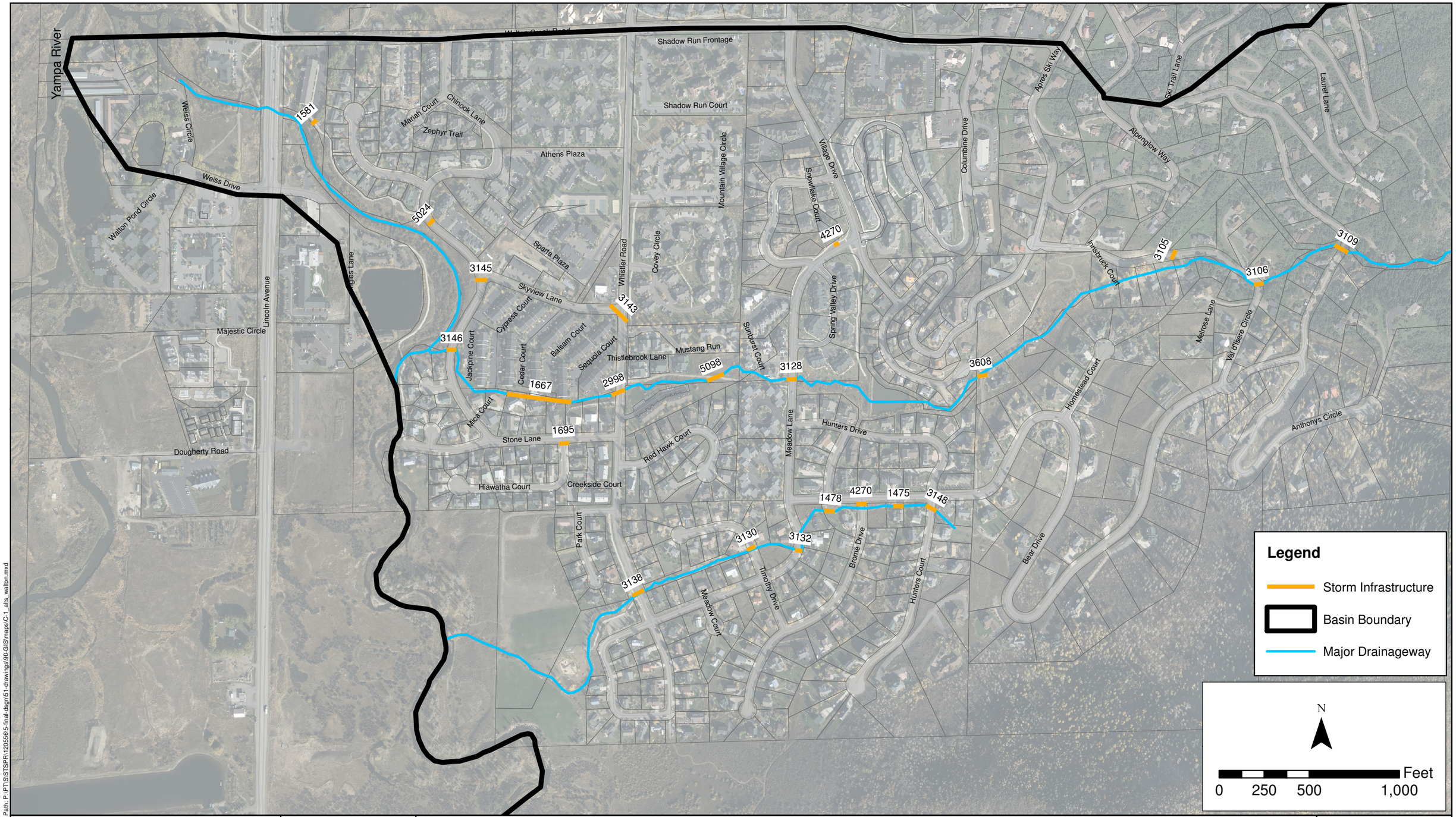
APPENDIX C – ALTERNATIVES ANALYSIS



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Major Drainageway Infrastructure Alternatives - Walton Creek

Citywide Stormwater Master Plan
Steamboat Springs, Colorado

Figure C-1

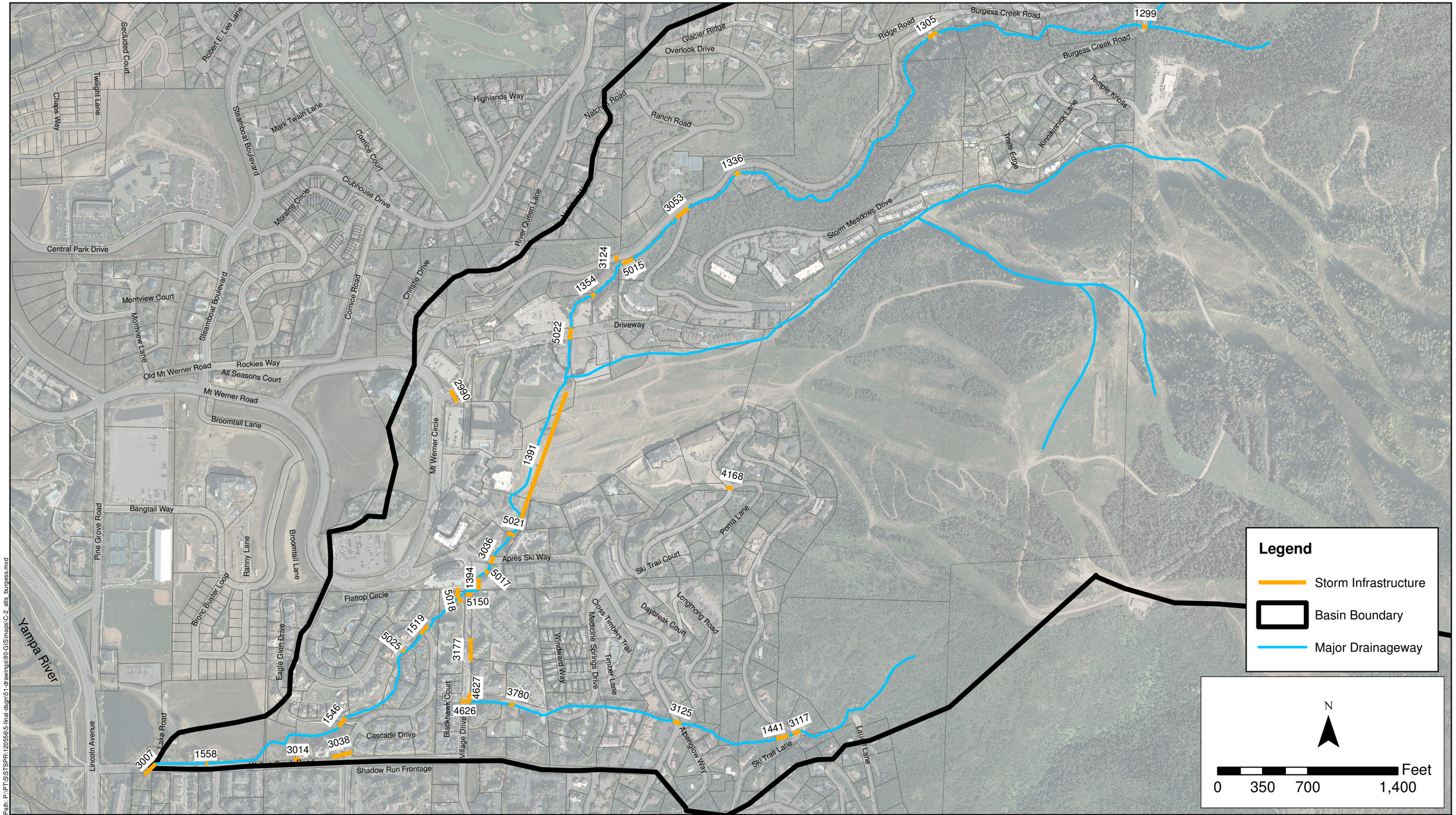
Table C-1: Alternative Analysis Cost Estimate - Walton Creek Basin

	Existing					*Future*			*Alternative 1: 100-Year Conveyance*					*Alternative 2: 100-Year Conveyance with Detention*					*Alternative 3: 5-Year Conveyance*						
CULID	**Pipe Type**	**Size (inches)**	**Quantity**	**Full Flow Capacity (cfs)**	**100 yr Flow (cfs)**	**100 yr Flow (cfs)**	**100 yr Flow with Detention (cfs)**	**5 yr Flow (cfs)**	**Item**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**	**Item**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**	**Item**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**	**Maintenance/ Replacement by Inspection**	**Priority**
2998	CMP	84	1	418	298	312	163	136																Maintenance Required	4
3105	CMP	36	1	51	47	53		26	36" RCP	58	LF	$173	$10,034	36" RCP	58	LF	$173	$10,034						#N/A	3
3106	CMP	36	1	51	75	77		24	42" RCP	57	LF	$201	$11,457	42" RCP	57	LF	$201	$11,457						#N/A	3
3109	CMP	48	1	103	75	77		54																#N/A	5
3128	CMP	48	1	103	300	316	161	147	72" RCP	58	LF	$491	$28,478	54" RCP	58	LF	$259	$15,022	54" RCP	58	LF	$259	$15,022	Maintenance Required	3
3130	CMP	36	2	103	44	50		23																#N/A	5
3132	CMP	36	2	103	28	32		14																#N/A	5
3138	CMP	36	2	103	53	59		28																#N/A	5
3145	CMP	24	1	19	74	76		33	42" RCP	67	LF	$201	$13,467	42" RCP	67	LF	$201	$13,467	30" RCP	67	LF	$144	$9,648	Maintenance and Replacement	1
3146	CMP	60	2	361	316	330	175	146																Maintenance Required	4
3608	CMP	24	4	74	224	241		110	Twin 48" RCP	61	LF	$460	$28,060	Twin 48" RCP	61	LF	$460	$28,060	48" RCP	61	LF	$230	$14,030	#N/A	3
1478	CMP	42	1	75	28	32		14																#N/A	5
1695	CMP	24	1	19	28	28		12	30" RCP	58	LF	$144	$8,352	30" RCP	58	LF	$144	$8,352						#N/A	3
4270	CMP	42	1	75	28	32		14																#N/A	5
1475	CMP	0	1	0	28	32		14	30" RCP	59	LF	$144	$8,496	30" RCP	59	LF	$144	$8,496						#N/A	3
1667	CMP	72	1	284	298	312	163	136	72" RCP	362	LF	$491	$177,742	54" RCP	362	LF	$259	$93,758						Maintenance Required	3
3143	CMP	36	2	103	74	76		33																#N/A	5
3148	CMP	48	1	103	28	32		14																#N/A	5
5024	CMP	24	1	19	166	173		84	54" RCP	46	LF	$259	$11,914	54" RCP	46	LF	$259	$11,914	42" RCP	46	LF	$201	$9,246	Maintenance Required	3
5098	CMP	60	1	180	300	315	161	147	72" RCP	103	LF	$491	$50,573	54" RCP	103	LF	$259	$26,677						Maintenance Required	3
									Type 16 Inlet	22	EA	$3,825	$84,150	Type 16 Inlet	22	EA	$3,825	$84,150	Type 16 Inlet	22	EA	$3,825	$84,150		
									Buried Riprap	300	CY	$65	$19,500	Buried Riprap	330	CY	$65	$21,450	Buried Riprap	60	CY	$65	$3,900		
												SUBTOTAL	$452,223	Detention	6	AC-FT	$50,000	$280,000				**SUBTOTAL**	$135,996		
												Utility Coordination/ Relocation	5% $22,611	Property Acquisition	105420	SF	$50	$5,271,000				Utility Coordination/ Relocation	5% $6,800		
												Contingencies	25% $113,056				**SUBTOTAL**	$5,883,837				Contingencies	25% $33,999		
												Engineering Design Services	15% $67,833				Utility Coordination/ Relocation	5% $294,192				Engineering Design Services	15% $20,399		
												Legal and Administrative Services	5% $22,611				Contingencies	25% $1,470,959				Legal and Administrative Services	5% $6,800		
												Construction Administration and Management	10% $45,222				Engineering Design Services	15% $882,576				Construction Administration and Management	10% $13,600		
												TOTAL ALTERNATIVE COST	**$724,000**				Legal and Administrative Services	5% $294,192				**TOTAL ALTERNATIVE COST**	**$218,000**		
																	Construction Administration and Management	10% $588,384							
																	TOTAL ALTERNATIVE COST	**$9,415,000**							

Denotes existing pipe capacity is sufficient to convey future 100-year flows
Denotes flow greater than pipe capacity

Notes:

1. All pipes were assumed to be CMP unless otherwise noted by the City of Steamboat Springs or SEH.
2. Existing pipe capacities were calculated assuming 2% slope and normal depth.
3. A value of "0" for Existing Size indicates that the existing size is unknown.
4. N/A indicates that field inspection of the structure has not been performed.
5. Detention Pond volumes are slightly larger than the maximum volume utilized in the hydraulic model and shown on Figure 43 to account for freeboard in construction.



