

APPENDIX D

OPINION OF PROBABLE COST

Appendix D: Unit Costs - Capital

Item	Unit	Unit Cost
200mm-PVC Sewer (3-5 m deep)	m	\$471.41
250mm-PVC Sewer (3-5 m deep)	m	\$526.10
300mm-C100 Concrete Sewer (3-5 m deep)	m	\$575.71
300mm-PVC Sewer (3-5 m deep)	m	\$583.47
375mm-C100 Concrete Sewer (3-5 m deep)	m	\$624.90
375mm-PVC Sewer (3-5 m deep)	m	\$654.36
450mm-PVC Sewer (3-5 m deep)	m	\$791.87
450mm-C100 Concrete Sewer (3-5 m deep)	m	\$644.29
525mm-C100 Concrete Sewer (3-5 m deep)	m	\$705.74
525mm-PVC Sewer (3-5 m deep)	m	\$938.58
600mm-C100 Concrete Sewer (3-5 m deep)	m	\$788.59
600mm-PVC Sewer (3-5m deep)	m	\$1,055.82
675mm-C100 Concrete Sewer (3-5 m deep)	m	\$1,056.38
750mm-C100 Concrete Sewer (3-5 m deep)	m	\$1,200.50
750mm-C140 Concrete Sewer (5-9 m deep)	m	\$1,940.10
825mm-C100 Concrete Sewer (3-5 m deep)	m	\$1,361.20
825mm-C140 Concrete Sewer (5-9 m deep)	m	\$2,107.18
900mm-C100 Concrete Sewer (3-5 m deep)	m	\$1,501.88
900mm-C140 Concrete Sewer (5-9 m deep)	m	\$2,251.59
965mm-x-1525mm Concrete Elliptical (3-5 m deep)	m	\$1,941.27
975mm-C100 Concrete Sewer (3-5 m deep)	m	\$1,636.89
975mm-C140 Concrete Sewer (5-9 m deep)	m	\$2,400.22
1050mm-C100 Concrete Sewer (3-5 m deep)	m	\$1,825.03
1050mm-C140 Concrete Sewer (5-9 m deep)	m	\$2,586.86
1200mm-C100 Concrete Sewer (3-5 m deep)	m	\$2,110.96
1200mm-C140 Concrete Sewer (5-9 m deep)	m	\$2,889.25
1350mm-C100 Concrete Sewer (3-5 m deep)	m	\$2,434.61
1350mm-C140 Concrete Sewer (5-9 m deep)	m	\$3,236.52
1500mm-C100 Concrete Sewer (3-5 m deep)	m	\$2,928.31
1500mm-C140 Concrete Sewer (5-9 m deep)	m	\$3,859.14
1650mm-C100 Concrete Sewer (3-5 m deep)	m	\$3,342.42
1650mm-C100 Concrete Sewer (5-9 m deep)	m	\$4,296.76
1800mm-C100 Concrete Sewer (3-5 m deep)	m	\$3,853.49
1800mm-C140 Concrete Sewer (5-9 m deep)	m	\$4,831.46
1950mm-C100 Concrete Sewer (3-5 m deep)	m	\$4,329.79
1950mm-C140 Concrete Sewer (5-9 m deep)	m	\$5,331.28
2100mm-C100 Concrete Sewer (3-5 m deep)	m	\$4,837.61
2100mm-C140 Concrete Sewer (5-9 m deep)	m	\$5,862.50
2250mm-C100 Concrete Sewer (3-5 m deep)	m	\$5,381.11
2250mm-C140 Concrete Sewer (5-9 m deep)	m	\$6,424.50
2400mm-C100 Concrete Sewer (3-5 m deep)	m	\$6,122.95
2400mm-C140 Concrete Sewer (5-9 m deep)	m	\$7,189.86
2700mm-C100 Concrete Sewer (3-5 m deep)	m	\$6,776.70
2700mm-C140 Concrete Sewer (5-9 m deep)	m	\$7,867.00
3000mm-C100 Concrete Sewer (3-5 m deep)	m	\$8,873.44
3000mm-C140 Concrete Sewer (5-9 m deep)	m	\$10,041.13
Excavation, Hauling & Disposal	t	\$100.00
Road Regrading	m ²	\$150.00
Road Restoration - Arterial	m	\$266.52
Road Restoration - Collector	m	\$208.72
Road Restoration - Local	m	\$174.04
Rock Excavation (Linear Works)	m ³	\$100.00
Sodding	m ²	\$10.00

