



LAKE WHATCOM WATER AND SEWER DISTRICT
1220 Lakeway Drive
Bellingham, WA 98229

REGULAR MEETING OF THE BOARD OF COMMISSIONERS

AGENDA

April 11, 2018

6:30 p.m. – Regular Session

1. CALL TO ORDER
2. PUBLIC COMMENT OPPORTUNITY
At this time, members of the public may address the Commission. Please state your name prior to making comments.
3. ADDITIONS, DELETIONS, OR CHANGES TO THE AGENDA
4. CONSENT AGENDA
5. SPECIFIC ITEMS OF BUSINESS:
 - A. Water Quality/Herrera Consulting Update – Phone Call with Rob Zisette
 - B. Succession Planning
6. OTHER BUSINESS
7. MANAGER'S REPORT
8. PUBLIC COMMENT OPPORTUNITY
9. EXECUTIVE SESSION
Discussion of a personnel matter.
10. ADJOURNMENT



LAKE WHATCOM WATER AND SEWER DISTRICT

AGENDA BILL

Item 4

DATE SUBMITTED:	April 5, 2018	MEETING DATE:	April 11, 2018
SUBJECT:	Consent Agenda		
TO: BOARD OF COMMISSIONERS	FROM: Staff		
GENERAL MANAGER APPROVAL			
DISTRICT ENGINEER/ASST MGR APPROVAL			
FINANCE MANAGER APPROVAL			
ATTACHED DOCUMENTS	1. See list below		
	2.		
	3.		
TYPE OF ACTION REQUESTED	RESOLUTION <input type="checkbox"/>	FORMAL ACTION/ MOTION <input checked="" type="checkbox"/>	INFORMATIONAL /OTHER <input type="checkbox"/>

BACKGROUND / EXPLANATION OF IMPACT

****TO BE UPDATED WED 4/11/18****

- Minutes for the March 29, 2018 Board Meeting.
- Accounts Payable Vouchers totaling \$XXX,XXX.XX.
- Payroll for Pay Period #08 (03/24/2018 through 04/06/2018) totaling \$XX,XXX.XX.
- Payroll Benefits for Pay Period #08 totaling \$XX,XXX.XX.



LAKE WHATCOM WATER AND SEWER DISTRICT

1220 Lakeway Drive
Bellingham, WA 98229

**SPECIAL SESSION OF THE BOARD OF COMMISSIONERS
Minutes**

March 29, 2018

Board President Laura Weide called the Special Session to order at 8:00 a.m.

Attendees: Commissioner Laura Weide
Commissioner John Carter
Commissioner Todd Citron
District Engineer/Assistant Manager Bill Hunter
District Legal Counsel Bob Carmichael
Recording Secretary Rachael Hope

Excused Absence(s): Commissioner Curtis Casey
Commissioner Bruce Ford
General Manager Patrick Sorensen
Finance Manager/Treasurer Debi Denton

A list of interested parties is attached.

Consent Agenda

Action Taken

Citron moved, Carter seconded, approval of:

- Minutes for the March 14, 2018 Board Meeting.
- Accounts Payable Vouchers totaling \$103,751.34.
- Payroll for Pay Period #07 (03/10/2018 through 03/23/2018) totaling \$44,668.42.
- Payroll Benefits for Pay Period #07 totaling \$31,517.77.

Motion passed.

Sole Graphics Presentation – District Website Update

Hope recounted that at the beginning of 2018, the District contracted with consultant Sole Graphics to perform an update to Lake Whatcom Water & Sewer District's website, as well as providing some technical and IT support on an ongoing basis.

Matt Bain, Owner, and Brooke McClary, Director of Marketing, were in attendance and Bain gave a short presentation on the proposed cosmetic and usability update to the District's website. Discussion followed.

Executive Session Per RCW 42.30.110 (1)(g): Considering a personnel matter – 30 Minutes

Weide recessed the Special Session to Executive Session at 8:48 a.m. It was estimated that the Executive Session would take about 15 minutes. The purpose of the Executive Session was for discussion of a personnel matter. Weide recessed the Executive Session and reconvened the Special Session at 9:03 a.m.

Executive Session Per RCW 42.30.110 (1)(g): Considering a personnel matter – 15 Minutes

Weide re-recessed the Special Session to Executive Session at 9:03 a.m. It was estimated that the Executive Session would take about 20 minutes. The purpose of the Executive Session was for discussion of a personnel matter. Weide recessed the Executive Session and reconvened the Special Session at 9:22 a.m.

