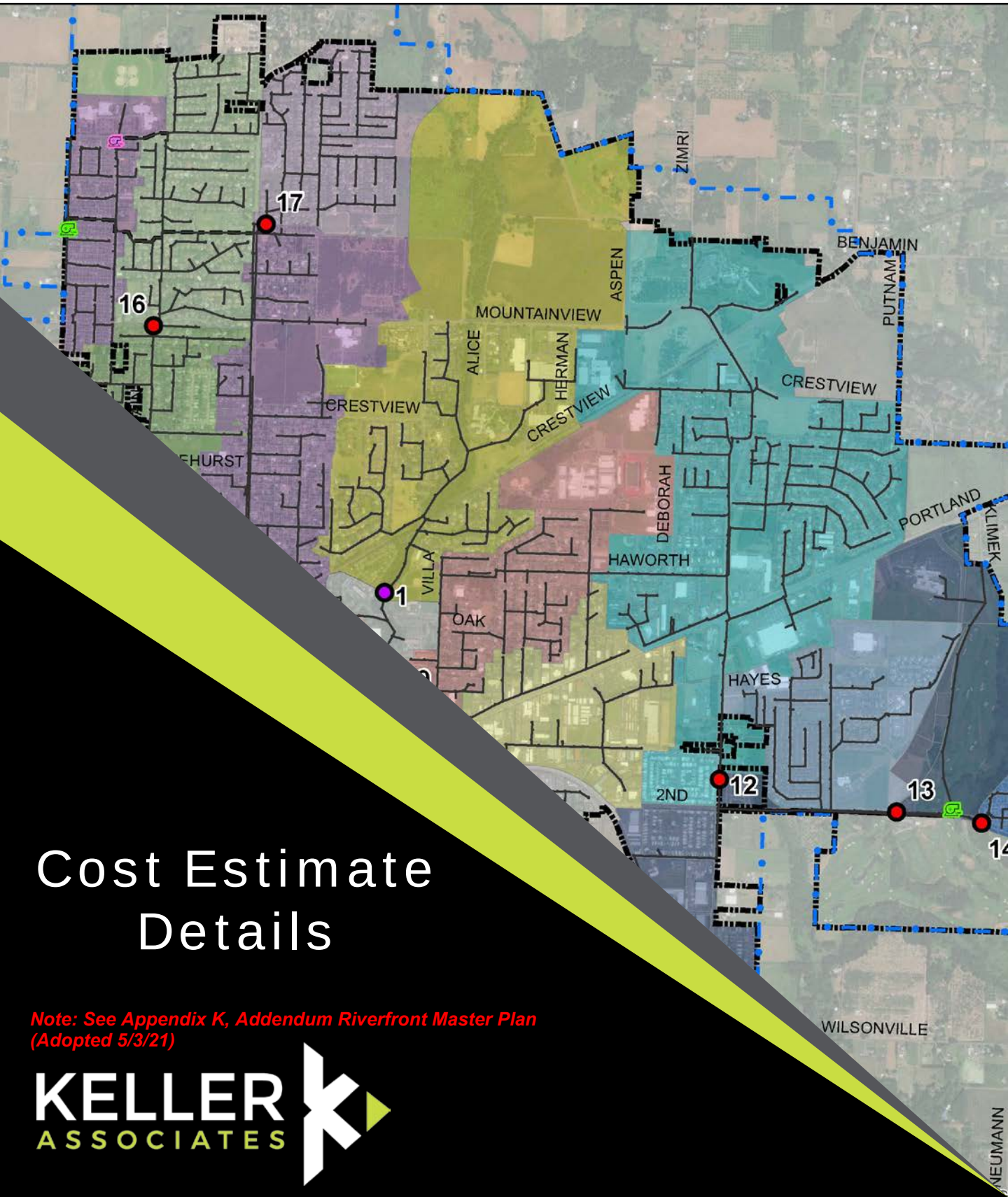
City of Newberg OREGON

Appendix E



Cost Estimate Details

Note: See Appendix K, Addendum Riverfront Master Plan (Adopted 5/3/21)

KELLER ASSOCIATES

Note: See Appendix K, Addendum Riverfront Master Plan (Adopted 5/3/21)

