

Lake Auburn Watershed Protection Commission

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Wednesday, December 7, 2022 at 3:30pm – 5:30pm AVCOG, 125 Manley Road, Auburn,
Maine

AGENDA

1. Minutes
 - a. 11/09/2022 – Regular Meeting
2. Public Comment
3. Staff Report
 - a. Mike Broadbent – As deemed necessary by Mr. Broadbent
4. Old Business
 - a. CEI draft peer review of FB Environmental study
5. Adjournment

FUTURE REGULAR MEETING SCHEDULE:

February 8, 2023

April 12, 2023

June 14, 2023

September 13, 2023

November 8, 2023

Minutes 11-09-22

Lake Auburn Watershed Protection Commission

Regular Meeting Minutes

Wednesday, November 9, 2022

Location: Androscoggin Valley Council of Governments (AVCOG), Auburn, Maine

Time: Meeting began at 3:35 PM

Recording: The meeting was video recorded, a link to the video is on the Commission website.

Commissioners Present: Evan Cyr, Alan Holbrook, Mary Ann Brenchick, Amy Landry, Dan Bilodeau, Glen Holmes and Camille Parrish

Commissioners Absent: Dan Dube, Rick Lachapelle

Others Present: Michael Broadbent Commission Secretary, Erica Kidd Watershed Manager, Carolyn Houtz Education and Outreach Coordinator, Tracy Roy Commission Treasurer

Agenda Item 1: Approve the Minutes of the regular Commission meeting held, 9/14/2022

Vote 1 On a motion by Commissioner Holmes and seconded Commissioner Parrish to approve the minutes as presented.

Passed 7-0

Agenda Item 2: Consent Agenda

Vote 2 On a motion by Commissioner Holmes and seconded by Commissioner Brenchick to accept the Consent Agenda Items.

Passed 7-0

Agenda Item 3: Draft 2023 Budget-*Tracy Roy*

Tracy went over the draft 2023 Commission Budget, there were a couple of items that were either higher or lower than previous years but overall, the budget is fairly flat. Legal fees to the Commission are up, forestry revenue is down and the Commission is planning to purchase a new boat.

Vote 3 On a motion by Commissioner Brenchick and seconded by Commissioner Landry to accept the 2023 budget as presented.

Passed 6-1

Agenda Item 4: Public Comment

Agenda Item 5: Staff Report

Mike Broadbent- Reported that the DOT project on Route 4 is now complete, our work on gates and the site is finished as well. There was one incident that did occur during construction that resulted in a vehicle losing control and going into the wetland on the outlet side of the lake. There was a release of motor oil that AWSD worked to clean-up and remediate. There was also a vehicle that went off Lakeshore Drive and into the lake. Nobody was injured and there was minimal impact because the vehicle did not suffer any damage before entering the water. No remediation or clean-up was required.

Erica Kidd- No additional items at this time.

Agenda Item 6: Old Business

- A. Water quality testing overview-** Erica provided the Commissioners with a water quality overview of the types and frequency of testing staff currently conducts. Included in the overview were maps of sample stations and historical data that is collected. The sampling plan that we used was developed in 2013 but has evolved as necessary over the last 10 years.
- B. LAWPC-held properties and acquisition prioritization-** Erica brought a map of the watershed showing the different properties owned by the Commission. This includes life estates, conservation easements and properties owned out-right by the Commission. Erica also went over the prioritization list of how-to rate the importance of properties. While this prioritization schedule is used, it is not clear whether or not it was ever adopted. Discussions on how to perpetually protect these properties was had and was suggested as a future agenda item.

Agenda Item 7: New Business

- A. Assign or hire a Clerk-** Commissioner Cyr made a request that the Commission Consider hiring a Clerk. These positions have been absent for several months and has passed the burden of responsibilities on to the Commission Chairs. There was discussion on developing the responsibilities of Clerk and what this position should be doing. Commissioner Cyr will work with the Watershed Manager to develop a job responsibility for the position.
- B. CDM Smith final draft of peer review of Gracelawn studies-** Erica gave an overview of the final draft that incorporated the Commissioners' comments. CDMS developed several suggested boundary lines based off the available groundwater data in this area. To best determine where the watershed boundary should be located, additional groundwater testing must be conducted.

Public comment- Steven Beal, was not prepared to comment on this report as he had not yet had time to develop comments. Mr. Beal discussed the initial boundary that was adopted by the City of Auburn that was later repealed based on a citizen's petition. So, at this time the watershed boundary is back to its original delineation. Bruce Rioux pointed out that the report states that there is a potential impact on groundwater flow depending on what occurs in this area as far as development is concerned. This concerns him as a resident and he asked what it would take to determine what types of development could change groundwater flow.

Commissioner comments- Commissioner Cyr asked AWD Trustee representative, Dan Bilodeau, what has AWD adopted at this time for a watershed boundary? Commissioner Cyr reported that since the City removed 148 acres from the watershed that the City later repealed that decision and has put the watershed boundary back to its original location. Commissioner Bilodeau reported that AWD had adopted the first revised watershed boundary, but that it had not yet repealed that decision or re-instated the original boundary as the by-law amendment process is on hold pending litigation. Commissioner Bilodeau then reported that the District had adopted a policy to adopt whatever watershed boundary suggestions the City presents.

Vote 4 On a motion by Commissioner Holmes and seconded by Commissioner Landry to support adoption of the CDM Smith recommended conservative boundary contingent on feedback confirmation from the Maine Drinking Water Program that the conservative boundary would not have a negative impact on the filtration waivers for Lewiston and Auburn.

Passed 7-0

Mike was instructed to contact AWD and LWD to seek a review by the DWP on the individual waivers from filtration.

C. CEI draft peer review of FB Environmental Study- Erica gave a break down on the scope of the CEI study and a break down on the draft report which was presented in three separate documents. CEI agreed with several recommendations made by FB Environmental; the lake is at a tipping point and there is no economical or environmental benefit to building out the watershed. They found that the buildout analyses ignored any buildout in the Ag zone. CEI also gave several alternative recommendations to both the watershed boundary change and the septic revisions proposed by the City.

Public Comment- Steven Beal reported on the actions that have already taken place on the planning board level in regards to the revised septic standards. Bruce Rioux read that CEI agreed with FB Environmental on the statement that there is no net environmental, economic

or social benefit supporting development in the watershed. Bruce feels that it is the job of the watershed commission to support and uphold this. Ryan Smith had a clarifying question on the availability of maps showing where the buildable lots are that will be affected by the proposed changes. He asked for more information on the CEI recommendations and who these improvements will benefit.

Discussions, Commissioners and staff agreed that the report was clunky the way that it was presented in three parts. Questions on clarification on CEI's 36" of separation. Questions on if CEI had a recommendation for a zone change that would restrict development rather than using the septic ordinance. The Commissioners would like to schedule a presentation of the report with CEI and would like to know when the report can be finalized.

Commissioners Holmes and Bilodeau had to leave at 5:30pm

- D. Adoption of modified Robert's Rules-** Chair Cyr and Vice Chair Lachapelle sent to the Commissioners a revised set of Robert's Rules to be adopted by the Commission. They requested feedback on those from the other Commissioners. The Commission needs to define the roles of officers along with adoption of rules of order.

There was consensus to hold a December 7, 2022 meeting for a presentation and discussion with CEI. Erica will set this up and report back to the Commissioners on the schedule.

