APPENDIX D

SAMPLE COMPLETED IICP REPORT FORMS

SHORT TERM REQUIREMENTS ANNUAL SUMMARY REPORT
INFILTRATION & INFLOW CONTROL PROGRAM

Reporting Period: January 1st to December 31st, 2015

Satellite Entity: City of Highland Ridge

Latest version of sanitary sewer atlas is dated: November 2013

1. **Condition Assessment Investigation & Rehabilitation of High Risk Sewers:** (reporting year only, unless otherwise noted)

   A. (Complete for first full year of IICP only) To complete the Condition Assessment; is credit requested for prior documented work?

   □ No ■ Yes → Submit documentation of previous work and summarize in 1.B.

   B. Public Sector Investigation (attach map showing where investigation was performed):

Inspection Activity	Linear Feet or Number	% of System	% Cumulative[1]
CCTV	91,000	18.2	46.5
Smoke Testing	70,000	14.0	25.0
Dye Testing	3,200	0.6	0.6
Manholes	460	23.0	45.0
Lift Stations	8	100.0	100.0

   C. Public Sector High Priority Deficiencies: (submit a Status of High Priority Deficiencies Form and CIP for those not corrected)

	Main Line	Manhole	Appurtenances	X-Connection
Identified	4	5	0	3
Corrected[2]	3	3	0	1

   D. Private Sector Investigation:

Number of Properties	% of Total System	Internal	External	Int. & Ext.
325	2.5	220	65	40

   E. Private Sector I/I Sources:

	Identified	Corrected	Cumulative Total Remaining
Downspout[3]	2	1	1
Cleanout with Defective/Missing Cover[3]	3	2	1
Area Drain	3	0	3
Storm Sump w/divert valve	2	0	2
Storm Sump to Sanitary	7	3	4
Combination Sump	3	0	3
Unsealed Sanitary Sump	2	0	2
Window Well Drain	5	2	3
Foundation Drain	4	0	4
Lateral	32	0	32
Other:	0	0	0

[1]Include prior years, dating back to first year for which condition assessment credit applies
[2] Submit a Status of High Priority Deficiencies Form and Capital Improvement Plan (CIP) for identified deficiencies not corrected during the reporting year.
[3] Submit a Status of High Priority Deficiencies Form for identified deficiencies not corrected during the reporting year

2. Narrative Description of Progress Made Towards Private Sector Program Development:

Two pilot subdivisions – Meadow Ridge and Willow Glen – have been selected to start a building inspection program to identify illegally connected sump pumps. Approximately 325 properties in these two study areas have been inspected, as noted above. The city has implemented an incentive program to subsidize the cost to homeowners if they voluntarily disconnect their illegal sumps. The city council is currently considering a new sewer use ordinance that would enforce disconnection and provide financial assistance to property owners.

3. Narrative Description of Progress Made Towards Long Term Operation and Maintenance Program Development:

A plan and budgetary costs for citywide CCTV and mainline cleaning cycles has been developed. Acoustic testing has been performed in high priority areas to prioritize cleaning, and pipes subject to heavy sedimentation have been put on a shorter re-inspection cycle. A rate study is underway to determine whether sewer rates will need to be adjusted to pay for remediation of identified public sector sources and subsidies for private sector remediation. The city has also purchased six (6) flow meters and is currently flow monitoring the Meadow Ridge and Willow Glen subdivisions to prioritize future private sector investigations and measure progress toward I/I reduction.

4. Summary of Sanitary Sewer Overflows (SSOs) and Basement Backups (BBs)[1,2]

[1]Include only Reportable Events, which are wet weather SSOs, dry weather SSOs, and BBs caused by public sewer surcharging and blockages under either wet or dry conditions. Do not include BBs caused by collapse/blockage of the private service lateral.
[2]See Sanitary Sewer Overflow and/or Basement Backup Satellite Entity Internal Summary for definition of "Occurrences" as used in table below.

	# of Occurrences in Dry Weather	# of Occurrences in Wet Weather	# of Occurrences for which cause is known	# of Occurrences outside of High Priority Sewer service areas	# of Occurrences for which cause has been eliminated
SSOs	0	7	7	1	0
BBs	3	85	85	6	2

A. If the causes for any SSOs/BBs for have not been determined, please provide the reason(s): There is one dry-weather BB that is still being investigated by the city and homeowner. It is currently suspected that a temporary blockage in the lateral or mainline sewer caused the backup, but both have been televised and were found to be clear of obstructions.

B. If areas where any SSOs/BBs occurred are served by sewers that have **not** been classified or reclassified as High Priority Sewers, please provide the reason(s): During the May 3 storm event, there was one SSO and 6 reported backups that occurred outside of a previously identified high-priority area due to a power failure at a downstream lift station. A new backup generator has been installed.

C. If there are causes for any SSOs/BBs that have not been eliminated, please provide the reason(s): Remaining SSOs and BBs were caused by excessive I/I. Identification and remediation of I/I sources is underway, and these causes will have been considered eliminated upon completion.

Attachments:

- Condition Assessment Prioritization Form and Map (required with first submittal of this report only)
- Map showing locations of Condition Assessment activities in reporting year (required every year; if credit for pre-IICP condition assessments is sought, map should show locations of pre-IICP assessments)
- Status of High Priority Deficiencies Form (required for years any High Priority Deficiencies have not yet been corrected, and for years immediately succeeding)
- CIP (required for years any public sector High Priority Deficiencies have not yet been corrected)

Certification:

I hereby certify that the information provided in the Annual Report is true and correct

Signature: _____ **Date:** February 17, 2016

Printed Name: _____ **Title:** _____

Telephone: _____ **Email:** _____

CONDITION ASSESSMENT PRIORITIZATION FORM
INFILTRATION & INFLOW CONTROL PROGRAM

Satellite entities must use this form to explain the criteria used to define which portions of their sanitary sewer system are "high risk". Once the MWRDGC has reviewed and approved a satellite entity's Condition Assessment Prioritization, this form does not need to be resubmitted, unless the satellite entity wishes to modify the criteria it uses to define "high risk" sewers.

Type of Area	Present In System (yes/no)	Prioritization Criteria	Linear Feet of High Priority Sanitary Sewer to be Assessed in Short Term[1]
Areas with SSOs and/or BBs	Yes	High risk areas have had SSOs and/or BBs reported during 1-year rain events and/or dry weather.	50,000
Areas upstream of SSO/BB areas	Yes	Not high risk. All have been lined in last 15 years. All manholes have been inspected and those allowing I/I have been rehabilitated in last 15 years.	0
Sub-basins known to surcharge	Yes	High risk areas have surcharged in 1-year rain event.	50,000[1]
Areas with excessive wet weather flows, other than those listed above	No	Same as areas with SSOs and BBs. No flow metering has been performed to identify other areas with excessive wet weather flows.	0
Areas with excessive lift station pumpage	Yes	Not high risk. Public sewer in area tributary to pump station has been lined over past 10 years. Excessive lift station flows due to private sector I/I.	0
Areas with deficiencies that could result in system failures	Yes	H2S corrosion evident in 15" main along Cambridge Street between First Ave. and Eighth Ave. This is high priority.	4,400
Other (describe)[2]	Yes	Odor complaints submitted every week in dry weather along Gardner Street	2,000

Total length of public sanitary sewers (feet):	500,000
Total length of High Priority sanitary sewer to be assessed in short term (feet):	106,400
Percentage of public sanitary sewer system to be assessed in short term:	21.28%

[1]Include sewers inspected under pre-IICP condition assessment, if applicable.
[2]Attach additional sheets if necessary to describe other types of areas and prioritization criteria

Attachment:
- Map of High Risk Sewers
- Sanitary Sewer System Description and Inventory

Prepared by:

Signature: _____ **Date:** February 17, 2016

Printed Name: _____ **Title:** _____

Telephone: _____ **Email:** _____

STATUS OF HIGH PRIORITY DEFICIENCIES FORM
INFILTRATION & INFLOW CONTROL PROGRAM

Satellite entities must use this form to track the status of high priority deficiencies that are not corrected during the reporting year in which they are identified. Deficiencies in the public sewer system as well as the private sewer system must be reported on this form. The CIP should correlate to projects listed under "Means of Correction". Satellite entities may attach additional pages, or may generate their own tables showing the status, though any such tables must have the same column headings indicated on this form. If high priority deficiencies identified during pre-IICP condition assessments (if applicable) have not been addressed, include them on this form.

Are additional pages describing deficiencies attached? □ Yes ■ No

ONE YEAR DEFICIENCIES *(direct and indirect cross connections, downspout connections, open or defective cleanout caps)*

Deficiency ID	High Priority Deficiency Type	Date Identified	Anticipated Correction Date	Actual Correction Date(1)	Means of Correction	MWRD Permit Number(2)
DS_935_ELM	Downspout	7/19/2015	5/1/2016	3/19/2016	Cut and plug w/ concrete cap	n/a
DS_826_MAPLE	Downspout	7/25/2016	5/1/2017	Pending	Cut and plug w/ concrete cap	n/a
CO_325_N_MAIN	Cleanout - missing	7/25/2016	5/1/2017	Pending	New cap	n/a
CO_941_ELM	Cleanout - broken	7/27/2015	5/1/2016	2/16/2016	New cap	n/a
DXC_SANMH_4-36	Direct X-connect.	8/17/2015	5/1/2016	4/19/2016	Plug and connect inlet to storm	NRI 16-6073
IXC_266_S_LINCOLN	Indirect X-connect.	9/16/2015	7/1/2016	8/20/2016	Lined lateral	n/a
IXC_104_S_MAIN	Indirect X-connect.	9/16/2016	6/1/2017	Pending	Point repair on storm sewer	n/a

THREE YEAR DEFICIENCIES *(high priority manhole and mainline defects)*

Deficiency ID	High Priority Deficiency Type	Date Identified	Anticipated Correction Date	Actual Correction Date(1)	Means of Correction	MWRD Permit Number(2)
MH_9-22	MH – collapsing	8/15/2015	10/30/2016	9/16/2016	Replaced manhole	NRI 16-6275
MH_10-55	MH – missing bricks	8/21/2016	5/30/2017	Pending	Structural liner	n/a
MH_10-86	MH – detached frame	9/3/2015	5/30/2017	Pending	New frame and chimney seal	n/a
3-65:3-64_123FT	Mainline – collapse (PACP5)	10/15/2015	10/30/2016	9/16/2016	Point repair	NRI 16-6276
9-06:9-05_27FT	Mainline – hinge fracture (PACP5)	10/30/2016	5/30/2017	Pending	CIPP liner	n/a

(1) Entries in this column will all be "Not Applicable" in the first Annual Report, but will contain actual completion dates in subsequent reports as repair work is performed.

(2) Enter the permit number once it is issued, if a permit is required for the work.

