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REPORT TO LYALL HARBOUR / BOOT COVE WATER LOCAL SERVICE COMMITTEE
INFORMATION REPORT, FEBRUARY 25, 2015

SUBJECT **WATER SYSTEM CAPACITY REVIEW, LYALL HARBOUR / BOOT COVE**

ISSUE

The Capital Regional District (CRD) received a request from the Lyall Harbour/Boot Cove Local Service Committee to assess the implications of proposed secondary suites on the Lyall Harbour/Boot Cove water system.

BACKGROUND

The Lyall Harbour/Boot Cove water system is operated by the CRD, and was recently upgraded in 2012 to include water source improvements, ozonation, two stages of filtration, ultraviolet light and chlorine disinfection, and a new 30,000 imperial gallon storage tank. In addition, a Supervisory Control and Data Acquisition (SCADA) system was installed that records and advises the operators of the water system's performance including storage tank level and the amount of water being produced by the treatment plant.

The Lyall Harbour/Boot Cove water service area includes 171 parcels, of which approximately 150 have been developed. The water service area is similar to other island communities where many of the lots are occupied by part-time residents. Because of the part-time occupation, the water demands for the system fluctuate significantly with average demands in the summer doubling the demands of the winter period. The CRD has reviewed the historical SCADA flows for the summer of 2013 and 2014 and have determined that the average summer daily demand ranges from 0.88 litres per second (l/s) to 1.0 l/s (76 m^3/day to 88 m^3/day) and the summer maximum daily demand (MDD) ranges from 1.3 l/s to 1.5 l/s (111 m^3/day to 130 m^3/day). To adequately service the community the treatment plant should be capable of treating at least the summer MDD of 1.5 l/s.

The new treatment plant was designed to treat up to 2.27 l/s and the new storage tank provides storage of 20,000 IG plus 10,000 IG for the recreation centre fire protection to replicate the original storage tank (total tank volume of 30,000IG) and noting that the system design criteria did not include fire protection for the community as this was provided by the fire department by other means such as small storage tanks and dugout/dry hydrants strategically located throughout the community.

Historically, the new treatment plant has been able to produce up to the design flow rate of 2.27 l/s, however there is a constraint related to the pre-existing supply line to the new storage tank which requires some of the flow to bypass the storage tank and be supplied directly to the water distribution system at the treatment plant during high demand. Based on the water treatment plant being able to produce up to 2.27 l/s there is spare capacity within the plant to facilitate up to 0.77 l/s of additional demand.

The service area has an obligation to provide water service to the additional undeveloped 21 parcels within the service area. Estimating that if all 171 parcels within the service were occupied with comparable dwellings and related water demand, the estimated maximum day demand would be 1.7 l/s leaving approximately 0.57 l/s of spare capacity based on the existing zoning.

The CRD understands that the community is seeking advice whether additional secondary suites could be added to the water service area in support of an affordable housing strategic initiative of the Saturna Island Local Trust Committee. It is anticipated that secondary suites would have the equivalent or less demand than a single family dwelling. Based on the existing water treatment plant capacity and recent operating performance data the water system has the capacity to provide water for up to 12 secondary suites. It should be noted that this analysis does not consider a full build-out of the existing service area based on the existing zoning nor does it consider the potential effect of rezoning to a higher density recognizing that single family residences dominate the housing mix on Saturna Island.

As the distribution system is quite small and sometimes susceptible to leaks, the water system should continue to be monitored. The availability of the SCADA system allows instantaneous and historical monitoring of the demands on the system and for the operators to be informed instantly and to take action should there be a system failure.

Water meters were installed but not used for billing purposes. If water meters are used in the future for individual billing purposes, the community may realize a reduction in water use as this has been experienced in other communities that have implemented usage charges. Further, should it be necessary to increase the water system production capacity in the future, capital improvements could be implemented to increase capacity.

Again, it should be noted that further analysis of the impact of current and potential zoning on the water system demand could be conducted to account for the potential of full build-out within the existing zoning or potential re-zoning should it occur.

ALTERNATIVES

Alternative 1

That the Lyall Harbour/Boot Cove Water Local Service Committee receive this report for information.

Alternative 2

That the Lyall Harbour/Boot Cove Water Local Service Committee request the CRD staff to undertake further analysis.

IMPLICATIONS

Alternative 1 –That the Lyall Harbour/Boot Cove Water Local Service Committee receive this report for information.

Alternative 2 – The Lyall Harbour/Boot Cove Water Local Service Committee may consider requesting the CRD staff to conduct further analysis of the potential effects of secondary suites, infilling and potential revisions to zoning and report to the committee. Should this occur it is proposed to establish a budget of up to $2,000 for staff effort to conduct the analysis, noting that the current capital five-year plan does not account for this task and the capital reserve account is fully subscribed.

