

TOWN OF ACTON
WATER RESOURCES ADVISORY COMMITTEE
MEETING NOTES OF DECEMBER 12, 2018

Documents: Any documents utilized during this meeting are either included in these minutes, available on the web and/or can be examined at the Town offices during regular business hours.

Present: Matthew Mostoller, Barry Rosen, Lucy Kirshner, Ron Beck, Robert Sekuler, Joan Gardner (BOS Liaison). Guests: Paul Campbell (Town Engineer), Kim Kastens.

Note Taker(s): Barry Rosen

Chairperson: Ron Beck

Called To Order: The chairperson called the meeting to order on December 12, 2018 at 7:02 PM. A committee quorum was present.

Old Business:

1. Approval of Minutes: On a motion by Mr. Mostoller which was seconded by Mr. Sekuler, the minutes of November 14, 2018 were approved by a unanimous vote.
2. Citizen's Comments: Ms. Kastens updated the committee on what took place at the recent Conservation Commission meeting regarding Nagog Pond. Concord is requesting a 3-year extension of their “about to expire” order of conditions. It is the belief of a group of citizens that Concord must submit a new application (Notice of Intent) since there is now new information which has been introduced which the conservation commission is required to consider.
3. Change of meeting order: Mr. Rosen requested the assent of the committee to allow an item of new business (Mr. Campbell’s presentation) to take place after which we would return to the agenda order. The committee unanimously agreed to make this change. [No motion/no vote taken.]
4. Continuing Discussion and Analysis of Data From September 22, 2018 Water Resources Workshop: (following Mr. Campbell’s presentation and discussion) The overriding question that the committee wants to answer is “How do we turn the questions raised during the Water Resources Workshop into something actionable?”
 - 4.1. Mr. Beck presented his ideas about creating an actionable plan. [See the document attached to these minutes.] *Action Item: The membership is to review Mr. Beck’s initial document and send feedback directly to him prior to the next meeting. Do NOT copy the WRAC on the comments nor should WRAC members send comments regarding the document to each other.*
 - 4.2. Enforcement of bylaws and regulations came up again and again was stated by Ms. Kirshner. She also told us that the topic “amount of water available” arose during many conversations. Education of the public clearly has to be addressed.
 - 4.3. Mr. Beck told us that Ms. Greene had asked him for what things should be assigned to other groups.
 - 4.4. Mr. Sekuler suggested that we bring the enforcement issue to Katy and the Board of Selectmen since it is one of the early things that “fell out” of the workshop. Mr. Mostoller felt that we ought to go back to the Board with more than one piece. After some discussion, the committee agreed that we should wait to report back to the selectmen until we have more.

New Business:

5. **Paul Campbell, Storm Water Bylaw X:** Mr. Campbell requested time on the WRAC agenda. He is currently appearing before a number of boards and committees to explain the changes that he requested be made to storm water regulations in the Town of Acton. Mr. Campbell stepped us through the draft memo he wrote (attached to these minutes). He explained that his aim is to consolidate the various references to storm water throughout the town's rules and regulations into Bylaw X as much as possible. We went through the memo with him and asked questions and made a few suggestions. The group's consensus was that this was a worthwhile project and would be very helpful to town residents as well as developers and redevelopers. The current situation is difficult for everyone since storm water management falls across multiple regulations and committees. Looking ahead, Mr. Campbell explained that the new MS4 permit requires substantially more public education on the storm water requirements by the town and more stringent enforcement of the regulations. The WRAC pointed-out that it had already identified enforcement of storm water rules as one of the weak areas with the Town. Not surprisingly, Mr. Campbell stated that enforcement is difficult because within the Town of Acton, storm water regulation enforcement is split between two departments—Health and the Department of Public Works (of which he is a member). That issue has to be resolved in the future as legal stated that enforcement cannot be a joint responsibility within Town government.
6. **VCC Discussion:** The committee discussed two items related to VCC's new recruiting effort in which they are utilizing Acton TV to create small vignettes to provide an overview of a board or committee.
 - 6.1. The WRAC decided that they would like to participate in that VCC program. **Action Item:** *Mr. Rosen was asked to contact the VCC and tell them that the WRAC would like to participate. He will provide Mr. Beck's contact information to them as the person to make the "commercial."*
 - 6.2. The WRAC felt that it would like to have two more members on the committee as associate members to both assure a quorum would be present at meetings and in the event that a member decides to leave the committee.
 - 6.2.1. Ms. Kastens knew of a possible candidate that currently works for the USGS but may be retiring in the near future. She will supply the information to Mr. Beck. **Action Item:** *Mr. Beck will contact the individual and report back to the committee.*
 - 6.2.2. Mr. Rosen felt that since there had been interest from the Planning Board in sending multiple members to the WRAC workshop in September, there may be interest in a member of the Planning Board being an associate member of the WRAC. The consensus of the committee was that this was a good idea and should be attempted. **Action Item:** *Mr. Rosen was asked to contact the Planning Board to ascertain if there was any interest. He will report back to the committee.*
7. **Missing Minutes:** Mr. Rosen mentioned to the committee that he had received an email from the Town Clerk's office (less than 48 hours prior to the meeting) with a list of meeting dates for which no minutes had been received by and posted by the Town Clerk's office. The Clerk's Office was requesting that the WRAC provide those minutes. Mr. Rosen stated that he had gone through the list and determined that the minutes from this evening's meeting were on the list but, of course, have not yet been submitted. However, the list was much larger and Mr. Rosen did not have most of the missing minutes. Mr. Beck and Mr. Mostoller said that they may have copies of some of the

missing minutes and asked Mr. Rosen to send them a copy of the Town Clerk's email containing the list of missing minutes. *Action Item: Mr. Rosen is to forward a copy of the Town Clerk's email to him to both Mr. Mostoller and Mr. Beck who will send Mr. Rosen a copy of any of the missing minutes for which they have a copy.*

