



Making a difference...together

GANGES SEWER LOCAL SERVICE COMMISSION
Notice of Meeting on **Thursday, August 30, 2018 at 1:00 pm**
Creekside Meeting Room, 108 121 McPhillips Ave, Salt Spring Island, BC

Wayne McIntyre Gary Utter Rod Scotvold David Toynbee Mike de Carle

AGENDA

- 1. Approval of Agenda**
- 2. Approval of Minutes – November 20, 2017**
- 3. Delegations/Presentations**
 - 3.1 Rob Pingle-Feasibility Study Reclaimed Water**
- 4. Chair and Director Reports**
- 5. New Business**
 - 5.1 School District 64 re: Use of Reclaimed Water**

Outstanding Business

 - 6.1 Ganges Wastewater Infrastructure Renewal Project – Progress Report Update**

That the Ganges Sewer Local Services Commission receive this progress report for information.
- 7. Adjournment**

To ensure quorum, advise Tracey Shaver 250 537 4448 if you cannot attend.



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**Minutes of the regular meeting of the Ganges Sewer Local Service Commission
Held November 20, 2017 at 108 121 McPhillips Ave, Salt Spring Island, BC**

DRAFT

PRESENT: **Director:** Wayne McIntyre
 Commission Members: David Toynbee, Mike de Carle, Rod Scotvold.
 Staff: Karla Campbell, Senior Manager SSI Electoral Area; Dan Robson,
 Manager, Saanich Peninsula and Gulf Islands Operations, Peggy Dayton,
 Senior Financial Analyst; Tracey Shaver, Recording Secretary
 Absent: Gary Utter

Rod Scotvold called the meeting to order at 2:00 pm

1. Approval of Agenda

MOVED by Director McIntyre, **SECONDED** by Commissioner Toynbee,
That the Ganges Sewer Local Service Commission agenda of November 20, 2017 be
approved.

CARRIED

2. Adoption of Minutes of March 9, 2017

MOVED by Commissioner Toynbee, **SECONDED** by Director McIntyre,
That the Ganges Sewer Local Service Commission meeting minutes of March 9, 2017 be
approved as submitted.

CARRIED

3. Delegation/presentation

4. Chair and Director Reports

4.1 No Chair Report

4.2 Director McIntyre briefly reported on:

- SSWIPA- terms of reference for the technical working group
- New CRD Board Chair is Steve Price the Mayor of Sidney; supportive of passenger ferry for Gulfs Island initiative.
- Innovative Resource Management – issuing RFP for waste regional disposal processes; SSI will have a separate section in the RFP to address specific needs.
- Working closely with SD64 and a local group for ideas on island composting facilities
- Harbour Walk Project- CRD's role is to assess the existing structure and requirements around the foreshore area. Islands Trust is zoning.

5. Report

5.1 2018 Operating and Capital Budget

Staff reviewed the various sections of budget report:

MOVED by Commissioner Toynbee, **SECONDED** by Commissioner de Carle,
That the Ganges Sewer Local Service Commission:

1. Approve the 2018 operating and capital budget as presented, and recommend that the 2017 actual surplus or deficit be balanced on the 2017 transfer to the Capital Reserve Fund; and
2. Recommend that the Electoral Area Services Committee recommend that the CRD Board approve the 2018 operating and capital budget and the five year Financial Plan for the Ganges Sewer Local Service as presented; and
3. Transfers any surplus funds directly related to debt service costs from 2016/17 to the Capital Project fund 1601 Ganges Sewer Rehabilitation and that future debit servicing costs be reduced.

CARRIED

6. New Business

6.1 Islands Trust Referral-Rezone Application SS-RZ-2017.4 for 132 Corbett Road

MOVED by Commissioner Toynbee, **SECONDED** by Commissioner de Carle, The CRD has engaged Stantec to update the sanitary sewer model for Ganges Village service area. This information will enable the CRD to determine available capacity in the Ganges sewer system available for added capacity. The CRD has been working with Island Trust to identify how many new housing units remain to be added to sewer system under the current zoning and vacant parcels (the full potential buildout). This modeling analysis along with the inflow and infiltration testing will identify deficiencies in the sanitary sewer system with respect to future expansion. Once we have this data the CRD will provide input on the amount of flow available for the designated land use and provide comment on this application before the Trust.