Vote 5 On a motion by Commissioner Brenchick and seconded by Commissioner Holbrook to adjourn the meeting

Passed 5-0

A true record, attest;



Michael Broadbent
LAWPC Secretary

CEI Draft Peer Review of FB Environmental Study



MEMORANDUM

TO: Erica Kidd, Watershed Manager, Lake Auburn Watershed
Protection Commission, Maine

FROM: Rebecca Balke and Eileen Pannetier, Comprehensive
Environmental Inc.

SUBJECT: **Peer Review of FB Environmental Associates A
Regulatory, Environmental, and Economic Analysis of
Water Supply Protection in Auburn, Maine dated October
2021 and the supplemental Lake Auburn Model Technical
Memorandum dated August 1, 2022**

JOB NUMBER: 222-5

DATE: **October 17, 2022**

The Lake Auburn Watershed Protection Commission requested CEI to perform a peer review of a recent study and technical memorandum prepared by FB Environmental Associates (FBE) that evaluated local regulatory scenarios and their impact on the water quality of Lake Auburn. The purpose of the review is to evaluate the conclusions drawn as they pertain to development and water quality impacts on Lake Auburn.

The following documents were reviewed by CEI as part of this evaluation:

- A Regulatory, Environmental, and Economic Analysis of Water Supply Protection in Auburn, Maine prepared by FB Environmental Associates, Horsely Witten Group and the University of Maine, dated October 2021.
- Lake Auburn Model Technical Memorandum addressed to Eric Cousens, City of Auburn, prepared by Laura Diemer, FB Environmental Associates, dated August 1, 2022.
- Memo addressed to Eric Cousens, John Blaise prepared by Sid Hazelton, P.E., Superintendent of AWD, dated August 8, 2022.
- Lake Auburn Watershed Management Plan prepared by CEI, dated April 19, 2010.
- Lake Auburn Diagnostic Watershed Study prepared by CEI, dated March 13, 2013.

CEI performed a peer review of the FBE study and subsequent technical memorandum to evaluate the assumptions used to estimate buildout conditions and associated loads under various buildout scenarios and the conclusions drawn from these assumptions as they pertain to the protection of Lake Auburn. This was a qualitative analysis of the information provided and did not involve any modeling.

CEI Review and Findings

In considering the following findings, CEI would like to reiterate that FBE's 2021 study concluded that Lake Auburn is nearing its assimilative capacity for nutrient load (even with the partial alum treatment) and cannot bear additional nutrient loads without diminishing water quality and its associated benefits. FBE found no net environmental economic, or social benefit supporting expansion of development in the Lake Auburn watershed. FBE also concluded that even if reduced



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development through conservation or other means is achieved in the headwater towns, any additional development in Auburn has an outsized negative impact since its drainage area goes directly to the lake. CEI agrees with these findings.

Proposed Zoning Changesⁱ

The Auburn Office of Planning & Permitting prefaced that the approval of the proposed septic requirements must coincide with the adoption of the zoning change that reduces the housing density as this would offset the increase in buildable lots in the watershed allowed with relaxed septic requirements. It also argued that the existing septic requirements encourage people interested in building a home within the watershed boundary to sell easements to their suitable soil site, clustering wastewater disposal systems in a relatively small area where very little wastewater treatment occurs and that it would be better to allow septic systems to be installed on finer textured soils, even if the seasonal groundwater table is shallower than 36 inches.

CEI does not understand what the purpose of the revised septic change is. It is presented as a way to improve treatment of new septic systems by preventing clustering and allowing them to take advantage of the finer textured surface soils. The increased buildable area from the septic systems is then proposed to be offset with changes in zoning density in the RR district, and assuming no new development will occur in the AG district. This was shown to result in less potential development than would occur under the existing zoning regulations. CEI has the following comments and recommendations regarding the proposed zoning changes:

1. It was difficult to compare the various buildout scenarios and their impacts on the lake, as some of the buildout assumptions changed from the 2021 to 2022 study, yet the phosphorus load analysis was not updated to reflect these changes and true differences in loads. The change in phosphorus load and impact on the lake should consistently reflect final assumptions for comparison. All buildout analysis should be updated to show phosphorus loads using consistent assumptions.
2. The final analysis ignores potential development in the AG district, including the increased buildable area from the revised septic regulations. It is unlikely that no additional development will occur in the AG district, even given the existing restrictions on development and the suggestion of changes to prevent new agriculture in the watershed. There is nothing preventing future development from occurring in this district and relaxing the septic system requirements increases the potential buildable area in this district.
3. Relaxing the septic system regulations opens the door for future development in the AG district. If the desired outcome of the proposed 2022 ordinance changes is a reduction in potential developable sites and better treatment of septic systems, there are other ways to achieve the same goal without relaxing the septic requirements and without creating potential new buildable areas. CEI recommends that the following alternatives be evaluated:
 - a. Maintain the existing depth restrictions, but allow for amendment of sandy soils to provide better treatment. This prevents expansion of buildable areas while



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- improving the treatment capabilities of septic systems in sandy soils. Why introduce new buildable areas at all if the focus is to reduce development;
- b. Allow only one septic system per lot to avoid clustering;
 - c. Prohibit development within the 300-foot buffer of waters considering septic systems closest to the lake pose the greatest risk of passing contaminants such as nutrients, pathogens, and viruses. This removes some of the uncertainty of the models in the most critical areas of the watershed;
 - d. Continue with zoning to reduce the density of development (e.g., RR to LDCR).

Gracelawn Road Area Boundary Change

CEI did not review the referenced hydrogeologic studies as part of this evaluation. The only information provided was in the October 2021 FBE study, which includes Figure 3-1 showing the mapped groundwater contours taken from one of the hydrogeologic studies. The map does appear to support that groundwater in the area is artificially mounded as a result of the gravel pit and landfill, with the majority flowing away from the lake. However, CEI cautions the City from discounting this area from the watershed entirely, particularly under a future development scenario. Depending on how the sand and gravel pit is restored and developed, the mounding could be eliminated with the groundwater flows returning to their more natural regional flow pattern where the area could contribute to Lake Auburn. This requires a more detailed evaluation of potential development scenarios and their impact on both localized groundwater and surface water runoff.

¹ Following is a summary of proposed zoning changes to modify the septic system requirements and decrease zoning density:

- a. Relaxing septic system requirements to allow for septic systems where there is less than 12 inches to the limiting factor (e.g., seasonal groundwater table, bedrock, or other impervious layer) and with at least 24 inches of suitable natural soil or fill material below the bottom of the disposal field to result in a 36-inch separation between the bottom of the disposal field and the limiting factor.
- b. Defining sandy or gravelly soil as sand or gravel outwash or stratified drift as shown on table 4D (profiles 5 or 6 and some 11) of the State of Maine Subsurface Wastewater Disposal Rules 10-144 Chapter 241 and prohibiting installation of septic system in these soils within 400 feet to the normal high-water mark (vs. 300-feet).
- c. Rezoning the Rural Residential (RR) district to Low Density County Residential (LDCR) district, increasing the lot size from 1 to 3 acres and decreasing the potential number of homes that can be developed.
- d. While not a proposed ordinance change, FBE made adjustments in its assumptions for the Agriculture and Resource Protection (AG) zone in its August 1, 2022 memorandum to assume no new development would occur in the AG zone due to the existing restrictive standards. The October 11, 2022 memorandum from the City of Auburn Office of Planning & Permitting regarding the Public Hearing and map amendments from RR to LDCR also mentioned that “Modifying the Agriculture and Resource Protection Zone within the Lake Auburn Watershed Overlay District to prevent new agriculture would protect forested area and prevent additional phosphorus loading.”



