

**Environmental Protection**  
**Water Resource Protection**  
**Catchbasin Cleaner Debris Body**

This 2017 capital improvement request is for the purchase of a replacement catchbasin debris dump body to be installed on the Department's 2005 Freightliner Catchbasin Truck.

The equipment is used to transport catch-basin cleaning grit material from the City's 7000 basins and structures then transport the debris to the recycling facility. The 2005 chassis is in very good condition, with low hours and mileage. The body however is heavily used and showing signs of deterioration with rust, and structural deformity due to normal wear and tear from the corrosive material extracted during the catchbasin cleaning operation. Staff feels it is unnecessary to replace both items. The replacement of the body only, which is the model 950T/13 steel dump body, will extend the useful life of the chassis and will ensure our catch basin cleaning tasks will be completed in a safe, timely, and cost effective manner.

The project cost of \$17,999 was obtained from a local equipment sales company.

Project Cost:	\$17,999
Funding Source	Sewer User Fund Reserve
Source of Cost Estimate:	Messer Truck Co., Inc.
Projected Useful Life:	10 years

# H. P. FAIRFIELD, LLC

**BUDGET # 139123**



**"MUNICIPAL SPECIALISTS"**

PHONE: 207-885-4895 FAX: 866-896-9559

<http://www.hpfairfield.com>

FROM:

**Travis Baker**

65 Pleasant Hill Road

Scarborough, ME 04074

**QUOTED TO:** City Of South Portland  
119690 25 Cottage Road  
South Portland, ME 04116-9422  
**ATTN:** David Thomes

**DATE:** August 20, 2015

**CUSTOMER PHONE:** 207-767-7680

**CUSTOMER FAX:** 207-767-7620

**COMMENTS:** Stetco Debris Body

QTY	DESCRIPTION	PRICE	EXT. PRICE
1	STETCO DEBRIS BODY CORTEN STEEL, 7 GA. SIDES & ENDS 3/16" ONE-PIECE FLOOR W/ 2" RADIUS CORNERS 7 CUBIC YARD 120" LONG X 96" WIDE OUTSIDE DIMENSION 30" FRONT, SIDE & END HEIGHT TAILGATE W/ GASKET SEAL DIRT SHEDDING SIDES FULL PERIMETER SPLASH SHIELDS	\$17,999.00	\$17,999.00

CLASS 50 DUAL ACTING HOIST W/ OSHA SAFETY PROP  
(2) SETS OF SEPERATE LEVERS FOR IDENTICAL OPERATION OF SECTIONAL  
CONTROL VALVE FOR BODY HOIST CYLINDER, LOCATED ON BOTH SIDES OF  
VEHICLE  
DOT LIGHTING KIT - LED  
NO CUTOUTS IN REAR POST  
  
INSTALLED & PAINTED

**UPGRADE TO STAINLESS STEEL ADD \$5500.00**

SIGNED *Roger Rocque*

ACKNOWLEDGED

QUOTE TOTAL

\$17,999.00

**Serving New England for over 60 Years**

Stetco™



## CATCH BASIN CLEANERS

920SP  
950T SERIES  
970T SERIES  
BUCKETS  
COMBINATION UNIT

## CUSTOMIZE A STETCO CBC TO MEET YOUR MUNICIPAL DEMANDS.



### STETCO 920SP

- Mounted on a Ford F-550 chassis for tight municipal confines
- 14' hydraulic outreach
- Wash down system
- 201 stainless debris body with cover



### STETCO 950T/13

- 13' hydraulic outreach and watertight tailgate
- Corten steel debris body with splash shields
- 35' digging depth



### STETCO 950T/13

- Stainless debris body accepts spreader in winter
- Plow hitch on track for year-round use



### STETCO 970T2/15

- 15 to 20' hydraulic outreach
- 201 stainless debris body with cover and splash shields
- 6 to 7 cubic yard capacity
- 50' deep digger package



### STETCO COMBINATION UNIT

- HPLV jetting for lines up to 18" diameter
- 300' hose
- Variety of jetting nozzles and guns

# AT STETCO, WE'RE ALL ABOUT GIVING YOU CHOICES.



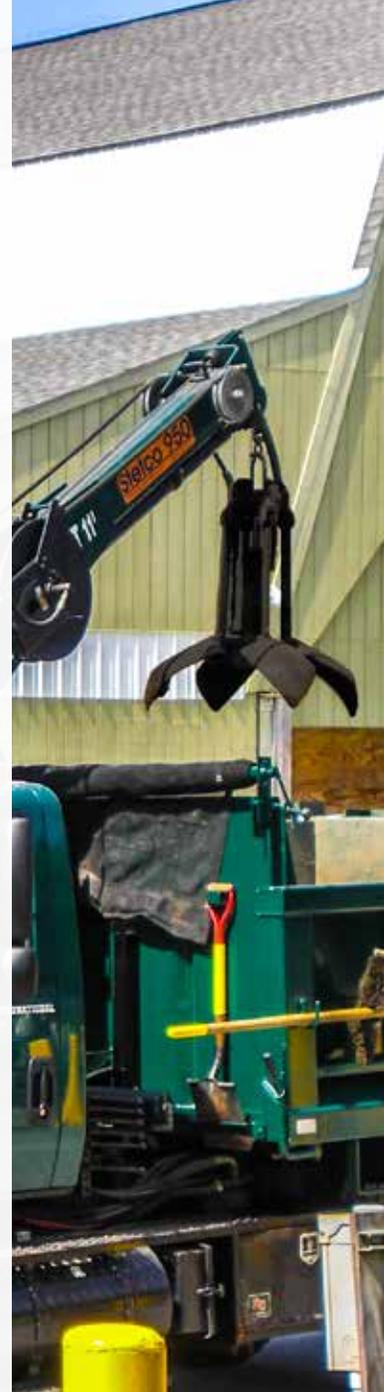
- When faced with cleaning challenging drainage infrastructure, today's municipalities have a powerful and cost-effective choice. Stetco™ catch basin cleaners (CBCs) are proven workhorses that easily handle large volumes of heavy, abrasive, and tough-to-handle debris — saving your expensive vacuum trucks and room in your budget.

Equipped with rugged hydraulic clamshell or orange peel buckets, Stetco CBCs provide a dependable stand-alone solution or make the perfect complement to your vacuum trucks. Stetco CBCs support your vac-trucks — and your bottom line — by handling the large, unwieldy debris that wears out, slows down, or breaks down vac-trucks. The durable performance of Stetco CBCs extends the life of your vac-trucks and reduces repair costs while allowing vac-trucks to do what they do best.

Versatile Stetco CBCs are ideal for all climates and can maintain a variety of drainage infrastructure, including catch basins, culverts, trash racks, weirs, lift stations, and other structures. Stetco CBCs can even serve as a dump truck and be outfitted for winter snow and ice control, making them a versatile choice for cost-conscious municipalities.

Municipalities operating Stetco CBCs cite specific benefits, including:

- Easy handling of heavy, awkward debris.
- Higher uptime through simple, dependable technology.
- Fewer dump runs due to Stetco buckets squeezing out water and loading solid debris.
- Significantly lower costs to purchase, operate, maintain and repair than alternatives.
- Fast, efficient removal of heavy volumes of debris.
- Cost-effective compliance with EPA stormwater mandates.
- The ability to lift and load solid debris without adding water.
- Quiet operation that will not bother residents and bystanders.



## PROVEN POWER FOR YOUR BASIN CLEANING CHALLENGES



**Stetco buckets allow high-volume debris removal in minimum time.**

From orange peel buckets to rectangular or round clamshell buckets, there is a range of models and sizes to accommodate different catch basin dimensions. All Stetco buckets hydraulically squeeze debris to remove unwanted liquid — which means you haul only the debris, not the liquid.



**The versatility of a Stetco unit is perfect for smaller municipalities on a tight budget.**

In addition to cleaning catch basins, a Stetco unit can act as a dump truck and can be outfitted to double as a snowplow and road sander for work during the winter months. An optional hydraulic tool interface allows you to operate tools like sump pumps, paving breakers, and chainsaws at the job site.



**Quiet operation allows you to work in urban environments without bothering bystanders or residents.**

A watertight debris container with full-perimeter splash guard stores 7 cu yd (5.4 m<sup>3</sup>) of material on a single-axle chassis. Quick setup and a stowable boom allow you to move from job to job quickly and efficiently.