CARRIED

7. Outstanding Business

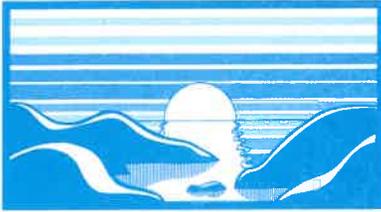
8. Adjournment

MOVED by Commissioner de Carle, **SECONDED** by Commissioner Toynbee, That the meeting be adjourned at 2:18 pm.

CARRIED

CHAIR

SENIOR MANAGER



SCHOOL DISTRICT 64 (GULF ISLANDS)

112 RAINBOW ROAD, SALT SPRING ISLAND, B.C. V8K 2K3
(250) 537-5548 FAX (250) 537-4200



July 10, 2018

Ganges Sewer Local Services Commission
c/o
CRD Capital Regional District
Suite 108, 121 McPhillips Ave,
Salt Spring Island, BC

Dear Commission Members,

On behalf of School District No. 64 (Gulf Islands), we are formally requesting an "agreement in principle" from the Ganges Sewer Local Services Commission to allow the school district to reclaim and utilize wastewater effluent presently being discharged from the Ganges Sewer Plant. This high quality effluent would be used to irrigate school district playing fields adjacent to Rainbow Road.

The school district is prepared to fund a preliminary engineering study which will establish the following: overall feasibility, scope of work, approvals required, and estimate of capital cost.

Yours sincerely,

R. Pingle
Chairperson,
Board of Education of School District No. 64 (Gulf Islands)



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**REPORT TO GANGES SEWER LOCAL SERVICE COMMISSION
MEETING OF THURSDAY, AUGUST 30, 2018**

6.1

**SUBJECT GANGES WASTEWATER INFRASTRUCTURE RENEWAL PROJECT –
PROGRESS REPORT UPDATE**

ISSUE

To provide an update on the Wastewater Infrastructure Renewal Project.

BACKGROUND

On July 25, 2015, Ganges electors voted in favour of borrowing up to \$3,900,000 to fund the Ganges Wastewater Infrastructure Renewal Project. Subsequently, Loan Authorization Bylaw No. 4007 was adopted by the CRD Board and the Ganges Sewer Local Service Commission (Commission) approved the Project Plan Overview and Preliminary Project Schedule at their January 12, 2016 meeting.

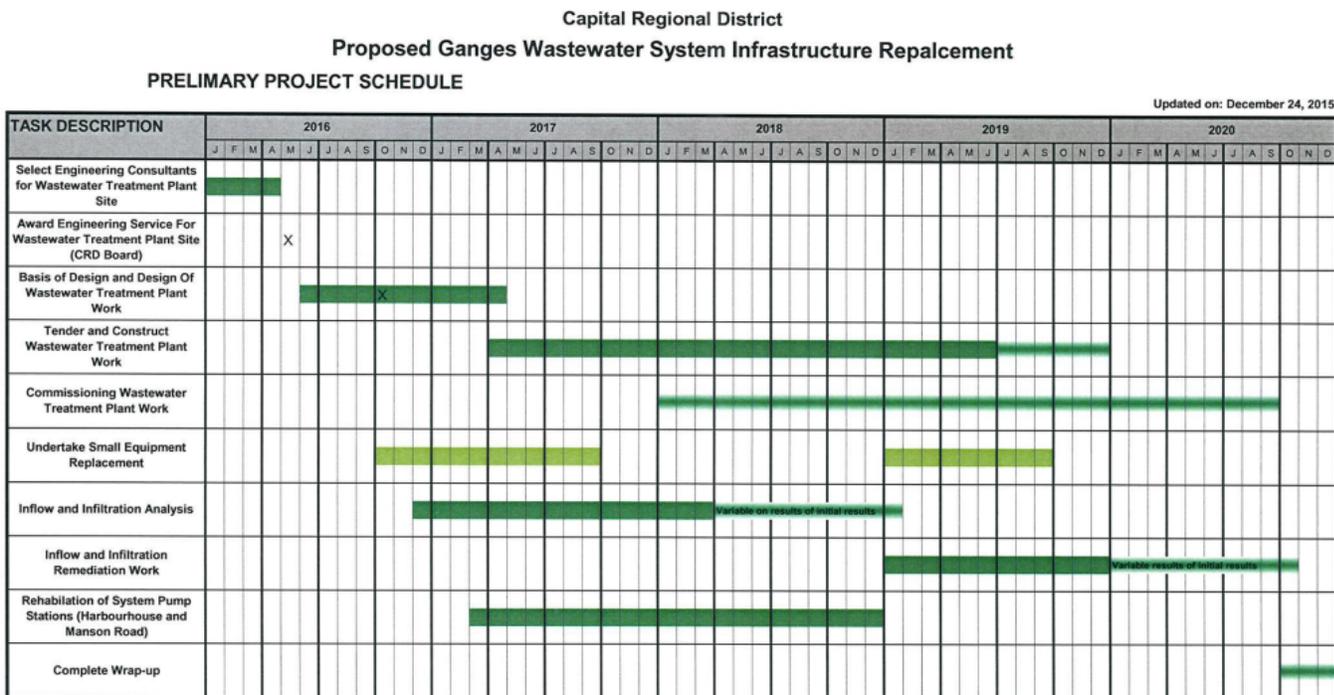
The Renewal Project was broken down into four key work areas based on the most efficient and cost effective means to execute the work. These work areas and their brief scope of work are noted as follows:

