

Citizens Concerns:
For West Acton Homeowners, Sewers Are Much More Expensive

November 7, 2019

I'd like to bring some concerns to the attention of the West Acton Sewer Action Advisory Committee (WASAAC). I hope you will respond to my three concerns:

1. The WASAAC cost comparison doesn't apply to most homeowners, as most homes in West Acton will not require major septic repair in the next 30 years.
2. The costs shown in WASAAC's table are inconsistent with known costs.
3. By comparing the monthly cost of a 15-year septic loan to a 30-year sewer loan, the monthly cost of septic relative to sewer is artificially doubled.

Below is an updated cost comparison table based on referenced septic costs and equal repayment periods. It can be seen that sewers are much more expensive than septic systems in West Acton:

Cost Comparison for One- and Two-Family Homes In West Acton				
	Septic		Sewer	
	No major repair in 30 years	Major repair in 30 years	Low-pressure for 30 years	Gravity for 30 years
Percent of Homes	63%	37%	15%	85%
Monthly Cost	\$13	\$153	\$262	\$232

References for the above table include:

- Rate of major repair in West Acton septic records at the Department of Health
- Repair and maintenance cost averages for West Acton from local septic companies
- Acton's permit fee table
- Home equity APR and repayment term offered by a local bank

Please see below for an in-depth discussion of septic costs in West Acton.

Rate of Major Septic Repair

Department of Health septic records for all one- and two-family homes in the proposed West Acton sewer district were examined. Major and minor repairs of systems built prior to 2009 were counted over a ten-year period. Of 111 one- and two-family homes, 82 required no septic repairs, 13 required minor repair and 16 required major repair between 2009 and 2019 [1]. (One- and two-family homes with systems upgraded or newly constructed in 2009 or later were excluded. Incidentally, none of these systems had any repairs, major or minor.)

Therefore, considering only septic systems built before 2009, 14.4%, or one in seven, require major repair in a ten year period. It then follows that over a period of 30 years, 37% of homes will require major repair, and 63% will not require major repair.

Permit

Individual permits and fees required for a major septic repair for up to 549 gallons/day (3 or 4 bedrooms) are:

- Repair Construction Plan Review, \$155
- Inspection, \$155
- Repair soil testing, \$275
- Aquifer, \$40 (for Zones 1, 2, 3)
- Innovative/Alternative, \$75/\$85

These permit fees total, at most, **\$710**. However, WASAAC table shows an average permit fee of **\$1,150**. We also noticed that permit for the sewer hookup is too high. It should be **\$155**. The town's permit fees are attached.

Cost of Major Septic Repair

ABC Cesspool is a frequent installer of septic systems in West Acton. ABC states that total cost for major repair ranges from \$18,000 to \$50,000, with an average of **\$30,000**. This includes an average installation cost of \$25,000, design fee of \$3,000 to \$5,000 and \$700 permit fee [2]. G. Nicolas Construction [4] also quotes an average of total cost of **\$30,000**.

According to the CWRMP, most of West Acton has acceptable soil for septic systems, greater than 6 ft. to ground water and acceptable percolation rates. Moreover, of all the one- and two-family homes identified as "needs lots" by the CWRMP in West Acton, four of these lots have had septic replacement. These are:

- 6 West Road (replacement in 2016 after 46 years)
- 8 West Road (replacement in 2002 after 32 years)
- 7 Church Street (design flow upgrade in 2003)
- 11 Church Street (replacement in 2004; age of original system unclear)

We found that all four the "needs" parcels which had had septic replacement were fitted with traditional septic systems. *No mounds, I/A systems or nitrogen reduction was needed, despite three of the four lots abutting wetlands. This is due to the fact that in general, wetland-abutting lots in West Acton are large enough to meet the BOH's required setback from wetlands.*

Maintenance Cost

The WASAAC cost comparison table lists the minimum cost of maintenance at **\$300 per year**, which is not supported by WASAAC's cited reference. We called ABC Cesspool in August, 2019, and found the cost to pump a 1000 gallon tank is \$285; 1500 gallons, \$333; 2000 gallons, \$430. (Note that 2000-gallon tanks are rare for one- and two-family homes.) Therefore, pumping once every two years, the annual maintenance cost is **\$143 to \$167 per year** [2]. Some I/A systems require a yearly maintenance visit at a cost of \$200/year [6]. ABC Cesspool's number is (978) 263-5802. We spoke with Stacy who is quite knowledgeable and would be glad to speak with you.

