STORMWATER UTILITY FEASIBILITY STUDY
TOWN OF MILLIS, MA
WATER MANAGEMENT ACT PLANNING GRANT FY17

FINAL REPORT

June 30, 2017

20173982.001A

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KLEINFELDER 215 First Street, Suite 320, Cambridge, MA 02142 p | 617.497.7800 f | 617.498.4630

A Report Prepared for:

The Town of Millis, MA

STORMWATER UTILITY FEASIBILITY STUDY
TOWN OF MILLIS, MA
WATER MANAGEMENT ACT PLANNING GRANT FY17

Prepared by:

Betsy C. Frederick
Principal Planner, Kleinfelder

Jean Haggerty
Senior Associate, Water Resources, Amec Foster Wheeler

Reviewed by:

Rich Niles
Associate Project Manager, Amec Foster Wheeler

KLEINFELDER
215 First Street, Suite 320
Cambridge, MA 02142
Phone: 617.497.7800
Fax: 617.498.4630

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1.1 PURPOSE

This Stormwater Utility Feasibility Study Report presents information generated under a Massachusetts Department of Environmental Protection (MassDEP) grant no. BWR-2017-08 provided to the Town of Millis Department of Public Works. The grant is for completion of a Stormwater Utility Feasibility Study that includes the following primary tasks:

- Two stakeholder workshops to explain: (1) Stormwater Utility background information; and (2) feasibility study results.
- Utility Feasibility Study analysis with Technical Memorandum summarizing: current and future program needs; data analysis and revenue estimate; a review of the existing legal framework; and potential next steps.
- Final Report detailing project tasks and findings.

The project was intended to provide information to local decision makers regarding the potential to create a Stormwater Utility as a potential mechanism to fund the current and future stormwater management program in the Town of Millis. The recent emphasis on the regulatory requirements of the 2016 National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) General Permit has been the catalyst for this type of evaluation in many communities, including Millis. It is important to recognize, however, that the stormwater management program includes much more than regulatory compliance. It includes capital projects, operation and maintenance of existing infrastructure, engineering and planning activities and other traditional management tasks. Any or all of these activities can be funded through a utility. That decision, among others, will be part of the Town's consideration of next steps in this process.

This report provides the results of the Stormwater Utility Feasibility Study and includes the materials from the aforementioned workshops (Appendix A). The information compiled for this report serves a dual purpose: 1) it is the basis for understanding the true costs of stormwater management in the Town of Millis; and 2) it is a platform for sharing that information with a wider stakeholder group critical to determining the most appropriate approach for sustainably funding that program into the future.

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1.2 CURRENT PROGRAM SUMMARY

The Town of Millis is approximately 12.2 square miles in size and is located in Norfolk County; bordered by Sherborn, Holliston, Medway, Norfolk, and Medfield (see Figure 1). The Charles River forms the majority of the Town's southern and eastern borders. All of Millis lies within the Charles River major basin for which Total Maximum Daily Load (TMDL) studies have been completed for pathogens and phosphorus. Significant requirements to address these water quality impairments are included in the 2016 MS4 General Permit. Millis has a population of approximately 7,891 (2010 US Census), which is currently expected to remain stable or decrease (MAPC, 2014).

Based on the Town's current Geographic Information Systems (GIS) database, the town operates approximately 8 miles of closed drainage for stormwater conveyance. Additionally, the Town maintains an open drainage system of approximately 63 culverts and 12 structural best management practices (BMPs) associated with their stormwater infrastructure (see Figure 2).

The Town of Millis has continuously implemented its MS4 program under the framework of the NPDES Small MS4 General Permit since 2003. Over that time, the Town has maintained a compliant program and has been able to report progress towards identified plan objectives. Investment has been made in inventorying, mapping, and sampling of stormwater outfalls. Millis has adopted by-laws regulating illicit discharges and has also adopted by-laws regulating construction and post-construction stormwater management. Additionally, the Town has taken steps to develop a documentation framework to prepare for upcoming regulatory reporting requirements. Multiple actions to comply with the MS4 Permit requirements are planned for FY18.

Other than for capital costs/equipment (such as a new sweeper) or consultant expenses for specific tasks, the Town has not maintained a separate accounting of costs associated with stormwater management (i.e. salary or Full Time Equivalent [FTE] figures for staff assigned to stormwater management, or expenses associated with stormwater management). Unlike water and sewer infrastructure management which is funded through an enterprise account framework, stormwater program costs have typically been paid out of operating budgets and general fund appropriations, which are primarily derived from property tax revenue.

The Town of Millis absorbed the 2003 MS4 regulatory programmatic responsibilities within the existing staff at the Department of Public Works, which is also responsible for highway, drainage system, sewer system, water system, parks and recreation and cemetery maintenance among other responsibilities. With a total non-administrative staff of approximately ten (10) full-time staff, it is already stretching resources to successfully achieve all of these functions.