Work Area/Project Description	Brief Scope of Work
1. Ganges Wastewater Treatment Plant (WWTP) Upgrades	<ul style="list-style-type: none"> • Upgrade influent pump station • Replace influent fine screen • Re-purpose old RBC tank for additional storage • Replace the membrane bioreactor (MBR) cassettes • Upgrade the effluent pumps • Upgrade the sludge thickening equipment • Replace electrical equipment
2. Small Equipment Replacement at Ganges WWTP	<ul style="list-style-type: none"> • Replace various instruments • Add new instruments and controls • Replace various pipe runs and valves
3. Inflow and Infiltration Assessment and Initial Remediation	<ul style="list-style-type: none"> • Complete CCTV inspection of pipes and manholes • Complete some temporary flow monitoring • Complete a hydraulic model of the sewer system • Make some repairs on the worst defects identified during inspection
4. Harbour House and Manson Road Pump Station Upgrades	<ul style="list-style-type: none"> • Replace all mechanical and electrical equipment including new kiosks and SCADA controls for both stations
5. Ganges WWTP Standby Generator Replacement ¹	<ul style="list-style-type: none"> • Replace the existing WWTP standby generator with a new 170 kW genset.

1. The standby generator was subsequently added to the overall treatment plant upgrade with a \$165k budget as approved by the Ganges Sewer Commission at their December 12, 2016 meeting.

Progress To-Date

The Preliminary Project Schedule that was attached to the Project Plan and presented to the Commission at their January 12, 2016 meeting is copied below as follows:



- Notes:
- Schedule is subject to approvals and will be updated as the project proceeds.
- Major contracts to rehabilitate equipment at the Ganges Treatment Plant Site. Actual duration will be dependent on final designs and conditions encountered.
 - Work timeframe and duration may vary as work is completed and on issues encountered.
 - Smaller projects occur throughout the duration to match timing with major contracts.

In general, based on the above preliminary project schedule, the project is ahead of schedule. The majority of the work will be complete by the end of 2018 with some minor upgrade work left to complete in 2019.

A brief summary of the status for each work area follows:

1. Ganges Wastewater Treatment Plant Upgrades

An engineering consultant was retained in the fall of 2016 to design the Wastewater Treatment Plant (WWTP) upgrades. The consultant, presented their Design Basis reports for Liquids and Solids treatment to the Commission on December 12, 2016 and March 9, 2017 respectively. Detailed design was completed in February, tendered in March, and a contract awarded in May 2018. Construction commenced in late June and the contractor is on schedule to complete his work by November 15, 2018. See sampling of construction photos in Attachment 1.

2. Small Equipment Replacement at Ganges WWTP

There are a number of smaller equipment items (such as meters, valves, instruments, etc.) that also need to be replaced at the WWTP. Originally it was planned to have this work performed by CRD Operations staff, but staff time is already fully committed to operating and maintaining the existing facilities. Therefore, a majority of the key work items have been included into the

contractor's scope of work, but once the upgraded plant is commissioned staff may still need to add some instrument and control items to further automate the plant and improve the treatment process. Once the WWTP upgrades are complete, staff will evaluate the performance and may add some small equipment items to make the system more efficient and cost-effective to operate.