## SPECIFICATIONS

General	920SP	950T/13	970T2/15
Clear mounting space behind cab	36" (91 cm)	36" (91 cm)	36" (91 cm)
Std. travel height w/hose reel (approx.)	9' (2.7 m)	11' (3 m)	11' (3.35 m)
Aboveground lift height (std.)	21' (6.4 m) max.	21' (6.4 m) max.	21' (6.4 m) max.
Reach below ground (std.)	35' (10.6 m)	35' (10.6 m)	35' (10.6 m)
Installed weight (approx.)	3,000 lb (1,361 kg)	3,700 lb (1,678 kg)	3,900 lb (1,769 kg)
Rotation (std.)	200°	200° or 370°	200° or 370°
Lifting capacities (w/ boom)	2,000 lb (907 kg) @ 14' (4.3 m) 5,700 lb (2,586 kg) @ 5' (1.5 m)	2,850 lb (1,293 kg) @ 13' (4.0 m) 8,260 lb (3,746 kg) @ 5' (1.5 m)	2,250 lb (1,021 kg) @ 15' (4.6 m) 8,250 lb (3,742 kg) @ 5' (1.5 m)
Winch lifting capacity (full drum)	2,000 lb (907 kg)	2,000 lb (907 kg)	2,000 lb (907 kg)
Winch line speed	200 fpm (60.9 m/min.)	250 fpm (76.2 m/min.)	250 fpm (76.2 m/min.)
Working pressure	2,050 psi (141 bar)	2,050 psi (141 bar)	2,050 psi (141 bar)
Typical pump capacity	13 gpm (49 L/min)	13 gpm (49 L/min)	13 gpm (49 L/min)
Tank capacity	25 gal (95 L)	37 gal (140 L)	37 gal (140 L)
Retracted boom length	8' (2.44 m)	8' (2.44 m)	7' (2.13 m)
Extended hydraulic boom length	14' (4.3 m)	13.5' (4.1 m)	15' (4.6 m)
<b>Minimum Truck Specifications</b>			
GVWR	19,500 lb (8,845 kg)	33,000 lb (14,969 kg) 35,000 lb (15,876 kg) w/ JetPac	33,000 lb (14,969 kg) 35,000 lb (15,876 kg) w/ JetPac
Front axle	7,000 lb (3,175 kg)	12,000 lb (5,443 kg)	12,000 lb (5,443 kg)
Rear axle	14,700 lb (6,350 kg)	21,000 lb (9,526 kg) 23,000 lb (10,433 kg) w/ JetPac	21,000 lb (9,526 kg) 23,000 lb (10,433 kg) w/ JetPac
Cab to axle	84" (213 cm) for CBC with 10' (3 m) body.	108" (274 cm) for CBC with 10' (3 m) body. 120" (305 cm) for CBC with JetPac and 8' (2.44 m) body	108" (274 cm) for CBC with 10' (3 m) body. 120" (305 cm) for CBC with JetPac and 8' (2.44 m) body
Min. RBM		1,650,000	1,650,000

**AVAILABLE OPTIONS:**

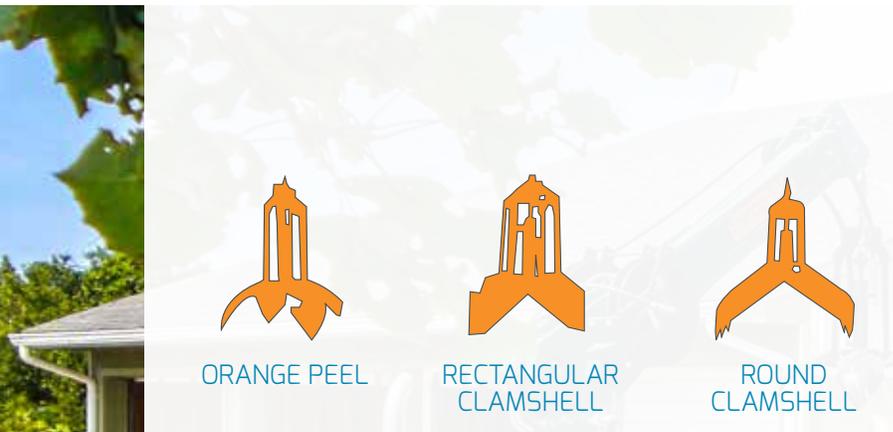
- Hydraulic and manual boom extensions
- Stabilizers
- Radio remote control
- Deep digger equipment for 50', 75' or 100' (15.2 m, 22.9 m or 30.5 m) below-grade operation
- Stetco hydraulic tool interface and hose reel
- High-pressure water jetting
- Front-mounted boom rest for use with 370° swing
- Tool boxes
- Bucket baskets
- Debris bodies fabricated in corten, 201 stainless, or A1011 carbon steel
- Hooklift mounting
- Low pressure washdown system
- Basin shovels with storage brackets



**JETPAC 2000 SYSTEM**

**The Stetco combo unit adds our optional JetPac system for the complete cleaning solution.**

The high-pressure, low-volume JetPac allows you to jet lateral lines up to 18" (46 cm) in diameter. A rugged performer, the pump can be run dry without damage; a recirculation option allows operation in subfreezing temperatures.



ORANGE PEEL

RECTANGULAR CLAMSHELL

ROUND CLAMSHELL



**Stetco buckets allow high-volume debris removal in minimum time.**

## STETCO BUCKET SPECIFICATIONS

Model	Orange Peel		Long Blade			Rectangular Clamshell		Round Clamshell	
<b>Outside size</b>	13.5" (34 cm)	15" (38 cm)	15" (38 cm)	18" (46 cm)	24" (61 cm)	12" x 17" (30 cm x 43 cm)	20" x 24" (51 cm x 61 cm)	10.75" (27.3 cm)	12.75" (32.4 cm)
<b>Max. blade opening</b>	33" (84 cm)	36" (91 cm)	43" (109 cm)	40" (102 cm)	48" (122 cm)	30" (76 cm)	35" (89 cm)	36" (91 cm)	34" (86 cm)
<b>Closed height</b>	47" (119 cm)	48" (122 cm)	53" (135 cm)	48" (122 cm)	57" (145 cm)	46" (117 cm)	51" (130 cm)	51" (130 cm)	51" (130 cm)
<b>Open height</b>	43" (109 cm)	44" (112 cm)	48" (122 cm)	43" (109 cm)	51" (130 cm)	44" (112 cm)	48" (122 cm)	45" (114 cm)	45" (114 cm)
<b>Volume capacity</b>	1.0 cu ft (.028 m <sup>3</sup> )	1.3 cu ft (.037 m <sup>3</sup> )	1.8 cu ft (.051 m <sup>3</sup> )	2.0 cu ft (.057 m <sup>3</sup> )	3.0 cu ft (.085 m <sup>3</sup> )	2.0 cu ft (.057 m <sup>3</sup> )	4.0 cu ft (.113 m <sup>3</sup> )	.8 cu ft (.023 m <sup>3</sup> )	1.0 cu ft (.028 m <sup>3</sup> )
<b>Weight (empty)</b>	255 lb (116 kg)	265 lb (120 kg)	280 lb (127 kg)	285 lb (129 kg)	350 lb (159 kg)	285 lb (129 kg)	350 lb (159 kg)	210 lb (95 kg)	250 lb (113 kg)

Ask about other custom sizes.

Contact your local dealer or factory for recommended chassis specifications.

**Stetco™**

www.stetcoproducts.com



## STETCO PRODUCTS

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Westborough, MA 01581-1052

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F: 508.870.1731

[www.stetcoproducts.com](http://www.stetcoproducts.com)

## CATCH BASIN CLEANERS

920SP

950T SERIES

970T SERIES

BUCKETS

COMBINATION UNIT

## INNOVATION FROM THE INDUSTRY LEADER

In the 1960s, Stetco introduced a new and improved, fully hydraulic catch basin cleaner (CBC) that advanced the way stormwater infrastructure cleaning was performed. Today, the latest Stetco CBC technology offers the industry's most productive, versatile, and cost-effective method of cleaning catch basins.

Stetco has wrapped more than 50 years of experience into its newest state-of-the-art CBC units: the 920SP, the 950T/13, and the heavy-duty 970T2/15. The innovative design of these models enables them to perform cleaning operations that no other equipment is capable of handling — at half the cost of some alternative solutions.

From international markets to cities and towns across the U.S., municipalities continue to depend on the leader in hydraulic CBC technology to meet their toughest catch basin cleaning challenges.

**OUR REPUTATION IS BUILT IN.**



Design and specifications subject to change without notice.

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**Environmental Protection**  
**Water Resource Protection**  
**Collection Division – 4 x 4 Pick-up Truck**

This capital replacement request is for the purchase of a ½ ton pick-up truck for the Department’s Collection System Division. This vehicle will replace a 2009 Chevrolet Sierra truck that is near the end of its useful life with 98,900 miles. The pick-up truck is used to transport tools, equipment, staff, and parts to various locations throughout the City. The use of this vehicle is important to respond to emergency sewer and stormwater problems and equipment failures within the collection systems. The estimated cost of the vehicle is \$30,433 and was obtained from a truck dealership.