8. **Date/Time of Next Meeting:** The time for the next meeting of the committee was set for January 10, 2019 at 7:30 PM. Note that this is 30 minutes later than usual and is being held on a Thursday rather than the usual Wednesday meeting day. It will be held at the Acton Water District Headquarters building, 693 Massachusetts Avenue, Acton, MA.

Adjournment: On a motion made by Mr. Sekuler which was seconded by Mr. Mostoller, the meeting was adjourned at 8:45 PM by a unanimous vote.



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Engineering Department

INTERDEPARTMENTAL COMMUNICATION

To: Water Resources Advisory Committee

Date: December 4, 2018

From: Engineering Department

Subject: Recommended Bylaw & Regulation changes for stormwater management

The Town adopted a General Bylaw (Chapter X) in 2015 to regulate stormwater management and erosion control. The Board of Selectmen then adopted rules and regulations for Chapter X in 2017 to implement the bylaw. These regulations were based on existing stormwater standards for wetland protection, the subdivision approval process, site plan and comprehensive permits. Since the bylaw and rules have been passed, we recommend consolidating the various stormwater standards found in other bylaws and rules into a single source. This source should be the Chapter X rules and regulations.

Current standards are found in various regulations by different boards but generally they are identical to one another. Stormwater design standards change with changes in technology among other reasons. To streamline our design standards, it'd be more practical to keep them within the Chapter X rules and regulations and update them with one Board of Selectmen vote rather than change several regulations at several board meetings.

In addition to consolidating current standards into one source, we also recommend changes to the Chapter X design standards:

1. Update standards for compliance with EPA MS4 permit

Our MS4 stormwater permit requires Acton to address phosphorus pollution and to create a GIS map of our stormwater system. We included a section on calculating phosphorus removal to Chapter X Rules & Regs and added a requirement for as-built submissions that will help to populate our stormwater GIS database

2. Update standards reflecting more intense/frequent storms

With storm intensity becoming more intense and more frequent, we recommend having stormwater management based on a 25-year storm rather than 10-year. We also will require the 25-year storm to be defined by NOAA rather than the outdated TP-40 rainfall study used by MassDEP. MassDEP allows more stringent design

storms under a local bylaw or ordinance and NOAA rainfall data is continuously updated and is more representative of current storms than TP-40 conducted in the 1950s. Public Works has been redesigning existing streets to accommodate larger more frequent storms and it's reasonable that private development should as well.

Larger and More Frequent Storms
Supporting Data

Storm (24-hr period)	TP-40 (MassDEP standard) Middlesex County	Cornell University Extreme Precipitation Study Middlesex County	NOAA Atlas Acton, MA
2-year	3.1 inches	3.15 inches	3.23 inches
10-year	4.5 inches	4.75 inches	5.01 inches
25-year	5.3 inches	6.0 inches	6.12 inches
100-year	6.5 inches	8.57 inches	7.83 inches

MassDEP based their standards on TP-40, developed in the 1960s with rain data taken in the 2 decades before. TP-40's assumption was that rain intensities would remain constant over time. Recent studies have shown this assumption to not be the case.

Information on the Cornell study may be found here: <http://precip.eas.cornell.edu/> and the NOAA study may be found here: https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=ma

General Bylaw Revisions – Town Meeting Vote Required

1. Chapter M – Zoning Bylaw
2. Chapter X – Erosion Control & Stormwater Management Bylaw

Stormwater Rules & Regulation Revisions – Board Votes Required

Board of Selectmen

1. Chapter X
2. Site Plan Special Permit

Conservation Commission

1. Wetland Protection Rules & Regulations

Planning Board

1. Subdivision Rules & Regulations
2. Groundwater Protection District

Board of Appeals

1. Comprehensive Permits

General Bylaw changes (requiring Town Meeting Vote)

General Bylaw – Chapter X

Replace Section X.2.2 This Bylaw is intended to address gaps in jurisdiction for stormwater management requirements in the Town of Acton Bylaws and the Massachusetts Wetlands Protection Act.

with *Section X.2.2 This Bylaw is intended to address gaps in jurisdiction for stormwater management requirements in the Town of Acton Bylaws and the Massachusetts Wetlands Protection Act and to provide uniform design standards for erosion control and stormwater management.*

Purpose: Stormwater management requirements differ between the Acton Bylaws and MA Wetlands Protection Act. In some cases, the standards under the Wetlands Act are less restrictive than Acton Zoning. It's illogical that standards should be less restrictive in areas protected by the Act. The intent of this change is to create a consistent set of design standards for all regulated areas.