Table E-1: Hess Creek Alternative A O&M Costs

	Quantity	Unit	Unit Price	Amount	Comments
Cleaning & CCTV Inspection (parallel line)	10,400	LF	$ 1.50	$ 93,600	Labor and equipment costs; clean & inspect 1x/5yr
Cleaning & CCTV Inspection (Hess Creek line)	5,510	LF	$ 1.50	$ 33,060	Labor and equipment costs; clean & inspect 1x/3yr
Maintenance and Repairs	15,910	LF	$ 0.10	$ 32,905	
Access Road Maintenance	1	LS	$ 5,000	$ 100,000	
			Annual O&M	**$ 13,000**	
			20-year O&M	**$ 230,000**	

Table E-2: Hess Creek Alternative A Capital Costs

Alternative	Item	Unit	Unit Price	Quantity	Cost
A	Parallel gravity main				
	24-inch new pipe	LF	$ 205	2,500	$ 512,500
	21-inch new pipe	LF	$ 195	4,900	$ 955,500
	12-inch pipe replacement (Villa Rd)	LF	$ 160	1,900	$ 304,000
	Highway boring	LF	$ 600	160	$ 96,000
	Re-grading pipe	LF	$ 135	2,400	$ 324,000
	Re-connect laterals	EA	$ 500	10	$ 5,000
	Re-connect manholes	EA	$ 1,500	35	$ 52,000
	Roadway restoration	LF	$ 30	10,400	$ 312,000
	Install access road	LF	$ 60	1,300	$ 78,000
	Manhole 72-inch - >18-inch pipe	EA	$ 5,500	5	$ 27,500
	Existing pipe rehab/replacement				
	36-inch pipe replacement	LF	$ 245	700	$ 171,500
	24-inch pipe replacement	LF	$ 205	2,800	$ 574,000
	18-inch pipe replacement	LF	$ 185	800	$ 148,000
	Re-connect manholes	EA	$ 1,500	16	$ 24,000
	Install access road	LF	$ 60	4,300	$ 258,000
	Soil restoration	LF	$ 5	4,300	$ 21,500
	Pathway/landscaping restoration	LF	$ 30	825	$ 24,750
	CIPP, 8-18-inch[1]	LF	$ 98	8,400	$ 819,000
	Hess Creek constructability	%	150	-	$ 1,832,625
	Bypass pumping	LS	$ 350,000	1	$ 350,000
				Subtotal (rounded)	$ 6,890,000
	Mobilization	%	5	-	$ 344,500
				Subtotal (rounded)	$ 7,235,000
	Contingency	%	30	-	$ 2,170,500
				Subtotal (rounded)	$ 9,406,000
	Engineering and CMS	%	25	-	$ 2,351,500
	Floodplain hydraulic study	LS	$ 40,000	1	$ 40,000
	Easement	AC	$ 30,000	2.75	$ 82,500
	Permitting & wetland mitigation	LS	$ 474,000	1	$ 474,000
				Project Total Cost (rounded):	**$ 12,354,000**

[1]CIPP costs increased by 30% for accessibility constraints in the Hess Creek Canyon.

Note: See Appendix K, Addendum Riverfront Master Plan (Adopted 5/3/21)

Table E-3: Hess Creek Alternative C O&M Costs

	Quantity	Unit	Unit Price	Amount	Comments
Pump Station Power Costs	20	1	$ 3,650	$ 72,990	Based on approx. AADF, 50% pump efficiency, running 1/3 of time
Pump Station Worker Costs	20	208	$ 60	$ 249,600	2 hours troubleshooting/maintenance/observation per week (52 weeks) - 2 people for work
Pump Station Equipment Costs	3	1	$ 100,000	$ 300,000	3 pumps replaced once ($100K each pump/motor)
Cleaning & CCTV Inspection	11,100	LF	$ 1.50	$ 66,600	Labor and equipment costs; clean & inspect 1x/5yr
Maintenance and Repairs	11,100	LF	$ 0.103	$ 22,957	
			Annual O&M	**$ 36,000**	
			20-year O&M	**$ 637,000**	