Prepared by:

Signature: _____ **Date:** February 15, 2017

Printed Name: _____ **Title:** _____

Telephone: _____ **Email:** _____

SANITARY SEWER OVERFLOW and/or BASEMENT BACKUP
SATELLITE ENTITY INTERNAL SUMMARY

Instructions: Use this form to document all sanitary sewer overflows and/or basement backup discharge occurrences. The following definitions apply:

Sanitary Sewer Overflow: the discharge of untreated sewage from the sanitary sewer collection system to a surface water, storm sewer or ditch, or the ground, due to the circumstances identified below.

Basement Backup: the discharge of untreated sewage into the lower level of a building due to the circumstances identified below.

Use one form per occurrence. A single occurrence may be longer than one day if the circumstance(s) causing the overflow and/or basement backup results in a discharge duration longer than 24 hours. If there is a start and restart of the overflow and/or basement backup within 24 hours and it is caused by the same circumstance(s), report it as a single occurrence. If discharge occurrences are separated by more then 24 hours, they should be reported as separate occurrences. If multiple overflows and/or basement backups occur resulting from the same circumstance, report it as a single occurrence.

The satellite entity must maintain all documentation and/or supporting information pertaining to information provided in this form on record and provide it to the MWRD if/when requested.

Satellite Entity: City of Highland Ridge

Sanitary Sewer Overflow and/or Basement Backup Details:

■ Sanitary Sewer Overflow → □ Dry Weather ■ Wet Weather (provide information below)
□ Basement Backup → □ Dry Weather □ Wet Weather (provide information below)

Start Date (mm/dd/yy): 05/03/15 Time: 9:45 AM ■ PM □ Duration (hours and minutes): 2:15

Estimated Volume (gallons): 1,350 Location (manhole number, address/major intersection, attach spreadsheet for multiple locations): MH 6-34, Lincoln and Main

Pump Used: No ■ Yes □ Pump Capacity: n/a GPM

Circumstances Causing the Sanitary Sewer Overflow and/or Basement Backup (check all that apply):

■ Rain	□ Power Outage	□ Collapsed Sewer	□ Lift Station Failure
□ Snow melt	□ Equipment failure	□ Blocked Sewer	□ Forcemain Break
□ Widespread Flooding	□ Fats, Oils, Grease	□ Roots	□ Other (explain below)

Explain why the sanitary sewer overflow and/or basement backup occurred. For example, describe what equipment failed, what caused the power outage, or what caused the basement backup. Flooding should only be indicated as a cause if there is significant flooding caused by high river, stream or lake water levels, not just localized high water in the street.

Intense rainfall

Wet Weather Event Information (if applicable):

Start Date: 05/03/15 Time : 8:15 AM ■ PM □ End Date: 05/03/15 Time : 3:45 AM □ PM ■

Amount of Rainfall (inches): 3.26 Amount of Snow Melt (Inches): 0.00 Contributing Soil Conditions (saturated, frozen, soil type): Damp; 1.5” of rain over previous 3 days

Peak 1-Hour Intensity (inches): 1.93 Rain Gauge Location: Public works garage

Where Did the Discharge from the Overflow and/or Basement Backup Go? (check all that apply)

□ On the ground and absorbed into the soil

□ Ditch: Name of surface water it drains into: _____

■ Storm Sewer: Name of surface water it drains into: North Branch of Chicago River

□ Surface water direct discharge: _____

□ Basement Backup (number and use, i.e. residential, commercial, of buildings affected):_____

□ Other (explain): _____

Actions to Correct This Occurrence and Prevent Future Overflows and/or Basement Backups:

1. Describe what actions were taken to minimize the volume of wastewater discharged from the overflow and/or basement backup reported on this form.

The Merrick Lane wet-weather storage facility was pumped down prior to the storm, and the gate valve at the facility remained fully open during the event to maximize utilization of storage volume.

2. Describe if the occurrence reported on this form is part of an area subject to frequent and/or patterns of occurrences and if investigations have been or are planned to be conducted to determine the cause of the frequent and/or patterns of occurrences.

Yes, this manhole is in one of the previously identified high-priority areas and is currently being investigated to locate sources of I/I. Smoke testing and dye tracing in this area is planned for summer 2015.

3. Describe what corrective actions are planned to prevent or minimize future sanitary sewer overflows and/or basement backups.

Money has been budgeted to rehabilitate manholes and mainline sewers in this area in 2016 and 2017. Following the I/I source investigations, notifications will be sent to private property owners to encourage the disconnection of private sector sources.

Final Determination for the Cause of the Overflow(s) and/or Basement Backup(s): (check one)

□ Private Property Sewer → Explain: _____

■ Municipal Sewer → Explain: During the peak of the rain event, flow exceeded the mainline sewer capacity, causing it to surcharge and overflow.

Report Completed By:

Name: _____
Title: _____
Street Address: _____
City: _____ ZIP: _____
Phone: _____
Email: _____

Authorized Satellite Entity Representative:

Name: _____
Title: _____
Street Address: _____
City: _____ ZIP: _____
Phone: _____
Email: _____

_____
Authorized Satellite Entity Signature

May 6, 2015
Date

SANITARY SEWER SYSTEM DESCRIPTION AND INVENTORY
INFILTRATION & INFLOW CONTROL PROGRAM

Submit this form upon completion of condition assessment and after completing any substantial sewer system improvement.

Date: 10/27/15
Reason for Submitting: ■ Completion of condition assessment
□ Substantial sewer system improvement. Describe improvement: _____

A. Sanitary Sewer System Description

1. Is part of the Agency's service area Combined? (check one)
   - ■ No
   - □ Yes, _____% Combined

2. Separate Sanitary Sewer Service Area: 6,200 acres

3. Separate Sanitary Sewer Service Area Population Equivalent (PE[1]) Served:
   Residential: 46,000 Non-Residential: 2,700 Total: 48,700

4. Description of Municipal Sewer System Ownership: (check one)
   - □ Main line sewers only
   - ■ Main line sewer and service lateral connection only
   - □ Main line sewer and service lateral to the ROW, easement, property line, or cleanout
   - □ Main line sewer and entire service lateral to the building
   - □ Other: _____

B. Sanitary Sewer System Inventory (separate sewer area only)

A. Sanitary Sewer System Inventory:

Gravity Sewer (ft)	Manholes	Force main (ft)	Lift Stations	Siphons	Connections to MWRD
500,000	2,000	22,700	8	0	3

B. Age Distribution of the Collection System:

Age	Gravity (ft)	Force main (ft)	Lift Station
0 – 25 years	125,000	7,200	5
26 – 50 years	235,000	10,500	3
>51	140,000	5,000	0
Total	500,000	22,700	8

C. Size Distribution of the Collection System:

Diameter	Gravity (ft)	Force main (ft)
≤8 inches	335,000	16,800
9 – 18 inches	87,000	5,900
19 – 36 inches	35,000	0
>36 inches	43,000	0
Total	500,000	22,700

D. Distribution of Collection System by Material:

Material	Gravity (ft)	Force main (ft)
PVC	110,000	
RCP	62,000	
CP (Concrete Pipe)		
VCP (Vitrified Clay Pipe)	328,000	
CCCP (Prestressed Concrete Cylinder)		
Steel		
DIP		12,000
CIP		8,300
HDPE		2,400
FRP (Fiberglass Reinforced Plastic)		
RPMP (Techite)		
ACP (Asbestos Cement Pipe)		
Other:		
Other:		

E. Number of Service Connections:

Residential	Commercial	Industrial	Other	Total
18,750	83	3	4	18,840

[1]PE = 100 gal/person/day

LONG TERM OPERATION & MAINTENANCE PROGRAM ANNUAL SUMMARY REPORT
INFILTRATION & INFLOW CONTROL PROGRAM

Do not leave any blank spaces on this form, except where indicated. Use "X" for checking applicable information. Submit any supporting documentation when/where required. Submit a Sanitary Sewer System Description and Inventory Form upon completion of condition assessment and for any substantial sewer system improvement.

Reporting Period: January 1st to December 31st, 2021

Latest version of the sanitary sewer atlas is dated: November 2019 **Format: □ Paper ■ GIS □ CAD**

Satellite Entity Information: (to be completed by Public Works Director, or similar)

Satellite Entity: City of Highland Ridge
Address: _____ **City:** _____ **Zip:** _____

Representative: _____ **Title:** Director of Public Works
Telephone: _____ **Fax:** _____ **Email:** _____

Certification:
I hereby certify that the information provided in the Annual Report is true and correct.

Signature: _____ **Date:** _____

I. Event Reporting

A. Basement Backups (BBs): (reportable events only)

	BBs for Current Year	BBs for Previous Year
Number of Occurrences	12	27

1. Were BBs addressed by installing overhead sewers (OHS), backflow prevention devices (BPD), local storage facilities (LSF), or other measures? (indicate number addressed)
   □ No
   ■ Yes # of OHS: 8 #of BPD: 2 # of LSF: 0
   □ Other Explain: _____

2. Describe reason(s) if cause(s) could not be identified and/or addressed:

   Several homes in the vicinity of the Brainerd Road Lift Station backed up during the April 13 storm. Phase I engineering for upgrades to the lift station and/or local storage are currently underway.

3. Describe how many of the BBs reported above are recurring (i.e. more than one occurrence during the reporting year) and action taken for investigation and their elimination:

   Number of recurring events: 1
   Action taken: Overhead sewer connection was installed with assistance of city subsidy.

B. Sanitary Sewer Overflows (SSOs):

1. SSO Reporting:

	Dry Weather for Current Year	Dry Weather for Previous Year	Wet Weather for Current Year	Wet Weather for Previous Year
Main Line	0	1	4	9
Lift Station	0	0	2	3

2. Describe how many of the SSOs were identified and/or eliminated or if the cause could not be identified and/or eliminated:

   All SSOs occurred due to wet-weather flows in excess of system capacity. Capacity and storage options in these locations are currently under review.

3. Describe how many of the SSOs reported above are recurring (i.e. more than one occurrence during the reporting year) and action taken for investigation and their elimination:

   Number of recurring events: __3__
   Action taken:__Feasibility analysis for wet-weather pumping to local storage_____

II. Sanitary Sewer System Inspection & Maintenance:

A. Inspection of Sanitary Sewer System

	Main Line (Ft)	Force main (Ft)	% of Total	Manholes (Nos)	% of Total
CCTV	65,000		13.0		
Smoke Testing	30,000		6.0	120	6.0
Dye Testing	10,000		2.0	36	1.8
Visual[1]				250	12.5
Acoustic Emissions Testing		1,450	6.5		
Pole Camera Inspection				2	0.1
Other:					

(1) Visual inspection of manholes includes surface inspections and full descent inspections of manholes. Such inspections shall be performed in accordance with NASSCO standards.