Legend

- Storm Infrastructure
- Basin Boundary
- Major Drainageway

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Major Drainageway Infrastructure Alternatives - Burgess Creek

Citywide Stormwater Master Plan
Steamboat Springs, Colorado

Figure C-2

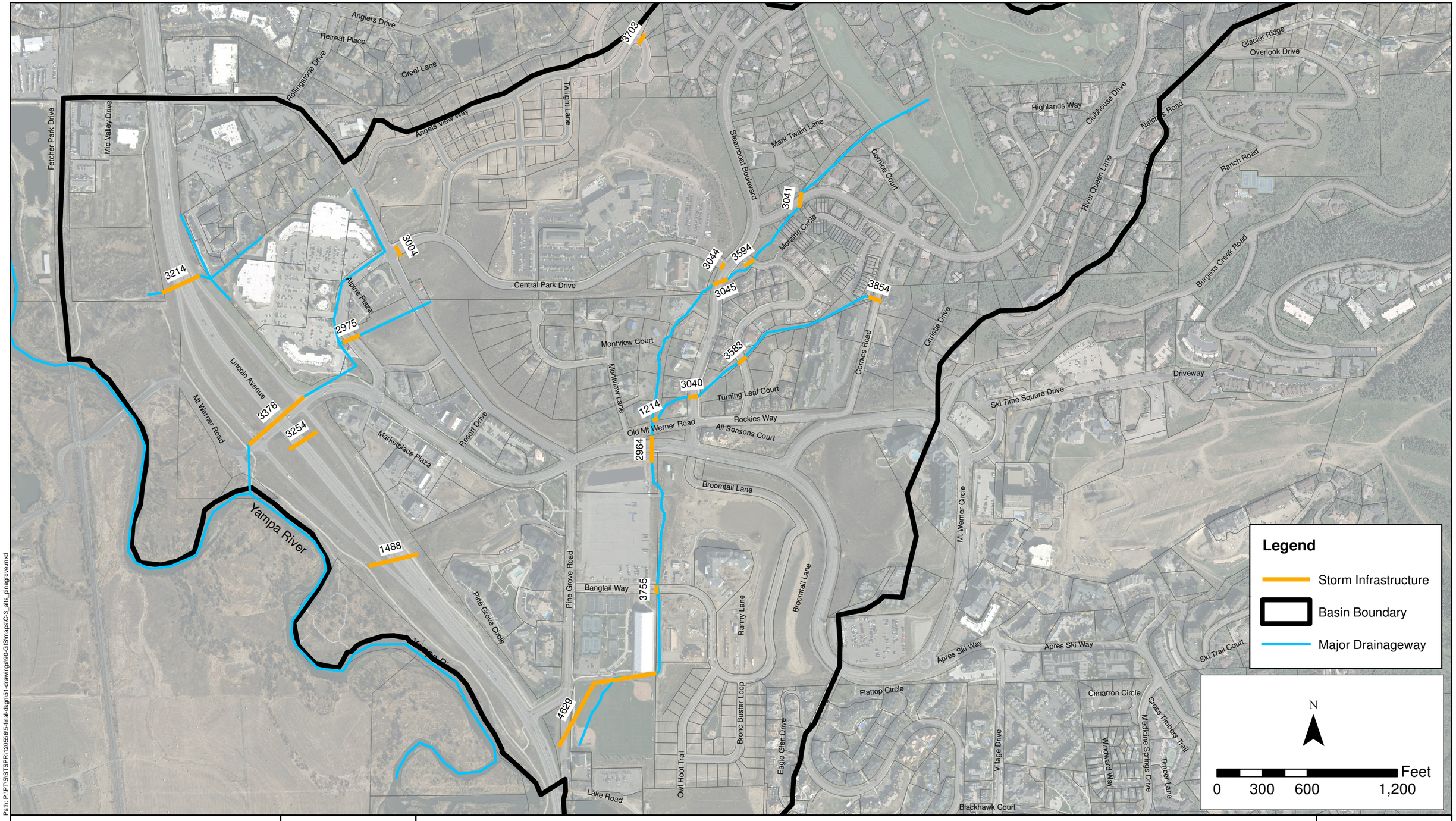
Table C-2: Alternative Analysis Cost Estimate - Burgess Creek Basin

	Existing					*Future*			*Alternative 1: 100-Year Conveyance*					*Alternative 2: 100-Year Conveyance with Detention*					*Alternative 3: 5-Year Conveyance*						
CULID	**Pipe Type**	**Size (inches)**	**Quantity**	**Full Flow Capacity (cfs)**	**100 yr Flow (cfs)**	**100 yr Flow (cfs)**	**100 yr with Detention (cfs)**	**5 yr Flow (cfs)**	**Item**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**	**Item**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**	**Item**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**	**Maintenance/ Replacement by Inspection**	**Priority**
1336	CMP	42	2	150	289	293		128	66" RCP	46	LF	$315	$14,490	66" RCP	46	LF	$315	$14,490						Maintenance Required	3
1391	CMP	78	1	347	594	607		265	Triple 60" RCP	131	LF	$859	$112,529	Triple 60" RCP	131	LF	$859	$112,529						#N/A	3
2990	CMP	24	1	19	19	25		13	30" RCP	106	LF	$144	$15,264	30" RCP	106	LF	$144	$15,264						Maintenance Required	3
3007	CMP	48	1	103	812	951		418	Twin 10'x5' RCBC	126	LF	$2,528	$318,528	Twin 10'x5' RCBC	126	LF	$2,528	$318,528	78" RCP	126	LF	$533	$67,158	Maintenance and Replacement	1
3014	CMP	30	3	98	41	57		30	36" RCP	48	LF	$173	$8,304	36" RCP	48	LF	$173	$8,304	30" RCP	48	LF	$144	$6,912	Maintenance and Replacement	2
3036	CMP	48	2	206	616	659		283	Triple 60" RCP	68	LF	$859	$58,412	Triple 60" RCP	68	LF	$859	$58,412	66" RCP	68	LF	$315	$21,420	Maintenance Required	2
3038	CMP	72	1	284	11	14		7	24" RCP	163	LF	$115	$18,745	24" RCP	163	LF	$115	$18,745	18" RCP	163	LF	$86	$14,018	Maintenance and Replacement	2
3053	CMP	48	1	103	299	303		127	72" RCP	83	LF	$491	$40,753	72" RCP	83	LF	$491	$40,753	48" RCP	83	LF	$230	$19,090	Maintenance Required	3
3117	CMP	24	1	19	18	29		12	30" RCP	64	LF	$144	$9,216	30" RCP	64	LF	$144	$9,216						#N/A	3
3124	CMP	24	1	19	27	40		21	30" RCP	43	LF	$144	$6,192	30" RCP	43	LF	$144	$6,192	24" RCP	43	LF	$115	$4,945	#N/A	3
3125	CMP	30	1	33	38	62		28	36" RCP	66	LF	$173	$11,418	36" RCP	66	LF	$173	$11,418						#N/A	3
3177	CMP	24	1	19	26	35		20	30" RCP	181	LF	$144	$26,064	30" RCP	181	LF	$144	$26,064	24" RCP	181	LF	$115	$20,815	#N/A	3
3780	CMP	48	1	103	84	124		60	48" RCP	43	LF	$230	$9,890	48" RCP	43	LF	$230	$9,890						#N/A	3
4168	CMP	24	1	19	68	77		35	42" RCP	51	LF	$201	$10,251	42" RCP	51	LF	$201	$10,251	30" RCP	51	LF	$144	$7,344	#N/A	3
1354	CMP	0	3	0	341	345		141	72" RCP	38	LF	$491	$18,658	72" RCP	38	LF	$491	$18,658	54" RCP	38	LF	$259	$9,842	#N/A	3
1305	CMP	0	0	0	280	280		132	66" RCP	86	LF	$315	$27,090	66" RCP	86	LF	$315	$27,090	48" RCP	86	LF	$230	$19,780	#N/A	3
1299	CMP	0	0	0	249	250		119	Twin 48" RCP	46	LF	$460	$21,160	Twin 48" RCP	46	LF	$460	$21,160	48" RCP	46	LF	$230	$10,580	#N/A	3
1519	CMP	9666	1	418	637	714	648	312	12'x6' RCBC	90	LF	$1,615	$145,350	Triple 60" RCP	90	LF	$859	$77,310	72" RCP	90	LF	$491	$44,190	Maintenance and Replacement	1
4626	CMP	48	1	103	146	210		95	60" RCP	81	LF	$286	$23,166	60" RCP	81	LF	$286	$23,166						#N/A	3
4627	CMP	30	1	33	26	35		20	30" RCP	65	LF	$144	$9,360	30" RCP	65	LF	$144	$9,360						#N/A	3
1558	CMP	60	3	541	816	957	784	421	Twin 10'x5' RCBC	20	LF	$2,528	$50,560	12'x8' RCBC	20	LF	$1,781	$35,620						N/A	3
1581	CMP	48	3	310	816	957	784	421	Twin 10'x5' RCBC	37	LF	$2,528	$93,536	12'x8' RCBC	37	LF	$1,781	$65,897	78" RCP	37	LF	$533	$19,721	Maintenance Required	3
1394	CMP	42	1	75	616	659		283	Triple 60" RCP	96	LF	$859	$82,464	Triple 60" RCP	96	LF	$859	$82,464	66" RCP	96	LF	$315	$30,240	#N/A	3
1441	CMP	0	0	0	18	29		12	30" RCP	101	LF	$144	$14,544	30" RCP	101	LF	$144	$14,544	24" RCP	101	LF	$115	$11,615	#N/A	3
1546	CMP	9666	1	418	791	938	731	418	Twin 10'x5' RCBC	89	LF	$2,528	$224,992	12'x6' RCBC	89	LF	$1,615	$143,735	78" RCP	89	LF	$533	$47,437	Maintenance and Replacement	3
5015	RCP	54	1	178	341	345		138	72" RCP	94	LF	$491	$46,154	72" RCP	94	LF	$491	$46,154						#N/A	3
5022	RCBC	8448	2	485	349	355		141																#N/A	5
5150	CMP	60	1	180	616	659		283	Triple 60" RCP	54	LF	$859	$46,386	Triple 60" RCP	54	LF	$859	$46,386	66" RCP	54	LF	$315	$17,010	Maintenance and Replacement	1
									Type 16 Inlet	94	EA	$3,825	$359,550	Type 16 Inlet	94	EA	$3,825	$359,550	Type 16 Inlet	94	EA	$3,825	$359,550		
									Buried Riprap	810	CY	$65	$52,650	Buried Riprap	810	CY	$65	$52,650	Buried Riprap	255	CY	$65	$16,575		
									SUBTOTAL				$1,875,676	Detention	5.9	AC-FT	$50,000	$295,000	**SUBTOTAL**				$748,242		
									Utility Coordination/ Relocation			5%	$93,784	Property Acquisition	43560	SF	$50	$2,178,000	Utility Coordination/ Relocation			5%	$37,412		
									Contingencies			25%	$468,919	**SUBTOTAL**				$4,156,800	Contingencies			25%	$187,061		
									Engineering Design Services			15%	$281,351	Utility Coordination/ Relocation			5%	$207,840	Engineering Design Services			15%	$112,236		
									Legal and Administrative Services			5%	$93,784	Contingencies			25%	$1,039,200	Legal and Administrative Services			5%	$37,412		
									Construction Administration and Management			10%	$187,568	Engineering Design Services			15%	$623,520	Construction Administration and Management			10%	$74,824		
									TOTAL ALTERNATIVE COST				**$3,002,000**	Legal and Administrative Services			5%	$207,840	**TOTAL ALTERNATIVE COST**				**$1,198,000**		
														Construction Administration and Management			10%	$415,680							
														TOTAL ALTERNATIVE COST				**$6,651,000**							

Denotes replacement due to condition, not capacity
Denotes existing pipe capacity is sufficient to convey future 100-year flows
Denotes flow greater than pipe capacity

Notes:

1. All pipes were assumed to be CMP unless otherwise noted by the City of Steamboat Springs or SEH.
2. Existing pipe capacities were calculated assuming 2% slope and normal depth.
3. A value of "0" for Existing Size indicates that the existing size is unknown.
4. N/A indicates that field inspection of the structure has not been performed.
5. Detention Pond volumes are slightly larger than the maximum volume utilized in the hydraulic model and shown on Figure 43 to account for freeboard in construction.



