs, and the cooperation of legislative bodies within the watershed boundary.

Management strategies are generally categorized as either regulatory or non-regulatory. Regulatory controls involve legislation or other means of control exercised according to the water provider's jurisdiction. These controls vary in their ability to manage land uses and activities. Some examples of regulatory management strategies are zoning and subdivision ordinances, site plan reviews, design and operating standards, and source prohibitions. The Coalition is not able to directly pursue these types of regulatory controls because the watershed boundaries are typically established beyond the jurisdictional authority and boundaries of members of the Coalition, with the exception of Class I cities. Also, in many instances the members of the Coalition are not directly associated with any local legislative body. This means that the Coalition cannot make zoning or subdivision ordinance changes. To pursue regulatory controls, the Coalition is working through existing programs and agencies such as the Provo River Watershed Council (PRWC) to persuade local city councils and county commissioners who have the ability to establish and enforce watershed protection measures.

7.2 Existing Management Plans

PRWC has developed water quality management plans to establish and implement watershed protection efforts and activities for the watershed of the Provo River Basin. The Upper Provo River water Quality Management Plan developed by PRWC is attached to this document as Appendix H. The PRWC continues to meet quarterly to share information, coordinate the activities of various agencies with responsibilities in the watershed, and provide advice to agencies on water quality issues in the basin. As part of this continuing watershed protection effort, the downstream water agencies which use the Provo

Provo River Watershed Plan

River to provide drinking water to a large percentage of the Wasatch Front population, contribute substantial resources to assist Wasatch County in preparing master plans, developing ordinances, and administering ongoing programs including the review of development plans. This assistance also provides for annual monitoring and reporting of water quality conditions along the Provo River as well as Jordanelle and Deer Creek Reservoirs.

7.2.1 Deer Creek Resource Management Plan (DCRMP)

The DCRMP (see Appendix E) insures water integrity as a principle source of water supply for the Wasatch Front area. It protects and maintains the purposes for which the Provo River Project was authorized by congress, as well as provides long term management-direction information for prospective users as well as interested public.

It describes the activities necessary to achieve the desired future condition of the project in the following decision areas:

- Area-wide goals and objectives,
- Area-wide management requirements,
- Specific area management direction,
- Lands suited or not suited for resource use and production, and
- Monitoring and evaluation requirements.

The DCRMP was completed in 1998 and the environmental assessment was released for public comment. Due to public comments received by the USBR, control grazing on project lands was allowed to continue, but modified the original action. This grazing modification is intended to reduce the hazard for grass fires, which could impact water quality by allowing for rapid soil erosion following a fire event. USBR has decided to allow grazing on project lands east of U.S. Highway 189, the opposite side of the reservoir, with best management practices being implemented.

7.2.2 Provo Canyon Scenic Byway Corridor and Watershed Management Plan

The U.S. Highway 189 segment from the mouth of Provo Canyon to the intersection with U.S. Highway 40 in Heber City has been designated a state Scenic Byway for its outstanding recreational, natural, and scenic qualities. This scenic byway also bisects the Provo Canyon Watershed, which supplies an important source of drinking water for the Salt Lake Valley and Utah Valley populations. These two uses make Provo Canyon a complicated transportation, recreation and watershed corridor. The help protect the resources of Provo Canyon, the MAG has prepared the Provo Canyon Scenic Byway Corridor and Watershed Management Plan (see Appendix I).

Provo River Watershed Plan

The purpose of the Corridor Management Plan is to assess the byway's potential to accommodate increased tourism levels within a clearly defined and realistic framework and to protect the natural, scenic, historic, cultural, and recreational resources along the byway.

The purpose of a Watershed Management Plan is to describe existing water resource conditions, identify specific water quality problems, and outline how watershed stakeholders plan to protect and restore water resources to the desired conditions.

7.2.3 Main Creek, Wallsburg Utah Riparian Improvement

Currently, Deer Creek Reservoir is listed as an impaired water body (i.e., this water does not meet water quality standards) by the Utah Department of Environmental Quality due to high levels of total phosphorus and low levels of dissolved oxygen. Based on the 2002 Deer Creek Reservoir Drainage TMDL (Total Maximum Daily Load) Study, the average annual total phosphorus load contribution from Main Creek was estimated as 2,629 kg. As a major drinking water source for the residents living along the Wasatch Front, Deer Creek Reservoir's water quality problems are of great concern. High phosphorus levels result in increased aquatic plant growth within the reservoir. As these plants grow and die, the result is reduced oxygen levels and subsequent fish kills.

Streams within the Wallsburg Watershed are characterized by steep raw banks and an unconnected flood plain. During spring runoff, large sections of the banks have been known to slough off. Main Creek is prone to down-cutting. A lack of vegetation due to grazing increases the risk of bank side erosion. The soil in the Wallsburg watershed is high in phosphorus, which contributes to the eutrophication problems in Deer Creek Reservoir.

Fencing, soil lifts, cattle crossings, j-hooks, off-site watering, water gaps, cross vanes, native vegetation plantings, rock riprap, and riparian seedings are the associated practices for erosion control and reduction in the Wallsburg Watershed.

In an effort to improve water quality and fish habitat in Main Creek and Deer Creek Reservoir, the Wasatch Conservation District plans to cooperate with the NRCS, UDWQ, Utah Division of Wildlife Resources (UDWR), and the Utah Department of Agriculture and Food (UDAF) to restore stream-banks within Main Creek, Little Hobbie Creek and Spring Creek where appropriate. As a partner in the restoration effort the District will coordinate between landowners and Federal and State agencies in

Provo River Watershed Plan

order to control erosion along stream banks. Participating landowners are fencing off the stream to protect the restored stream channel and riparian areas with appropriate access points for vehicle and cattle crossings. Restoration efforts will be undertaken consistent with Nationwide 27 permit authorization obtained from the U.S. Army Corps of Engineers and State stream alteration permit authorization obtained from the State Engineers' Office (Utah Division of Water Rights). Best management practices outlined by stream restoration professionals within the NRCS and the UDWR will be implemented.

7.2.4 Jordanelle Master Plan

Wasatch County has adopted the Jordanelle Basin Master Plan. Since the adoption of this plan, a Jordanelle Basin Overlay Zone has also been adopted, which will supplement existing county zoning regulations for lands within this overlay zone. These regulations will guide development within the Basin and provide the vision for what is to come.

7.2.5 Wasatch County Water Efficiency Project (WCWEP)

The WCWEP Area mission statement is to:

"Manage and Distribute water to water right owners and their shareholders in a safe, efficient and equitable manner."

Specific purposes include:

- Improve irrigation efficiencies
- Conserve water
- Improve water management
- Supplement flows in Heber Valley Streams
- Protect water rights of downstream users
- Minimize cost of project features
- Minimize impacts to groundwater and wetlands
- Return portions of the Strawberry River to a naturally functioning state

7.2.4 Utah Pollutant Discharge Elimination System Controls

There are existing PCS that are being managed by the UPDES permitting system which is administered by the DWQ. These PCSs are described below.

Provo River Watershed Plan

7.2.4.1 Midway Fish Hatchery

The Midway Fish Hatchery's Utah Pollutant Discharge Elimination System (UPDES) permit UT0025879 was renewed on March 25, 2010 and will expire in February 2015. It specifically limits the total suspended solids (TSS) maximum concentration to 25 mg/l, pH to a range of 6.5 to 9.0, and net increase of total phosphorus to 400 kg/yr. The permit requires the hatchery to monitor the influent springs and the effluent springs for the determination of net increase of total phosphorus.

7.2.4.2 Kamas Fish Hatchery

The Kamas Fish Hatchery, although smaller than the one at Midway, is planning to increase their fish production from 80,000 to 140,000 pounds per year. Reconstruction plans increased the capacity and efficiency of the hatchery. The new plans included concrete lining of the ponds and a string of settling ponds to reduce suspended solids in the effluent. They are currently authorized to discharge under the UPDES General Permit UTG 1300006 for concentrated aquatic animal production facilities (CAAPF). The permit became effective March 25, 2010 and will expire in February 2015.

The UPDES permit does not require phosphorus monitoring, however, to offset the potential for increased phosphorus discharges, the DWR included settling ponds in the expansion plans to reduce the amount of phosphorus loads that otherwise would be discharged. The settling ponds at the Midway Fish Hatchery appear to have helped greatly to meet phosphorus limitations.

7.2.4.3 United Park City Mines

On the west side of Jordanelle Reservoir, the United Park City Mines discharges water from the treatment facilities at Keetley Station. This water originates from old mines in Park City that are drained through the Ontario #2 Drain Tunnel. The UPDES permit sets specific limitations on daily maximum concentrations of TSS, aluminum, copper, lead, mercury, zinc, oil and grease. Limitations are also placed on 30-day average concentrations of TSS, lead and mercury. Although the State Division of Water Quality monitors the effluent, the drain tunnel is not a significant source of

Provo River Watershed Plan

phosphorus, and phosphorus is not limited in the permit. They are currently regulated by UPDES permit UT0022403 for all discharges.

7.2.4.4 Wastewater Discharges

Active point source discharges of wastewater are adequately controlled through the UPDES permit system, with discharge requirements developed to meet the recommendations of the PRWC Water Quality Management Plan.

Jordanelle Special Service District Water Reclamation Facility has a design flowrate of 1.0 million gallons per day (MGD). The facility serves the developments in the area of Jordanelle Reservoir north of Heber City in Wasatch County, UT. The facility's flow passes through; fine screens, and then through a series of anaerobic and aerobic tanks (which is a biological aid in the removal of phosphorous), then through a membrane bio-reactor (which includes the addition of alum for further phosphorous removal), then through an ultra violet (UV) disinfection system. The solids handling consist of an aerated solids handling basin and a belt press for dewatering. There has not been a discharge from the facility to this point but the UPDES permit will be renewed, including interim start-up limits, to expire on November 30, 2018.

The Heber Valley Special Service District was constructed to treat the sewage flows from Heber. The treatment effluent does not discharge into any water body. Instead it is stored in holding ponds where it is pumped to irrigate several acres of fields. Some of this effluent is lost to evaporation and natural percolation. Recently, a rapid infiltration basin was constructed to reduce the need for the expansion of winter holding ponds.

7.2.5 Heber Valley Storm Water Management Plan

In response to recommendation from PRWC implementation reports, Wasatch County completed the Storm Water Study in Heber Valley (See Appendix J). The purpose of the study was to identify potential sites for construction of new sedimentation basins and or wet ponds to reduce

Provo River Watershed Plan

eroded sediment and pollution in surface water runoff entering Deer Creek Reservoir.

7.2.6 Small Farm & Pasture Management Guide

The Wasatch Soil Conservation District published A Pasture & Hayland Management Guide: For Small Farms and Ranches in Wasatch County (See Appendix D). The guide addresses planning, economics, water management, soil conservation, best management practices, and other important issues involved with agricultural lands. The District presents seminars to educate farmers and ranchers on use of the guide. The class is required for those farmers receiving government financial aid. Classes began in 1998 when the guide was released.

7.2.7 Wasatch County Guide for Erosion and Sediment Control

The Wasatch County Guide for Erosion and Sediment Control (See Appendix A) was published in 1996 to provide guidance to those involved with land disturbing activities within Wasatch County. The manual defines the basic principles of erosion and sediment control, and presents a step by step process for developing temporary and permanent erosion and sediment control plans during and after development. The manual also defines regulations that pertain to erosion and sediment control within Wasatch County, along with the required permit procedures.

7.2.8 Provo River Restoration Project

The goal of the Provo River Restoration Project (PRRP) was to restore the middle Provo River in the Heber Valley from below Jordanelle Dam to Deer Creek Reservoir. In many areas the river had been straightened due to development of agricultural lands and the construction of flood control levees. The Utah Reclamation Mitigation and Conservation Commission have proposed the PRRP to create a meandering river path with the purpose of restoring a more naturally functioning river system.

Existing levees were set back to create a near natural flood plain that would allow for the river to change course naturally. Also important to the restoration, is the streamside vegetation that provides the necessary environment for healthy fisheries. Construction of side channels and ponds was also part of the project for the improvement of fish habitat. The completed project will be monitored to determine its effectiveness.

Provo River Watershed Plan

7.2.9 Provo Reservoir Canal Enclosure Project

Provo River Water Users Association, JVVCD, CUWCD, and MWDSLs along with other agencies completed the project to enclose the Provo Reservoir Canal in 2012. The 23 mile long canal runs through several cities in North Utah County resulting in water quality impacts from development, agricultural runoff, and recreation. A road runs the length of the canal also provides access for accidental or intentional spills. Enclosing the canal has virtually eliminated PCSs to this conveyance system.

7.3 PCS Control Accomplishments

In the early 1980's, a water quality management plan was prepared for the Jordanelle/Deer Creek watershed as a condition of EPA's approval of the environmental impact statement (EIS) for the construction of the Jordanelle Dam. That plan was completed in 1984, with implementation reports being written on nearly an annual basis (see Appendix G for the 2012 Implementation Report).

The preparation of the water quality management plan, and the various implementation reports and updates, has been under the oversight of the PRWC which provides advice and assistance to elected officials and agencies on many issues related to protecting the quality of Deer Creek and Jordanelle Reservoirs and the Provo River. During roughly the same time frame this planning effort was occurring, other programs and activities were affecting the watershed. (1) The Heber Valley Special Services District constructed a new \$13 million sewage treatment facility to incorporate land application and eliminate the sewage treatment discharges to Deer Creek Reservoir from the communities of Heber City and Midway. (2) A Rural Clean Water Project (RCWP) under the U.S. Department of Agriculture provided funding to many of the dairy farmers in the Snake Creek area to clean up their dairy operations by preventing the discharge of manure (and phosphorus) into surface waters and ultimately Deer Creek Reservoir. (3) A Clean Lakes plan and project for Deer Creek Reservoir, funded by the EPA, provided substantial funding to continue clean-up activities (primarily phosphorus reduction for dairy farmers in the area).(4) Implementation of various management plans have facilitated multi-jurisdictional awareness and participation on preserving and improving watershed stability. (5) The Deer Creek TMDL was completed in March 2002. This provides the limits for the Division of Water Quality to use in restricting discharge permits and activities.

A few years later, a great deal of effort went into providing sewer service on the west side of Jordanelle Reservoir. The USBR and the DWQ provided nearly \$6 million dollars, in addition to other state and local contributions, for connection of the sewer to the Heber Valley sewage treatment plant specifically for the purpose of avoiding the need for sewage discharges into Jordanelle Reservoir.

Provo River Watershed Plan

All of these efforts have resulted in substantial reductions of phosphorus inputs into Deer Creek Reservoir and commensurate improvements in water quality. Algal blooms have been reduced and the need for chemical treatment of the reservoir by the downstream water users has been eliminated. It has been a success story which has been a model for similar efforts throughout the state and the nation.

7.4 Management Strategies for Specific PCSs

Table 7.1 is provided as a reference for existing rules, regulations, or other controls that are already in place to address specific PCS which may or may not currently exist in the watershed area along with the regulatory agency that is currently responsible to regulate the given PCS.

Nearly all of the PCS identified in Chapter 5 (Table 5.0) are adequately controlled by a Federal or State agency. These agencies are responsible for requiring each PCS to develop and implement best management strategies and appropriate measures to ensure adequate control and protection. If a particular PCS is not in compliance with applicable rules and regulations, the regulating agency is required to take appropriate action to ensure the PCS will soon be in compliance and therefore will not pose an un-necessary risk to the watershed.

In addition to existing regulatory controls, the existing management plans discussed in Section 7.2 address nearly all of the PCS identified in Chapter 5 (Table 5.0) for further protection against contamination of waters in the watershed.

Provo River Watershed Plan

Table 7.1 Existing governmental controls of potential chemical contamination sources.

Description of Contamination Process or Chemical	Potential Hazard	Existing Governmental Controls
Underground storage tanks (on State UST list)	Tanks could leak stored chemical directly into the ground and eventually be discharged into surface water sources.	Regulated by the Division of Environmental Response and Remediation through the Underground Storage Tank Rule. Tanks that are on the UST list are regularly inspected and often have safeguards such as secondary containment or continuous monitoring.
Leaking underground storage tanks (on State LUST list)	Leaks into the ground have been recorded. Until the source of the leak is located and repaired, the tank is a hazard. Contaminants could eventually be discharged into surface water sources.	Regulated by the Division of Environmental Response and Remediation through the Underground Storage Tank Rule. Tanks that are on the Leaking Underground Storage Tank (LUST) list are required to empty the leaking tank and fix or remove the tank before using it again.
Underground storage tanks (not on State list)	Tanks could leak stored chemical directly into the ground. There is no official monitoring of the tank to determine if it is leaking. A leak in this type of tank could go on unnoticed for long periods of time. Contaminants could eventually be discharged into surface water sources.	Regulated by the Division of Environmental Response and Remediation through the Underground Storage Tank Rule.
Above ground storage tank	Tanks located on or above the ground could leak their contents onto the ground and eventually be discharged into surface water sources. Spills may occur during filling or emptying of the tank. A major spill may also occur if the tank is ruptured due to an accident or natural disaster.	Tanks sold commercially are constructed according to ASTM standards. There are no existing governmental controls to regulate or observe above ground storage tanks at business locations.
Closed or abandoned underground storage tanks	When a tank is left in the ground after a business closes, the potential risk of contamination from the tank continues as long as the tank remains in the ground.	Closed tanks continue to be regulated by the Division of Environmental Response and Remediation.