MEMORANDUM

TO: File
Rebecca Balke and Eileen Pannetier, Comprehensive
FROM: Environmental Inc.
Peer Review of FB Environmental Associates –
SUBJECT: **Background Information**
JOB NUMBER: 222-5
DATE: **October 17, 2022**

The Lake Auburn Watershed Protection Commission requested CEI to perform a peer review of a recent study and technical memorandum prepared by FB Environmental Associates (FBE) that evaluated local regulatory scenarios and their impact on the water quality of Lake Auburn. The purpose of the review is to evaluate the conclusions drawn as they pertain to development and water quality impacts on Lake Auburn.

The following documents were reviewed by CEI as part of this evaluation:

- A Regulatory, Environmental, and Economic Analysis of Water Supply Protection in Auburn, Maine prepared by FB Environmental Associates, Horsely Witten Group and the University of Maine, dated October 2021.
- Lake Auburn Model Technical Memorandum addressed to Eric Cousens, City of Auburn, prepared by Laura Diemer, FB Environmental Associates, dated August 1, 2022.
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- Lake Auburn Watershed Management Plan prepared by CEI, dated April 19, 2010.
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Background

Lake Auburn is the sole public water supply for over 39,000 consumers residing in Auburn, Lewiston, and a portion of Poland. Due to its long history of excellent water quality, Lake Auburn's water supply has been granted a 'Filtration Avoidance' waiver by the US Environmental Protection Agency (EPA) for nearly 30 years, bypassing certain treatment requirements under federal drinking water law and saving the need for a costly filtration plant, estimated at a capital cost of \$35-\$45 million.

Lake Auburn has been faced with declining water quality over the last 10 years, reaching a tipping point circa 2010 where key environmental thresholds were reached or passed. Specifically, levels of phosphorus, a key nutrient for the growth of aquatic algae, rose above 10 parts per billion and elevated the risk of algae blooms. This was addressed through the application of alum in 2019 to reduce high internal phosphorus loads from the bottom sediments in the lake that had accumulated over the last several decades from discharges from the watershed. This provides some time to address phosphorus inputs from the watershed through watershed management efforts.



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Based on this history, FBE was commissioned by the City of Auburn, Maine to provide a comprehensive analysis of the regulatory, environmental, and economic benefits and costs for scenarios that will maximize long-term public water supply protection of Lake Auburn, to guide future management decisions. Key findings from this study, completed in October 2021, included:

- Lake Auburn is nearing its assimilative capacity for nutrient load (even with the partial alum treatment) and cannot handle much more additional nutrient load without diminishing water quality and its associated benefits. FBE found no net environmental economic, or social benefit supporting expansion of development in the Lake Auburn watershed.
- More development cannot be allowed in the Auburn portion of the watershed even with low impact development (LID) requirements implemented in Auburn. Even if reduced development through conservation or other means is achieved in the headwater towns, any additional development in Auburn has an outsized negative impact since its drainage area goes directly to the lake.
- It was recommended to revise the septic system requirements of the Lake Auburn Watershed Overlay District Ordinance to incorporate the Maine Subsurface Wastewater Disposal Rules, including provisions that allow for mounded leach fields and other State-approved alternative designs where there is not a native, in-situ, 36-inch vertical separation between the bottom of the organic horizon and the bedrock, water table, or other restrictive layer. FBE recognized that this would allow more areas to be developed with the potential for over 100 new homes in the watershed over existing ordinances, however, stated that restrictions on developable land are better left to base and resource protection zoning than to septic design standards.
- Update the Lake Auburn Watershed Overlay District Ordinance to reflect the revised watershed boundary, reducing the existing watershed boundary by 148 acres in the Gracelawn Road area. This was based on groundwater flow studies around the sand and gravel operations and groundwater monitoring data around the former City of Auburn landfill which groundwater to flow away from Lake Auburn.

At the conclusion of the study, the City of Auburn requested FBE to evaluate proposed ordinance changes, in the City of Auburn only, for their potential effects on land use and development in the Lake Auburn watershed and associated impacts to lake water quality. FBE presented its analysis and findings in the Lake Auburn Model Technical Memorandum addressed to Eric Cousens, City of Auburn, dated August 1, 2022. A summary of the proposed ordinance changes evaluated, included:

- an increased agricultural buffer strip from 50 feet to 100 feet – this does not change the number of building lots, rather reduces phosphorus inputs by converting existing tilled agricultural land to open space, thus reducing phosphorus loads;
- allowing septic systems in soils with a minimum of 12” of soil over a restrictive layer vs. 36” and vs. no restrictions;
- prohibiting the siting of septic systems within 400 feet of the high-water line where soils are profiled as gravel outwash or stratified drift as shown in Table 4D (profiles 5, 6, and



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some of 11) of Chapter 24 – this showed the entire 400-foot buffer as restricted from development, reducing the number of buildable lots by 23 from the “Business as Usual” model (baseline buildout analysis considering under existing ordinances). FBE stated that this new model run likely underestimated new building potential as physical field application of the Table 4D rules would likely be less restrictive but there is no way of knowing the extent of the difference without field evaluations by a Licensed Site Evaluator. For comparison purposes, they removed the 23 homes predicted under the “Baseline as Usual” buildout scenario to estimate the reduction in buildings between the two scenarios.

- Rural Residential (RR) was rezoned to Low Density County Residential (LDCR), increasing the lot size from 1 to 3 acres.
- while not a zoning change, FBE also made adjustments to the buildout assumptions that they claimed more accurately apply existing ordinances. Specifically, the model updated assumed no development in the Agriculture and Resource Protection (AG) zone due to the restrictive standards existing for development in this zone. This removed 928 acres of buildable area and 74 projected buildings compared to the “Business as Usual” buildout scenario included in the October 2021 study.
- reducing the threshold where a phosphorus control plan (PCP) is required from 575 square feet to 200 square feet, essentially capturing accessory dwelling units, as primary households were already required to prepare a PCP. FBE considered its LID buildout assumptions to be nearly equivalent to requiring a PCP, which was supported by the load estimates associated with PCP restrictions vs. LID restrictions (e.g., and the numbers do support this (e.g., the load estimated with the application of LID was similar to the load allowed under the ordinance and PCP requirements).

Based on this analysis, FBE concluded that the ordinance changes directly reduced the total buildable area by 27 acres and the number of projected new buildings by 58 (after adjusting for the “Business as Usual” scenario to also remove development in the AG), indicating that the expansion of buildable area with the lifting of the septic system siting restriction (changing from 36” to 12”) was effectively offset by the reduction of buildable area with the rezoning of RR to LDCR (changing from 1-acre to 3-acre minimum lot size).

FBE also noted a phosphorus load reduction of 6 kg/yr compared to the “Business as Usual + LID” scenario included in the October 2021 study, however, did identify that there were limitations to directly comparing the results of the “Business as Usual” scenario to the 2022 model update. FBE did not remodel the “Business as Usual + LID” scenario presented in the October 2021 report to show the phosphorus reduction associated with no future development in the AG zone, thus the load reduction is expected to be less than 6 kg/yr.