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Major Drainageway Infrastructure Alternatives - Pine Grove Road/ Mount Werner Basin

Citywide Stormwater Master Plan
Steamboat Springs, Colorado

Figure C-3

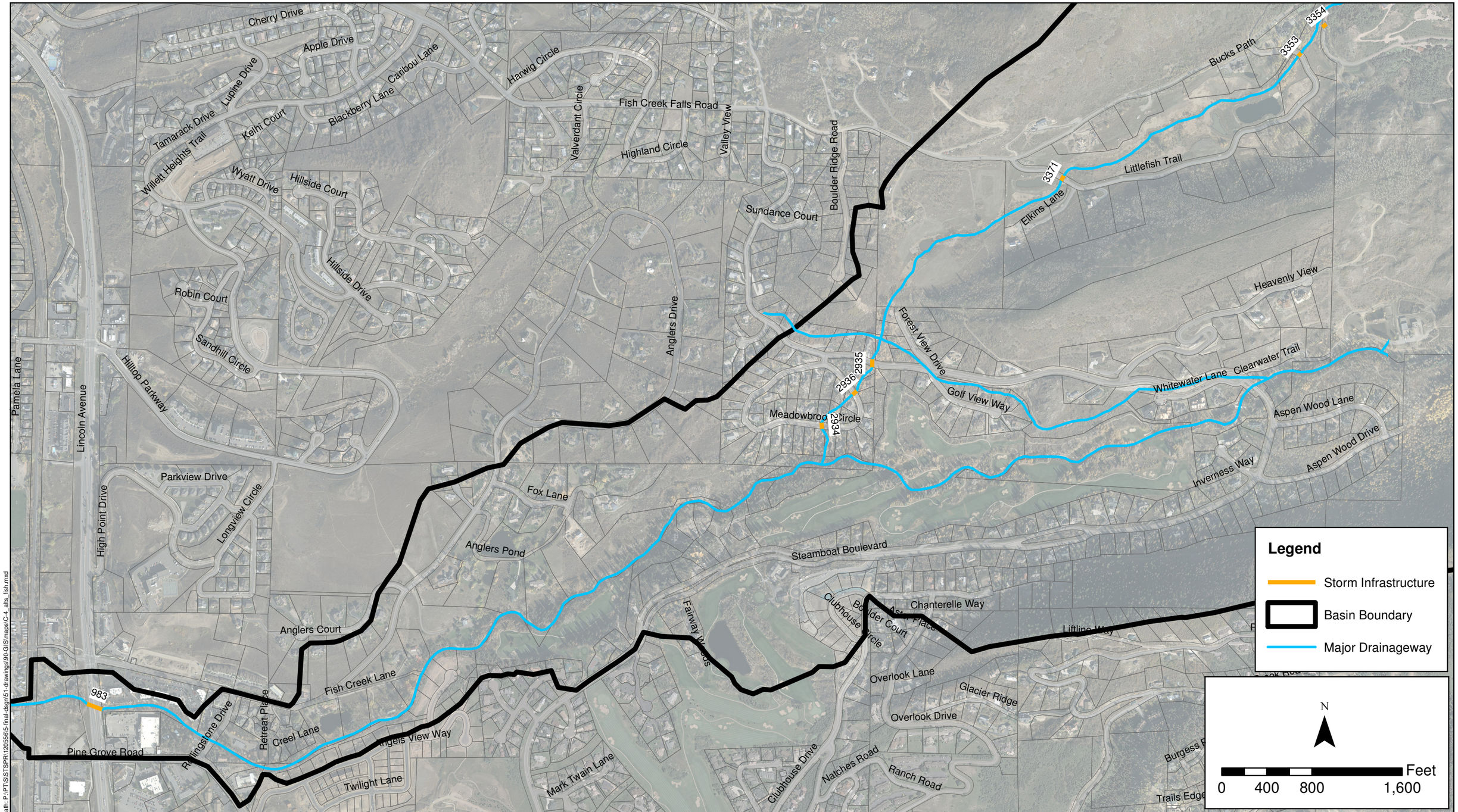
Table C-3: Alternative Analysis Cost Estimate - Pine Grove/ Mount Werner Basin

	Existing					*Future*		*Alternative 1: 100-Year Conveyance*					*Alternative 3: 5-Year Conveyance*						
CULID	**Pipe Type**	**Size (inches)**	**Quantity**	**Full Flow Capacity (cfs)**	**100 yr Flow (cfs)**	**100 yr Flow (cfs)**	**5 yr Flow (cfs)**	**Item**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**	**Item**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**	**Maintenance/ Replacement by Inspection**	**Priority**
1214	CMP	36	1	51	78	78	39	42" RCP	42	LF	$201	$8,442	30" RCP	42	LF	$144	$6,048	Maintenance and Replacement	1
1488	CMP	0	0	0	40	51	25	36" RCP	338	LF	$173	$58,474	30" RCP	338	LF	$144	$48,672	#N/A	3
2964	CMP	24	1	19	328	381	182	78" RCP	180	LF	$533	$95,940	60" RCP	180	LF	$286	$51,480	Maintenance and Replacement	1
2975	CMP	30	1	33	95	155	70	54" RCP	123	LF	$259	$31,857	42" RCP	123	LF	$201	$24,723	#N/A	3
3004	CMP	24	3	56	83	131	82	48" RCP	80	LF	$230	$18,400	42" RCP	80	LF	$201	$16,080	Maintenance Required	3
3040	CMP	42	1	75	78	78	39	42" RCP	68	LF	$201	$13,668						#N/A	3
3041	CMP	36	1	51	63	79	35	42" RCP	104	LF	$201	$20,904						#N/A	3
3044	CMP	18	1	9	31	49	23	36" RCP	47	LF	$173	$8,131	24" RCP	47	LF	$115	$5,405	#N/A	3
3045	CMP	36	1	51	169	175	85	54" RCP	108	LF	$259	$27,972	42" RCP	108	LF	$201	$21,708	#N/A	3
3214	CMP	36	1	51	77	77	34	42" RCP	278	LF	$201	$55,878						#N/A	3
3254	CMP	24	1	19	118	125	61	48" RCP	223	LF	$230	$51,290	36" RCP	223	LF	$173	$38,579	#N/A	3
3378	CMP	42	1	75	295	368	163	78" RCP	490	LF	$533	$261,170	54" RCP	490	LF	$259	$126,910	#N/A	3
3583	CMP	18	3	27	78	78	39	42" RCP	75	LF	$201	$15,075	30" RCP	75	LF	$144	$10,800	#N/A	3
3594	CMP	36	2	103	147	174	96	54" RCP	80	LF	$259	$20,720						Maintenance Required	3
3703	CMP	15	1	5	24	24	12	30" RCP	82	LF	$144	$11,808	24" RCP	82	LF	$115	$9,430	Maintenance Required	3
3755	CMP	48	3	310	393	481	227	Twin 66" RCP	61	LF	$630	$38,430						#N/A	3
3854	CMP	24	1	19	15	16	8											#N/A	5
4629	CMP	48	1	103	421	497	236	Twin 66" RCP	905	LF	$630	$570,150	Twin 48" RCP	905	LF	$460	$416,300	#N/A	3
2978	CMP	30	1	33	13	18	10	24" RCP	105	LF	$115	$12,075	18" RCP	105	LF	$86	$9,030	Replacement	2
								Type 16 Inlet	127	EA	$3,825	$485,775	Type 16 Inlet	127	EA	$3,825	$485,775		
								Buried Riprap	540	CY	$65	$35,100	Buried Riprap	195	CY	$65	$12,675		
											SUBTOTAL	$1,841,259				**SUBTOTAL**	$1,283,615		
											Utility Coordination/ Relocation	5% $92,063				Utility Coordination/ Relocation	5% $64,181		
											Contingencies	25% $460,315				Contingencies	25% $320,904		
											Engineering Design Services	15% $276,189				Engineering Design Services	15% $192,542		
											Legal and Administrative Services	5% $92,063				Legal and Administrative Services	5% $64,181		
											Construction Administration and Management	10% $184,126				Construction Administration and Management	10% $128,362		
											TOTAL ALTERNATIVE COST	**$2,947,000**				**TOTAL ALTERNATIVE COST**	**$2,054,000**		

Denotes replacement due to condition, not capacity
Denotes existing pipe capacity is sufficient to convey future 100-year flows
Denotes flow greater than pipe capacity

Notes:

1. All pipes were assumed to be CMP unless otherwise noted by the City of Steamboat Springs or SEH.
2. Existing pipe capacities were calculated assuming 2% slope and normal depth.
3. A value of "0" for Existing Size indicates that the existing size is unknown.
4. N/A indicates that field inspection of the structure has not been performed.



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Print Date: 12/28/2012

Map by:
Projection:
Source:

Major Drainageway Infrastructure Alternatives - Fish Creek

Citywide Stormwater Master Plan
Steamboat Springs, Colorado

Figure C-4

Table C-4: Alternative Analysis Cost Estimate - Fish Creek Basin

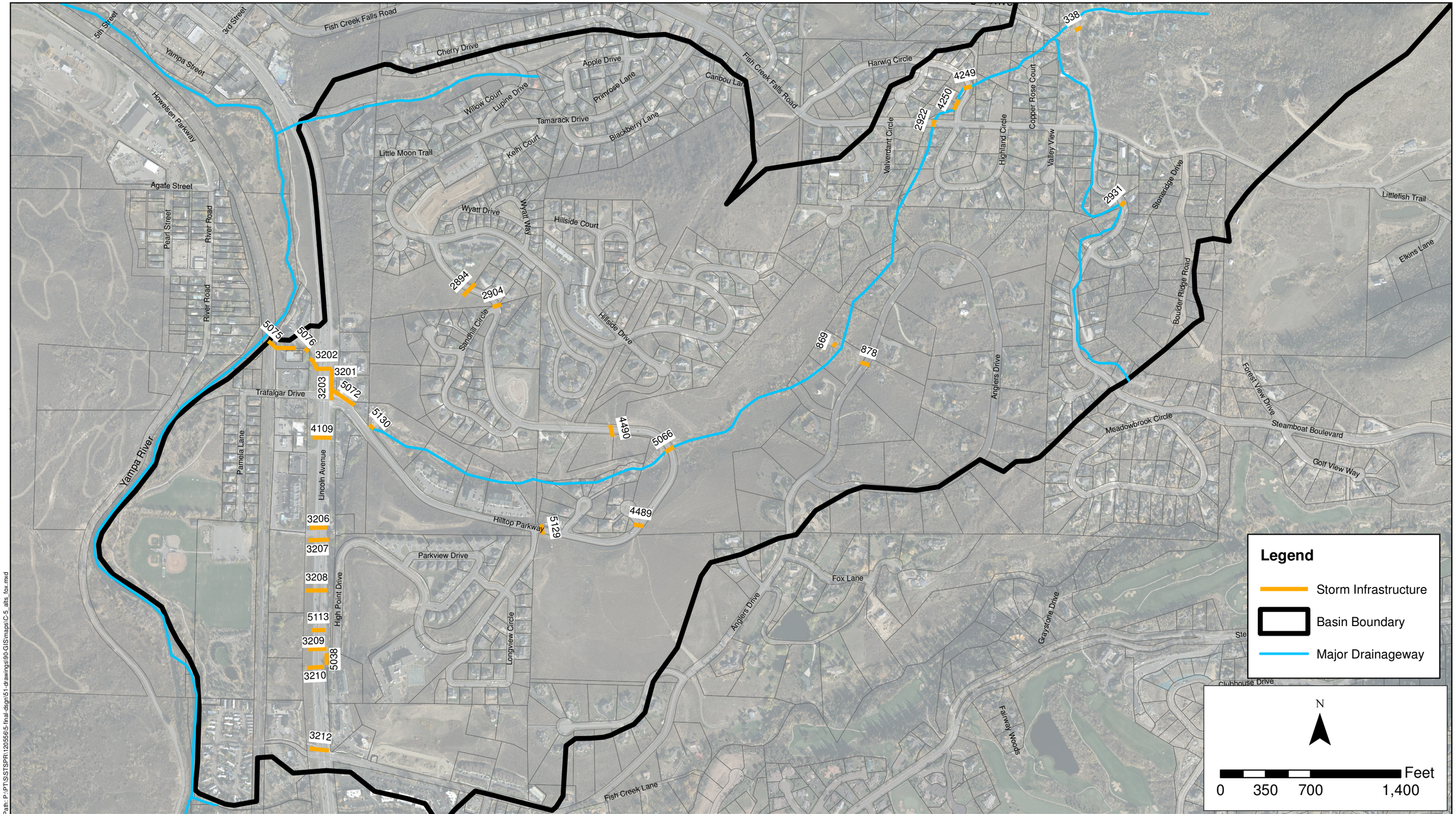
	Existing					*Future*		*Alternative 1: 100-Year Conveyance*					*Alternative 3: 5-Year Conveyance*						
CULID	**Pipe Type**	**Size (inches)**	**Quantity**	**Full Flow Capacity (cfs)**	**UDFCD 100 yr Flow (cfs)**	**Future UDFCD 100 yr Flow (cfs)**	**Future UDFCD 5 yr Flow (cfs)**	**Item**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**	**Item**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**	**Maintenance/ Replacement by Inspection**	**Priority**
2934	CMP	18	1	9	160	184	83	60" RCP	55	LF	$286	$15,730	42" RCP	55	LF	$201	$11,055	#N/A	3
2935	CMP	36	1	51	149	174	48	54" RCP	72	LF	$259	$18,648						#N/A	3
2936	CMP	36	1	51	149	174	48	54" RCP	52	LF	$259	$13,468						#N/A	3
3353	CMP	24	1	19	50	50	9	36" RCP	41	LF	$173	$7,093						#N/A	3
3371	RCP	54	1	178	120	140	34											#N/A	5
983	RCBC	120108	3	1985	1526	1636	580											Maintenance Required	4
3354	CMP	24	1	19	50	50	9	36" RCP	46	LF	$173	$7,958						#N/A	3
								Type 16 Inlet	11	EA	$3,825	$42,075	Type 16 Inlet	11	EA	$3,825	$42,075		
								Buried Riprap	150	CY	$65	$9,750	Buried Riprap	15	CY	$65	$975		
								SUBTOTAL				$114,722	**SUBTOTAL**				$54,105		
								Utility Coordination/ Relocation			5%	$5,736	Utility Coordination/ Relocation			5%	$2,705		
								Contingencies			25%	$28,681	Contingencies			25%	$13,526		
								Engineering Design Services			15%	$17,208	Engineering Design Services			15%	$8,116		
								Legal and Administrative Services			5%	$5,736	Legal and Administrative Services			5%	$2,705		
								Construction Administration and Management			10%	$11,472	Construction Administration and Management			10%	$5,411		
								TOTAL ALTERNATIVE COST				**$184,000**	**TOTAL ALTERNATIVE COST**				**$87,000**		

Denotes existing pipe capacity is sufficient to convey future 100-year flows

Denotes flow greater than pipe capacity

Notes:

1. All pipes were assumed to be CMP unless otherwise noted by the City of Steamboat Springs or SEH.
2. Existing pipe capacities were calculated assuming 2% slope and normal depth.
3. A value of "0" for Existing Size indicates that the existing size is unknown.
4. N/A indicates that field inspection of the structure has not been performed.



Legend

- Storm Infrastructure
- Basin Boundary
- Major Drainageway

N

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Project: STSPR 120556
Print Date: 12/28/2012

Map by:
Projection:
Source:

Major Drainageway Infrastructure Alternatives - Fox Creek

City Wide Stormwater Master Plan
Steamboat Springs, Colorado

Figure C-5

Table C-5: Alternative Analysis Cost Estimate - Fox Creek Basin

	Existing					*Future*			*Alternative 1: 100-Year Conveyance*					*Alternative 2: 100-Year Conveyance with Detention*					*Alternative 3: 5-Year Conveyance*						
CULID	**Pipe Type**	**Size (inches)**	**Quantity**	**Full Flow Capacity (cfs)**	**100 yr Flow (cfs)**	**100 yr Flow (cfs)**	**100 yr Flow with Detention (cfs)**	**5 yr Flow (cfs)**	**Item**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**	**Item**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**	**Item**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**	**Maintenance/ Replacement by Inspection**	**Priority**
2894	CMP	18	1	9	31	31		17	30" RCP	133	LF	$144	$19,152	30" RCP	133	LF	$144	$19,152	24" RCP	133	LF	$115	$15,295	Maintenance and Replacement	1
2904	CMP	18	1	9	41	41		23	30" RCP	71	LF	$144	$10,224	30" RCP	71	LF	$144	$10,224	24" RCP	71	LF	$115	$8,165	#N/A	3
2922	CMP	36	1	51	73	73		37	42" RCP	58	LF	$201	$11,658	42" RCP	58	LF	$201	$11,658						#N/A	3
2931	CMP	18	1	9	40	40		20	30" RCP	52	LF	$144	$7,488	30" RCP	52	LF	$144	$7,488	24" RCP	52	LF	$115	$5,980	#N/A	3
3201	CMP	24	1	19	488	488	347	272	Twin 66" RCP	17	LF	$630	$10,710	72" RCP	17	LF	$491	$8,347	66" RCP	17	LF	$315	$5,355	#N/A	3
3202	CMP	36	1	51	488	488	347	272	Twin 66" RCP	204	LF	$630	$128,520	72" RCP	204	LF	$491	$100,164	66" RCP	204	LF	$315	$64,260	#N/A	3
3203	CMP	24	1	19	488	488	347	272	Twin 66" RCP	246	LF	$630	$154,980	72" RCP	246	LF	$491	$120,786	66" RCP	246	LF	$315	$77,490	#N/A	3
3206	CMP	24	1	19	11	20		11	24" RCP	137	LF	$115	$15,755	24" RCP	137	LF	$115	$15,755						Maintenance Required	3
3207	CMP	24	1	19	20	28		15	30" RCP	160	LF	$144	$23,040	30" RCP	160	LF	$144	$23,040						#N/A	3
3208	CMP	24	1	19	8	11		6																#N/A	5
3209	CMP	24	1	19	8	11		6																#N/A	5
3210	CMP	24	1	19	8	11		6	18" RCP	135	LF	$86	$11,610	18" RCP	135	LF	$86	$11,610	18" RCP	135	LF	$86	$11,610	Maintenance and Replacement	2
4249	CMP	24	1	19	73	73		37	42" RCP	70	LF	$201	$14,070	42" RCP	70	LF	$201	$14,070	30" RCP	70	LF	$144	$10,080	#N/A	3
4250	CMP	30	1	33	73	73		37	42" RCP	90	LF	$201	$18,090	42" RCP	90	LF	$201	$18,090	30" RCP	90	LF	$144	$12,960	#N/A	3
338	CMP	36	1	51	41	43		20																#N/A	5
4489	CMP	24	1	19	9	9		4																#N/A	2
4490	CMP	36	1	51	7	7		3																Maintenance Required	2
3212	CMP	36	1	51	70	100		50	48" RCP	151	LF	$230	$34,730	48" RCP	151	LF	$230	$34,730						Maintenance Required	3
4109	CMP	24	1	19	19	19		15	24" RCP	145	LF	$115	$16,675	24" RCP	145	LF	$115	$16,675						Maintenance Required	1
878	CMP	0	0	0	67	67		38	42" RCP	73	LF	$201	$14,673	42" RCP	73	LF	$201	$14,673	30" RCP	73	LF	$144	$10,512	#N/A	3
869	CMP	0	0	0	237	237		114	Twin 48" RCP	38	LF	$460	$17,480	Twin 48" RCP	38	LF	$460	$17,480	48" RCP	38	LF	$230	$8,740	#N/A	3
5038	HDPE	18	1	11	31	43		22	36" RCP	91	LF	$173	$15,743	36" RCP	91	LF	$173	$15,743	24" RCP	91	LF	$115	$10,465	#N/A	3
5066	CMP	360	1		336	336	61	155																#N/A	5
5072	CMP	15	1	5	418	362	194	196	72" RCP	216	LF	$491	$106,056	60" RCP	216	LF	$286	$61,776	60" RCP	216	LF	$286	$61,776	Maintenance and Replacement	1
5075	ECMP	7248	1	180	574	555	432	315	Twin 66" RCP	237	LF	$630	$149,310	78" RCP	237	LF	$533	$126,321	72" RCP	237	LF	$491	$116,367	#N/A	3
5076	CMP	18	1	9	488	488		272	Twin 66" RCP	40	LF	$630	$25,200	Twin 66" RCP	40	LF	$630	$25,200	66" RCP	40	LF	$315	$12,600	#N/A	3
5113	CMP	24	1	19	8	11		6	18" RCP	41	LF	$86	$3,526	18" RCP	41	LF	$86	$3,526	18" RCP	41	LF	$86	$3,526	Maintenance and Replacement	2
5129	CMP	36	1	51	31	31		16																Maintenance Required	4
5130	CMP	72	1	284	426	426	180	199	78" RCP	49	LF	$533	$26,117	60" RCP	49	LF	$286	$14,014						#N/A	3
									Type 16 Inlet	46	EA	$3,825	$175,950	Type 16 Inlet	46	EA	$3,825	$175,950	Type 16 Inlet	46	EA	$3,825	$175,950		
									Buried Riprap	660	CY	$65	$42,900	Buried Riprap	660	CY	$65	$42,900	Buried Riprap	240	CY	$65	$15,600		
											SUBTOTAL		$1,054,627	Detention	19.2	AC-FT	$50,000	$960,000			**SUBTOTAL**		$626,731		
									Utility Coordination/ Relocation		5%		$52,731			**SUBTOTAL**		$1,869,372	Utility Coordination/ Relocation		5%		$31,337		
									Contingencies		25%		$263,657	Utility Coordination/ Relocation		5%		$93,469	Contingencies		25%		$156,683		
									Engineering Design Services		15%		$158,194	Contingencies		25%		$467,343	Engineering Design Services		15%		$94,010		
									Legal and Administrative Services		5%		$52,731	Engineering Design Services		15%		$280,406	Legal and Administrative Services		5%		$31,337		
									Construction Administration and Management		10%		$105,463	Legal and Administrative Services		5%		$93,469	Construction Administration and Management		10%		$62,673		
									TOTAL ALTERNATIVE COST				**$1,688,000**	Construction Administration and Management		10%		$186,937	**TOTAL ALTERNATIVE COST**				**$1,003,000**		
														TOTAL ALTERNATIVE COST				**$2,991,000**							

Denotes existing pipe capacity is sufficient to convey future 100-year flows

Denotes flow greater than pipe capacity

Notes:

1. All pipes were assumed to be CMP unless otherwise noted by the City of Steamboat Springs or SEH.
2. Existing pipe capacities were calculated assuming 2% slope and normal depth.
3. A value of "0" for Existing Size indicates that the existing size is unknown.
4. It was assumed that 1/4 of the flows for Basin FX 15 flow to each of Culverts 3208, 3209, 3210, and 3213.
5. N/A indicates that field inspection of the structure has not been performed.
6. No costs have been associated with property acquisition for detention in Fox Creek because the land identified as a potential for detention is already City owned property.
7. Detention Pond volumes are slightly larger than the maximum volume utilized in the hydraulic model and shown on Figure 43 to account for freeboard in construction.