Table E-4: Hess Creek Alternative C Capital Costs

Alternative	Item	Unit	Unit Price	Quantity	Cost
C	Lift Station, 2700-gpm	EA	$ 960,000	1	$ 960,000
	12-inch force main	LF	$ 90	650	$ 58,500
	Highway Boring	LF	$ 600	160	$ 96,000
	Local grinder pump	EA	$ 9,500	1	$ 9,500
	Parallel gravity main				
	27-inch new pipe	LF	$ 220	5,300	$ 1,166,000
	24-inch new pipe	LF	$ 205	900	$ 184,500
	15-inch new pipe	LF	$ 170	1,200	$ 204,000
	12-inch pipe replacement (Villa Rd)	LF	$ 160	1,900	$ 304,000
	Re-grading pipe	LF	$ 135	2,400	$ 324,000
	Re-connect laterals	EA	$ 500	210	$ 105,000
	Re-connect manholes	EA	$ 1,500	35	$ 52,000
	Roadway restoration	LF	$ 30	10,400	$ 312,000
	Install access road	LF	$ 60	1,300	$ 78,000
	Manhole 72-inch - >18-inch pipe	EA	$ 5,500	5	$ 27,500
	Existing pipe rehab/replacement				
	36-inch pipe replacement	LF	$ 245	700	$ 171,500
	18-inch pipe replacement	LF	$ 185	800	$ 148,000
	Re-connect manholes	EA	$ 1,500	7	$ 10,500
	Install access road	LF	$ 60	1,500	$ 90,000
	Soil restoration	LF	$ 5	1,500	$ 7,500
	CIPP, 8-18-inch[1]	LF	$ 98	7,500	$ 731,250
	Hess Creek constructability	%	150	-	$ 641,250
	Bypass pumping	LS	$ 50,000	1	$ 50,000
				Subtotal (rounded)	$ 5,731,000
	Mobilization	%	5	-	$ 286,550
				Subtotal (rounded)	$ 6,018,000
	Contingency	%	30	-	$ 1,805,400
				Subtotal (rounded)	$ 7,824,000
	Engineering and CMS	%	25	-	$ 1,956,000
	Floodplain hydraulic study	LS	$ 20,000	1	$ 20,000
	Easement	AC	$ 30,000	1.20	$ 36,000
	Permitting & wetland mitigation	LS	$ 165,000	1	$ 165,000
				Project Total Cost (rounded):	**$ 10,001,000**

[1]CIPP costs increased by 30% for accessibility constraints in the Hess Creek Canyon.

Note: See Appendix K, Addendum Riverfront Master Plan (Adopted 5/3/21)

Table E-5: Hess Creek Alternative D O&M Costs

	Quantity	Unit	Unit Price	Amount	Comments
Cleaning & CCTV Inspection (Hess Creek line)	5,510	LF	$ 1.50	$ 49,590	Labor and equipment costs; clean & inspect 1x/3yr
Maintenance and Repairs	5,510	LF	$ 0.103	$ 11,396	
Access Road Maintenance	1	LS	$ 5,000	$ 100,000	
			Annual O&M	**$ 9,000**	
			20-year O&M	**$ 160,000**	

Table E-6: Hess Creek Alternative D Costs

Alternative	Item	Unit	Unit Price	Quantity	Cost
D	Existing pipe rehab/replacement				
	36-inch pipe replacement	LF	$ 245	1,800	$ 441,000
	30-inch pipe replacement	LF	$ 230	2,000	$ 460,000
	27-inch pipe replacement	LF	$ 220	1,200	$ 264,000
	21-inch pipe replacement	LF	$ 195	500	$ 97,500
	18-inch pipe replacement	LF	$ 185	900	$ 166,500
	15-inch pipe replacement	LF	$ 170	400	$ 68,000
	12-inch pipe replacement (Villa Rd)	LF	$ 160	2,600	$ 416,000
	Boring (Fulton Street Crossing)	LF	$ 600	115	$ 69,000
	Re-connect laterals	EA	$ 500	60	$ 30,000
	Re-connect manholes	EA	$ 1,500	31	$ 47,000
	Roadway restoration (Villa Rd)	LF	$ 30	2,600	$ 78,000
	Install access road	LF	$ 60	6,000	$ 360,000
	Pathway/landscaping restoration	LF	$ 30	1,700	$ 51,000
	Soil restoration	LF	$ 5	6,800	$ 34,000
	CIPP, 8-18-inch[1]	LF	$ 98	6,000	$ 585,000
	Hess Creek constructability	%	150	-	$ 3,072,000
	Bypass pumping	LS	$ 500,000	1	$ 500,000
				Subtotal (rounded)	$ 6,739,000
	Mobilization	%	5	-	$ 336,950
				Subtotal (rounded)	$ 7,076,000
	Contingency	%	30	-	$ 2,122,800
				Subtotal (rounded)	$ 9,199,000
	Engineering and CMS	%	25	-	$ 2,299,750
	Floodplain hydraulic study	LS	$ 40,000	1	$ 40,000
	Easement	AC	$ 30,000	2.75	$ 82,500
	Permitting & wetland mitigation	LS	$ 601,000	1	$ 601,000
				Project Total Cost (rounded):	**$ 12,223,000**