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CEI Peer Review Evaluation

CEI performed a peer review of the FBE study and subsequent technical memorandum to evaluate the assumptions used to estimate buildout conditions and associated loads under various buildout scenarios and the conclusions drawn from these assumptions as they pertain to the protection of Lake Auburn. This was a qualitative analysis and did not involve any modeling.

Gracelawn Road Area Boundary Change

FBE recommended that 148 acres of the watershed in the Gracelawn Road area be removed from the watershed. This was based on hydrogeologic studies of the sand and gravel operations and former City of Auburn landfill along Gracelawn Road, which showed groundwater to flow away from Lake Auburn. CEI did not review the referenced hydrogeologic studies as part of this evaluation, only the information provided in the October 2021 FBE study, which includes Figure 3-1 showing the mapped groundwater contours taken from one of the hydrogeologic studies. The map does appear to support that groundwater in the area is mounded, with the majority flowing away from the lake. However, CEI cautions the City from discounting this area from the watershed entirely, particularly under a future development scenario. Depending on how the sand and gravel pit is restored and developed, the area could contribute to Lake Auburn. This requires a more detailed evaluation of potential development scenarios and their impact on localized groundwater and surface water runoff.

Buildout Assumptions

The FBE buildout analysis included in the October 2021 study assumes a worst-case buildout scenario based on the allowable development for the zone. The method used to estimate potential development by FBE is as follows:

- 1) FBE identified and subtracted land unavailable for development due to physical constraints, including environmental restrictions (e.g., steep slopes, existing buildings, wetlands, resource protection zones, hydric soils, and conserved land), zoning restrictions (e.g., shoreland zoning, street ROWs, minimum lot sizes, and building setbacks), and practical design considerations (e.g., lot layout inefficiencies). FBE applied an efficiency factor of 66% for all zones based on prior experience.
- 2) The remaining buildable land was subdivided to the smallest units allowed under current zoning and a point representing a building was placed in each unit.
- 3) LAWPC-owned lands were considered to be protected from development indefinitely (in the “Business as Usual” and “Max Development – LAWPC Lands Remain Protected” buildout scenarios).
- 4) County level soil data was used to restrict development from areas with less than 36 inches to groundwater or some restrictive layer where septic systems are not allowed, as well as from areas within sandy soils within 300 feet of the Lake Auburn shoreline.
- 5) Lakes and ponds were given a 100-foot setback.
- 6) Other waterbodies, streams and wetlands were given a 75-foot setback.



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CEI is in agreement with the buildout assumptions applied in the October 2021 evaluation. However, in the updated modeling analysis presented in the August 1, 2022 memo, FBE assumed no additional buildings would be allowed in the AG zone under existing and proposed ordinance changes due to restrictions to development in this zone. CEI assumed this was due to the agricultural income requirements to develop in this zone combined with the observed declining agricultural trends in the watershed.

To better understand each of the buildout scenarios and the impact on future development, CEI created a summary table (Table 1 at the end of this memorandum) of existing and projected increases in buildings under three key buildout scenarios, including:

1. “Business as Usual” – this buildout reflects the potential number of additional homes under the existing zoning regulations and assumed future development will occur in the AG zone based on current zoning densities.
2. “Max Development – LAWPC Lands Remain Protected” – this buildout removes the development restrictions associated with septic systems on land with less than 36 inches to groundwater and on land with sandy soils within 300 feet of the shoreline. It also included rezoning of 51 parcels (59 buildable acres) from AG and RR to General Business (GB) and Neighborhood Business (NB).
3. “2022 Ordinance Changes Baseline Buildout” – this buildout incorporates the proposed 2022 ordinance changes outlined under the Background section above and assumes no new development will occur in the AG zone.

Although agricultural land use has been declining in the watershed, it is unlikely that no additional development will occur in the AG zone. CEI believes that FBE’s original assumptions of 74 homes under existing zoning regulations and 101 homes with relaxed septic regulations is more realistic than no new development. Even if no new agriculture is proposed in the AG zone in the future, as has been suggested, it seems to reason that some development would still be allowed, and therefore should not be discounted in any future development scenario. Without language specifically prohibiting further development in the AG zone, there is always a possibility for more buildings.

To allow for a more representative comparison between scenarios, adjustments were made to remove the village rezoning impacts from the “Max Development – LAWPC Lands Remain Protected” scenario so that this scenario represented existing zoning ordinances with relaxed septic system requirements. Further adjustments were made to include the same assumptions for future development of the AG zone in all three cases, including no development in the AG zone as assumed in FBE’s 2022 model update and some development in the AG zone as assumed in FBE’s October 2021 buildout scenarios. These are presented in Tables 2 and 3 (at the end of this memorandum) respectively.



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Under the assumption that no development would occur in the AG zone, the “2022 Ordinance Changes Baseline Buildout” showed a reduction of 57 buildings from the “Business as Usual” scenario. Under the assumption that development would occur in the AG zone, a reduction of 30 buildings was demonstrated. In both cases, the proposed 2022 zoning changes showed that rezoning the RR to LDCR would offset the buildable land created through relaxation of the septic requirements, but less so when development in the AG occurs.

LID Assumptions

CEI reviewed the LID assumptions used by FBE to reduce phosphorus loads from the residential development that does occur in the watershed. We found these assumptions to be in line with the reductions that would be achieved with a phosphorus control plan under the Phosphorus Control Ordinance. CEI used similar phosphorus load reductions in its 2010 buildout analysis.

While the phosphorus control requirements do limit the amount of area that can be developed, this only needs to be demonstrated at the time of development and it is not uncommon for homeowners to disturb additional areas over the years. This would require continued monitoring and enforcement in any scenario.

Relaxing Septic Restrictions

In its October 2021 study, FBE recommended that the City of Auburn update the septic system regulations contained in the Lake Auburn Watershed Overlay District Ordinance to align with the State Plumbing Code requirements with an increase in depth to groundwater, bedrock or other restrictive layers of 36 inches, rather than the shallower depths allowed by the less protective tiers in the State code. FBE noted that the State code was last updated in 2015 to require a depth of between 12-24 inches of native soil below the leach field. Prior to this update, the requirement was as little as 9 inches in many cases. FBE also noted that the Maine requirements are less stringent than other New England states. The recommendation was presented as a simple approach to revising the language to maintain both the greater depth to groundwater requirements but also allows for alternative onsite septic disposal approaches that can improve phosphorus control from septic systems. It would also allow projects in the watershed to use innovative and alternative designs in place of a traditional septic system leach field, including drip irrigation and proprietary devices. FBE recognized that such a change could increase development potential by over 100 homes in Auburn and suggested that changes to zoning densities be used to control the amount of development. FBE then modeled proposed 2022 ordinance changes to demonstrate that density changes could offset the increase in buildable areas presented with an update to the septic regulations.