Provo River Watershed Plan

Description of Contamination Process or Chemical	Potential Hazard	Existing Governmental Controls
Used oil collection and storage	The occurrence of used oil is the most common containment within the watershed protection zone. In the past many people have improperly disposed of used oil. Used oil is a persistent and severe contaminant. Today, the public is encouraged to take their oil to a certified collection owner. Garages frequently perform oil changes and often serve as collection centers. There is still a potential contamination risk, though much less than from private disposal, as the oil is stored at the collection center.	Disposal of used oil is regulated by the Division of Solid and Hazardous Waste through the Used Oil Management Act.
Brake fluid collection and storage	Brake fluid is not classified as a hazardous material but is considered toxic under Toxic Substance Control Act (TSCA) and Safe Drinking Water Act (SDWA). The presence of brake fluid in large quantities will diminish the quality of drinking water. This may result in added costs to the Coalition due to the need to removing the contaminant through treatment.	The majority of oils and oily wastes, including brake fluid, are not classified as hazardous waste under EPA regulations (MacKenzie, 1985). Brake fluid is a solid waste under RCRA and is regulated by the Division of Solid and Hazardous Waste. The Division only requires that the brake fluid be disposed of in a responsible manner. This means that the waste is sent to a Treatment, Storage, and Disposal facility instead of to a public landfill. Most businesses have the brake fluid removed by a registered transporter at the same time their used oil and other waste fluids are removed.
New oil used and storage	Oil storage in large quantities may be released to the ground by slow leaks, occasional spills, accidents, or natural disasters. The oil can pollute large volumes of water, as can used oil.	Governmental regulation related to environmental protection governing new oil use and storage is the Spill Prevention Control and Countermeasure Program, under the Clean Water Act. The regulating agency is the Division of Water Quality. This program does not directly regulate quality of containment and does not regulate storage under 660 gallons.

Provo River Watershed Plan

Description of Contamination Process or Chemical	Potential Hazard	Existing Governmental Controls
Asphalt products	The potential hazard to the water supply from the use and storage of asphalt products is the hydrocarbons in the viscous products such as the tack coat material, primers, and asphaltic cement. These products are often stored in liquid form in 55 gallon drums or larger containers. They are often stored outside and are loaded into tank trucks over unpaved surfaces.	There is no direct governmental control over the storage of asphalt products by contractors.
Inks and printing chemicals	Printing chemicals such as inks contain heavy metals, such as barium, that are toxic. Printers often use other dyes, oils and solvents that can pose a similar threat to the water supply.	Barium and other heavy metals are reportable under Section 313 of the Community Right to Know Act (SARA Title III).
Glues, stains, or paint sales	Glues, stains, and paints contain several organic compounds such as petroleum products and halogenated hydrocarbons. Some of these components are considered toxic and/or hazardous and would diminish the quality of the drinking water. Release may occur through accidental spills during transportation and handling, leaking during storage, or by improper disposal.	Some products contain chemicals that qualify as hazardous waste under RCRA when disposed, or are listed as toxic under SARA Title III. These substances are regulated through the Division of Solid and Hazardous Waste, but most local businesses use too small of quantities to be regulated. There are usually no direct requirements placed upon sellers of the products other than those required by the product manufacturers.

Provo River Watershed Plan

Description of Contamination Process or Chemical	Potential Hazard	Existing Governmental Controls
Resins	Resins are typically used in industrial manufacturing. They usually set up in a solid state quickly when exposed to the air and do not mix well with water, but they do often have some volatile organic compounds (VOC) which would mix with water. The VOCs are considered toxic and/or hazardous and if released into the water would diminish the quality of the drinking water. Release may occur through accidental spills during transportation and handling, leaking during storage, or by improper disposal.	Resins contain hazardous chemicals that are listed as toxic under the SARA Title III. These substances are regulated through the Division of Solid and Hazardous Waste, but most local businesses use too small quantities to be regulated.
Furniture refinishers	Furniture refinishers use a variety of chemicals in their stripping refinishing processes that can be harmful to the water. Stripping operations often use solutions such as methylene chloride, acetone, hydrochloric or phosphoric acid, perchloroethylene, and toluene. Many of the caustic solutions become wastes that contain high concentrations of methylene chloride, alcohols, metals, and other solvents. Several products are used during refinishing, such as stains, varnishes, shellacs, polyurethane, enamels, lacquers, and acrylic paints. These products contain several organic compounds such as petroleum products and halogenated hydrocarbons. (USEPA, 1990)	Some products contain chemicals that qualify as hazardous waste under RCRA when disposed, or are listed as toxic under SARA Title III. These substances are regulated through the Division of Solid and Hazardous Waste, but most local businesses use too small quantities to be regulated.

Provo River Watershed Plan

Description of Contamination Process or Chemical	Potential Hazard	Existing Governmental Controls
Solvent use-thinners and degreasers	The presence of solvents in the water supply can render the water unsuitable for drinking. Solvents are used in a variety of commercial and residential applications. They are used to clean objects and thin chemicals. The waste is usually toxic and hazardous to the water supply.	Solvents are often governed under SARA Title III and are regulated by the local Fire Department under the Division of Environmental Response and Remediation. The wastes are regulated by RCRA through the Division of Solid and Hazardous Waste.
Dry cleaners	Dry cleaners use solvents and spotting chemicals to remove stains and grime from clothing. The most common solvent used is perchloroethylene. Release of these solvents or spotting chemicals into the water supply can render the water unsuitable for drinking.	Solvents are often governed under SARA Title III and are regulated by the local Fire Department under the Division of Environmental Response and Remediation. The wastes are regulated by RCRA through the Division of Solid and Hazardous Waste.
Anti-freeze collection and storage	Anti-freeze is not a hazardous waste, but it can contaminate the water supply. Releases to the water supply may occur during draining of vehicles or while being stored.	There are no governmental controls.
Acids - industrial use	Acids, like solvents, are very hazardous substances and can have a detrimental effect on the water source if released. There is a potential for release of acids from industrial operations during use in acid baths, draining of containers, storage, and disposal.	Acids are toxic substances that are governed under SARA Title III and are regulated by the local Fire Department under the Division of Environmental Response and Remediation. The wastes are hazardous and are governed under RCRA.
Automobile battery storage	Batteries pose a hazard to the water supply if the acid is spilled or escapes through cracked casings.	The collection and disposal of batteries is regulated by the Division of Solid and Hazardous Waste through RCRA. Under the regulations, only batteries that are reclaimed or disposed are subject to the notification, transportation, storage, and disposal requirements of RCRA. Batteries that are returned to the manufacturer for regeneration are not subject to the law.

Provo River Watershed Plan

Description of Contamination Process or Chemical	Potential Hazard	Existing Governmental Controls
Extremely hazardous chemicals	This category covers a large list of chemicals that are considered to be hazardous to human health and the environment. They are used in light and heavy commercial and industrial settings. Most of these chemicals are toxic, even when greatly diluted, and some are carcinogenic. The presence of these chemicals in the water supply will diminish the water quality and can render it unusable. Release may occur through accidental spills during transportation and handling, leaking during storage or by improper disposal.	Extremely hazardous chemicals are governed under SARA Title III and are regulated by the local Fire Department under the Division of Environmental Response and Remediation. The wastes are regulated by RCRA through the Division of Solid and Hazardous Waste.
Electroplaters and metal fabricators	These types of businesses produce several by-products that can be a threat to the water supply, if released. The electroplating industry produces wastes such as metal scraps, spent solvents, still bottoms, paint residuals, acid and alkaline solutions, plating and stripping solutions, waste oils, heavy metal wastewater sludges, and metal dusts. (USEPA, 1990) These wastes can reach the water supply through deliberate or accidental dumps, spills, leaks, or floor washes.	The wastes from electroplating operations are usually hazardous substances and their disposal is regulated by the Division of Solid and Hazardous Waste under RCRA.
Photo-developing chemicals	Photo developers contain cyanides, biosludges, silver sludges and other sludges that can contaminate the water supply (USEPA, 1993). These contaminants may be released through improper disposal of the used photo developers.	The wastes are often classified as hazardous wastes under RCRA, but the quantities associated with most photo developing businesses is too small to be regulated.

Provo River Watershed Plan

Description of Contamination Process or Chemical	Potential Hazard	Existing Governmental Controls
Permanents	Perm solutions, dyes and miscellaneous chemicals contained in hair rinses can contaminate the water supply if present in large quantities.	These chemicals are regulated through the Toxic Substance Control Act (TSCA).
Soaps and waxes	Soaps and waxes are not a major source of contamination, but can be detrimental to water quality if discharged in large concentrations. Typical uses are car and truck washes, cleaning facilities, and commercial and industrial manufacturing. These contaminants may be released through leaks in underground sumps or accidental spills of soap or wax concentrates.	Soaps and waxes are not classified as hazardous or toxic under RCRA or EPCRA. There is no governmental controls related to water supply protection.
Fertilizer/pesticide/ herbicide application - residential	The over-application of pesticides or herbicides around private residences can result in excess amounts being carried into the water supply. Fertilizers can contain toxins and contribute nitrates to the water supply. The contribution by one residence is small, but the cumulative effect of a large number of homes and apartment complexes can result in a significant contribution to the water supply.	There are no governmental controls that can directly control the activities of residents in their own homes. The only means of control that the government has are regulations placed upon the manufacturers through FIFRA. These regulations require manufacturers to produce safer products and to label proper application rates.

Provo River Watershed Plan

Description of Contamination Process or Chemical	Potential Hazard	Existing Governmental Controls
Fertilizer/pesticide/herbicide application - parks/ cemeteries/ schools/churches	The over-application of pesticides or herbicides in municipal and other public locations such as parks, cemeteries, churches, and schools can result in excess amounts being carried into water supply. Fertilizers can contain toxins and contribute nitrates to the water supply. The contribution by the application of these chemicals on large grassed areas can result in a significant contribution to the water supply.	There are no regulations governing the application of these chemicals. There are requirements placed upon the manufacturers through FIFRA to produce safer products and to label proper application rates.
Storm Drains	Storm drain systems collect run-off from rain and snow melt. Hazardous chemicals may enter the storm drains due to accidents or delinquent spills. These drains often empty into water ways (rivers, lakes, or streams) that will impact the water supply.	Cities and counties are responsible for controlling and managing storm water through detention and/or retention ponds. The purpose for the detention structure is to store and then release the run-off at a slower rate. This slower discharge rate can help to minimize the effects and impacts of contaminants that are picked up and transported by storm run-off.
Septic systems	The septic tank/drain-field system is designed to provide limited treatment to sanitary wastewater from individual households, small businesses or small hotels. Most raw sewage is removed in the tank while the pathogens and phosphates are immobilized through a variety of physical and chemical processes as the effluent travels through the leaching field. The ability of the soil to remove the contaminants is limited and once the capacity of the soil is reached, the contaminants move through the soil relatively unaffected. Also, the capability of the soils to treat many household contaminants is limited. For example, nitrates and volatile organic compounds (solvents) are not removed in the septic tank nor are they immobilized in the soil. These and other household contaminants can move relatively easily into the groundwater (DDW, 1995) and be discharged to surface water.	The construction and location of septic tank/drain-field systems is regulated by the local Health Department, but there are no controls to regulate compounds which are disposed into the septic system. The State does mandate that the septic systems is at least 300 feet away from any public water supply.

**Provo River
Watershed Plan**

Description of Contamination Process or Chemical	Potential Hazard	Existing Governmental Controls
Junk yards	Junk yard businesses buy or accept discarded, wrecked and abandoned vehicles, trailers, and equipment. Some junk yard operators collect brake and transmission fluids, anti-freeze, batteries, gasoline and motor oils from the junk vehicles. Waste fluids are generally stored on-site in 55 gallon drums or in tanks. Uncontaminated gasoline may be stored for use by junk yard forklifts and other machinery. The storage areas for waste fluids are a potential threat to the surface water.	Much of the used anti-freeze, lubricating fluids, and oil contains volatile organic compounds and heavy metals and fall under RCRA as hazardous wastes. The used oil is also regulated by the Used Oil Management Act. Batteries can also become a hazardous waste if the acid is released out of the cell. Much of the fluids remain unregulated.
Storm drains - Class V injection wells	Storm drains that are not tied into a storm water collection and removal system, and drain the water immediately into the ground are classified as Class V injection wells (shallow wells) by the State of Utah. These drains act as concentrated zones of contribution and provide direct access of water collected from a large area into the groundwater under high hydraulic heads. Hazardous chemicals may enter the storm drains due to accidents or delinquent spills.	There are no governmental controls of storm drains related to groundwater quality protection or as injection wells.
Concrete products	The hazard from concrete products is minimal because of the hydration reaction with water. In the presence of water, the cement hardens into concrete. Some of the constituents of the cement, such as lime, can increase the salinity of the water. Some chemicals are used in concrete production, casting, and curing processes.	There are no regulations governing the storage or disposal of concrete products.

**Provo River
Watershed Plan**

Description of Contamination Process or Chemical	Potential Hazard	Existing Governmental Controls
Salt piles	Large quantities of salt that are stored outside (salt piles) are usually exposed to the weather. Water falling on the salt pile or runoff flowing through the pile will pick up salt in solution. If the saline water enters the surface water, the salt will remain in solution and will increase the salinity of the surface water.	There are no governmental controls for the containment of salt piles.
Residential homes- toxic chemicals and wastes	A variety of household products such as automobile fluids, paints, household cleansers, detergents, wood preservatives, chlorine for swimming pools, and many others have components that are harmful to the surface water. These products can be released through septic systems, sewer systems, improper storage, overuse, reckless use, or dumping.	There are no governmental controls on the private use of household chemicals. Some blatant dumping of contaminants into the environment can be treated as a criminal offense, but the government is not able to monitor private dumping in any way.
Medical wastes	Medical wastes may contain contaminants such as X-ray developers, infectious wastes, radiological wastes, biological wastes, disinfectants, asbestos, beryllium, dental acids, or miscellaneous chemicals (USEPA, 1993). The bacterial contaminants are short lived and would not pose any problem over long distances; but the radiological wastes, disinfectants, and other medical chemicals can contaminate surface water.	Medical wastes are treated as hazardous wastes and are disposed of in a similar manner to other RCRA hazardous wastes.

Provo River Watershed Plan

Chapter 8 Managing Future PCS Hazards

8.1 General

Future potential contamination sources are businesses and other activities that do not yet exist within the watershed, but have a potential of locating within these areas under existing social, economic and zoning conditions. Some of these future sources might perform the same type of functions as existing PCSs, or they could be activities that were not previously located in the watershed. Management strategies to control future potential contamination sources involve controlling or prohibiting future PCSs that may become established within the watershed. The management strategies also address the larger issue of preparing ordinances that address future PCSs throughout the watershed. The Coalition has no regulatory authority or jurisdiction to direct the amount, size, or severity of risk associated with future potential contamination hazards.

A successful Watershed Protection/Management Program requires management strategies that consider both the specific authorities and jurisdictions of those who can enforce the plan to protect the surface water resource. In order to effectively prevent or reduce the potential for contaminating sources, each member of the Coalition is actively involved with the PRWC, working cooperatively with a variety of city and county representatives to protect water quality. These agencies and municipalities have the regulatory authority and jurisdiction to effectively protect the watershed and the drinking water sources.

8.2 PRWC Plan to Manage Future PCSs

The Provo River System is a great resource, which benefits many people throughout the area. The recommendations provided are suggestions to further protect water quality in the Provo River, and Jordanelle and Deer Creek Reservoirs. Coalition members plan to review and implement any or all of the following recommendations to further protect water quality and the Provo River Basin watershed as part of PRWC and other organizations. PRWC prioritizes which recommendations get completed first according to time, personnel, cost restrictions and effect on water quality.

8.2.1 Jordanelle Reservoir – Management of Releases

The Jordanelle Reservoir has helped improve the water quality in the middle Provo River by retaining phosphorus, and controlling dissolved phosphorus levels in releases through the Selective Level Outlet Works (SLOW) which is operated by CUWCD. The SLOW has been used effectively to optimize water quality into Deer Creek Reservoir since 1996.

Provo River Watershed Plan

8.2.2 Kamas Fish Hatchery

The Kamas Fish Hatchery expanded its operation to almost double the output of fish in 2001. The expansion incorporated features such as settling ponds and concrete linings which will greatly aid in reducing TSS in the effluent. PRWC will continue to work with the DWQ to encourage phosphorus limits in the hatchery's UPDES permit.

8.2.3 Heber Valley – Storm Water Controls

PRWC and Wasatch County have completed a Storm Water Study in Heber Valley. The valley continues to experience increased urbanization which tends to increase natural storm runoff conditions. This study has identified potential sites for construction of new sedimentation basins intended to reduce eroded sediments in surface waters prior to entering Deer Creek Reservoir. A copy of this study is presented in Appendix J.

