

## 6 Phase 1 Source Reduction Program

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### 6.1. **TOWNSHIP of SALISBURY**

#### 6.1.1 **Completed Projects:**

Over the past several years the Township of Salisbury has undertaken a number of source removal projects within the Township's sanitary sewer system specifically targeting the designated infiltration/inflow priority areas. The completed projects included various source removal projects such as main line and lateral TV inspection, main line and lateral test and sealing joints, main line spot repairs, main line cured-in-place pipe lining, and manhole I/I observations/investigations.

#### 6.1.11 **Purpose:**

Most all of the completed source removal projects fall within the high priority infiltration/inflow areas or basins identified by flow meter evaluation analysis. Selected projects were identified within the designated priority area as a result of systematic data analyses. Subsequently, specific sewer system rehabilitation efforts and tasks began in these areas or catchments with the expectations that the initial rehabilitation work will have an immediate and significant impact on Rainfall Derived Infiltration/Inflow (RDII) removal.

#### 6.1.1.2 **Scope:**

The scope of the completed source removal programs or rehabilitation efforts included the following:

- Mainline and Lateral TV Inspection: The Townships has CCTV inspected approximately 88,236 linear feet of mainline pipe and approximately 127 services laterals within the priority areas.
- Test and Seal Mainline and Service Laterals: The Township has contracted with various contractors to pressure test and seal approximately 4,851 mainline joints and 127 services laterals. Each mainline joint and service lateral was individually pressure tested and sealed as necessary.

- Spot Repairs: At various locations, where the mainline pipe was either broken, cracked, showing signs of structural fatigue or at locations where the mainline pipe was broken into to install a service lateral that portion of the main was either excavated and restored, or provided with a cured-in-place spot repair or mechanical link pipe repair. A total of 60 spot repairs were identified and rehabilitated as a result of the CCTV inspections.
- Cured-in-Place Pipe Lining: Approximately 11,000 linear feet of clay pipe sewer mains within the existing sewer system has been rehabilitated by the Cured-in-Place pipe lining method. This represents approximately 30% of all the existing clay pipe in the Townships designated priority areas.
- Manhole rehabilitation. A total of approximately 65 manholes have gone through some form of rehabilitation including drill and grouting of active leaks, chimney grouting/parging, and the installation of manhole inserts.
- Mainline Pipe Replacement: As a result of the CCTV inspection phase the Township has replaced a number of clay pipe sewer mains and service laterals within their sewer system. A total of 9 mainline runs have been identified and replaced with SDR 26 PVC pipe since 2009
- (See attached spread sheet for a detailed list and description of all main line and manhole rehab work completed to date.)

#### 6.1.1.3 **Cost:**

To date, the Township of Salisbury has expended a total of **\$1,154,000** since 2009 on various sanitary sewer rehabilitation projects associated with the RDII source removal program.

#### 6.1.1.4 **Schedule:**

All source reduction projects undertaken by the Township of Salisbury were completed between 2009 through 2017.

#### 6.1.1.5 **Effectiveness:**

Based on flow meter data analysis, the Township anticipates the infiltration/inflow reduction rate as a result of the ongoing source removal programs to be approximately 15% to 20% of the total system infiltration/inflow within the priority areas.

#### 6.1.2 **Anticipated Projects**

##### 6.1.2.1 **Purpose**

In the next several years, 2018 through 2025, the Township of Salisbury will continue to address various source removal projects in an effort to improve the RDII reductions as well as to maintain a reasonably effective infiltration/inflow reduction program.

##### 6.1.2.2 **Scope:**

The scope of the Township's continuing source removal program and infiltration/inflow rehabilitation efforts will include the following sanitary sewer source removal and I/I projects between 2018 to 2025.

- Continue efforts to investigate and address clearwater source removal to reduce RDII and infiltration/inflow into their sanitary sewer system.
- The Township will continue to schedule selective mainline and lateral CCTV inspection of their priority area sanitary sewers to further evaluate the integrity of their I/I program.
- Continue the cured-in-place pipe lining rehabilitation of the old clay (VCP) mainline pipe within the Townships designated priority areas. The lines will be CCTV inspected, evaluated and CIPP lined or rehabilitated as may be necessary.
- Continue a scheduled manhole inspection and review program to determine, the type of repairs and/or rehabilitation methods as may be necessary.

- The Township will schedule a lateral investigations and rehabilitation program through 2025 and follow-up to develop, repair and/or rehabilitation procedures as may be necessary.

6.1.2.3 **Cost:**

The Township anticipates budgeting an estimated \$1,500,000 between 2018 and 2025 to fund the various rehabilitation investigations and construction projects associated with the long-term source removal program.