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This is not the first-time modification of the septic ordinance has come up. CEI performed a Lake Auburn Watershed Septic System Analysis in October 2009 to evaluate whether the septic design criteria should be modified consistent with the state's less stringent criteria. The key findings of the evaluation were:

- 1) Other New England States require 3+ feet of vertical separation and at least 2 feet is needed – the soils beneath a leach field serve to filter pollutants from the wastewater. The greater the vertical distance through the soil, the greater the treatment. Most studies reveal a minimum of 24” vertical separation for adequate pollutant removal, regardless of soil type.
- 2) The Lake Auburn watershed has coarse soils – The geology of the Lake Auburn watershed is characterized by coarse soils and some gravel, unlike the lodgement (basal) tills found in much of Maine. These coarse materials do not filter pollutants as well as finer materials and may require greater vertical separation distances to treat.
- 3) Phosphorus, an important pollutant of Lake Auburn, can get to the lake if septic systems are too close – Some studies have found long-term migration of phosphorus in the groundwater zone, with phosphorus above background levels detected up to 250 feet away from the septic system. Nitrate travels rapidly away from septic systems.
- 4) More lenient septic requirements increases phosphorus loads to Lake Auburn – Both failing and non-failing septic systems can contribute phosphorus and other pollutants to the Lake. Allowing for more lenient septic design requirements within the watershed will allow for the placement of septic systems where they are not currently allowed. This also results in an increase in impervious area in the watershed and increased phosphorus loadings from stormwater runoff.
- 5) Changes to the Lake Auburn Watershed Overlay District (LAO) ordinance may put the filtration waiver at risk – The LAO and other watershed control programs in place at the time the filtration waiver was granted were key factors in granting the waiver and changes to these programs, particularly changes that allow for more growth and net loadings to the Lake, could put the District at risk for losing that waiver.

FBE confirmed that Maine state septic requirements continue to be less stringent than other states, despite the recent change to require 12-24” of native soil rather than 9”. The State made the requirements more stringent for a reason and its not unreasonable to consider this could be tightened further in the future as well.

FBE also mentioned the watershed's sand and gravel aquifer and concern that the existing ordinance has led to the preferential siting of some septic systems on deep formations of sand and gravel aquifer that are not appropriate for septic systems without the importation of suitable reactive soils that the recommended ordinance revisions would allow. CEI agrees that coarse sand and gravels do not filter as well as fine materials and amendment of these soils may be appropriate, but does not have to be tied to a relaxation of the existing depth restrictions.



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Phosphorus loads still remain a concern, both from septic systems located close to the lake and from the associated development of the site. While the increase in buildable areas associated with a relaxed septic regulation can be offset with other zoning regulations to control density, the City should be aware that alternative septic designs, such as mounded systems do require more consideration and care during installation and to ensure they are maintained to continue functioning properly and to prevent breakouts. This is something that will not show up in the models, but can present an increased risk to the lake. Additionally, considering that systems closest to the lake pose the greatest risk of passing contaminants such as nutrient, pathogens, and viruses, consideration should be given to prohibiting systems within a certain distance to surface waters in the watershed, such as the 300-foot buffer. This removes some of the uncertainty of the models in the most critical areas of the watershed.

Finally, an extremely important consideration is the filtration waiver and whether loosening existing restrictions could jeopardize that waiver. Other means of protecting the watershed that do not loosen existing restrictions should be considered.

Summary and Conclusions

The following summarizes the key findings from this evaluation:

1. FBE stated that Lake Auburn is nearing its assimilative capacity for nutrient load (even with the partial alum treatment) and cannot handle much more additional nutrient load without diminishing water quality and its associated benefits. FBE found no net environmental economic, or social benefit supporting expansion of development in the Lake Auburn watershed. CEI agrees with this conclusion.
2. FBE stated in its 2021 study that more development cannot be allowed in the Auburn portion of the watershed even with low impact development (LID) requirements implemented in Auburn. Even if reduced development through conservation or other means is achieved in the headwater towns, any additional development in Auburn has an outsized negative impact since its drainage area goes directly to the lake. CEI agrees with this assessment.
3. CEI cautions the City from discounting the 148-acre Gracelawn Road area from the watershed entirely, particularly under a future development scenario. Depending on how the sand and gravel pit is restored and developed, the mounding could be eliminated with the groundwater flows returning to their more natural regional flow pattern where the area could contribute to Lake Auburn. This requires a more detailed evaluation of potential development scenarios and their impact on localized groundwater and surface water runoff.
4. CEI agrees with the buildout assumptions used by FBE in its October 2021 study, however, in its 2022 model update, FBE assumed that no additional development would occur in the AG zone. Although agricultural land use has been declining in the watershed, it is unlikely that no additional development will occur in the AG zone. Unless development is strictly prohibited in the zoning ordinance, some development should be expected and included in each of the buildout scenarios, similar to FBE's October 2021 study.



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5. Modeling of the proposed 2022 zoning changes showed that rezoning the RR to LDCR would offset the buildable land created through relaxation of the septic requirements. However, the number of potential buildings is likely underestimated in the 400-foot setback from water bodies considered in the updated model. Considering systems closest to the lake pose the greatest risk of passing contaminants such as nutrient, pathogens, and viruses, consideration should be given to prohibiting systems within a certain distance to surface waters in the watershed. This removes some of the uncertainty of the models in the most critical areas of the watershed.
6. While the additional buildable land associated with a relaxed septic regulation can be offset with revised zoning densities, it does raise other concerns:
 - a. The filtration waiver was based on protection measures in place when the waiver was granted. Why risk jeopardizing the waiver by loosening these restrictions?
 - b. Relaxing the septic system regulations opens the door for future development in the AG district. If the desired outcome of the proposed 2022 ordinance changes is a reduction in potential developable sites and better treatment of septic systems, there are other ways to achieve the same goal without relaxing the septic requirements and without creating potential new buildable areas. CEI recommends that the following alternatives be evaluated:
 - i. Maintain the existing depth restrictions, but allow for amendment of sandy soils to provide better treatment. This prevents expansion of buildable areas while improving the treatment capabilities of septic systems in sandy soils. Why introduce new buildable areas at all if the focus is to reduce development;
 - ii. Allow only one septic system per lot to avoid clustering;
 - iii. Prohibit development within the 300-foot buffer of waters considering septic systems closest to the lake pose the greatest risk of passing contaminants such as nutrients, pathogens, and viruses. This removes some of the uncertainty of the models in the most critical areas of the watershed;
 - iv. Continue with zoning to reduce the density of development (e.g., RR to LDCR).



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Table 1. Existing and Potential New Buildings for Various Buildout Scenarios in Auburn, Maine as Presented in FBE Reports

Development Scenario:	Existing	Business as Usual	Max Development – LAWPC Lands Remain Protected	2022 Ordinance Changes Baseline Buildout¹
Assumptions:		Existing ordinances.	Removed septic restrictions. Includes rezoning 51 parcels from AG and RR to NB and GB.	Proposed 2022 ordinance changes. No future development in AG.
Agriculture and Resource Protection (AG)	77	74	101	0
General Business (GB)	2	0	44	0
Low Density Country Residential (LDCR)	47	16	24	79
New Business (NB)	0	0	130	
Rural Residential (RR)	218	143	279	0
Suburban Residential (SR)	75	6	9	6
Total	419	239	587	85

¹FBE updated its buildout assumptions for the AG zone in its 2022 modeling update. These updates assumed no new development would occur in the AG zone due to the restrictive zoning. Updates were not made to the “Business as Usual” scenario to reflect this, but were discussed as limitation for comparing the phosphorus loads between the two scenarios.