Appendix D: Unit Costs - Capital

Item	Unit	Unit Cost
Trenchless - 450mm	m	\$2,000.00
Trenchless - 900mm	m	\$5,600.00
Micro-Tunnel - 1800mm	m	\$6,500.00
1800mm ID Short Clay Soil Tunnel	m	\$10,000.00
3000mm ID Short Clay Soil Tunnel	m	\$12,000.00
3000mm ID Short Rock Tunnel	m	\$8,000.00
Tunnel Entry/Exit Shaft/Mobilization	ea	\$2,500,000.00
Underground Tank - Gravity (<=10000m3)	m3	\$1,500.00
Underground Tank - Gravity (>10000m3)	m3	\$1,100.00
Underground Tank - Pumping (<=10000m3)	m3	\$1,750.00
Underground Tank - Pumping (>10000m3)	m3	\$1,500.00
Connection of existing pipe to new MH	ea	\$2,974.11
Remove and dispose existing and replace with new 1200 mm dia pre-cast MH Depth to 4 m.	ea	\$8,829.75
Remove and dispose existing and replace with new 1200 mm dia pre-cast MH Depth to 6 m.	ea	\$13,610.07
Remove and dispose existing and replace with new 1200 mm dia pre-cast MH Depth to 9 m.	ea	\$50,045.28
Remove and dispose existing and replace with new 1200 mm dia pre-cast MH Depth to 11 m.	ea	\$69,058.51
Bypass Pumping of Sewage (1 week)	per week	\$4,700.00
Grinder Pump (eOne System)	ea	\$10,000.00
Low Pressure System - Forcemain	m	\$100.00
Up to 50 L/s	per L	\$30,000.00
Up to 200 L/s	per L	\$20,000.00
Installation of Lateral	ea	\$4,000.00

Notes:

Sewers Include:

- conventional trench box
- granular backfill
- traffic control
- standard Manholes and appurtenances
- standard dewatering
- road restoration incl. sod, asphalt, curb

Tunnel Factors:

- limited geotechnical information is available
- number/location/complexity of the shafts is unknown
- rock or soft ground quality, water issues, contamination, or crossing faults.

Appendix D: Unit Costs - Rehabilitation

Rehabilitation Method	Cost	Unit
CCTV Mainline Investigation + Flushing	\$5.00	m
Relining Options		
Cured-in-Place Pipe	\$225.00	m
Sliplining	\$1,300.00	m
Chemical Grouting	\$1,500.00	per spot repair
Replacement Options		
Pipe Bursting	\$7,000.00	per line
Manhole Rehabilitation		
Manhole Resealing (sealant)	\$2,000.00	per manhole
Manhole Resealing (sleeve)	\$3,000.00	per manhole
Frame and Cover System	\$3,300.00	per manhole

City of Waterloo Sanitary Servicing Master Plan Update

Project Cost Allowance

Items			Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B	Alternative 3A	Alternative 3B
	LS (<=\$1.5M)	LS (>\$1.5M)	Construction Cost	Construction Cost	Construction Cost	Construction Cost	Construction Cost	Construction Cost
Capital Cost			-	\$ 84,000.00	-	\$ 1,818,732.05	-	\$ 6,253,828.82
Capital Cost Contingency	20%	20%	-	\$ 16,800.00	-	\$ 363,746.41	-	\$ 1,250,765.76
Capital + Contingency			-	\$ 100,800.00	-	\$ 2,182,478.46	-	\$ 7,504,594.58
Project Delivery Allowance								
Engineering Services	16%	16%						
Preliminary Design	3%	3%	-	\$ 2,520.00	-	\$ 54,561.96	-	\$ 187,614.86
Design & Tendering	5%	5%	-	\$ 5,040.00	-	\$ 109,123.92	-	\$ 375,229.73
Construction Services	8%	8%	-	\$ 8,064.00	-	\$ 174,598.28	-	\$ 600,367.57
Project Management and Admin (City)	5%	3%	-	\$ 5,040.00	-	\$ 65,474.35	-	\$ 225,137.84
Project Delivery Contingency	10%	10%	-	\$ 10,080.00	-	\$ 218,247.85	-	\$ 750,459.46
Total Project Delivery Allowance			-	\$ 30,744.00	-	\$ 622,006.36	-	\$ 2,138,809.45
Total Project Cost Estimate			-	\$ 131,544.00	-	\$ 2,804,484.82	-	\$ 9,643,404.03

Capital Cost

Defined as the estimated construction cost of the proposed works

Capital Cost Contingency

Defined as an allowance as a percentage of capital cost that recognizes conceptual nature of the project definition and the

Engineering Services

Defined as an allowance as a percent of capital construction costs plus contingency for detailed design, construction services, commissioning, calibration and programming, utility relocations.