Evidence shows that spring runoff is the primary source of the total phosphorus load entering Deer Creek Reservoir. On average over 60% of the TP load entering Deer Creek Reservoir enters during the three months of the spring runoff and the majority of that load is in the form of suspended solids. This suggests that a series of strategically located storm water detention basins could reduce the amount of total phosphorus entering the reservoir from tributary streams by about 25%. These settling basins should be located at the terminus of the canals and ditches that catch the runoff and prevent the suspended solids from reaching the tributary streams.

8.2.4 Agricultural – Non-Point Source Erosion

In coordination with the Tri-Valley Watershed Project, the NRCS has developed a guide for farmers and ranchers called *A Pasture & Hayland Management Guide: For Small Farms & Ranches in Wasatch County* (see Appendix D). The guide addresses planning, economics, water management, soil conservation, and other important issues involved with agricultural lands. Best management practices are encouraged to reduce erosion and pollution entering the local streams. The NRCS offers free training to farmers interested in using the guide for management of their farms.

The current Main Creek, Wallsburg Utah Riparian Improvement Project has been initiated following those same guidelines and BMPs to help reduce phosphorus loading to Deer Creek Reservoir.

Provo River Watershed Plan

8.2.5 Ordinances around Jordanelle

Heavy development is expected to continue within the next 4-5 years in the Jordanelle area. Wasatch County adopts ordinances that will address the specific needs of the Jordanelle basin developments. These ordinances address such water quality concerns as proper storm water management, sediment controls, erosion controls, re-vegetation, restoration and drainage.

8.2.6 Potential Reduction in Phosphorus Loading

The following are possible management scenarios to help reduce total phosphorus levels which are of primary concern. Each sub basin, as outlined in Table 1.4 will be addressed separately. This section focuses only on phosphorus because it is the nutrient of primary concern.

8.2.6.1 Provo River above Jordanelle Reservoir

Non-point sources are the primary cause of total phosphorus loads in the section of the Provo River between Woodland and Hailstone. These loads can have an effect on the water quality of Jordanelle Reservoir. Farming and grazing practices in this area should be observed and best management practices implemented where necessary. Furthermore, stream banks should be examined to determine if stream bank erosion is a significant problem during spring runoff.

Many new developments are being planned that will be located in the Provo River Drainage above Jordanelle Reservoir. Wasatch County currently has adopted the manual, *A Guide for Erosion and Sediment Control*, (see Appendix A) to be followed for all new development. This guide should be strictly enforced to limit the impact that these developments will have on the water quality in the area. Furthermore, all new developments should comply with Wasatch County guidelines for storm water management as outlined in *A Guide for Erosion and Sediment Control* that calls for the containment of the entire runoff volume from a 2-year, 24-hour storm event. Following these measures will help limit the impact to the water quality in the Upper Provo River Basin.

8.2.6.2 Provo River below Jordanelle Reservoir

The SLOW at Jordanelle Reservoir is operated to reduce the export of phosphorus into Provo River and Deer Creek Reservoir. Studies have shown that releases from gates or a combination of gates to create optimal fishery temperatures downstream also minimizes the release of phosphorus.

Provo River Watershed Plan

In 2003, the 208 area-wide water quality management plan was amended to allow a new point source discharge in the Provo River. The Jordanelle Special Service District (JSSD) has constructed a discharging wastewater treatment facility located below Jordanelle Dam. It includes advanced technology membrane filters which will result in a discharge water quality that will be equal to or better than ambient water quality in Provo River. The PRWC has been closely involved in the review of the UPDES permit limitations to protect the drinking water source. A discharge permit was issued in 2008 and is currently being reviewed for renewal even though the facility has not treated any wastewater nor discharged at the time of this update.

8.2.6.3 Provo River above confluence with Snake Creek

The majority of total phosphorus entering this section of the Provo River can be attributed to storm water runoff, spring snowmelt runoff, and the return flow from irrigation in the valley. These flows bring with them contaminants picked up from the land as the water flows over it. With the increasing urbanization in Wasatch County, storm water runoff is expected to increase as a significant source of pollution. Wasatch County, in cooperation with PRWC, has created a *Heber Valley Storm Water Management Plan* to evaluate the best options on how to control the quality and quantity of storm water and irrigation return flow entering the Provo River (see Appendix J). Wasatch County and PRWC should adopt the measures suggested in this plan and work on their implementation.

8.2.6.4 Provo River below Deer Creek Reservoir

The Provo River below Deer Creek Reservoir is influenced primarily by the water quality in the reservoir. Since much of the water released from the reservoir is for culinary purposes, it is important to maintain the water quality in the reservoir. Therefore most of the efforts discussed previously are primarily aimed at improving the water quality in Deer Creek Reservoir. In addition to the efforts discussed previously, efforts should be made to support the Resource Management Plan being adopted by the USBR for the operation of Deer Creek Reservoir.

8.2.6.5 Snake Creek above confluence with Provo River

A major source of phosphorus in Snake Creek comes from the Midway Fish Hatchery. The fish hatchery has a UPDES permit of 626 kg/yr of total phosphorus. During 1999 429 kg of TP was introduced into Snake Creek by the Fish Hatchery. This marks a trend of decreasing

Provo River Watershed Plan

TP discharge from the hatchery. Continued efforts should be made to maintain this trend of low TP loads coming from the hatchery. These efforts include maintenance of sedimentation ponds and the use of low phosphorus food for the fish.

The Midway Fish Hatchery's Utah Pollutant Discharge Elimination System (UPDES) permit UT0025879 was renewed on March 25, 2010 and will expire in February 2015. It specifically limits the total suspended solids (TSS) maximum concentration to 25 mg/l, pH to a range of 6.5 to 9.0, and net increase of total phosphorus to 400 kg/yr. The permit requires the hatchery to monitor the influent springs and the effluent springs for the determination of net increase of total phosphorus.

In addition, efforts should be made to implement best management practices and erosion control measures in this area. This could include a fertilizer management plan to help reduce the phosphorus from the golf courses in the area. The United States Golf Association has conducted a great deal of research on how to limit the environmental impacts of golf courses. A number of publications have been published and it is recommended that these resources be fully investigated and more specific recommendations made.

Because much of Snake Creek flows through the town of Midway, an effort to coordinate water quality efforts with the town should be made. The *Heber Valley Storm Water Management Plan* should detail ways in which the County and town of Midway can work together to improve the water quality in Snake Creek.

8.2.6.6 Daniels Creek above Deer Creek Reservoir

Daniels Creek continues to have poor water quality. This is largely attributed to the high percentage of irrigation return flows and to spring and storm runoff. Many of the dairy farms which contributed to the poor water quality in Daniels Creek have been sold and therefore, animal waste is not as great a concern as it has been in the past. However, because of the continued poor water quality, additional efforts must be made. This can include implementation of best management practices and implementation of the *Heber Valley Storm Water Management Plan*. Potential projects which can improve the water quality include storm water basins and detention facilities on the canals and tributaries that feed Daniels Creek.

Provo River Watershed Plan

8.2.6.7 Main Creek above Deer Creek Dam

Main Creek has consistently had phosphorus concentrations above State DWQ water quality recommendations. Factors that have contributed to this poor water quality include spring snowmelt and storm water causing stream-bank erosion and irrigation return flows. The Tri-Valley report suggests that septic tank failure might also be contributing to this problem. However, this has not been confirmed. PRWC should continue efforts to help landowners implement best management practices and support other efforts of erosion control in this area.

8.2.7 Potential Phosphorus Reductions to Deer Creek Reservoir

Table 8.1 presents anticipated reductions in TP due to the various management techniques discussed in this document. Attempting to put a numeric figure on the amount of phosphorus removed by certain management techniques is not an exact science. The actual amount of a particular constituent that is removed depends on a variety of factors. The potential reductions due to the operation of the SLOW is based on data from the 1996 water year, the only year for which data is available when the SLOW was operational. Potential reductions in Heber Valley due to the implementation of the *Heber Valley Storm Water Management* (see Appendix J) plan are based using detention ponds used to trap sediments that contain phosphorus.

Table 8.1 Anticipated Reductions in Total Phosphorus Due to Various Management Strategies.

Management Strategy	Responsibility	Potential Reduction
Additional Reductions with Operation of SLOW Tower at Jordanelle Reservoir	CUWCD & USBR	2,800 kg/yr
Water Efficiency and Daniel Replacement Projects	CUWCD	100 kg/yr
Provo River Restoration Project	URMCC	100 kg/yr
Tri-Valley Watershed Improvements	NRCS	300 kg/yr
Storm Water Management	Wasatch County	448 kg/yr
Total Potential Reductions		3,748 kg/yr

The Deer Creek TMDL Study completed in March, 2002 identified phosphorus load reduction criteria. In order to achieve the necessary load reductions, multiple projects will be required that incorporate Best Management Practices (BMPs). In addition to the previously mentioned management plans, the following projects are currently in process of being completed or are recommended to be

Provo River Watershed Plan

completed to achieve necessary reductions: Cleanup of Potential CAFOs Conversion to Sprinkler Irrigation Systems, Integrated Watershed Information System, Main Creek Stream Bank Restoration, and Agricultural BMP Project. Table 8.2 below shows the load allocations set in the Deer Creek TMDL Study. The study is included in Appendix B.

Table 8.2 Phosphorus Load Allocations from Deer Creek TMDL Study (March 2002).

Description	Current Loads kg TP / year	Load Allocation kg TP / year	Load Reduction kg TP / year
Groundwater	2725	2725	
Background (Includes Jordanelle Reservoir Discharge of 2,965 kg/year)			
	4225	4225	
WLA - Current Point (Hatchery)	700	500	200
WLA - Future Point	0	500	
LA – Agriculture	6350	5485	865
LA – Urban	1300	1115	185
LA - Future Nonpoint	0	750	
Total Load	15300	15300	
15% Margin of Safety		2700	
Maximum TMDL Load		18000	

8.2.8 Future Monitoring

Jordanelle has the greatest potential to release high dissolved total phosphorus (DTP) concentrations and loads from late August through November. After Heber Valley irrigation diversions stop in September, the full phosphorus load is conveyed to the Deer Creek Reservoir. Deer Creek has the greatest potential to respond with blue-green algae blooms from mid-September to mid-November depending on temperatures. The operation of the SLOW at Jordanelle Dam has been used effectively at this critical time to minimize the release of DTP.

Continued efforts should be made to trace the sources of DTP entering the water system. This could have profound impact on reducing the DTP concentrations in Deer Creek Reservoir. In addition, efforts should be made to monitor the DTP levels of the water being discharged from the Jordanelle Reservoir. As has been noted, if the DTP concentration of water discharged from Jordanelle and thus entering Deer Creek Reservoir continues to increase, the water quality problems in Deer Creek Reservoir may be compounded. In order to help understand the impacts that activities in Heber Valley are having on the groundwater quality, a groundwater monitoring program has been implemented. This will help to insure that the water quality of the Heber Valley Aquifer is not being negatively impacted and to determine the quality of the groundwater returning to Provo River.

Provo River Watershed Plan

8.2.9 Private Developments

Require that any new private development be subject to regulations for control of runoff, pollutant control, and plan review similar to that required of Deer Valley and Mayflower Mountain Resorts. This means proper monitoring, feasibility studies, engineering evaluations, and signed agreements for compliance prior to construction.

8.2.10 Public Developments

Implement a process whereby any public development, be it state, federal or local, including recreational developments or facilities built around Deer Creek Reservoir or Jordanelle Reservoir, comply with the same requirements as for private developments. Also, continue the review process by State County Health Departments whereby proper sanitation facilities are constructed.

8.2.11 Amend County Zoning Ordinances

Require that zoning ordinances of Wasatch and Summit County be amended to prohibit runoff or discharges from animal concentrations from entering any live stream or waterway that reaches Deer Creek Reservoir or Jordanelle Reservoir.

8.2.12 Mayflower Tailings

Upon construction of the Mayflower Mountain Resort, require developers to include stabilization of the Mayflower tailings ponds in their plans. This should include preventing runoff or seepage of water from other polluted mines or mine dumps where water issues from the mine and runs over or through said dumps.

8.2.13 Other Restoration Techniques

Continue to consider other restoration techniques or phosphorus reduction programs. There may be others that may have not yet proven cost-effective, been demonstrated as needed or conceived. There may still be other reductions achievable with little or no effort.

Provo River Watershed Plan

8.3 Future Management Strategies

Because the Coalition is not vested with legislative or land use planning authority, it cannot make zoning or subdivision ordinance changes. The management strategies to be pursued by the Coalition will be to: (1) maximize implementation activities under its authority; and (2) work with the State agencies, County governments, and local City Councils to encourage implementation of regional protection strategies that require the cooperation of multiple agencies and jurisdictions. Table 8.3 shows the kinds of management strategies that are proposed for PRWC consideration and delineates them into three categories: (1) strategies that prevent impacts; (2) strategies that minimize impacts; and (3) strategies that provide information or react to impacts.

Table 8.3 Management Strategies Considered for Future Application

Management Strategies Considered for Future Application to the Regional Protection Program
<p><i>Strategies that Prevent Impacts</i></p> <ul style="list-style-type: none"> ➤ Conservation Easements ➤ Household Hazardous Waste Programs ➤ Land Use Prohibitions ➤ Septic Systems - Prohibit New Ones ➤ Septic Systems - Extend Sewer System and Tie-In Existing Septic Systems
<p><i>Strategies that Minimize Impacts</i></p> <ul style="list-style-type: none"> ➤ Above Ground Storage Tanks and Pipeline Regulations ➤ Agricultural Best Management Practices ➤ Hazardous Materials Use Prohibitions ➤ Impervious Surface Limits ➤ Industrial Best Management Practices ➤ Inspections of Industrial Best Management Practice Implementation ➤ Overlay Zone ➤ Public Education ➤ Toxic, Hazardous, and Other Materials Handling Regulations ➤ Underground Storage Tank and Line Regulations ➤ Storage of Road Salt Limitations
<p><i>Strategies that Provide Information or React to Impacts</i></p> <ul style="list-style-type: none"> ➤ Emergency Spill Response Plan ➤ Evaluation of Source of Nitrates ➤ Monitoring ➤ DWSP Boundary, Spill Notification, and Other Signs

8.3.1 Conservation Easements

A conservation easement may be donated to or purchased by a land trust or the State, for the purpose of providing long-term protection of a natural resource. The landowner donating or selling an easement continues to own the land, but gives up most or all rights to develop it. The land trust or agency accepting the easement agrees to monitor the easement and ensure that the terms of the easement are met. A conservation easement may permit continued private ownership, use, and residency of a parcel; will allow the sale of the property with

Provo River Watershed Plan

conservation provisions; and will provide a landowner with tax benefits and financial incentives.

Although conservation easements are not expected to be a primary management strategy they are a valuable tool to protect the most sensitive portion of the watershed protection zones (Zone 1). As such, they will be considered as one of the options available to prevent impacts to the source water.

8.3.2 Household Hazardous Waste Collection Program

A variety of common materials used around homes pose a threat if spilled or improperly disposed of onto the ground or into household garbage. These materials include photographic chemicals, drain cleaners, rug and upholstery cleaners, floor and furniture polish, pool chemicals, brake fluids, silver polishes, pesticides, oil-based paints, furniture strippers, and wood preservatives and stains. A household hazardous waste collection program provides for the periodic collection and appropriate disposal of these hazardous materials. Collection programs can address a source of pollutants that are difficult to regulate.

Opportunities for hazardous waste collection programs that include common household hazardous wastes such as batteries, pesticides, oil-based paints and solvents, and cleaning materials should be included. This program will be considered as an educational component of a management strategy.

8.3.3 Above Ground Storage Tank and Pipeline Regulations

Surface tanks, or aboveground storage tanks, are used to store waste and non-waste materials. They primarily store chemicals that are used by industry and agriculture or store motor and heating fuel for home and farm use. If above ground storage tanks are not properly designed, installed, maintained, and operated, they can leak and cause contamination. The primary cause of releases from above ground storage tanks is from spills and overflows.

8.3.4 Agricultural Best Management Practices (BMP)

Agricultural activities often involve the use of fertilizers to provide nutrients for better plant growth and pesticides to control crop diseases, kill insects, and destroy weeds. Pesticides and nitrates, which are a component of fertilizers, are soluble and have the potential to contaminate groundwater. The likelihood of a pesticide reaching a surface water source depends on its characteristics. Pesticides that are resistant to degradation, are soluble, or leach from soil have the greatest potential to contaminate surface water sources.

Provo River Watershed Plan

8.3.5 Industrial BMPs and Implementation Inspections

Industrial BMPs are any practice that reduces the potential for spills and leaks at an industrial or business site. In addition to the practices described below, they include general storm water management practices, underground storage tank and pipeline regulations, and above ground storage tank and line regulations.

Other BMPs to be considered are those requiring containment for runoff from fire fighting water. Often, an industry that has virtually no hazardous materials on site can be the source of highly hazardous substances in the event of a fire. For example, in the event of a fire, a textile warehouse or distribution center would pose a high threat. As it burns, wool releases cyanide and ammonia, cotton releases poly-nuclear aromatics, and would be mobilized by the application for a water to a fire.

8.3.6 Public Education

Public education is another tool available to build support for DWSP and to reduce contamination associated with unregulated, dispersed, and small quantities of pollutants. Despite the fact that quantities are often small, cumulatively they can be significant. Target audiences include:

- Residential and industrial water users inside the watershed zones;
- Landowners with any portion of their property inside the watershed zones;
- Any facility or operation (business, industry, agriculture) identified as a PCS;
- Business leaders interested in the impacts of the DWSP Plan on the community;
- Community members interested in environmental issues;
- Service organizations and community groups; and
- Educational facilities (particularly grade and middle schools).