Replace Section X.5.1 Applicability. This Bylaw shall apply to all Land Disturbances and Development within the jurisdiction of the Town of Acton. Except in accordance with a Land Disturbance Permit issued pursuant to this Bylaw, no Person shall perform any Land Disturbance that results in one or more of the Regulated Activities defined in Section 4.1 that is not an Exempt Activity listed in Section 4.2.

with *Section X.5.1 Applicability. This Bylaw shall apply to all Land Disturbances and Development within the jurisdiction of the Town of Acton. Except in accordance with a Land Disturbance Permit issued pursuant to this Bylaw, no Person shall perform any Land Disturbance that results in one or more of the Regulated Activities defined in Section 4.1 that is not an Exempt Activity listed in Section 7.1.*

Purpose: The Bylaw as written contains a typo referring to exempt activities listed in Section "4.2". Exempt activities are listed in Section 7.1. There is no Section 4.2 of the bylaw

Add *Section X.6.1.5: Land Disturbance or Development requiring another Town project approval process with requirements to meet the design standards of the Chapter X General Bylaw. These other processes include but are not limited to: site plan special permits, comprehensive permits and subdivision approvals,*

Purpose: The intent of section 8.4 of the bylaw was to allow another town approval process to act as an approval of this bylaw if that process meets the criteria of the bylaw. The only town approval process that meets these criteria is a project that requires approval from the Conservation Commission. This has created a two-tier system for other approval processes resulting in a bylaw that is cumbersome to comply with and difficult to enforce.

The rules for the other processes have been updated to require stormwater management and erosion & sediment control to meet the design standards of the

Chapter X bylaw. Adding this section will create consistency for all permitted activities that require stormwater management or erosion control and streamline the approval process.

Move	X.7.1.1 Activities for which all Stormwater management has been reviewed and approved as part of an order of conditions issued by the Acton Conservation Commission.
to	<i>X.7.2.1 Activities for which all Stormwater management has been reviewed and approved as part of an order of conditions issued by the Acton Conservation Commission.</i>
Purpose:	The Conservation Commission uses the thresholds of the Massachusetts Stormwater Handbook to determine when stormwater management is required. Chapter X has more stringent thresholds than the Handbook. There are activities that are reviewed and approved by the Conservation Commission that do not require stormwater management because they don't meet Handbook thresholds even if they do meet Chapter X thresholds. For example, a two-lot subdivision near a wetland would not require stormwater management yet they would get approval from the Conservation Commission regardless of whether the subdivision met the Chapter X thresholds.
	It's clear from the text of Bylaw X that such a development would require stormwater management if it met the bylaw thresholds but because this rule is located in this section of the bylaw, technically it makes it exempt. It's illogical that a two-lot subdivision would require stormwater management outside of the Commission's jurisdiction but not within it. Moving this exemption to Section 7.2 will make stormwater management requirements consistent.
Renumber	Existing Section 7.1.2 → 7.1.1 Existing Section 7.1.3 → 7.1.2 Existing Section 7.1.4 → 7.1.3 Existing Section 7.1.5 → 7.1.4 Existing Section 7.1.6 → 7.1.5 Existing Section 7.1.7 → 7.1.6 Existing Section 7.2.1 → 7.2.2 Existing Section 7.2.2 → 7.2.3 Existing Section 7.2.3 → 7.2.4
Purpose:	Existing Section 7.1.1 was moved to section 7.2 and renumbered as 7.2.1
Replace	Section X.7.2 The following activities are exempt from the requirements of this BYLAW UNLESS they exceed the threshold set forth in Section 4.1(1)
with	<i>Section X.7.2 The following activities are exempt from the requirements of this BYLAW UNLESS they exceed the threshold set forth in Section 6.1</i>

Purpose: The Bylaw as written contains a typo referring to thresholds listed in Section "4.1(1)". Thresholds are listed in Section 6.1. There is no Section 4.1(1) of the bylaw

Chapter X Rules & Regulations – Board of Selectmen vote required

Replace Section 1.2: These REGULATIONS establish uniform procedures for the IMPLEMENTING AUTHORITY to process and administer Land Disturbance Permits. The purpose of these REGULATIONS is to provide for the health, safety and general welfare of the citizens of the Town of Acton and the protection of surface water, groundwater, and wetlands through the regulation of land use activities that contribute to stormwater runoff.

with *Section 1.2 These REGULATIONS establish uniform procedures for the IMPLEMENTING AUTHORITY to process and administer Land Disturbance Permits and provide uniform design standards for erosion control and stormwater management for regulated land use activities. The purpose of these REGULATIONS is to provide for the health, safety and general welfare of the citizens of the Town of Acton and the protection of surface water, groundwater, and wetlands through regulation of land use activities that contribute to stormwater runoff.*

Section 1.4 Definitions

Replace IMPLEMENTING AUTHORITY: The Acton Land Use Department. The Acton Department of Public Works shall have approval authority over all final PERMIT decisions.

with *IMPLEMENTING AUTHORITY: The Acton Department of Public Works.*

and add *NEW DEVELOPMENT: Any construction activities or land alteration on an area that has not previously been developed to include impervious cover.*

REDEVELOPMENT: Any construction, land alteration, or improvement of impervious surfaces that does not meet the definition of NEW DEVELOPMENT.