Project Management and Admin (City)

Defined as an allowance for internal management and administration as a percentage of capital construction costs plus contingency, and Engineering Services. 3% for Projects >\$1.5M; 5% for Projects <=\$1.5M.

Project Delivery Contingency

Defined as an allowance as a percentage of all other project delivery costs.

City of Waterloo Sanitary Servicing Master Plan Update
Opinion of Probable Cost Details - Capital Cost

Alternatives 1 to 3: Existing Properties on Private Services									
Asset ID	Type	Description	Remedial Measure Category	Pipe Diameter (mm)	Element	Unit	Unit Quantity	Unit Cost (\$/unit)	Capital Cost
Alt 1A: Do Nothing									
No Cost									\$0
Alt 1A: Subtotal									\$0
Alt 1B: Connect to Network									
N/A	Laterals	Category 1			Installation of Lateral	ea.	21.0	\$4,000	\$84,000
Alt 1B: Subtotal									\$84,000
Alt 2A: Do Nothing									
No Cost									\$0
Alt 2A: Subtotal									\$0
Alt 2B: Connect to Network									
N/A	Pipe	Category 2	Gravity Main	375	375mm-C100 Concrete Sewer (3-5 m deep)	m	1,395.0	\$625	\$871,732
N/A	Laterals	Category 2	Lateral Installation		Installation of Lateral	ea	233.0	\$4,000	\$932,000
N/A	Grinder Pump Installation	Category 2	Grinder Pump Installation		Grinder Pump (eOne System)	ea	1.0	\$10,000	\$10,000
N/A	Small Diameter Forcemain Installation	Category 2	Small Diameter Forcemain Installation		Low Pressure System - Forcemain	m	50.0	\$100	\$5,000
Alt 2B: Subtotal									\$1,818,732
Alt 3A: Do Nothing									
No Cost									\$0
Alt 3A: Subtotal									\$0
Alt 3B: Connect to Network									
N/A	Pipe	Category 3	Gravity Main	375	300mm-C100 Concrete Sewer (3-5 m deep)	m	5,915.0	\$576	\$3,405,329
N/A	Laterals	Category 3	Lateral Installation	450	Installation of Lateral	ea	219.0	\$4,000	\$876,000
N/A	Grinder Pump Installation	Category 3	Grinder Pump Installation		Grinder Pump (eOne System)	ea	141.0	\$10,000	\$1,410,000
N/A	Small Diameter Forcemain Installation	Category 3	Small Diameter Forcemain Installation		Low Pressure System - Forcemain	m	5,625.0	\$100	\$562,500
Alt 3B: Subtotal									\$6,253,829

City of Waterloo Sanitary Servicing Master Plan Update

Project Cost Allowance

Items	Approach		Alternative 4A	Alternative 4B	Alternative 4C	Alternative 4D
			Construction Cost	Construction Cost	Construction Cost	Construction Cost
Capital Cost	LS		\$0	141,725	178,988	22,452
Capital Cost Contingency	20%		-	28,345	35,798	4,490
Capital + Contingency			-	170,070	214,785	26,943
Project Delivery Allowance						
Engineering Services	16%					
Preliminary Design	3%	of Capital + Contingency	-	4,252	5,370	674
Design & Tendering	5%	of Capital + Contingency	-	8,504	10,739	1,347
Construction Services	8%	of Capital + Contingency	-	13,606	17,183	2,155
Project Management and Admin (City)	5%	*of above (Capital + Contingency & Eng. Serv.)	-	8,504	10,739	1,347
Project Delivery Contingency	10%	of above (Eng Serv. & City PM)	-	17,007	21,478.55	2,694
Total Project Delivery Allowance			-	51,871	65,510	8,217
Total Project Cost Estimate			-	221,942	280,295	35,160

Capital Cost

Defined as the estimated construction cost of the proposed works

Capital Cost Contingency

Defined as an allowance as a percentage of capital cost that recognizes conceptual nature of the project definition and the limited

Engineering Services

Defined as an allowance as a percent of capital construction costs plus contingency for detailed design, construction services, commissioning, calibration and programming, utility relocates.