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Print Date: 12/29/2012

Map by:
Projection:
Source:

Major Drainageway Infrastructure Alternatives - Copper Ridge Basin

Citywide Stormwater Master Plan
Steamboat Springs, Colorado

Figure
C-6

Table C-6: Alternative Analysis Cost Estimate - Copper Ridge Basin

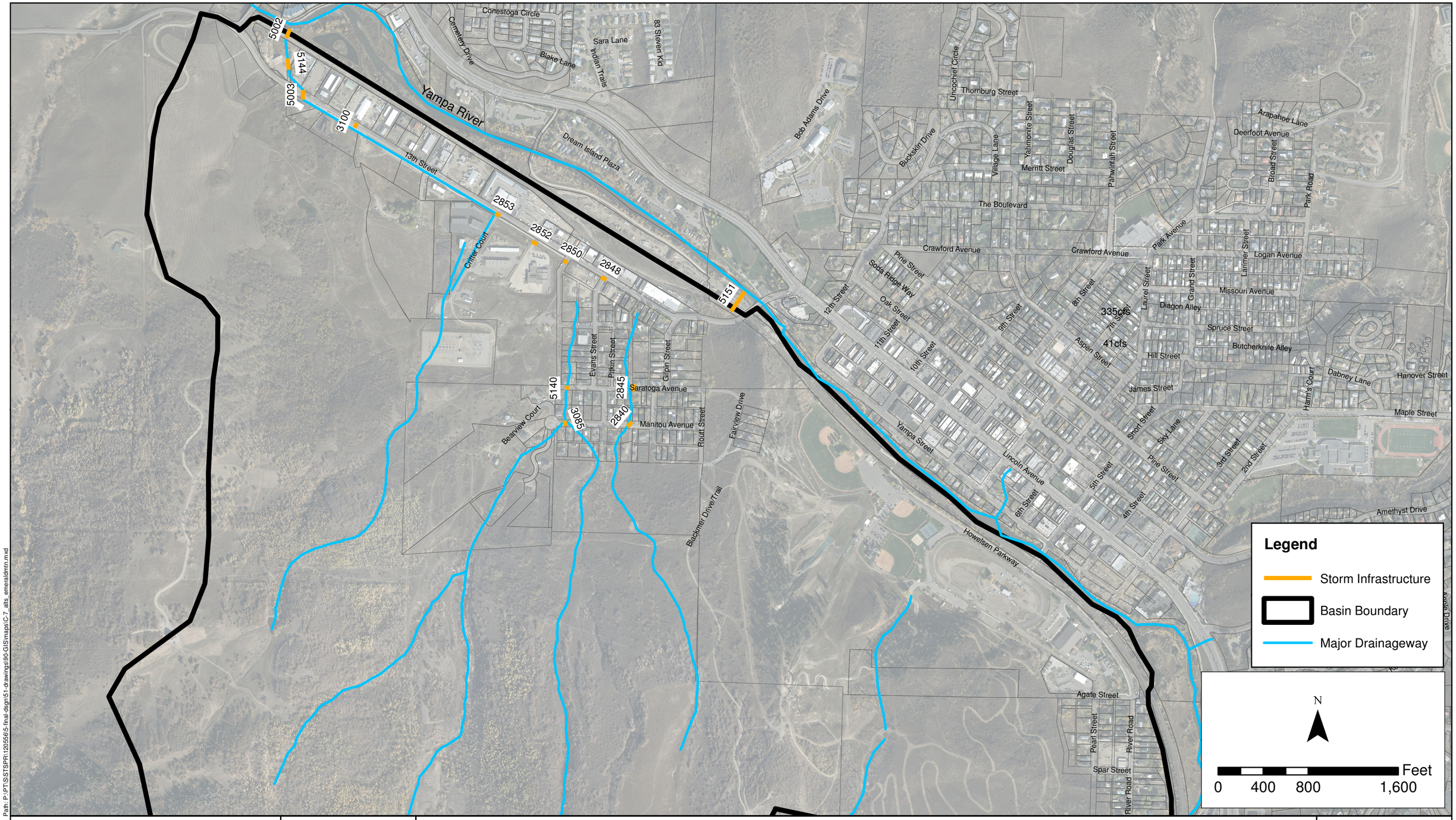
	Existing						*Future*			*Alternative 1: 100-Year Conveyance*					*Alternative 2: 100-Year Conveyance with Detention*					*Alternative 3: 5-Year Conveyance*						
CULID	**Pipe Type**	**SEH_StType**	**Size (inches)**	**Quantity**	**Full Flow Capacity (cfs)**	**100 yr Flow (cfs)**	**100 yr Flow (cfs)**	**100 yr with Detention (cfs)**	**5 yr Flow (cfs)**	**Item**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**	**Item**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**	**Item**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**	**Maintenance/ Replacement by Inspection**	**Priority**
85	CMP	Pipe	18	1	9	58	107		56	48" RCP	59	LF	$230	$13,570	48" RCP	59	LF	$230	$13,570	36" RCP	59	LF	$173	$10,207	Maintenance Required	3
2949	CMP	Pipe	15	1	5	15	15		8	24" RCP	58	LF	$115	$6,670	24" RCP	58	LF	$115	$6,670	18" RCP	58	LF	$86	$4,988	#N/A	3
2951	CMP	Pipe	24	1	19	23	23		10	24" RCP	70	LF	$115	$8,050	24" RCP	70	LF	$115	$8,050						#N/A	3
3020	CMP	Pipe	24	1	19	164	255		118	Twin 48" RCP	122	LF	$460	$56,120	Twin 48" RCP	122	LF	$460	$56,120	48" RCP	122	LF	$230	$28,060	Maintenance Required	3
3328	CMP	Pipe	36	1	51	51	53		11	36" RCP	100	LF	$173	$17,300	36" RCP	100	LF	$173	$17,300						#N/A	3
3329	CMP	Pipe	42	1	75	51	53		12																#N/A	5
3540	CMP	Pipe	60	1	180	145	179	53	88																Maintenance Required	4
3543	CMP	Pipe	72	1	284	196	233	114	105																#N/A	5
3548	CMP	Pipe	30	1	33	227	265		113	Twin 48" RCP	70	LF	$460	$32,200	Twin 48" RCP	70	LF	$460	$32,200	48" RCP	70	LF	$230	$16,100		3
3758	CMP	Pipe	18	1	9	115	212		101	60" RCP	60	LF	$286	$17,160	60" RCP	60	LF	$286	$17,160	48" RCP	60	LF	$230	$13,800	Maintenance Required	3
3860	CMP	Pipe	60	1	180	400	552	490	178	Twin 66" RCP	80	LF	$630	$50,400	Twin 66" RCP	80	LF	$630	$50,400						Maintenance Required	3
3880	CMP	Pipe	48	2	206	433	575	432	188	Twin 66" RCP	81	LF	$630	$51,030	78" RCP	81	LF	$533	$43,173						#N/A	3
3884	CMP	Pipe	48	2	206	507	591	521	240	Triple 60" RCP	70	LF	$859	$60,130	Twin 66" RCP	70	LF	$630	$44,100	Twin 48" RCP	70	LF	$460	$32,200	Maintenance Required	3
3892	CMP	Pipe	30	1	33	58	69		33	42" RCP	87	LF	$201	$17,487	42" RCP	87	LF	$201	$17,487	30" RCP	87	LF	$144	$12,528	#N/A	3
3893	CMP	Pipe	36	1	51	48	67		36	42" RCP	119	LF	$201	$23,919	42" RCP	119	LF	$201	$23,919						#N/A	3
4354	CMP	Pipe	24	1	19	90	118		66	48" RCP	90	LF	$230	$20,700	48" RCP	90	LF	$230	$20,700	42" RCP	90	LF	$201	$18,090	#N/A	3
2952	CMP	Pipe	48	1	103	400	552	490	178	Twin 66" RCP	77	LF	$630	$48,510	Twin 66" RCP	77	LF	$630	$48,510	54" RCP	77	LF	$259	$19,943	Maintenance Required	3
3891	CMP	Pipe	18	1	9	48	67		36	42" RCP	70	LF	$201	$14,070	42" RCP	70	LF	$201	$14,070	30" RCP	70	LF	$144	$10,080	#N/A	3
86	CMP	Pipe	0	0	0	53	53		24	36" RCP	106	LF	$173	$18,338	36" RCP	106	LF	$173	$18,338	30" RCP	106	LF	$144	$15,264	Maintenance and Replacement	1
5001	CMP	Pipe	48	1	103	227	265		113	Twin 48" RCP	69	LF	$460	$31,740	Twin 48" RCP	69	LF	$460	$31,740	48" RCP	69	LF	$230	$15,870	Maintenance Required	3
5078	RCP	Pipe	60	1	232	190	279		132	66" RCP	257	LF	$315	$80,955	66" RCP	257	LF	$315	$80,955						#N/A	3
5079	CMP	Pipe	18	1	9	264	307		122	72" RCP	110	LF	$491	$54,010	72" RCP	110	LF	$491	$54,010	48" RCP	110	LF	$230	$25,300	#N/A	3
5086	RCBC	Pipe	7836	1	245	190	279		132	66" RCP	115	LF	$315	$36,225	66" RCP	115	LF	$315	$36,225						#N/A	3
5087	CMP	Pipe	24	1	19	118	122		78	48" RCP	235	LF	$230	$54,050	48" RCP	235	LF	$230	$54,050	42" RCP	235	LF	$201	$47,235	Maintenance Required	3
5088	CMP	Pipe	48	1	103	118	155		78	54" RCP	106	LF	$259	$27,454	54" RCP	106	LF	$259	$27,454						Maintenance Required	3
										Type 16 Inlet	66	EA	$3,825	$252,450	Type 16 Inlet	66	EA	$3,825	$252,450	Type 16 Inlet	66	EA	$3,825	$252,450		
										Buried Riprap	660	CY	$65	$42,900	Buried Riprap	660	CY	$65	$42,900	Buried Riprap	210	CY	$65	$13,650		
												SUBTOTAL		$1,035,438	Detention	16.6	AC-FT	$50,000	$830,000			**SUBTOTAL**		$535,765		
												Utility Coordination/ Relocation	5%	$51,772	Property Acquisition	62730	SF	$50	$3,136,500			Utility Coordination/ Relocation	5%	$26,788		
												Contingencies	25%	$258,860				**SUBTOTAL**		$4,978,636			Contingencies	25%	$133,941		
												Engineering Design Services	15%	$155,316				Utility Coordination/ Relocation	5%	$248,932			Engineering Design Services	15%	$80,365		
												Legal and Administrative Services	5%	$51,772				Contingencies	25%	$1,244,659			Legal and Administrative Services	5%	$26,788		
												Construction Administration and Management	10%	$103,544				Engineering Design Services	15%	$746,795			Construction Administration and Management	10%	$53,577		
												TOTAL ALTERNATIVE COST		**$1,657,000**				Legal and Administrative Services	5%	$248,932			**TOTAL ALTERNATIVE COST**		**$858,000**		
																		Construction Administration and Management	10%	$497,864							
																		TOTAL ALTERNATIVE COST		**$7,966,000**							

Denotes existing pipe capacity is sufficient to convey future 100-year flows

Denotes flow greater than pipe capacity

Notes:

1. All pipes we
2. Existing pipe capacities were calculated assuming 2% slope and normal depth.
3. A value of "0" for Existing Size indicates that the existing size is unknown.
4. N/A indicates that field inspection of the structure has not been performed.
5. Detention Pond volumes are slightly larger than the maximum volume utilized in the hydraulic model and shown on Figure 43 to account for freeboard in construction.