B. Lift Station Inspection

	Inspected and Serviced (Nos)	% of Total in System
Lift Stations	8	100.0

C. Maintenance of Sanitary Sewer System

	Sewer (ft)			Appurtenances (Nos)	
	Main Line	Force Main	% of Total	Manholes	% of Total
Cleaning	8,200	0	1.6	35	1.7
Root Cutting	6,400	0	1.3	25	1.3
Chemical Root Control	21,000	0	4.2	82	4.1
FOG treatment	40,000	2,300	8.4	153	7.6
Other:					
Other:					

D. High Priority Deficiencies: (submit a status of High Priority Deficiencies Form and CIP for deficiencies identified but not corrected during the reporting year)

Type	Identified (length or number)	Corrected (length or number)
Main Line	5	2
Manholes	1	1
Lift Stations	0	0

E. Estimated Annual Expenditure

Budget for Reporting Year: $650,000
Expenditures for Reporting Year: $587,000

III. Sanitary Sewer System Rehabilitation

A. Public Sector Rehabilitation:

1. Main Line Sewer:

	Length or Number	% of System
Replacement	260	0.1
CIPP Lining	11,000	2.2
Point Repairs	1	
Grouting	0	
Cross-Connections	3	
Other:		

2. Manholes:

Complete Rehabilitation	Partial Rehabilitation	Replacement	Grouting
3	23	2	37

3. Lift Stations:

Number	Type of Rehabilitation
1	Replaced comminutor; rehabbed dry well

B. Private Sector Rehabilitation:

1. I/I Sources Identified: (submit a list of property addresses for those not corrected and a schedule for correcting them)

	Number of Properties Identified	Removed/Corrected
Downspout	2	2
Area Drains/Driveway Drains	1	0
Open Cleanout	7	7
Storm Sump to Sanitary	11	2
Storm Sump w/divert valve	9	4
Combination Sump	5	0
Unsealed Sanitary Sump	2	0
Window Well Drains	16	13
Foundation Drains	3	0
Lateral	57	3

IV. Sanitary Sewer System Flow Monitoring

Was flow monitoring of the sanitary sewer conducted during the reporting year?

- □ No (skip remaining questions in Section IV)
- ■ Yes (provide information requested below)

A. Flow Monitoring Equipment:

Number of Flow Meters: 3
Start Date of Flow Monitoring: 3/4/2021 End Date of Flow Monitoring: 9/7/2021

Were rain gauges used? □ No ■ Yes
If used, provide rain gauge location(s): public works garage

B. Flow Monitoring Service Area & Results:

1. Service Area Information & Results:

Service Area Number	Service Area Size (acres)	Service Area PE[1]	Average Dry Weather Flow (gpcpd)	Peak Wet Weather Flow (gpcpd)	Peak Wet : Average Dry Weather Raito
1	135	731	82	910	11.1
2	220	1,377	113	1,035	9.2
3	76	525	76	289	3.8

[1]PE = 100 gal/person/day

2. For service areas with Peak Wet : Average Dry Weather ratios above 4:1, describe how areas will be prioritized for I/I investigation and removal/rehabilitation:

Manhole inspections and smoke testing in Service Areas 1 and 2 with follow-up dye testing has been budgeted for the coming year.

APPENDIX D

NASSCO CODES SUMMARY

NASSCO'S PIPELINE ASSESSMENT & CERTIFICATION PROGRAM (PACP)©

Section 4—Continuous Defect Coding

"TRULY" 4-1

"Truly" continuous defects run along the sewer without any interruption for more than three feet (1 meter).
Examples:
- Longitudinal Fractures
- Longitudinal Cracks

"REPEATED" 4-1

"Repeated" continuous defects occur at regular intervals along the sewer. These occur at pipe joints and include:
-Encrustation
-Open Joints
-Circumferential Fractures

Code Changes in Version 6.0.1

Added:
Buckling Wall (KW), Buckling Dimpling (KD), and **Buckling Inverse Curvature (KI)**

Section 5—Structural Defect Coding (Module 6A)

C CRACK 5-1
CL Longitudinal 5-2
CC Circumferential 5-2
CM Multiple 5-2
CS Spiral 5-2
CH Hinge 5-2

F FRACTURE 5-7
FL Longitudinal 5-7
FC Circumferential 5-7
FM Multiple 5-7
FS Spiral 5-7
FH Hinge 5-7

B BROKEN 5-15
BSV -Soil Visible 5-15 Beyond Defect
BV V -Void Visible 5-15 Beyond Defect

H HOLE 5-17
HSV -Soil Visible 5-17 Beyond Defect
HV V -Void Visible 5-17 Beyond Defect

D DEFORMED 5-19
DV Deformed Vertically (brick) 5-19
DH Deformed Horizontally (brick) 5-19

X COLLAPSE 5-23
XP Pipe Collapse 5-23
XB Brick Collapse 5-23

J JOINT 5-26
JO Joint Offset (Displaced) 5-26
JS Joint Separated (Open) 5-26
JA Joint Angular 5-26

S SURFACE DAMAGE 5-31
SRI Roughness Increased 5-31
SRI - M - Mechanical
SRI - C - Chemical
SRI - Z - Not Evident

S SURFACE DAMAGE 5-31
SAV Aggregate Visible 5-31
SAV - M - Mechanical
SAV - C - Chemical
SAV - Z - Not Evident

S SURFACE DAMAGE 5-31
SAP Aggregate Projecting 5-31
SAP - M - Mechanical
SAP - C - Chemical
SAP - Z - Not Evident

S SURFACE DAMAGE 5-31
SAM Aggregate Missing 5-31
SAM - M - Mechanical
SAM - C - Chemical Attack
SAM - Z - Not Evident

S SURFACE DAMAGE 5-31
SRV Reinforcement Visible 5-31
SRV - M - Mechanical
SRV - C - Chemical Attack
SRV - Z - Not Evident

S SURFACE DAMAGE 5-31
SRP Reinforcement Projecting 5-31
SRP - M - Mechanical
SRP - C - Chemical Attack
SRP - Z - Not Evident

S SURFACE DAMAGE 5-31
SRC Reinforcement Corroded 5-31
SRC - M - Mechanical
SRC - C - Chemical Attack
SRC - Z - Not Evident

S SURFACE DAMAGE 5-31
SMW Missing Wall 5-32
SMW - M - Mechanical
SMW - C - Chemical Attack
SMW - Z - Not Evident

S SURFACE DAMAGE 5-31
SSS Surface Spalling 5-32
SSS - M - Mechanical
SSS - C - Chemical Attack
SSS - Z - Not Evident

S SURFACE DAMAGE 5-31
SZ Other 5-32
SZ - M - Mechanical
SZ - C - Chemical Attack
SZ - Z - Not Evident

S SURFACE DAMAGE 5-31
SCP Corrosion (metal pipe) 5-32
*no modifiers used

K BUCKLING 5-45
KW Wall 5-45
KD Dimpling 5-45
KI Inverse Curvature 5-45

LF LINING FAILURE 5-49
LFD Detached Lining 5-49
LFDE Defective End 5-49
LFB Blistered Lining 5-49
LFCS Service Cut Shifted 5-49
LFAC Abandoned Connection 5-49

LF LINING FAILURE 5-49 (continued)
LFOC Overcut Service 5-49
LFUC Undercut Service 5-49
LFBK Buckled Lining 5-49
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LFZ Other 5-50

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RP POINT REPAIR 5-71
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RPL - D -Defective 5-69
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NASSCO'S PIPELINE ASSESSMENT & CERTIFICATION PROGRAM (PACP)©

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RTB	-Barrel	6-7
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RTC	-Connection	6-8

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RMB	-Barrel	6-7
RML	-Lateral	6-7
RMC	-Connection	6-8

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TBA	-Active	7-2
TBC	-Capped	7-2
TBB	-Abandoned	7-2
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T	TAP	7-1
TS	Saddle	7-2
TSI	-Intruding	7-2
TSA	-Active	7-2
TSC	-Capped	7-2
TSB	-Abandoned	7-2
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T	TAP	7-1
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TRI	-Intruding	7-2
TRA	-Active	7-2
TRC	-Capped	7-2
TRB	-Abandoned	7-2
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LLD	Left Down	7-11
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LRU	Right Up	7-11
LRD	Right Down	7-11
LU	Up	7-11
LD	Down	7-11

A	ACCESS POINT	7-13
AMH	Manhole	7-13
AWA	Wastewater Access	7-13
ADP	Discharge Point	7-13
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A	ACCESS POINT	7-13
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A	ACCESS POINT	7-13
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MSA	Survey Abandoned	8-2
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APPENDIX D

SAMPLE CAPITAL IMPROVEMENT PLAN (CIP)

APPENDIX D: SAMPLE EXCERPT FROM CAPITAL IMPROVEMENT PLAN (CIP)

Satellite Entity: Village of Sunnybrook

Date of Revision to CIP: January 9, 2016

Capital Improvement Projects:

Project Number:	2016012	Planned Fiscal Year:	FY2016	Project Name:	FY2016 Sewer Cleaning/CIPP lining	
Project Scope Description:	Sanitary sewer cleaning and lining of problem areas identified through CCTV			Project Area Description (1):	Surf Street between Park Ave. and 2nd Ave.; Prospect Blvd between Main Street and Gardner Street; Fuller Street between Blackstone Pkwy and Ottawa Ave.	
Cost:	$800,000			Funding Source:	Water/sewer General fund	
Estimated Start Date:	4/4/2016	Estimated Duration:	180 days	Estimated Completion Date:	10/1/2016	
Project Ranking:			1			

(1) An exhibit showing project location may be attached.

Project Number:	2017023	Planned Fiscal Year:	FY2017	Project Name:	Wagner Road Sewer and Water Main Replacement	
Project Scope Description:	Replace deteriorated section of 6" water main with Class II ductile iron pipe; replace service to b. boxes; replace 8" and 10" concrete sanitary sewer with same size SDR 26 PVC; replace lateral connections and laterals to property line.			Project Area Description:	Wagner Road between Division Street and Fairview Road	
Cost:	$1,200,000			Funding Source:	SRF loan	
Estimated Start Date:	1/18/2017	Estimated Duration:	270 days	Estimated Completion Date:	10/15/2017	
Project Ranking:			2			

Project Number:	2017025	Planned Fiscal Year:	FY2017	Project Name:	FY2017 Sewer Cleaning/CIPP lining	
Project Scope Description:	Sanitary sewer cleaning and lining of problem areas identified through CCTV			Project Area Description:	See attachment for areas	
Cost:	$810,000			Funding Source:	Water/sewer General fund	
Estimated Start Date:	4/4/2017	Estimated Duration:		180 days	Estimated Completion Date:	10/1/2017
Project Ranking:				3		

Project Number:	2016064	Planned Fiscal Year:	FY2016	Project Name:	Smith Avenue Road Repair	
Project Scope Description:	Full depth pavement replacement; new curb and gutter; add stormwater inlets; replace deteriorated manholes and catch basins			Project Area Description:	Smith Avenue between First Avenue and Eighth Avenue	
Cost:	$150,000 (manholes only)			Funding Source:	Water/sewer General fund (manholes only)	
Estimated Start Date:	4/18/2016	Estimated Duration:		180 days	Estimated Completion Date:	10/15/2016
Project Ranking:				4		

Project Number:	2016075	Planned Fiscal Year:	FY2016	Project Name:	Manhole Repairs, Various Locations	
Project Scope Description:	Manhole replacement, frame/lid replacement, frame/lid adjustment, manhole lining, chimney seal addition where required			Project Area Description:	See attachment for areas	
Cost:	$450,000			Funding Source:	Water/sewer General fund	
Estimated Start Date:	5/15/2016	Estimated Duration:		120 days	Estimated Completion Date:	9/12/2016
Project Ranking:				5		

APPENDIX D

SAMPLE PRIVATE SECTOR PROGRAM (PSP)

APPENDIX D: SAMPLE PRIVATE SECTOR PROGRAM

Satellite Entity: Village of Sunnybrook

In recognition of the fact that a large portion of excessive wet weather flow in sanitary sewer systems comes from the privately-owned sector of the sanitary sewer system, the Village of Sunnybrook has developed a Private Sector Program (PSP). This PSP is intended to prohibit new illegal clear water connections to the sanitary sewer system, compel property owners with illegal clear water connections or sources of excessive infiltration to eliminate them, establish a public information program to enhance awareness of the risks posed by illegal clear water connections, and establish a long term program under which illegal connections that are costly to correct may be removed over time.