Protecting Municipal Water Rights Discussion – Crown West Realty v. WDOE

Bob Carmichael explained to the board that the Washington Association of Sewer & Water Districts (WASWD) has been following the Crown West Realty v. Department of Ecology case which involves the argument that if you hold a municipal water right and are currently only using a portion of it, the unused quantity could be at risk to be taken back. WASWD is considering filing an Amicus Brief in this case with other Districts and the PUD Association.

Sudden Valley Community Association 2018 Utility Protection Agreement

Hunter advised the board that in July-August 2018, Sudden Valley Community Association (SVCA) is planning to resurface about 2 miles of roads using a method called micro-resurfacing, which adds about 3/8-inch to the road thickness and years to the wear life of the pavement. There is a potential that some of the District assets (public infrastructure) will need adjustment or relocation, including up to 46 sewer manhole ring/covers and an uncounted number of water valve boxes. SVCA is also planning culvert replacement/improvements at several locations. At three of those locations there is a potential for utility conflicts with District water and/or sewer utilities. District staff will begin field inspections and assessment of District assets that could be impacted by the SVCA project.

In 2017 a Utility Protection Agreement was executed between the District and SVCA for a specific SVCA project called the "Louise Creek Daylighting Project." Staff intends to develop a similar agreement for the upcoming 2018 projects. During last year's Utility Protection Agreement discussions, it was noted that work on publically owned infrastructure requires following public works contracting law (i.e. prevailing wages, bonding, insurance, retainage, etc.). Staff plans to develop basic requirements for SVCA to follow and incorporate them into the 2018 agreement in case the need arises while performing these projects. The District's own requirements for small works are already spelled-out in the District's standard Small Works Contract form which can be used as the basis to develop SVCA agreement language.

Dellesta, Edgewater, Euclid Sewer Pump Station Improvements Consultant Selection

Hunter recapitulated that the District published a Request for Proposals for professional engineering services in the Bellingham Herald on February 10, 2018. Proposals were due March 7, 2018. The District's consultant selection committee met on March 22, 2018 to review, discuss, and select the most qualified consultant. The committee recommendation was to hire RH2 for these projects.

Action Taken

Carter moved, Citron seconded that the District selects RH2 as the most qualified professional engineering consultant for the Dellesta, Edgewater, & Euclid Sewer Pump Station Improvement projects and authorizes District staff to begin scope of work and fee negotiations for professional services.

Summary of Existing District Projects

Hunter updated the Board on the permitting process for the Geneva and Par Sewer Pump Station projects. Staff has revised their plan to bid these projects together, and will bid the Par Sewer Pump Station project while continuing work on permitting for the Geneva project. Hunter also gave short updates on the Water Comp Plan, the Little Strawberry Bridge leak, and the Shake Alert program. Discussion followed.

With no further business, Weide adjourned the Regular Session at 9:40 a.m.

Recording Secretary, Rachael Hope

Date Minutes Approved

Laura Weide

Todd Citron

excused

Bruce R. Ford

excused

Curtis Casey


John Carter



LAKE WHATCOM WATER AND SEWER DISTRICT

AGENDA BILL

Item 5.A.

DATE SUBMITTED:	April 3, 2018	MEETING DATE:	April 11, 2018
SUBJECT:	Water Quality/Herrera Consulting Update		
TO: BOARD OF COMMISSIONERS	FROM: Patrick Sorensen, General Manager		
MANAGER APPROVAL			
ATTACHED DOCUMENTS	1. Response to County & City Questions Regarding Herrera Tech Memo		
	2.		
	3.		
TYPE OF ACTION REQUESTED	RESOLUTION <input type="checkbox"/>	FORMAL ACTION/ MOTION <input type="checkbox"/>	INFORMATIONAL /OTHER <input checked="" type="checkbox"/>

BACKGROUND / EXPLANATION OF IMPACT

Rob Zisette from Herrera will provide to the Board of Commissioners an updated response to the questions asked by City and County staff regarding the North Shore Technical Report presented in January 2018. His written response is attached. He will also be calling in to the Board meeting to address your questions.

FISCAL IMPACT

Not applicable for this meeting.

RECOMMENDED BOARD ACTION

This is a briefing for discussion purposes.

PROPOSED MOTION

No formal motion is required.