Add *Section 3.1.10. Redevelopment activities that is exclusively limited to maintenance and improvement of existing impervious areas. Said areas shall improve existing conditions where feasible.*

Replace Section 3.4.5: Drainage Calculations. Storm water runoff calculations used for the drainage system design prepared by, and displaying the seal of, a Registered Professional Engineer. These calculations must validate the sizing of all drainage structures and pipes. These calculations must be based on a recognized standard method (usually the Rational Formula or Soil Conservation Service Method). The calculations must contain a written summary explaining the rationale of the design so that a lay person can understand the basic design approach and its validity for the site in question. Furthermore, the calculations shall be fully documented and shall include copies of charts or other reference sources to facilitate the TOWN's review. The pre- and post-development runoff rates must be provided. If applicable,

the methods used to comply with the various "Stormwater Runoff" design standards of the Acton Zoning Bylaw shall be described. The use of computer-generated reports is acceptable; however, the source of the software should be identified. Design of the storm drainage system shall be based on a 10-year storm event; however, the system design shall not result in serious flood hazards during a 100-year storm. If the site plan includes a "reserve parking" area, the storm drainage system design for this area shall be included in these calculations. If any portion of the proposed drainage system connects to a public drainage system, or if the peak rate of runoff for the 10-year storm event towards a public drainage system will be increased, the APPLICANT shall provide calculations that demonstrate that the existing public system has the capacity to accept such runoff. The APPLICANT shall comply with the Town of Acton General Bylaw Chapter U for the direct connection.

with

Section 3.4.5. Drainage Calculations. Stormwater runoff calculations used for the drainage system design prepared by, and displaying the seal of, a Registered Professional Engineer of Massachusetts based on a recognized standard method (Rational Formula or Soil Conservation Service Method).

3.4.5.1 Calculations must validate the sizing of all drainage structures and pipes based on the 24-hour, 25-year storm in Acton, MA as provided by NOAA Atlas 14, Volume 10, Version 2, as amended (see Appendix D). Calculations shall be provided for the 24-hour, 2-, 25- and 100-year storms and shall demonstrate a reduction in the stormwater runoff rate from pre-development to post-development for the 2- and 25-year storm events.

In addition, to demonstrate that the system as designed will not result in serious flood hazards during the 100-year storm, the calculations shall demonstrate a reduction in runoff volume from pre-development to post-development for the 100-year storm event.

3.4.5.2 The use of computer-generated reports is required and the source of the software shall be identified

3.4.5.3 If the site plan includes a "reserve parking" area, the storm drainage system design for this area shall be included in these calculations.

3.4.5.4 If any portion of the proposed drainage system connects to a public drainage system, or if the peak rate of runoff for a 25-year storm event directed from a developed site towards a public drainage system is increased post-development, the APPLICANT shall provide calculations that demonstrate that the existing public system has the capacity to accept such runoff. The pre- and post-development catchment areas must include the off-site areas collected by the existing public system and shall be included as part of the drainage calculations.

The APPLICANT shall comply with the Town of Acton General Bylaw Chapter U for any direct connection to a Town-owned drainage structure. Connections to drainage structures owned by MassDOT are subject to state approval and shall require an access permit from MassDOT to be provided prior to issuing a building permit.

Replace	<p>Section 3.4.5.1: Standards – An APPLICANT shall demonstrate that it complies with the Standards in the Massachusetts Stormwater Handbook and the following additional standards:</p> <ul style="list-style-type: none"> • Applicability – Handbook Standards shall apply to all scenarios listed within the Handbook’s Exceptions if the land disturbance or development meets or exceeds the thresholds in Section 6 of the BYLAW. These BYLAW thresholds supersede the exceptions within the Handbook. • An APPLICANT shall consider Low Impact Development (“LID”) measures prior to considering traditional Best Management Practices (“BMPs”) (e.g., catch basins, etc.). Should a traditional BMP be chosen for the site, an APPLICANT shall state why the BMP(s) was chosen over LID. Alternatives/environmentally sensitive designs shall be provided in an evaluation narrative. See LID Alternatives and Structural BMPs listed in Massachusetts Stormwater Handbook Volume 2 Chapter 2. <ul style="list-style-type: none"> ○ LID Credits may not be applied to reduce the Required Recharge Volume and Water Quality Volume. ○ In areas where stormwater runoff discharges to an impaired waterway, an APPLICANT shall use BMPs that reduce phosphorus, nitrogen, or other nutrients. <p>The APPLICATION shall provide a MassDEP TARP or STEP rating and TSS removal efficiency for any proprietary stormwater BMPs, or, if a STEP/TARP rating is unavailable, the APPLICATION shall provide documentation regarding the TSS removal efficiency of the BMP and a certification statement by a Professional Engineer certifying that the BMP as designed operates within similar conditions as the performance testing conducted by the proprietary BMP manufacturer.</p> <p>Required TSS removal rate shall be demonstrated for flow rates generated by the 2- and 10-year storm events. An APPLICANT shall comply with Standard 4 for the 1” Water Quality Volume within Zones 1-3 of the Groundwater Protection District to comply with Acton Zoning Bylaw Section 4.3.6.3 (“Treatment and Renovation of Runoff”).</p>
with	<p><i>Section 3.4.6. Additional Standards. The APPLICANT shall demonstrate that it complies with the Standards of the Massachusetts Stormwater Handbook and the following additional standards:</i></p> <p><i>3.4.6.1 Applicability – Handbook Standards shall apply to all scenarios listed within the Handbook’s Exceptions if the land disturbance or development meets or exceeds the thresholds in Section 6 of the BYLAW. These BYLAW thresholds supersede the exceptions within the Handbook.</i></p> <p><i>3.4.6.2 Low Impact Development. An APPLICANT shall consider Low Impact Development (“LID”) and green infrastructure measures.</i></p>