Project Cost:	\$30,433
Funding Source	Sewer User Fund Reserve
Source of Cost Estimate:	O’Connor Truck Sales, Inc.
Projected Useful Life:	7-10 years

# O'CONNOR GMC

**Date:** Monday, August 17, 2015 12:55 PM  
**To:** Thomes, David  
**From:** John Mynahan [[john.mynahan@oconnorwheels.com](mailto:john.mynahan@oconnorwheels.com)]  
**Subject:** Budget price/specs

Dave,

An approximate budget price for a 2016 GMC Sierra ½ ton Regular cab 4x4 truck, with V-6 engine and fiberglass cap- would be \$30,433.00-see attached copy for specifications  
Please note, this is for budget use and not to be considered an actual net bid or formal quote

**Regards,**

**John Mynahan**  
Fleet & Commercial Sales Manager  
O'Connor GMC  
187 Riverside Dr  
Augusta, Maine 04330  
Office-207-622-3191  
Cell-207-592-0105  
Fax-207623-0755

**Prepared By:**

John Mynahan

O'Connor Motors

187 Riverside Dr

Augusta, ME 04330

Phone: (207) 592-0105

Fax: (207) 623-0755

Email: [john.mynahan@oconnorwheels.com](mailto:john.mynahan@oconnorwheels.com)

**2015 GMC Sierra 1500**

TK15903 4WD Regular Cab 133.0"

Photo may not represent exact vehicle or selected equipment.

**Prepared By:**  
 John Mynahan  
 O'Connor Motors  
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 Phone: (207) 592-0105  
 Fax: (207) 623-0755  
 Email:  
 john.mynahan@oconnorwheels.com

2015 Fleet/Non-Retail GMC Sierra 1500 4WD Regular Cab 133.0" TK15903

**SELECTED MODEL & OPTIONS**

**SELECTED MODEL - 2015 Fleet/Non-Retail TK15903 4WD Regular Cab 133.0"**

<u>Code</u>	<u>Description</u>
TK15903	2015 GMC Sierra 1500 4WD Regular Cab 133.0"

**SELECTED VEHICLE COLORS - 2015 Fleet/Non-Retail TK15903 4WD Regular Cab 133.0"**

<u>Code</u>	<u>Description</u>
-	Interior: No color has been selected.
-	Exterior 1: No color has been selected.
-	Exterior 2: No color has been selected.

**SELECTED OPTIONS - 2015 Fleet/Non-Retail TK15903 4WD Regular Cab 133.0"**

**CATEGORY**

<u>Code</u>	<u>Description</u>
<b>BODY CODE</b>	
E63	BODY, PICK UP BOX (STD)
<b>EMISSIONS</b>	
NE1	EMISSIONS, CONNECTICUT, DELAWARE, MAINE, MARYLAND, MASSACHUSETTS, NEW JERSEY, NEW YORK, OREGON, PENNSYLVANIA, RHODE ISLAND, VERMONT AND WASHINGTON STATE REQUIREMENTS
<b>ENGINE</b>	
LV3	ENGINE, 4.3L ECOTEC3 V6 WITH ACTIVE FUEL MANAGEMENT Direct Injection and Variable Valve Timing, includes aluminum block construction with FlexFuel capability, capable of running on unleaded or up to 85% ethanol (285 hp [212 kW] @ 5300 rpm, 305 lb-ft of torque [413 Nm] @ 3900 rpm) (STD)
<b>TRANSMISSION</b>	

Report content is based on current data version referenced. Any performance-related calculations are offered solely as guidelines. Actual unit performance will depend on your operating conditions.

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Customer File:

August 17, 2015 12:46:54 PM

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 john.mynahan@oconnorwheels.com

2015 Fleet/Non-Retail GMC Sierra 1500 4WD Regular Cab 133.0" TK15903

**SELECTED MODEL & OPTIONS**

**SELECTED OPTIONS - 2015 Fleet/Non-Retail TK15903 4WD Regular Cab 133.0"**

**CATEGORY**

<b>Code</b>	<b>Description</b>
<b>TRANSMISSION</b>	
MYC	TRANSMISSION, 6-SPEED AUTOMATIC, ELECTRONICALLY CONTROLLED with overdrive and tow/haul mode. Includes Cruise Grade Braking and Powertrain Grade Braking (STD)
<b>GVWR</b>	
C5H	GVWR, 6900 LBS. (3130 KG) (Requires K15903 model and (LV3) 4.3L EcoTec3 V6 engine.)
<b>AXLE</b>	
GU6	REAR AXLE, 3.42 RATIO (Standard on 4WD V6 models. Available with (L83) 5.3L EcoTec3 V8 engine.)
<b>PREFERRED EQUIPMENT GROUP</b>	
1SA	WORK TRUCK PREFERRED EQUIPMENT GROUP Includes Standard Equipment
<b>WHEELS</b>	
RD6	WHEELS, 17" X 8" (43.2 CM X 20.3 CM) PAINTED STEEL (STD)
<b>TIRES</b>	
RBZ	TIRES, P255/70R17 ALL-SEASON, BLACKWALL (STD)
<b>PAINT SCHEME</b>	
ZY1	SOLID PAINT
<b>PAINT</b>	
G1K	STONE BLUE METALLIC (Available at extra charge.)
<b>SEAT TYPE</b>	
AE7	SEATS, FRONT 40/20/40 SPLIT-BENCH 3-passenger, driver and front passenger recline with outboard head restraints and center fold-down armrest with storage. Vinyl has fixed lumbar and cloth has manually adjustable driver lumbar. (STD)
<b>SEAT TRIM</b>	
H2R	JET BLACK/DARK ASH, CLOTH SEAT TRIM
<b>RADIO</b>	
IO3	AUDIO SYSTEM, 4.2" DIAGONAL COLOR DISPLAY, AM/FM STEREO with USB ports, auxiliary jack and SD card slot (STD)

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2015 Fleet/Non-Retail GMC Sierra 1500 4WD Regular Cab 133.0" TK15903

**SELECTED MODEL & OPTIONS**

**SELECTED OPTIONS - 2015 Fleet/Non-Retail TK15903 4WD Regular Cab 133.0"**

**CATEGORY**

<b>Code</b>	<b>Description</b>
<b>ADDITIONAL EQUIPMENT</b>	
PCR	SIERRA FLEET CONVENIENCE PACKAGE includes (DL8) outside heated power-adjustable mirrors and (AQQ) Remote Keyless Entry (Includes (A31) power windows. (DL8) outside heated power-adjustable mirrors can be upgraded to (DPN) power camper mirrors.)
FHS	E85 FLEXFUEL CAPABLE (Included with (LV3) 4.3L EcoTec3 V6 engine. Available to order with (L83) 5.3L EcoTec3 V8 engine. Not available with (ZW9) pickup box delete.)
Z82	TRAILERING EQUIPMENT includes trailer hitch, 7-pin and 4-pin connectors (Not available with (ZW9) pickup box delete.)
DL8	MIRRORS, OUTSIDE HEATED POWER-ADJUSTABLE (includes driver's side spotter mirror) (Black, Included and only available with (PCR) Sierra Fleet Convenience Package.)
A31	WINDOWS, POWER with driver express up and down and express down on all other windows (Included and only available with (PCR) Sierra Fleet Convenience Package.)
AQQ	REMOTE KEYLESS ENTRY (Included and only available with (PCR) Sierra Fleet Convenience Package.)

**OPTIONS TOTAL**

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2015 Fleet/Non-Retail GMC Sierra 1500 4WD Regular Cab 133.0" TK15903

**TECHNICAL SPECIFICATIONS**

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**POWERTRAIN - BASIC SPECIFICATIONS - 2015 Fleet/Non-Retail TK15903 4WD Regular Cab 133.0"**

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**ENGINE**

Engine Order Code	LV3
Engine Type	Gas/Ethanol V6
Displacement	4.3L/262 CID
SAE Net Horsepower @ RPM	285 @ 5300
SAE Net Torque (lb ft) @ RPM	305 @ 3900

**TRANSMISSION**

Transmission order code	MYC
Transmission Type Description	* 6-Speed Automatic
Drive Train	Four Wheel Drive

**MILEAGE**

City EPA fuel economy estimate (MPG)	17.00
Hwy EPA fuel economy estimate (MPG)	22.00
City cruising range (mi)	578.00
Hwy cruising range (mi)	748.00

\* Indicates equipment which is in addition to or replaces base model's standard equipment.