Bank Loan

Northern Bank & Trust Company offers a **30-year home equity loan at 3.806 % APR** with good credit, or as high as 5% with a bad credit rating [7]. The septic costs in WASAAC's table are based on a **15-year loan at**

5.5%. The monthly cost of **15-year** septic loan is not comparable with a **30-year** sewer betterment loan. The shorter term of 15 years artificially makes septic systems appear more expensive. Jeremie Witlin at Northern Bank & Trust Company (978) 805-4233 can give more loan details. He is also quite friendly and would gladly be of assistance.

Septic Cost Summary

Based on these findings, we now have the following values:

- \$156/year for maintenance
- \$30,000 for major repair including permit, design and installation
- 30-year home equity loan at 3.806% APR

Therefore, the expected monthly septic cost for most West Acton homes (63%) over the next 30 years is **\$156/year**, or **\$13/month**. When a home does require major septic repair, the homeowner's cost will increase to **\$1872/year**, or **\$156/month**. **Meanwhile, the WASAAC cost comparison table estimates septic cost as \$3180/year, or \$265/month, for all West Acton homeowners.**

West Acton Sewer Project Betterment Cost Estimate Breakdown - October 24, 2019

And finally, in the WASAAC Betterment Cost Breakdown, betterment cost estimates range from \$34,096 to \$39,934. However, in the last line on the page, \$39,934 is rounded down to \$39,000, and this rounded-down number mailed to West Acton Residents as the upper limit of their betterment fee. This doesn't seem right, but it may not matter as the sewer is already so expensive. A copy of the West Acton Sewer Project Betterment Cost Estimate Breakdown - October 24, 2019 is attached.

Updated Septic and Sewer Cost Tables

WASAAC, please see the two tables of septic and sewer cost estimates on the following page. Please review these two tables and correct any mistakes you might find.

Thank you,

Michael Geis

References:

- [1] Acton Health Department records of individual lots in West Acton over the last 10 years.
- [2] ABC Cesspool 292 High St, Acton, MA 01720, phone # (978) 5802
- [3] SES Waste Water, 102W Main St. Norton MA 02766, phone # (401) 785-0130
- [4] G. Nichols Construction Co. INC, 146 Central St #2732, Acton, MA 01720, phone # (978) 337-2207
- [5] Town of Acton, Health Department Fees, Aug-18, Service also attached
- [6] Septic Preservation Services, 38 Harold Sweet Dr., Attleboro, Ma 02703, phone # (800) 405-7012
- [7] Northern Bank & Trust Company. Jeremie Witlin, phone # (978) 805-4233.
- [8] West Acton Sewer Project Betterment, Cost Estimate Breakdown – October 24, 2019
- [9] Residential Sewer and Septic Replacement Comparison – update 10/2019
- [10] Acton Water District. Average residential water use in West Acton, first quarter of 2019, is 120 gal/day.

Septic Cost	Septic System Cost for One- and Two-Family Homes Over a 30-Year Period			
	No major repair	Major repair	Major repair with nitrogen reduction	Minor repair
Percent of Homes	63% [1]	37% [1]	< 1% (None currently in district) [1]	31% [1]
Installation	—	\$14,000 - \$44,000 Average: \$25,000 [2,4]	\$21,000 - \$53,000, including design. Average: \$33,300 [6]	\$400 - \$1400 Average: \$900
Design	—	\$3,000 - \$5,000 Average: \$4,000 [2,4]		—
Permit	—	\$625 - \$710 [2,5]		Septic system inspection: \$0 - \$600
Maintenance	Once every two years: \$285 for a 1000-gal tank; \$333 for a 1500-gal tank [2]. Some I/A systems: \$200/year [6]. Average: \$155/year, or \$13/month		Service: \$1200 first year, \$850/year thereafter; Electricity: \$420/year [3,6]. Average over 30 yr: \$1282/year, or \$107/month	—
Cost (30-year loan, 3.807 APR [7])	\$155/year, or \$13/month for pumping (no loan)	\$140/month (loan) + \$13/month (pumping) = \$153/month	\$159/month (loan) + \$107/month (maintenance) = \$266/month	\$2000 total cost, or \$67/year + \$155/ year or \$19/month (no loan)