Public education activities differ among target audiences, but in general should provide information on source water as a source of drinking water (e.g., the water cycle, water and its uses), the vulnerability of the water supply (e.g., how surface water becomes contaminated), how the DWSP Plan helps to ensure a safe drinking water supply, and what every resident, business, and landowner can do to support the management program and include pollution prevention strategies in their daily activities.

Additional strategies for educating the public and disseminating information may include:

- Utility bill inserts that provide residents with information about source water/watershed protection;
- Meetings with the business community to enhance their understanding of

Provo River Watershed Plan

the goals and requirements of the management program, and to encourage existing industry to comply with the requirements;

- Elementary and high school curriculum developed by teachers;
- Press releases to enhance public understanding of the DWSP Plan; and
- Fact sheets and presentations to local cities and the counties.

A public information subcommittee of PRWC has developed a logo to convey the message that Deer Creek and Jordanelle Reservoirs are primarily storage reservoirs for drinking water. Additionally these reservoirs provide scenic and recreation opportunities and should therefore be protected from unnecessary pollution.

To convey the importance of keeping the watershed clean to the public, litter bags and signs were distributed to the State Parks at both reservoirs. The litter bags are distributed at the entrances and the signs were posted around the parks.

In addition, the State Division of Wildlife Resources (DWR) published the logo with some explanation in the 1998 Fishing Proclamation and in the winter 1998 Wildlife Review. The State Division of Parks & Recreation printed the logo and explanation in the spring 1998 Discover.

Currently PRWC is working to begin a public education campaign in cooperation with the Utah State Department of Agriculture, Soil Conservation Service, Soil Conservation Districts, etc. to control over-application of water and consequent runoff from farm lands, grazing lands, winter feeding operations, and pastures. This could mean encouraging sprinkler irrigation and implementing various practices to reduce the runoff from pasture and winter feeding operations. Also, the appropriate agency should be involved in assisting the farmers and ranchers with their plans for implementing BMPs in order to be eligible for certain types of federal assistance.

8.3.7 Toxic, Hazardous, and Other Materials Handling Regulations

Business and industry permitted to operate within a watershed area have the potential to store, handle, and use large quantities of hazardous and toxic materials that could, if not properly controlled, result in a release.

Regulated substances may be used, handled, or stored in quantities not exceeding the "Reportable Quantity" for each regulated substances, as designated in 40 CFR 302 (pursuant to Section 311 of the Clean Water Act).

8.3.8 Underground Storage Tank (UST) and Pipeline Regulations

USTs are used by municipalities, homeowners to store heating oil; by farmers to store fuel for farm equipment; by service stations, trucking companies, and

Provo River Watershed Plan

highway departments to store gasoline and diesel fuel; and by many other businesses to store gasoline, heating oil, solvents, hydraulic fluids, industrial process materials, and various (frequently hazardous) wastes. Tank capacities can range from less than 55 gallons to 25,000 gallons or more.

Leaking USTs are a direct and serious threat to source water because of the types of materials they store, and the potential for leaks to go undetected. Gasoline additives such as benzene, toluene, and methyl tertiary butyl ether (MTBE) will dissolve in the groundwater and move through it where it will eventually discharge into a surface water source.

Public education activities will be directed to residents and oil suppliers to make them aware of the need for a permit to remove or close leaking USTs. The permit will require that leaking tanks are pumped dry and removed from the ground by a State-licensed company. If removal is not feasible, the lines will be disconnected and capped and the tank will be filled with an inert substance such as washed sand. This will prevent an empty tank from collapsing if it rusts.

8.3.9 Evaluation of Source of Nitrates

Large dairy and cattle operations can contribute to concentrated nitrates levels. These operations can be regulated under the Confined Animal Feeding Operation (CAFO) rule. Smaller operations should be encouraged to manage manure production and waste flows that will impact surface water sources.

8.4 Criteria for Selecting Management Strategies

A high level of preference, or importance, will be placed on management strategies that address pollutant sources posing the highest risk to human health. Ease of implementation will also be considered because a highly effective strategy that could be implemented using existing staff, institutions, or funding is preferable to a highly effective strategy that requires new staff, new funding, or new layers of government. The criteria and objectives for evaluating the management strategies are shown in Table 8.4.

Provo River Watershed Plan

Table 8.4 Criteria for Evaluating Potential Management Strategies.

Criteria for Evaluating Potential Management Strategies	
<i>Criterion</i>	<i>Objective</i>
1. Implementation Cost	The objective is to reduce the up-front cost of implementing each management strategy. Up-front costs may include construction expenditures, development of regulations, and initial staff time. These costs are separate from on-going operation and maintenance, or life cycle, costs.
2. Life Cycle Cost	The objective of this criterion is to reduce the on-going operation and maintenance costs associated with the life cycle to the management strategy. Life cycle costs may include monitoring, on-going education, inspection, reprinting, operation and maintenance.
3. Preventive Strategies	The objective of this criterion is to maximize the use of management strategies that emphasize prevention of potential pollutant sources, rather than reaction to sources once they have occurred. The possibility of aquifer contamination is greater once a source exists.
4. Prioritized Risk	The objective of this criterion is to maximize the use of strategies that address the highest risk pollutant sources on the basis of type and quantity. This acknowledges that all pollutant sources do not present the same level of risk to human health. Some sources may pose a higher risk than other sources.
5. Existing Conditions	The objective of this criterion is to maximize the use of strategies that address known pollutant sources and existing conditions, rather than facilities, land uses, or other structures that are not currently pollutant sources, but may become a source in the future.
6. Effectiveness	The objective of this criterion is to maximize the use of management strategies that most effectively protect the surface water sources.
7. Ease of Implementation - Use of Existing Institutions	The objective of this criterion is to maximize the use of management strategies that can be implemented easily. This is defined as a strategy that can be implemented quickly using existing regulations or institutions, their funding level, and their staff. This would be distinguished from a management strategy that requires the creation of a new institution, hiring new staff, or allocating new funding.
8. Ease of Obtaining New Funding or Staffing	The objective of this criterion is to maximize the use of management strategies that can easily and quickly obtain the necessary level of funding and staffing for successful implementation. This criterion would apply to (or help select between) only those strategies that require new funding or staffing.
9. Acceptance by Majority of Affected Parties	The objective of this criterion is to maximize the use of management strategies that will be acceptable to the affected interest groups such as general residential, agricultural, and business/industry.
10. Economic Impacts	The objective of this criterion is to select management strategies with the least impact on revenue generation such as reduction in potential tax base, construction potential, or employment opportunities.
11. Unregulated Sources	The objective of this criterion is to select management strategies that address unregulated sources.

Provo River Watershed Plan

8.5 Management Strategy Review

Existing management plans are reviewed and updated as necessary. The Jordanelle Reservoir Management Review is included in Appendix K. The Recreation and Land Management Review for Deer Creek Reservoir is included in Appendix L.

Provo River Watershed Plan

Chapter 9 Implementation Schedule

9.1 General

The members of the Coalition will work within PRWC and other agencies and organizations to continue implementing watershed protection activities as outlined in the organizations' yearly workplans (see Appendix M). These workplans will address those activities which are deemed most urgent and necessary to continue to protect the water quality and watershed within the Provo River Basin area.

An implementation report is prepared by PRWC which presents data collected, conclusions made, successes, failures, and recommendations for the following year's PRWC workplan. The 2012 Implementation Report for 2010 and 2011 data may be viewed in Appendix G.

Provo River Watershed Plan

Chapter 10 Resources

10.1 General

Existing staff of each individual Coalition member will be used to implement the DWSP Plan. Currently staff from each Coalition utility is active in the PRWC as well as the Utah Water Quality Alliance (Alliance). While PRWC is dedicated to preserving and enhancing raw water quality, the Alliance is committed to ensuring the best possible water treatment processes are practiced. Each organization is valuable in ensuring the public receives the highest quality drinking water available.

Each member of the Coalition contributes significantly to the PRWC by in-kind contributions as well as monetary funding.

Provo River Watershed Plan

Chapter 11 Record Keeping

11.1 General

The Coalition will document any land management strategies that are implemented for the purpose of protecting drinking water source supplies. This will be accomplished by inserting copies of zoning ordinances, public education materials, permits, memorandum of agreements, and other relevant information into their administrative record. The administrative records will be housed according to the in-house record keeping management practices for each individual member of the Coalition. In addition to the records kept by each utility, annual PRWC Implementation Reports will also be kept to show progress and success pertaining to each area of emphasis identified in Chapter 5.

Provo River Watershed Plan

Chapter 12 Contingency Plan

12.1 General

Due to the size and activities occurring within the Provo River Basin area it is impossible to plan for and prevent every scenario which may contaminate waters within the watershed. Therefore it is necessary for those using water from the watershed to have a contingency plan in place to protect public health and water supply in the event of contamination. In the event of an emergency, such as a chemical spill or vehicle entering the Provo River or Deer Creek Reservoir, the following notification tree (see Figure 12.1) will be followed in order to notify each utility. After notification, each utility will determine the appropriate action to be taken, which may include closing the intake from Deer Creek Reservoir and using other water sources until the contamination is eliminated.

While each Coalition member has established its own contingency plan, it is expected that each utility will be in constant communication with the other utilities to notify, aid one another and share available resources in such an event. Each Coalition member has included its contingency plan as outlined in the following sections.

12.2 CUWCD–Utah Valley Water Treatment Plant

When raw water from Olmsted Diversion is not suitable for treatment (TSS, pollutants, etc.) at the Utah Valley Water Treatment Plant (UVWTP), CUWCD customer agencies (Orem MWD and Provo MWD) and JWCD are contacted. It is then the customer agencies decision and responsibility to determine which alternative source to use, including: contacting MWDSLs to obtain raw water through the Salt Lake Aqueduct (which would then be treated at the respective treatment plants U VWTP and JWTP), or to use wells and spring sources for their water demand. Olmsted Diversion water will not be used at U VWTP until it has been determined that the water is suitable for treatment.

12.3 JWCD–Jordan Valley Water Treatment Plant

The surface waters from the Provo, Weber and Duchesne Rivers constitute the largest portion of the current water supply. Each river system involves a series of storage reservoirs and direct flows without storage in rivers. Toxic contamination would most likely occur as discreet episodes, rather than continual contamination. This is due to the high flow rates in the rivers and large storage volumes in the reservoirs. Therefore, the JWCD relies upon emergency notification plans (see Figure 12.1) for vehicle accidents and other contamination threats to the Provo River. Upon notification of a possible contamination threat, JWCD would have various options. The staff at the Jordan Valley Water Treatment Plant (JVWTP) in Bluffdale would choose the best option given the type and magnitude of the contamination threat, the possible threat to human health, as well as the water demand at the time. The available options include:

Provo River Watershed Plan

- Closing the intake until the contamination is passed or remedied.
- Utilizing another intake such as the Salt Lake Aqueduct at Deer Creek Dam, the Olmsted Diversion midway down Provo Canyon, or the Murdock Diversion near the mouth of Provo Canyon. The choice of intakes would depend upon the location and extent of the contamination.
- Utilizing the Upper Pond located on JWVWTP property, which has a storage capacity volume of 180,000,000 million gallons, would allow continued operation until the contaminant has bypassed the intake and water is considered safe for treatment and consumption.
- Discontinuing operation of the JWVWTP until the contamination threat passes. Small to normal water demands could be met by JWVWCD's Southeast Regional Water Treatment Plant, Southwest Groundwater Treatment Plant, and/or by operating groundwater wells. High water demands could be met, for a short time, using the same alternative sources or by diverting water from the POMWTP or LCWTP through the Point of the Mountain Aqueduct. If necessary, the JWVWCD General Manager may ask the public to voluntarily conserve water until the event has passed.

Inorganic contamination is not anticipated. This type of contamination would involve long trends over time. Any inorganic contamination would most likely be addressed by membrane treatment processes or chemical precipitative softening.

12.4 MWDSL

The MWDSL currently operates 2 treatment plants, the Little Cottonwood Water Treatment Plant (LCWTP) and the Point of the Mountain Water Treatment Plant (POMWTP). The LCWTP treats water from Deer Creek reservoir through the Salt Lake Aqueduct as well as Little Cottonwood Creek water. If an emergency notification came to the plant that Deer Creek water quality had been compromised, indicating a compromise in Deer Creek reservoir or right at the dam, the plant would discontinue the use of the contaminated water and switch solely to Little Cottonwood Creek water. This switch would be in effect until the threat to Deer Creek passes below the Salt Lake Aqueduct intake and the water is considered safe. The POMWTP gets water from the Jordan Aqueduct and the Provo River Aqueduct. These are the same sources providing water to the JWVWTP.

The available options include:

- Closing the intake until the contamination is passed or remedied.
- Utilizing another intake such as the Salt Lake Aqueduct at Deer Creek Dam, the Olmsted Diversion midway down Provo Canyon, or the Murdock Diversion near the mouth of Provo Canyon. The choice of intakes would depend upon the location and extent of the contamination.

Provo River Watershed Plan

- Utilizing the raw water pond located on POMWTP property, which has a storage capacity volume of 30 million gallons, would allow limited continued operation until the contaminant has bypassed the intake and water is considered safe for treatment and consumption.

Discontinuing operation of the POMWTP until the contamination threat passes. Water demands could be met, for a time period that would vary depending on seasonal demands, using the LCWTP and bringing water through the Point of the Mountain Aqueduct as an alternative source.

Provo River Watershed Plan

12.5 Emergency Notification Tree

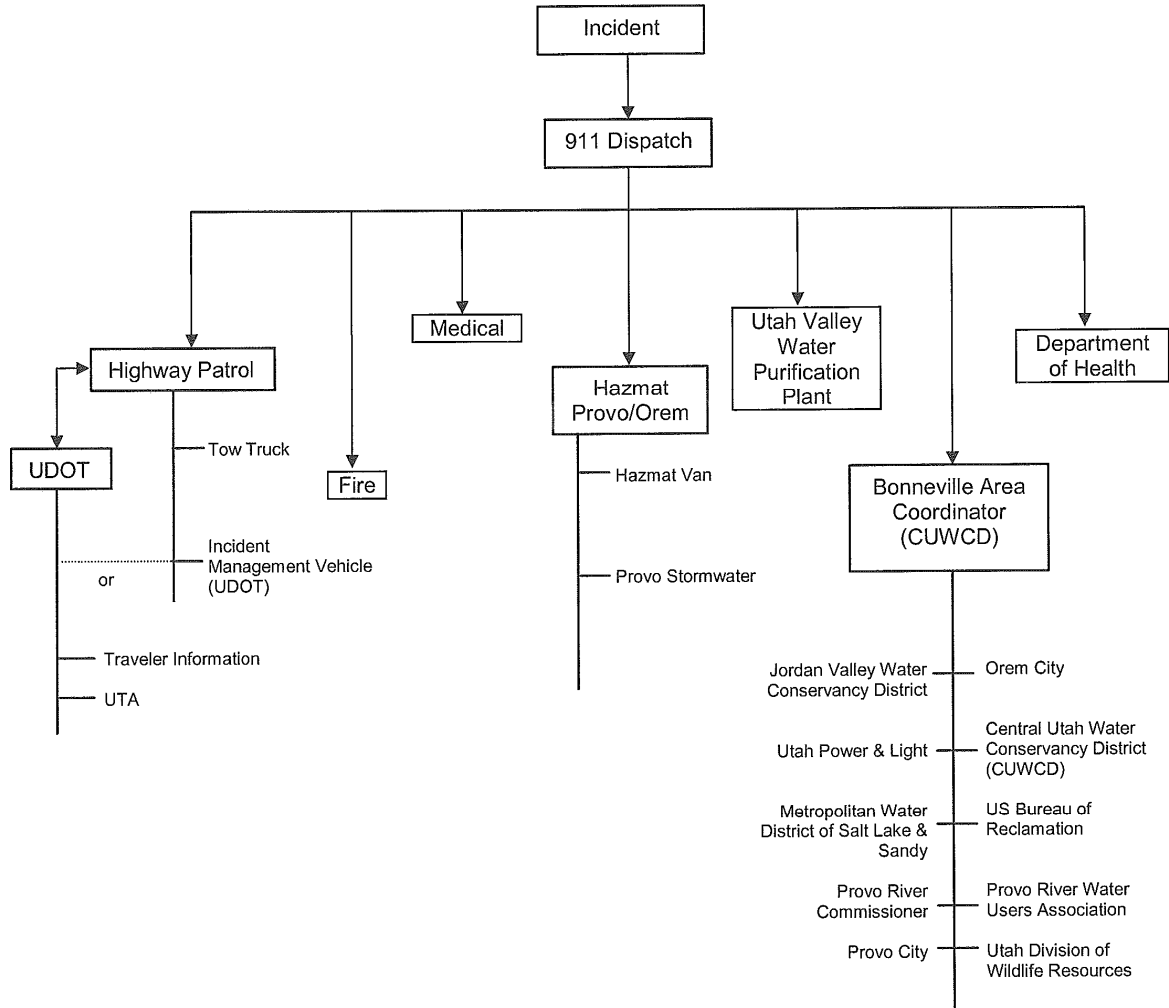


Figure 12.1 Emergency Notification Tree

Provo River Watershed Plan

Chapter 13 Public Notification

13.1 General

As required by the Source Water Protection Rule, the Coalition has prepared the following Source Water Assessment Public Summary. This summary will serve the purpose of notifying the public about the completed source water assessment and watershed management plan.