Responses to Comments on North Shore Road On-Site Septic System Study Report and Phosphorus Loading Analysis Technical Memorandum

Comment Source	Comment	Response
County - General Comments on Report	Study Design Recommendation: Include a stretch of shoreline with homes serviced by a sewer as an additional control site. It appears that the goal of this project is to determine if a public sewer system would be a better option than individual septic systems for sewage treatment at lakeshore residences in the Lake Whatcom watershed.	The project goal was to determine if septic systems are contaminating the lake. Monitoring the shoreline of a sewered area may provide useful information for estimating potential reductions in contamination by sewerage the study area, but characteristics of the sewered areas likely vary widely and may not represent those planned for the study area.
County - General Comments on Report	Study Design Recommendation: Clearly establish prior to the outset of the project which criteria will be used for selecting a site for monitoring (e.g. during first sample run, elevated OB levels observed in lake near this discharge site). The QAPP indicates criteria will be established following survey of the control site and the report references optical brightener levels.	The QAPP specified that OB would be used to select sampling sites based on background levels observed at the lake control sites. The exact OB threshold over background was not specified in the QAPP because this method had not been previously used. The same threshold determined for the first monitoring event was used for the following two monitoring events.
County - General Comments on Report	Study Design Recommendation: Suggest sampling all lake sites throughout the duration of the project. In particular, it is unclear why the lake project area station with the highest fecal coliform bacteria level in Event 1 was not sampled during the following sampling events. It appears that all five lake project area stations were only sampled once while two of the three control lake stations were sampled during all sampling events.	We agree that all lake and discharge stations should be monitoring during all events to better evaluate the entire study area. The project goal and sampling design was to sample worst case conditions, and the project budget did not allow an unlimited the number of samples. Furue monitoring should budget many more samples now that the large number of contaminated lake and discharge sites are known.
County - General Comments on Report	Study Design Recommendation: Suggest establishing sampling stations during first sample run and then consistently sampling these stations throughout the duration of the project. Additional stations may be established during later sampling runs based upon higher optical brightener levels.	We agree as noted above.

Responses to Comments on North Shore Road On-Site Septic System Study Report and Phosphorus Loading Analysis Technical Memorandum

Comment Source	Comment	Response
County - General Comments on Report	Results Question: Are there similar studies of optical brighteners that could provide ranges of levels typically found in lakes, creeks, and other discharges?	Yes there are, but most of them that we are aware of used a different meter with higher detection limits. We are not aware of any studies in this region and comparison to results for other regions may not be valid due to differences in background OB concentrations.
County - General Comments on Report	Results Question: DOE publication 11-03-038 indicates optical brighteners should be evaluated with other fecal indicators to evaluate public health risk. A wastewater treatment plant's effluent can have optical brighteners regardless of its effectiveness in removing pathogens. Based upon this, which sites have a public health risk?	OB data were not and should not be used to evaluate public health risk. In this study, OB data correlated with fecal coliform data, which is useful and compelling, but not strong enough to use OB as a surrogate for fecal coliform or pathogen concentrations.
County - General Comments on Report	Results Recommendation: Suggest measuring optical brightener levels at a minimum at each discharge site with each sampling run.	We measured OB at every discharge site that we could find during each sampling run.
County - General Comments on Report	Results Question: Are there other similar studies that could be reviewed to provide context for the levels of biomarkers found and the high, moderate, and low categories?	Yes there are comprehensive interlaboratory comparison studies that recommend how to rank biomarker results, and they formed the basis for the rankings made in this study.
County - General Comments on Report	Results Question: Are these human biomarkers the same biomarkers used by the EPA in the Tillamook and Nooksack studies?	We do not know and could investigate that if you provide us with reports of the other studies. It is likely that the EPA human marker quantified by Source Molecular for in this study is very similar to the human marker used by EPA in the other studies, but it may have been improved upon if those studies are old.

Responses to Comments on North Shore Road On-Site Septic System Study Report and Phosphorus Loading Analysis Technical Memorandum

Comment Source	Comment	Response
<p>County - General Comments on Report</p>	<p>Discussion and Conclusions Comment: There seem to be conflicting statements in the results and discussion section. Under Section 3.4 Bacteria Indicators, it is stated that “none of the observed lake or discharge results exhibited high enough fecal coliform bacteria concentrations to strongly indicate contamination from septic system effluent”. In Section 3.5 Bacterioidetes, the report indicates “moderate to high concentrations of human biomarkers are considered proof that the samples were contaminated by septic system effluent”. This is explained as likely being associated with seepage of septic system effluent through soils rather than a direct discharge to surface waters. It would be valuable to have reference materials for this concept.</p>	<p>We agree that additional research on fecal coliform and Bacterioidetes fate and transport should be conducted to validated this possible explanation of why high Bacterioidetes concentrations are observed where low fecal coliform concentrations are observed.</p>
<p>County - General Comments on Report</p>	<p>Discussion and Conclusions Comment: The final conclusion of the report is “connecting homes in the study area to a sanitary sewer would prevent the ongoing contamination of Lake Whatcom from septic systems in the area”. One site (520) had a consistent (two sample) pattern of the presence of both human DNA biomarkers and one site (453) had the presence of one of the human biomarkers in both samples. The other discharge sites did not show consistent patterns or moderate to high biomarker levels. One control lake site had the presence of low level of human biomarkers in one sample.</p>	<p>We do not see a conflict with the patterns observed and the conclusion drawn.</p>