Alternatives/environmentally sensitive designs shall be provided in the evaluation narrative. See LID Alternatives and Structural BMPs listed in Massachusetts Stormwater Handbook Volume 2 Chapter 2, as amended. LID Credits may not be applied to reduce the Required Recharge Volume

3.4.6.3 New Development areas shall:

3.4.6.3.1 Retain the volume of runoff equivalent to, or greater than, one inch multiplied by the total post-construction impervious surface area on the site in all zones of the Groundwater Protection Area or meet the requirements of sections 3.4.6.3.2 and 3.4.6.3.3

3.4.6.3.2 Remove 90% of the average annual load of Total Suspended Solids (TSS) generated from the total post-construction impervious are on the site

3.4.6.3.3 Remove 60% of the average annual load of Total Phosphorus (TP) generated from the total post-construction impervious surface area on the site. Pollutant removal shall be calculated consistent with EPA Region 1's BMP Performance Extrapolation Tool or other BMP performance evaluation tool provided by EPA Region 1 or other MassDEP approved method

3.4.6.4 Redeveloped areas shall:

3.4.6.4.1 Retain the volume of runoff equivalent to, or greater than, 0.8-inch in Zone 4 of the Groundwater Protection Area and one-inch in Zones 1-3, multiplied by the total post-construction impervious surface area on the site or meet the requirements of sections 3.4.6.4.2 and 3.4.6.4.3

3.4.6.4.2 Remove 80% of the average annual load of Total Suspended Solids (TSS) generated from the total post-construction impervious are on the site

3.4.6.4.3 Remove 50% of the average annual load of Total Phosphorus (TP) generated from the total post-construction impervious surface area on the site. Pollutant removal shall be calculated consistent with EPA Region 1's BMP Performance Extrapolation Tool or other BMP performance evaluation tool provided by EPA Region 1 or other MassDEP approved method

3.4.6.3.4 Redeveloped sites may utilize offsite mitigation within the same USGS HUC10 as the redevelopment site to meet the equivalent retention or pollution removal requirements provided the applicant has retained the rights and powers necessary to assure that the off-site stormwater drainage facilities will be properly maintained in good working order.

3.4.6.5 TSS removal. Documentation shall be provided demonstrating TSS removal rates for flow rates generated by the 2- and 25-year storm events.

The APPLICATION shall provide a MassDEP TARP or STEP rating and TSS removal efficiency for any proprietary stormwater BMPs, or, if a STEP/TARP rating is unavailable, the APPLICATION shall provide documentation regarding the TSS removal efficiency of the BMP and a certification statement by a Professional Engineer certifying that the BMP as designed operates within similar conditions as the performance testing conducted by the proprietary BMP manufacturer.

Renumber	Existing Section 3.4.6 → 3.4.7 Existing Section 3.4.7 → 3.4.8 Existing Section 3.4.8 → 3.4.9 Existing Section 3.4.9 → 3.4.10 Existing Section 3.4.10 → 3.4.11 Existing Section 3.4.11 → 3.4.12 Existing Section 3.4.12 → 3.4.13
Replace	Section 3.4.9: Erosion Control and Sedimentation Plan. An Erosion Control and Sedimentation Plan (“Plan”) which conforms to the latest edition of the USDA Soil Conservation Service’s “Guidelines for Soil and Water Conservation in Urbanizing Areas of Massachusetts” and “Erosion & Sediment Control in Site Development,” and as required by the Massachusetts Stormwater Handbook Standard 8. The limit of disturbance shall be clearly noted on the Plan. Said Plan shall at least meet the standards in Section 3 of the Acton Wetland Protection Bylaw Rules and Regulations, as amended, and shall control sedimentation that may impact the storm sewer system or roadways in the TOWN. In no event shall hay bales be proposed or utilized for erosion and sediment control. Approved equal products such as erosion control straw wattles are required.
with	<i>Section 3.4.9 Erosion Control and Sedimentation Plan. An Erosion Control and Sedimentation Plan (“Plan”) which conforms to the latest edition of the USDA Soil Conservation Service’s “Guidelines for Soil and Water Conservation in Urbanizing Areas of Massachusetts” and “Erosion & Sediment Control in Site Development,” and as required by the Massachusetts Stormwater Handbook Standard 8.</i>

3.4.9.1 Said Plan shall at least meet the standards in Section 3 of the Acton Wetland Protection Bylaw Rules and Regulations, as amended and shall:

- *Minimize the amount of disturbed area and protect natural resources*
- *Stabilize sites when projects are complete or operations have temporarily ceased*
- *Protect slopes on the construction site*
- *Protect all storm drain inlets and armor all newly constructed outlets*
- *Use perimeter controls at the site*

- *Stabilize construction site entrances and exits to prevent off-site tracking*
- *Provide inspection for stormwater controls at consistent intervals*

3.4.9.2 The limit of disturbance shall be clearly noted on the Plan.

3.4.9.3 The erosion and sediment control shall control sedimentation that may impact resource areas, abutting property, public and private storm sewer systems and the roadways in the TOWN.

3.4.9.4 The plan must note that the party responsible for erosion and sediment control shall control for other construction wastes such as demolition debris, litter and sanitary wastes. No construction waste shall be discharged to the sanitary or storm sewer systems.