13.1.1 Introduction

A Watershed Protection Coalition (Coalition) has been formed by the following utilities: Jordan Valley Water Conservancy District (JVWCD), Metropolitan Water District of Salt Lake and Sandy (MWDSL) and Central Utah Water Conservancy District (CUWCD). The purpose of the Coalition is to work cooperatively in an effort to improve water quality by managing potential sources of contamination within the watershed. The Coalition has completed an assessment of potential contamination sources to protect regional surface water resources used for public drinking water as required by the 1996 Safe Drinking Water Act and by R309-600 and 605 of the State of Utah Drinking Water regulations. Coalition members obtain the majority of their source water from the Provo River Basin. The Coalition has prepared this Source Water Assessment Public Summary to provide information to their customers regarding local and state efforts to protect the water quality of the drinking water sources. This assessment encompasses the watershed that provides water to treatment facilities of JVWCD, MWDSL and CUWCD. The assessment is of "source" (river, lake, reservoir water) rather than "tap" water. Information on "tap" water quality is available in the annual Consumer Confidence Report provided by each utility. The various utilities can be contacted as outlined in Table 13.1 on the last page of this summary.

13.1.2 What is the Source of Your Drinking Water?

Members of the Coalition obtain water from the Provo River and Deer Creek Reservoir. An average of 148 million gallons of water is withdrawn from these sources each day. The water systems serve a combined population of approximately 1,225,000 customers. The watershed area is approximately 825 square miles or approximately 528,000 acres in Wasatch, Utah and Summit counties. The Provo River is the largest river in the watershed and it is fed by numerous smaller tributaries. Approximately 59% of the watershed is forested, 35% is used for agriculture (pasture and row crops), 2% is developed for residential, commercial or industrial uses, 1% is riparian/wetland area and the remaining 3% is used for various other purposes. There are approximately 576,418 (2010 Census) people living within the watershed.

Provo River Watershed Plan

13.1.3 Water Quality and Water Treatment Information

Water withdrawn from the Provo River and Deer Creek Reservoir is treated, filtered and chlorinated prior to distribution to customers. Water quality testing performed by members of the Coalition indicates that treated water met all EPA and Utah State drinking water rules and regulations.

13.1.4 Evaluation of Significant Potential Sources of Contamination (PCS)

The Coalition, through this assessment, has evaluated contaminants with the potential for entering the water drawn from the Provo River and Deer Creek Reservoir prior to treatment. The contaminants addressed in this assessment include those regulated under the Federal Safe Drinking Water Act as well as those that the Coalition has determined may present a health concern. The following categories have been identified as possible contamination risks to the water sources within the Provo Basin watershed. They include sewage discharges, agricultural practices, increasing development, storm-water runoff and recreational impacts. Each of these PCS is being addressed by a combination of the Utah Division of Water Quality and the cooperative agencies of the Provo River Watershed Council (PRWC).

13.1.5 Ongoing Watershed Protection Activities

State and federal agencies regulate direct discharge of regulated contaminants in this watershed. Other organizations, such as the PRWC are also active in further characterizing water quality within the watershed and recommending measures to reduce contaminants that may adversely impact the quality of the water supply. Other volunteer and government agencies are working cooperatively to address contamination within the Provo River Basin watershed.

An educated public is vital to ensuring that the Provo River Basin watershed is kept as pristine as possible. As a result the PRWC is actively working on public education programs.

13.1.6 Source Water Protection Needs

Based on the evaluation that was completed as part of this Source Water Assessment, the Coalition has determined that existing state and local programs provide adequate protection of the drinking water sources.

Provo River Watershed Plan

13.1.7 How to Obtain Additional Information

This *Source Water Assessment Public Summary* was completed in March 2002. A complete copy of the Coalition's Drinking Water Source Protection Plan is available at the Utah Division of Drinking Water and may be obtained by calling (801) 536-4200. Individual Coalition utilities can be contacted, as outlined below, for further information.

Table 13.1 Utility Web Sites.

Utility	Phone Number	Web Site Address
JVWCD	(801) 446-2000	www.jvwcd.org
MWDSLs	(801) 942-1391	www.mwdsls.org
CUWCD	(801) 226-7160	www.cuwcd.com

Provo River Watershed Plan

Acronyms

Acronym	Definition
Alliance	Utah Water Quality Alliance
BMP	Best Management Practice
CAFO	Confined Animal Feeding Operation
Coalition	Watershed Protection Coalition (includes members from CUWCD, JWCD and MWDSLS)
CUWCD	Central Utah Water Conservancy District
DCRMP	Deer Creek Resource Management Plan
DDW	Utah Division of Drinking Water
DMR	Discharge Monitoring Report
DNR	Utah Department Of Natural Resources
DO	Dissolved Oxygen
DTP	Dissolved Total Phosphorus
DWQ	Utah Division of Water Quality
DWR	Utah Division of Wildlife Resources
DWSP	Drinking Water Source Protection
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
EQIP	Environmental Quality Improvement Program
JTAC	Jordanelle Technical Advisory Committee
JWCD	Jordan Valley Water Conservancy District
JWTP	Jordan Valley Water Treatment Plant
LUST	Leaking Underground Storage Tank
MAG	Mountainland Association of Governments
MTBE	Methyl tertiary butyl ether
MWDSLS	Metropolitan Water District of Salt Lake and Sandy
NOV	Notice of Violation
NPL	National Priority List Sites
NRCS	Natural Resources Conservation Service
PCS	Potential Contamination Source

Provo River Watershed Plan

PCSI	Potential Contamination Source Inventory
PRRP	Provo River Restoration Project
PRTAC	Provo River Technical Advisory Committee
PRWC	Provo River Watershed Council
PRWUA	Provo River Water Users Association
PWS	Public Water System
RCRIS	Resource Conservation and Recovery Information System
RCWP	Rural Clean Water Project
SARA III	Community Right to Know Act
SDWA	Safe Drinking Water Act
SLOC	Salt Lake Olympic Committee
SLOW	Selective Level Outlet Works
TP	Total Phosphorus
TRI	Toxic Release Inventory
TSCA	Toxic Substance Control Act
TSS	Total Suspended Solids
UDOT	Utah Department of Transportation
UPDES	Utah Pollutant Discharge Elimination System
USBR	United States Bureau of Reclamation
USFS	United States Forest Service
USGS	United States Geological Survey
UST	Underground Storage Tank
UVWTP	Utah Valley Water Treatment Plant
VOC	Volatile Organic Compound
WSCD	Wasatch Soil Conservation District

APPENDICES

Appendix A

A Guide for Erosion and Sediment Control

Note: Please see attached CD-Rom for an electronic copy of this document.

Appendix B

Deer Creek Reservoir Drainage TMDL Study

Note: Please see attached CD-Rom for an electronic copy of this document.

Appendix C

Weber Basin Water Conservancy District's Drinking Water Source Protection Plan for the Weber River Watershed

Note: Please see attached CD-Rom for an electronic copy of this document.

Appendix D

A Pasture & Hayland Management Plan for Small Farms and Ranches in Wasatch County, Utah

Appendix E

Deer Creek Resource Management Plan

Note: Please see attached CD-Rom for an electronic copy of this document.

Appendix F

**Rule Governing Ground Water Requirements for Onsite Wastewater Systems
Wasatch City-County Health Department**

Appendix G

2012 Water Quality Implementation Report

Note: Please see attached CD-Rom for an electronic copy of this document.

Appendix H

Upper Provo River Water Quality Management Plan

Note: Please see attached CD-Rom for an electronic copy of this document.

Appendix I

Provo Canyon Scenic Byway Corridor and Watershed Management Plan

Note: Please see attached CD-Rom for an electronic copy of this document.

Appendix J

Heber Valley Storm Water Management Plan

Note: Please see attached CD-Rom for an electronic copy of this document.

Appendix K

Jordanelle Reservoir Management Review

Appendix L

Recreation and Land Management Review for Deer Creek Reservoir

Note: Please see attached CD-Rom for an electronic copy of this document.

Appendix M

PRWC 2013-2014 Workplan

Note: Please see attached CD-Rom for an electronic copy of this document.

Appendix N

Heber Valley Ground Water Monitoring

Note: Please see attached CD-Rom for an electronic copy of this document.

TABLE OF CONTENTS

	PAGE
TABLE OF CONTENTS.....	i
LIST OF TABLES.....	iii
LIST OF FIGURES	iii
EXECUTIVE SUMMARY	iv
CHAPTER I - INTRODUCTION	I-1
SYSTEM INFORMATION.....	I-1
SOURCE INFORMATION.....	I-2
DESIGNATED PERSON.....	I-2
CHAPTER II - DELINEATION REPORT	II-1
GENERAL.....	II-1
DRINKING WATER SOURCE PROTECTION ZONES	II-1
CHAPTER III - SUSCEPTIBILITY ANALYSIS AND DETERMINATION.....	III-1
SUSCEPTIBILITY ANALYSIS	III-1
Structural Integrity of Intake.....	III-1
Sensitivity of Natural Setting.....	III-5
Evaluation of Hazards at Potential Contamination Sources.....	III-7
SUSCEPTIBILITY DETERMINATION AND PRIORITIZATION.....	III-8
CHAPTER IV - MANAGEMENT PLAN TO CONTROL EXISTING PCSS	IV-1
GENERAL.....	IV-1
MANAGEMENT STRATEGIES FOR EXISTING PCSSs	IV-1
CHAPTER V - MANAGEMENT PLAN TO CONTROL FUTURE PCSS.....	V-1
GENERAL.....	V-1
MANAGEMENT STRATEGIES	V-1
CHAPTER VI - IMPLEMENTATION SCHEDULE	VI-1
CHAPTER VII - RESOURCE EVALUATION.....	VII-1
FINANCIAL RESOURCES.....	VII-1
HUMAN RESOURCES	VII-1
CHAPTER VIII - RECORD KEEPING.....	VIII-1
CHAPTER IX - PUBLIC NOTIFICATION	IX-1
CHAPTER X - CONTINGENCY PLAN.....	X-1
EMERGENCY RESPONSE PLANS	X-1

Basis of Plan.....	X-1
Lines of Authority	X-1
Classification of the Emergency or Disaster	X-2
Preliminary Damage Assessment.....	X-2
Prioritize Requirements and Specify Program	X-3
Implementation.....	X-4
RATIONING PLANS.....	X-4
Personnel	X-4
Determination of Action Level	X-4
Public Education	X-5
WATER SUPPLY DECONTAMINATION PLAN	X-5
Surface Water Sources	X-5
General Information	X-7
Implementation.....	X-8
SOURCE DEVELOPMENT PLANS.....	X-8

EXHIBITS

- EXHIBIT A - PICTURES OF INLETS AND DIVERSION STRUCTURES
- EXHIBIT B - SUSCEPTIBILITY ANALYSIS AND DETERMINATION TABLES
- EXHIBIT C - POTENTIAL CONTAMINATION SOURCE INVENTORY FORMS
- EXHIBIT D - A UTAH STRATEGY TO ADDRESS WATER POLLUTION FROM ANIMAL FEEDING OPERATIONS
- EXHIBIT E - DRINKING WATER SOURCE PROTECTION PUBLIC SUMMARY
- EXHIBIT F - FIGURES
- EXHIBIT G - WATER SUPPLY DECONTAMINATION DATA

LIST OF TABLES

TABLE	TITLE	PAGE
I-1	SURFACE WATER POINTS OF DIVERSION	I-2
III-1	STRUCTURAL INTEGRITY OF INTAKES EVALUATION	III-2
III-2	SENSITIVITY ANALYSIS PROCEDURE	III-6
III-3	SENSITIVITY OF NATURAL SETTING	III-6
III-4	HAZARD CONTROL DESCRIPTIONS AND ASSESSMENT PROCEDURE	III-8
III-5	SUSCEPTIBILITY DETERMINATION PROCEDURE	III-10
IV-1	MANAGEMENT STRATEGIES FOR EXISTING PCSs	IV-2
VI-1	IMPLEMENTATION SCHEDULE FOR MANAGEMENT STRATEGIES	VI-1
B-1	POTENTIAL CONTAMINATION SOURCE INVENTORY	Exhibit B
B-2	HAZARD IDENTIFICATION	Exhibit B
B-3	HAZARD ASSESSMENT	Exhibit B
B-4	SUSCEPTIBILITY DETERMINATION AND PRIORITIZATION	Exhibit B

LIST OF FIGURES

FIGURE	TITLE	PAGE
1	FIGURE INDEX	Exhibit F
2-5	SURFACE WATER DRINKING WATER SOURCE PROTECTION	Exhibit F

EXECUTIVE SUMMARY

This report is the Drinking Water Source Protection (DWSP) Plan for Weber Basin Water Conservancy District's surface drinking water sources. These sources include the Stoddard and Gateway Diversions on the Weber River, and the Burch Creek, Shepard Creek, Farmington Creek, Steed Creek, Ricks Creek, and Stone Creek inlets. This DWSP Plan has been prepared in accordance with the DWSP Rule for Surface Water Sources (R309-605) as revised in August 2001 and the "Standard Report Format for Existing Surface Water Sources," prepared by the Utah Division of Drinking Water in March 2000.

The Division of Drinking Water delineated the DWSP Zones for the above referenced sources of drinking water. Hansen, Allen and Luce, Inc. conducted the Potential Contamination (PCS) Inventory of Zones 1 and 2 by means of a windshield survey. The Division of Drinking Water (DDW) provided a list of PCSs in Zone 4 from their databases. Weber Basin Water Conservancy District relied on the list provided by the DDW for Zone 4 in accordance with R309-605-7(4)(a)(iii)(A)(I). Identified PCSs within the DWSP Zones included transportation of hazardous materials along roadways and railroads, gravel pit and mining operations, agricultural activities, wastewater disposal and treatment, residential activities, and other commercial activities.

The Weber River Watershed was determined to be highly sensitive to contamination and have a high susceptibility to contamination primarily due to the large impact from human activities within the watershed. Farmington Creek Canyon was determined to have a medium sensitivity and a medium susceptibility to contamination due to the presence of some human activities in the canyon. The remaining Canyons were determined to have a medium sensitivity and a low susceptibility to contamination due to the lack of human activities in these canyons.

Land management strategies were planned to control the three highest ranking inadequately controlled PCSs for each canyon or watershed. Land management strategies to control future PCSs will be planned as Weber Basin Water Conservancy District becomes aware of the new PCS.

CHAPTER I

INTRODUCTION

In August 2001, Hansen, Allen & Luce, Inc. (HAL) was retained by Weber Basin Water Conservancy District (WBWCD or District) to prepare the Drinking Water Source Protection (DWSP) Plan for its surface water sources. This DWSP Plan has been prepared in accordance with the DWSP Rule for Surface Water Sources (R309-605) as revised in August 2001 and the “Standard Report Format for Existing Surface Water Sources,” prepared by the Utah Division of Drinking Water in March 2000. Remaining chapters of this DWSP Plan address Delineation of Protection Zones, Susceptibility Analysis and Determination, Management Plan to Control Existing Potential Contamination Sources (PCSs), Management Plan to Control Future PCSs, Implementation Schedule, Resource Evaluation, Record Keeping, Public Notification, and Contingency Plan.

The Weber Basin Project was constructed by the Bureau of Reclamation during the 1950’s and 1960’s to develop the waters of the Weber River Basin for beneficial use. The Project covers more than 2,500 square miles in five counties: Davis, Weber, Morgan, Summit, and part of Box Elder. The overall Project includes storage reservoirs, canals, pipelines, hydro power facilities, pumping stations, wells and related facilities. The Weber Basin Water Conservancy District was created in 1950 to manage, operate and maintain the Weber Basin Project. The District delivers approximately 220,000 acre-feet of water annually: 60,000 acre-feet for municipal and industrial use and 160,000 acre-feet for irrigation and secondary use.

Weber Basin operates seven large storage reservoirs on the Ogden and Weber Rivers with a combined storage capacity of approximately 400,000 acre-feet. The District also operates and maintains more than 79 miles of raw water canals, tunnels, and pipelines and an additional 85 miles of culinary water pipelines. The District operates three large culinary water treatment plants that treat surface water obtained from the Weber River Basin. Also included in the system are 16 deep, large capacity wells that serve as backups to the surface water treatment plants and also add source capacity to the culinary system. Currently, Weber Basin provides culinary water to approximately 360,000 people in the five-county service area.

SYSTEM INFORMATION

WBWCD is an existing, public, community water system that provides culinary water to portions of Davis and Weber Counties. The water system number, address, and phone number follow:

Weber Basin Water Conservancy District
2837 East Highway 193
Layton, Utah 84040
(801) 771-1677

Water System Numbers:
Davis County: 06013
Weber County: 29023

SOURCE INFORMATION

WBWCD diverts surface water from the Weber River and from several creeks along the Wasatch Front. WBWCD points of diversion are listed in Table I-1. Each of the points of diversion in Table I-1 are existing, previously constructed points of diversion.