Sewer Cost	Sewer Cost for One- and Two-Family Homes Over a 30-Year Period	
	Gravity Sewer	Low-pressure Sewer
Percent of Homes	85%	15%
Betterment	\$34,096 to \$39,934 Average: \$37,000 [8]	
Permits	\$155 [5]	
Connection	\$4,000 to \$6,000 Average: \$5,000	\$6,000 to \$8,000 Average: \$7,000
Maintenance	—	Upon failure every 7-10 years: \$2,000 to \$4,000, or \$300/year, or \$25/month [3, 6] (\$3000 averaged over 10 years)
Usage Fee, (120 gal/day [10], \$0.0173/gal)	\$746/year, or \$62/month	
Cost (30-year loan, 3% APR)	\$156/month (loan) + \$62/month (usage) + \$14/month (one-time hookup and permit costs averaged over 30 yrs.) = \$232/month	\$156/month (loan) + \$62/month (usage) + \$20/month (one-time hookup and permit costs averaged over 30 yrs.) + \$25/month (repair) = \$263/month

Acton Permit Fees

**Town of Acton
Health Department Fees
Aug-18**

Service	Fee	Inspection (If Applicable)	Fee	Totals
Septic System New Construction Plan Review				
Flow of less than 549 GPD	\$210.00	Flow of less than 549 GPD	\$185.00	\$395.00
Flow of 550-1,999 GPD	\$300.00	Flow of 550-1,999 GPD	\$260.00	\$560.00
Flow of 2,000 - 5,999 GPD	\$460.00	Flow of 2,000-5,999 GPD	\$590.00	\$1,050.00
Flow of 6,000 - 9,999 GPD	\$870.00	Flow of 6,000-9,999 GPD	\$965.00	\$1,835.00
Innovative/Alternative SAS	\$75.00			\$75.00
Innovative/Alternative with operation agreement	\$85.00			\$85.00
Repair Construction Plan Review				
Flow of less than 549 GPD	\$155.00	Flow of less than 549 GPD	\$155.00	\$310.00
Flow of 550-1,999 GPD	\$250.00	Flow of 550-1,999 GPD	\$250.00	\$500.00
Flow of 2,000 - 5,999 GPD	\$405.00	Flow of 2,000-5,999 GPD	\$485.00	\$890.00
Flow of 6,000 - 9,999 GPD	\$750.00	Flow of 6,000-9,999 GPD	\$795.00	\$1,545.00
Alteration - Tank, Dbox, Line	\$40.00	Alteration - Tank, Dbox, Line	\$45.00	\$85.00
Alteration - Pump Chamber, STU	\$70.00	Alteration - Pump Chamber, STU	\$80.00	\$150.00
Innovative/Alternative SAS	\$75.00			\$75.00
Innovative/Alternative with operation agreement	\$85.00			\$85.00
Private Sewer Connection				
Flow of less than 549 GPD	\$60.00	Flow of less than 549 GPD	\$55.00	\$115.00
Flow of 550-1,999 GPD	\$230.00	Flow of 550-1,999 GPD	\$200.00	\$430.00
Flow of 2,000 - 5,999 GPD	\$700.00	Flow of 2,000-5,999 GPD	\$665.00	\$1,365.00
Flow of 6,000 - 9,999 GPD	\$1,345.00	Flow of 6,000-9,999 GPD	\$1,220.00	\$2,565.00
Public Sewer Connection				
Flow of less than 549 GPD	\$80.00	Flow of less than 549 GPD	\$75.00	\$155.00
Flow of 550-1,999 GPD	\$120.00	Flow of 550-1,999 GPD	\$95.00	\$215.00
Flow of 2,000 - 5,999 GPD	\$190.00	Flow of 2,000-5,999 GPD	\$195.00	\$385.00
Flow of 6,000 - 9,999 GPD	\$240.00	Flow of 6,000-9,999 GPD	\$280.00	\$520.00
Sewer Treatment Plant Construction				
9,999 GDP or Less	\$2,010.00			\$2,010.00
10,000 GDP to 14,999 GDP	\$2,750.00			\$2,750.00
15,000 GDP to 29,999 GDP	\$5,175.00			\$5,175.00
30,000 GDP to 59,000 GDP	\$9,005.00			\$9,005.00
60,000 GDP to 119,000 GDP	\$17,060.00			\$17,060.00
120,000 to 240,000 GDP	\$30,620.00			\$30,620.00
Sewer Treatment Plant Operation				
9,999 GDP or Less	\$60.00			\$60.00
10,000 GDP to 14,999 GDP	\$150.00			\$150.00
15,000 GDP to 29,999 GDP	\$275.00			\$275.00
30,000 GDP to 59,000 GDP	\$535.00			\$535.00
60,000 GDP to 119,000 GDP	\$1,060.00			\$1,060.00
120,000 to 240,000 GDP	\$2,075.00			\$2,075.00
New Construction Soil Testing				
Flow of less than 549 GPD	\$495.00			\$495.00
Flow of 550-1,999 GPD	\$835.00			\$835.00
Flow of 2,000 - 5,999 GPD	\$1,800.00			\$1,800.00
Flow of 6,000 - 9,999 GPD	\$2,475.00			\$2,475.00
Additional Testing	\$115.00			\$115.00
Repair Soil Testing				
Flow of less than 549 GPD	\$275.00			\$275.00
Flow of 550-1,999 GPD	\$455.00			\$455.00
Flow of 2,000 - 5,999 GPD	\$690.00			\$690.00
Flow of 6,000 - 9,999 GPD	\$950.00			\$950.00
Additional Testing	\$115.00			\$115.00
Aquifer				
Septic System Replacement	\$40.00			\$40.00
Impervious Area less than 2,000sq. Ft.	\$85.00			\$85.00
Impervious Area 2,000sq. ft. to 4,999sq. Ft.	\$120.00			\$120.00
Impervious Area 5,000sq. Ft. to 9,999sq. Ft.	\$170.00			\$170.00
Impervious Area 10,000sq. Ft. and up	\$205.00			\$205.00