3. Inflow & Infiltration I&I Assessment and Initial Remediation

Some initial flow monitoring has been completed to measure how much groundwater might be leaking into the system, and a contractor was retained to complete CCTV inspection of the entire sewer system to identify where defects are located. In addition, a consultant was retained to evaluate the capacity of the sewer system under current conditions (Scenario 1), with proposed short-term developments (Scenario 2), and for full-build out of the service area (Scenario 3). Please see the executive summary for the CCTV evaluation report and the recommendations for Hydraulic Modelling Report (Attachment 2 and 3), respectively.

In summary, the sewer system is still in good condition. Although some I&I was noted during the inspection, it is generally within the normal range of what is expected for a PVC sewer system of its age. Some repairs are recommended in the amount of approximately \$80,000 which should help to reduce I&I to even lower amounts.

As for the hydraulic capacity of the system, the model indicates that there is sufficient capacity to accommodate the proposed developments (identified as Scenario 2 in the model):

Development Name/Location	Number of Dwelling Units	Anticipated Design Sewage Flow from Development
Drake Road	80	48.0 m ³ /d
268 Fulford Ganges Road	24	14.4 m ³ /d
Hastings House Hotel	18	10.8 m ³ /d
Croftonbrook Development	52	31.2 m ³ /d
107 Atkins Road	51	30.6 m ³ /d

Scenario 3, the Ultimate Build-Out Condition (UBOC), was also modelled and it showed that some surcharging may occur in the low-lying area near to the influent pump station, but Stantec indicated that this scenario is very conservative as it assumes every single property is developed to its maximum potential which is not likely to happen for many years into the future. The model should be reviewed and updated as developments occur to verify remaining capacity.

4. Harbour House and Manson Road Pump Station Upgrades

The detailed designs for both these pump stations were completed and tendered as provisional items along with the Ganges WWTP Upgrade project. However, additional details needed to be worked out on the temporary bypass pumping requirements and so a change order request will be issued to the contractor to complete this work. Once approved, this work will be completed after the Ganges WWTP Upgrade work is finished.

5. Ganges WWTP Standby Generator Replacement

On December 12, 2016 a staff report was presented to the Commission on the need to replace the genset and the project was approved with a budget of \$165,000 to come from the capital reserve fund. Since other electrical equipment was being replaced as part of the Ganges WWTP Upgrade, the genset replacement was included in the WWTP upgrade tender. The new genset was recently delivered to site and it will be installed, tested, and commissioned by the end of August.

The current financial status of the whole project to-date, (which includes the 5 items noted above), is summarized in the table on the following page:

Financial Status of Ganges Wastewater Infrastructure Renewal Project – August 21, 2018

Task	Budget	Actual and Committed Cost To-Date	Remaining Cost to Complete	Variance
Ganges WWTP and Pump Station Upgrades – CE.476.8301				
Project & Construction Management	\$220,000	\$212,059	\$30,000	\$22,059
Design	\$340,000	\$348,391	\$0	\$8,391
Equipment Supply	\$900,000	\$830,242	\$65,000	(\$4,758)
Construction	\$1,715,000	\$1,075,463	\$640,000 (for Harbour & Manson pump stations)	\$463
Env./Archeological Support	\$25,000	\$1,636	\$20,000	(\$3,364)
Commission/Ops	\$100,000	\$51,814	\$48,000	(\$186)
Contingency	\$302,000	\$25,000	\$250,000	(\$27,000)
Sub-Total WWTP Project	\$3,602,000	\$2,554,605	\$1,053,000	(\$4,395)
Ganges I&I Analysis & Reduction Project – CE.476.8302				
Project Management & Admin	\$27,000	\$16,936	\$10,000	(\$64)
Flow Monitor & Report	\$30,000	\$10,577	\$19,000	(\$423)
Modelling	\$25,000	\$21,834	\$3,000	(\$166)
CCTV & MH Inspection	\$120,000	\$118,234	\$0	(\$1,766)
Repairs	\$80,000	\$0	\$80,000	\$0
Contingency	\$16,000	\$0	\$16,000	\$0
Sub-Total I&I Project	\$298,000	\$167,581	\$128,000	(\$2,419)
Ganges Genset Replacement – CE.555.8301				
Design & Project Management	\$18,500	\$19,093	\$0	\$593
Supply and Install	\$125,000	\$92,710	30,000	(\$2,290)
Contingency	\$21,500	\$0	\$21,500	\$0
Sub-Total Genset Project	\$165,000	\$111,803	\$51,500	(\$1,697)
PROJECT TOTAL	\$4,065,000	\$2,823,989	\$1,232,500	(\$8,511)