3.4.9.5 In no event shall straw hay bales be proposed or utilized for erosion and sediment control. Approved equal products such as erosion control straw wattles are required and shall be approved by the IMPLEMENTING AUTHORITY prior to installation

Replace Section 3.4.10 Operation and Maintenance Plan. An Operation and Maintenance Plan, as required by the Massachusetts Stormwater Handbook Standard 9, which provides a guide for the regular inspection and maintenance of the stormwater management system both during and after construction. The Plan shall provide the contact information of the parties responsible for the Operation and Maintenance Plan both during and after construction.

with *Section 3.4.10 Operation and Maintenance Plan. An Operation and Maintenance Plan, as required by the Massachusetts Stormwater Handbook Standard 9, which provides a guide for the regular inspection and maintenance of the stormwater management system both during and after construction.*

3.4.10.1 The Plan shall provide the contact information of the parties responsible for the Operation and Maintenance Plan both during and after construction.

3.4.10.2 The party responsible for erosion and sedimentation control shall notify the Acton Engineering Department for inspection upon completion of the installation of approved erosion control and prior to any site clearing or land disturbance.

3.4.10.3 The party responsible for maintenance shall provide completed inspection logs maintained during construction prior to completing construction and the approval of an occupancy permit

3.4.10.4 After construction has been completed, the TOWN maintains the right to determine the appropriate procedures to ensure adequate long-term operation and maintenance of the stormwater management system

constructed. The IMPLEMENTING AUTHORITY shall consider procedures such as, but not limited to:

- *Accept ownership of the private stormwater system by the Town*
- *Require a maintenance contract between the owner of the stormwater system and the TOWN or a third-party*
- *Require annual certification documenting maintenance of the stormwater system by the owner*

The procedure shall be determined by the IMPLEMENTING AUTHORITY prior to issuing a PERMIT.

Replace Section 3.4.11.4: Natural Site Characteristics: Site features including, but not limited to, flood plains, waterways, drainage courses, and ledge outcroppings.

- Existing and proposed contours of the land shown at one (1) foot intervals unless otherwise required by the Floodplain Bylaw. Topography and all elevations shall be referenced to the National Geodetic Vertical Datum of 1929 (NGVD29) or National American Vertical Datum (NAVD88) with a conversion factor to NGVD29 and the location and elevation of the starting bench mark plus at least two additional temporary bench marks on the site that will not be disturbed during the work.
- Location and results of any field tests to determine the maximum groundwater elevation and depth to bedrock if applicable along with associated logs of the soil evaluation conducted by a Competent Soils Professional in compliance with Standard 3 of the Massachusetts Stormwater Handbook at the proposed recharge location.
- All wetlands and wetland buffer area boundaries. Wetlands and wetland buffer areas are defined as those areas subject to regulation under either the Wetland Protection Act or the Acton Wetland Bylaw.

with Section 3.4.12.4 Natural Site Characteristics: Site features including, but not limited to, flood plains, waterways, drainage courses, and ledge outcroppings.

- *Existing and proposed contours of land shown at one (1) foot intervals unless otherwise required by the Floodplain Bylaw. Topography and all elevations shall be referenced to the NAVD88 vertical datum with the location and elevation of the starting bench mark plus at least two additional temporary bench marks on the site.*
- *The Horizontal datum used shall be the Massachusetts State Plane Coordinate System, Mainland Zone 2001 (US Survey Foot) and with the state plane coordinates shown for the starting and temporary bench marks (3 total).*
- *The horizontal and vertical datums used shall not be assumed and shall be clearly referenced on the plan.*

- *Location and results of any field tests to determine the maximum groundwater elevation and depth to bedrock if applicable along with associated logs of the soil evaluation conducted by a Competent Soils Professional in compliance with Standard 3 of the Massachusetts Stormwater Handbook at the proposed recharge location.*
- *All wetlands and wetland buffer area boundaries. Wetlands and wetland buffer areas are defined as those areas subject to regulation under either the Wetland Protection Act or the Acton Wetland Bylaw.*

Replace Section 5.8.2: All elevations shall refer to the National Geodetic Vertical Datum of 1929 (NGVD29) or National American Vertical Datum of 1988 (NAVD88) with a conversion factor to NGVD29.

with: *Section 5.8.2: All elevations shall be referenced to the NAVD88 vertical datum and horizontally to the Massachusetts State Plane Coordinate System, Mainland Zone 2001 (US Survey Foot).*

Add *Section 5.8.4. APPLICANT shall provide as-built information in a format compatible with the TOWN's GIS system as determined by the IMPLEMENTING AUTHORITY*

Themes emerging from the “policy” cluster of questions from the Water Workshop

- v. 1.1 Notes from Kim/Ron meeting of 3 November 2018, further developed by Kim
- v.1.2: several small changes growing out of WRAC meeting of 14 November 2018

Does Acton have enough water for the desired or expected future growth?

A number of questions circled around the issues of “is there enough water for Acton’s future?” or “Will X activity leave enough water for the other things that Acton wants to do that will need water?”

- Sc 1: How much additional demand would proposed units create?
- Sc 1: How do we allocate limited capacity?
- Sc 1: Can we get an increase in the WMA permit? And what are the allowable criteria (populations, others) that can be used to make the case?
- Sc 4: What quantities of water are we talking about?
- Sc 4: Do we want to reserve any excess capacity for Acton or make it available to Stow?