The components of the Village of Sunnybrook PSP are described below:

1. Staffing

The PSP will be overseen by the Director of Public Works. Three Water/Sewer Technicians will be trained in how to conduct internal and external private property inspections for sources of infiltration and inflow. These technicians will receive training on how I/I sources can be identified using smoke testing and dyed water testing. The technicians will receive training on how to document findings from private property inspections. Smoke testing and dyed water testing of multiple private properties for I/I studies will be outsourced to consultants. The Director of Public Works has the authority to determine when a private property should be inspected. On average, the Director of Public Works will spend eight hours per month on the PSP, while each of the technicians will spend sixteen hours per month each on the PSP.

2. Local Authority

The Village has adopted the following ordinances (copies attached) allowing inspections of private property for illegal clear water connections to the sanitary sewer system:

- 15-007 authorizes inspections when the Village has determined that the property is located in an area subject to sanitary sewer overflows (SSOs) and basement backups (BBs), or that the property is in an area that contributes to sanitary sewer overflows and basement backups in another area
- 15-121 authorizes inspections in conjunction with complaints related to water service, sewers, flooding, and utilities
- 15-130 requires inspection and repair or replacement, if necessary, of service laterals in conjunction with tear-downs and substantial improvement of structures

3. Inspection Program

If more than three wet weather SSOs or BBs occur in a subbasin within a calendar year (either during the same event or different events), and if these events are not attributed to blockages of private laterals at the locations where the events took place (eg., laterals clogged by roots, crushed laterals, etc.), the Village shall investigate the cause of the SSOs or BBs. The investigation may include televising of the public sewer, inspection of lift station(s) (if present), and inspection of private properties in the subbasin and in the subbasin immediately upstream. The Village will inspect private properties if the cause of the SSOs/BBs seems to be private sector I/I, and the public sewer system appears to not be a significant contributor of I/I. Depending the age of the system, severity of the problem and other site-specific factors, the Village may decide to inspect the private sewer laterals as well.

The Village will inspect all properties for illegal connections to the sanitary sewer system when Public Works staff needs to enter a home to address complaints related to flooding, sewers, water service, or utilities.

A sample inspection checklist is attached.

A private property is determined to be non-compliant if it has any of the following:

- A directly connected downspout
- A poorly-disconnected downspout that allows substantial leakage of stormwater into the sanitary sewer
- A cleanout or sanitary manhole missing a cover
- A cleanout or sanitary manhole with a cover that allows water inside
- A stormwater sump pump that discharges to the sanitary sewer

If a private property has none of the above defects, but has any of the following, it shall be considered partially-compliant:

- A foundation drain that discharges directly or indirectly to the sanitary sewer
- An area drain
- Window well drains
- Driveway drains
- A sanitary sump that also serves as a sump for groundwater, when no other sump for groundwater is present
- A leaky sewer lateral

The Village's goal is to inspect all properties with basements once every 20 years through any of the aforementioned scenarios.

4. Non-Compliance Correction

When a property is found to be non-compliant, the inspectors will verbally inform the property owner, and show them the non-compliant conditions. A letter will be sent to the property owner within two

weeks of the inspection describing the non-compliant conditions and requiring correction of the non-complaint conditions within 90 days. The Village will post on its website a list of licensed, bonded contractors who are capable of performing the corrective work.

Property owners are required to notify the Public Works Department when the non-compliant conditions are corrected. The Village will send inspectors to the private property within seven working days to inspect the correction.

When properties are found to be in partial compliance, the Village inspectors will show the property owners the illegal connection. The Village will send a letter and report to the property owner documenting the illegal condition. The letter will encourage the property owner to correct the condition and will provide information about the Village's cost-sharing programs for lateral rehabilitation, sump repair and installation, rain garden construction, and storm sewer extension. The letter will also inform the property owner that in the event of substantial improvement to the property, the illegal conditions must be corrected. Similarly, in the event of a teardown, the lateral must be replaced or lined.

5. Long Term Program to Address High Cost I/I Sources

The Village will maintain records of each property that is found to have high-cost I/I sources during inspections. This list will include all properties found to have high-cost I/I sources during the first five years of the IICP. The type of the I/I source or sources (footing drain, area drain, driveway drain, window well drain, sump pits collecting groundwater that discharge to the sanitary sewer, leaky lateral) will be recorded with the date of the inspection. The Village has cost sharing programs set up for lateral rehabilitation, sump repair and installation, rain garden construction, and storm sewer extension. Property owners may apply to participate in any of these programs to implement improvements to redirect groundwater and stormwater out of the sanitary sewer system. Depending upon availability of funds and severity of SSOs and BBs, the Village may increase funding of its cost-sharing programs and/or directly fund some private property improvements.

The Village's ordinances requiring correction of illegal I/I sources in conjunction with substantial improvements to properties will result in removal of such sources over time. Similarly, the Village's ordinance requiring replacement or lining of laterals in conjunction with tear downs will also reduce I/I in the system over time. When some or all of a property's high-cost I/I sources are corrected, the Village will update the list to include the dates of the correction work.

The list of properties with high-cost I/I sources will be provided to the Community Development Department. Updated versions will be provided quarterly. It will be responsibility of the Community Development Department to consult the list of properties with high-cost I/I sources any time a property transfer stamp is issued. If a property transfer stamp is issued to a property on the list, the Community Development Department will mail a letter to the new property owner within 30 days of the issuance of

the transfer stamp. The letter will notify the owner of the presence of high-cost I/I sources and will provide information about the long term program to address high cost I/I sources.

6. Enforcement

If the non-compliant conditions are not addressed within 90 days, other than when a violation notice is issued after September 1, in which case the non-compliant condition must be addressed in 120 days, a violation notice will be issued to the property owner which requires the condition to be corrected in 14 days and requires payment of a penalty. The violation notice will state that water service may be shut off in the event of continued non-compliance. If the conditions are not addressed within 14 days, a second violation notice will be issued and water service will be shut off. The Village may elect to initiate a suit against non-compliant property owners.

When a non-compliant property submits a building permit application for substantial improvement, the submitted drawings must include disconnection of all illegal I/I sources. A building permit will not be issued unless the drawings include this work. If/when the Village begins a program of directly funding some private property improvements, enforcement measures for non-compliance will be determined at that time.

7. Funding

The Village will fund its PSP through Water/Sewer fees. Should grant or loan funding become available from regional, state or federal agencies, the Village will investigate those potential sources to supplement the PSP.

8. Public Information

The Village will develop brochures and post information on its website about on the following topics:

- Sources of Clear Water from Private Property, why property owners should be concerned, and actions they can take to correct the problems
- The Village's cost sharing program for lateral rehabilitation
- The Village's cost sharing program for sump repair and installation
- The Village's cost-sharing program for rain garden construction
- The Village's cost-sharing program for storm sewer extension

These brochures will be included with letters sent to property owners in areas experiencing SSOs and BBs, as well as letters notifying property owners that they have illegal connections to the sanitary sewer. The Village will include a brief article on the topic of private sector I/I in each issue of its quarterly newsletter. The brochures will be handed out at public meetings as appropriate.

APPENDIX D

SAMPLE PRIVATE PROPERTY INSPECTION CHECKLIST

PRIVATE PROPERTY INSPECTION CHECKLIST

Inspection #: _____ **Inspection Date:** _____

Address: _____ **Inspected By:** _____

GENERAL

1. Property Type: ☐ Single Family ☐ Multi Family ☐ Commercial ☐ Other
2. Sanitary Plumbing Type: ☐ Gravity ☐ Overhead
3. Foundation Type: ☐ Basement ☐ Crawl Space ☐ Slab
4. Has the property experienced a sewer backup? ☐ No ☐ Yes
5. Has the property experienced stormwater flooding? ☐ No ☐ Yes

EXTERNAL

6. Are there underground downspouts with no visible discharge location? ☐ No ☐ Yes
7. Does the property have outside drains? ☐ No ☐ Yes

   7a. If outside drains exist, record the number of each type: Area ___ Driveway ___ Patio ___ Stairwell ___ Window Well ___

INTERNAL

8. Basement Dimensions: _____ x _____
9. Basement Grade: _____

EJECTOR PUMP

10. Does the property have an ejector pump? ☐ No ☐ Yes
11. Is the ejector pit sealed? ☐ No ☐ Yes
12. Where does the ejector pump discharge? ☐ To Ground ☐ To Sanitary ☐ Unknown
13. Cover Type: _____
14. Check Valve: ☐ No ☐ Yes

CLEARWATER SUMP

15. Does the property have a clearwater sump? ☐ No ☐ Yes
16. Where does the clearwater sump discharge? ☐ Storm Sewer ☐ Sanitary Sewer ☐ Over Ground ☐ Unknown
17. Are there any visible sanitary utilities entering the clearwater sump, i.e. is it a combination sump? ☐ No ☐ Yes
18. Identify the type of drains entering the sump pit: ☐ Floor Drain ☐ Footing Drain ☐ Laundry Drain ☐ Bathroom ☐ Shower
19. Is the bottom of the sump pit sealed? ☐ No ☐ Yes
20. Cover type: ☐ Bolted ☐ Loose ☐ None ☐ Other _____
21. Check Valve: ☐ No ☐ Yes

INSIDE PIPING AND FLOOR DRAINS

22.	Is there a direct connection between sanitary and clearwater piping?	☐ No	☐ Yes
23.	Are there observable diverters?	☐ No	☐ Yes
24.	Are there floor drains?	☐ No	☐ Yes
25.	Is there a suspected footing tile connection?	☐ No	☐ Yes

DYE TEST

26.	Were dye tests performed?	☐ No	☐ Yes

26a. List dye tests performed:

_____	Positive?	☐ No	☐ Yes
_____	Positive?	☐ No	☐ Yes
_____	Positive?	☐ No	☐ Yes

COMMENTS: _____

_____

_____

_____

NOTIFICATION CHECKLIST

Letter: _____
1st Pass: _____
2nd Pass: _____
Final Notice: _____

APPENDIX D

TEMPLATE LONG TERM O&M PROGRAM (LTOMP)

APPENDIX D: TEMPLATE LONG TERM O&M PROGRAM

Satellite Entity: Village of Sunnybrook

The Village of Sunnybrook's sanitary sewer system is designed to remove wastewater from homes and other buildings and convey it to the intercepting sewer system owned and operated by the Metropolitan Water Reclamation District of Greater Chicago (MWRD), which conveys flow to wastewater treatment plants. A sanitary sewer system that is not properly maintained, operated and repaired can pose risks to the environment and to public health. These risks arise from system failures or when excessive infiltration and inflow (I/I) enters the sanitary sewer system. I/I reduces the capacity of the sanitary sewer system and can result in sanitary sewer overflows (SSOs) and basement backups (BBs), which are illegal. This long term operation and maintenance program (LTOMP) will be continually implemented by the Village of Sunnybrook to maintain sewer system capacity and performance, thereby reducing SSOs and BBs.