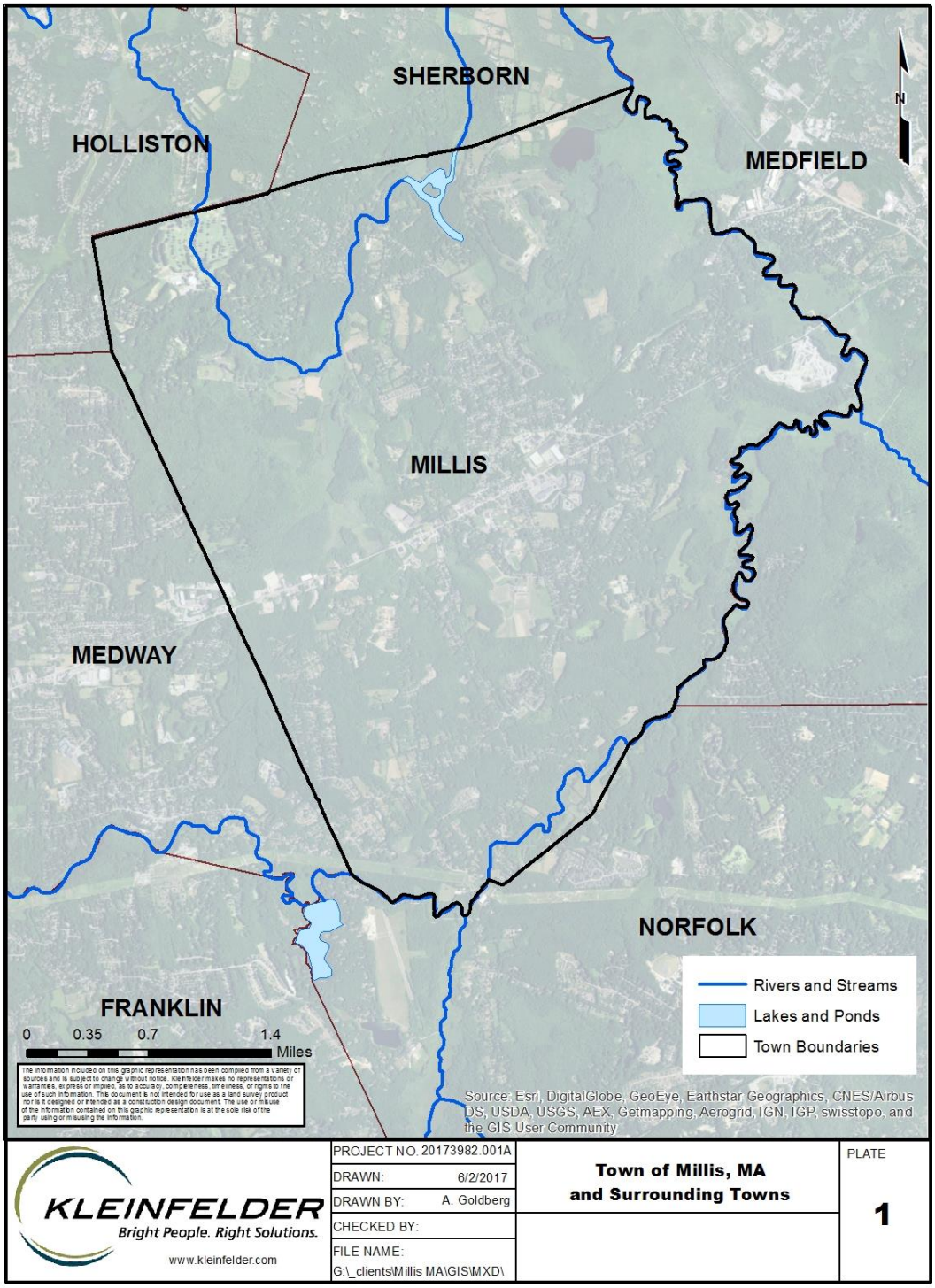

Figure 1: Town of Millis, MA and Surrounding Towns

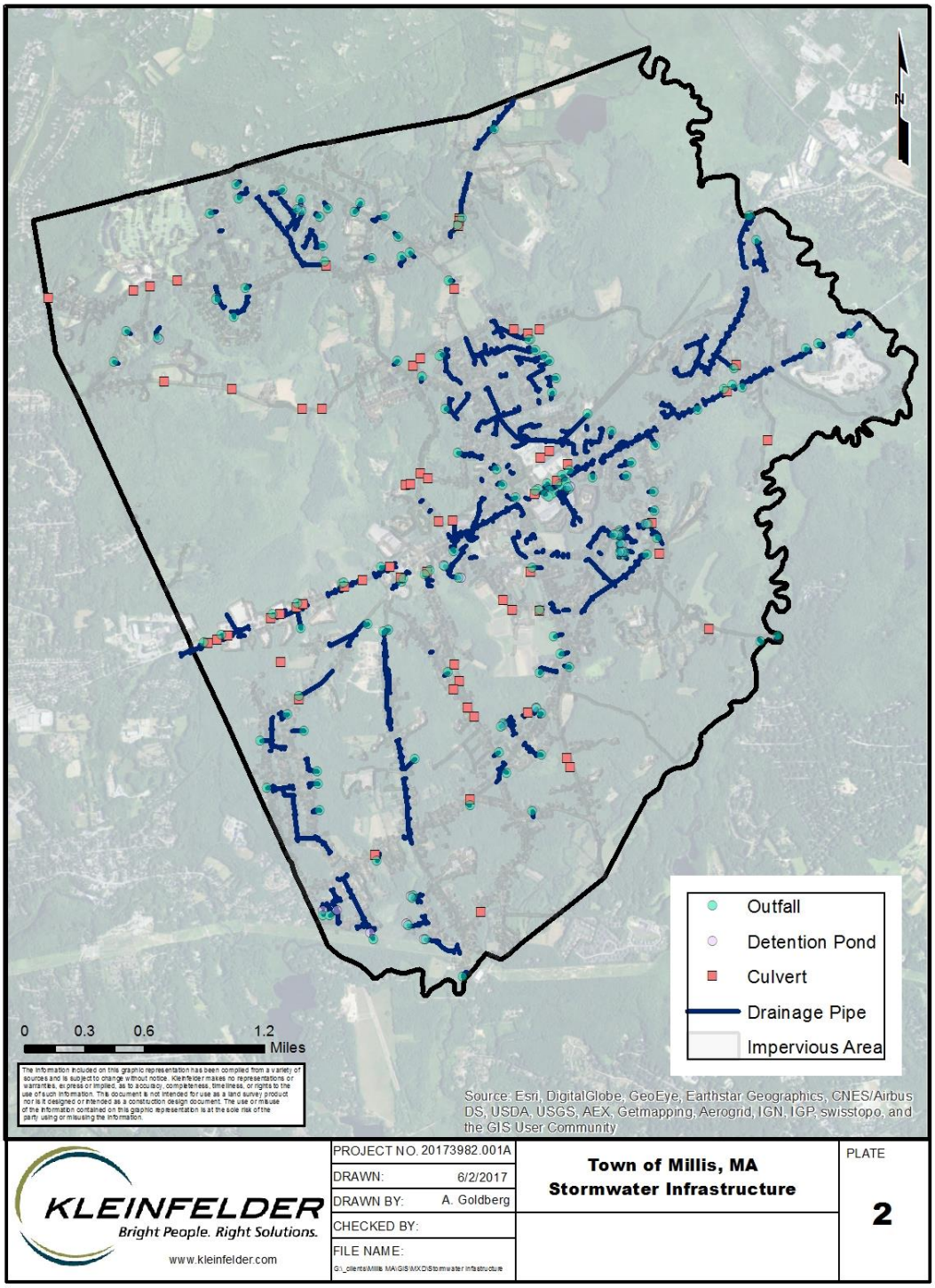

Figure 2: Town of Millis, MA Stormwater Infrastructure

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1.3 PROGRAM PRIORITIES

As with their other infrastructure assets, Millis strives to build and operate their stormwater system such that it serves the public safety interests of the community in a cost-effective manner. As a practical matter, most residents perceive drainage systems as a flood control imperative, with water quality protection as a secondary benefit. This is certainly consistent with historical patterns of public drainage infrastructure development for virtually all municipal operators. One of the primary intents of the NPDES MS4 program is to enhance public appreciation for, and support of, greater water quality controls/protection with regard to MS4 discharges. At the Millis Town administration/department levels, this issue has been addressed by the Board of Health, Drinking Water Committee, Board of Selectmen, Department of Public Works and others over the course of the first MS4 permit term. The extent to which the issue has been recognized or appreciated by the residents at large is not as clearly understood.