**TABLE I-1
SURFACE WATER POINTS OF DIVERSION**

Source Name	Diversion Name	Latitude/ Longitude
Weber River	Stoddard Diversion	41°04'12" N 111°43'42" W
	Gateway Diversion	41°08'12" N 111°49'52" W
Burch Creek	Burch Creek Inlet	41°10'20" N 111°55'29" W
Shepard Creek	Shepard Creek Inlet	41°00'53" N 111°53'34" W
Farmington Creek	Farmington Creek Inlet	41°00'04" N 111°52'35" W
Steed Creek	Steed Creek Inlet	40°58'27" N 111°52'17" W
Ricks Creek	Ricks Creek Inlet	40°56'22" N 111°52'04" W
Stone Creek	Stone Creek Inlet	40°53'48" N 111°50'16" W

DESIGNATED PERSON

The designated person for WBWCD follows:

Scott Paxman
2837 East Highway 193
Layton, Utah 84040
(801) 771-1677

CHAPTER II

DELINEATION REPORT

GENERAL

Drinking Water Source Protection Zones for the District's surface water sources were delineated by the State of Utah Department of Environmental Quality, Division of Drinking Water (DDW) in accordance with R309-605-7(3). The DWSP Zones are defined as follows:

- DWSP Zone 1 – Zone 1 encompasses the area on both sides of the source, ½ mile on each side measured laterally from the high water mark of the source (bank full), and from 100 feet downstream of the point of diversion to 15 miles upstream, or to the limits of the watershed or to the state line, whichever comes first.
- DWSP Zone 2 – Zone 2 is defined as the area from the end of Zone 1, and an additional 50 miles upstream (or to the limits of the watershed or to the state line, whichever comes first), and 1000 feet on each side measured from the high water mark of the source.
- DWSP Zone 3 – Zone 3 is defined as the area from the end of Zone 2 to the limits of the watershed or to the state line, whichever comes first, and 500 feet on each side measured from the high water mark of the source.
- DWSP Zone 4 – Zone 4 is defined as the remainder of the area of the watershed (up to the state line, if applicable) contributing to the source that does not fall within the boundaries of Zones 1 through 3.

Based on the limited upstream length of the Weber River from the Stoddard Diversion, only Zones 1, 2 and 4 were delineated for this source. The upstream length of Farmington Creek from the Farmington Creek Inlet only allowed the delineation of Zones 1 and 4. The watersheds contributing to the District's remaining surface water sources are of such a small size that Zone 1 encompassed the entire watershed. Therefore, the entire watershed is considered Zone 1 for these sources.

DRINKING WATER SOURCE PROTECTION ZONES

Drinking Water Source Protection (DWSP) Zones for the Weber River, Burch Creek, Shepard Creek, Farmington Creek, Steed Creek, Ricks Creek, and Stone Creek are shown on Figures 1 through 5 in Exhibit F.

CHAPTER III

SUSCEPTIBILITY ANALYSIS AND DETERMINATION

This chapter of the DWSP Plan for Weber Basin Water Conservancy District's surface water sources addresses the susceptibility of these sources to contamination. The susceptibility of each source is evaluated based on the structural integrity of the intake, the sensitivity of the natural setting, and the type, location, and number of potential contamination sources (PCSs) located within the DWSP Zones. PCSs are placed in priority order from greatest to least potential to contaminate the drinking water source.

SUSCEPTIBILITY ANALYSIS

The susceptibility analysis must take into consideration the "Structural Integrity of the Intake," the "Sensitivity of the Natural Setting," and the "Evaluation of Hazards at Potential Contamination Sources." These are discussed below.

Structural Integrity of Intake

Evaluation of the structural integrity of surface water intakes includes determining whether the intake complies with the minimum DDW requirements for diversion structures (R309-204-5(5)) and determining the intake structure's adequacy to prevent inadvertent or accidental contamination. The integrity evaluation for any diversion structure includes conveyance facilities between the diversion and the distribution system that are open to the atmosphere. The following criteria were used to evaluate the structural integrity of the District's surface water points of diversion.

1. Does the intake allow for water withdrawal from more than one level if water quality varies with depth? (R309-204-5(5)(a))
2. Is the lowest intake withdrawal elevation located at a sufficient depth to be submerged at the low elevation of the reservoir? (R309-204-5(5)(b))
3. Does the intake have a separate facility for the release of less desirable water held in storage? (R309-204-5(5)(c))
4. Does the intake allow for occasional cleaning of the inlet line? (R309-204-5(5)(d))
5. Is the diversion device capable of keeping fish and/or debris from entering the intake? (R309-204-5(5)(e))
6. If pumps are used to transfer diverted water, do the pumps have suitable protection? (R309-204-5(5)(f))
7. If there is an impoundment reservoir, have brush and trees been removed to the high water level and are adequate precautions provided to limit nutrient loads?
8. Can the intake be closed to allow contamination to pass by?

Table III-1 below contains a matrix addressing each of the questions posed above for each of the District's surface water sources. Also indicated in this table on a pass/fail basis is whether the intakes meet minimum requirements for diversion structures and whether the condition of each intake is adequate to protect against contamination events.

**TABLE III-1
STRUCTURAL INTEGRITY OF INTAKES EVALUATION**

Criteria Number*	Stoddard Diversion	Gateway Diversion	Burch Creek Inlet	Shepard Creek Inlet	Farmington Creek Inlet	Steed Creek Inlet	Ricks Creek Inlet	Stone Creek Inlet
1	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6	N/A	Yes	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pass/Fail	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass

*Criteria Number corresponds to question number listed on Page III-1.

Table III-1 indicates that all of the District’s surface water points of diversion passed the Structural Integrity of Intakes Evaluation. These diversions are discussed in further detail below. Pictures of the diversion structures and inlets are included in Exhibit A.

Stoddard Diversion – Weber River

The Stoddard Diversion consists of a diversion dam on the Weber River with inlet grates on the south side of the river that lead into the Gateway Canal. The inlet grate is equipped with automatic rakes to clear debris from the grate and draws from a full cross section of the Weber River. Immediately downstream from the grate structure is a gate that can be shut to close off the diversion and allow the entire flow of the Weber River to continue downstream.

Downstream from the shutoff gate, the canal travels in a horseshoe shaped course that has been widened with a shallow slope to allow settlement of larger particles. The diverted water then goes through a finer screen (also equipped with automatic cleaning devices) and enters the canal. A flow control structure is located about 500 feet downstream from the screen. The area upstream from this flow control structure is fenced off to prevent public access.

The Gateway Canal runs roughly parallel to the Weber River along the margins of the valley and along the hillside for about 7.5 miles to where it enters the Gateway Tunnel through the mountain and into the distribution system. The entire length of the canal below the flow control structure is concrete lined and is provided with berms to prevent surface runoff from entering the canal. Most of the mountain drainages that cross the canal are either piped underneath the canal or the canal is siphoned underneath the drainage. There are, however, three or four very small drainages within a couple miles of the Gateway Tunnel entrance that discharge into the canal through pipe inlets.

The Gateway Canal terminates with a combination inlet/bypass structure at the Gateway Tunnel entrance. The inlet structure is equipped with automatic rakes to clear debris and has a shutoff gate to bypass canal water back into the Weber River at the Gateway Diversion which is directly below the Gateway Tunnel entrance.

Weber Basin Water Conservancy District continuously maintains the diversion structures, inlet structures, and the entire length of the Gateway Canal and will continue to do so. The condition of the Stoddard Diversion, including the Gateway Canal and Gateway Tunnel inlet structure, meets minimum requirements for diversion structures and is adequate to protect against contamination events.

Gateway Diversion – Weber River

The Gateway Diversion structure is located directly below the Gateway Tunnel inlet from the Gateway Canal and is only used for backup purposes when the Stoddard Diversion is closed for canal maintenance or emergencies. The inlet grate draws from a cross-section of the Weber River on the south side of the river and is provided with automatic rakes to clear debris. After water passes through the inlet grate, it enters the enclosed pump station and is screened and pumped through penstock into the Gateway Tunnel.

The pumps are enclosed inside the pump station and maintained by the District as necessary. The condition of the Gateway Diversion meets minimum requirements for diversion structures and is adequate to protect against contamination events.

Burch Creek Inlet

The Burch Creek inlet structure consists of a grated inlet that stretches across the bottom of the creek bed. The water then passes through the structure on the north side of the creek bed where it is screened and enters the inlet pipe. A gate valve is provided at the pipe inlet to control the flow and to shut off the inlet, if necessary. Water that does not enter the pipe is returned to the creek bed through a bypass opening.

District personnel periodically clear debris off the inlet grate and clean inside the inlet structure itself. The condition of the Burch Creek Inlet meets minimum requirements for diversion structures and is adequate to protect against contamination events.

Shepard Creek Inlet

The Shepard Creek inlet structure consists of a grated inlet box located on the south side of the creek bed. A small earth berm has been built across the creek bed at this structure to ensure that low flows are diverted into the inlet box. The water then passes through the structure on the south side of the creek bed where it is screened and enters the inlet pipe. A gate valve is provided at the pipe inlet to control the flow and to shut off the inlet, if necessary. Water that does not enter the pipe is returned to the creek bed through a bypass pipe.

District personnel periodically clear debris off the inlet grate and clean inside the inlet structure itself. The condition of the Shepard Creek Inlet meets minimum requirements for diversion structures and is adequate to protect against contamination events.

Farmington Creek Inlet

The Farmington Creek inlet structure consists of a grated inlet box located on the south side of the creek bed. The water then passes through the structure on the south side of the creek bed where it is screened and enters the inlet pipe. A valve is provided at the pipe inlet to control the flow and to shut off the inlet, if necessary. Water that does not enter the pipe is returned to the creek bed through a bypass pipe.

District personnel periodically clear debris off the inlet grate and clean inside the inlet structure itself. The condition of the Farmington Creek Inlet meets minimum requirements for diversion structures and is adequate to protect against contamination events.

Steed Creek Inlet

The Steed Creek inlet structure consists of a grated inlet box located on the south side of the creek bed. A small berm has been built across the creek bed at this structure to ensure that low flows are diverted into the inlet box. The water then passes through the structure on the south side of the creek bed where it is screened and enters the inlet pipe. A valve is provided at the pipe inlet to control the flow and to shut off the inlet, if necessary. Water that does not enter the pipe is returned to the creek bed through a bypass pipe.

District personnel periodically clear debris off the inlet grate and clean inside the inlet structure itself. The condition of the Burch Creek Inlet meets minimum requirements for diversion structures and is adequate to protect against contamination events.

Ricks Creek Inlet

The Ricks Creek inlet structure consists of a grated inlet that stretches across the bottom of the creek bed. The water then passes through the structure on the north side of the creek bed where it is screened and enters the inlet pipe. A valve is provided at the pipe inlet to control the flow and to shut off the inlet, if necessary. Water that does not enter the pipe is returned to the creek bed through a bypass pipe.

District personnel periodically clear debris off the inlet grate and clean inside the inlet structure itself. The condition of the Ricks Creek Inlet meets minimum requirements for diversion structures and is adequate to protect against contamination events.

Stone Creek Inlet

The Stone Creek inlet structure consists of a grated inlet that stretches across the bottom of the creek bed. The water then passes through the structure on the south side of the creek bed where it is screened and enters the inlet pipe. A valve is provided at the pipe inlet to control the flow and to shut off the inlet, if necessary. Water that does not enter the pipe is returned to the creek bed through a bypass pipe.

District personnel periodically clear debris off the inlet grate and clean inside the inlet structure itself. The condition of the Stone Creek Inlet meets minimum requirements for diversion structures and is adequate to protect against contamination events.

Sensitivity of Natural Setting

The sensitivity of surface water drinking water sources is evaluated based on physiographic and hydrogeologic factors and can be influenced by both natural and man-made features (R309-605-7(4)(a)(ii)). Features that allow contaminants to move toward the surface water source more freely tend to increase the sensitivity of the source to contamination while features that impede the movement of contaminants toward the surface water source tend to decrease the sensitivity.

A surface water drinking water source may have a high sensitivity, medium sensitivity, or low sensitivity to contamination. Weber Basin Water Conservancy District's surface water sources were classified accordingly based on a combination of several factors as shown in Table III-2. Each surface water source was first assigned a score for each of the listed factors based on whether features of the watershed increased or decreased the source's sensitivity to contamination. For instance, watersheds with steeper slopes would have a greater sensitivity than watersheds with flatter slopes because of the greater runoff potential associated with steeper slopes. Likewise, lower permeability, less vegetative cover, more human development, lack of wetlands, greater precipitation, larger watersheds, and gaining streams would receive higher scores than higher permeability, more vegetative cover, less human development, presence of wetlands, lower precipitation, smaller watersheds, and losing streams. After assigning a score to each watershed for each of the features identified in Table III-2, a total score for the watershed is determined by summing the scores for each of the features. The sum of the scores for each surface water source determines whether the source has a high, medium, or low sensitivity to contamination as shown in Table III-3. Watersheds scoring less than 14 points are considered to have a low sensitivity; watersheds scoring 14 points through 17 points are considered to have a medium sensitivity; and watersheds scoring 18 points or more are considered to have a high sensitivity.

**TABLE III-2
SENSITIVITY ANALYSIS PROCEDURE**

Factors Affecting Sensitivity	Possible Score	Explanatory
1 – Slope	3	3 pts – high slope 2 pts – med slope 1 pts – low slope
2 – Permeability	2	2 pts – low permeability 1 pts – high permeability
3 – Vegetative Cover	3	3 pts – poor cover (open) 2 pts – moderate cover 1 pts – good cover (dense)
4 – Human Development	7	6 pts – large cities/heavy industry 5 pts – towns/commercial areas 4 pts – Rural communities/ residential 2 pts – limited human impact/development 1 pts – no human impact/development +1 pt if major highways are near streams
5 – Wetlands	1	1 pts – wetlands not present in watershed 0 pts – wetlands present in watershed
6 – Climate	5	5 pts – >34 in/yr average precipitation 4 pts – 28-34 in/yr average precipitation 3 pts – 22-28 in/yr average precipitation 2 pts – 16-22 in/yr average precipitation 1 pts – <16 in/yr average precipitation
7 – Size of Watershed	3	3 pts – Large Watershed 2 pts – Medium Watershed 1 pts – Small Watershed
8 – Gaining/Losing Stream	2	2 pts – Significant gaining reaches 1 pts – Mostly losing reaches
Total Watershed Sensitivity	26	≥18 pts – High Watershed Sensitivity ≥14 and <18 pts – Medium Watershed Sensitivity <14 pts – Low Watershed Sensitivity

**TABLE III-3
SENSITIVITY OF NATURAL SETTING**

Sensitivity Factor Number*	Weber River Watershed	Burch Creek Canyon	Shepard Creek Canyon	Farmington Creek Canyon	Steed Creek Canyon	Ricks Creek Canyon	Stone Creek Canyon
1	1	3	3	2	3	3	3
2	1	2	2	2	2	2	2
3	3	1	1	2	1	1	1
4	6	1	1	2	1	1	1
5	0	1	1	1	1	1	1
6	3	4	4	4	4	4	4
7	3	1	1	1	1	1	1
8	2	1	1	1	1	1	1
Total	19	14	14	15	14	14	14
Sensitivity	High	Medium	Medium	Medium	Medium	Medium	Medium

*Sensitivity Factor Number corresponds to Factors Affecting Sensitivity in Table III-2.

Evaluation of Hazards at Potential Contamination Sources

Potential Contamination Sources (PCSs) include agricultural, industrial, commercial, or residential entities, sites, or areas where a potential exists for contamination of the drinking water source. The hazards presented by each PCS are identified and assessed as either adequately controlled or not adequately controlled based on controls currently in place at each PCS.

PCS Inventory

Identification of PCSs located within the DWSP Zones for Weber Basin Water Conservancy District's surface water sources was performed by Hansen, Allen & Luce, Inc. in conjunction with the Division of Drinking Water (DDW). The DDW provided a list of potential contamination sources from its existing database for the entire watershed tributary to the surface water intake. Hansen, Allen and Luce personnel conducted a "windshield survey" of Zones 1-3 to verify the existence and location of PCSs provided by the DDW and to identify all other PCSs to the extent possible within these Zones. R309-605-7(4)(a)(iii)(A)(I) states that Weber Basin Water Conservancy District "may rely on the inventory provided by the Division [of Drinking Water] for Zone 4."

The basis for determining whether an activity constituted a PCS was based primarily upon guidelines provided by the DDW entitled "Source Water Assessment Program User's Guide" (DDW, 2000). Table B-1 in Exhibit B presents the results of the PCS inventory for each surface water source; including a PCS identification number, name of the PCS, address or location description, and the town or area where the PCS is located. Figures 1 through 5 in Exhibit F show the location of each PCS within the DWSP Zones for Weber Basin Water Conservancy District's surface water sources.

Hazard Assessment

Due to the residential and private nature of the majority of the PCSs identified in the PCS inventory, it was not possible to contact each PCS individually to compile information about the specific hazards that exist at each site. Therefore, the potential hazards at PCSs were determined using engineering judgement based on the windshield survey. A Potential Contamination Source Inventory Form (PCSIF) was completed for PCSs identified in the windshield survey. The PCSIF provides a guide for identification of hazards at each PCS. Completed PCSIFs are included in Exhibit C.