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2015 Fleet/Non-Retail GMC Sierra 1500 4WD Regular Cab 133.0" TK15903

**TECHNICAL SPECIFICATIONS**

**POWERTRAIN - ADVANCED SPECIFICATIONS - 2015 Fleet/Non-Retail TK15903 4WD Regular Cab 133.0"**

**TRANSMISSION**

Gear Ratio (:1)	
First Gear Ratio (:1)	4.00
Second Gear Ratio (:1)	2.40
Third Gear Ratio (:1)	1.50
Fourth Gear Ratio (:1)	1.20
Fifth Gear Ratio (:1)	0.90
Sixth Gear Ratio (:1)	0.70
Reverse Ratio (:1)	3.10
Clutch size (in)	
Power Take-Off	

**TRANSFER CASE**

Transfer case model	Magna MP1222/5/6
Gear Ratio (:1)	
Transfer case high gear ratio	1.00
Transfer case low gear ratio	2.72
Transfer case power take off	

**DIFFERENTIAL**

	Front	Rear
Axle Ratio (:1)	3.42	3.42

**ELECTRICAL**

Battery	1	2	3	Total
Battery cold cranking Amps @ 0 F	730.00			730.00
Alternator				
Alternator Amps	150.00			

**COOLING SYSTEM**

Cooling system capacity	- TBD -
Engine oil cooler	Yes

\* Indicates equipment which is in addition to or replaces base model's standard equipment.

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2015 Fleet/Non-Retail GMC Sierra 1500 4WD Regular Cab 133.0" TK15903

**TECHNICAL SPECIFICATIONS**

**PAYLOAD/TRAILERING SPECIFICATIONS - 2015 Fleet/Non-Retail TK15903 4WD Regular Cab 133.0"**

<b>WEIGHT INFORMATION</b>	<b>Front</b>	<b>Rear</b>	<b>Total</b>
Gross Axle Wt Rating (lbs)	3,950.00	3,950.00	
Curb Weight (lbs)	- TBD -	- TBD -	- TBD -
Total Option Weight (lbs)	* -7.00	* 21.00	* 14.00
As Spec'd Curb Weight (lbs)	- TBD -	- TBD -	- TBD -
As spec'd payload (lbs)			- TBD -
Total Weight (lbs)	- TBD -	- TBD -	- TBD -
Reserve Axle Capacity (lbs)	- TBD -	- TBD -	- TBD -
Gross Vehicle Wt Rating (lbs)			6,900.00
Gross Combined Wt Rating (lbs)			12,800.00
 <b>TRAILERING</b>	<b>Max Trailer Wt.</b>	<b>Max Tongue Load</b>	
Dead Weight Hitch (lbs)	5,000.00	500.00	
Weight Distributing Hitch (lbs)	7,400.00	888.00	
Fifth Wheel Hitch (lbs)			

\* Indicates equipment which is in addition to or replaces base model's standard equipment.

Report content is based on current data version referenced. Any performance-related calculations are offered solely as guidelines. Actual unit performance will depend on your operating conditions.

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Customer File:

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 john.mynahan@oconnorwheels.com

2015 Fleet/Non-Retail GMC Sierra 1500 4WD Regular Cab 133.0" TK15903

**TECHNICAL SPECIFICATIONS**

**CHASSIS SPECIFICATIONS - 2015 Fleet/Non-Retail TK15903 4WD Regular Cab 133.0"**

<b>SUSPENSION</b>	<b>Front</b>	<b>Rear</b>	
Spring			
Spring Type	Independent	2-Stage Multi-Leaf	
Spring Capacity	3,950.00	3,950.00	
Axle			
Axle Type	Semi-floating	Semi-floating	
Axle Capacity	3,950.00	3,950.00	
Shock Absorber Diameter (mm)	46.00	35.00	
Stabilizer Bar Diameter (in)	1.35		
<b>BRAKES</b>			
Brake type	Pwr		
ABS System	4-Wheel		
	<b>Front</b>	<b>Rear</b>	
Disc	Yes	Yes	
Rotor Diam x Thickness (in)	13.00 x 1.18	13.60 x 0.79	
Drum			
Drum Diam x Width (in)			
<b>TIRES</b>	<b>Front</b>	<b>Rear</b>	<b>Spare</b>
Tire Order Code	RBZ	RBZ	ZBZ
Tire Size	P255/70R17	P255/70R17	P255/70R17
Capacity	- TBD -	- TBD -	- TBD -
Revolutions/Mile @ 45mph	- TBD -	- TBD -	- TBD -
<b>WHEELS</b>	<b>Front</b>	<b>Rear</b>	<b>Spare</b>
Wheel Size	17 x 8.0	17 x 8.0	17 x 7.0
Wheel Type	Steel	Steel	Aluminum

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2015 Fleet/Non-Retail GMC Sierra 1500 4WD Regular Cab 133.0" TK15903

**TECHNICAL SPECIFICATIONS**

**CHASSIS SPECIFICATIONS - 2015 Fleet/Non-Retail TK15903 4WD Regular Cab 133.0"**

**STEERING**

Steering type	Electric Rack & Pinion
Ratio (:1)	
On Center	- TBD -
At Lock	- TBD -
Turning Diameter	
Curb-to-Curb	43.90
Wall-to-Wall	- TBD -

**FUEL TANK**

	<b>Main</b>	<b>Auxiliary</b>
Capacity	34.00	
Location	- TBD -	

\* Indicates equipment which is in addition to or replaces base model's standard equipment.

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2015 Fleet/Non-Retail GMC Sierra 1500 4WD Regular Cab 133.0" TK15903

**TECHNICAL SPECIFICATIONS**

**DIMENSIONS - 2015 Fleet/Non-Retail TK15903 4WD Regular Cab 133.0"**

**EXTERIOR DIMENSIONS**

Wheelbase (in)	133.00
Length, Overall w/o rear bumper (in)	224.43
Width, Max w/o mirrors (in)	80.00
Height, Overall (in)	73.77
Overhang	
Overhang, Front	- TBD -
Front Bumper to Back of Cab (in)	116.90
Cab to Axle (in)	55.40
Cab to End of Frame (in)	- TBD -
Ground to Top of Load Floor (in)	35.60
Ground to Top of Frame (in)	- TBD -
Frame Width, Rear (in)	- TBD -
Ground Clearance	
Ground Clearance, Front	8.77
Ground Clearance, Rear	8.77

**CARGO AREA DIMENSIONS**

Cargo Box Length @ Floor (in)	97.77
Width	
Cargo Box Width @ Top, Rear	- TBD -
Cargo Box Width @ Floor	- TBD -
Cargo Box Width @ Wheelhousings	51.03
Cargo Box (Area) Height (in)	21.23
Tailgate Width (in)	- TBD -
Cargo Volume (ft <sup>3</sup> )	76.40
Ext'd Cab Cargo Volume (ft <sup>3</sup> )	

**INTERIOR DIMENSIONS**

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## 2015 Fleet/Non-Retail GMC Sierra 1500 4WD Regular Cab 133.0" TK15903

### ***TECHNICAL SPECIFICATIONS***

---

#### **DIMENSIONS - 2015 Fleet/Non-Retail TK15903 4WD Regular Cab 133.0"**

---

##### **INTERIOR DIMENSIONS**

Passenger Capacity	3
Seating Position	Front
Head Room (in)	42.40
Leg Room (in)	45.27
Shoulder Room (in)	66.03
Hip Room (in)	60.73

\* Indicates equipment which is in addition to or replaces base model's standard equipment.

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**Environmental Protection**  
**Water Resource Protection**  
**Wastewater Treatment Facility**  
**Control System Upgrade**

This 2016 capital improvement is for the construction of the Control System Upgrade at the Wastewater Treatment Facility as recommended as a high priority in the 2014 Facility Plan Update. The Control System, sometimes referred to as SCADA, consists of three major components: (1) HMI - (Human Machine Interface, including software and CPU hardware), (2) PLCs - (Programmable Logic Controllers, or industrial applied computers), and (3) Communications Network - which are discussed in further detail below. A critical objective to this project is getting age appropriate software, programming and hardware together. The other objective of this project consists of operational system upgrades which will give the operators the ability to control and operate systems better to meet our discharge permit requirements. During the design, each system was vetted out between operations/maintenance staff and the consultant to correct, modify, or improve each operational system.

In essence, the Control System is our computers, network, and equipment components that run the entire treatment plant. Computer systems have a shorter life cycle than process equipment where we typically plan on a 10-15 year life span. The current system has been in operation since 1995 (twenty years) which is well beyond its useful life. Unfortunately, we are currently experiencing failures in the system even though the staff has done a great job extending the life of the system. As an example our HMI computers failed last year which required immediate replacement. This particular work was supposed to be replaced as part of this project but obviously we couldn't wait. The PLCs are old enough that there are no replacement parts available. So, if the PLC hardware goes down, it cannot be repaired or replaced.

HMI: Our SCADA system is controlled by the operators through two computer servers with one being a redundant backup. All the database information and historical trending is stored on these computers. As stated above, the computers themselves were replaced last year. However, the software, graphics, and programming were not updated and are still an integral component of this project.

PLCs: Each operational system at the treatment plant has its own control panel which houses its own PLC. *See attached Network Diagram.* Each control panel's PLC is connected to the SCADA servers via a communications network. Each PLC will be replaced along with new programming. Currently there is no redundancy in the PLCs. When a PLC crashes, a programmer must be brought in and reload the system, which leaves the equipment running in manual mode only.