CONCLUSION

It is estimated using historical SCADA information that the existing Lyall Harbour/Boot Cove water system has spare production capacity to facilitate both the existing unoccupied lots and a limited amount of additional housing units or secondary suites within the service area. However, any additional housing units will increase the demand on the water system and monitoring of the system performance should continue.

The community has the opportunity to implement the existing individual water meters for billing purposes which may lead to a reduction in water use.

RECOMMENDATION

That the Lyall Harbour/Boot Cove Water Local Service Committee receive this report for information.

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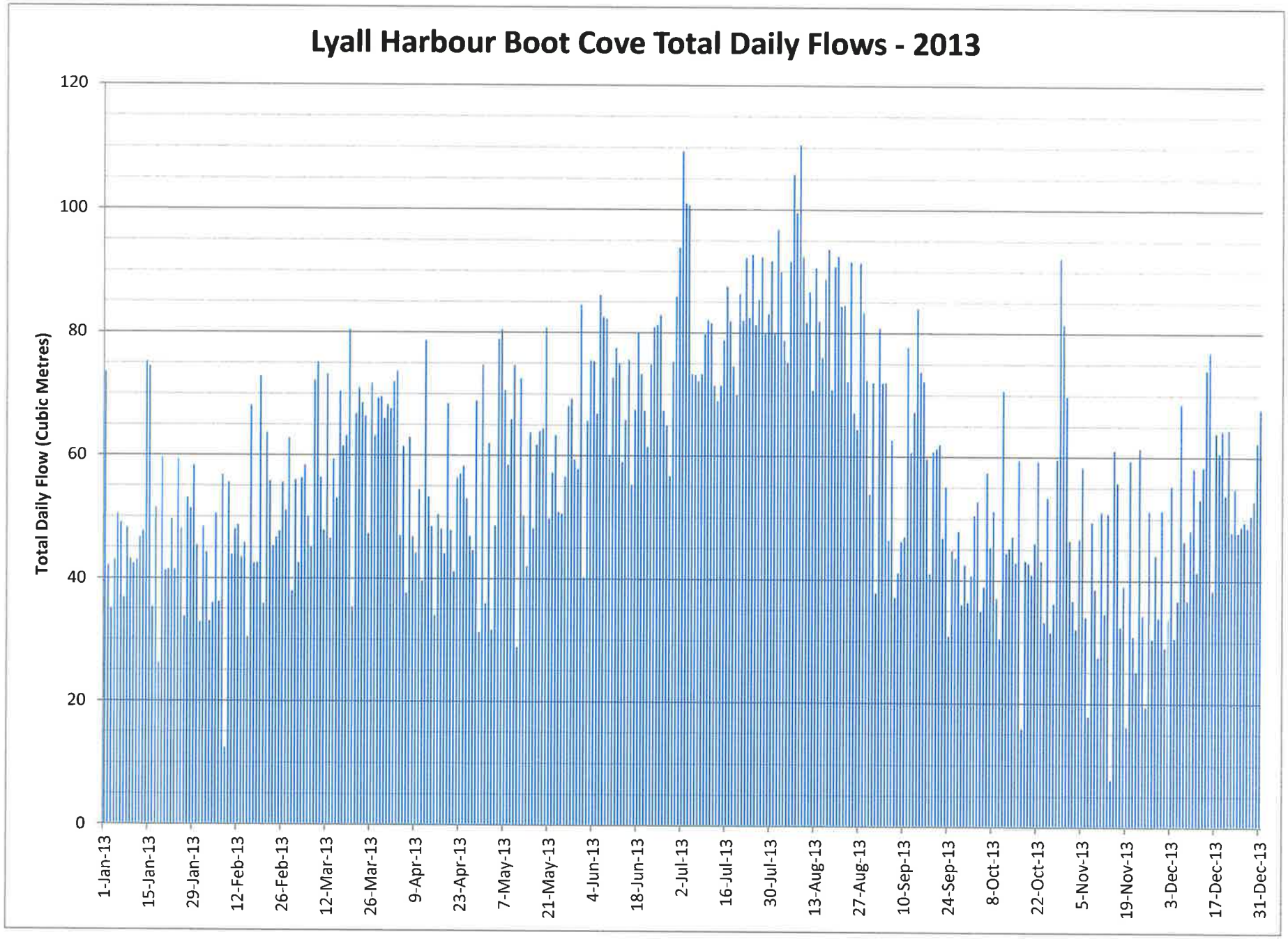
JM/SM:dg
Attachments - Lyall Harbour/Boot Cove Total Daily Flows (2013 and 2014)

References:
Capital Regional District – Lyall Harbour/Boot Cove – Water System Upgrade, Design Brief, Revision 2, Genivar, June 6, 2012
Historical SCADA information -Lyall Harbour/Boot Cove Water System – January 2013 to January 2015.