[1]CIPP costs increased by 30% for accessibility constraints in the Hess Creek Canyon.

Note: See Appendix K, Addendum Riverfront Master Plan (Adopted 5/3/21)

Table E-7: Springbrook Road Alternatives Costs

Alternative	Item	Unit	Unit Price	Quantity	Cost
A	Upsize existing				
	24-inch new pipe	LF	$ 205	6,500	$ 1,332,500
	21-inch new pipe	LF	$ 195	2,100	$ 409,500
	Highway boring	LF	$ 600	135	$ 81,000
	Re-connect laterals	EA	$ 500	13	$ 6,500
	Re-connect manholes	EA	$ 1,500	29	$ 43,000
	Roadway restoration (full lane)	LF	$ 60	8,600	$ 516,000
	Traffic Control (Highway)	LF	$ 10	4,500	$ 45,000
	Control density backfill	LF	$ 165	4,500	$ 742,500
				Subtotal (rounded)	$ 3,176,000
	Mobilization	%	5	-	$ 158,800
				Subtotal (rounded)	$ 3,335,000
	Contingency	%	30	-	$ 1,000,500
				Subtotal (rounded)	$ 4,336,000
	Engineering and CMS	%	25	-	$ 1,084,000
				Project Total Cost (rounded):	**$ 5,420,000**
B	Parallel gravity main				
	21-inch new pipe	LF	$ 195	5,100	$ 994,500
	Manhole 72-inch - >18-inch pipe	EA	$ 5,500	17	$ 93,500
	Highway boring	LF	$ 600	135	$ 81,000
	Roadway restoration (full lane)	LF	$ 60	1,600	$ 96,000
	Soil restoration	LF	$ 5	3,500	$ 17,500
	Upsize existing				
	21-inch new pipe	LF	$ 195	2,100	$ 409,500
	Re-connect laterals	EA	$ 500	3	$ 1,500
	Re-connect manholes	EA	$ 1,500	7	$ 10,500
	Roadway restoration (full lane)	LF	$ 60	2,100	$ 126,000
	Traffic Control (Highway)	LF	$ 10	2,100	$ 21,000
	Control density backfill	LF	$ 165	2,100	$ 346,500
				Subtotal (rounded)	$ 2,198,000
	Mobilization	%	5	-	$ 109,900
				Subtotal (rounded)	$ 2,308,000
	Contingency	%	30	-	$ 692,400
				Subtotal (rounded)	$ 3,001,000
	Engineering and CMS	%	25	-	$ 750,250
	Easement	AC	$ 30,000	2.0	$ 60,000
				Project Total Cost (rounded):	**$ 3,812,000**

Note: See Appendix K, Addendum Riverfront Master Plan (Adopted 5/3/21)