WASAAC's Comparison of Septic and Sewer Costs

<http://doc.acton-ma.gov/dsweb/Get/Document-69652/Septic%20vs%20Sewer%20Costs%20-%20Updated%2010.2019.pdf>

Residential Sewer and Septic System Replacement Comparison – Updated 10/2019

(All costs are approximate and shown for scale. Costs vary widely depending on your property and your typical water usage)

Septic System			Sewer Connection		
<i>Septic design/construction costs from 2014-16</i>			<i>Sewer connection cost in 2014-16; Betterment cost in 2023</i>		
Septic Costs	Approximate Range	Average	Sewer Costs	Approximate Range	Average
Construction ¹	\$27,000 - \$46,000	\$35,000	Betterment	\$34,000 - \$39,000	\$36,500
Design ¹	\$2,500 - \$3,000	\$2,750	Connection ¹	\$4,000 - \$6,000	\$5,000
Permits ²	\$900 - \$1400	\$1,150	Permits ⁴	\$250 - \$350	\$300
Annual Maintenance ³	\$300 - \$2000/year	\$300	Annual Sewer Fee ⁵	\$800 - \$1,000	\$900
<i>W.Acton: 50% properties likely require a non-standard system⁸</i>			<i>Betterments begin 2023; remainder delayed until connection</i>		
Approximate Monthly Cost construction + maintenance	Assume 5-6% interest (typical home equity) <i>Please seek your own estimates & rates</i>	\$286/month⁶ 15-year term + \$25/month maintenance	Approximate Monthly Cost ⁶ betterment + sewer usage fee	Assume 3% interest (town rate)	\$154/month^{6,7} 30-year term + \$75/month sewer usage fee

Notes & Assumptions:

- Cost ranges obtained from Health Department Septic Loan Program:
 - Septic quotes from 2014 to 2016 in CWRMP high-needs areas such as West Acton. Actual costs may include additional permitting and vary depending on factors such as soil suitability, lot size, high groundwater, etc.
 - Sewer connection quotes from 2014 to 2016. Actual costs may vary depending on distance of the home from the street, plumbing inside the home, abandoning the septic system and any landscaping after construction.
- 2018 Health Department Fees for Septic Replacements. Septic Flows under 1,999 GPD.
- Average pumping and maintenance costs from Health Department Septic Loan Program and <https://baystatesewage.com/septic-pumping/>. High end (\$2000) seen for advanced treatment systems only.
- 2018 Health Department Fee & Engineering Department Fees for public sewer connections under 1,999 GPD.
- Average yearly cost for single-family use in existing sewer district (Acton Finance Department). Actual cost varies on average winter water use.
- 3% interest/30-year term financing the betterment or 5.5% interest/15-year term home-equity loan financing septic construction only. Permitting and design of a septic system is likely to be included within a loan, therefore assuming \$38,900 total (construction + design/permits) = **\$318/month**
- State Revolving Fund rates as of Oct 2019 = 2.4% for 30-years. Acton Sewer Policy has been that users could pay the full assessment up-front with no interest or pay the same interest that the Town would borrow at.
- Comprehensive Water Resource Management Plan (2006): "over 50% of the developed parcels are classified as needs parcels" ... "mainly due to the proximity of Middle Fort Pond Brook, which limits onsite wastewater systems due to wetlands and high groundwater limitations.