Responses to Comments on North Shore Road On-Site Septic System Study Report and Phosphorus Loading Analysis Technical Memorandum

Comment Source	Comment	Response
Memo Page 1, Pgh 3 (Douglas)	Without the work completed to evaluate septic systems in this area, it isn't clear if the referenced bacteriodes and TP results may be affected by effluent transported through soils, a failing system with a surface discharge, or other source. It was agreed at the meeting this fall that it would be helpful to analyze water samples again after systems were evaluated.	We agree that it would be helpful to conduct additional monitoring to determine if septic system evaluation reduces contamination from septic systems. Study methods would need to be modified to identify the specific means of septic system effluent transport to the lake.
Memo Page 2, Pgh 3 (Stoyka)	This does not make sense. The point of the study is to make a case that connection to sewer will result in water quality improvements, but this is saying that sewer connection will not lead to any water quality improvements b/c of cross connections, etc.	The project goal was to determine if septic systems are contaminating the lake, not to prove that sewers would prevent contamination. Monitoring the shoreline of a sewer area may provide useful information for estimating potential reductions in contamination by sewerage the study area, but characteristics of sewer areas likely vary widely and may not represent those planned for the study area.
Memo Page 2, Pgh 4 (Stoyka)	Recreationalists can be a significant source of fecal in some areas and the land above these homes is a County park with trails.	We agree that may be the case in the summer, but discussions with residents indicated that is not the case in January when the ground was covered in snow and in March when it rained almost every day.
Memo Page 3, Pgh 1 (Stoyka)	this is still within the depth range that would provide full treatment.	Possibly, but P removal likely depends more on the type of soil, amount of sewage loading, age of the drainfield, the amount/rate of rain, and the depth of the water table.
Memo Page 4, Pgh 3 (Stoyka)	I can't figure out where these numbers are coming from.	We will include all raw data and calculations in the revised memo.

Responses to Comments on North Shore Road On-Site Septic System Study Report and Phosphorus Loading Analysis Technical Memorandum

Comment Source	Comment	Response
Memo Page 4, Pgh 4 (Stoyka)	Why would you reduce the contaminated discharge to the uncontaminated concentration.	We will clarify that the P concentrations in contaminated discharges were reduced to uncontaminated background concentrations to determine the difference between contaminated and uncontaminated for estimating the potential reduction in P loading if OSS contamination is removed.
Memo Page 4, Pgh 5 (Stoyka)	Where does this 50 lbs/yr come from?	10 lbs/yr was added to the estimate of 40 lbs/year for only discharges to account for direct seepage of P from OSS to the lake that was not included in discharge loading estimate.
Memo Page 5, Table 1 (Stoyka)	These numbers do not appear to be correct and do not reflect the averages from the above columns.	We will review the calculations and include all data in the revised memo.
Memo Page 6, Table 2 (Stoyka)	These stormwater projects together would remove an estimated 64 pounds of phosphorus per year for a cost of \$1,655,000. This is an average cost of about \$26,000 per pound of TP removal by stormwater projects. Both sewer and stormwater facilities require ongoing maintenance and the associated costs.	This is a reasonable way to estimate stormwater costs and will revise the cost analysis to evaluate average cost based on implementation of all planned projects.
Hood - Memo Data Review Comments	1 - In reviewing data, there are no field book notes or other indication to line up Sample ID to Station. It is not possible to verify that the correct analyses are line up with the station. For a random example, sample 9D represents station 453 on one date and station 462 on another date.	We will include all raw data and calculations in the revised memo. Each sample ID was identified sequentially as samples were collected rather than being uniquely associated with the same station ID.
Hood - Memo Data Review Comments	2 - The COC lists sample ID 10D and 5D but there is no data phosphorus, or chloride for 3/15/2017 sampling event and no explanation for the lack of analysis.	We will review the data and include explanations of missing data if there is any.