Project Management and Admin (City)

Defined as an allowance for internal management and administration as a percentage of capital construction costs plus contingency, and Engineering Services. 3% for Projects >\$1.5M; 5% for Projects <=\$1.5M.

Project Delivery Contingency

Defined as an allowance as a percentage of all other project delivery costs.

City of Waterloo Sanitary Servicing Master Plan Update
Opinion of Probable Cost Details - Capital Cost

Alternative 4: Maple Hill Trunk									
Asset ID	Type	Street	Remedial Measure Category	Pipe Diameter (mm)	Element	Unit	Unit Quantity	Unit Cost (\$/unit)	Capital Cost
Alt 4A: Do Nothing									
No Cost									\$0
Alt 4A: Subtotal									\$0
Alt 4B: Twin Sewer									
9244	Pipe	Easement (Thorndale Drive)	Sanitary Parallel Pipe	200	200mm-PVC Sewer (3-5 m deep)	m	84.7	\$471	\$39,929
9249	Pipe	Easement (Thorndale Drive)	Sanitary Parallel Pipe	250	250mm-PVC Sewer (3-5 m deep)	m	98.8	\$526	\$51,979
New Pipe	Pipe	Easement (Thorndale Drive)	Connecting Pipe	200	200mm-PVC Sewer (3-5 m deep)	m	2.0	\$471	\$943
New Pipe	Pipe	Easement (Thorndale Drive)	Connecting Pipe	250	250mm-PVC Sewer (3-5 m deep)	m	2.0	\$526	\$1,052
N/A	Bypass Pumping	Easement (Thorndale Drive)	Bypass Pumping	N/A	Bypass Pumping of Sewage (1 week)	per wk	10.2	\$4,700	\$47,823
Alt 4B: Subtotal									\$141,725
Alt 4C: Upgrade Sewer									
9244	Pipe	Easement (Thorndale Drive)	Sanitary Upgrade	375	375mm-C100 Concrete Sewer (3-5 m deep)	m	84.7	\$625	\$52,929
9249	Pipe	Easement (Thorndale Drive)	Sanitary Upgrade	450	450mm-PVC Sewer (3-5 m deep)	m	98.8	\$792	\$78,237
N/A	Bypass Pumping	Easement (Thorndale Drive)	Bypass Pumping	N/A	Bypass Pumping of Sewage (1 week)	per wk	10.2	\$4,700	\$47,823
Alt 4C: Subtotal									\$178,988
Alt 4D: Divert Flows									
11895	MH	Westvale Dr and Thorndale Dr	Replace Manhole	300	Remove and dispose existing and replace with n	ea.	1.0	\$8,830	\$8,830
N/A	Pipe Connection	Westvale Dr and Thorndale Dr			Connection of existing pipe to new MH	ea.	3.0	\$2,974	\$8,922
N/A	Bypass Pumping	Westvale Dr and Thorndale Dr	Bypass Pumping	N/A	Bypass Pumping of Sewage (1 week)	per wk	1.0	\$4,700	\$4,700
Alt 4D: Subtotal									\$22,452

City of Waterloo Sanitary Servicing Master Plan Update

Project Cost Allowance

Items	Approach	Alternative 5A	Alternative 5B	Alternative 5C
		Construction Cost	Construction Cost	Construction Cost
Capital Cost	LS	\$0	79,456	104,252
Capital Cost Contingency	20%	-	15,891	20,850
Capital + Contingency		-	95,347	125,103
Project Delivery Allowance				
Engineering Services	16%			
Preliminary Design	3%	of Capital + Contingency	-	2,384
Design & Tendering	5%	of Capital + Contingency	-	4,767
Construction Services	8%	of Capital + Contingency	-	7,628
Project Management and Admin (City)	5%	*of above (Capital + Contingency & Eng. Serv.)	-	4,767
Project Delivery Contingency	10%	of above (Eng Serv. & City PM)	-	9,535
Total Project Delivery Allowance			-	29,081
Total Project Cost Estimate			-	124,428
				163,259

Capital Cost

Defined as the estimated construction cost of the proposed works

Capital Cost Contingency

Defined as an allowance as a percentage of capital cost that recognizes conceptual nature of the project definition and the limited

Engineering Services

Defined as an allowance as a percent of capital construction costs plus contingency for detailed design, construction services, commissioning, calibration and programming, utility relocates.