In order to fund and administer a program that provides real and perceived value beyond a regulatory compliance baseline, public support for the program is paramount. In an effort to identify a hierarchy of stakeholder-supported program objectives, the Town included an exercise for attendees at an initial workshop during which key Stormwater Utility/enterprise system concepts were introduced.

This initial workshop took place on April 6, 2017. During a workshop activity, stakeholders were asked to provide feedback around local stormwater management priorities. Participants were presented with an array of stormwater management outcomes/objectives and asked to rank priorities for the Town. Each stakeholder was given five (5) votes for what they felt were the most important stormwater issues. The results are shown in Figure 3 below.

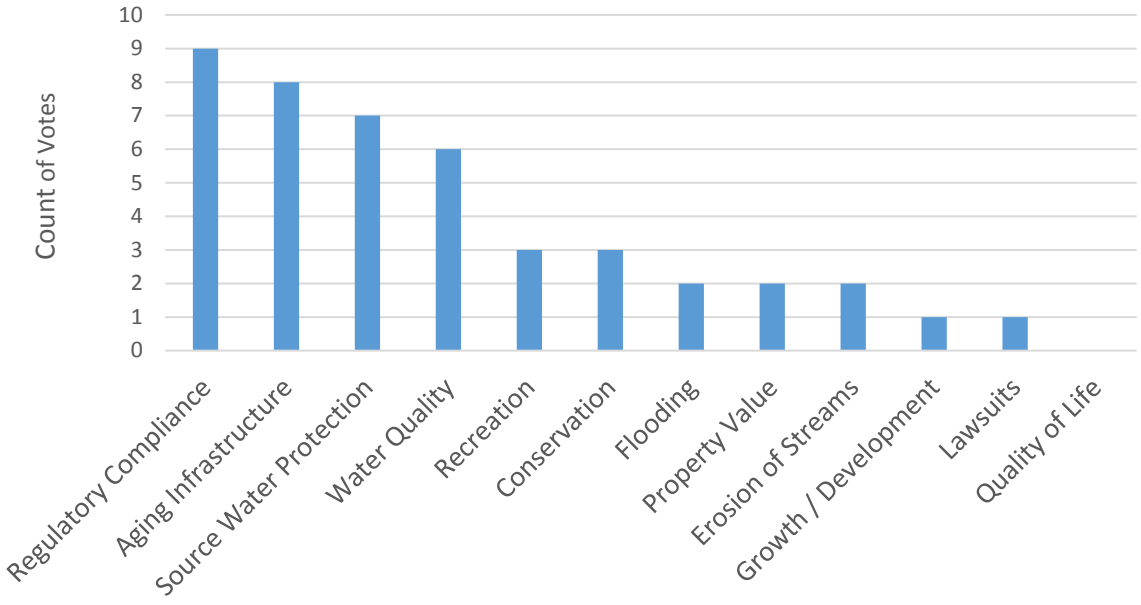

Figure 3: Stakeholder Vote of Future Stormwater Priorities

The discussion following the activity reflected some of the complexities of generating public support for stormwater-dedicated revenues. In this instance, achieving regulatory compliance was the top-ranked priority, and yet it serves no easily observable benefit to the majority of tax payers. Subsequent discussion around this finding was continued at the second workshop on June 13, 2017. Participants suggested that this prioritization of regulatory compliance was directly related to the potential for financial or other penalties. Framed differently – it was not predicated on support of the program's water quality protection objectives per se, but a recognition of legal or financial risk in the event of non-compliance. Experience in other New England communities has shown that if residents assume regulatory compliance is the leading purpose for the program and utility fee, there is likely to be significant resistance to instituting the utility. If there are other recognizable local benefits to a more robust and better funded program, and clearly the results in Millis show stakeholders recognize there are (or can be), than the utility (or stormwater management investment more broadly) is likely to garner more support. Finding a way to present compliance as a necessary outcome, but not a primary driver for the program must be one component of future public education awareness efforts.

As shown above, participants identified "addressing aging infrastructure, (drinking water) source water protection and (receiving) water quality" as the next highest priorities in descending order of rank. Locally, potable water issues have been preeminent in the minds of many residents due to the relatively high-profile Exelon Generating Facility expansion in neighboring Medway. Millis had entered into preliminary discussions with the facility operator, who requires an additional water supply that could not be provided

by the Town of Medway. Adequate water for present and future growth scenarios is considered a local asset in Millis and it is not surprising to see protection of that asset as a high priority for the Town.

1.4 STORMWATER PROGRAM NEEDS AND COST

An EPA-funded analysis completed by Horsley Witten Group and AMEC Earth & Environmental, Inc. entitled *Sustainable Stormwater Funding Evaluation for the Upper Charles River Communities of Bellingham, Franklin and Milford* was completed in 2011. The document presented an analysis using six major cost centers which are described in detail below. Since the original publication of that report, the MS4 General Permit underwent draft iterations and then ultimately the issuance of the Final permit in April 2016. Consequently, some of the assumptions regarding future program administrative costs reflected in that report have changed, however, the type and nature of the requirements are very similar.

Few towns track these categorized costs specifically for stormwater management. For instance, administration costs may be embedded in salaries for office staff responsible for multiple DPW areas of operation. In addition, these categories include generally descriptive terms (and open to some interpretation) and they do not necessarily align neatly with the MS4 General Permit "minimum control measures" (MCM). The "operations and maintenance" category, for example should not be assumed to be equivalent to MCM 6 – Municipal Operations and Good Housekeeping. Street sweeping and catch basin cleaning clearly fall within the municipal operations area, however, the BMP effectiveness evaluations and optimization planning required under that MCM could be construed as an engineering and master planning task as defined by the 2011 EPA report.

Since the Town of Millis has not historically tracked costs separately and could not provide detailed data, we assumed an "order of magnitude" cost comparable to similar communities in Massachusetts for whom a more detailed analysis of cost has been performed. On that basis, an initial estimate of approximately $150,000 - $200,000 per year for operations pre-2017 MS4 permit effective date was established.

Compared to existing program costs, future stormwater non-capital expenditures will include additional prescriptive tasks related to infrastructure assessment, documentation and maintenance required by the Final MS4 General Permit. The future stormwater program cost estimates are provided in Table 1. Other program priorities identified through the stakeholder ranking exercise, such as repair/restoration or replacement of aging infrastructure, or protection of water quality, are ideally outcomes of a properly designed infrastructure management program execution. There have been assumptions made to estimate the average annual cost over the next 5 years relating to each cost center. Note that capital projects for structural controls to reduce phosphorus in

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accordance with Total Maximum Daily Load (TMDL) requirements (i.e. water quality related controls) have implementation deadlines that extend beyond the first 5-year term of the permit, and are addressed elsewhere below.