There are four types of hazard controls identified by the Division of Drinking Water (DDW), including Regulatory Controls, Best Management Practices, Physical Controls, and Negligible Quantity Controls. In order for a public water supplier to assess a PCS as adequately controlled by one of these controls, the DWSP Rule (R309-605-7(4)(a)(iii)(B)) for assessing these controls must be followed exactly. Table III-4 includes a description of each type of hazard control and the procedure for assessing each type of control.

**TABLE III-4
HAZARD CONTROL DESCRIPTIONS AND ASSESSMENT PROCEDURE**

CONTROL TYPE	DESCRIPTION	PROCEDURE
Regulatory Controls	Regulatory Controls are codes, ordinances, rules, and regulations which regulate a PCS hazard.	<ol style="list-style-type: none"> 1. Identify the enforcement agency. 2. Cite and/or quote applicable references in the regulation, rule or ordinance which pertain to controlling the hazard. 3. Explain how the regulatory controls affect the potential for surface water contamination. 4. Verify that the hazard is being regulated by the enforcement agency. 5. Assess the hazard as “Adequately Controlled” or “Not Adequately Controlled” and set a date to reassess the hazard if Adequately Controlled.
Best Management Practices (BMPs)	BMPs include practices and procedures currently being used by the PCS to control a PCS hazard.	<ol style="list-style-type: none"> 1. List the specific BMPs which have been implemented by the PCS management to control the hazard. 2. Indicate that the PCS is willing to continue the use of these BMPs. 3. Explain how these BMPs affect the potential for surface water contamination. 4. Assess the hazard as “Adequately Controlled” or “Not Adequately Controlled” and set a date to reassess the hazard if Adequately Controlled.
Physical Controls	Physical Controls are man-made structures and impoundments which prevent a hazard from entering the drinking water source.	<ol style="list-style-type: none"> 1. Describe the physical control(s) which have been constructed to control the hazard. 2. Explain how these controls affect the potential for contamination. 3. Assess the hazard as “Adequately Controlled” or “Not Adequately Controlled” and set a date to reassess the hazard if Adequately Controlled.
Negligible Quantity Controls	Negligible Quantity Controls are the amount or toxicity of a hazard that is used by a PCS. The control deals with the risk of contamination and determining whether that risk is negligible or not significant enough to warrant further management.	<ol style="list-style-type: none"> 1. Identify the quantity of the hazard that is being used, disposed, stored, manufactured, and/or transported. 2. Explain why this amount is a negligible quantity. 3. Assess the hazard as “Adequately Controlled” or “Not Adequately Controlled” and set a date to reassess the hazard if Adequately Controlled.

Table B-2 in Exhibit B includes the identified hazards at each PCS for each surface water source and Table B-3 in Exhibit B includes the assessment of the hazard controls at each PCS at each surface water source.

SUSCEPTIBILITY DETERMINATION AND PRIORITIZATION

In order to determine the relative susceptibility of the source from each PCS, a logical method was needed to objectively evaluate how one PCS may have a greater potential to contaminate the source than another. The approach used by Weber Basin Water Conservancy District to determine relative susceptibility consists of a strategy wherein risk potential is assigned to each PCS as described below.

The susceptibility of each of Weber Basin Water Conservancy District's surface water sources to contamination is evaluated relative to each potential contamination source (PCS) based on the following three factors and how they are interrelated.

1. The structural integrity of the intake – The ability to shut off the intake and allow contaminated water to pass by without entering the drinking water system.
2. The sensitivity of the natural setting – Factors and conditions at or near each PCS that accelerate or impede the path of contaminants from the PCS to the surface water source.
3. Adequacy of hazard controls – Factors or controls that may or may not be in place to prevent contamination from occurring.

It is estimated that these three factors have approximately an equal relationship in determining the susceptibility of the drinking water source to contamination. Therefore, if the sum of these factors equals the total susceptibility of the source from each PCS, then each factor would be weighted approximately the same. In this susceptibility determination the structural integrity of the intake has a value of 30 points while the other two factors have a value of 35 points each for a total possible risk score of 100.

The score assigned to each PCS for the structural integrity of the intake is based on whether the intakes located downstream from the PCS passed the structural integrity of intakes evaluation shown in Table III-1. If all downstream intakes passed this evaluation, the PCS was assigned a score of zero for this factor. If the nearest downstream intake passed and the next downstream intake failed, the PCS was assigned a score of 15 for this factor. If the nearest downstream intake failed, the PCS was assigned a score of 30.

The sensitivity of the natural setting score assigned to each PCS is separated into five sub-categories. These sub-categories include the average approximate slope at each PCS (5 points), the quantity of contaminants at each PCS (5 points), the health risk of the contaminants at each PCS (5 points), the DWSP Zone in which each PCS is located (10 points), and whether the contaminants at each PCS are located above or below the ground (10 points). PCSs that have higher slopes, have a larger quantity of contaminants, have contaminants with greater health risk, are located in higher priority zones, and are located above ground were assigned higher scores than PCSs that have lower slopes, have a smaller quantity of contaminants, have contaminants with lesser health risk, are located in lower priority zones, and are located below ground.

The score assigned to each PCS for adequacy of hazard controls is based on the hazard assessment described above. A PCS that is considered Adequately Controlled is assigned a score of zero for this factor. A PCS that is considered Not Adequately Controlled is assigned a score of 35 for this factor.

Table III-5 summarizes the susceptibility determination procedure described above.

**TABLE III-5
SUCCEPTIBILITY DETERMINATION PROCEDURE**

TOTAL SUSCEPTIBILITY

Susceptibility of the drinking water source to each PCS is measured on a scale from 0 to 100. Total susceptibility equals the sum of the following three factors.

STRUCTURAL INTEGRITY OF THE INTAKE (30%)

Based on whether the intake structure has the capability to bypass contamination without it entering the drinking water system on a Pass/Fail basis.

All downstream intakes Pass = 0 points
 Nearest downstream intake Passes, intakes further downstream Fail = 15 points
 Nearest downstream intake Fails = 30 points

SENSITIVITY OF THE NATURAL SETTING (35%)

The sensitivity of the natural setting equals the sum of the following five factors:

<u>Slope (5 points)</u>	<u>Quantity of Contaminants (5 points)</u>	<u>Health Risk of Contaminants (5 points)</u>										
<5% = 1	<100 gal = 1	Low = 1										
≥5% = 5	≥100 gal = 2	Med = 3										
	≥500 gal = 3	High = 5										
	≥1,000 gal = 4	Carcinogenic = 5										
	≥10,000 gal = 5											
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Proximity of PCS to Intake (10 points)</u></th> <th style="text-align: left;"><u>Location (10 points)</u></th> </tr> </thead> <tbody> <tr> <td>In Zone 4 = 1</td> <td>Below Ground = 1</td> </tr> <tr> <td>In Zone 3 = 4</td> <td>Above Ground = 10</td> </tr> <tr> <td>In Zone 2 = 7</td> <td></td> </tr> <tr> <td>In Zone 1 = 10</td> <td></td> </tr> </tbody> </table>			<u>Proximity of PCS to Intake (10 points)</u>	<u>Location (10 points)</u>	In Zone 4 = 1	Below Ground = 1	In Zone 3 = 4	Above Ground = 10	In Zone 2 = 7		In Zone 1 = 10	
<u>Proximity of PCS to Intake (10 points)</u>	<u>Location (10 points)</u>											
In Zone 4 = 1	Below Ground = 1											
In Zone 3 = 4	Above Ground = 10											
In Zone 2 = 7												
In Zone 1 = 10												

ADEQUACY OF HAZARD CONTROLS (35%)

Based on the assessment of hazard controls.

PCS is Adequately Controlled = 0 points
 PCS is NOT Adequately Controlled = 35 points

For each PCS, the sum of the scores for each factor equals the total susceptibility of the drinking water source to contamination from the PCS. Since PCSs with higher scores present a greater risk to the drinking water source, a higher priority is placed on PCSs with higher scores. Table B-4 in Exhibit B includes the susceptibility determination for each PCS. The susceptibility determination is evaluated for each surface water source and PCSs are placed in priority order from highest priority to lowest priority.

Due to the number and type of PCSs located within the Weber River Basin, this drinking water source has a high susceptibility to contamination. Farmington Creek Canyon has a moderate susceptibility to contamination due to the presence of few PCSs in the DWSP Zones. The remaining surface water sources for Weber Basin Water Conservancy District have a low susceptibility to contamination because no PCSs are located within the areas tributary to these surface water intakes.

CHAPTER IV

MANAGEMENT PLAN TO CONTROL EXISTING PCSs

GENERAL

Management strategies are required by R309-605-7(5) to be planned for at least the three highest ranking Potential Contamination Sources (PCSs) that are not adequately controlled. The Public Water Supplier may, at its discretion, plan management programs for additional PCSs to assure adequate protection of the drinking water source. Land management strategies must be designed to control, or reduce the risk of, potential contamination and may be regulatory or non-regulatory.

A successful DWSP program requires management strategies that Weber Basin Water Conservancy District can legally and effectively implement. Management strategies are generally categorized as regulatory or non-regulatory. Regulatory controls involve legislation or other means of control exercised according to the water supplier's jurisdiction. The District is not able to directly pursue regulatory controls because it is a water conservancy district and is not directly associated with a local legislative body. To pursue regulatory controls, the District must persuade the local city councils and county commissions to enact ordinances that protect drinking water sources. The strategies presented in this report are developed according to the authority and jurisdictional control of the District.

Weber Basin Water Conservancy District has adopted strategies that are primarily educational in nature. The intent of these strategies is to provide Weber Basin Water Conservancy District with a method in which to encourage best management practices at existing PCSs.

MANAGEMENT STRATEGIES FOR EXISTING PCSs

The three highest ranking PCSs (those with the greatest potential to contaminate the drinking water source) for Farmington Creek Canyon include the snow removal/road maintenance facility, Skyline Drive, and the Farmington Creek Research Center. The three highest ranking PCSs for the Weber River Basin include major roads, railroads, and a gravel pit operation. Land management strategies have been planned for these PCSs as outlined below. In addition to these PCSs, Weber Basin Water Conservancy District has planned land management strategies for road maintenance facilities and wastewater treatment facilities. Road maintenance facilities are included because they are operated by the same entities that operate the major roads. The District also has planned to implement a public education program targeted at private residences.

The hazards at wastewater treatment facilities were assessed as adequately controlled due to the regulation of these facilities by the Division of Water Quality. Although these facilities are adequately controlled, Weber Basin Water Conservancy District has decided that in addition to the regulatory controls, it will include a management strategy that will request that the owners of wastewater treatment facilities notify the District in the event that an emergency bypass occurs

or any other condition that would cause the facility to not be in compliance with its UPDES permit.

Table IV-1 includes the management strategies that Weber Basin Water Conservancy District will implement to control existing PCSs.

**TABLE IV-1
MANAGEMENT STRATEGIES FOR EXISTING PCSs**

PCS (ID #)	LAND MANAGEMENT STRATEGIES
Farmington Creek Canyon	
Snow Removal/Road Maintenance Facility (1-4)	<ol style="list-style-type: none"> 1. Inform the owner that the snow removal/road maintenance facility is located within the DWSP Zones for the District’s surface water sources. 2. Request the owner to provide secondary containment for all storage of fuels, waste fluids, or other hazardous materials. 3. Request the owner to perform all vehicle and equipment maintenance indoors or within areas that confine all waste fluids. 4. Request the owner to use a state approved business for disposal of used oil or other hazardous waste. 5. Periodically send an information packet or mailer to the owner.
Skyline Drive (1-7)	<ol style="list-style-type: none"> 1. Inform the US Forest Service that Skyline Drive is located within the DWSP Zones for the District’s surface water sources. 2. Request the Forest Service to notify the District in the event of a leak or spill along this roadway. 3. Request the Forest Service to provide the District with a copy of their emergency response plan for hazardous material spills along this roadway. 4. Periodically send an information packet or mailer to the Forest Service.
Farmington Creek Research Center (1-2)	<ol style="list-style-type: none"> 1. Inform the owner that the research center is located within the DWSP Zones for the District’s surface water sources. 2. Request the owner to use and store chemicals indoors and to not discharge chemicals on the ground. 3. Request the owner to not discharge chemicals into the septic system and to pump out the septic system periodically. 4. Periodically send an information packet or mailer to the owner.
Weber River Basin	
Major Roads and Road Maintenance Facilities (1-54, 230, 251, & 355; 2-211, 239, 269, & 347; and 4-199, 200, 201, 212, 213, 260, 261, 262, 273, & 274)	<ol style="list-style-type: none"> 1. Inform UDOT, Morgan County, and Summit County that the roadways and maintenance facilities they maintain and operate are within the DWSP Zones for the District’s surface water sources. 2. Request the Utah Highway Patrol, Morgan County Sheriff’s Department, and Summit County Sheriff’s Department to notify the District in the event of a leak or spill along any of these roadways. 3. Request the Utah Highway Patrol, Morgan County Sheriff’s Department, and Summit County Sheriff’s Department to provide the District with a copy of their emergency response plan for hazardous material spills along their roadways. 4. Request UDOT, Morgan County, and Summit County to keep salt piles covered and/or prevent runoff from the salt piles from entering the river systems. 5. Request UDOT, Morgan County, and Summit County to provide secondary containment for all storage of fuels, waste fluids, or other hazardous materials. 6. Request UDOT, Morgan County, and Summit County to perform all vehicle and equipment maintenance indoors or within areas that confine all waste fluids. 7. Request UDOT, Morgan County, and Summit County to use a state approved business for disposal of used oil or other hazardous waste. 8. Periodically send an information packet or mailer to UDOT, Morgan County, Summit County, the Utah Highway Patrol, and the Morgan and Summit County Sheriff’s Departments.
Railroads (1-356 and 2-348)	<ol style="list-style-type: none"> 1. Inform the Union Pacific Railroad that their railroad right-of-way is within the DWSP Zones for the District’s surface water sources. 2. Request the Union Pacific Railroad to notify the District in the event of a leak or spill along the railroad right-of-way. 3. Request the Union Pacific Railroad to provide the District with a copy of their emergency response plan for hazardous material spills. 4. Periodically send an information packet or mailer to the Union Pacific Railroad.

PCS (ID #)	LAND MANAGEMENT STRATEGIES
Gravel Pit Operation (1-147)	<ol style="list-style-type: none"> 1. Inform the owner that the gravel pit is located within the DWSP Zones for the District's surface water sources. 2. Request the owner to provide secondary containment for all storage of fuels, waste fluids, or other hazardous materials. 3. Request owner to perform all vehicle and equipment maintenance indoors or within areas that confine all waste fluids. 4. Request owner to use a state approved business for disposal of used oil or other hazardous waste. 5. Request gravel pit owner to not allow hazardous materials to be spread or discharged on the ground or in the gravel pit. 6. Periodically send an information packet or mailer to the owner.
Residential PCSs (multiple PCSs)	<ol style="list-style-type: none"> 1. Advertise periodically, as the District sees fit, in the local Morgan and Summit County newspapers encouraging best management practices for household hazardous wastes, septic systems, fuels, used oil, fertilizers, pesticides, and herbicides. 2. Encourage the local Morgan and Summit County water suppliers to include these best management practices in their annual Consumer Confidence Report.
Wastewater Treatment Facilities (1-3, 4, 6, 55, 76, 89, & 183; 2-7, 8, 10, 11, & 87; and 4-15, 17, & 18)	<ol style="list-style-type: none"> 1. Inform the owners of the wastewater treatment facilities that the facilities are located within the DWSP Zones for the District's surface water sources. 2. Request that owners of wastewater treatment facilities immediately notify the District in the event of a bypass or any other condition that would cause them to not be in compliance with their UPDES permit. 3. Periodically send an information packet or mailer to the owners of wastewater treatment facilities.

CHAPTER V

MANAGEMENT PLAN TO CONTROL FUTURE PCSs

GENERAL

Management strategies to control future potential contamination sources (PCSs) involve a management plan to protect surface water resources by controlling future PCSs that could be established within each of the DWSP Zones. Future PCSs may be associated with property owners, businesses, and other activities that do not yet exist within the DWSP Zones but have a potential of locating within this area under existing social, economic, and zoning conditions.

The Drinking Water Source Protection Rule for surface water sources requires the Public Water Supplier (PWS) to plan land management strategies to control or prohibit future PCSs to the extent allowed under its authority and jurisdiction. Since Weber Basin Water Conservancy District has no zoning authority within the DWSP Zones for its surface water sources, the management program consists of periodically identifying new PCSs and addressing them in the DWSP Plan and petitioning local zoning authorities to enact zoning regulations that control PCSs.

A Drinking Water Source Protection (DWSP) Ordinance must include provisions for controlling the location of potential contamination sources within DWSP Zones unless design standards are implemented that prevent contamination of water resources. An example DWSP ordinance is included in the Appendix of the "Source Water Assessment Program User's Guide," prepared by the Utah Division of Drinking Water in March 2000.

MANAGEMENT STRATEGIES

Weber Basin Water Conservancy District will implement the following management strategies to prevent or reduce the risk of contamination of its surface water sources.