NETWORK: All PLCs at the treatment plant are currently networked together using proprietary DH+ (Data Highway Plus). This is a serial bus networking technology that uses a 2 wire conductor cable that connects from one PLC to the next back to the SCADA system. This network scheme is referred to as a "daisy-chain". The network system has reached the limits of the amount of data that can be passed resulting in slow data transfer or data crashes. This project will replace the copper wire DH+ with a fiber-optic-network utilizing the existing conduits. This will allow the use of PLCs that communicate via modern high bandwidth IP addressing protocol. The fiber-optic-network will also be configured differently as a ring-network (vs daisy chain). Using a ring-network provides redundancy to the PLC network. The ring-network is referred to as "self-healing", which means that if communication is lost between any two control panels, a managed ethernet switch in the network will sense the break and reroute data as required.

Some smaller pumping equipment (ie bisulfite pumps) will be replaced due to their age and limited operational abilities. This will allow us to provide better operational control needed to regulate the disinfection/dechlorination of the treated plant effluent. Electrical components, such as two influent pump VFDs, will be added to provide better process control in regulating potential SSOs (sanitary sewer overflows).

This project was designed to 95% by Wright-Pierce Engineers with involvement with the Operations and Maintenance staff in the fall of 2013. However, this was the same period of time we were going through General Service Consultant Contracts which was won by Woodard & Curran. We have been in a transitional period of having Woodard & Curran complete the remaining 5% of the design for bidding and construction. This spring when the building addition currently under construction is complete, we will be going out to bid and constructing this project over a 1 year period.

Project Cost:	\$1,082,000
Funding Source:	Sewer User Fund Reserve
Source of Cost Estimate:	Wright-Pierce/Woodard & Curran
Projected Useful Life:	15 years

# CITY OF SOUTH PORTLAND CONTRACT DRAWINGS FOR WASTEWATER TREATMENT FACILITY CONTROL SYSTEM UPGRADE

AUGUST 2013

**DRAWING INDEX**

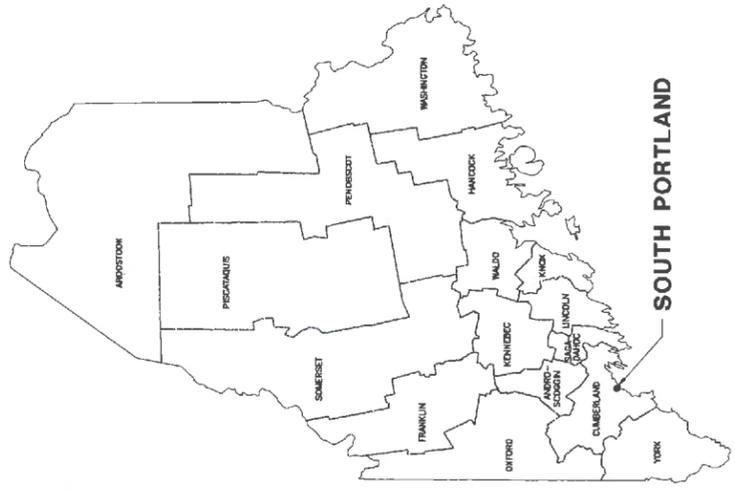
SHEET NO.    TITLE

**INSTRUMENTATION**

- I-1 INSTRUMENTATION NOTES AND LEGEND
- I-2 INSTRUMENTATION LEGEND
- I-3 DISINFECTION CONTROL PANEL INSTRUMENTATION LOOPS
- I-4 TYPICAL DETAILS AND SCHEMATICS I
- I-5 INFLUENT PUMP STATION CONTROL PANEL DISCRETE I/O
- I-6 DISINFECTION CONTROL PANEL DISCRETE I/O
- I-7 DISINFECTION CONTROL PANEL ANALOG I/O
- I-8 INFLUENT AND OVERFLOW PUMPS TYPICAL CONTROL SCHEMATICS
- I-9 INFLUENT AND OVERFLOW PUMPS TYPICAL CONTROL SCHEMATICS
- I-10 INFLUENT PUMP STATION CONTROL PANEL LAYOUT
- I-11 MAIN CONTROL PANEL WIRING MODIFICATIONS
- I-12 MAIN CONTROL PANEL DISCRETE I/O I
- I-13 MAIN CONTROL PANEL DISCRETE I/O II
- I-14 MAIN CONTROL PANEL ANALOG I/O
- I-15 MAIN CONTROL PANEL ANALOG I/O

**ELECTRICAL**

- E-1 ELECTRICAL NOTES, LEGEND AND ABBREVIATIONS
- E-2 ELECTRICAL SITE PLAN
- E-3 ELECTRICAL SCHEMATICS
- E-4 OPERATIONS BUILDING DEMOLITION AND MODIFICATION PLANS
- E-5 DISINFECTION BUILDING ELECTRICAL DEMOLITION AND MODIFICATION PLANS
- E-6 MAIN CONTROL BUILDING ELECTRICAL DEMOLITION AND MODIFICATION PLANS
- E-7 PUMP ROOM ELECTRICAL DEMOLITION AND MODIFICATION PLANS
- E-8 ELECTRICAL SCHEDULES



**LOCATION PLAN**  
NOT TO SCALE

**WRIGHT-PIERCE**  
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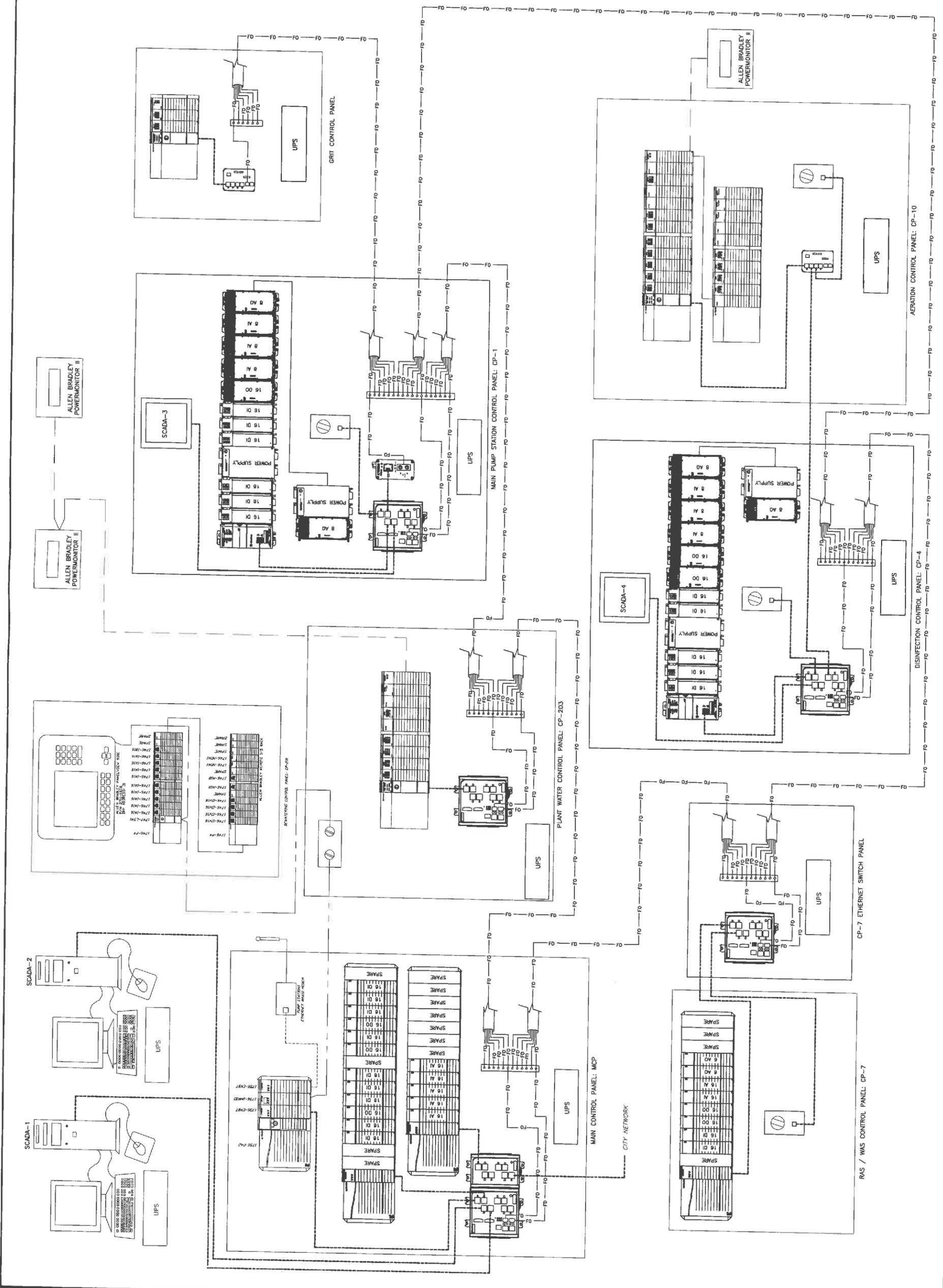
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FOR REVIEW    AUGUST 2013  
FOR BIDDING  
WP PROJECT NO. 1179X