The goals of this LTOMP are to:

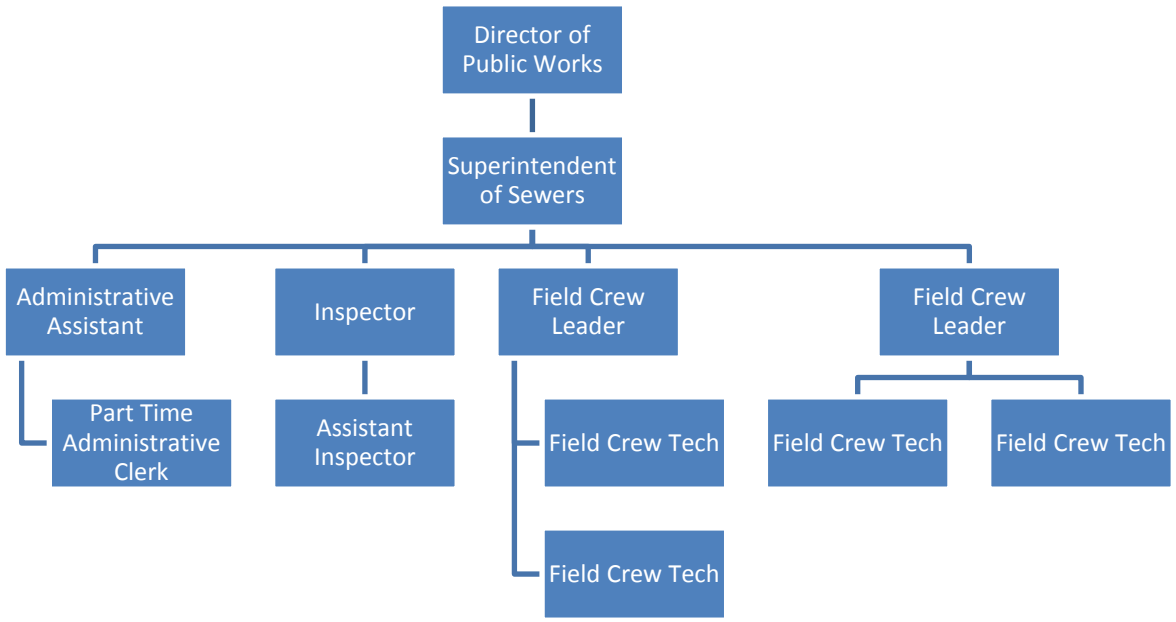
- Establish standards and procedures by which the Village of Sunnybrook will maintain, operate, repair, and expand its sanitary sewer system
- Establish responsibility for the Village to maintain and operate the sanitary sewer system
- Maximize uptime of the entire sanitary sewer system while conducting maintenance, operation, repair and replacement work as economically as possible
- Reduce SSOs and BB

I. Sewer System Management

A. Staffing

The Village of Sunnybrook's Sewer Division is under the Department of Public Works and is responsible for cleaning, inspecting, and maintaining all of the sanitary sewers owned by the Village. This includes providing information of the Director of Public Works about the need for rehabilitation and replacement of portions of the sanitary sewer system. This information is conveyed to the Village Engineer, who is responsible for design and construction of sewer rehabilitation projects and inspection of new connections to the sanitary sewer system. The Sewer Division provides data to the Village GIS Coordinator to have information tracked in the Village's GIS updated accurately. The Sewer Division is responsible for implementation of the Private Sector Program for reducing I/I. The Sewer Division has a staff of ten full time and one part time operation and maintenance positions. Contractors are used for some maintenance activities, rehabilitation and replacement, televising of sewers, and for emergency support. Figure 1 shows the organizational structure of the Sewer Division.

Figure 1- Village of Sunnybrook Sewer Division Organizational Chart



Director of Public Works – Establishes policy, plans strategy, leads staff and delegates responsibility, allocates resources, authorizes outside contractors to perform services, and may serve as public information officer.

Village Engineer – Prepares wastewater collection system planning and design documents, manages capital improvement delivery system, documents new and rehabilitated assets, and coordinates development and implementation of CMOM Plan. The Village Engineer is required to have a Professional Engineer's License.

Superintendent of Sewers – Manages field operations and maintenance activities, provides relevant information to agency management, prepares and implements contingency plans, leads emergency response, investigates and reports SSOs, and trains field crews.

Inspector – Ensures that new and rehabilitated assets meet Village standards, works with field crews to handle emergencies when contractors are involved, and provides reports to Village Engineer and Superintendent of Sewers. Assists Superintendent with investigations of complaints.

Assistant Inspector - Helps Inspector with duties.

Field Crew – Conducts staff operations and preventive maintenance activities, mobilize and respond to notification of stoppages and SSOs (e.g., mobilize sewer cleaning equipment, by-pass pumping equipment, and portable generators).

Administrative Assistant – Support staff operations and preventive maintenance activities, assist with data entry and quality control, handle billing, dispatch, routing of phone calls, maintains inventory list, maintains log of training for Sewer Division staff, and other support functions as needed.

Part Time Administrative Clerk - Responsible for filing, archiving of drawings, records, and reports, processing payroll, and other tasks to help the Administrative Assistant.

B. Safety

Work in and around sewers introduces a wide range of safety hazards. Training on safe practices associated with sewer inspection, construction, and maintenance is an essential part of minimizing accidents on the job. The Superintendent of Sewers conducts safety training for staff on a monthly basis, and may hold additional training sessions as needed depending on the nature of work and staff familiarity with safety hazards. The Administrative Assistant maintains the log of training session attended by staff. Refresher training on safety topics is required on an annual basis for all staff. Topics for which training is given include:

1. Confined Space Entry procedures
2. Traffic control and hazards
3. CPR and First Aid
4. Lock out/tag out
5. Use of portable gas detectors
6. Hazardous environments
7. Use of SCBA
8. Slips, trips, falls
9. Safe lifting techniques
10. Biohazards
11. Chemical handling
12. Electrical and mechanical equipment safe practices
13. Pneumatic and hydraulic system safe practices
14. Excavation and trenching

Hard hats, safety shoes, gloves, eye protection, and vests are worn at all times by staff working in the field. The Sewer Division makes safety equipment available to staff for use, including tyvek suits, face shields, tripod, harness, cable, ladders, waterproof boots/waders, flashlights, SCBA, respirators, 5 minute escape packs, portable gas detectors, and blowers.

C. Training

Keeping staff informed on current trends and practices on sewer inspection, construction and maintenance is necessary to ensure the Village is maintaining the

sanitary sewer system in a manner that optimizes resources. Training is provided on the following topics:

1. Trenchless technology
2. Sewer rehabilitation methods
3. Sewer inspection methods
4. Customer service
5. SSO/BB emergency response

D. Internal Communication

Routine matters are communicated verbally or via email. All Sewer Division staff except for the Part Time Administrative Clerk and Administrative Assistant have smart phones and two-way radios. Procedures and policies are communicated via memo. In emergency situations, immediate communication is handled by smart phones or radios.

E. Customer Service and Complaint Procedure

The Administrative Assistant receives complaints made via phone and by email sent to the general email address (sewerdivision@sunnybrook.il.us.org). The Administrative Assistant fills out a complaint form, shown in Figure 2, assigns a unique number to the complaint, and immediately forwards the form to the Superintendent of Sewers. Depending on the nature/severity of the problem, the Superintendent will either conduct an investigation or will delegate this task to the Inspector. Investigations typically involve a site visit, review of Village drawings and documents on the issue, and dispatching the field crew to rectify the problem, if the problem falls within the jurisdiction of the Village. Complaints are assigned a unique number based on the order in which they are received. The Superintendent maintains a log of complaints that includes the name of the person filing the complaint, date and time when the complaint was made, location of the problem, a brief description of the problem, the name of the employee assigned to handle the complaint and the date of resolution. A report of the investigation and actions taken to address the matter, or an explanation of why the problem is beyond the Village's jurisdiction, is prepared and kept on file. A record in the Village's GIS is created for this complaint. The Village's goal is to follow up with parties making complaints within two full business days of receiving the complaint.

The Village publishes and updates brochures on the following topics:

- Basic information about sanitary sewer systems for homeowners, including what to do if a sewer is overflowing or a basement is backing up
- Proper disposal of fats, oils and greases for homeowners
- The Village's cost sharing programs for I/I removal

As part of its commitment to customer service, the Village holds a Public Works Open House every April to give residents an opportunity to learn about the work of this department.

Residents are notified via Village newsletter and door hangers before any capital improvements to sewers take place on their block.

Brochures and public information notices are included in utility bill mailings from time to time. For example, every February a reminder to notify the Village about observed SSOs and BBs is included with the water bill.