Table 1: Stormwater Management Program Costs, MS4 Permit Years 1-5

Major Cost Category	FY18	FY19	FY20	FY21	FY22
1) Administration*	$67,000	$68,700	$70,400	$72,200	$74,000
2) Engineering & Master Planning	$132,000	$30,000	$20,000	$20,000	$20,000
3) Operations & Maintenance	$140,000	$151,000	$145,000	$145,000	$145,000
4) Regulation/Enforcement	$27,000	$27,000	$27,000	$27,000	$27,000
5) Project Management	$15,000	$15,400	$15,800	$16,000	$16,000
6) SW Major Capital Projects**	$150,000	$153,750	$157,600	$161,500	$165,500
Totals	$531,000	$445,850	$435,800	$441,700	$447,500

Notes:
***Administration mostly represents salaries and the costs presented include an annual 2.5% increase to account for inflation.**
**Carrying $150,000 as a generic figure at approximately 2.5% inflation per year. PM costs at 10% of capital project costs.

Capital costs provided in Table 1 relate to general infrastructure repair/replace/new construction as currently undertaken by the Town. It does not take into consideration the water quality related capital costs specific to pollutant reduction targets stipulated in the MS4 permit, which will begin after the initial 5-year period.

Cost categories and some of the assumptions embedded in the cost estimates are summarized below:

1) Administration: Staff time for general stormwater program management, administrative support, public education and emergency/disaster management. 25% increase in overall effort from existing program. This is driven by increased efforts under other key cost centers and NPDES MS4 permit requirements.

2) Engineering and Master Planning: 50% increase in overall effort from existing program. New planning efforts include: Stormwater Management Plan, Illicit Discharge Detection & Elimination Plan and a Phosphorous Control Plan to meet the TMDL requirements that are incorporated into the MS4 permit.

3) Operations and Maintenance: Labor and materials for storm drain and culvert maintenance, remedial repair and replacement, catch basin cleaning, street sweeping, detention system maintenance, leaf collection and emergency

response, equipment maintenance and fuel. 50% increase in overall effort from existing program. Permit requirements will likely drive an increase in the frequency of catch basin cleaning, street sweeping and other storm drain system maintenance activities.

4) Regulation/Enforcement: Staff time for stormwater permit administration and inspections. 100% increase in effort from existing program due to increased inspection requirements under the new MS4 permit.

a. Monitoring: Monitoring of stormwater outfalls during dry and wet weather will be required under the new NPDES MS4 permit. Based on the Town's approach for evaluating water quality and monitoring progress, monitoring of receiving waters may also be conducted. This was a cost category carried separately under the EPA 2011 Report, however, these costs have been embedded in the enforcement and engineering costs above for purposes of this analysis.

5) Project Management: Costs associated with planning for and implementing Stormwater Management Capital Projects. PM costs at 10% of capital project costs.

6) Stormwater Major Capital Projects: A description of potential major capital costs are included below:

a. Capital Improvement Costs: The Town has traditionally relied upon grants, state-funded projects (e.g. MassHighway) or private development to defray capital costs for drainage projects. As these are inconsistent sources and introduce some uncertainty regarding availability of funds, we used an estimate (with the Town's concurrence) of an average value of past non-town funded projects, and used this as the basis for an estimate of future funding requirements (irrespective of source of the funds). The costs include the current Local Multi-hazard mitigation 5 year plan, which was approved in April 2011 and budgeted for $18,000 (on average $3,600 over 5 years) and which addresses 6 hazardous areas vulnerable to flooding within the town.

b. Future TMDL Compliance Costs: The TMDL pollutant load reduction requirements have been incorporated into the Final NPDES MS4 permit and under these new requirements the Town of Millis will have to develop non-structural and structural BMPs to reduce existing phosphorous loads by 26% or approximately 546.6 pounds per year. For conceptual planning purposes, we have assumed that approximately 15% of that total reduction can be accomplished through non-structural controls, such as street sweeping. That 15% reduction (approximately 82 lbs.) results in a net reduction still required via structural BMPs of approximately 465 lbs. The 2011 EPA Report cited an

average cost of approximately $40,000 per pound of phosphorus removed as a basis for estimated future capital costs to meet the phosphorus TMDL. Based on a more recent evaluation of technologies available for phosphorus reduction, that number may be overly conservative and is generally more appropriate for more urbanized settings than Millis. But even at a $25,000 per pound cost (lower range) to reduce phosphorus, the Town would be faced with a total cost of approximately $11.6M in capital projects.

Over the 15-year span of the TMDL-specific components of the permit as currently laid out in the 2017 Final MS4 General Permit, this equates to approximately $775,000 per year in additional capital costs. Additionally, this does not include the cost to manage the construction for these projects, as well as conduct long-term maintenance of the new systems.

Further refinements of estimates based on site-specific or BMP specific information need to be conducted as the regulatory program proceeds and the Town collects more data. Unit costs for treatment using specific BMPs can be estimated using Table 2, below. Unit costs for each BMP were derived from literature sources and the project team's collective experience with implementation of structural stormwater controls.

Table 2: Unit Costs for Construction of Various Structural Stormwater Control Practices

Control Practice Type	Unit Construction Cost ($/ft^3)*
Infiltration Basin	10.8
Rain Garden	13.5
Surface Infiltration Trench	21.6
Subsurface Infiltration Chamber System	32.4
Bioretention	27.0
Gravel Based Wetland	21.6

Notes:
*Unit construction costs are derived from new facility construction costs and include a multiplier of 2 to account for the fact that these will be retrofit projects with a 35% contingency for design, permitting and construction administration service (e.g., typical new construction cost for infiltration basin = $4.0/ft^3 (cubic feet of stormwater treated); thus retrofit cost = 4.0 (2.0)(1.35)=$10.80ft^3). **7.48 gallons in cubic foot of water.**

1.5 DATA & STORMWATER BILLING UNIT ANALYSIS

Amec Foster Wheeler evaluated the Town's GIS data (i.e. impervious surfaces, parcels, land use, Town boundaries, etc.) to assess options for a preliminary rate structure for a Stormwater Utility. The rate structure serves as the basis of the revenue analysis in Section 1.9 and supports the estimate of revenue necessary to operate a Stormwater

Utility in Millis. The results of this analysis were presented during the second of two public workshops, which occurred on June 13, 2017. Workshop materials are included in Appendix A.

1.6 GIS DATA EVALUATION

The Town of Millis has limited local GIS data (most building footprints constructed prior to 2011), but has access to the latest (2016) high-quality orthoimagery (aerial photography) through a subscription managed by the Massachusetts Office of Geographic Information System (MassGIS). Aerial imagery and parcel boundaries were obtained from MassGIS and land use codsing for designated parcels was obtained from the Millis Assessor's Computer Assisted Mass Appraisal (CAMA) property information files. An analysis of the data shows that there are 4,011 "Parcel" data records within the Town boundaries. These records include unique parcel ID numbers that are linked to the GIS parcel information, allowing the property files to be merged with the available GIS data layers to associate land use with parcel ID and impervious cover.