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Table 2. Existing and Potential New Buildings for Various Buildout Scenarios in Auburn, Maine Adjusted for Comparison – No Development in AG¹

Development Scenario:	Existing	Business as Usual	Max Development – LAWPC Lands Remain Protected	2022 Ordinance Changes Baseline Buildout
Assumptions:		Existing ordinances. Adjusted to remove buildings from AG for comparison with 2022.	Removed septic restrictions. Adjusted to remove buildings from AG, GB and NB for comparison with 2022.	Proposed 2022 ordinance changes. No future development in AG.
Agriculture and Resource Protection (AG)	77	(74) 0	(101) 0	0
General Business (GB)	2	0	(44) 0	0
Low Density Country Residential (LDCR)	47	16	24	79
New Business (NB)	0	0	(130) 0	
Rural Residential (RR)	218	143	279	0
Suburban Residential (SR)	75	6	9	6
Additional Adjustments ²	--	-23	-23	--
Total ³	419	(239) 142	(587) 289	85

¹To allow for a more representative comparison between buildout scenarios where no development is assumed to occur in the AG zone, development in AG was removed from all buildout scenarios and the proposed village district rezoning in “Max Development – LAWPC Lands Remain Protected” to convert 59 acres of AG and RR zones to GB and NB zones was removed. Doing so illustrates the projected increase in development from existing conditions, to buildout conditions under existing zoning, to buildout conditions under existing zoning with relaxed septic system requirements, to buildout conditions under the 2022 proposed zoning. Values removed are shown in gray strikeout with those added shown in bold black font.

²There were 23 projected new buildings identified within the 300-foot buffer under the “Business as Usual” and “Max Development – LAWPC Lands Remain Protected” that the 2022 ordinance changes conservatively excluded due to the limitations of using the Table 4D soil profiles. These were removed from the two 2021 buildout scenarios.

³**Assuming no further development in the AG zone, the 2022 ordinance changes directly reduced the total buildable area by 27 acres and the number of projected new buildings by 57 in comparison to the “Business as Usual” scenario (142-85=57).** The results show that the rezoning of RR to LDCR offsets the additional building lots allowed from removing the septic restrictions.



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Table 3. Existing and Potential New Buildings for Various Buildout Scenarios in Auburn, Maine Adjusted for Comparison – Includes Development in AG¹

Development Scenario:	Existing	Business as Usual	Max Development – LAWPC Lands Remain Protected	2022 Ordinance Changes Baseline Buildout
Assumptions:		Existing ordinances.	Removed septic restrictions. Adjusted to remove buildings from GB and NB for comparison with 2022.	Proposed 2022 ordinance changes. No future development in GR. Adjusted to add buildings to AG.
Agriculture and Resource Protection (AG)	77	74	101	(0) 101
General Business (GB)	2	0	(44) 0	0
Low Density Country Residential (LDCR)	47	16	24	79
New Business (NB)	0	0	(130) 0	
Rural Residential (RR)	218	143	279	0
Suburban Residential (SR)	75	6	9	6
Additional Adjustment ²	--	-23	-23	--
Total ³	419	(239) 216	(587) 390	(85) 186

¹To allow for a more representative comparison between buildout scenarios where development is assumed to occur in the AG zone, potential development in the AG zone was added to the “2022 Ordinance Changes Baseline Buildout”. For simplicity purposes, it was assumed to be the same as that predicted for the “Max Development – LAWPC Lands Remain Protected” scenario that also considered the removal of septic restrictions. The proposed village district rezoning in “Max Development – LAWPC Lands Remain Protected” to convert 59 acres of AG and RR zones to GB and NB zones was also removed. Doing so illustrates the projected increase in development from existing conditions, to buildout conditions under existing zoning, to buildout conditions under existing zoning with relaxed septic system requirements, to buildout conditions under the 2022 proposed zoning. Values removed are shown in gray strikeout with those added shown in bold black font.

²There were 23 projected new buildings identified within the 300-foot buffer under the “Business as Usual” and “Max Development – LAWPC Lands Remain Protected” that the 2022 ordinance changes conservatively excluded due to the limitations of using the Table 4D soil profiles. These were removed from the two 2021 buildout scenarios.

³FBE’s October 2021 study predicted an additional 174 buildings in Auburn if the septic restrictions are relaxed (390-216=174). This matches closely with the 176 additional buildings estimated in the 2010 CEI buildout with relaxed septic system requirements (Scenario 2). **Assuming further development in the AG zone can occur, the 2022 ordinance changes directly reduced the total number of projected new buildings by 30 in comparison to the “Business as Usual” scenario (216-186=30).** The results show that the rezoning of RR to LDCR offsets the additional building lots allowed from removing the septic restrictions, but to a lesser degree when development in the AG zone is considered.

AWD Questions 8/8/2022 Memo & City of Auburn Responses 8/18/22 email

1. Question: In accordance with the report, adopting the proposed new septic ordinance would result in 74 new homes being built in the “Ag Zone” portion of the watershed, however, this number was not included in the total buildout analysis because of the assumption that people would not build due to the requirement to have 50% of household income from farming (as currently required in the City-wide Ag Zone). In a letter to the Auburn Planning Board dated July 12, 2022, Deputy Director of Planning and Permitting John Blais presented the possibility of modifying the Agriculture and Resource Protection Zone within the Lake Auburn Watershed Overlay District to prevent new agriculture. If the City were to adopt that standard, coupled with the adoption of the revised septic standard, we believe the “74 new home” buildout would occur rather quickly. Even without modifying the income standard, we believe more homes will be built in the AG Zone by modifying the septic standard. How would that change the Consultants conclusions?

City Response: The household income requirement is 30% for agricultural uses. In the information provided to Planning Board on July 12, 2022, the suggested language was to eliminate any agriculture uses in the AG zone in the watershed essentially creating a more focused resource protection zone. The number one highest potential for non-point source pollution is certain agricultural activities like dairy farms. We used China lake watershed as an example. The elimination of agricultural uses would in no way allow the 74 new homes to be built in this area.

CEI Evaluation: The 74 new homes presented in the “Business as Usual” buildout scenario was based on current septic restrictions and existing zoning. This increased to 101 new buildings in the AG zone with relaxation of the septic standards (e.g., removed development restrictions on land with less than 36 inches to groundwater and on land with sandy soils within 300 feet of the shoreline, while retaining Shoreland Zoning Overlay District with setbacks), or 27 additional buildings and septic systems in the AG zone. In the updated modeling analysis presented in the August 1, 2022 memo, FBE assumed no additional buildings would be allowed in the AG under existing and proposed ordinance changes due to restrictions associated with development (assumed to be the agricultural income requirements mentioned by AWD and declining agricultural trends observed by FBE).

Following summarizes FBE’s buildout analysis in its October 2021 study as it relates to additional buildings.