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Print Date: 2/25/2013

Map by:
Projection:
Source:

Major Drainageway Infrastructure Alternatives - Emerald Mountain / Orton Meadows Basin

Citywide Stormwater Master Plan
Steamboat Springs, Colorado

Figure C-7

Table C-7: Alternative Analysis Cost Estimate - Emerald Mountain/ Orton Meadows Basin

	Existing					*Future*		*Alternative 1: 100-Year Conveyance*					*Alternative 3: 5-Year Conveyance*						
CULID	**Pipe Type**	**Size (inches)**	**Quantity**	**Full Flow Capacity (cfs)**	**100 yr Flow (cfs)**	**100 yr Flow (cfs)**	**5 yr Flow (cfs)**	**Item**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**	**Item**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**	**Maintenance/ Replacement by Inspection**	**Priority**
2840	CMP	36	2	103	49	49	25	36" RCP	57	LF	$173	$9,861	30" RCP	57	LF	$144	$8,208	Maintenance and Replacement	2
2845	CMP	36	2	103	49	49	25											#N/A	5
3085	CMP	48	2	206	127	141	66											Maintenance Required	4
2848	CMP	18	1	9	43	43	22	36" RCP	55	LF	$173	$9,515	24" RCP	54	LF	$115	$6,210	#N/A	3
2850	CMP	30	1	33	152	165	75	54" RCP	40	LF	$259	$10,360	42" RCP	56	LF	$201	$11,256	Maintenance Required	3
2852	CMP	54	1	139	152	165	75	54" RCP	55	LF	$259	$14,245	42" RCP	58	LF	$201	$11,658	Maintenance and Replacement	1
2853	CMP	30	1	33	152	165	75	54" RCP	53	LF	$259	$13,727	42" RCP	59	LF	$201	$11,859	#N/A	3
3100	CMP	24	1	19	20	33	17	30" RCP	48	LF	$144	$6,912						Maintenance Required	3
5002	CMP	30	1	33	312	345	137	72" RCP	48	LF	$491	$23,568	54" RCP	61	LF	$259	$15,799	Replacement	1
5003	CMP	3424	1	33	234	267	108	66" RCP	87	LF	$315	$27,405	48" RCP	62	LF	$230	$14,260	New	3
5140	CMP	60	1	180	127	141	66											#N/A	5
5144	CMP	36	1	51	234	267	108	66" RCP	38	LF	$315	$11,970	48" RCP	38	LF	$230	$8,740	#N/A	3
5151	CSP	24	1	19	41	41	22	30" RCP	214	LF	$144	$30,816	24" RCP	214	LF	$115	$24,610	#N/A	3
								Type 16 Inlet	16	EA	$3,825	$61,200	Type 16 Inlet	16	EA	$3,825	$61,200		
								Buried Riprap	300	CY	$65	$19,500	Buried Riprap	135	CY	$65	$8,775		
											SUBTOTAL	$239,079				**SUBTOTAL**	$182,575		
											Utility Coordination/ Relocation	5% $11,954				Utility Coordination/ Relocation	5% $9,129		
											Contingencies	25% $59,770				Contingencies	25% $45,644		
											Engineering Design Services	15% $35,862				Engineering Design Services	15% $27,386		
											Legal and Administrative Services	5% $11,954				Legal and Administrative Services	5% $9,129		
											Construction Administration and Management	10% $23,908				Construction Administration and Management	10% $18,258		
											TOTAL ALTERNATIVE COST	**$383,000**				**TOTAL ALTERNATIVE COST**	**$293,000**		

	Denotes replacement due to condition, not capacity
	Denotes existing pipe capacity is sufficient to convey future 100-year flows
	Denotes flow greater than pipe capacity

Notes:

1. All pipes were assumed to be CMP unless otherwise noted by the City of Steamboat Springs or SEH.
2. Existing pipe capacities were calculated assuming 2% slope and normal depth.
3. A value of "0" for Existing Size indicates that the existing size is unknown.
4. N/A indicates that field inspection of the structure has not been performed.

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APPENDIX D –CORRESPONDENCE

SEH MINUTES

Steamboat Springs Stormwater Master Plan
May 15, 2012
12:00pm
City of Steamboat Springs - Centennial Hall, Crawford Room

Meeting Chair: Steve Gardner

Minutes by: Kelly Jankowski

Present: Janet Hruby – City of Steamboat Springs – jhruby@steamboatsprings.net
Philo Shelton – City of Steamboat Springs – pshelton@steamboatsprings.net
Doug Marsh – City of Steamboat Springs – dmarsh@steamboatsprings.net
Ron Berig – City of Steamboat Springs – rberig@steamboatsprings.net
Steve Gardner – SEH – sgardner@sehinc.com
Roger Peterson – SEH – rpeterson@sehinc.com
Anne Pagano – SEH – apagano@sehinc.com
Ryan Crum – SEH – rcrum@sehinc.com
Kelly Jankowski – SEH – kjankowski@sehinc.com

Copies to: All Attendees via e-mail
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I. Introductions

II. Issues, Concerns, and Goals
- A. Memorable Rainfall Events – *Nearly all occur in the springtime in conjunction with spring rains and runoff; some involve ice jams, especially in low snow years*
- B. Identification of Problem Areas – 13th Street and others
  1. *Mattress Factory flooding on 13th Street*
  2. *Holiday Inn – Culvert to pond behind has been plugged*
  3. *Steamboat Hotel*
  4. *Butcherknife Creek*
     - a. *Not maintained by the City*
     - b. *Debris blockage and ice dams*
     - c. *Backs up at Yampa Street*
     - d. *Ben Beall surveyed Butcherknife Creek*
  5. *Sky View and Whistler*
  6. *High Point Drive and US40*
  7. *Deerfoot Arts Park*
  8. *Soda Creek near Little Toots Park*
  9. *Riverside Subdivision – backflow from Yampa*
  10. *Riverside Plaza*
  11. *Elk River Road and Copper Ridge*
  12. *Mt. Werner upstream of Steamboat Boulevard*
  13. *Soda Creek at 11th Ave – existing bridge is undersized*

  14. *Brooklyn – Ground water issue*
  15. *Whistler and Sky view*
  16. *Hilltop Parkway at Fox Creek Trail*
  17. *5th Street Bridge*
- C. Flood Damage
- D. Water Quality
  1. *Include snow storage water quality improvement recommendations*
- E. Maintenance
  1. *Performed on a first come, first serve basis; reactive, not proactive*
  2. *Debris and silting is the most common complaint*
  3. *Most culverts have not been replaced in at least 30 years and are rusted and eroding*
  4. *No inspection program*
  5. *No dedicated staff or equipment; drainage issues take a back seat to traffic/roadway issues*
- F. Snow Storage
  1. *Snow typically stored adjacent to creek; needs to be included in WQ assessments*
  2. *Scoria used for most winter applications; very little liquid de-icer and and/salt used*
- G. Stormwater Utility
  1. *Support for the stormwater utility needs to be told from the perspective of the problems and needs (i.e. aging infrastructure, flooding problems, inadequate pipes and culverts, MS4 Issues).*
  2. *SEH requested a copy of the MS4 permit*

III. Project Information
- A. Data Gathering
  1. Aerial Photography/LIDAR/GIS – *SEH has*
  2. 2-ft topo – *SEH has*
  3. Future Land Use Plans
     - a. Obtain "Vacant Land Capacity Analysis" in GIS – *SEH has hard copy only*
     - b. Zoning Maps – *SEH needs*
     - c. Comprehensive Plan Update – *Discuss with Planning*
  4. Subdivision Drainage Reports
     - a. *Contact Janet if in need of a particular area*
  5. Integration of Old Town master plan -
     - a. *Perform peer review of and incorporate Old Town Master Plan and city wide Stormwater Master Plan into one cohesive document.*
     - b. *O&M plan was not included in Old Town Master Plan but should be included in city wide Master Plan.*
- B. Sources of Information
  1. City contacts
     - a. *Steamboat Springs Community Development Department – Ben and Jason*
     - b. *Parks and Recreation Department – Craig Robinson*
  2. Citizen contacts
     - a. *Contact local non-profit organizations*
       - (1) *Friends of the Yampa*
       - (2) *Community Alliance*
       - (3) *Yampatika*

IV. Infrastructure Inventory
- A. Complete inventory of existing stormwater system

1. Size, construction material, slope, and data required for hydrologic and hydraulic modeling

B. Pilot scale overall and maintenance condition inventory
1. Collect detailed material, age, condition, and maintenance condition information in select locations
2. Extrapolate data across city to estimate type/quantity of pipes, what percentage needs replacement, and how much maintenance needs to be performed

V. Hydrology
A. PC-SWMM
B. Basin Delineation
C. Calibration to gauge data
1. 13th Street gauge
2. 5th Street gauge
D. Calibration to Rational Method results

VI. Detention
A. Regional Detention
1. No regional detention exists in the City
B. On Site Detention
1. Required for all new development

VII. Floodplain Evaluation
A. Addendum to contract?
1. Janet to discuss with Philo to determine feasibility
B. FEMA Models Available?

VIII. Project Schedule
A. Steve discussed the aggressive project schedule and asked all participants to be diligent in responding to questions and project deliverable reviews

IX. Communication
A. General – *E-mail preferred with phone calls as backup*
B. Web Site – *Not at this time*
C. SEH ftp Site – *available for transfer of large data files*
D. Media/Public – *Refer to Janet*

X. Future Meetings – *The schedule requires the need for a meeting to discuss baseline hydrology findings in late June.*

XI. Other Issues

XII. Action Items
A. Janet will get SEH a copy of the MS4 permit
B. Janet will review the scope alternate and get back with SEH

XIII. Additional Notes
A. Union Pacific Railroad contact is Kelly Abrae.
B. Check waterbody setbacks in the Municipal Code – contact Community Development
C. Report goals
1. Identify stormwater needs for the City of Steamboat Springs
2. Focus on water quality
3. Include a culvert replacement plan

4. Produce a report that can be understood and implemented by the Council

XIV. Adjourn

SEH believes that this document accurately reflects the business transacted during the meeting. If any attendee believes that there are any inconsistencies, omissions or errors in the minutes, they should notify the writer at once. Unless objections are raised within seven (7) days, we will consider this account accurate and acceptable to all.

If there are errors contained in this document, or if relevant information has been omitted, please contact Steve Gardner **at 303.586.5821.**

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SEH MINUTES

Steamboat Springs Stormwater Master Plan
Progress Meeting #1
July 11, 2012
10:00am
City of Steamboat Springs - Meeting Rooms 113 and 114

Meeting Chair: Steve Gardner

Minutes by: Ryan Crum

Present: Janet Hruby – City of Steamboat Springs – jhruby@steamboatsprings.net
Mary Schuette-City of Steamboat Springs – mschuette@steamboatsprings.net
Doug Marsh – City of Steamboat Springs – dmarsh@steamboatsprings.net
Ron Berig – City of Steamboat Springs – rberig@steamboatsprings.net
Steve Gardner – SEH – sgardner@sehinc.com
Allison Wolfe – SEH – awolfe@sehinc.com
Ryan Crum – SEH – rcrum@sehinc.com
Kelly Jankowski – SEH – kjankowski@sehinc.com

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I. Progress Summary and Overview of Meeting
   A. Handshakes
   B. Spoke of storm on previous Friday; 2" in one hour

II. Infrastructure Inventory and Problems and Needs
   A. Complete inventory of existing stormwater system
      1. Janet asked for 3 sentence summary of what we have seen so far.
      2. City asked to place location on photographs
      3. Displayed a preliminary Problems and Needs Map
      4. Asked how we are addressing wetlands?
         a. Response was if work was considered maintenance would not cause and issue
      5. Work on Highpoint, contact is Walt McGill
      6. City is open to all ideas even if it is against the norm, if it is a better solution.
      7. Main concern (infrastructure) is near major roads, access
      8. City asked to have a paragraph stating that the infrastructure inventory was focused in the main city area and will be extrapolated to the other areas.