6.1.2.4 **Schedule:**

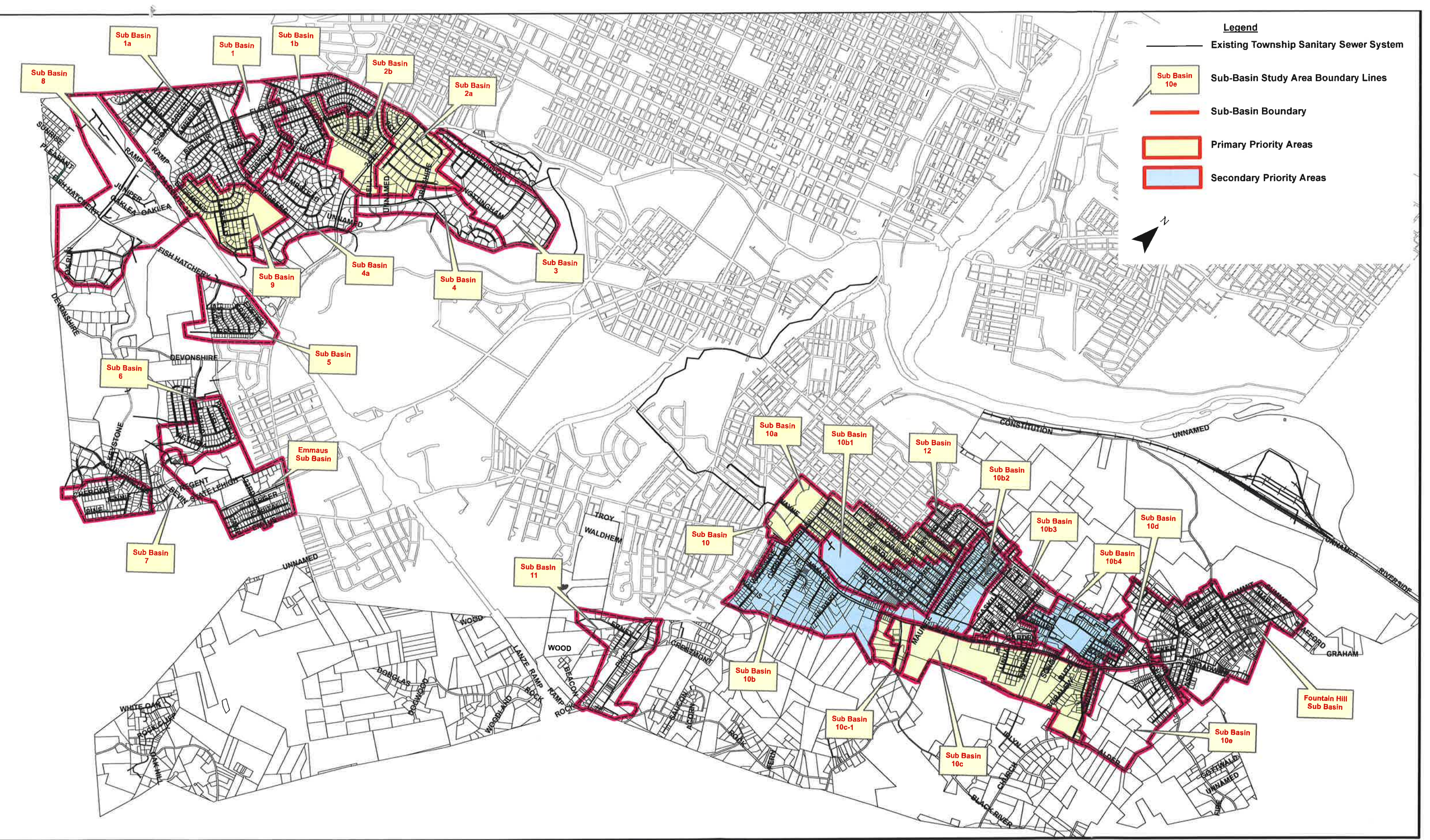
All the above source removal projects undertaken by the Township are scheduled to be developed, designed and constructed between 2018 and 2025.

6.1.2.5 **Anticipated Effectiveness:**

The Township anticipates all source reduction work, when completed, will result in an infiltration/inflow reduction rate of approximately 15% to 20% of the total system I/I.

**Township of Salisbury**  
**SANITARY SEWER SYSTEM**  
**I / I REHABILITATION WORK**  
**2009 to 2017**

Year	TV Inspection (Main)	TV Inspection (Laterals)	Cured-In-Place Main Lining (VCP)	Manhole Rehabilitation	Test & Seal Main Line Joints	Test & Seal (Lateral)	Spot Repairs	Main Line Pipe Replacement
2009						19	4	
2010				10				
2011				3				1
2012								
2013	39,241'	80		44	Test 1840, Seal 185	80	5	2
2014	48,995'	47		8	Test 3011, Seal 196	47	30	
2015			4,215'			6		
2016			2,932'					2
2017			3,861'					
<b>Totals</b>	<b>88,236'</b>	<b>127</b>	<b>11,008'</b>		<b>Test 4851, Seal 381</b>	<b>127</b>	<b>60</b>	<b>9</b>



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**Sanitary Sewer System  
 Source Reduction Program Priority Areas**

Scale: NTS  
 SAL 18-012

**Township of Salisbury  
 Sanitary Sewer System  
 Infiltration / Inflow Program  
 Priority Basin Map**