Lyall Harbour Boot Cove Total Daily Flows - 2013
Total Daily Flow (Cubic Metres)
120
100
80
60
40
20
0
1-Jan-13
15-Jan-13
29-Jan-13
12-Feb-13
26-Feb-13
12-Mar-13
26-Mar-13
9-Apr-13
23-Apr-13
7-May-13
21-May-13
4-Jun-13
18-Jun-13
2-Jul-13
16-Jul-13
30-Jul-13
13-Aug-13
27-Aug-13
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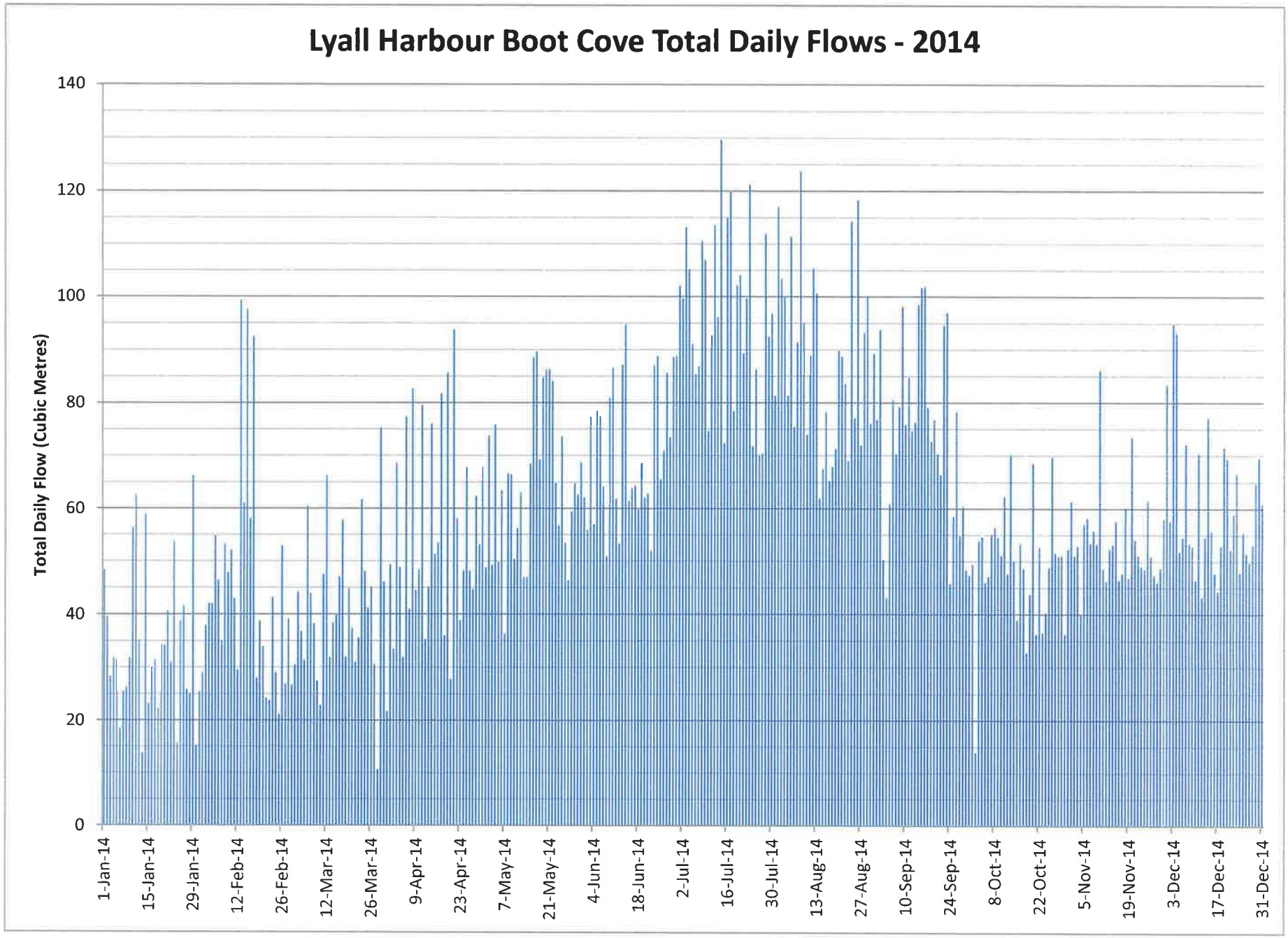
19-Nov-13
3-Dec-13
17-Dec-13
31-Dec-13


Lyall Harbour Boot Cove Total Daily Flows - 2014
Total Daily Flow (Cubic Metres)
140
120
100
80
60
40
20
0
1-Jan-14
15-Jan-14
29-Jan-14
12-Feb-14
26-Feb-14
12-Mar-14
26-Mar-14
9-Apr-14
23-Apr-14
7-May-14
21-May-14
4-Jun-14
18-Jun-14
2-Jul-14
16-Jul-14
30-Jul-14
13-Aug-14
27-Aug-14
10-Sep-14
24-Sep-14
8-Oct-14
22-Oct-14
5-Nov-14
19-Nov-14
3-Dec-14
17-Dec-14
31-Dec-14