Project Management and Admin (City)

Defined as an allowance for internal management and administration as a percentage of capital construction costs plus contingency, and Engineering Services. 3% for Projects >\$1.5M; 5% for Projects <=\$1.5M.

Project Delivery Contingency

Defined as an allowance as a percentage of all other project delivery costs.

**City of Waterloo Sanitary Servicing Master Plan Update
Opinion of Probable Cost Details - Capital Cost**

Alternative 5: Downstream of Frobisher SPS									
Asset ID	Type	Street	Remedial Measure Category	Pipe Diameter (mm)	Element	Unit	Unit Quantity	Unit Cost (\$/unit)	Capital Cost
Alt 5A: Do Nothing									
No Cost									\$0
Alt 5A: Subtotal									\$0
Alt 5B: Twin Sewer									
8075	Pipe	Frobisher Drive	Sanitary Parallel Pipe	200	200mm-PVC Sewer (3-5 m deep)	m	30.0	\$471	\$14,142
8077	Pipe	Frobisher Drive	Sanitary Parallel Pipe	200	200mm-PVC Sewer (3-5 m deep)	m	17.7	\$471	\$8,344
14668	Pipe	Frobisher Drive	Sanitary Parallel Pipe	200	200mm-PVC Sewer (3-5 m deep)	m	83.1	\$471	\$39,174
New Pipe	Pipe	Frobisher Drive	Connecting Pipe	200	200mm-PVC Sewer (3-5 m deep)	m	2.0	\$471	\$943
New Pipe	Pipe	Frobisher Drive	Connecting Pipe	200	200mm-PVC Sewer (3-5 m deep)	m	2.0	\$471	\$943
N/A	Bypass Pumping	Frobisher Drive	Bypass Pumping	N/A	Bypass Pumping of Sewage (1 week)	per week	3.4	\$4,700	\$15,910
Alt 5B: Subtotal									\$79,456
Alt 5C: Upgrade Sewer									
8075	Pipe	Frobisher Drive	Sanitary Upgrade	250	250mm-PVC Sewer (3-5 m deep)	m	30.0	\$526	\$15,783
8077	Pipe	Frobisher Drive	Sanitary Upgrade	250	250mm-PVC Sewer (3-5 m deep)	m	17.7	\$526	\$9,312
14668	Pipe	Frobisher Drive	Sanitary Upgrade	250	250mm-PVC Sewer (3-5 m deep)	m	83.1	\$526	\$43,719
N/A	Bypass Pumping	Frobisher Drive	Bypass Pumping	N/A	Bypass Pumping of Sewage (1 week)	per week	7.5	\$4,700	\$35,438
Alt 5C: Subtotal									\$104,252

City of Waterloo Sanitary Servicing Master Plan Update

Project Cost Allowance

Items	Approach	Alternative 6A Construction Cost	Alternative 6B Construction Cost	Alternative 6C Construction Cost
Capital Cost	LS	\$0	353,520	447,854
Capital Cost Contingency	20%	-	70,704	89,571
Capital + Contingency		-	424,224	537,425
Project Delivery Allowance				
Engineering Services	16%			
Preliminary Design	3% of Capital + Contingency	-	10,606	13,436
Design & Tendering	5% of Capital + Contingency	-	21,211	26,871
Construction Services	8% of Capital + Contingency	-	33,938	42,994
Project Management and Admin (City)	5% *of above (Capital + Contingency & Eng. Serv.)	-	21,211	26,871
Project Delivery Contingency	10% of above (Eng Serv. & City PM)	-	42,422	53,742
Total Project Delivery Allowance		-	129,388	163,914
Total Project Cost Estimate		-	553,613	701,339

Capital Cost

Defined as the estimated construction cost of the proposed works

Capital Cost Contingency

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Engineering Services

Defined as an allowance as a percent of capital construction costs plus contingency for detailed design, construction services, commissioning, calibration and programming, utility relocates.