West Acton Sewer Project Betterment, Cost Estimate Breakdown – October 24, 2019

<http://doc.acton-ma.gov/dsweb/Get/Document-69831/2019.10.24%20Project%20Cost%20Estimate.pdf>

West Acton Sewer Project
Betterment Cost Estimate Breakdown - October 24, 2019

DRAFT

Item #	Item Description	Current Amount	Estimated COs	Cost Range Low	Cost Range High	Fund/Account	Comment
Planning, Preliminary Design, & Final Design							
1	Sewer Design Basis & Alternatives	\$22,000	\$0	\$22,000	\$22,000		2014
2	W.A. Sewer Coord. & Planning Support & flight	\$46,000	\$0	\$46,000	\$46,000		(\$23,000+\$20,000+\$3,000)
3	Survey & Preliminary Design	\$215,000	\$0	\$215,000	\$215,000		
4	Final Design - Phase 2 (~8%)	\$700,000	\$0	\$700,000	\$700,000		Budgeted \$700,000
5	WWTF Capacity "Buy-in"	\$1,023,315	\$0	\$1,023,315	\$1,023,315		
		Subtotal (1 thru 5)		\$2,006,315	\$2,006,315		
Phase 1 - Sewer Force Main (for School)							
6	Force Main Construction	\$1,010,000	\$0	\$1,010,000	\$1,010,000		
7	Construction Administration	\$150,000	\$0	\$150,000	\$150,000		
8	Police Details	\$80,000	\$0	\$80,000	\$80,000		
9	Easement's, Admin, Legal, Fiscal, Review & Misc. Fee	\$0	\$0	\$0	\$0		
10	Construction Contingency	\$100,000	\$0	\$50,000	\$100,000		
		SubTotal Phase 1 (6 thru 10)		\$1,390,000	\$1,340,000		
Phase 2 - West Acton Sewer Collection System							
11	Sewer Construction	\$8,600,000	\$0	\$8,600,000	\$8,600,000		
12	Construction Administration (includes traffic bidding)	\$1,290,000	\$0	\$1,290,000	\$1,290,000		
13	Police Details	\$774,000	\$0	\$774,000	\$774,000		
14	Easement's Admin, Legal, Fiscal, Review & Misc. Fee	\$150,000	\$0	\$150,000	\$150,000		
15	Betterments	\$75,000	\$0	\$75,000	\$75,000		
16	SRF Loan Origination Fee	\$75,000	\$0	\$75,000	\$75,000		
17	Construction Contingency -10%	\$860,000	\$0	\$430,000	\$860,000		
17a	Project Contingency	\$29,685	\$0	\$0	\$29,685		
		SubTotal Phase 2 (11 thru 17a)		\$11,394,000	\$11,853,685		\$13,893,685
Total Project Cost (1 thru 17a)				\$14,690,315	\$15,200,000		Total Project Cost
General Benefit Costs							
18	Paving			\$1,550,000	\$1,250,000		
19	Police Details			\$900,000	\$700,000		
20	Supersizing General Benefit ¹			\$500,000	\$400,000		
	Town Properties Avoided Costs ¹			\$200,000	\$100,000		
		Subtotal Town's General Benefit Costs		\$3,150,000	\$2,450,000		
22	School Avoided Costs ²			\$750,000	\$550,000		
23	Housing Authority Avoided Costs			\$50,000	\$20,000		
		Subtotal Other General Benefit Costs		\$800,000	\$570,000		
		Total General Benefit		\$3,950,000	\$3,020,000		
Total Project Cost Less General Benefit				\$10,740,315	\$12,180,000		
Less MassWorks Grant				\$0	\$0		
Less DIF				\$0	\$0		
Less Housing Choice Grant-Design				\$0	\$0		
Amount of Construction to be paid by Betterments				\$10,740,315	\$12,180,000		
Betterment Cost Breakdown Summary							
Total Capital Cost of Project				\$14,690,315	\$15,200,000		
Total Amount to be recouped by Betterment				\$10,740,315	\$12,180,000		
Estimated Betterment SBU's⁴				315	305		
Estimated Betterment per SBU				\$34,096	\$39,934		
Estimated Betterment Range per SBU				\$34,000 to \$39,000			