Table E-8: Priority 1 Recommended Lift Station Condition Improvements

Site	Recommended Improvement	Recommended Completion Time	Cost
Charles Lift Station	Add manhole cover lock	1-5 Years	$1,500
	Install removable bollards in front for traffic protection	1-5 Years	$1,800
		Subtotal	*$3,300*
Chehalem	Upgrade generator maintenance records	1-2 Years	$800
		Subtotal	*$800*
Creekside Lift Station	Install bollards for traffic protection	1-5 Years	$1,800
	Replace heater with heat tape in the valve enclosure for freeze protection	1-5 Years	$1,200
	Remount wash water backflow preventer at least 12-inches aboveground	1-5 Years	$3,200
	Relocate the portable generator connection point so it is 34 inches aboveground	1-5 Years	$1,300
	Add fencing around the station	1-5 years	$7,500
		Subtotal	*$15,000*
Fernwood Lift Station	Verify pump operating point and adjust operation (if needed) to improve capacity	Year 1	$1,200
	Check and correct (if needed) hazardous area seal-offs	1-2 Years	$1,800
	Install steel safety grating at the valve vault	1-5 Years	$1,400
	Install flow directing inlet at the influent pipe to the wet well	1-5 Years	$7,800
	Remove unused equipment from the building	1-5 Years	$1,300
	Repaint building doors	1-5 Years	$800
		Subtotal	*$14,300*
Highway 240 Lift Station	Install steel safety grating at the valve vault	1-5 Years	$1,400
	Repaint building doors	1-5 Years	$800
	Install flow directing inlet at the influent pipe to the wet well	1-5 Years	$7,800
	Install steel safety grating at the flow meter vault	1-5 Years	$1,400
		Subtotal	*$11,400*
Sheridian Lift Station	Add strip heater unit in electrical enclosure	1-2 Years	$300
	Replace burnt-out LED lights for depth display in control panel	1-5 Years	$2,200
	Remount wash water backflow preventer at least 12-inches aboveground	1-5 Years	$3,200
	Add fencing around the station	1-5 years	$7,500
	Replace heat tape with electrical heater	1-5 Years	$900
		Subtotal	*$14,100*
		Lift Station Improvements Subtotal	*$58,900*
		Contingency (30%)	$17,700
		Engineering (20%)	$15,400
		Administration (2%)	$1,600
Dayton Lift Station	Lift Station Replacement (Construction cost from City; includes contingency, engineering, admin)	1-5 Years	$1,335,000
		Subtotal	*$1,335,000*
		Lift Station Total Costs (rounded)	**$1,429,000**

Note: See Appendix K, Addendum Riverfront Master Plan (Adopted 5/3/21)

Table E-9: Priority 2 Recommended Lift Station Condition Improvements

Site	Recommended Improvement	Recommended Completion Time	Cost
Fernwood Lift Station	Add video monitoring	11-20 Years	$38,000
	Add flow meter on the discharge pipe	1-10 years	$23,000
	Install backflow control on overflow	1-10 Years	$5,600
		Subtotal	*$66,600*
Highway 240 Lift Station	Add video monitoring	11-20 Years	$38,000
	Replace pump guide rails	5-10 Years	$5,000
		Subtotal	*$43,000*
Sheridian Lift Station	Replace conductive level sensor with pressure transducer level sensor	11-20 Years	$6,500
	Add video monitoring	11-20 Years	$38,000
	Install backflow control on overflow	1-10 Years	$5,600
	Remove mixing valve	1-10 Years	$1,100
	Install pressure gauges on discharge pipes	5-10 Years	$1,800
	Add flow meter on the discharge pipe	5-10 years	$23,000
	Install a permanent ladder in the valve vault	5-10 Years	$5,600
	Install a dedicated standby generator	5-10 Year	$45,000
		Subtotal	*$126,600*
		Subtotal	$236,200
		Contingency (30%)	$70,900
		Engineering (20%)	$61,500
		Administration (2%)	$6,200
		Lift Station Total Costs (rounded)	**$375,000**

Note: See Appendix K, Addendum Riverfront Master Plan (Adopted 5/3/21)