Responses to Comments on North Shore Road On-Site Septic System Study Report and Phosphorus Loading Analysis Technical Memorandum

Comment Source	Comment	Response
<p>Hood - Memo Data Review Comments</p>	<p>3 – Handling of outliers is not consistent. Denis Heisel advises, “Treat outliers like children -- correct them when needed but never throw them out.” (See https://practicalstats.teachable.com/p/applied-environmental-statistics-1) we should investigate outliers and provide a rationale for any correction. Station 462 sampled on 3/29/2017 was eliminated from non-contaminated group because it was an outlier (not 238 but 218 a minor error). The Lab QC was OK. One possible explanation is that the discharge may contain runoff from a wetland during times the water table is very high. The SCS soil map shows a couple of “wet spots” in the shoreline between Smith and Olsen Creeks. Wetlands often have high levels of phosphorus. In addition, wetlands often discharge intermittently. Note that March 2017 was wet, with nearly twice-normal rainfall spread throughout the month. January was mild January and February was normal. The single largest value may be a valid background value demonstrating what happens when wetlands discharge. Likewise, there are unexplored outliers in the bacterioidetes results. Station 520 has B. dorei levels that are an order of magnitude higher than OSS septage, yet FC and E. coli results are quite modest.</p>	<p>We removed the outlier TP value from the flow-weighted average TP concentration for uncontaminated discharges because it a statistical outlier and clearly does not represent an uncontaminated discharge. Wetland discharge of low oxygen waters is a possible high P source at that location, but it seems that it would also have been observed at another locations within the study area. There are other possible causes of the TP outlier, which include soil slumping and erosion caused by the extended wet period and high flow conditions. The bacterioidetes data were only used in the loading analysis to identify if a discharge was OSS contaminated. They were not used to calculate flow-weighted P loadings and removal of the high B. dorei value at station 520 as an outlier would not have changed its designation as contaminated because of the high concentration of B. EPA at that same station.</p>

Responses to Comments on North Shore Road On-Site Septic System Study Report and Phosphorus Loading Analysis Technical Memorandum

Comment Source	Comment	Response
Hood - Memo Data Review Comments	4 – I cannot find the discharge flows used to calculate the flow weighted means in the 7-12-2017 study, so I cannot verify volume weighted averages for all events. However, when going through the data to verify that the numbers reported were reasonable I found that three of the “contaminated” group used the max value and all were on the second March date. Two of those stations are also in the uncontaminated group using the early March Date. See comment #7 below on the significance of grouping by date of sample.	We calculated discharge data from field notes and entered it into the database after the report was written because it was needed when we were asked to conduct the P loading analysis. We will include all discharge data in the revised memo.
Hood - Memo Data Review Comments	5- At the end of “7-12-17-Final-North-Shore-Herrera-Report”, there is a table with all of the data. It would be helpful to understand the difference between less than DL and ND for the bacteroidetes data. One is in the Low “Bacteroidetes Lab Category” and the other is in Non detect. Does less than three represent presence?	Detected below the DL and not detected are distinctions commonly used for trace organics data. Less than 3 means that it was positively detected below the estimated detection limit of 3, and that was considered to be a low concentration. Not detected values are considered to not be present in the sample.
Hood - Memo Data Review Comments	6 – Lack of a sewer control area fails to test effectiveness of providing sewers. The extrapolation that contaminated events would mimic uncontaminated events is unsupported because no sites that have sewer were tested.	The project goal was to determine if septic systems are contaminating the lake, not to prove that sewers would prevent contamination. Monitoring the shoreline of a sewer area may provide useful information for estimating potential reductions in contamination by sewerage the study area, but characteristics of the sewer areas likely vary widely and extrapolation of sewer area results to the study area may not be relevant. However, it is clear from all reviewers that future monitoring should include monitoring of a sewer area for evaluating potential effects of a sewer extension.

Comment Source	Comment	Response
<p>Hood - Memo Data Review Comments</p>	<p>7 – Date of sample seems to be a more significant factor determining phosphorus than contaminated vs. uncontaminated groups identified. The paper claims that the groups are valid at alpha 10%. However, date is significant in defining the groups. 75% of the contaminated group is samples from the second date but only 44% of the uncontaminated group is from samples on the second date. The paper examine the significance of date of sample. A one sided Mann-Whitney test for all discharge sites based on date indicates that that date of sample is significant at alpha = 1% ($p = 0.00224$, with station 462 and $p=0.00319$ without station 462) chance that the location shift is equal to zero. This test is significant even at alpha = 1% so the significance of the groups may be more influenced by date. Also note that the date. Below is a box plot of TP for the two days from Discharge Stations. Two stations in the “Uncontaminated” group have sample results for both dates. The TP results on first sample date are 46% and 22% less than the second sample date. This is greater than the reduction estimated by providing sewers.</p>	<p>We recognize that the data vary by sampling event and that is not unique to this study. Collecting grab samples at different points on the hydrograph during different types of storms inherently results in data that varies by sampling event. Finding greater differences between sampling events does not negate statistical differences observed in other data pairings. It is important to recognize that the study was not designed to estimate P loadings from septic systems. P loading is difficult to estimate accurately because of the high variance of P concentrations in drainage. Accurate P loadings would require many more samples collected with automatic samplers, continuous flow meters over at least a 1-year period, and a model to predict P concentrations during unsampled periods of flow. Research has shown that even with a high level of effort, the uncertainty in P loading estimates can exceed 50 percent. Accurate P loadings from septic systems would require additional upstream stations and should also include shallow groundwater well testing.</p>