III. Hydrology
   A. 10 basins with each basin having 20-30 subbasins
   B. Flowlines and widths added as a layer in GIS
   C. Using PCSWMM, which intergrates EPA SWMM and GIS together
   D. PCSWMM will allow for changes to be made to GIS data and brought into the model to see what the change will do

   E. Including the Olde Town report into the model, not reworking this area; just checking for major errors
   F. We will be using the worse case scenario for unknowns
   G. Will be using future zoning to obtain the percent impervious for the future model
   H. City asked to use modeling to show effects of detention

IV. Analysis of Alternatives
   A. Buying property
   B. Speak to Parks and Rec; Craig Robenson and Chris(?)
   C. Butcher Knife 3-36" culverts
   D. Emerald Park – Pamala Lane
   E. Thoughts on type of pipe
      1. Been has been specing out SDR 35
      2. Buterknife alley speced out RCP
   F. EPA changing requirements for water quality in 2013

V. Other Items
   A. 3 major complaints from storm a week prior
      1. Roof drains, sump pump back ups
      2. 11th and oak; water did not go into catch basin due to new overlay
      3. Douglas St. went over street didn't follow street
   B. MS$ requirements
      1. How to enforce citizens not doing things correctly
      2. Nuisance ordinance?
      3. Not maintaining storm water quality ponds
      4. Elicit discharge

VI. Project Schedule
   A. Council meeting in September
   B. City must have info into Council one week prior
   C. Need to get preliminary dates ironed out
   D. Need to get City Manager on board before speaking with Council

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Author	Comment	Response
Ben Beall	Elaboration and discussion on "pilot scale" infrastructure assessment which will discuss rationale for additional costs not directly included in study/field inspection (per prior cost estimate provided this is a $7-11 M estimate which is not captured anywhere in the Draft Plan.)	The rationale behind the pilot scale inventory was added to section 3.9 of the Final Steamboat Springs Citywide Stormwater Master Plan (Final Plan).
	Phasing and Prioritization Plan by Basin:	
Ben Beall	In your e-mail of 12/29, you state "Phasing and prioritization is general in nature, but consistent with the scope and budget for the effort." The original RFP states in the scope of work section: "Phasing Plan: rank and prioritize projects based on ranking system developed in coordination with City's project engineer. Projects will be listed by drainage basin and note whether they are primarily related to existing conditions or new development." This is not complete. Please include in final draft. I provided a number of suggestions as to how this can be accomplished and presented at our meeting on December 7th. Some of the ideas were to first prioritize those projects that are failing and undersized, then those that are failing, and finally those that are undersized. Other suggestions were to take into account history of flooding, potential for property damage, and roadway calssification associated with the drainage infrastructure in the prioritization ranking scheme. The recommended presentation format was a spreadsheet style format. Prioritization does not necessarily need to be numerical, but can be by grade (i.e. A-level, B-level, and so on).	A prioritized phasing plan has been included in the Final Plan using a spreadsheet format as discussed in the December 7, 2012 meeting.
Ben Beall	Operations and Maintenance (O&M) LOS assessment and O&M Plan - In your e-mail of 12/29, you state "The O&M LOS assessment and O&M plan is included, but is general and suggests that more discussion is needed beyond the scope of the master plan. LOS discussions typically take several iterations and meetings, as many complex issues are involved that are way beyond our scope." The original RFP states explicitly that one of the goals of the plan is to "Evaluate current operations and maintenance level of service for the system and MS4 permit requirements including schedule of activities and costs required per year." It further defines: "Operations and Maintenance Plan: Develop a recommended list of operations and maintenance activities with schedule appropriate to keep the system operating at an acceptable level." This is not complete. Please complete this aspect of the scope.	The current O&M LOS has been evaluated and an O&M plan has been developed assuming a LOS that is appropriate for a conceptual master plan. A list of O&M activities, including appropriate MS4 duties, is included to keep the system operating at an acceptable level.
Ben Beall	Hydrology information for the 5yr and 25yr events - please provide the data at the intermediate design points along the flow path (especially for those associated with Alternate #3).	The 5- and 25-year events have been included in the Final Plan in a manner consistent with how the 100-year event has been presented.
Ben Beall	Hydraulic Outputs	Hydraulic outputs have been included in the Final Plan.
Ben Beall	When might we anticipate a "response to comments" for the comments previously supplied in early December?	The early hydrology and draft report comments were addressed in a meeting with Ben Beall on December 7th. A written response to comments is not included with this response.
Ben Beall	As you noted, Appendix C does not include Spring, Butcherknife, and Soda Creek costs as those basins are covered in the Old Town Drainage Master Plan. However, that plan did not consider the alternatives of 100-year conveyance with detention and 5yr conveyance. In fact, in Section 5.4 Cost Estimate, it looks like you have carried the Old Town Drainage cost estimates across the three alternatives. What is the cost of Alternative 2 and 3 per this revised study? Please provide the tabular and graphical representation of what these alternatives look like in Appendix C that was not included in the Old Town Drainage Master Plan including the potential detention volumes and/or locations. As Alternate #3 looks to potentially be effective for Butcherknife and Soda Creeks, please provide the cost information associated with those two basins that was factored as part of the alternatives analysis. This data will be important to include as this may be an instance where we want to work off of the Alternative #1 cost data going forward with a funding source.	When this project began, we and the City agreed that SEH would perform hydrologic calculations for each of the Old Town basins to double-check the flowrates that are used in the Old Town Study. Because the Old Town Study is brand new, and because some of the conceptual designs presented in the Old Town Study had been implemented or were planned to be implemented, we agreed that new alternatives for the Old Town basins would not be evaluated. Maintenance and overall condition, however, have been evaluated as part of the pilot scale inventory. The Old Town Study costs were used in the cost estimate because they were more conservative.
Ben Beall	Section 5.4 Cost Estimate is incomplete. We need to provide a summarized clearly defined overall cost breakdown. This should include the identified preferred alternative capital costs, the estimated additional costs based on the pilot scale inventory (not included), and estimate for potential MS4 costs (not included), the immediate maintenance needs costs, and the recommended annual O&M costs.	SEH has amended Section 5.4 to include the cost breakdown that was presented to the City Council and the public. The cost estimate now includes capital costs, pilot scale inventory costs, MS4/water quality costs, and O&M costs.
Ben Beall	O&M Costs - your current proposal suggests that a crew of 2-3 for 6-8 months a year can satisfy the needs for maintenance of the infrastructure at a cost of $100,000 per year. This number seems light for an enterprise/utility program to operate. The following comments deserve consideration in addition to LOS feedback provided upcoming seems to be missing.	Our initial suggestions for addressing O&M issues were predicated upon addressing the needs of physically maintaining the stormwater system, and did not contemplate costs for administration, MS4 program compliance, or equipment and supplies to perform maintenance.
	There is no accounting for MS4 duties - such as inspections, education outreach (currently $5k/yr to Yampatika), illicit discharge/detection program, plan review procedures required by the state, GIS tracking of permanent BMP infrastructure, long-term BMP inspection and maintenance required by the state (~0.5 FTE Admin)	Our analysis assumes that MS4 duties will be captured in the water quality costs that are now included in the cost estimate.
	Need a proactive culvert/ditch inspection process: inspect every culvert once every five years, flag for work order, clear once work order complete, analysis if rehab or replacement is identified (~0.5 FTE)	Culvert inspections are included in the costs of the maintenance program.

Author	Comment	Response
	How are equipment costs captured in the $100,000/year number?	Equipment costs are not included in the O&M costs, but are included in the project cost estimates for capital costs and rehabilitation/restoration needs derived from the pilot scale inventory.
	Why is the calibration data not yet included in the text? Why don't you include the Walton Creek gage for calibration? Can't calibration be performed for Butcherknife and Soda Creek based on the difference in flow between the 5th St gage and the 13th St gage?	Our calibration methods are now clearly explained in the text in Section 3. The time to peak is different for each sub basin and basin, so flow differences in the Yampa River gages cannot be used for calibration.
Ben Beall	Property Acquisition:	
	You state that property acquisition is included in the costs as presented in the plan. Acquisition is also included in a number of your 6 "priorities". It is unclear to me how this is factored into the costs. Please clarify. Be explicit.	At this conceptual stage, property acquisition was assumed to take the place of a capital project that is already accounted for in the costs. For example, rather than upsize culverts, property might be purchased outright or an easement acquired to accommodate detention that would shave enough off of the peak flowrate to allow the existing culverts to remain in place. We also considered using City-owned property for detention, assuming no acquisition costs were necessary. However, we have included additional property acquisition costs for the 100-year with detention alternative.
Ben Beall	You have a property acquisition cost of $35k/acre, please corroborate this value. It seems to be low if property is developable. Under what conditions is this value accurate? Post flood? Only for drainage easements within undevelopable land (i.e. floodway)? Please clarify.	$35k/acre is probably low in the developable areas, especially in mountain/ski areas. We have adjusted the price per unit area using real estate averages for different areas of Steamboat Springs as reported by local real estate agents.
Ben Beall	Proposed Sizing - what are the general assumptions associated with the proposed sizing as showing in Appendix C? Is that an output from PCSWMM? Match existing culvert slope? Assumed culvert slope? Please clarify.	For sizing culverts and pipes, we assumed a 2% slope, as estimating the existing culvert slope was difficult or impossible in most locations. This 2% slope was field verified as reasonable.
Ben Beall	Please add the culvert ID# as shown on the Problems and Needs Maps with the recommendations shown in the Alternatives Analysis in Appendix C.	The culvert ID# has been added to the spreadsheets in Appendix C for easier cross referencing.
Ben Beall	In 2.2.10, you describe EM/ORM as slightly larger than 2 acres. Is this a typo? Should it read "2 square miles?"	Yes, the EM/ORM basin is just over 2 square miles in size.
Ben Beall	You list in the Problems and Needs written section that the drainage at Skyview Lane should be addressed, yet there is no graphic representation of this on the Problems and Needs map. What needs to be done at this intersection? This location was specifically identified as a problem drainage location at the May 15th kickoff meeting. The required improvements and estimated cost should also be captured in Table C-1 when that is complete and the reference numbers are included. In Table C-1 you show that there are 3 36" existing CMP. There are only 2 that cross under Whistler, plus a third smaller culvert.	The east roadside swale/ditch for Whistler Road does not have sufficient capacity to convey flows, and backs up onto the street. Twin 36-inch CMPs carry flow beneath Whistler Road to the north roadside swale/ditch for Skyview Lane. The 3rd, smaller culvert is non-functional according to City staff. Redevelopment of the northwest corner of this intersection includes a proposal to convey part of the flows to the south roadside swale/ditch of Skyview Lane.
Ben Beall	It does not appear that the recommendations on the Problems and Needs Map match the recommendations on the Alternatives Analysis. For example, for Burgess Creek at Stonecreek Court on the P/N map, you show clearing the culvert to restore capacity (#25 and #26) and in the Alternatives Analysis you show replacing with a 66" RCP (#1336). That means that we are assigning a replacement cost to the overall numbers when you are recommending immediate maintenance only elsewhere. It appears that the alternative analysis sizes ALL culverts to convey the 100-year flow. The City Drainage Criteria does not require this of all culverts. It requires 100yr capacity for all collector and arterial roads and 5yr capacity for all others. We discussed this at length in progress meetings. Why are you including costs to replace culverts that meet current City Drainage criteria?	We recommend clearing culverts to restore capacity in every case where we observed clogged culverts in the field. Clearing clogged culverts optimizes the existing stormwater conveyance system. The existing culvert at Stonecreek Court at Burgess Creek needs to be replaced to convey the 100-year storm event. We used the 100-year storm event because the 100-year event is an engineering standard, and to be conservative for stormwater funding purposes. Because this is a conceptual-level report for stormwater funding purposes, we agreed to use the 100-year storm event for modeling purposes. When more detailed outfall systems planning studies are performed on a basin-by-basin basis, more scrutiny can be applied to individual issues, problems, and needs.
Ben Beall	Existing vs. Future Land Use - Please include a description of each land use type and impervious value assumption somewhere in the document. There are still a few of your zoning types that I don't recognize. CI, RC, PL, RD, UD? Please clarify.	A description of each land use type has been included. All zoning types were taken directly from the City of Steamboat Springs planning and zoning GIS pages.
Public Comments	Create a list of acronyms used in the report	A list of acronyms used in the report has been included.
	Mountain Hydrology/Snow Melt/Spring Backwater Effects	
	Add discussion in the study that addresses how assumptions and modeling is valid for mountainous study areas affected by snow melt and isolated storm events	A brief paragraph has been added to Section 3.1 that addresses snowmelt as it relates to this plan.
	Explain how approach and assumption account for snow melt	A brief paragraph has been added to Section 3.1 that addresses snowmelt as it relates to this plan.