Table E-10: Hess Creek Recommended Improvements Phased Cost Estimate

	Item	Unit	Unit Price	Quantity	Cost
Phase 1					
	CIPP, 8-18-inch[1]	LF	$ 98	7,500	$ 731,250
	Flow monitoring	LS	$ 20,000	1	$ 20,000
				Subtotal (rounded)	$ 752,000
	Mobilization	%	5	-	$ 37,600
				Subtotal (rounded)	$ 790,000
	Contingency	%	10	-	$ 79,000
				Subtotal (rounded)	$ 869,000
	Engineering and CMS	%	15	-	$ 130,350
				Phase 1 Cost (rounded):	**$ 1,000,000**
Phase 2					
	Parallel gravity main				
	27-inch new pipe	LF	$ 220	5,300	$ 1,166,000
	24-inch new pipe	LF	$ 205	900	$ 184,500
	15-inch new pipe	LF	$ 170	1,200	$ 204,000
	12-inch pipe replacement (Villa Rd)	LF	$ 160	1,900	$ 304,000
	Re-grading pipe	LF	$ 135	2,400	$ 324,000
	Re-connect laterals	EA	$ 500	210	$ 105,000
	Re-connect manholes	EA	$ 1,500	35	$ 52,000
	Roadway restoration	LF	$ 30	10,400	$ 312,000
	Install access road	LF	$ 60	1,300	$ 78,000
	Manhole 72-inch - >18-inch pipe	EA	$ 5,500	5	$ 27,500
	Existing pipe rehab/replacement				
	36-inch pipe replacement	LF	$ 245	700	$ 171,500
	18-inch pipe replacement	LF	$ 185	800	$ 148,000
	Re-connect manholes	EA	$ 1,500	7	$ 10,500
	Install access road	LF	$ 60	1,500	$ 90,000
	Soil restoration	LF	$ 5	1,500	$ 7,500
	Hess Creek constructability	%	$ 150	-	$ 641,250
	Bypass pumping	LS	$ 50,000	1	$ 50,000
				Subtotal (rounded)	$ 3,876,000
	Mobilization	%	5	-	$ 193,800
				Subtotal (rounded)	$ 4,070,000
	Contingency	%	30	-	$ 1,221,000
				Subtotal (rounded)	$ 5,291,000
	Engineering and CMS	%	25	-	$ 1,322,750
	Floodplain hydraulic study	LS	$ 20,000	1	$ 20,000
	Permitting	LS	$ 15,000	1	$ 15,000
				Phase 2 Cost (rounded):	**$ 6,649,000**
Phase 3					
	Lift Station, 2700-gpm	EA	$ 960,000	1	$ 960,000
	12-inch force main	LF	$ 90	650	$ 58,500
	Highway Boring	LF	$ 600	160	$ 96,000
	Local grinder pump	EA	$ 9,500	1	$ 9,500
				Subtotal (rounded)	$ 1,124,000
	Mobilization	%	5	-	$ 56,200
				Subtotal (rounded)	$ 1,181,000
	Contingency	%	30	-	$ 354,300
				Subtotal (rounded)	$ 1,536,000
	Engineering and CMS	%	25	-	$ 384,000
	Easement	AC	$ 30,000	1.20	$ 36,000
	Permitting & wetland mitigation	LS	$ 165,000	1	$ 165,000
				Phase 3 Cost (rounded):	**$ 2,121,000**
				Project Total Cost (rounded):	**$ 9,770,000**

Note: See Appendix K, Addendum Riverfront Master Plan (Adopted 5/3/21)

Table E-11: Pinehurst Court Recommended Improvements Cost Estimate

	Item	Unit	Unit Price	Quantity	Cost
	Cap and abandon line	EA	$ 1,500	1	$ 1,500
	8-inch new pipe	LF	$ 135	300	$ 40,500
	Re-grading pipe	LF	$ 135	400	$ 54,000
	Manhole 48-inch	EA	$ 4,500	2	$ 9,000
	Re-connect laterals	EA	$ 500	9	$ 4,500
	Re-connect manholes	EA	$ 1,500	4	$ 6,000
	Roadway restoration (full lane)	LF	$ 60	440	$ 26,400
	Landscape restoration	LF	$ 20	260	$ 5,200
				Subtotal (rounded)	$ 148,000
	Mobilization	%	5	-	$ 7,400
				Subtotal (rounded)	$ 156,000
	Contingency	%	30	-	$ 46,800
				Subtotal (rounded)	$ 203,000
	Engineering and CMS	%	25	-	$ 50,750
	Easement	AC	$ 30,000	0.12	$ 3,600
				Project Total Cost (rounded):	**$ 258,000**

Table E-12: South River Street Recommended Improvements Cost Estimate

	Item	Unit	Unit Price	Quantity	Cost
	36-inch new pipe	LF	$ 245	3,200	$ 784,000
	30-inch new pipe	LF	$ 230	1,900	$ 437,000
	Re-connect laterals	EA	$ 500	51	$ 25,500
	Manhole 72-inch - >18-inch pipe	EA	$ 5,500	8	$ 44,000
	Re-connect manholes	EA	$ 1,500	7	$ 9,755
	Roadway restoration (full lane)	LF	$ 60	5,100	$ 306,000
				Subtotal (rounded)	$ 1,607,000
	Mobilization	%	5	-	$ 80,350
				Subtotal (rounded)	$ 1,688,000
	Contingency	%	30	-	$ 506,400
				Subtotal (rounded)	$ 2,195,000
	Engineering and CMS	%	25	-	$ 548,750
	Flow monitoring	LS	$ 20,000	1	$ 20,000
				Project Total Cost (rounded):	**$ 2,764,000**