One way to tackle this question would be to undertake a GIS study that would identify and sum up the plausible water demand for each of the undeveloped parcels in Acton, considering scenarios of (a) building as by right under existing zoning and (b) building at a denser level consistent with recently approved variances. With Acton’s strong ethic of open space conservation, no one expects that Acton will be built out to this intensity, but developing a model of this end member case will give Acton’s leadership and citizenry the starting point from which to contemplate where along the trajectory between the status quo and full build out would Acton confront the limits of its water supply. “Limits to water supply” may be regulatory, in terms of the maximum that Acton will be allowed under the Water Management Act, or may be physical, in terms of the pumping rate that can be sustained without further depletion of the groundwater aquifer.

Teach us to fish. Don’t just purchase a fancy fish dinner from a consultant.

{Idea here is that we don’t want to hire a consultant to make a model and use the model to answer some questions. We want to own the resulting model and build capacity in Acton (Town Hall and/or AWD) to keep the model up to date and use it to answer what-if questions in the future. Lesson learned from CWRMP experience.}

Enforcement of water-related regulations

{Idea here is that some water related regulations, especially around storm water runoff, aren’t being strongly enforced. What would need to change to incentivize the Health Department to enforce the existing storm water regulations? Should the enforcement be moved else? Action would be to student (chapter U is Health department; Chapter X is department of public)? Action: study how the other towns do it} [background from Matt:

the adoption of stronger storm water regulations was not welcomed in town; it came down from the EPA.]

Zoning protection of the recharge areas is another example of

{Barry: where does enforcement work? In the police department? There, the penalties are so onerous, that people learn their lesson.}

What combination of education and enforcement.

Taking water and waste water needs into account more strongly in zoning and permitting decisions

{idea here is that constraints from supply and disposal of water should factor more strongly and earlier into Town Hall and Town Meeting decision-making processes around development and zoning. This idea is closely tied to the first bullet above, in that a model that allows what-if questions about the water-use impact of proposed development would support evidence-based decision-making about potential development options.

Close coordination between Town of Acton and Acton Water District.

{closely related to previous bullet, but there could be other areas of coordination in addition to zoning and permitting.}

Acton Water Study Scope Areas Suggested by outcomes of September Water Seminar

SUMMARY

WRAC has spent the past 75 days analyzing and turning the Water Workshop outcome into actionable focus areas for the proposed Acton Water Workshop.

WRAC wanted to answer the following questions for Acton BOS:

- (1) Is there a real need, both in scope and timing (do we need it, do we need it now) for conducting an Acton long range water study?
- (2) What do the workshop breakout “report-outs” inform us as to the scope of a study that will add real value in answer the most important long-term planning uncertainties and policy decision making needs?
- (3) Which information and analysis needs should be referred to other committees and which ones should be the focus on a WRAC-led water study?

COMMITTEE APPROACH

The methodology we employed was to (a) enumerate all of the questions that were reported out of the water workshop breakout groups; (b) divide the questions into several main types and assign pairs of committee members to discuss and synthesize each set of questions; (c) turn the questions into actionable recommendations for further study; (d) discuss as a committee what we would like to recommend to the BOS as next steps.

It was a unanimous consensus of all committee members, as well as regular observers to the committee meetings, that the high level water workshop finding is that there ARE important questions that policy makers seek answers to in making decisions impacting town water resources. We strongly recommend to the Board of Selectmen that a Town of Acton Long Term Water Study needs to be conducted.

HIGH LEVEL QUESTIONS TO BE ANSWERED BY THE WATER STUDY:

SOME key needs suggested by the Water Workshop outcomes:

Big questions that Water Workshop participants wanted answers to:

1. QUANTITY: Does Acton have enough water for the future (looking ahead 10,20, 30 years).
2. WHAT IMPACTS WATER: How should we look at different potential activities (development, land use, protection) as to their impacts on water. Can we forecast activities and their impacts?
3. GROWTH: What is range of future growth scenarios for Acton over the next 10 and 20 years that provide a best case – worst case envelope of possible future outcomes?
4. FUTURE WATER NEEDS: Based on those growth scenarios, how much water does action need over those planning horizons?
5. FUTURE SUPPLY RISK: What are the risks of supply over those planning horizons, how large are those risks, what are ways of mitigating the risk?
6. ENFORCEMENT: How can the Town improve the governance structure to make enforcement of town Bylaws and Regulations more effective, proactive and achieve the intent of that rule making?

7. COMMUNICATION: How can communication between key stakeholders in Acton water resource husbandry be made effective and streamlined.
8. PUBLIC EDUCATION: What is the best strategy for achieving effective, ongoing public education so that the public become informed players in the decision process?

FRAMEWORK FOR THE SCOPE FOR ACTON WATER STUDY

What follows directly tie back to the questions that arose from the September Water Workshop. (These specific question for each recommendation are not listed in this summary document, but are available as backup.)

1. POLICY DECISION FRAMEWORK

A wide range of policy-related questions from the workshop suggest the need to focus the study on development of a decision-making / consequences matrix.

The decision matrix would provide a framework for town staff, policy making entities, (BOS, Board of Finance, AWD, ConsCom, BOH as examples) and other stakeholders (such as Green Acton) to understand and assess implications of proposed projects and activities on water resources and constraints.

The rows would include activity types such as housing projects, commercial projects, 40B projects, overlain by water protection zones and various risk factors.

The columns would include impact types such as supply quantity impacts, contaminant risk impacts, recharge impacts, surface water impacts, waste treatment/disposal impacts.