Author	Comment	Response
	Provide brief description/recommendations for how additional collection of data or study could refine the findings in this report (i.e. further calibration methods, gage location recommendations).	Ideally, each major drainage basin would be equipped with a flow meter and stage gauge that would allow for data on flowrates, depth of flow, and timing of the peak to be collected and analyzed. Rain gauges at several locations within each basin would assist in estimating how much rain fell in a particular amount of time in each part of the basins.
	The plan references that Yampa River backwater effects are contributing factors to flooding at the outfalls. If that is the case, a stormwater management plan that relies, for the most part, only on conveyance will not provide adequate flood protection during times of peakflow in the Yampa River. Provide discussion relative to this issue and provide recommendations on potential ways to address. Backflow prevention valves might be the answer but do these work on 60-inch RCPs? Are they feasible?	Unfortunately, property and structures have been platted and built within the floodplain for the Yampa and several of the City's drainage basins, and very few practical solutions exist to solve this problem. Flapgate and tide flex valves have been used on a variety of pipe sizes (including 60-inch RCP) to prevent backwater from extending up into the drainage system.
	Costs	
	It isn't all that clear to citizens or casual readers how the range of costs were derived. Provide more tables or graphs that could be used to show costs versus a 5-year, 25-year, and 100-year storm event in the plan.	The draft version of the plan did not include line items for rehab/restoration, water quality, or O&M. We have provided discussion in the text and line items in the tables that include these costs for the alternatives evaluated.
	It seems the tables in the plan suggest all conveyance should be sized for the 100-year storm. By adopting this Stormwater Master Plan is the City changing its design criteria so that all new stormwater infrastructure must be designed for the 100-year storm event?	The 100-year storm event was used as a benchmark in order to estimate funding needs for an improved stormwater program. The City is not changing its design criteria.
	Modeling Quality Assurance	
	Include a dedicated discussion section that addresses the QA procedures that SEH used to check the data input and verify the model. The veracity of the entire plan is based on a good deal of modeling assumptions and data the plan would be greatly enhanced by clearly stating how the modeling is defensible.	Section 3.7 has been updated with an in-depth discussion on the hydrologic modeling effort for this plan. Overall, SEH has an integrated QA/QC plan that provides checks on calculations, modeling work, and submittals at key steps along the way, and a final check performed by a senior management engineer that has nothing to do with the plan such that objective comments and constructive criticism can be applied to the final work product.
	There is no mention in the report (that I could discern) that their hydrology model had been calibrated. This is a HUGE oversight. If SEH's conclusions are reasonable, then virtually every culvert and bridge in town should have washed out at least once in the past 30 years.	The calibration discussion was not included in the draft plan. A section describing the calibration performed, and the process for quality assurance is included in Section 3 of the final plan. Generally accepted engineering practices were used to prepare the plan, including the hydrology section. Based on statistical data, the 100-year storm event has a 1% chance of occurence in any given year. The same watershed area could experience multiple 100-year magnitude storm events in the same year, or none at all for hundreds of years.
	Stormwater Quality Treatment/Environmental Considerations	
	Include a discussion somewhere in the document that this plan does not contain costs for strategic storm water quality treatment that the City would elect to take on as a local initiative or as part of some development driven stormwater treatment "bank" to allow more cost effective and maintainable regional treatment improvements. Include discussion that this plan does not include costs for environmentally driven stream improvement projects to reduce sediment treasport, riparian habitat, or wetland protection. Or, if you feel that this costs are captured, please do a better job of including vebiage to illustrate this component of stormwater management.	The plan includes a general budget of $1-2M for costs of stormwater quality components that could include MS4 compliance, sediment transport issues, riparian habitat restoration/introduction, and wetland protection. All of these categories may be included in a good water quality program with better funding.
	Sediment Transport	
	Numerous references are made throughout the draft plan to sediment, debris, and other impacts of erosion as being problems for existing conveyance systems. Erosion control is a complex problem, as solutions will require the participation and buy-in from property owners and other outside organizations, both public (theU.S. Forest Service, for example) and private (Steamboat Resorts, for example). Include general management recommendations for resolving sediment transport issues and how outside agencies can play a role in future planning and efforts.	Sediment transport issues are beyond the scope of this plan. We recognize that sediment transport issues are significant for the City of Steamboat Springs, however, and recommend that these issues be addressed within a separate study.
	Text	
	1.2: first paragraph: the summary of drainage basins does not include the Copper Ridge and Emerald Mountain/Orton Meadows basins.	The draft version of the plan inadvertantly omitted these 2 basins from the introductory text. They are both covered in the final version of the plan.
	1.3: second paragraph: 5/15/12 meeting minutes do not appear to be included in Appendix A.	Meeting minutes can be found in Appendix D of the final plan.
	1.5: It's Landmark Consultants, Inc. (not Landmark Engineering Consultants)	Corrected
	2.2.5: the average slope is incorrectly indicated at about 1.3%	The average slope has been corrected.
	2.2.9: the watershed area is incorrectly indicated at 3 miles.	The watershed area has been corrected to read 3 square miles.
	2.2.10: the basin area is incorrectly indicated at slightly larger than 2 acres	The basin area has been corrected to read slightly larger than 2 square miles.
	2.4: assumed soil types are indicated but there does not appear to be any mention of ground cover/vegetation types for the basins. Please clarify and state whether these are reflected in the modeling and, if so, how the results are affected by these.	Ground cover and vegetation are reflected in the percent impervious estimates for the PCSWMM model.

Author	Comment	Response
	2.5, fifth paragraph, first and fifth bullet items: the combination of snowmelt and thunderstorm flooding event is indicated as an important historical component. The 2/17/13 open house presenter was uncertain as to whether this is reflected in the analyses. Please clarify and state whether this is the controlling event.	Storm events were modeled without taking backwater effects caused by high water levels in the Yampa River into effect. The 100-year storm event was used as the benchmark to account for scenarios that include high water levels combined with rainfall events.
	2.6: The narrative for the problems and needs are hard to match up to the maps in Appendix A. Additionally, there seem to be several instances of locations being described in the text but not being able to be located on the associated maps (2.6.2, Whistler Road and Skyview Lane) or being described under one basin and being shown on the map of a different basin (2.6.3, Walton Creek trail at the confluence with Walton Creek). Please coordinate the text and figures throughout the plan. Include reference to the numbers that are on the maps in the narrative.	The purpose of the narrative section is to broadly describe the problems and needs, while highlighting specific infrastructure components that need maintenance or replacement. The issue at Whistler Road and Skyview Lane has been clarified with City staff, mentioned in the kickoff meeting minutes, but does not appear in Appendix A because our field visits did not look at this area specifically. To provide continuity, some problems and needs were described in the narrative for one basin (Burgess Creek, for example), and shown on the figure in the Appendix in another basin (Walton Creek in this example).
	2.6.2 - Walton Creek - Problems & Needs. 2nd bullet - The statement is inaccurate. Backwater at Walton Creek/Yampa River confluence was backing up the US40 ditch system, not through the detention pond outfall pipe. The US40 ditch water jumped out of the ditch to the south of the Holiday Inn to the detention pond. The outfall pipe back to the Yampa doesn't have the capacity to convey the increased flows caused by the US40 ditch water entering the system.	SEH did not observe the flooding that occurred, but instead interviewed witnesses that described what they observed during flood events. Section 2.6.2 has been revised to include the possibility of both scenarios.
	2.6.7: the Reference 4 citiation is not underlined as in other instances.	The reference has been underlined in the text.
	2.6.11: the last bullet item should be placed in 2.6.10.	This issue has been corrected.
	3.0 Hydrologic and Hydraulic Analysis	
	Lacking clear discussion on how snowmelt in conjunction with rain events is accounted for.	Snowmelt in conjunction with rain events was not evaluated formally. However, quick calculations were performed to generate a ballpark estimate for snowmelt flowrates that is included in Section 3.1.
	Do the various events include snowmelt in the hydrologic calculations?	To be consistent with the Old Town Study, snowmelt was not included in the hydrologic calculations.
	3.1, second paragraph: discharge rates at key design points are indicated to have been compared with existing stream gauge data, where possible, and were calibrated with rates generated in the Old Town Drainage Study. Please clarify which basins were actually calibrated and with which storm events, and state the basis of the rates that were generated in the Old Town Drainage Study, i.e., were these calibrated in the original study? Also, could the discharge rates be better correleated with photos taken of drainage facilities during the spring of 2011 flooding?	A section has been added to Section 3.0 of the report that explains the calibration efforts for the plan.
	3.2: the FEMA FIS is indicated to provide general hydrologic information. The 2/17/13 open house presenter provided a comparison of modeling discharge rates with previous rates. Please provide this comparison and detailed justification and support for the proposed changes.	A column has been added to Table 5 in the plan such that existing, regulatory FEMA 100-year flowrates can be compared to the flowrates estimated by this plan. Section 3.7 includes a discussion on the flowrates estimated by the plan.
	3.3: How was the 1-hour Precipitation Depth calculated? Not listed in the City's Criteria and no discussion in this plan. Include a narrative and metholdology statement as to how this was determined.	Section 3.3 has been updated to reflect the decision to include the 1-hour precipitation depths from the UDFCD Criteria Manual.
	3.8.1 "Culvert crossing are consistently undersized for storms greater than the 5-year event, and some can safely convey less than the 25-year event." What does this sentence mean? Very confusing.	This sentence has been revised for greater clarity.
	3.8.2: shallow street flooding is indicated to find its way to a major drainageway through adjacent streets or properties. Please clarify whether the analysis of the proposed 100-year storm conveyance improvements reflects an assessment of risk to adjacent properties and, if so, whether any such improvements could be reduced in capacity or eliminated without risk of damage to these properties.	An analysis to estimate the extent of flooding and/or create a floodplain for major drainageways was contemplated by the City initially, but was not included in the scope of work for this plan.
	4.2 Need a clear description of each Alternative that we can match to the spreadsheets in Appendix C	A clear description of each alternative is included in Section 4.6.
	4.5 Alternative Costs: Explain why cost estimates were increased (i.e. delivery/installation costs are higher, comparison of costs of specific projects in the front range show higher construction bids). Identify what percentage factor was used to "adjust upward for Steamboat Springs area market conditions".	The plan uses a 25% markup to account for higher material and labor costs based on our experience with the construction of the senior living facility at Casey's Pond in the Burgess Creek basin, and based on discussions with engineers and contractors who have worked in the area.
	4.7 - The plan seems to recommend to upgrading all storm sewer systems to accommodate the 100-year storm. Include a clear description of each of three alternatives.	The recommended alternative (Alternative 1) includes upgrades for conveyance facilities to convey the 100-year storm event. The purpose of the plan is to broadly identify problems and needs in order to estimate the costs that will need to be met with a more reliable funding source.
	5.2 Will any upgrades to the railroad crossing matter when the Yampa is flowing at flood stage? See previous "backwater" statement.	Consideration of backwater effects needs to be evaluated as part of a more detailed outfall systems planning study that is completed for each individual basin after a more reliable funding source is implemented.
	Land Use Maps	
	Provide an explanation of the acronyms and what each use type represents on existing and future land use maps	Table 3, Land Use Descriptions, has been added to Section 3.3.

Author	Comment	Response
	Figure #17: It appears that the residential lots along Anglers Drive are the same as the Open Space parcels surrounding it. Please correct this oversight. Verify that the imperviousness input into the model does not contain the same error.	Impervious values were estimated based on existing Zoning documents in the City's GIS. Future impervious values were estimated based on the current plan for future land use that was also obtained from the City's Planning Department. As each individual basin is master planned in more detail, individual lots and sub basins can be divided up into further detail. For the purposes of this plan, the Zoning maps provide the detail necessary to support the goal
	Appendix A - Problems and Needs Maps	
	Fox Creek Basin - iii, culvert #116 picture caption: change burred to buried	This change has been made.
	Appendix C - Alternatives Analysis	
	Add sheet in place of downtown basins - "See Old Town Drainage Study and Floodplain Masterplan for Soda, Butcherknife, and Spring Creeks for Alternatives Analysis". A little unclear on where to find these from this study.	Section 4.6 has been updated to state that alternatives were analyzed as part of the Old Town study and are not included in this plan. A sheet has been added in place of the Soda, Butcherknife, and Spring Creek figures in Appendix C that refers the user of this plan to the Old Town study.
	Include a caveat on each of the future land use maps that the document is not intended as a planning document; the intent is only to assign a future impervious value	The following note has been added to each figure depicting future land use: "This map is for estimating impervious values for future land use and is not intended for use as a planning document."
	Table C-2 - Check to make sure that the other tables do not contain similar errors or that it is clear what is being represented. CULID 1354, 1305, 1299, 1441, 5017, 5018, 5021, 5025 - why do these have "0" sizes? 1354 is actually 3 culverts? Not sure about the others - are there no culverts at these locations?	A note on each sheet explains that the "0" designation indicates that the size and quantity of the pipe/infrastructure is unknown. The City's GIS was incomplete and SEH did not inspect it.

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