Responses to Comments on North Shore Road On-Site Septic System Study Report and Phosphorus Loading Analysis Technical Memorandum

Comment Source	Comment	Response
<p>Hood -Memo Method Comments</p>	<p>8- While the text correctly makes the case that weighted averages should be used it appears that arithmetic averages may have been used. As noted in 4 above I could not recalculate flow weighted TP concentrations for all events. However, weighted averages for the contaminated group are smaller than the reported flow weighted concentration and the weighted average for the uncontaminated group are higher than the reported concentration. The calculations below use the data from table 1. It is unclear when there are two events, if the reported flow is the average or the sum. In the calculations below "Flow.wt" is the concentration times the reported flow. In the column "TFlow?.wt", the weights are the doubled flow. Using the either of the weighted average uncontaminated flow as a target achievable for the contaminated events would only mean a reduction in 25% of the events. If we use the TotalFlow weights and make a similar calculation the contaminated group would drop from 58.4 µg/L to 56.1 µg/L a mere 4% reduction.</p>	<p>We will present all data and calculations, and review those calculations for the final memo.</p>
<p>Hood -Memo Method Comments</p>	<p>9 - Assuming the bottom of table 1 is correct, some area (undefined in the report) contributes 77 µg/L phosphorus, and when sewerer the discharge would be 69 µg/L it is important to note that forest covers over half the watershed. Since there seems to be a balance between contaminated and uncontaminated sites, providing sewers will improve only about half of the developed area. It does not seem reasonable to apply a 10% reduction across the watershed. Based on this data, providing sewers would improve only a quarter of the watershed.</p>	<p>The 10 percent reduction to the entire watershed is reasonable because 77 and 69 are flow-weighted values for all discharges measured in the watershed under two different scenarios.</p>

Responses to Comments on North Shore Road On-Site Septic System Study Report and Phosphorus Loading Analysis Technical Memorandum

Comment Source	Comment	Response
Hood -Memo Method Comments	10 – High flows at the extreme end of the distributions provide a large influence on the weighted means. We should ask if we have a representative sample.	The samples are representative of high flow conditions. We don't know if P concentrations are lower during lower flows, or if the flow- weighting of specific discharges would substantially change during lower flows. There is indication from the one discharge sampled in the North Shore basin for the Phase 2 P loading study (site NS1 referenced in a comment below) that it does have lower P concentrations during the smaller storms sampled for that study. We will add that data comparison and a discussion of representative storms to the final memo. However, we have often seen higher P concentrations during base flow than storm flow in drainages where the groundwater P concentrations are high and runoff dilutes the drainage P concentrations, which may be the case for septic contaminated drainages in the study area.
Hood -Memo Method Comments	11 – There does not seem to be any discussion on how much of the developed area may be increasing TP in discharges.	Samples were not collected upstream of the developed area to determine how development may have affected P loading from non-OSS sources. We recognize that development increases P loading from sources other than OSS and those sources were assumed equivalent in all discharges for this analysis, with the exception of the one outlier removed.
Hood -Memo Method Comments	12 – The multiplier for ground water discharge to the lake does not address that	The multiplier for groundwater discharge is intended to only represent OSS P loading and it would not be appropriate to increase the multiplier for non-OSS loading from development.