As can be seen in the table, the project total is currently tracking to come in under budget. The only cost yet to be verified is for the Harbour House and Manson pump station upgrades, but that cost is anticipated to be less than the \$640,000 that is included in the remaining cost to complete in the table above. In addition, there still is \$287,500 remaining in the project contingency to address unforeseen conditions or changes to the work.

CONCLUSION

The Ganges Wastewater Renewal Project is progressing well and is expected to be completed within the original project schedule and budget. Once complete, a tour can be arranged for the Commission to see the improvements that have been made.

RECOMMENDATION(S)

That the Ganges Sewer Local Services Commission receive this progress report for information.

Submitted by:	Malcolm Cowley, P.Eng., Manager, Wastewater Engineering & Planning
Concurrence:	Ian Jesney, P.Eng., Senior Manager, Infrastructure Engineering
Concurrence:	Karla Campbell, Senior Manager, Salt Spring Island Administration
Concurrence:	Ted Robbins, BSc, C.Tech., General Manager, Integrated Water Services

MC:so

Attachments: 3

Attachment 1 – Sample Photos of Ganges WWTP Upgrades



Installing stairs on new sludge tank



New influent fine screen



Placing rebar for new equipment slabs



Dry-fit of new permeate pumps

EXECUTIVE SUMMARY

The Ganges sewage collection system was initially constructed in the early 1980's and consists of about 9km of PVC pipe ranging from 150 – 250mm in diameter. The sewer system provides service to the core area of Ganges Village including commercial, residential, the hospital, three schools, Art Spring, community library, swimming pool and several senior and affordable housing sites.

In December 2017/January 2018, a contractor, PipeEye Video Inspections & Services Ltd., completed the video inspection and coding of 8,782.7 metres of pipe using the Pipeline Assessment Certification Program (PACP). PipeEye completed the inspection in two work areas as shown in Figures 1, 2 and 3.