Further review of the parcel data and available impervious cover information resulted in the identification of parcels with little (less than 100 square feet) or no impervious area and parcels associated with more than one owner (condos, duplexes, etc.). Eliminating undeveloped and double-counted parcels allowed for the development of a preliminary data set that identified 3,187 parcels with developed area that would potentially be charged a fee for stormwater services.

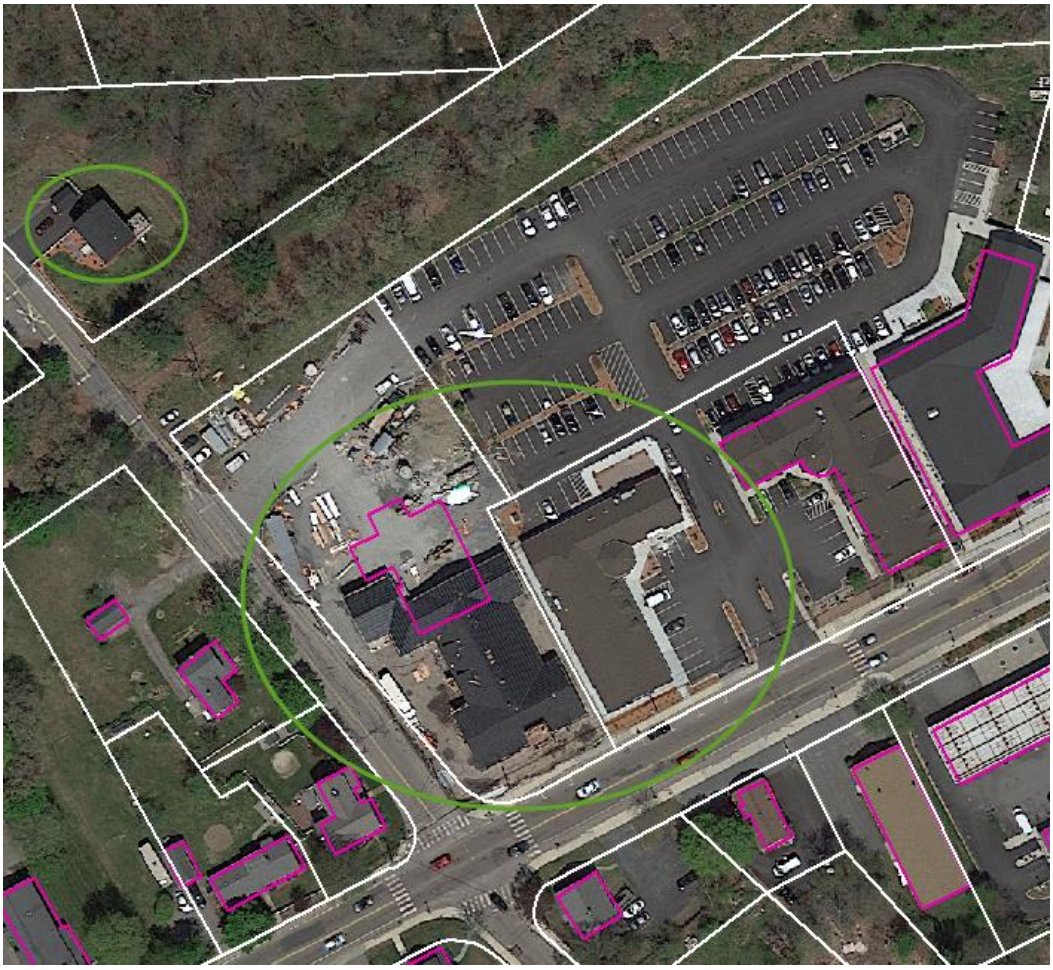
Most Stormwater Utilities set their fees based on charging for stormwater services based on either a flat fee per stormwater billing unit (i.e., a charge for every 1,000 SF of impervious area on a parcel) or they have separate rate structures with two fee classifications based on land use type: Non-Single Family residential (NSFR) and Single Family residential (SFR). To help evaluate these options, the database was sorted by land use to separate SFR and NSFR parcels. NSFR parcels represent multi-family parcels with 3 or more units, condos, commercial, institutional and industrial properties. Results showed that 2,179 parcels were designated SFR and 1,008 were designated NSFR.

A preliminary calculation of impervious area by land use showed that there is approximately 22,860,000 square feet of impervious area in Town associated with residential and non-residential parcels. Note this does not include roads or public right-of-way. Of the total, approximately 8,833,250 SF (~39%) is on residential land and 14,026,730 SF (~61%) is on non-residential land.

It should be noted that the review of the available data that included the 2016 aerials, the 2011 building footprints layer and an older (2005) MassGIS impervious layer, indicate

that there may be significant under-capture or missed capture of impervious area due to the addition of new development, surface-confusion of impervious area projections, shadowing from the angle of photography, and inaccurate alignment of parcel lines. Examples of missing impervious area are shown on Figure 4.

For feasibility planning purposes, the available data was used to evaluate rate structures and projected revenue potential. Updates to the data, however, will be needed if the Town decides to move forward with implementing a Stormwater Utility fee based on impervious surface capture.



Pink polygons show captured IA. Note several developed areas are not captured or have changed. It is likely new construction that occurred after the 2011 impervious layer was prepared.

Figure 4: Missing IA Example

1.7 STORMWATER BILLING UNIT ANALYSIS

1.7.1 *Option 1: SFR and NSFR Rate Structure*

A billing unit or stormwater billing unit (SBU) was developed based on an analysis of the distribution of total impervious area for SFR parcels in Millis. The average lot size and IA statistics for the residential housing stock in Millis is summarized below in Table 3.

Table 3: IA Statistics for SFR Parcels by Lot Size

Lot Area	Count	Average IA (sf)
Up to 1 Acre	1,589	3,103
1 Acre to 5 Acres	549	5,939
>5 Acres	41	15,648

Most of the developed SFR parcels in Millis (73%) have less than 1 acre of IA with a relatively "standard" distribution or range of IA from small to large. However, the remaining 27% show significant diversity in lot size and the average amount of impervious area; therefore, applying one billing unit to all SFR properties would not maximize the distribution of the Town's stormwater costs based on impervious area per parcel and result in less equity for fees between small and large properties. To improve equity, tiers were examined which would allow for billing to better reflect the difference in IA on SFR properties and the resulting stormwater runoff. For planning purposes, three tiers were considered for residential properties. The SBU was calculated by using the average square feet of IA in smaller (lots up to 1 acre) properties, which was rounded to 3,100 sf. This equivalent residential unit (ERU) of 3,100 sf. would be the billing unit for all non-residential properties under this option.