Responses to Comments on North Shore Road On-Site Septic System Study Report and Phosphorus Loading Analysis Technical Memorandum

Comment Source	Comment	Response
<p>Hood - Memo Proposed Solution Comments</p>	<p>12- In dismissing the ability of the OSS maintenance program to address failures that discharge to ground, there is an error in the last paragraph of page 1. I know of at least one case where an OSS inspection identified a failure that was not surfacing. In this case, the septic tank was leaking and septage was going to ground without reaching the drain field. The observation of draw down can capture system problems between the septic tank and the drain field that do not result in surface discharges.</p>	<p>We will revise the statement to clarify that the OSS maintenance program occasionally corrects failures that do not surface.</p>
<p>Hood - Memo Proposed Solution Comments</p>	<p>13- There seems to be a balance between sites identified as contaminated and not contaminated. This would indicate that we are applying a solution to all that may be only necessary for some. A \$6MM project should have several alternatives evaluated. We must evaluate more than one alternative, to ensure, we select a cost effective solution. Alternative to consider would be: Include measures to evaluate groundwater separation in the inspection to capture systems that are not functional but do not meet current criteria for drain fields. Require rebuilding failed systems. Alternative such as STEP systems that would reduce the infrastructure cost, so only failed systems need connect.</p>	<p>We agree that there are several alternatives to consider besides maintaining septic and extending the sewer.</p>
<p>Hood - Memo Proposed Solution Comments</p>	<p>14 - To the extent that the results from contaminated groundwater, a greater understanding of groundwater will be required to estimate the benefits. If there is a deep contamination of the groundwater, the contaminated groundwater may continue to flow into the lake for many years.</p>	<p>We agree that a greater understanding of groundwater contamination and P movement towards the lake would be valuable for assessing OSS impacts on the lake.</p>

Responses to Comments on North Shore Road On-Site Septic System Study Report and Phosphorus Loading Analysis Technical Memorandum

Comment Source	Comment	Response
<p>Wendling - Memo General Comments</p>	<p>The previous reviewer (attached in your email, unknown source) was very thorough in reviewing the study data and assumptions. I could comb through these as well, but they did a thorough job and I would need a week to get this done. The Herrera work was interesting and their use of human-specific biomarkers from fecal bacteria was a helpful new tool in sourcing pollutants.</p>	<p>Comment noted.</p>
<p>Wendling - Memo General Comments</p>	<p>My comments are general and have more to do with where this assessment fits in the world of work done on the lake to date. The Herrera study really needed to have control sites in an area of the lake that was sewered. Without this, it is difficult to parse out what could be potential contributory factors from developed land-use - serwered or not. For example, fluorescent whitening agents are used in paper and could be associated with litter that often finds its way into roadside ditches, or from the use of detergent months earlier to wash cars, clean decks or patio furniture, etc. If some sewered waterways had been analyzed to provide an indication of "background" it would have made this current analysis more pertinent to the conclusions drawn.</p>	<p>Monitoring sewered areas can be considered in the future as noted above to evaluate effects of sewer extension on P loading. We recognize that there are sources of optical brighteners other than sanitary wastewater, but OB presence was not used to prove the presence of OSS contamination.</p>

Responses to Comments on North Shore Road On-Site Septic System Study Report and Phosphorus Loading Analysis Technical Memorandum


Comment Source	Comment	Response
<p>Wending - Memo General Comments</p>	<p>Without this context, the work we have performed to date to assess the contribution of contaminants from this section of the lake in relation to other sites becomes necessary. The Brown and Caldwell Phase 2 Report, did do a nice job looking at phosphorus contributions from tributaries around the lake that had been unmonitored as shown at pages 4-2 and 4-3 of this report (attached). In it, the relative concentration of phosphorus coming from the North Shore site (NS1) was found to be on the low end of the scale. One would conclude that efforts at P-reduction would likely produce a bigger impact from those sites found to be a larger P-contributors. Those larger contributory sites were found to be in areas that are traditionally sewered.</p>	<p>We reviewed the Phase 2 results and noticed the low TP concentrations measured at site NS1 compared to our samples from that site. We also noticed that very small storm events were sampled for the Phase 2 study. It is possible that P loadings were underestimated for the Phase 2 study because the data did not represent concentrations in high flow that contribute most of the P loading to the lake.</p>
<p>Wending - Memo General Comments</p>	<p>The HSPF model predicted total phosphorus loading by subbasin and again, the North Shore area is not seen to be a large contributor from a lake-wide perspective. I've attached a presentation of model outputs here. Slides 16-20 do a nice job breaking the watershed down to show relative inputs of P by contributing area.</p>	<p>Thank you for the presentation. P loadings are relatively low from the North Shore basin because the basin is small and predominantly forest.</p>



LAKE WHATCOM WATER AND SEWER DISTRICT

AGENDA BILL

Item 5.B.