CITY OF SOUTH PORTLAND, MAINE  
WASTEWATER TREATMENT FACILITY  
CONTROL SYSTEM UPGRADE  
NETWORK DIAGRAM

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NO.	DATE	BY	DESCRIPTION
1	08/20/2013	PDA	SCADA-1
2	08/20/2013	PDA	SCADA-2
3	08/20/2013	PDA	SCADA-3
4	08/20/2013	PDA	SCADA-4
5	08/20/2013	PDA	SCADA-5
6	08/20/2013	PDA	SCADA-6
7	08/20/2013	PDA	SCADA-7
8	08/20/2013	PDA	SCADA-8
9	08/20/2013	PDA	SCADA-9
10	08/20/2013	PDA	SCADA-10
11	08/20/2013	PDA	SCADA-11
12	08/20/2013	PDA	SCADA-12
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99	08/20/2013	PDA	SCADA-99
100	08/20/2013	PDA	SCADA-100



**Environmental Protection**  
**Water Resource Protection**  
**Ottawa Road CSO**

This capital improvement item is for the funding of remediation work that will affect a CSO in Cape Elizabeth that South Portland contributes to. The CSO and the associated pump station to the CSO is owned by the Town of Cape Elizabeth but contract operated by the Portland Water District (PWD). An inter-municipal agreement has been in place since 1974 with some revisions and upgrades to the agreement over the years. The agreement is in place because we not only receive and treat flows from Cape Elizabeth's north collection system; but, we also share in flows in some other areas that leave South Portland and go to Cape as well as the other way around. The City of South Portland, the Town of Cape Elizabeth, and PWD have a three-party DEP permit for this CSO.

The sewer system in the City drains Drew Road, Ship Channel Road, Danforth Road and Leighton Street. The basement foundations from the houses in this area are still tied into the sewer system even though a stormwater system was installed back in the mid seventies. This was not unusual at the time where foundation drains were tied into sewer services and left connected even after the stormwater drainage was installed. Additional sewer system infiltration will also need to be addressed in the project.

The result is that there are some high peaking flows from the City's sewer contributing to a CSO. The Town of Cape Elizabeth has done some separation to reduce its stormwater contribution but flow monitoring has revealed that the storm flows from the City's system have been having a major impact on the CSO discharges there.

The parties commissioned a mitigation study from Wright-Pierce Engineers. As a result of the study and with the issuance of the DEP permit, we are committed to taking a first step of reducing the collection system flow from South Portland by 550 GPM. The City has done a lot of investigative work to date and is in the process of preliminary design to remediate the 550 GPM and will be in construction this year to achieve that goal.

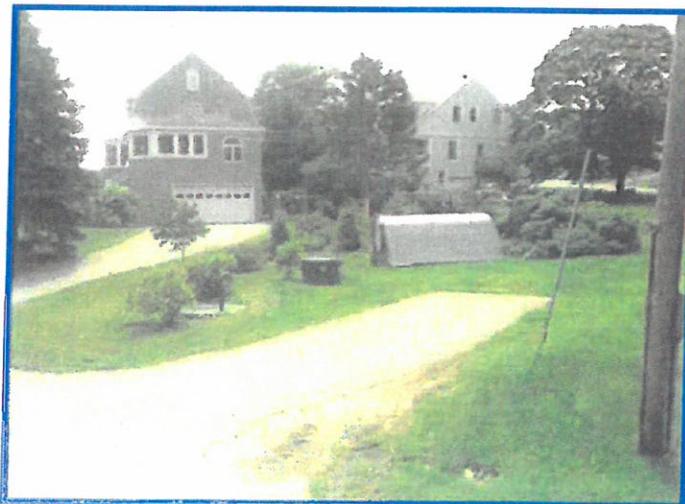
There is no available specific design cost analysis for the recommended solution just yet. There is a previously budgeted amount of funding for the Ottawa Road CSO approved in the 2008 CIP as part of the early study and investigative process. The account has a balance of \$153,101 which will be added to this request for design and construction.

The amount requested for this year will come from the 2006 CIP approved Anthoine Sewer Separation account. The scope of the original project has changed compared to the project being constructed this year at Anthoine on Broadway leaving enough to fund this request. The budget for this item is subject to change pending the recommendations from the preliminary design work being completed over the next few months.

Project Cost: \$230,000  
Source of funds: 2006 CIP - Anthoine Sewer Separation  
Source of Estimate: Staff Estimation/Wright- Pierce Engineering Study  
Project Useful Life: 65 years

**OTTAWA ROAD  
COMBINED SEWER OVERFLOW  
MASTER PLAN  
for the  
CITY OF SOUTH PORTLAND,  
PORTLAND WATER DISTRICT,  
AND TOWN OF CAPE ELIZABETH**

**December 2011**



**WRIGHT-PIERCE**   
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## SECTION 1

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This Combined Sewer Overflow (CSO) Master Plan was prepared to meet the conditions set forth in Special Condition A, Paragraph 4 of the February 6, 2009 Maine Pollutant Discharge Elimination System (MEPDES) permit and Waste Discharge License (WDL) issued jointly to the City of South Portland (City), the Portland Water District (PWD) and the Town of Cape Elizabeth (Town) for the Ottawa Road CSO. Per the conditions of the permit, the permit holders must submit a CSO Master Plan by December 31, 2011 including an implementation schedule to abate or eliminate the CSO. The following Section summarizes the investigations and analyses that were performed in order to complete this Plan report and provides conclusions and recommendations for the abatement of the Ottawa Road CSO. Additional information on the permit and permit requirements can be found in Section 2.

When reviewing this Plan, the reader should consider three very important questions:

1. *What is the goal of this Plan?* Ideally, the answer would be to set forth a plan to completely eliminate the Ottawa Road CSO for all precipitation events and groundwater conditions. In reality, a CSO that may discharge a few thousand gallons during a 1-year, 24-hour storm event (2.5 inches of precipitation in 24 hours) with dry ground conditions may discharge millions of gallons during a 10-year, 24-hour storm event (4.7 inches of precipitation in 24 hours) with saturated ground conditions. The cost of mitigating a few thousand gallons is vastly different than the cost of mitigating a few million gallons. In the case of the Ottawa Road Pump Station CSO, the events that resulted in the two largest overflow events by volume and the greatest instantaneous overflow rate both ranked as 1-year, 24-hour storms whereas storms with a lower recurrence interval resulted in lower volumes and overflow rates. *Therefore, the goal of the Plan, working in conjunction with Maine Department of Environmental Protection (MEDEP), is to define the mitigation level (e.g. a particular design storm or overflow rate) below which the CSO will be eliminated if complete*

*elimination is not feasible or affordable and to set forth an action plan to implement the steps required to achieve that goal (e.g. construction projects or additional study).*

2. ***What mitigation level will be acceptable to the MEDEP to define successful abatement or elimination of the CSO?*** Unfortunately, the answer to this question is not clearly defined by MEDEP, and it can vary from community to community. A few approaches that have been utilized are as follows:

- Provide controls to eliminate CSO events generated by a certain design storm. The EPA CSO guidance document regularly refers to CSO flows generated during a 1-year, 24-hour recurrence interval storm or less<sup>1</sup>.
- Provide controls to reduce the total number of overflow events below a certain number each year. Criterion 1 of the presumptive approach outlined by EPA suggests no more than 4 overflow events per year.
- Provide controls to reduce the total volume of overflow events below a certain value per year. Criterion 2 of the presumptive approach outlined by EPA suggests elimination or capture for treatment of no less than 85% by volume of the combined sewage collected during precipitation events on an annual average basis.

The final approach selected for a community will depend on an analysis of the available CSO and precipitation data to define the parameters discussed in each of the approaches above as well as a cost-effective analysis of the various alternatives. This cost-effective analysis, otherwise known as a "knee of the curve" analysis, seeks to determine the cost of CSO abatement for various flow levels and to identify the point at which the abatement is no longer cost-effective or affordable by the community. For the purposes of this Plan, **a peak CSO flow rate of 1,100 GPM has been targeted for the elimination goal of the Ottawa Road Pump Station.** A five-year implementation schedule is outlined in this Plan to accomplish this goal. Refer to Section 10 for a discussion of the "knee of the curve" analysis as well as why this level of mitigation and implementation schedule have been recommended.