Number of Additional Buildings for Various Buildout Scenarios in Auburn, Maine

	Existing	Business as Usual	Max Development – LAWPC Lands Remain Protected	2022 Ordinance Changes Baseline Buildout
		Existing Ordinances	51 parcels in Auburn rezoned: 1) Parcels along Oak Hill Rd & Andrew Dr rezoned AG to NB, no min lot size & sewer; 2) Parcels southwest of Townsend Brook Rd rezoned AG to NB (except parcel 391-001 remained AG due to its size and breadth), no min lot size & sewer; 3) Parcels along N.Auburn Rd from Holbrook Rd to Skillings Corner Rd rezoned RR to GB, min lot size of 0.23 acres & no sewer connection. Removed development restrictions on land with less than 36 inches to groundwater and on land with sandy soils within 300’ of the shoreline, while retaining Shoreland Zoning Overlay District with setbacks.	2022 Ordinance Changes Also assumed no development in AR due to restrictions, which they said should apply to all scenarios.
AG	77	74	101	0
GB	2	0	44	0
LDCR	47	16	24	79
NB	0	0	130	
RR	218	143	279	0
SR	75	6	9	6
Shoreland	0	0	0	
	419	239	587 413 (if we subtract GB & NB, which were not proposed in the 2022 ordinance changes - if these are left as AG and RR (59 acres), they could potentially result in another 10 homes on top of the 413)	85

Ignoring the rezoning of 51 parcels from AG or RR to GB and NB included in FBE’s “Max Development Not Allowing Building on LAWPC Lands”, relaxation of the of the septic standards to remove the 36” depth to groundwater restriction and land with sandy soils within 300’ of the shoreline allows an approximate additional 174 buildings and septic systems to be built from the “Business as Usual” scenario, including 27 in the AG zone, 8 in the LDCR zone, 136 in the RR zone and 3 in the SR zone. This is in line with the 176 additional buildings and septic systems estimated in the 2010 CEI buildout with relaxed septic system requirements (Scenario 2).

The August 1, 2022 FBE memorandum analyzed a new set of proposed zoning regulations, including:

- 1) an increased agricultural buffer strip from 50 feet to 100 feet – this does not change the number of building lots, rather reduces phosphorus inputs by converting existing tilled agricultural land to open space;
- 2) allowing septic systems in soils with a minimum of 12” of soil over a restrictive layer vs. 36” or no restriction – this would reduce the number of buildings and septic systems from FBE’s “Max Development Not Allowing Building on LAWPC Lands” slightly, however, was not quantified independently from the other proposed zoning changes;
- 3) prohibiting the siting of septic systems within 400 feet of the high-water line where soils are profiled as gravel outwash or stratified drift as shown in Table 4D (profiles 5, 6, and some of 11) of Chapter 24 – this showed the entire 400-foot buffer as restricted from development, reducing the number of buildable lots by 23 from the “Business as Usual” model. FBE stated that this new model run likely underestimated new building potential as physical field application of the Table 4D rules would likely be less restrictive but there is no way of knowing the extent of the difference without field evaluations by a Licensed Site Evaluator.
- 4) RR was rezoned to LDCR, increasing the lot size from 1 to 3 acres.
- 5) while not a zoning change, FBE also removed new development in the AG zone due to the restrictive standards existing for development. This removed 74 building lots from the “Business as Usual” buildout scenario and 101 from the “Max Development – LAWPC Lands Remain Protected”.
- 6) reducing the threshold where a phosphorus control plan (PCP) is required from 575 sf to 200 sf, essentially capturing accessory dwelling units, as primary households were already required to prepare a PCP. FBE considered its LID scenario to be nearly equivalent to requiring a PCP, and the numbers do support this (e.g., the load estimated with the application of LID was similar to the load allowed under the ordinance and PCP requirements).

Although agricultural land use has been declining in the watershed, it is unlikely that no additional development will occur in the AG zone. CEI believes that FBE’s original assumptions of 74 homes under existing conditions and 101 homes with relaxed septic regulations is more realistic than no new development. Even if no new agriculture is proposed in the AG zone in the future, as has been suggested, it seems to reason that some development would still be allowed, and therefore should not be discounted in any future development scenario.

2. Question: The report concludes that adoption of the proposed new septic standards will result in the construction of 85 additional homes in the watershed within the newly developed Low Density Country Residential Zone, which will replace the existing Rural Residential Zone. A summary chart concluded that an overall reduction in phosphorus load will occur over current conditions due to ordinance changes and low impact development standards. This chart seems suspect; common sense would tell you there will be more pollution and runoff from a developed lot than one that is forested or in a natural state. It would help if the consultant could explain how this overall reduction is possible.

City Response: There is a potential **net reduction of 80 new homes** as compared to what could be built now with the current standards. To make this clearer, the number of lots developable now is 159 house lots. With the introduction of the new ordinances, both the septic system changes and the RR to LCDR there would be 79 house lots available for development. This is less than what is estimated under current ordinances. I cannot understand how the narrative that we keep hearing says we are allowing more development in the watershed. **The proposed changes result in less development. Less development results in less runoff and phosphorus. Less development and LID**

standards is even better for the lake than less development alone. Retaining the housing restrictions of the AG zone is critical to the protection of the lake and that is not proposed to change.

CEI Evaluation: FBE estimated that 239 buildings could be constructed under the existing ordinances, including the 74 in the AG zone, which they later concluded would not be constructed due to the restrictions for development in this zone. For the purposes of comparing apples to apples, assuming no new construction in the AG zone results in 165 new buildings in the “Business as Usual” scenario compared to 85 buildings in the buildout scenario that considers the proposed 2022 ordinance changes. This shows a potential reduction of 80 new homes if the proposed ordinances are implemented. The reduction occurs through the proposed rezoning of RR to LDCR, which reduces the potential new homes from 159 to 79 (a reduction of 80 homes). This reduction in homes results in a reduction of phosphorus load.

If we assume that building can occur in the AG zone in the future, as originally included in FBE’s buildout analysis, and adjustments are made to remove the 23 buildings that were conservatively excluded from within the 300 foot buffer (FBE used Table 4D to better define stratified drift soils that could not be developed in the 400 ft buffer and it resulted in no development allowed in this buffer, so FBE removed the 23 buildings it included in the Baseline to allow for a better comparison as they felt Table 4D may be too conservative and some development may still occur based on site specific soil testing), the “Business as Usual” scenario predicts a total of 216 new homes in the Auburn portion of the watershed, the “Max Development Not Allowing Building on LAWPC Lands” scenario (e.g., relaxed septic restrictions and ignoring rezoning of the 59 acres to create three village districts from AG and RR to GB and NB) predicts 390 new homes in the Auburn portion of the watershed and the “2022 Ordinance Changes Baseline Buildout” predicts 186 new homes (e.g., if 101 buildings in the AG district are added back in). This reveals a potential reduction of 30 new homes with the proposed 2022 ordinances from existing ordinance conditions (e.g., $216 - 186 = 30$).

Question: We believe the adoption of low impact development standards, and the new phosphorus standards for new construction is a good thing; but to be effective it would require continual monitoring, maintenance, and enforcement. These ordinance changes are a City initiative. How will the City ensure that engineered controls continue to provide treatment? Who would be responsible for oversight of this? Unfortunately, in our experience, once the building permit is issued, people are not particularly good at providing long-term maintenance, and we (as well as you), have specific examples of how it has played out in reality. Monitoring 85 new homes (159 including the Ag Zone) would overburden current staff resources. Once constructed, there would be no turning back, and all this development could be a burden on the Lake forever. Other than education and after-the-fact enforcement, how would we prevent 159 new homeowners from overfertilizing their lawns, misusing pesticides, flushing medications; all things that could accelerate the decline in water quality? As the old saying goes, "People equals pollution", plain and simple; what is the plan?