1. Update the PCS inventory periodically with any new PCSs that have moved into the DWSP Zones.
2. Identify the hazards at each of the new PCSs.
3. Assess controls in place at each of the new PCSs.
4. Perform a susceptibility determination for each new PCS and include each new PCS in the prioritized inventory.
5. Plan land management strategies for new PCSs as necessary.
6. Weber Basin Water Conservancy District will petition Davis, Morgan, Summit, and Weber Counties to adopt and implement a DWSP ordinance.

CHAPTER VI

IMPLEMENTATION SCHEDULE

This Implementation Schedule outlines the time frame in which Weber Basin Water Conservancy District will implement the land management strategies that were addressed in Chapters IV and V. Table VI-1 outlines the schedule for implementing these strategies.

**TABLE VI-1
IMPLEMENTATION SCHEDULE FOR MANAGEMENT STRATEGIES**

PCS (ID #)	LAND MANAGEMENT STRATEGIES*	IMPLEMENTATION DATE
STRATEGIES FOR EXISTING PCSs		
Farmington Creek Canyon		
Snow Removal/Road Maintenance Facility (1-4)	#1 through #5	July 1, 2002 – Periodically thereafter
Skyline Drive (1-7)	#1 through #4	July 1, 2002 – Periodically thereafter
Farmington Creek Research Center (1-2)	#1 through #4	July 1, 2002 – Periodically thereafter
Weber River Basin		
Major Roads and Road Maintenance Facilities (1-54, 230, 251, & 355; 2-211, 239, 269, & 347; and 4-199, 200, 201, 212, 213, 260, 261, 262, 273, & 274)	#1 through #8	July 1, 2002 – Periodically thereafter
Railroads (1-356 and 2-348)	#1 through #4	July 1, 2002 – Periodically thereafter
Gravel Pit Operation (1-147)	#1 through #6	July 1, 2002 – Periodically thereafter
Wastewater Treatment Facilities (1-3, 4, 6, 55, 76, 89, & 183; 2-7, 8, 10, 11, & 87; and 4-15, 17, & 18)	#1 through #3	July 1, 2002 – Periodically thereafter
Residential PCSs (multiple PCSs)	#1 through #2	July 1, 2002 – Periodically thereafter
STRATEGIES FOR FUTURE PCSs		
Management Strategies #1 through #5 from Chapter V		Periodically
Management Strategy #6 from Chapter V		July 1, 2002

* Land Management Strategies for Existing PCSs as numbered in Table IV-1 for each PCS.

CHAPTER VII

RESOURCE EVALUATION

According to the DWSP Rule, each public water system must assess the financial and other resources that may be required to implement the DWSP Plan and determine how these resources may be acquired.

FINANCIAL RESOURCES

Weber Basin Water Conservancy District provides water on a wholesale basis to several water districts, companies, and municipalities. Revenues generated from this sale of water have been adequate to meet the expenses of the District. It is believed that these revenues will be adequate to successfully implement this DWSP Plan.

HUMAN RESOURCES

District personnel will administer the DWSP Plan. It is anticipated that the time required to implement this DWSP Plan will not be significant and that it will not be necessary to hire additional personnel for this purpose.

CHAPTER VIII

RECORD KEEPING

Weber Basin Water Conservancy District will update the Record Keeping portion of this DWSP Plan as steps are taken to implement the items covered in the Plan. Examples of changes could include:

- The identification of new potential sources of contamination that were either not identified earlier or are new to the area;
- Changes in management practices at existing potential contamination sources;
- The acquisition of new information that significantly affects the assessment of controls of a potential source of contamination;
- Implementation of public education programs, letters and other correspondence about preventing contamination.

CHAPTER IX

PUBLIC NOTIFICATION

The DWSP Rule for Surface Water Sources (R309-605) requires the preparation of Public Notification material informing the public water supplier's customers of the general results of the DWSP Plan. This rule also requires a schedule and method for notifying the public. The Public Notification material that will be provided to the District's customers is included in Exhibit E. Weber Basin Water Conservancy District will include the public notification material in its next Consumer Confidence Report and will encourage the water agencies that purchase water from the District to include this information in their next Consumer Confidence Reports. Upon submittal of the DWSP Plan to the Division of Drinking Water, the District will also post the public notification information on its website and keep copies of it in their offices.

CHAPTER X

CONTINGENCY PLAN

Weber Basin Water Conservancy District has prepared a contingency plan which focuses on the identification and possible solution of problems which may arise in the event that protection and prevention of contamination to the drinking water source fails. This plan, in addition, addresses problems that need to be solved in the event of water shortages or contamination incidents that may impact the District's ability to supply safe drinking water to the public. This document includes emergency response, rationing, remediation, and new source development plans.

EMERGENCY RESPONSE PLANS

Basis of Plan

The following Emergency Response Plan was developed on the basis of the following references:

- Emergency Response Handbook, Utah Division of Drinking Water, Salt Lake City, Utah, March 1992.
- *Emergency Planning for Water Utility Management*, American Water Works Association, AA No. M19, New York, New York, 1973.

WBWCD's Emergency Response Plan focuses on short-term solutions to likely problems Weber Basin water supply may encounter because of accidents and natural disasters.

Lines of Authority

The following list identifies personnel responsible for coordinating activities during an emergency or disaster. The roles are further described in the Division of Drinking Water (DDW)'s Handbook.

Emergency Coordinator/General Manager:	Tage I. Flint
Office:	(801) 771-1677
Pager:	(801) 544-3547
Assessment Coordinator/M+I Water Manager	Scott Paxman
Office:	(801) 771-1677
Pager:	(801) 544-5976
Maintenance Manager	Lou Eddy
Office:	(801) 771-1677
Home:	(801) 547-9776

Utah Division of Drinking Water: (801) 536-4200
Emergency (Day or Night): (801) 536-4100

Classification of the Emergency or Disaster

The EMERGENCY COORDINATOR will classify the degree of the emergency or disaster. This will prioritize response, expedite activities and establish action levels of response.

LEVEL I - NORMAL (ROUTINE): Personnel and equipment presently on duty can handle system problems. The "Emergency Control Center" is not activated or manned.

LEVEL II - ALERT (MINOR EMERGENCY): Personnel and equipment presently on duty can handle system problems, but may require off duty or additional personnel to be put on alert, be re-routed to other than their normal working areas, or to work additional shifts. The "Emergency Control Center" may be activated and manned.

LEVEL III - MAJOR EMERGENCY: Problems somewhat beyond the capabilities of the drinking water system personnel and equipment, and may require a "Declaration of Emergency" to authorize shortcut procedures. Requires employees to work additional shifts and may need additional assistance of personnel and equipment, either by mutual aid or private contracts. The "Emergency Control Center" will be activated and manned.

LEVEL IV - DISASTER: Problems clearly and immediately beyond the capabilities of the drinking water system personnel and equipment. Recovery time will exceed one week, cost will be great, large amounts of assistance will be needed for at least one week. A "Declaration of Emergency" will be required and the "Emergency Control Center" will be activated and manned.

The EMERGENCY COORDINATOR will also inventory the organization and will perform the following tasks:

- § Appoint responsible personnel for plan development, training, and security.
- § Designate disaster organization staff and teams, including:
 1. Designating alternates,
 2. Preparing alerting list with phone numbers, and
 3. Defining responsibilities and channels of command.
- § Make contact with civil defense and military authorities
 1. To learn local plans,
 2. For possible help in planning,
 3. For information about the funding or other support, if any is available, and
 4. To establish liaison channels.

Preliminary Damage Assessment

The ASSESSMENT COORDINATOR will oversee or conduct the system assessment immediately after the emergency or disaster occurs. The assessment will address the following items:

- § Identify and describe separate components of entire system
 1. Sources (Names)
 2. Pump stations and supply lines
 3. Transmission lines (tank to distribution system)
 4. Storage tanks
 5. Distribution system
 6. Personnel
 7. Power supply
 8. Materials and supplies
 9. Communications
 10. Present emergency plans
 11. Mutual-aid agreements and/or interconnections

- § Develop characteristics of disaster
 1. Flood or mudslide
 2. Earthquake
 3. Windstorm
 4. Explosion
 5. Other (terrorist attack, etc.)

- § Estimate water requirements
 1. Fire fighting
 2. Potable water
 3. Decontamination and sanitary

- § Estimate the capability of system to meet requirements. This point is the "balance point". If capabilities exceed requirements, there is an estimated margin of safety and it could be expected that priorities be relaxed. If requirements exceed capabilities, there is indicated urgency for improving or "upgrading" the system.

- § Identify critical system components. Critical system components are components that demand immediate evaluation to improve capability.

Prioritize Requirements and Specify Program

The EMERGENCY COORDINATOR, in association with the ASSESSMENT COORDINATOR, will evaluate data gathered during the damage assessment task and prioritize system components for repair and replacement. The following will be accomplished

- § Establish baselines on water-quality levels

- § Determine needs and priorities
 1. Allocate water under assumed conditions for potable, sanitary decontamination.
 2. Prepare guidelines for water allowances, priorities, rationing, and time-phasing of estimated water requirements.
 3. Establish procedures for emergency treatment, pumping, and distribution of water, and for stations for service of emergency water.

Implementation

The EMERGENCY COORDINATOR will implement the necessary plan and notify the users of the system through the PUBLIC RELATIONS COORDINATOR. Information will be released to the public in accordance with the following guidelines:

- § Only the EMERGENCY COORDINATOR or designated representative will talk with the media or press.
- § The EMERGENCY COORDINATOR will set up public meetings to routinely inform the users of the status of system improvements, progress and details.

RATIONING PLANS

Weber Basin Water Conservancy District's Rationing Plan establishes a course of action to be implemented when water shortages occur. Shortages may be caused by drought, seasonal overuse, contamination, or accidents. This Plan is broad and encompassing, highlighting the different factors that need to be considered before implementing and enforcing a water rationing plan.

Personnel

Mr. Scott Paxman is responsible for assessing supply and demand requirements and implementing a water conservation program. Scott Paxman is the contact for both the supply demand analysis and water conservation programs for the Districts drinking water sources.

Operator: Scott Paxman
Office: (801) 771-1677

Determination of Action Level

Based on the following factors, an "action level" will be determined to initiate the appropriate level of rationing. These environmental factors include:

- § Forecasted duration of shortage (short-term vs. long-term)
- § Reason for shortage (drought, mechanical malfunction, loss of storage capacity)
- § Time of the year which the shortage is forecasted (summer vs. winter)

Water system factors which need to be evaluated include:

- § Current supply
- § Current storage capacity
- § Current number of connections to the system
- § Current demand projections
- § Current system user conservation practices

Water resources available to alleviate short term shortages that will be investigated include:

- \$ Emergency water supply
- \$ Replacement mechanical equipment (spare parts)
- \$ Spare pumps and motors in storage for rapid installation with a 48-hour period

Public Education

The release of information regarding rationing should be made through the Lines of Authority identified in the Emergency Response Plan. The type of information given will vary with the level of rationing implemented. With this in mind, the following list provides some key points which should be utilized for successful public notification/press releases.

1. Public notification and press releases are important phases of the rationing plan.
2. Centralize news releases and statements to avoid confusing the public.
3. When responding to inquiries, make only factual responses. Avoid speculation.
4. Notify public of availability of water and precautions to be taken, if applicable.
5. Inform public of restriction in water use.
6. Inform public of consequences of misuse of the water supply. (i.e. higher water rates, diminished water supply, potential for termination of services, etc.).
7. Arrange for escorting media representatives who have proper identification through work areas or facilities, if they make a request.
8. Continue public education on a periodic basis through the duration of the rationing effort. Public education efforts may consist of public announcement using radio, television and/or the newspaper, notices included with billing statements, and/or separate mailers.

WATER SUPPLY DECONTAMINATION PLAN

Surface Water Sources

Surface water inlets, diversions, canals, and drinking water treatment plants will be monitored for contamination. If contamination is identified, the contaminated water will be bypassed and will not be introduced into the culinary water system.

Ground Water Sources

Generalized information regarding decontamination of water was obtained from the following sources:

1. "*Ground Water Pollution Control*", by L.W. Carter and R.C. Knox, Lewis Publishers, Inc., Chelsea, Michigan. 1985.
2. "*Contaminant Hydrogeology*", by C. W. Fetter, Macmillan Publishing Company, New York, New York. 1993.

The Safe Drinking Water Act defines a *contaminant* as any physical, chemical, biological or radiological substance or matter in water. Fetter (1993) indicates that different types of treatment are needed for water contaminated with heavy metals versus that contaminated by dissolved organic compounds. At the present time, there is not a single method of ground water decontamination which will effectively remove all of the potential contamination sources which have been identified within the Drinking Water Source Protection Zones for Weber Basin Water Conservancy District's drinking water sources. The type of treatment required for a particular drinking water source is dependent upon identification of the contaminants which are to be removed. Where a single contaminant is identified, the treatment system may consist of simple filtration and/or chlorination. On the other hand, cases involving multiple contaminants may require the use of multiple decontamination phases.

In the past, the accepted methods of water supply decontamination for public water suppliers were limited to chlorination, filtration, blending (dilution), and/or air and steam stripping. However, recent technological advances have provided additional decontamination methods. A partial listing of additional methods which are presently commercially available include multi media filters, reverse osmosis, deionization, electrodialysis, softeners, pH adjustment (precipitation), dealkylizers, neutralization, ultraviolet, distillation, bioremediation, and ozone treatment.

Organic contaminants are generally classified as either volatile or non-volatile. Fetter (1993) indicates that most of the organic contaminants in ground water are volatile. A characteristic of volatile organics is their relatively high vapor pressure, which is a measure of the tendency of a substance to pass from a solid or liquid phase to a gas phase. The higher the vapor pressure, the more volatile the substance, and the more readily the contaminant would move from a solid to a liquid and gas phase. Volatile organics includes 1,1,2-Trichloroethylene, 1,1,1-Trichloroethane, 1,1-Dichloroethane, 1,2-Dichloropropane, Chloroform and Diisopropyl ether, etc. With present technology, one of the most effective means for the removal of volatile organics is through air stripping or steam stripping.

Organic contaminants with a low vapor pressure are not readily removed using air stripping or steam stripping, and may require carbon filtration. Using this technology, the contaminated ground water is passed through an activated carbon filter, wherein the organic contaminants may be sorbed onto the activated carbon. Fetter (1993) notes that some organics "such as 1,4-dioxane, are resistant to air stripping, carbon adsorption, or biological treatment and prove to be very difficult to remove from contaminated ground water." Carter and Knox (1985) discuss the relative effectiveness of removing various organics using either air stripping, carbon adsorption or biological treatment. A summary of their work is as shown on Table 3.3, as contained within Exhibit G.

A partial listing of treatment alternatives for inorganic contaminants, as prepared by Carter and Knox (1985) is as shown on Table 3.16 (See Exhibit G). As shown on Table 3.16, most inorganic metals can be removed by precipitation, followed by filtration where necessary. Fetter (1993) notes the following:

Ferrous iron can be removed by aeration to create ferric iron, which will precipitate at a slightly alkaline pH. Hexavalent chromium may be removed by reducing the contaminate to the trivalent state by reducing the pH to 3 and then adding a reducing agent such as sulfur dioxide. The trivalent chromium can be precipitated as a hydroxide by raising the pH above the neutral value. Arsenic can be coprecipitated with iron by adding dissolved iron at a pH of 5 to 6 and then raising the pH with lime to between 8 and 9.

Nitrates cannot effectively be removed using precipitation, but may be handled using ion exchange (Fetter, 1993). Alternate decontamination methods for inorganics may also include reverse osmosis and electrodialysis.

Table 3.17, as contained in Exhibit G, summarizes the suitability of differing decontamination methods for given contaminant types. Due to the variation and number of potential contamination sources which exist within the DWSP Zones for the District's drinking water sources, and given the continued advances that are being made to water supply decontamination technology, it is not possible, nor practical to identify a specific decontamination plan for each potential contaminant source at this time. Effective treatment plans for ground water decontamination can be developed only after treatability studies have been conducted with representative samples to determine the appropriate treatment components.

Implementation

The District will continue to monitor its drinking water sources in accordance with State regulations. If water quality samples demonstrate that the District is unable to meet the minimum adopted drinking water standards at a particular water source, the District will temporarily abandon use of the offending water supply. Weber Basin Water Conservancy District will then assess the practicality of water decontamination from an economic standpoint, and then if decontamination/reclamation is the chosen solution, perform treatability studies using representative samples of the contaminated ground water to determine appropriate treatment components. Factors which will be considered by the District in evaluating treatment options will include availability of appropriate decontamination technology, effectiveness, cost, etc. The District will evaluate the cost/benefits of installing the decontamination equipment versus the cost/benefits of replacing the supply with an alternate source (if available).

If an acceptable decontamination methodology is not available, or is not accepted by the District, the drinking water source will continue in an abandoned status until such time as an acceptable decontamination technology is identified, or the drinking water source is permanently abandoned by the District.

SOURCE DEVELOPMENT PLANS

Weber Basin Water Conservancy District owns and operates many wells in addition to several surface water sources of drinking water. If one drinking water source was to be deemed unfit, water from other existing Weber Basin Water Conservancy District drinking water sources could be utilized. The District will develop new sources of drinking water as necessary for increasing demands and/or loss of existing sources.