Note: See Appendix K, Addendum Riverfront Master Plan (Adopted 5/3/21)

Table E-13: North Main and Wynooski Streets Recommended Improvements Cost Estimate

	Item	Unit	Unit Price	Quantity	Cost
North Main Street Improvements					
	15-inch pipe replacement	LF	$ 170	150	$ 25,500
	Re-grading pipe (15-inch)	LF	$ 170	350	$ 59,500
	Re-connect laterals	EA	$ 500	5	$ 2,500
	Re-connect manholes	EA	$ 1,500	6	$ 9,000
	Roadway restoration (full lane)	LF	$ 60	150	$ 9,000
	Landscape restoration	LF	$ 20	350	$ 7,000
				Subtotal (rounded)	$ 113,000
	Mobilization	%	5	-	$ 5,650
				Subtotal (rounded)	$ 119,000
	Contingency	%	30	-	$ 35,700
				Subtotal (rounded)	$ 155,000
	Engineering and CMS	%	25	-	$ 38,750
				Project Total Cost (rounded):	**$ 194,000**
Wynooski Street Improvements					
	15-inch pipe replacement	LF	$ 170	320	$ 54,400
	Re-connect laterals	EA	$ 500	2	$ 1,000
	Re-connect manholes	EA	$ 1,500	2	$ 3,000
	Roadway restoration (full lane)	LF	$ 60	320	$ 19,200
				Subtotal (rounded)	$ 78,000
	Mobilization	%	5	-	$ 3,900
				Subtotal (rounded)	$ 82,000
	Contingency	%	30	-	$ 24,600
				Subtotal (rounded)	$ 107,000
	Engineering and CMS	%	25	-	$ 26,750
				Project Total Cost (rounded):	**$ 134,000**

Note: See Appendix K, Addendum Riverfront Master Plan (Adopted 5/3/21)

Table E-14: Providence Future Infrastructure Cost Estimate

	Item	Unit	Unit Price	Quantity	Cost
	10-inch new pipe	LF	$ 150	2,000	$ 300,000
	Manhole 48-inch	EA	$ 4,500	7	$ 31,500
	Highway boring	LF	$ 600	160	$ 96,000
	Soil restoration	LF	$ 5	1,840	$ 9,200
	Lift station, 375 gpm	EA	$ 350,000	1	$ 350,000
	6-inch force main	LF	$ 60	1,300	$ 78,000
				Subtotal (rounded)	$ 865,000
	Mobilization	%	5	-	$ 43,250
				Subtotal (rounded)	$ 909,000
	Contingency	%	30	-	$ 272,700
				Subtotal (rounded)	$ 1,182,000
	Engineering and CMS	%	25	-	$ 295,500
	Easement	AC	$ 30,000	1.63	$ 48,800
				Project Total Cost (rounded):	**$ 1,527,000**

Note: See Appendix K, Addendum Riverfront Master Plan (Adopted 5/3/21)

Table E-15: Chehalem Drive Future Infrastructure and Lift Station Displacement Cost Estimate