City Response: In addition, we reviewed the updated phosphorus ordinance regarding implementing Low Impact Development techniques. The model included a disturbed area of 1-1.7 acre per house lot. Whereas the ordinance does not suggest a disturbed area greater than .5 acres. As we reviewed recent phosphorus plans for house lot development impacts the developments averaging closer to ¼ acre of developed area. (we can provide recent examples if desired). The model is built conservatively assuming more developed area per site than reality. The City also has limited depth residential strips that discourage new roads from being constructed which is another

reason why our average developed area is less than the average assumed in the conservative modeling.

The City does not intend to abandon code enforcement. We do hope the LAWPC and the water district takes a more active role in enforcement and NPS reduction. The cost of enforcement can be shared by the two cities with additional LAWPC help instead of born by Auburn alone. Particularly with the updating the watershed based plan. The City hopes to have an active role in that public process. In addition, the city is currently participating at a high level-of after the fact permitting by proposing the ordinance change that addresses an antiqued septic system design standards that inserts the disposal field one foot below the surface essentially missing the most critical soils for attenuation of phosphorus and nitrogen uptake. As mentioned by a licensed site evaluator and state soil scientist David Rocque.

CEI Evaluation: FBE's incorporation of LID and associated phosphorus reduction is similar to what is required for phosphorus control under the phosphorus control ordinance. While the phosphorus control requirements do limit the amount of area that can be developed, this only needs to be demonstrated at the time of development and it is not uncommon for homeowners to disturb additional areas over the years. This would require continued monitoring and enforcement in any scenario.

3. Question: In a 4/20/22 letter to you, Amy Lachance, Director of the Maine CDC Drinking Water program stated "The City should be aware that the filtration waiver may be threatened if water quality sampling indicates that standards have been exceeded, or if the conditions under which the filtration waiver was originally granted are no longer in place". Prior to moving forward, the City should find out in no uncertain terms from our regulators if the passage of these ordinances alone could cause us to lose our filtration waiver.

City Response: CDC DWP Letter - Please refer to number 3 [LID response] above. In addition to allowing less development if the changes are adopted, LID standards and increased protection of tributary streams and the lake are included in the proposed ordinance changes. You have chosen language that meets the false narrative that we are allowing for more development in the watershed. What I draw from that letter is that we are doing what Amy suggests that "these actions would better support water quality in Lake Auburn and help to maintain the filtration waivers granted to AWD and LWD."

CEI Evaluation: While some of the proposed ordinance changes are more restrictive and protective, others are not, specifically relaxing the septic system requirements. While mounded systems can and do provide adequate treatment when constructed and maintained properly, they do require more consideration and care by the homeowner to ensure they are maintained and functioning properly. This requires consideration as it can increase the potential for more septic issues and contamination from septic systems. Alternative zoning scenarios that do not relax septic requirements should be evaluated.

AWD Questions 8/23/2022 Memo

In addition to consideration of the 8/8/2022 memo and City responses, we have additional questions:

1. Table 4 projects an original baseline buildout within the RR Zone of 159 homes. The map in Figure 3 is labeled as showing the existing and projected buildings in the baseline buildout analysis. Our GIS Technician enlarged the map and counted 74 projected new buildings on the map, not 159. Is this Figure mis-labeled? If so, do you have a map that shows 159 new homes in the baseline build-out?

CEI Evaluation: Figure 3 shows the existing and projected buildings for the buildout scenario that incorporated the proposed 2022 zoning changes (79 buildings projected in the RR (note RR was rezoned as LDCR in this scenario)). Figure 2-5 in the October 2021 study shows the existing and projected buildout for the “Business as Usual” scenario where 159 homes were projected.

2. We believe 159 new homes within the current RR zone baseline buildout is grossly overestimated. From our observance, there have been very few new homes built in the RR zone within the past two decades. This could probably be confirmed through City records. We know the new requirements call for a 3-acre parcel in order to build (good), but current zoning requirements simply do not seem to allow for that many more homes to be built. How did you arrive at the 159 number?

CEI Evaluation: The FBE buildout analysis assumes a worst-case buildout scenario based on the allowable development for the zone, which may not match the past rate of development or larger development densities. The method used to estimate potential development by FBE is as follows (p. 13 and Table 2-3 of 2021 FBE report):

- 1) subtracted land unavailable for development due to physical constraints, including environmental restrictions (e.g., steep slopes, existing buildings, wetlands, resource protection zones, hydric soils, and conserved land), zoning restrictions (e.g., shoreland zoning, street ROWs, minimum lot sizes, and building setbacks), and practical design considerations (e.g., lot layout inefficiencies). FBE applied an efficiency factor of 66% for all zones based on prior experience.
 - 2) remaining buildable land is subdivided to the smallest units allowed under current zoning and places a point representing a building in each unit.
 - 3) LAWPC-owned lands were considered to be protected from development indefinitely.
 - 4) County level soil data was used to restrict development from areas with less than 36 inches to groundwater or some restrictive layer where septic systems are not allowed, as well as from areas within sandy soils within 300 feet of the Lake Auburn shoreline.
 - 5) Lakes and ponds were given a 100-foot setback.
 - 6) Other waterbodies, streams and wetlands were given a 75-foot setback .
3. If the proposed new septic ordinance is passed, and the zone changes from RR to LDCR, the report states there will be 79 new homes built in that zone. Do you have a map (similar to Figure 3) that shows where these new houses will go?

CEI Evaluation: Figure 3 is the map showing where these new homes will be built (you counted 74 on this map, some may be very close together such that they overlap and are hard distinguish).

4. The City is putting forward for consideration the elimination of Ag use in the Ag Zone creating a more focused Resource Protection Zone. How will the Ag Zone be protected from more homes and future development? Our Ag Zone questions in the 8/8 memo are very important, and we don't think the City adequately addressed our questions. We firmly believe that changing the septic standards will be one large step towards allowing more homes to be built in the Ag Zone within the watershed overlay, but this possibility was discounted in your report. If the revised septic ordinance passes, it is not a stretch to believe the City would pursue the relaxation of other restrictions such as the income standard or acreage requirements. To us, the septic ordinance revision is a foot in the door to build more houses in the watershed. We would appreciate your comments on this.

CEI Evaluation: CEI agrees that it is unlikely that no new development will occur in the AG zone given the size of this zone in the watershed. Relaxation of the septic requirements allows for an additional 27 homes over what would be allowed under the “Business as Usual” scenario. This number could be even greater if the zoning were ever to change in the future to allow higher density development. We agree that the relaxation of any standards can set precedence for further relaxation of standards in the future. Boards change and so do their agendas.

5. As outlined in the 8/8 memo, how do you create a process for monitoring the new development? How large of a team would be needed and what is your estimate of effort required?

CEI Evaluation: As outlined, similar levels of development are likely to occur under existing regulations as the proposed 2022 zoning ordinance changes. Any buildout scenario should involve monitoring.

6. If any of your modeling assumptions change, it could have a profound effect on the outcomes and conclusions, bringing our comment on the Drinking Water Programs potential actions back into focus. Could you comment on this?

CEI Evaluation: The change in potential AG development from the October 2021 to August 2022 FBE evaluation is a perfect example of this. FBE went from predicting 101 homes in the AG zone under building with relaxed septic system to no homes. This helped make the proposed ordinance changes more attractive as demonstrated above, but may misrepresent the real implications on the watershed. There isn't anything in the existing or proposed ordinance to prohibit development in the AG, rather an assumption was made that the restrictions made it unlikely.