SFR properties would be charged 1, 2 or 3 SBU based on the tier to which they are assigned.

- Tier 1 – 100 SF to 3,100 SF of IA (1,085 parcels)
- Tier 2 – 3,101 to 6,200 SF of IA (815 parcels)
- Tier 3 – more than 6,200 SF of IA (279 parcels)

Fees for NSFR would be determined by dividing the total IA on the property by 3,100 sf. A summary of the SFR and NSFR data using the current impervious area data and the proposed tiers is provided in Table 4 below.

Table 4: SFR and NSFR IA and SBU Data Summary

Characteristic	SFR Parcels	NSFR Parcels	Total
# of parcels	2,179	1,008	3,187
Impervious Area*	8,833,250 SF	14,026,730 SF	22,859,980 SF
# SBUs (3,100 sf SBU)	3,552	4,518**	8,070

*IA for parcels that represent at least 1 SBU (>100 sf IA/parcel).
**NSFR SBUs were calculated by rounding to the nearest ½ SBU for each property.

In the above tier example, 44% of the fees would be paid by residential properties and 56% by non-residential properties.

1.7.2 *Option 2: Flat Billing Rate Structure*

An alternative billing rate structure which is gaining in popularity as impervious data on property is more easily attainable, is to set a uniform billing unit for all properties, regardless of land use. Many communities are following the more traditional method used in billing other utilities such as water and electricity and billing based on a set flat rate such as 1,000 SF (or other similar billing unit) of impervious area on a property. This eliminates the extra step of assigning land use codes during the billing process and improves the equity of distributing the cost of service, as each property pays for its total impervious area whether it is residential or non-residential. Rates would typically be uniform town-wide and, again for planning purposes in this study, would be set at one (1) billing unit equal to 1,000 square feet of impervious surface area.

Using a proposed 1,000 SF flat billing rate, the billing would be distributed differently than in the example above, as shown in Table 5. Note that this billing approach aligns more directly with actual impervious area and land use as residential properties would pay 39% of the fee and non-residential properties would pay 61% - matching closely with the total distribution of IA by each class of property in Town.

Table 5: Flat Rate IA and SBU Data Summary

Characteristic	SFR Parcels	NSFR Parcels	Total
# of parcels	2,179	1,008	3,187
Impervious Area*	8,833,250 SF	14,026,730 SF	22,859,980 SF
# SBUs (1,000 sf SBU)**	8,820	14,010	22,830

*IA for parcels that represent at least 1 SBU (i.e., >100 sf IA/parcel).
**SBUs were calculated by rounding to the nearest ½ SBU for each property.

It is worth noting that Town properties are included in the above calculations, but roads and public right-of-way are not included. The fees for Town properties will need to be paid through the general fund, which is typical for most utilities. If the Town decides to bill for roads, this will result in a significant shift of program costs from the Stormwater Utility to the general fund to pay the fee for roads in Town.

1.8 TOTAL STORMWATER PROGRAM REVENUE REQUIREMENTS

A stormwater revenue analysis was performed using the future stormwater program costs and the two SBU options discussed above. The projected annual stormwater costs for the Town were shown in Table 1.

The revenue analysis considered the projected revenue requirements for the next 5 years of program implementation and added the costs for administering a potential stormwater fee billing system. The cost for administering the utility assumes that billing will be handled through the existing real property tax billing system. The cash flow analysis includes the following assumptions that impact the rate calculation:

- 3% bad debt (delinquent accounts); assumes 50% of bad debt recovered in the following year.
- Credit program funded at 3% of total program costs (this is revenue dedicated to a credit program that gives credits on fees to property owners who manage on-site stormwater controls). It is presumed credits would be applied beginning in year 2.
- Cost of database management, billing, collection and other stormwater fee management activities, such as credit program administration estimated at $30,000 per year.
- Assumes 0% SBU growth rate (i.e., no growth in impervious surfaces in Town).

The Stormwater Utility revenue/expenditure estimates are summarized in Table 6.

Table 6: Stormwater Utility Revenue Requirements

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
Stormwater Program Costs	**$531,000**	**$445,850**	**$435,800**	**$441,700**	**$447,500**
Other Revenue Needs					
Bad Debt	$15,930	$13,375	$13,075	$13,250	$13,440
Credits	$0	$15,000	$15,000	$15,000	$15,000
Utility Billing & Management	$30,000	$30,000	$30,000	$30,000	$30,000
Total Revenue Requirement	$576,930	$504,225	$493,875	$499,950	$506,440
Bad debt recoveries	0	$7,965	$6,690	$6,540	$6,625

Less Total Revenue Adjustments	0	$7,965	$6,690	$6,640	$6,625
Adjusted Service Fee Revenue Requirement	**$576,930**	**$496,260**	**$487,185**	**$493,310**	**$499,815**

1.9 REVENUE ANALYSIS

Using the two rate structure options discussed above, the revenue potential of each approach was calculated.

- **Option 1: SFR and NSFR Rate Structure -** the first option uses the 3,100 SF billing unit and three residential tiers and would result in approximately 8,070 total billing units. For each $1.00 per month billed, the fee would generate $8,070 a month or $96,840 a year.
- **Option 2: Flat Billing Rate Structure -** the second option that would set a flat, town-wide billing unit of 1,000 sf of impervious surface would result in 22,830 smaller billing units. For each $1.00 per month billed, the fee would generate $22,830 a month or $273,960 a year.

To generate sufficient revenue to support the Town's **total annual projected stormwater costs** with a stormwater fee, the monthly rate per billing unit was estimated using these same two rate structure approaches.

The monthly rate per billing unit required under each option is provided in Table 7.

Table 7: Stormwater Rate Analysis - Projected Monthly Stormwater Fee

Rate Structure Option	FY2018	FY2019	FY2020	FY2021	FY2022
	Fee per Month per SBU				
3,100 SF ERU with Residential Tiers	$5.95	$5.12	$5.03	$5.09	$5.16
1,000 SF Flat Rate	$2.10	$1.81	$1.78	$1.80	$1.82

Note: the projected monthly charges can be set at a constant rate over the 5-year period. It may mean funding some stormwater activities from the general fund in the first year or delaying some first-year program expenditures to prevent overloading the rate in the early years. Rates are typically adjusted over time as the program matures and will need to be reevaluated once a more detailed revenue analysis is complete as part of the Stormwater Utility implementation phase.

Under the rate structures presented above, the proposed monthly rate for the first option averages $5.27 per SBU per month. This is slightly higher compared to the national average of stormwater fees which is ~$4.50 per single family residential property per minth, but is closer to average when compared with other Massachusetts communities (see Figure 5). It is important to note that using the tiered approach, SFR properties that fall within Tier II (medium) and Tier III (large) would be paying over $10 and $15 per month, respectively.