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<sup>1</sup> Combined Sewer Overflows: Guidance for Long-Term Control Plan, U.S. EPA Office of Water. EPA 932-B-05-002. September 1995.

3. *What is the potential cost of abatement or elimination of the CSO?* The cost of abating the CSO to the target mitigation level has been estimated at \$2.36 million in October 2011 dollars (or \$2.56 million over the five-year implementation period including inflation). Before pursuing mitigation of peak flow rates above 1,100 GPM, serious thought should be given to whether or not the public benefit of CSO elimination justifies the financial burden that would be placed on the communities. Refer to Sections 9 and 10 for information related to alternatives considered and associated costs.

## 1.1 SUMMARY

This section briefly outlines the history of the Ottawa Road CSO and summarizes the field investigations and hydraulic modeling that were completed to assist in the preparation of this Plan.

### 1.1.1 History

When the Ottawa Road Pump Station was built in 1977, a combined sewer overflow was constructed (but no originally licensed) adjacent to the pump station with an outfall to the Atlantic Ocean via Danforth Cove<sup>2</sup>. Due to increased CSO activity because of record rainfalls in both 2005 and 2006, the CSO rose on MEDEP's priority list for elimination or abatement. MEDEP briefly considered including abatement or elimination as a condition of the MEPDES permit renewal for the East End Wastewater Treatment Facility in Portland; however this idea was discarded as the facility is unrelated to the Ottawa Road CSO. Additionally they considered issuing an administrative consent order, but PWD had already hired Wright-Pierce (W-P) to conduct an initial study of alternatives to eliminate or abate the CSO. Through this study, it was determined that, given the magnitude of the overflows during significant wet weather events, there is no easy way to eliminate the CSO, such as a capacity upgrade at the pump station or an on-site storage tank. As such, the final recommendation of the study was to license the CSO

---

<sup>2</sup> It should be noted that the MEPDES permit refers to the cove as Danford Cove as this was the name referenced in the current edition of the Maine Atlas and Gazetteer© at the time. However; the correct name is Danforth Cove and that name will be used for purposes of this plan.

through MEDEP in order to eliminate the issue of non-compliance while a formal plan for mitigation was developed.<sup>3</sup> The CSO was licensed by MEDEP in 2009.

As the City, PWD and the Town all have a vested interest in the Ottawa Road Pump Station and drainage area (refer to Section 2 for a discussion of infrastructure ownership and operation), negotiations were required to determine who would be the permit licensee. Ultimately, the Maine Pollutant Discharge Elimination System (MEPDES) Permit and the Maine Waste Discharge License (WDL) for the Ottawa Road CSO were issued jointly to the City, PWD and the Town.

Section 2 provides additional background on the history of the Ottawa Road CSO and pump station as well as the collection system.

#### **1.1.2 Field Investigations and Hydraulic Modeling**

PWD monitors flow at the Ottawa Road Pump Station and the CSO continuously (refer to Section 3 for a summary of CSO data analysis). In addition, a series of field investigations were conducted between April 2009 and September 2011 to assist in the development of this Plan including televised inspection of sewer pipes, manhole inspections, extended and instantaneous flow monitoring and smoke testing. The goals of the field investigations were as follows:

- To determine wastewater flows during dry and wet weather (results summarized in Section 4 and 5)
- To ascertain whether the source of infiltration and inflow (I/I) is primarily leaking manholes, pipe joints, pipe defects and connections (infiltration); roof drains, catch basins, foundation drains, sump pumps, etc. (inflow); or both within the drainage areas (results summarized in Sections 5, 6 and 7)

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<sup>3</sup> Refer to Appendix B for a copy of the original technical memorandum issued summarizing the findings of the study as well as a follow-up memorandum addressing questions raised by the City's review of the original memorandum.

Additionally, InfoSWMM by Innovyze was used to develop a working hydraulic model of the Shore Road interceptor sewer. The purpose of the model was to help evaluate the impacts that an increase in flow rate from the Ottawa Road Pump Station would have on the downstream interceptor sewer and to help determine the best way to mitigate those impacts. The modeling efforts are summarized in Section 8.

## 1.2 LONG TERM CSO CONTROL ALTERNATIVES

Section 9 outlines the potential long-term control alternatives that were evaluated for the Ottawa Road CSO. In general, they included the following:

- Stand-Along Alternatives:
  - Alternative 1 - Infiltration/Inflow Removal
  - Alternative 5 - Satellite Treatment of CSO Flows (Swirl Concentrator)
- Combination Alternatives:
  - Alternative 6 - Infiltration/Inflow Removal AND Pump Station Capacity Upgrade<sup>4</sup>
  - Alternative 7 - Pump Station Capacity Upgrade AND Off-Line Storage for CSO Flow<sup>5</sup>
  - Alternative 8 - Infiltration/Inflow Removal AND Pump Station Capacity Upgrade AND Off-Line Storage of CSO Flow
  - Alternative 9 - Infiltration/Inflow Removal AND Satellite Treatment of CSO Flows (Swirl Concentrator)
  - Alternative 10 - Infiltration/Inflow Removal AND Pump Station Capacity Upgrade AND Satellite Treatment of CSO Flows (Swirl Concentrator)

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<sup>4</sup> As noted in Section 9.3.2, alternatives were selected assuming that the capacity of the Family Field Pump Station would remain unchanged. The Family Field Pump Station (which is downstream from the Ottawa Road Pump Station) is already at capacity under existing peak flow conditions. Therefore, any upgrade to the Ottawa Road Pump Station will mean that an equal amount of I/I will need to be removed from the collection system between the two pump stations or that an off-line storage facility will be required. As such, a capacity upgrade at the pump station will not be considered as a stand-alone option.

<sup>5</sup> The closest location for an off-line storage tank is on the Town-owned property that has a ball field adjacent to the Family Field Pump Station. In order to convey the CSO flows from the Ottawa Road Pump Station and CSO location, the Ottawa Road Pump Station will require a significant capacity increase and the Shore Road interceptor will require upgrades. As such, an off-line storage tank will not be considered as a stand-alone option.

### **1.3 RECOMMENDED MITIGATION LEVEL, PLAN AND IMPLEMENTATION SCHEDULE**

The analysis completed as part of this Plan confirmed the findings of the analysis of alternatives to mitigate or eliminate the CSO completed in 2007 (refer to Appendix B); that is, there is no simple solution to completely eliminate the Ottawa Road CSO. After review of alternatives evaluated as part of this plan, the City, PWD and the Town have all expressed a preference for I/I removal to abate or eliminate the CSO. Although it is not the least expensive alternative from a capital cost perspective, or the most preferable from a social or political perspective, it is preferred because it eliminates the cause of the problem rather than managing the effect of the problem (i.e. removal of illicit flows rather than constructing new facilities or facility upgrades to convey and/or treat illicit flows). Further, as noted previously, infrastructure downstream of the Ottawa Road Pump Station (including the Shore Road interceptor, Family Field Pump Station and possibly interceptors downstream of the Family Field Pump Station) is currently at maximum capacity during certain wet weather events so attempts to "push" more flow down the pipe would require downstream improvements which may not be necessary if sufficient I/I can be removed.

While the field investigations completed in the public easements during the development of this Plan (e.g., manhole inspections, TV inspection of pipelines and smoke testing) were helpful in locating some illicit connections and finding some failing infrastructure, more work will be required to pinpoint the highest value areas for I/I reduction. Since it appears that the majority of the I/I flows are coming from homes, additional investigations of private infrastructure will be required before actual I/I reduction projects can be developed. The data from this work, coupled with the current data from TV inspection of sewers, manhole inspections, flow monitoring, smoke testing, etc. will provide the information required to develop the most effective I/I reduction programs.

As such, we recommend the following plan to reach the mitigation level of 1,100 GPM. The Year 1 work will commence once the CSO Master Plan has received final local and regulatory approval as well as comments from the public.

- Year 1
  - Begin additional investigations including home inspections and potentially additional instantaneous flow monitoring within the Ottawa Road Pump Station drainage area
  - Design of Phase I I/I Reduction Project
- Year 2
  - Complete additional investigations
  - Construct Phase I I/I Reduction Project
- Year 3
  - Complete design of Phase II I/I Reduction Project(s)
- Year 4
  - Begin construction of Phase II I/I Reduction Project(s)
  - Complete preliminary design for the Ottawa Road Pump Station upgrade
- Year 5
  - Complete construction of Phase II I/I Reduction Project(s)
  - Begin CSO Master Plan update

Table 1-1 below summarizes the proposed plan along with the associated costs in current and future dollars.

The importance of a phased approach for CSO abatement cannot be emphasized enough. Implementation of any project should be followed by flow monitoring to determine the ultimate result of the project. At a minimum, it is strongly recommended that the flow meter in the cross-country line between South Portland and Cape Elizabeth be maintained over the next five years and beyond to track total flows from each municipality and to monitor the effectiveness of I/I reduction projects. This information will be essential to the development of the CSO Master Plan update.