	Item	Unit	Unit Price	Quantity	Cost
Phase 1 (20-year)					
	18-inch new pipe	LF	$ 185	2,000	$ 370,000
	10-inch new pipe	LF	$ 150	1,300	$ 195,000
	Bridge crossing	EA	$ 135,000	1	$ 135,000
	Manhole 48-inch	EA	$ 4,500	11	$ 49,500
	Roadway restoration (full lane)	LF	$ 60	3,300	$ 198,000
				Subtotal (rounded)	$ 948,000
	Mobilization	%	5	-	$ 47,400
				Subtotal (rounded)	$ 996,000
	Contingency	%	30	-	$ 298,800
				Subtotal (rounded)	$ 1,295,000
	Engineering and CMS	%	25	-	$ 323,750
				Phase 1 Cost (rounded):	**$ 1,619,000**
Phase 2 (buildout)					
	12-inch new pipe	LF	$ 160	1,400	$ 224,000
	8-inch new pipe	LF	$ 135	900	$ 121,500
	Manhole 48-inch	EA	$ 4,500	8	$ 36,000
	Roadway restoration (full lane)	LF	$ 60	2,300	$ 138,000
				Subtotal (rounded)	$ 520,000
	Mobilization	%	5	-	$ 26,000
				Subtotal (rounded)	$ 546,000
	Contingency	%	30	-	$ 163,800
				Subtotal (rounded)	$ 710,000
	Engineering and CMS	%	25	-	$ 177,500
				Phase 2 Cost (rounded):	**$ 888,000**
Phase 3 (Chehalem and Creekside LS displacement)					
	15-inch new pipe	LF	$ 170	500	$ 85,000
	12-inch new pipe	LF	$ 160	6,300	$ 1,008,000
	8-inch new pipe	LF	$ 135	1,900	$ 256,500
	Bore (creek crossing)	LF	$ 600	100	$ 60,000
	Manhole 48-inch	EA	$ 4,500	29	$ 130,500
	Roadway restoration (full lane)	LF	$ 60	700	$ 42,000
	Soil restoration	LF	$ 5	8,000	$ 40,000
	Rock Allowance	LS	$ 300,000	1	$ 300,000
	Lift station demolition/removal (including building)	LS	$ 20,000	1	$ 20,000
	Lift station demolition/removal (no building)	LS	$ 10,000	1	$ 10,000
				Subtotal (rounded)	$ 1,952,000
	Mobilization	%	5	-	$ 97,600
				Subtotal (rounded)	$ 2,050,000
	Contingency	%	30	-	$ 615,000
				Subtotal (rounded)	$ 2,665,000
	Engineering and CMS	%	25	-	$ 666,250
	Environmental Permitting and Mitigation	LS	$ 50,000	1	$ 50,000
	Easement	AC	$ 30,000	3.67	$ 110,200
				Phase 3 Cost (rounded):	**$ 3,492,000**
				Project Total Cost (rounded):	**$ 5,999,000**

Note: See Appendix K, Addendum Riverfront Master Plan (Adopted 5/3/21)

Table E-16: Riverfront Future Infrastructure and Lift Station Displacement Cost Estimate

	Item	Unit	Unit Price	Quantity	Cost
Phase 1 (20-year)					
	18-inch pipe replacement	LF	$ 185	1,500	$ 277,500
	8-inch new pipe	LF	$ 135	3,400	$ 459,000
	Re-connect laterals	EA	$ 500	15	$ 7,500
	Re-connect manholes	EA	$ 1,500	5	$ 7,500
	Manhole 48-inch	EA	$ 4,500	12	$ 54,000
	Roadway restoration	LF	$ 30	3,900	$ 117,000
	Soil restoration	LF	$ 5	1,000	$ 5,000
	Lift station, 950 gpm	EA	$ 450,000	1	$ 450,000
	8-inch force main	LF	$ 70	350	$ 24,500
				Subtotal (rounded)	$ 1,402,000
	Mobilization	%	5	-	$ 70,100
				Subtotal (rounded)	$ 1,473,000
	Contingency	%	30	-	$ 441,900
				Subtotal (rounded)	$ 1,915,000
	Engineering and CMS	%	25	-	$ 478,750
	Easement	AC	$ 30,000	0.57	$ 17,100
				Phase 1 Cost (rounded):	**$ 2,411,000**
Phase 2 (Charles and Andrew LS displacement)					
	8-inch new pipe	LF	$ 135	3,200	$ 432,000
	Manhole 48-inch	EA	$ 4,500	11	$ 48,000
	Bore (creek crossing)	LF	$ 600	100	$ 60,000
	Bore (railroad crossing)	LF	$ 600	100	$ 60,000
	Roadway restoration	LF	$ 30	600	$ 18,000
	Soil restoration	LF	$ 5	2,600	$ 13,000
	Lift station demolition/removal (no building)	LS	$ 10,000	2	$ 20,000
				Subtotal (rounded)	$ 651,000
	Mobilization	%	5	-	$ 32,550
				Subtotal (rounded)	$ 684,000
	Contingency	%	30	-	$ 205,200
				Subtotal (rounded)	$ 890,000
	Engineering and CMS	%	25	-	$ 222,500
	Environmental Permitting and Mitigation	LS	$ 165,000	1	$ 165,000
	Easement	AC	$ 30,000	1.47	$ 44,100
				Phase 2 Cost (rounded):	**$ 1,322,000**
				Project Total Cost (rounded):	**$ 3,733,000**