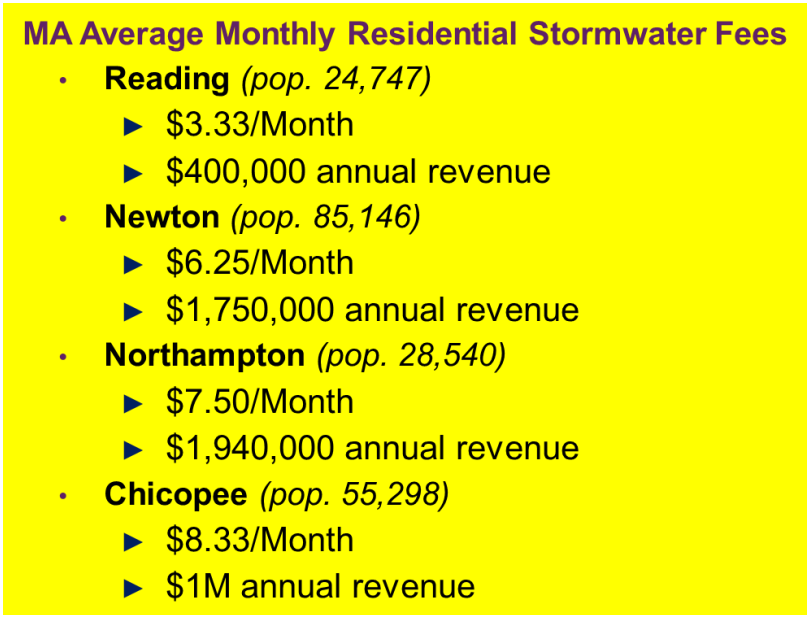


Figure 5: Sample Stormwater Fees in Massachusetts (2016)

Using the flat rate approach, homes and businesses with smaller amounts of IA would benefit from a lower rate, but residential properties with higher amounts of IA will pay proportionally more using the flat rate approach, as their fee is no longer "capped." Table 8 shows how the different approaches could impact typical properties in town.

Table 8: Impacts of Fees Depending on Preferred Rate Structure

Property Type	Impervious area (SF)	Potential Monthly Rate	
		Tiers with ERU ~ $5.27/SBU	Flat Rate ~ $1.86/SBU
SFR	2,000	$5.27	$3.72
SFR	4,000	$10.54	$7.44
SFR	8,000	$15.81	$14.88
SFR	16,000	$15.81	$29.76

Property Type	Impervious area (SF)	Potential Monthly Rate	
NSFR	2,000	$5.27	$3.72
NSFR	4,000*	$5.27	$7.44
NSFR	8,000	$15.81	$14.88
NSFR	16,000	$26.35	$29.76

*Note that it is assumed that billing units would be rounded to the nearest whole number.

To give prospective to the tables above, the preliminary IA analysis per property showed the following number of properties in each IA range in Millis (see Table 9).

Table 9: Impervious Area Distribution

Total Impervious Area	# of SFR Properties	# of NSFR Properties
0 – 3,999 SF	1474	663
4,000 – 7,999 SF	555	107
8,000 – 15,999 SF	113	89
Greater than 16,000 SF	37	149

1.10 LEGAL MECHANISMS FOR ADOPTING A UTILITY FEE

In Massachusetts General Law Chapter 83 Section 16 is the relevant enabling legislation with respect to Stormwater Utilities. Chapter 83 focuses on sewers, drains and sidewalks and section 16 of Chapter 83 more specifically goes into details about sewers with a utility plan. Originally established for sanitary sewer systems, this section was revised in 2004 to include “main drains and related stormwater facilities,” thereby enabling municipalities to charge a fee for stormwater services. The following comments regarding the enabling legislation are provided for consideration in the development of a Stormwater Utility (i.e., bylaw, ordinance):

- The fee is to “supplement” other available funds (e.g. real estate tax-derived general funds); however a definition of what should be considered available is not provided.
- Stipulates that charges must be either quarterly or annual, which will influence the billing options that are considered.
- Fees must be charged uniformly across residential properties and a uniform fee established for non-residential properties. The alternative option given is that a uniform fee be established for all properties.
- Current language allows for policy decisions to be made as long as it is fair, equitable, and uniform.

- The language states that such a fee shall be paid “by every person” indicating that all properties (including real estate tax-exempt) would be required to pay said stormwater fee. This interpretation is further substantiated by the discussion of credits as an option to reduce a fee – a credit system is not required by this legislation.

Although not as prevalent in Massachusetts or New England, Stormwater Utilities have been in operation across the country for many years. They vary in accordance with underlying legal enabling frameworks, and provide an opportunity for borrowing language, protocol and methodology where appropriate. Towns in Massachusetts that have adopted a Stormwater Utility fee include: Chelmsford, Chicopee, Fall River, Newton, Northampton, Milton, Reading, Westfield, and others. Sample Stormwater Utility by-laws from select communities with this enabling legislation were compiled through this scope of work.

There are many different administrative structures in use for execution and enforcement of Stormwater Utilities in Massachusetts. These are typically designed to integrate with the least amount of disruption into an existing framework. For instance, maintaining this program within a local Department of Public Works which already operates an enterprise utility system (including billing, work order generation or budgeting processes) is often a preferred approach. The City of Westfield has adopted this approach. The City of Fall River, however, has elected to have their utility administered by a team of Commissioners appointed by the Mayor. Further evaluation of a preferred approach for the Town of Millis will be required.

A Stormwater Utility may be responsible for collection of fees and system operation and maintenance, budgeting and master planning. The purpose to which funds may be, or must be, put is defined within the local by-law or ordinance creating the utility. Public Stormwater Utilities have applied funds across a broad array of stormwater management services, including the following:

- Improvement and maintenance to sewers, drains, stormwater Best Management Practices (BMPs), and treatment facilities
- Management of runoff
- Updating systems that do not comply with state or federal regulations
- Monthly street sweeping
- Monitoring and inspecting stormwater control devices
- Billing and related administrative cost

A summary of general information about Stormwater Utility fees in Massachusetts is provided in Table 10 to indicate how revenue is spent across different size communities.

Table 10: Example Stormwater Utility Fees in Massachusetts

Community	Average Annual Fee	Population	Annual Revenue	Program Funding		
				Good House-keeping	MS4 Regulatory Compliance	Employee Salaries
Chelmsford	$40	33,802	$2.0M	X	X	X
Chicopee	$100	55,298	$1M	X	X	
Fall River	$140	88,712	TBD	X	X	X
Newton	$75	85,146	$1.75M	X	X	
Northampton	$64	28,540	$1.94M	X		X
Reading	$40	24,747	$400K	X		
Westfield	$20	41,608	UNK	X	X	X

The implementation of a Stormwater Utility would require an amendment to the Town's bylaws and/or supporting regulations. The Town will need to create a stormwater enterprise account and then pass a Stormwater Utility bylaw to establish the authority to assess a fee for stormwater. Once the enterprise fund has been created, the Stormwater Utility bylaw will need to be sponsored by a body, such as the Board of Selectmen, and passed by a majority vote at Town Meeting.