**Sewer Structures**

- Catch Basin in Sewer
- Sewer Manhole with CSO
- Vault or Chamber
- Interceptor Sewer Manhole
- Pump Station
- Treatment Plant
- Sewer Manhole
- Wet Well
- Service Tie
- Private Pump Stations
- Dead End

**Sewer Pipes**

- Force Main
  - Gravity
  - Service
  - Siphon
  - Storm
- Water System**
- Service Valves
  - Water Valve
  - Public Hydrants
  - Private Hydrant
  - Water Mains

**Stormwater Structures**

- Culvert Inlet
  - Culvert Outlet
  - Outfall
  - Catchbasin
  - Drain Manhole
  - Outlet Control Structure
- Stormwater Pipes**
- CSO
  - Culvert
  - Gravity
  - Roof Drain

**Terrain**

- Waterbody
- Wet Area
- 2 Foot Contours
- Hydrography

**Municipal**

- Political Boundary
- Parcels, 12/2008
- Buildings

**Sewer Districts**

1H	1I2
1I1	1I3



**Water Resource Protection**

**GIS**  
MAPPING & ANALYSIS



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**Environmental Protection**  
**Water Resource Protection**  
**Thornton Heights Separation Phase III Construction**

This 2017 capital improvement item is for the third phase construction of the separation of the Thornton Heights area streets. This phase of the project is to be completed in this year's upcoming construction season in 2016. The work will cover streets in the area north of Main Street which contribute to a drainage area that significantly impacts the Cash Corner CSO #005, one of the most active CSO's in the City. The streets are Keswick, Thirlmere, Wythburn, Southwell, Herford, Kirkland, Mardale, and Rothay. This CSO is significant in that all the flow from the west end of the City and all of Thornton Heights to Scarborough converges into a single pipe at Cash Corner on its way to the treatment plant. The hydraulics in this area are too much for the sewer system to contain the combined sewer/stormwater flows during wet weather events that discharge into Calvary Pond at CSO #005.

Taking out the stormwater from the Thornton Heights area sewer system would dramatically reduce the overflows occurring at Cash Corner but also affect the other major CSO's downstream. The other two CSO's downstream are Broadway/Evans CSO #006 and Elm Street CSO #024. These are also larger active CSO's. This project is part of the City's 12-year implementation plan outlined in the CSO Facilities Plan required by Maine DEP.

All of the streets in the project area will be impacted by the project improvements of upgraded utilities, new stormwater drainage, and street paving. Two gravel wetland infiltration ponds will also be constructed to intercept and treat polluted stormwater. These are located on the school property near the end of Froswick and at the bottom of the hill near the end of Wythburn.

A pedestrian path will extend from Wythburn to Wescott Road on top of an existing sewer easement to provide a means of reconnecting neighborhoods. Maine DOT may be doing some extensive downstream culvert replacement in Calvary Cemetery to reestablish the drainage that extends from the Broadway railroad overpass through the cemetery to Calvary Pond. This section of drainage has almost certainly been the problem with the flooding on Broadway at the overpass. This work is critical to complete addressing the entire drainage area, but will not be part of the City's project.

Another feature of this project will include the development of the Thornton Heights park area where the existing construction site laydown/stockpile area is located. The construction of the park will be a sound beginning for potential future improvements and will hopefully attract more intense use of a long standing neighborhood public park.

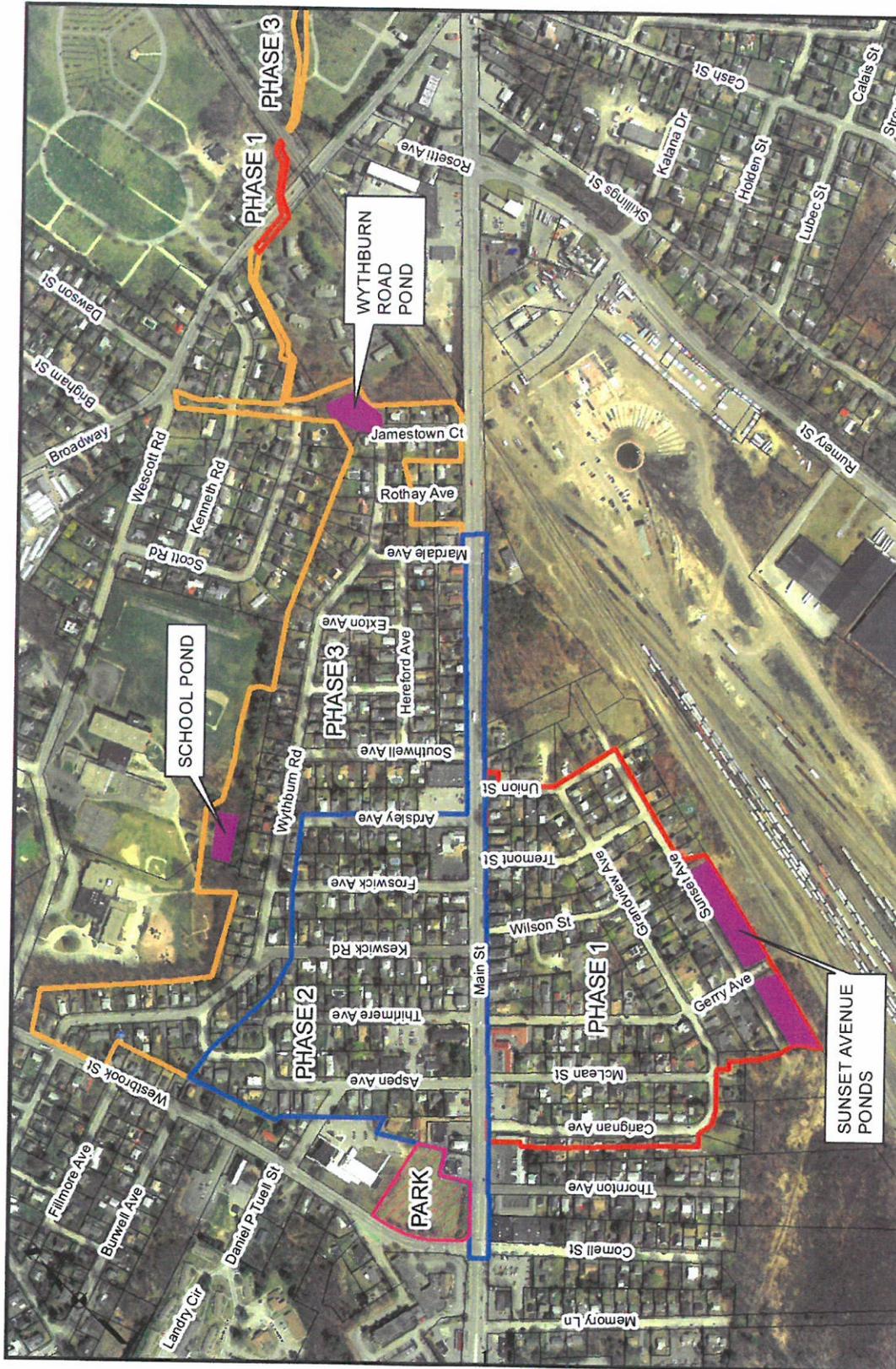
This project is the third phase in a four phase project that will cover Thornton Heights in three phases and Pleasantdale in the fourth phase. Sources of funding that will cover this year's Phase III construction costs include the TIF funds, Sewer User Funds, Sewer Impact Fees, Phase 1

and 2 construction surplus, Safe Routes Grant balance, and a citizen approved low interest Clean Water State Revolving Fund loan from the Department of Environmental Protection.

Project Cost:	\$4,342,640	
Funding Source	\$950,000	Phase 1 and 2 Surplus
	\$115,000	Sewer Impact Fees
	\$400,000	Sewer User Fund
	\$1,700,000	Clean Water SRF
	\$1,173,622	TIF Funding
	\$4,018	Grant Balance

Source of Cost Estimate: Sebago Technics Engineers

Projected Useful Life: 65 years



<p>75 John Roberts Rd. Suite 1A South Portland, ME 04240 Tel: 207.200.2100 Fax: 207.263.2656</p>	<p>FOR: CITY OF SOUTH PORTLAND</p>	<p>SCALE: 1" = 500'</p>
	<p>LOCATION: THORNTON HEIGHTS VICINITY SOUTH PORTLAND, MAINE</p>	<p>DATE: 10/05/15</p>
<p>OVERALL PHASE LIMITS OF THORNTON HEIGHTS SEWER SEPARATION</p>		
<p>INFORMATION: IMAGERY ACQUIRED SPRING 2012 GIS DATA FROM THE CITY OF SOUTH PORTLAND</p>		

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