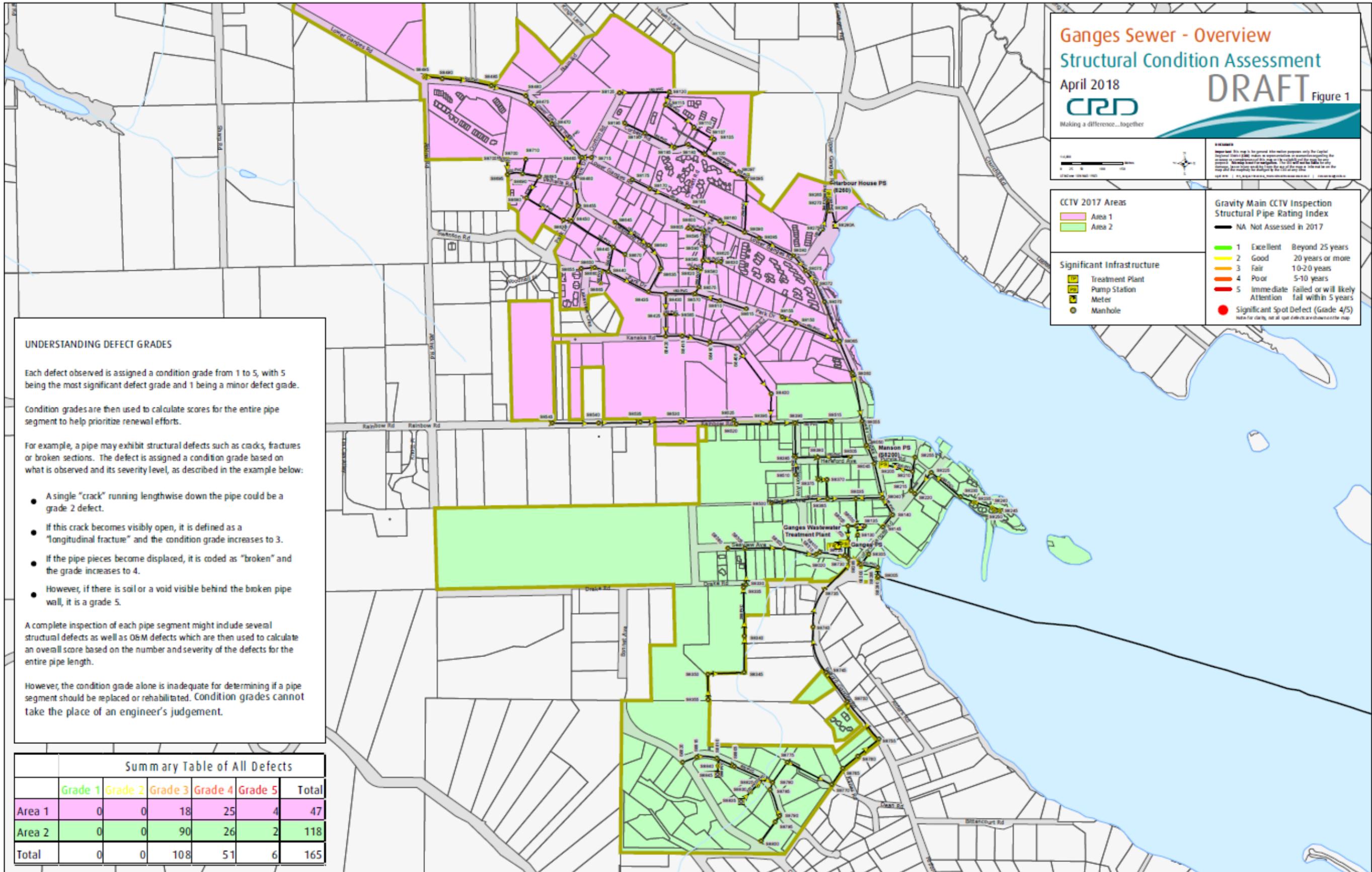
PACP uses standard format and methodology of coding observations while the pipe is being inspected and the software assigns a defect grade (from 1 to 5) based on the code entered, with Grade 1 indicating a minor defect and Grade 5 indicating a most significant defect.