Figure 2 - Complaint Form

COMPLAINT NUMBER: _____

DATE:_____ TIME: _____ COMPLAINT RECEIVED BY:_____

COMPLAINT REPORTED BY:_____

ADDRESS:_____

TELEPHONE NUMBER: _____

EMAIL ADDRESS:_____

COMPLAINT LOCATION:_____

DETAILS OF COMPLAINT:_____

CHECK APPROPRIATE BOXES:

SEWER SYSTEM COMPLAINTS

- ☐ MANHOLE COVER MISSING
- ☐ MANHOLE COVER LOOSE OR NOISY
- ☐ ODORS-GASES
- ☐ MANHOLE CAVE-IN
- ☐ SEWER LINE CAVE-IN
- ☐ MANHOLE SURCHARGING
- ☐ STREET FLOODED
- ☐ YARD FLOODED
- ☐ BUILDING FLOODED[1]
- ☐ OTHER

[1]Building flooding includes flooding of basement, crawl space or first floor

LIFT STATION COMPLAINTS

- ☐ ODORS
- ☐ FLOODING
- ☐ STOPPAGES
- ☐ UNKEPT GROUNDS
- ☐ SPILLS
- ☐ OTHER

_____

ACTION TAKEN:

- ☐ INITIATE INVESTIGATION BY _____; INVESTIGATOR ASSIGNED:_____
  (DATE) (STAFF NAME)
- ☐ ASSIGN TO OTHER DEPARTMENT:_____ ON _____
  (DEPARTMENT NAME) (DATE)
- ☐ OWNER TO REPAIR
- ☐ HEALTH DEPARTMENT NOTIFIED
- ☐ WATER DEPARTMENT NOTIFIED

ACTION TAKEN BY: _____ DATE:_____

F. Management Information Systems

The Village uses a computerized maintenance management system, {insert system name here}, to manage information on our collection system. This system is connected to the Village's Geographic Information System (GIS), which is described below. System information managed in the CMMS includes:

General

- Parts inventory
- Equipment and tools
- Purchase orders
- Revenue
- Safety incidents

Collection System

- Collection system mapping
- Collection system inventory
- FOG compliance
- SSO/Emergency response
- Industrial discharge monitoring results

Maintenance program

- Routine and Priority Planned maintenance (cleaning, etc.)
- Inspection scheduling and tracking
    - Manhole
    - Pipeline (Closed Circuit Television (CCTV), camera)
    - Pump station
    - Force mains
- Work Orders
- Vehicle maintenance
- Equipment maintenance
- Service contract information

Repair, Rehabiltation, and Replacement program

- Locations of repairs
- Start/end stations of rehabilitation or replacement
- Method of repair/rehabilitation
- Date repair/rehabilitation/replacement was completed
- Contract number under which repair/rehabilitation/replacement was performed

Customer service program

- Complaints/BB reports
- Customer service response
- Billing information

Any activity performed by department personnel is generated and tracked through the CMMS. The CMMS produces weekly written work orders for the performance of routine maintenance as well as repairs and corrective actions in response to inspection

findings or customer complaints. Upon completion of the task(s), data related to the work order is entered into the CMMS for tracking performance and historical information on manholes, lift stations, gravity sewer lines, laterals, and force mains. The serves as the Village's information management system for the all of the collection systems operation and maintenance.

The CMMS is operated through the Village's Local Area Network (LAN). The system is backed up every night and access is restricted. All staff in the Department of Sewers have a user name and password that allows them access to use the CMMS, however, privileges are limited to the scope of each employee's position.

G. Sewer Mapping / GIS

Like many departments in the Village of Sunnybrook, the Sewer Division enters and tracks data in the Village's GIS. The Village receives support from Cook County for providing updated information on parcels, PINs, and aerial photography. The following information that is relevant to our collection system is included in our GIS:

Manholes Map Information

- Unique ID number
- GPS coordinates
- Invert elevation(s)
- Rim elevation
- Date built
- GPS coordinates
- Diameter
- Method of rehabilitation and date (if applicable)

Sewer Lines Map Information

- Unique ID number
- Location
- Diameter
- Direction of flow
- Length between manholes
- Material type
- Date built
- Slope
- Service lateral locations (where known)
- Method of rehabilitation and date (if applicable)

Pump Station Map Information

- ID number
- Location
- Capacity
- Date built

Force Main Map Information

- ID number
- Location
- Direction of flow and pump station associated
- Length
- Material type
- Location of air release valves
- Date built
- Capacity
- Slope
- Invert elevations

General Map Information

- Parcel boundaries
- Building footprints
- Overflow points
- MWRD interceptors serving the Village of Sunnybrook
- Boundaries of separate sewer areas tributary to MWRD connections
- Floodplains
- Rivers and creeks
- Roads
- Municipal boundaries
- Complaints
- Reported SSOs and BBs

The Village's GIS is maintained by the Village GIS Coordinator. If new information pertaining to sewers is to be added to the GIS, the Superintendent of Sewers submits a GIS work request to the GIS Coordinator describing the scope of the change. The GIS Coordinator works with the Superintendent to enter the revised data into GIS. Once the Superintendent approves a draft version of the change, the updated information is published on the Village GIS. Changes due to new repair information and new rehabilitation work are to be submitted to the GIS Coordinator within three business days of the completion of the repair or rehabilitation work. Changes to correct information due to findings made in the field are to be submitted to the GIS Coordinator within one business day. Location of lateral information is added to the GIS as this information is discovered during routine CCTV inspections. Location of lateral information is submitted to the GIS Coordinator on a weekly basis, when such information has been found.

New employees attend a 2-hour training session on use of the Village's GIS with the GIS Coordinator. Additional training on how to use the Village's GIS is provided to all Department of Sewers staff as needed, when new functions are added to the GIS or when a major upgrade to the system is made, changing the way staff use the system.

H. SSO/BB Tracking and Notification

One of the goals of this LTOMP is to reduce SSOs and BBs. The Sewer Division is dedicated to maintaining and operating the sanitary sewer system to minimize public health risks and

environmental degradation attributed to sewage overflows. One essential part of achieving this goal is to know where, when and why SSOs and BBs occur.

Many reports of SSOs and all reports of BBs will be received from calls from members of the general public. Such calls are routed to the Sewer Division Administrative Assistant during normal business hours and after hours are routed to the Village system dispatcher. The person receiving the call fills out the complaint form shown in Figure 2 based upon information provided by the caller. The form is sent to the Superintendent of Sewers immediately upon conclusion of the call.

If an overflow occurs at a lift station, this is detected by the wet well level detector. The lift station telemetry system automatically sends a text message to the Superintendent's cellular phone when the depth of water in the wet well is 2' below the rim elevation of the manhole upstream of the lift station. Upon receiving such text messages, the Superintendent will investigate the site or direct the inspector to do so.

The Superintendent is responsible for responding to the complaints and for managing the response to SSOs and BBs, and making key decisions. His responsibility is to assess the situation and initiate a series of response actions based on the type and severity of the event.

The Superintendent of Sewers will confirm the overflow and implement measures to stop the overflow as noted in the procedures in the next section. Within 5 days of confirming that an SSO or BB has occurred, the Superintendent will complete the MWRD's Sanitary Sewer Overflow and/or Basement Backup Satellite Entity Internal Summary form. Copies of this form are placed in the complaint file and the SSO/BB file. A copy of this form will also be provided to the Village GIS Coordinator so that the repair can be added to the GIS. The MWRD may request to view these files or perform an audit on the Village's records, therefore, this file is maintained permanently.

If the overflow results in a fish kill, the Sewer Division will notify IEPA and the MWRD by phone within two hours of becoming aware of the results of the fish kill.

The Superintendent of Sewers reviews the file of Sanitary Sewer Overflow and/or Basement Backup Satellite Entity Internal Summary forms at least annually to monitor patterns in occurrences of SSOs/BBs and to determine where further inspection, operational changes, revisions to sewer cleaning schedules and/or rehabilitation are needed.

If more than three wet weather SSOs or BBs occur in a sanitary sewer sub-basin within a calendar year (either during the same event or different events), and if these events are not attributed to blockages of private laterals at the locations where the events took place (eg.,

laterals clogged by roots, crushed laterals, etc.), the Village will investigate the cause of the SSOs or BBs. The investigation may include televising of the public sewer, inspection of lift station(s) (if present), and inspection of private properties in the sub-basin and in the sub-basin immediately upstream. The Village will inspect private properties if the cause of the SSOs/BBs seems to be private sector I/I, and the public sewer system appears to not be a significant contributor of I/I. Depending the age of the system, severity of the problem and other site-specific factors, the Village may decide to inspect the private sewer laterals as well.

I. SSO Response

Once the Superintendent has confirmed that an SSO has occurred, he dispatches a Field Crew to contain the overflow and determine the cause. Contact with the Field Crew during normal working hours is made via radio. Contact during off hours is made via cellular phone.

The Field Crew follows in-house procedures for addressing sewer blockages or backups into a basement and overflowing manholes resulting from a surcharged public sewer. For a basement backup, the Field Crew determines whether the cause of the backup is a problem with the private lateral or with the public sewer. This is done by inspecting the quantity of flow in public manholes upstream and downstream of the lateral for the house experiencing the backup. If the public manhole is the cause of the problem, then the Field Crew initiates procedures to pump around the blockage. In the case of a surcharging manhole, the Field Crew initiates procedures to pump around the blockage, clean and disinfect the ground surface, and clear the obstruction. This may require emergency services for televising and/or rodding the line.

In all cases, response crews report their findings, including possible damage to private and public property, to the Superintendent immediately upon making their investigation. If the Superintendent has not received findings from the field crew within one (1) hour, the Superintendent contacts the response crew to determine the status of the investigation. After the SSO/BB is addressed and all required reporting has been completed, information on the location, date, duration and magnitude of the SSO/BB is provided to the GIS Coordinator for inclusion in the Village GIS.

If hazardous substances are suspected in the overflow, personnel are to contact the Fire Department via 911 immediately.

J. Emergency Preparedness and Response

To achieve the goal of maximizing sanitary sewer system uptime for the residents of the Village of Sunnybrook, the Department of Public Works and the Sewer Division have developed emergency procedures. The previous section addresses routine emergencies of SSOs and BBs. The Village has established in-house procedures for handling larger, though

routine, emergencies including sewer main breaks, force main breaks, air release and vacuum release valve failures, and pump station failures. In all cases, a Field Crew is dispatched to the area to assess the situation. Two crews may need to be dispatched in the case of a sewer main break so that one crew addresses the break itself and another performs troubleshooting at the lift station. Depending on the nature of the emergency and whether all Field Crews are occupied, the Superintendent may call upon outside contractors to assist with sewer televising, cleaning, and site cleanup. The Village maintains contracts for these services at all times. The contracts are advertised every two years.

Anytime sanitary sewage is released to the ground surface or inside of occupied space of a building, an MWRD Sanitary Sewer Overflow and/or Basement Backup Satellite Entity Internal Summary form is completed. The form is signed by the Superintendent. Copies of this form are placed in the repairs file and the SSO/BB file. A copy of this form is also provided to the Village GIS Coordinator so that the repair can be added to the GIS.