1.11 IMPLEMENTATION CONSIDERATIONS

A generalized Stormwater Utility implementation process was presented to the Stakeholders and some of the considerations were discussed during Workshop #2. An evaluation of each implementation consideration was not included in the scope of work for this project. To ensure that the funding approach is clearly defined and widely understood by political and public stakeholders, a more clearly defined implementation plan will need to be developed should the Town decide to move forward with a Stormwater Utility.

Considerations for implementation that were discussed at Workshop #2 are presented in the sub-sections below.

1.11.1 Public Education

A public education plan is a fundamental component of implementing a Stormwater Utility. This plan should include stated goals and objectives for engaging both political

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stakeholders and the general public in the utility implementation process. An education plan is often implemented in a phased approach, allowing for input received to guide aspects of the Stormwater Utility development process. Initial phases of an education plan may be aimed establishing buy-in from key stakeholders and educating elected officials. Initial phases should also aim to involve the public so that they can provide informed input on the development of the Utility. During Workshop #2, participants were asked to consider the following questions:

- How might the Town educate internal and external stakeholders?
- What are the public education key themes that resonate (compelling case)?
- Are there existing local models or best practices?
- How would this program be developed?

Participants shared that there are existing processes and methods for educating and gathering input from the public on key issues. Local methods for public education shared during Workshop #2 are included as Appendix A. These methods should be considered, and used appropriately, to gather information and establish early public support for a Stormwater Utility.

1.11.2 Billing

Once a rate structure is established, fees are generally issued using a Master Account file. This dynamic database incorporates all rate factors, final parcel/account association, and fee calculation into one master account file. This billing system would likely incorporate existing data used to issue water and real property tax bills.

About 60% of water accounts match to a unique parcel ID. To develop a Master Account File using the water billing system, accounts need to be matched to parcels and new accounts. As some parcels are “stormwater only,” new accounts would need to be created. A Master Account File can be delivered as a stand-alone bill, with an existing utility (water) bill, or through a Property Tax Bill; however, tax-exempt properties would also receive a bill for stormwater services.

After selecting a method for billing the stormwater fee, it will be important for the Town to develop a policy and train staff on the appeal process, adjusting billing changes, and integrating changes into future bills.

1.11.3 Credits

If the Town of Millis decides to pursue a Stormwater Utility, a credit program must be developed. As discussed in Section 1.9, the revenue analysis assumed an approximately

3% revenue reduction for credits. Background information related to credits is provided below for future consideration. Credits:

- Increase equity by recognizing private investment in stormwater management activities that minimize costs to the Town.
- Minimally impact revenue (3-5%).
- Are earned, not given.
- Are not an “exemption” or “incentive.”

There are two types of credits. Impact reduction credits are used when the measure of IA does not reflect a property’s true impact to the system. These credits are often tied to managing stormwater on-site and thus reducing impact to the larger system or meeting design criteria. This type of credit offers motivation for the proper on-site management of stormwater. Cost reduction credits, a second type of credit, are offered when the Town’s stormwater management costs are reduced through private effort. These can be applied when a public responsibility such as education or maintenance (i.e. education on water quality, maintenance of larger areas or NPDES permit compliance) is taken on by system users.

To begin thinking about the development of a credit system in Millis, the following policy questions were presented to participants at Workshop #2:

- What private action and investment should qualify for a credit?
- How much of the stormwater program should be available for crediting and how generous should the credit be?

In general, credits are offered separately from incentives, which are developed to promote positive stormwater management behavior. Examples of potential incentives which were discussed by participants during Workshop #2 included rain-barrel giveaways, selling town-subsided irrigation meters, town-subsided rain garden design, and town-subsided dry-well installations to promote stormwater recharge and re-use.

Decisions related to these credits considerations may be developed further through a Stormwater Utility Implementation Plan, as this study did include a detailed evaluation of credits.

1.11.4 Cost Estimate

The cost to implement a Stormwater Utility varies based on the scope and the implementation timeline, but is estimated in the range of $75,000-100,000 (one-time cost). This is dependent on the level of effort for public education and outreach and the

availability of Town staff to manage key activities including database management, billing, and customer service. Key costs will likely include:

- Public education/outreach including developing credit policy ($15,000 to $20,000).
- Cost for data management updates ($25,000 to $30,000).
- Finalizing Master Account file and billing system integration, including testing of billing system ($20,000 to $25,000).
- Preparing and approving a town by-law to set up a dedicated stormwater fund and the stormwater fee ($5,000 - $10,000).
- Cost of set-up, preparation and processing bills, and managing collections ($10,000 - $15,000).

A sample implementation timeline was provided during Workshop #2. A detailed cost estimate for Stormwater Utility implementation was not prepared since the level of effort could not be clearly defined as part of this initial study.

1.12 POTENTIAL NEXT STEPS

During Workshop #2, a survey assessed the sentiment of moving forward with the implementation of a Stormwater Utility fee. In general, attendees expressed support for pursuing a Stormwater Utility to fund the Stormwater Management Program (based on an informal vote of attendees). A summary of key discussions and feedback from Workshop #2 related to the implementation of a Stormwater Utility is summarized below:

- The Town has historically underfunded the Stormwater Management Program as compared to other water/sewer infrastructure programs in terms of both planning and capital projects. Underfunding can lead to negative impacts on critical infrastructure due to deferred maintenance and short-term repair versus longer term rehabilitation. It can also create disruptive operational complexities/inefficiencies when resources must be re-allocated due to infrastructure failures. A Stormwater Utility can provide a stable, adequate, flexible, and equitable revenue stream to enable the Town to plan investments in stormwater management in a pro-active manner.
- The Board of Selectmen expressed strong support for identifying sustainable funding sources for stormwater management. The Board charged the Deputy Director of Public Works with identifying an appropriate funding mechanism for the Town's program by June 2018.
- The costs for the next steps of a Stormwater Utility implementation were presented. These will vary based on local considerations including the amount of public education required, fee structure, status of legal mechanisms, billing systems, and others issues related to use of in-house or consultant based resources.

- The Millis DPW will seek authority from the Board of Selectmen to create a Facebook page through which the DPW will solicit feedback, questions and comments regarding this initiative. Other venues appropriate for outreach activities were cited by Workshop participants. A program of meetings and presentations to further solicit feedback should be considered.

APPENDIX A

Workshop Materials

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