DATE SUBMITTED:	April 2, 2018	MEETING DATE:	April 11, 2018
SUBJECT:	Succession Planning		
TO: BOARD OF COMMISSIONERS	FROM: Patrick Sorensen, General Manager		
MANAGER APPROVAL			
ATTACHED DOCUMENTS			
TYPE OF ACTION REQUESTED	RESOLUTION <input type="checkbox"/>	FORMAL ACTION/ MOTION <input type="checkbox"/>	INFORMATIONAL /OTHER <input checked="" type="checkbox"/>

BACKGROUND / EXPLANATION OF IMPACT

District Engineer/Assistant General Manager Bill Hunter and I will be making a presentation to the Board on our proposed plans to replace the vacant Maintenance Supervisor position. This will include a job description and proposed salary. Because Bill has been ill, the WASWD Conference, and other events we will present our proposal to each of you by email by Tuesday morning, 4/10/18.

FISCAL IMPACT

Budget information will be provided to you on Tuesday with the job description.

RECOMMENDED BOARD ACTION

Staff will need direction in order to fill the vacant Maintenance Supervisor's position.

PROPOSED MOTION

No formal motion is recommended at this time



LAKE WHATCOM WATER AND SEWER DISTRICT

AGENDA BILL

Item 7

DATE SUBMITTED:	April 4, 2018	MEETING DATE:	April 11, 2018
SUBJECT:	Manager's Report		
TO: BOARD OF COMMISSIONERS	FROM: Patrick Sorensen		
GENERAL MANAGER APPROVAL			
DISTRICT ENGINEER/ASST MGR APPROVAL			
FINANCE MANAGER APPROVAL			
ATTACHED DOCUMENTS	1. Manager's Report		
	2.		
	3.		
TYPE OF ACTION REQUESTED	RESOLUTION <input type="checkbox"/>	FORMAL ACTION/ MOTION <input type="checkbox"/>	INFORMATIONAL /OTHER <input checked="" type="checkbox"/>

BACKGROUND / EXPLANATION OF IMPACT

Updated information from the General Manager in advance of the Board meeting.

FISCAL IMPACT

None.

RECOMMENDED BOARD ACTION

None required.

PROPOSED MOTION

None.



LAKE WHATCOM WATER AND SEWER DISTRICT

General Manager Comments

Regular Meeting – Wed. April 11, 2018 – 6:30 p.m.

Important Upcoming Dates

Lake Whatcom Water & Sewer District			
Next Regular Board Meeting	Wed April 25, 2018	8:00 a.m.	Board Room
Next Employee Staff Meeting	Thu April 12, 2018	8:00 a.m.	Board Room Scheduled to Attend: Commissioner Bruce Ford
Safety Committee Meeting	Thu April 12, 2018	9:00 a.m.	Small Conference Room
Lake Whatcom Management Program			
Policy Group Meeting	Tue May 15, 2018	3:00 p.m.	City of Bellingham’s Fireplace Room 625 Halleck St <i>Enter through the Halleck St entrance</i>
Management Meeting	None Planned		Last meeting – March 28, 2018
Other Meetings			
Washington Association of Sewer & Water Districts (WASWD) Section III Meeting	Tue May 8, 2018	6:15 p.m.	Bob’s Burgers and Brews Tulalip, WA
Whatcom Water District’s Caucus Meeting	Wed April 18, 2018	1:00 p.m.	Board Room

Other Comments


- **Committee Meeting Reports as Needed:** This is a place holder for Board and staff members to report on recent committee meetings, such as the Lake Whatcom Policy Group.
- **Commissioner Citron Request:** Set a time to review and discuss the District’s compliance with WA Public Records Act and our procedures and communications regarding it. This would likely involve legal counsels input also.
- **Upcoming Important Agenda Topics & Meetings:**
 - April 15 deadline for District 4 vacant Commissioner position. 2 applications have been submitted to date.
 - City staff will attend the June 13 meeting to address bio solid treatment at the wwtp.



LAKE WHATCOM WATER AND SEWER DISTRICT

AGENDA BILL

Item 9

DATE SUBMITTED:	April 5, 2018	MEETING DATE:	April 11, 2018
SUBJECT:	Executive Session		
TO: BOARD OF COMMISSIONERS	FROM: Patrick Sorensen		
GENERAL MANAGER APPROVAL			
DISTRICT ENGINEER/ASST MGR APPROVAL			
FINANCE MANAGER APPROVAL			
ATTACHED DOCUMENTS	1.		
	2.		
	3.		
TYPE OF ACTION REQUESTED	RESOLUTION	FORMAL ACTION/ MOTION	INFORMATIONAL /OTHER
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

BACKGROUND / EXPLANATION OF IMPACT

Executive Session Per RCW 42.30.110 (1)(g): Considering a personnel matter – 15 Minutes

This agenda item is a placeholder for the board to go into Executive Session.

FISCAL IMPACT

N/A

RECOMMENDED BOARD ACTION

N/A

PROPOSED MOTION

N/A