The Village's Emergency Management Department has developed a written Catastrophic Emergency Management Plan, which is attached. This plan was developed in conjunction with the Department of Public Works and the Sewer Division. Most elements of the plan are undertaken by the Emergency Management Department or the Fire Department. For example, for emergencies involving multiple departments, the Emergency Management Department determines when emergency procedures should begin and end. This is conveyed to the Department Heads, who then convey this information to staff. The Emergency Management Plan addresses road closures, flooding, tornados, confined space rescue operations, and power outages. The plan incorporates the following:

- Although both lift stations have a natural gas generator as a backup source of power, the Village has a mobile generator that can be connected to either pump station as a source of backup power.
- Sewer Division staff have two-way radios as well as cellular phones for communication, in case one system does not work.
- The Sewer Division owns several pumps and can rent additional pumps from a local equipment supplier on short notice if necessary to pump sewage around an obstruction or to supplement pumps at a lift station that are not working as required
- During certain emergencies (such as floods) additional staff are needed on a temporary basis to respond to calls from the public and to handle operational problems in the sewer system. Typically, part time and off duty staff are required to work mandatory overtime to cover these needs. Contractors may be hired on a temporary basis as well to cover these needs, although this is not the preferred option.

The Superintendent prepares a report following each emergency describing the cause of the emergency, how the Sewer Division responded, number and nature of calls received from the public, whether/how outside service contractors were used, what was handled well, what should be handled differently in the future, and an estimate of the amount of money spent on the emergency. This report is kept in the Emergencies file. Information from the report may be used to revise this document and other written procedures, determine the

scope of capital improvement projects, justify staffing level adjustments, and modify training programs.

K. FOG program

Fats, oils, and greases (FOG) that enter the sanitary sewer system in significant quantities will usually solidify downstream from the point of discharge into the sewer and form deposits on interior surfaces of the sewer. FOG can be a major factor in reducing sewer capacity which leads to SSOs in dry weather as well as wet weather. Food service establishments (FSE) and large apartment buildings are the largest generators of FOG. Due to the presence of both in the Village of Sunnybrook, the Department of Public Works and the Health Department administer a FOG control program.

The Sewer Use Ordinance grants the Village the authority to administer a FOG program. Permits from the Village are required when a restaurant begins operation in the Village. Similarly, if a property owner modifies a sanitary sewer or constructs a building to be used as an FSE, a permit from the Village and from the MWRD is required. In all cases, FSEs must demonstrate that a grease interceptor or a grease basin will be installed to intercept flow from food preparation areas. Sanitary waste from other parts of the building, particularly restrooms, must not be routed to the grease interceptor or basins. IN addition, wastewater discharged from dishwashing machines must bypass grease interceptors and basins otherwise the hot water would liquefy the collected FOG and convey it into the sanitary sewer system where it would solidify and obstruct flow.

FSEs are required to have their grease basins and interceptors serviced at least every 90 days. The Village of Sunnybrook Health Department conducts annual inspections of FSEs, as well as random inspections, to observe FOG handling practices, review the grease interceptor/basin maintenance log, and look for signs of improper FOG disposal. Citations are issued to FSEs that violate the requirements of the FOG program.

Public information is another component of the FOG program. The Village publishes a FOG fact sheet with recommended best practices for FSEs. This is available on the Village website and the Health Department inspectors also give it to FSEs during their inspections. A brochure for residents is available at the Public Works Building and during the annual Public Works Open House. The brochure explains the reasons homeowners need to be concerned about FOG in the sanitary sewer system and recommends best practices for minimizing FOG disposal down the drain.

II. Equipment and Collection System Maintenance

The Village of Sunnybrook recognizes the importance of regular maintenance activities to minimize emergencies and costly repairs. The CMMS generates a report each week

detailing preventive maintenance activities that are required for portions of the collection system and for lift station equipment. The report is based upon:

- Manufacturer's recommendations in equipment operation and maintenance manuals
- Records of portions of the sanitary sewer system where frequent (annual basis, or more frequent) maintenance work is required
- Age of sewers
- Criticality of facilities in area served by a sewer

The Superintendent reviews the weekly report and divides the tasks among the field crews, indicating which tasks have higher priority. In general, the higher priority tasks should be performed first. Each field crew leader is responsible for verifying that the sewer maintenance truck has the necessary equipment to complete the tasks before leaving the Public Works Yard each day. Each field crew leader submits a daily report of the crew's activities along with any relevant inspection or activity checklists completed during the day to the Superintendent.

The attached map identifies portions of the sanitary sewer system that require

- Cleaning on an annual basis
- Cleaning every 10 years
- Root control every 3 years
- Inspection via CCTV every 3 years (sewer main)
- Inspection via CCTV every 10 years (sewer main)
- Inspection via full descent every 3 years (manholes)
- Inspection via full descent every 10 years (manholes)
- Surface inspection every 3 years (manholes)
- Surface inspection every 10 years (manholes)

If complaints are received and the Superintendent determines that maintenance work is required to address a problem, the Superintendent will add the required tasks to the daily assignments for a field crew.

If an emergency occurs during the working day and the Superintendent determines that a field crew is required to assist with resolving the emergency, he will contact the field crew leader most likely to reach the site of the emergency most quickly. The field crew will conclude their maintenance tasks, document the extent of their work on the daily report, then will mobilize to the site of the emergency.

Field crew members and leaders alternate being on-call for off-hours emergencies. If an emergency occurs off-hours and the Superintendent determines that a field crew is needed to help resolve the emergency, the Superintendent will call the field crew leader on his cellular phone. The field crew leader will call his field technicians on his cellular phone.

The Superintendent forwards daily maintenance reports, emergency reports, and maintenance checklists to the Inspector to enter information into the CMMS.

A. Sewer Cleaning

The Village owns two vacuum/sewer cleaning (vactor) trucks, one of which is available for use by each Field Crew. The vactor trucks are capable of high-pressure jetting of sewers (up to 600 psi). The Village also owns power rodding machines that are capable of removing obstructions from municipal sewers. The Village has a biannual contracts for the following:

1. Septage hauling services, which is utilized when sewage and debris quantities exceeding the capacity of the Village vactor trucks are generated by a task
2. High pressure hydro-jetting services is used to clear obstructions in sewers when the Village's own equipment is unable to do so
3. Root control service using foam containing diquat dibromide

The root control service is used in areas where root growth has been a historical problem and where new areas of significant root growth are observed during CCTV inspection.

In general, routine sewer cleaning work is performed within one week preceding routine CCTV inspections. Most of the public sewer system is cleaned on a 10 year cycle however, certain areas with known issues (low velocity, high sedimentation, and FOG deposition) are cleaned on an annual basis. The quantity of debris is closely monitored when these segments of the sewer system are cleaned. Adjustments are made on a continual basis to the list of sewer reaches requiring frequent cleaning in order to optimize resources and clean only portions of the system that require it.

B. Lift Stations and Force Mains

The Village of Sunnybrook has two sanitary lift stations in its system, the George Street lift station and the Lake Avenue lift station. Both lift stations have mechanical and electrical equipment housed in a pump house. Both lift stations have backup natural gas generators as a secondary source of power. A telemetry system using cellular signal transmission allows for monitoring of the status of pumps, flow meters, wet well elevations, backup generators, and station entry alarms from the Public Works Building. The pump control system is programmed to generate text messages which are sent to the cellular phone of the Superintendent when high wet well elevation, pump motor failure, and station entry alarms are tripped. The Superintendent or his designee will visit the pump station to address any of these alarms. A record of such incidences and the actions taken to resolve them is entered into the CMMS.

Field crews perform cleaning and routine maintenance checks of the pump stations on a bi-weekly basis. During these visits, the field crews check on the pump station structures, lighting fixtures, unit heaters, and sweep the station. Any maintenance activities required in the operation and maintenance manuals for the pumps, motors, backup generators, telemetry equipment and force main magmeters are performed during these visits. Copies of the pump station equipment operation and maintenance manuals are stored at the Public Works Building. The pump operation and maintenance manuals include pump manufacturer's name, model number, size, capacity, spare parts list, schematic drawings of the piping system, wiring schematics, design float switch elevations, narrative description of operation, and contact information for the vendor's local representative for service. The Village CMMS produces reminders of required routine maintenance based upon the manufacturers' recommendations and these activities are listed in the weekly reports generated by the CMMS that form the basis of the field crews' assignments.

The Village of Sunnybrook currently has two force mains in the collection system with a combined length of 2.3 miles. The George Street force main has four air release valves located at the high points and the Lake Avenue force main has five air release valves. The Sewer Division inspects and maintains the air release valves semi-annually by back flushing the valves with clean water using a minimum of 30 psi. All air release valves and valve vaults are inspected for signs of corrosion, connection point leakage, or improper operating characteristics.

The pressure on the discharge side of the pumps at the lift stations is used to determine the need for force main cleaning. If the backpressure is more than 25% greater than the expected total operating head, the discharge pipe will be cleaned. Pressure gauges at lift stations are calibrated annually.

A record of all routine maintenance visits is entered into the CMMS each day a field crew visits a lift station. The record includes: star and end time of visit, personnel performing inspections, checks performed, observations, discharge flow rate and pressure observed during visit, weather conditions during visit, maintenance work performed, and spare parts used.

III. Material and Equipment

The Sewer Division provides operations and maintenance crews with the essential work related items they use on a day-to-day routine basis. Should new or replacement equipment or tools be needed, the crew leader notifies the Inspector. The Inspector will issue the crew leader stocked items. For non-stocked items, the Inspector advises the crew leader of a local vendor and requests a purchase order for the needed item(s). The crew

leader will then procure the requested items through the local vendor in an "in-stock" format.

The Village of Sunnybrook keeps a limited supply of spare equipment and tools for personnel. In lieu of maintaining a full supply of spare equipment and tools for personnel, the Village has an annual "supply bid" for essential common equipment and tools. This bid requires the vendor to maintain "in-stock" items listed in the annual bid, and the vendor must have a local storefront for item pick-up. Non-bid equipment and tools can be purchased in amounts up to two thousand dollars ($2000.00).

The large equipment and tools needed for certain tasks such as sewer cleaning and inspection are purchased through the Purchasing Department for permanent acquisition of the item for the Village.

The Inspector is responsible for ensuring accurate inventories of material and equipment used by the Division is maintained. This involves adding new material and equipment to the inventories, deleting equipment that the Division no longer owns, updating quantities as material is used. The inventories are reviewed two times per year by the Inspector. The inventories are maintained in an Excel spreadsheet. Information tracked for equipment includes type, age, description/use, manufacturer, fuel type (where applicable), year of acquisition, estimated year for replacement, operating costs, and repair history. The estimated remaining life of the equipment inventory is calculated based on the date of manufacture, an estimate by the Sewer Division of the useful life expected, and factors that might be expected to extend or reduce the life of the equipment (e.g., repairs or hard use).

IV. Sewer System Capacity Evaluation

As a fully developed community, the Village of Sunnybrook does not anticipate the need to extend the sanitary sewer system by any significant amount for the foreseeable future. In general, the existing sanitary sewer system is sized to accommodate dry weather flow from the tributary areas as developed. However, the following circumstances could trigger the need to evaluate the capacity of the existing sanitary sewer system and determine if an increase in conveyance capacity is justified:

- An area experiences dry weather SSOs and/or BBs that cannot be attributed to maintenance issues or deteriorated sewers.
- An area is being redeveloped and the projected dry weather flow exceeds that of the current land use.