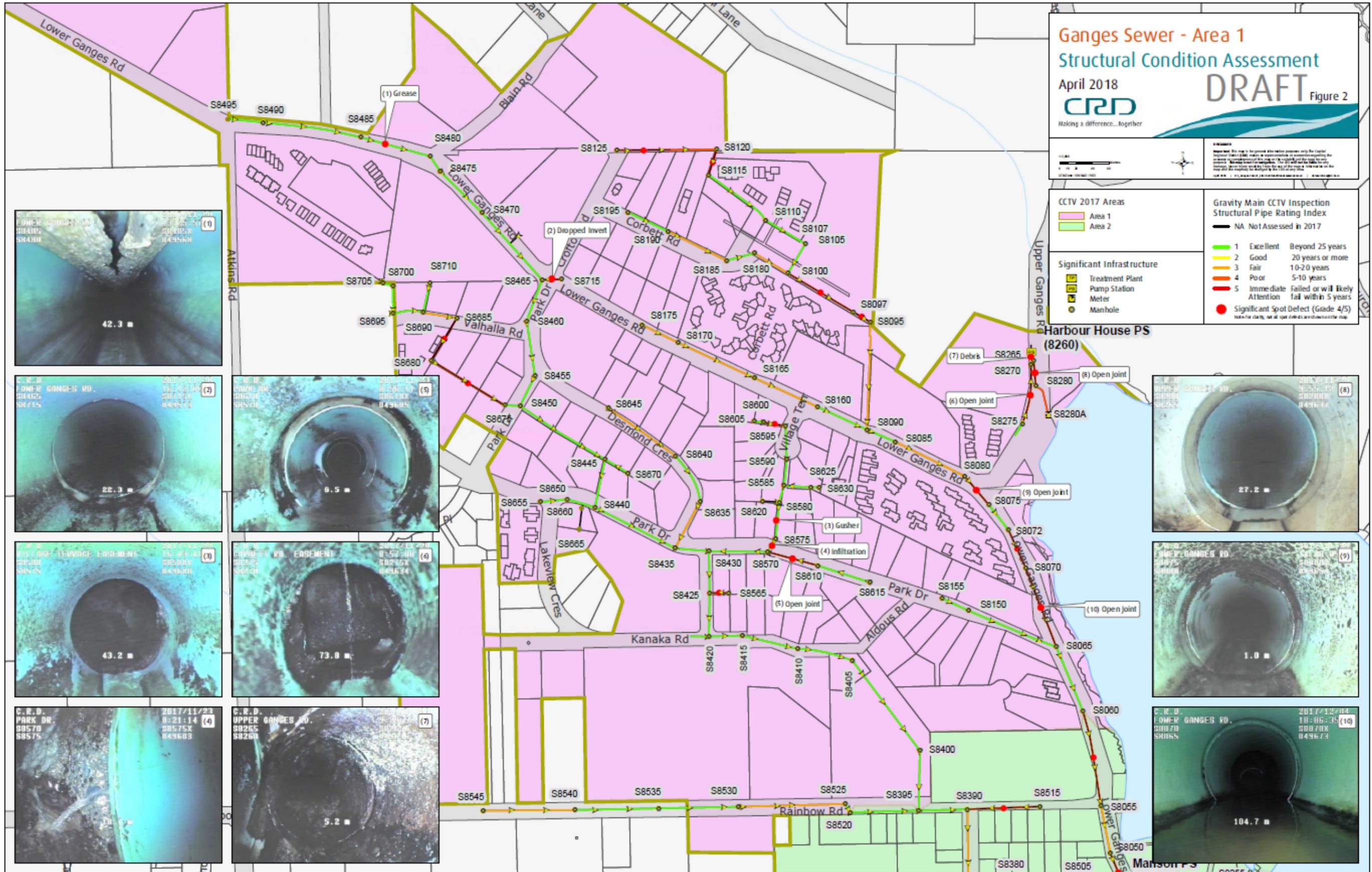
Based on the CCTV coding provided by PipeEye there were fifty-one Grade 4 defects and six Grade 5 defect noted. However, a condition grade alone is inadequate for determining if a pipe segment should be repaired or replaced. For instance, the CCTV software allocates a Grade 5 to a “deformed” pipe but the pipe may only be slightly out-of-round usually due to improper backfill compaction. A pipe that has is slightly ovalled may not have any structural or operational concerns.

Upon review of all the Grade 4 and 5 defects for the Ganges sewer system, seven repairs are being recommended at a total approximate cost of \$80,000. The repairs range from replacing short pipe sections with new pipe, sealing some joints with grout, and removing some roots.