The matrix would contain, for each box, a key list of most likely impacts that need evaluation, tools and resources to evaluate, and who are best qualified to provide needed analysis.

So the study work would involve organizing data, analysis, forecasts and resources and put them into a framework enable consistent decisionmaking deliberation.

2. PUBLIC EDUCATION

Rationale: All people living in the town impact both the town's water supply and water quality and therefore have a responsibility for their water related behavior. Water treatment, delivery and the upkeep of infrastructure is expensive and people need to understand and support their own financial responsibility. Decisions made by our town's government related to building and development also impact our water resource both immediately and in the future. Consequently, because citizens are critical to this governance they need a broad understanding of our current water resource, levels of responsibility and how we can handle possible emergencies. While only four* of the questions collected at the WRAC workshop specifically mentioned public knowledge and education, almost all of the questions suggested a need for more public understanding.

Water study questions:

- Who should set the agenda for Public Education?
- Who should shoulder the cost of Public Education?
- Who should carry out the agenda?
- How should public education be delivered?

public meetings, written material, radio, TV, website, talks at local groups: CoA, LWV, Garden Club, Chinese population, churches

Deliverables would include:

- a) Entities to be involved and their recommended roles: (Town employees, AWD, WRAC, Green Acton/Water, Oars)
- b) Preliminary topics for Public Education
 - Overview of the town's water resource and its governance – Citizen's role
 - Our supply of clean water is limited – role of Mass DEP
 - Water treatment comes with expense. Role of the AWD.
 - Town development needs to consider water and wastewater. Role of the BoS
 - Personal water use as well as Wastewater and Septic/Sewer
 - a. All water is from the same aquifer – rules for private wells
 - b. Your household use and technologies to conserve
 - c. Your household wastewater and your responsibilities
 - Potential emergencies and how the town will respond
 - a. Drought and limited water
 - b. Contaminants – prevention and protection
 - c. Individuals with water problems – what do you do?
 - Long term planning
 - a. How does our town develop a shared vision for development
 - b. How does our town work with neighboring towns and the commonwealth
 - c. Long term planning for our town – MWRA
- c) How to execute and pay for public education.

3. Growth/Buildout Scenarios; and how to resolve scenarios into a range of likely outcomes

Future supply, protection and waste treatment needs are all dependent on projections of future population growth and buildout. The Water Workshop raised many questions about what projects impacts are in terms of water availability and demand are and how to determine that in a consistent and repeatable way.

One important focus element of a water study should be to review and assess the different projections, understand the assumptions of each, understand the needs and priorities of different stakeholders in that respect, and come to a common envelope of projections.

Current sources included State of Mass projections, Master Plan projections, Planning projections, School Committee projections, Finance committee projections, and AWD projections. The water resource limits and constraints make it crucial to pursue the task of taking the multiple projects, involving stakeholders collaboratively, and presenting a composite, collaborative, consistent view.

The deliverable of this task might include a composite view of all the valid projects, to present a range of possible future scenarios to use in assessing whether to implement or approve various proposals.

4. Commonly agreed correct calculation of future water needs, based on a methodology to apply to the buildup growth scenarios.

One big uncertainty suggested by a number of questions from the water workshop is how much water will the town need. Project proposers typically employ engineering consultants to calculate this. The town staff then reviews these reports and advises BOS. There is an official AWD positioning how they calculate this. There are also different ways of calculating this used by the State of Mass and by individual town and region water districts.

The lack of commonality creates confusion are debated during policy ruling decisions.

One task, therefore, for a water study will be to conduct a data- and history- based review of the different methodologies, review all the approaches and assumptions, and recommend how Acton should project forward from the analysis to proposed activities.

5. Data Development and Compilation to inform all other analysis and policy decisionmaking

Areas related to science and data came up regularly throughout the discussions during the water workshop. This overlaps with areas of policy, forecasting, permitting, education, and enforcement. The good news is, specific data that was being discussed or questioned for the decision making process may largely exist, however its availability or current use in existing decision making processes may not be well understood. Organizing and understanding what data is available and how it may be used is a first step. Areas of perceived, real or possibly out of date data gaps, may benefit from site/situation specific data generation and review versus broader initiatives that rely heavily on assumptions. Another data issue had a common theme related to GIS and analyzing land use, zoning, wastewater management, storm water management, and groundwater protection. Finally, some of the science issues relate to contaminants, regulations, treatment of water resources, and understanding the relationships of managing water resources and land use throughout the community and neighboring Towns. Developing a matrix of interests, concerns, and responsibilities across various stakeholders could drive better use and generation of data, scientific knowledge, and engineering principles.

6. Acton water supply constraints and projections.

Another key set of workshop questions exposed considerable differences in ways of thinking about future water supply constraints (or lack thereof). An important element of the water study's scope should be a way for policy makers to understand future supply, factors that could impinge on future supply, and how to understand the costs and benefits of safeguarding future supply.

7. Pollutant risks.

Another set of workshop questions pointed to a current lack of transparency and readily available information that policymakers and citizens could use to understand where pollutant risk exists in Acton, and what actions can be taken to minimize those risks.

8. Public reporting.

Many of the water workshop questions lead to the need for the water study to develop a framework for regular town wide reporting, both to policymakers and the public, as to the trends and key performance

indicators of how the town is doing relative to water quality, quantity and protection and the associated information as to the changes imposed by each major policy decision that is being made.