Should either of these situations occur, the Village Engineer will consider the current and proposed population within the service area, capacity of the existing sewer(s) serving the areas, elevations of existing sewers and of existing laterals. The capacity of the sanitary

sewer system should conform to the standards established in the MWRD's Watershed Management Ordinance (WMO) in effect at the time. Typically, sanitary sewers are to be sized for the anticipated population equivalent in the service area, multiplied by an expected wastewater flow rate of 100 gallons per capita per day, times a peaking factor that accounts for diurnal variation. If the existing capacity is less than the anticipated amount of wastewater, the Village Engineer will design a sanitary sewer replacement project that provides the necessary capacity. This project would require a WMO permit from the MWRD.

V. Sewer System Inspection/Condition Assessment

A major component of the Village of Sunnybrook's sanitary sewer maintenance program is inspection and condition assessment of gravity lines, manholes, force mains, lift stations, and service laterals. Such facilities are inspected during construction and must meet the design requirements before the Village allows them to be placed into use. However, with the exception of most service laterals, these facilities are also inspected on a routine basis throughout their useful life. Systematic inspection that identifies defects and codes them in a consistent manner according to severity allows for cost-effective planning of sewer rehabilitation, repair, and replacement activities. The Village of Sunnybrook inspects all components of the public sewer system on a ten year cycle, with more frequent inspections in high priority portions of the system. Inspections of the public sewer system are performed in accordance with NASSCO standards.

The Village of Sunnybrook has a contract for CCTV services that is re-advertised every two years. The contractor televises approximately 20% of the Village's sanitary sewer system every two years in addition to emergency televising of segments of the sanitary sewer system where problem areas requiring immediate action are suspected. The contractor provides a digital video of all inspections along with an inspection report and condition assessment in accordance with NASSCO reporting guidelines.

As stated above, portions of the sanitary sewer system are inspected on a 3 year cycle while most of the system is inspected on a 10 year cycle. The Sewer Division has designated the portions of the system on the 10-year cycle that are to be inspected in each year of the 10 year cycle. The Sewer Division reviews inspection reports received from the Contractor and updates the Status of High Priority Defects and CIP on an annual basis. In general, the Sewer Division's goal is to address the defects with NASSCO grades of 4 or 5 within the next two years. However, this cannot always be achieved efficiently using Village staff or by including work under a rehabilitation or replacement contract. When developing the CIP each year, high priority defects that have been known for the longest period of time are given top priority.

Projects involving new sanitary sewer construction, or modification of existing sanitary sewers, must comply with the Village's and the MWRD's design requirements. The Village's Sewer Use Ordinance gives the Village the authority to inspect new sewer construction and establish standards by which sewers tributary to its system must comply. New public sanitary sewer construction projects are either designed by the Village Engineer or are designed by an outside consultant but reviewed by the Village Engineer for compliance with the Village's standards. A permit from the Village and from the MWRD is required for public sanitary sewer work when the work is not performed by the Village's own contractor. When work is performed by the Village's contractor, only a permit from the MWRD is required. Construction work is observed by the Village's Inspector.

Projects involving new private sector sanitary sewers require permits from the VIllage and from the MWRD. The Village Engineer reviews drawings of proposed conditions for compliance with Village standards. The Village Inspector observes construction work for compliance with approved permit drawings. An occupancy permit is not issued unless all Village requirements have been satisfied and after the Village receives an executed copy of the MWRD's Request for Final Inspection.

The procedure for inspection of new construction for which the Village issues a permit is as follows:

1. After reviewing the project drawings and receiving the permit fee, the Village issues a sewer construction permit. One term of the permit is to notify the Village Inspector a minimum of two days before sewer construction work begins.
2. Upon receipt of the notice that sewer construction work will begin, the Inspector visits the construction site on a daily basis to observe progress and quality of work. Revisions to the design are to be submitted to the Village by the Design Engineer for approval. If the Village Inspector observes deviations from the approved design in the field, he will notify the contractor and design engineer. If action is not take to correct the deviation, the Village may issue a violation notice to the contractor and project owner. Failure to properly address deviations from the approved design is justification for the Village to withhold an occupancy permit.
3. When the sewer construction work is complete, the project owner submits a Request for Testing to the Inspector. If requested by the Inspector, the Contractor must perform an air pressure test or an infiltration test to demonstrate that the required level of water-tightness has been achieved. If the required level of water-tightness is not achieved, the Contractor must repair the defects in the installation to reach the required level of water-tightness, and demonstrate compliance through additional testing. Once the Inspector has verified that the sewer installation has adequate water-tightness and all other aspects of sewer construction meet Village standards, the Inspector signs the

Request for Testing and provides a copy to the Village Building Department, the Contractor, the property owner, and the Design Engineer.

4. The Contractor submits the As-Built drawings to the Inspector. The Inspector reviews the drawings and issue a letter acknowledging receipt of the As-Built drawings or identifying deviations from the approved design. The As-Builts must be corrected and acknowledged by the Inspector before the Village will allow the new installation to be placed into service.
5. When the Village receives the fully executed RFI from the MWRD as well as signed compliance forms from other Village departments, as applicable to the project, the Village Building Department issues an occupancy permit.
6. If sewers and manholes have been built by a private party that are to be owned by the Village as part of its public sanitary sewer system, a transfer agreement is prepared and executed. Upon execution of the transfer agreement, the Sewer Division assigns a unique identification number to any newly added manholes and provides information on the new facilities to the GIS coordinator for updating of the sanitary sewer atlas.

A checklist for inspection of new sanitary sewer facilities is attached as Appendix A.

VI. Sewer System Rehabilitation and Updating the CIP

Several factors are taken into consideration when the annual update to the CIP is made by the Sewer Division. These include:

- Location, quantity and nature of High Priority Deficiencies
- Location of street pavement improvement projects for the year
- Available funding
- Age of sewers with High Priority Deficiencies
- Expected impact of sewer failure

The Sewer Division reviews inspection reports received from the sewer televising contractor and updates the Status of High Priority Defects and CIP on an annual basis. In general, the Sewer Division's goal is to address the defects with NASSCO grades of 4 or 5 within the next two years. However, this cannot always be achieved efficiently using Village staff or by including work under a rehabilitation or replacement contract. When developing the CIP each year, high priority defects that have been known for the longest period of time are given top priority. To minimize disturbances to the public and to optimize resources, wherever possible, the Village tries to perform sanitary sewer rehabilitation work in conjunction with street pavement improvement projects. When this coordination is possible, the Village will line or replace service lateral connections to the public sanitary sewer (up to 6 feet from the connection).

The Superintendent of Sewers, Village Engineer, and Director of Public Works meet once per year to review potential capital improvement projects based on the factors mentioned above. Small scope repairs can be accomplished with in-house staff (manhole cone section reconstruction, frame and grate replacement, plugging of leaks in manholes, joint sealing), but rehabilitation is performed under a competitively bid contract. Once the scope of the capital improvement projects are determined, the Village Engineer designs the projects or oversees the work of an outside consultant hired to design the project.

Once rehabilitation or sewer replacement projects have been completed, the Village Engineer provides information to the GIS coordinator to have the sewer atlas updated with relevant information.

VII. Funding plan

In July of 1992, the Village of Sunnybrook developed and implemented a Sewer Use Charge Fee. This fee has been, and will be, used to fund normal operations and maintenance, as well as most capital improvements to the sanitary sewer system. The fee establishes rates for residential, commercial and industrial users based on water usage. Industrial users are subject to additional surcharges if they discharge wastewater with high concentrations of BOD, TSS, or ammonia.

The Sewer Division budget is comprised of line items for personnel, contract services, supplies, equipment replacement and maintenance, training, rehabilitation contracts, replacement contracts, vehicle fuel and maintenance, and emergency repairs and service. The Superintendent maintains records of expenditures in each of these line items in past years, the projected expenditures in the current year, and a running total of expenditures in the current year. Projected expenditures for the next year are made based on a review of recent trends and on an assessment of short term needs, such as significant rehabilitation work. Every year, at least 4% of the annual revenue is set aside for capital improvement projects.

The Village will consider applying for assistance through the State Revolving Loan Fund for large capital improvement projects where the effort allocated towards preparing planning documents, filling out the application, and submitting all the required documentation of work performed is justified by the amount of the loan.

VIII. Private Sector Program
(*Submitted separately to the MWRD*)

IX. Sewer Use Ordinance

A copy of the Village's Sewer Use Ordinance is attached. The Sewer Use Ordinance was last updated in January 2015. The Village Board may authorize amendments to the Sewer Use Ordinance at their regularly scheduled public meetings as long as public notice of the proposed changes have been made available at least one week before the scheduled public meeting. Changes to the ordinance are recommended by the Village Engineer, generally after discussion of the need for the change among the Village Engineer, Director of Public Works, and the Superintendent. As stated earlier, the Village Engineer and Inspector have responsibility for administering and enforcing the Sewer Use Ordinance for new sanitary sewer construction. The Superintendent has responsibility for administering and enforcing the Sewer Use Ordinance for existing public and private sanitary sewers.

Appendix A of LTOMP: Sanitary Sewer Inspection Checklist

Village of Sunnybrook Department of Public Works

Sewers Division

The following items are to be checked by the Village Inspector during sanitary sewer construction. A completed version of this form is to be submitted with the signed Request for Testing when sanitary sewer construction is completed and acceptable to the Village Inspector.

Project Name:

Permit Number: Project Location:

Feature	Compliant	Non-Compliant	Comments
Gravity Sewer Line			
Pipe size	□	□	
Pipe material	□	□	
Pipe joints	□	□	
Bedding material	□	□	
Bedding thickness	□	□	
Backfill material	□	□	
Backfill compaction	□	□	
Line and grade	□	□	
Grade of manhole frame(s) and cover(s) with respect to finished grade	□	□	
Booted connections between sewer pipe and manholes	□	□	
Location and crossings with respect to water mains	□	□	
Lift Stations			
Control system	□	□	
Stand by power system	□	□	
System does not allow simultaneous pump operation	□	□	
Force Mains	□	□	
Pipe material	□	□	
Restrained joints or thrust blocks	□	□	
Air release valves at high points	□	□	
Residential Projects			
Separate sanitary and	□	□	

stormwater sumps, pumps, piping and discharge			
Discharge for sanitary sewage			
Discharge for stormwater			
Outlet for foundation drains			
Swimming pool discharge			

Test method: □ Visual □ Infiltration □ Exfiltration □ Air Pressure □ CCTV □ Other

Test information: □ Tested on same day □ Partial tests □ All tests passed □ Some tests failed

The undersigned hereby certifies that the project above has been tested as shown, and that the test results are as indicated herein.

Date of Test: _____

Inspector Name:_____

Inspector's signature:_____