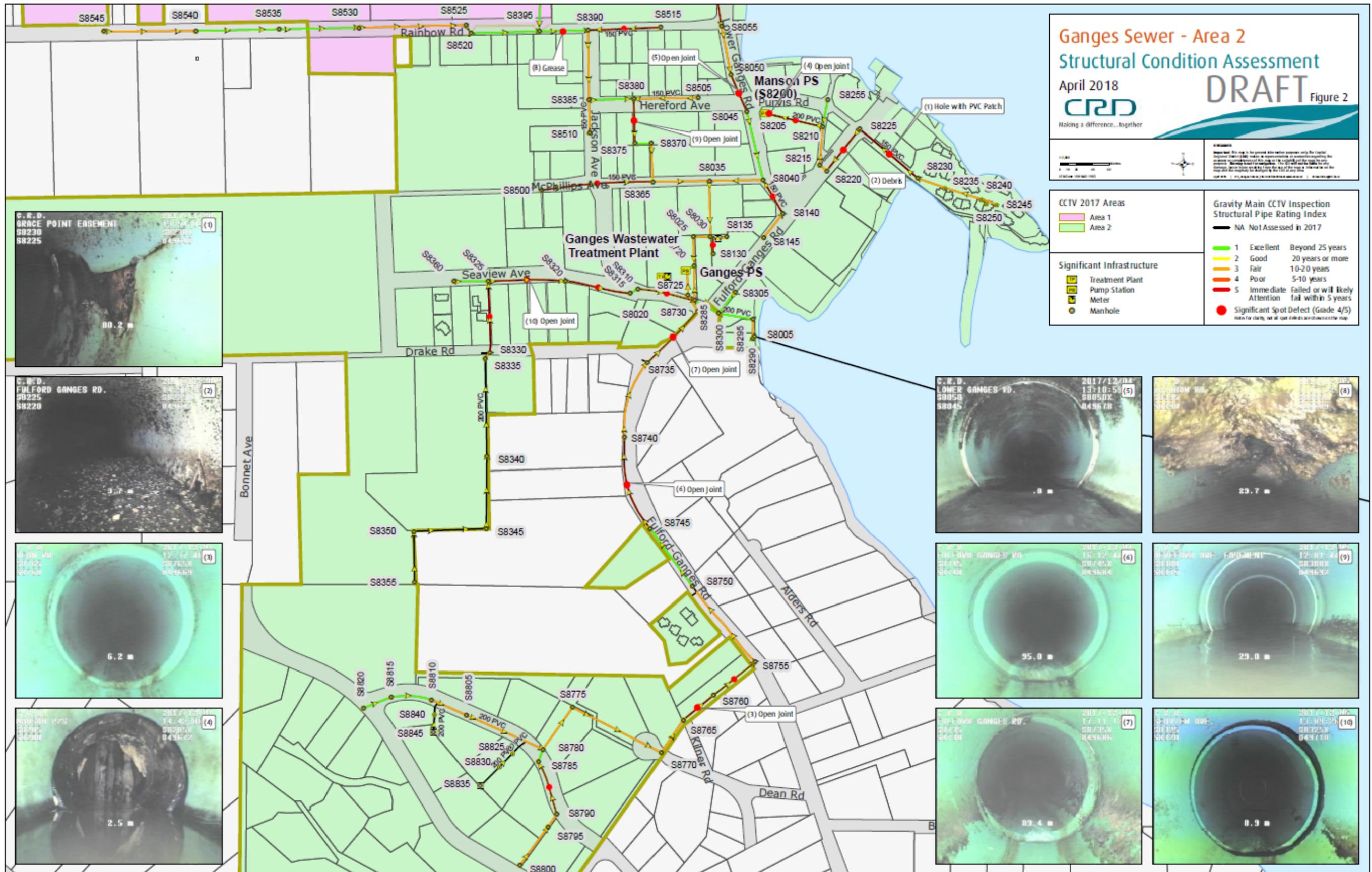
A majority of the defects occur with Area 1 which also corresponds with where the temporary flow meters indicated higher inflow and infiltration rates. However, based on the flow meter data (analyzed as part of the I&I program), the peak wet weather flow to average dry weather flow ratio at the treatment plant is about 1.8. The Municipal Sewage Regulation requires that the sewer flows at treatment plants should not exceed 2.0 time the average dry weather flow so the Ganges sewer system is in compliance. Regardless, by repairing the defects recommended in this report should help to lower inflow and infiltration rates. Flow meters will be installed again after the repair work is completed to see if any I&I reductions can be measured.

It is recommended that the sewers and manholes be maintained in accordance with best management practices and that they be cleaned and re-inspected again in 5-10 years.





Ganges Sewer – Evaluation of CCTV Inspection Reports



Ganges Sewer – Evaluation of CCTV Inspection Reports

Attachment 3 – Stantec Hydraulic Model Report - Recommendations

GANGES SANITARY SYSTEM – INFOSWMM MODEL CREATION

Recommendations

6.0 RECOMMENDATIONS

Computer models operate as a valuable planning tool to assist municipalities/districts in planning for future developments and helping to pinpoint key infrastructure that may require inspection or upgrades. Models should periodically be calibrated using flow monitoring data to record actual peak flows experienced and should not be relied on to provide exact data as contributions to the system from users or major storm events can only be estimated based on historic data available.

The InfoSWMM model created indicates that the existing system as it is currently operating is sufficient and there is adequate capacity to add all proposed developments from scenario 2. Though it should be mentioned that as the developments will likely span over the next few years the model should be updated to reflect new or expanded infrastructure within the SSA and be recalibrated periodically by flow monitoring data.

Though the UBOC scenario shows surcharging within the system we do not believe it to be an issue for the current system. The UBOC assumes every single property is developed to its maximum potential which is highly unlikely and will not occur over the short-term period. It should be used as a planning tool so that, as the SSA becomes more developed and expands, the infrastructure which may require upsizing in the low-lying areas around the WWTP can be identified and investigated further to plan for future work/upgrades.