Project Management and Admin (City)

Defined as an allowance for internal management and administration as a percentage of capital construction costs plus contingency, and Engineering Services. 3% for Projects >\$1.5M; 5% for Projects <=\$1.5M.

Project Delivery Contingency

Defined as an allowance as a percentage of all other project delivery costs.

**City of Waterloo Sanitary Servicing Master Plan Update
Opinion of Probable Cost Details**

Alternative 6: Lower Forwell Trunk									
Asset ID	Type	Street	Remedial Measure Category	Pipe Diameter (mm)	Element	Unit	Unit Quantity	Unit Cost (\$/unit)	Capital Cost
Alt 6A: Do Nothing									
No Cost									\$0
Alt 6A: Subtotal									\$0
Alt 6B: Twin Sewer									
3906	Pipe	Hillside Park (Lexington Rd)	Sanitary Parallel Pipe	825	825mm-C100 Concrete Sewer (3-5 m deep)	m	107.4	\$1,361	\$146,207
3907	Pipe	Hillside Park (Lexington Rd)	Sanitary Parallel Pipe	825	825mm-C100 Concrete Sewer (3-5 m deep)	m	107.7	\$1,361	\$146,615
New Pipe	Pipe	Hillside Park (Lexington Rd)	Connecting Pipe	825	825mm-C100 Concrete Sewer (3-5 m deep)	m	2.0	\$1,361	\$2,722
New Pipe	Pipe	Hillside Park (Lexington Rd)	Connecting Pipe	825	825mm-C100 Concrete Sewer (3-5 m deep)	m	2.0	\$1,361	\$2,722
N/A	Bypass Pumping	Hillside Park (Lexington Rd)	Bypass Pumping	N/A	Bypass Pumping of Sewage (1 week)	per week	11.8	\$4,700	\$55,253
Alt 6B: Subtotal									\$353,520
Alt 6C: Upgrade Sewer									
3906	Pipe	Hillside Park (Lexington Rd)	Sanitary Upgrade	1050	1050mm-C100 Concrete Sewer (3-5 m deep)	m	107.4	\$1,825	\$196,027
3907	Pipe	Hillside Park (Lexington Rd)	Sanitary Upgrade	1050	1050mm-C100 Concrete Sewer (3-5 m deep)	m	107.7	\$1,825	\$196,574
N/A	Bypass Pumping	Hillside Park (Lexington Rd)	Bypass Pumping	N/A	Bypass Pumping of Sewage (1 week)	per week	11.8	\$4,700	\$55,253
Alt 6C: Subtotal									\$447,854

Opinion of Probable Cost Details

I&I Reduction Plan							Planning Periods		
Equipment	Description	Unit	Unit Quantity	Unit Cost (\$/unit)	Capital Cost (Yr 1)	Capital Cost (>Yr 1)	2014 to 2019	2019 to 2024	2024 to 2029
Flow Monitor Operation	Includes installation, removal and maintenance costs	ea	8	\$4,000	\$32,000	\$32,000	\$160,000	\$160,000	\$160,000
Flow Monitor Purchase Cost	Includes data logger, sensor, cables and installation	ea	8	\$4,200	\$33,600		\$33,600		
Flow Monitor Maintenance	Maintenance visits for Purchased Monitors (15% of cost)	ls	8	\$600	\$4,800	\$4,800	\$24,000	\$24,000	\$24,000
I&I Reduction Plan Subtotal					\$65,600	\$32,000	\$193,600	\$160,000	\$160,000

Opinion of Probable Cost Details

Previously Identified Capital Budget Items							
Equipment	Description	Unit	Unit Quantity	Unit Cost (\$/unit)	Capital Cost (Yr 1)	Capital Cost (>Yr 1)	2014 to 2019
Flow Monitor Operation	Includes installation, removal and maintenance costs	ls	1	\$4,000	\$4,000	\$4,000	\$20,000
Flow Monitor Purchase Cost	Includes data logger, sensor, cables and installation	ea	2	\$4,200	\$8,400		\$8,400
Flow Monitor Maintenance	Maintenance visits for Purchased Monitors (15% of cost)	ls	2	\$600	\$1,200	\$1,200	\$6,000
I&I Reduction Plan Subtotal					\$12,400	\$4,000	\$28,400