

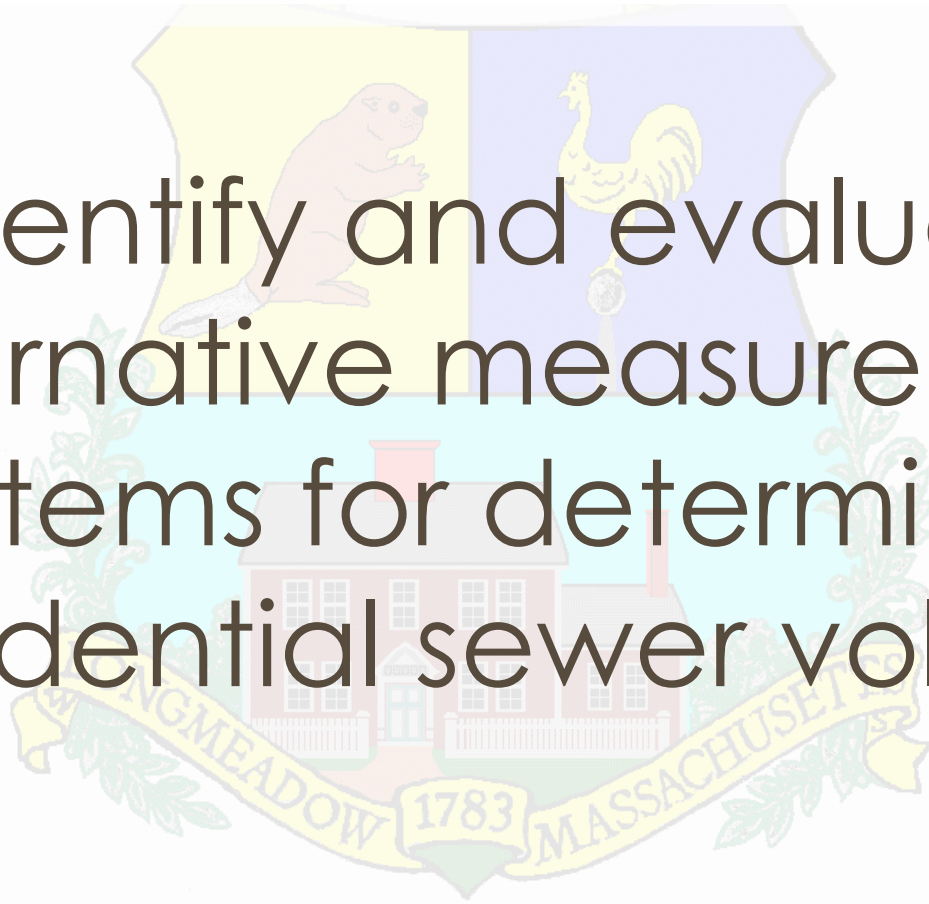
# LONGMEADOW SEWER RATE STUDY AND RECOMMENDATION

March, 2021

Richard Foster

Mark Gold

Identify and evaluate  
alternative measurement  
systems for determining  
residential sewer volume



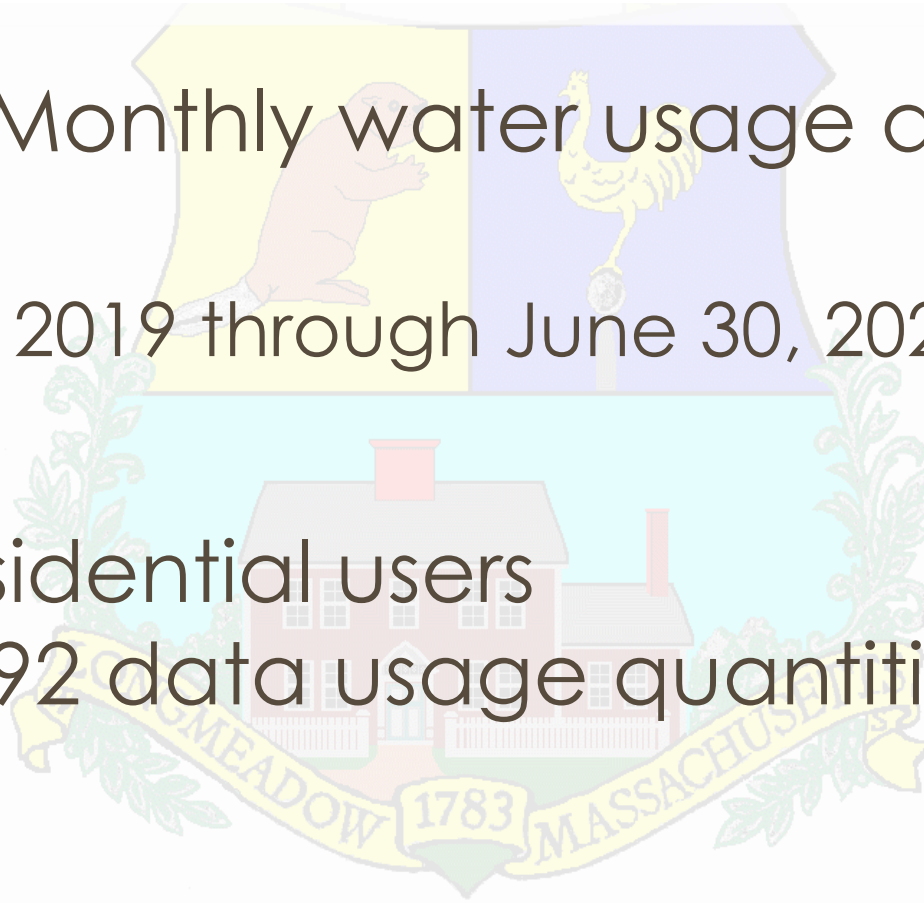
# STUDY BASIS

FY 2020 Monthly water usage data

July 1, 2019 through June 30, 2020

5441 Residential users

65,292 data usage quantities



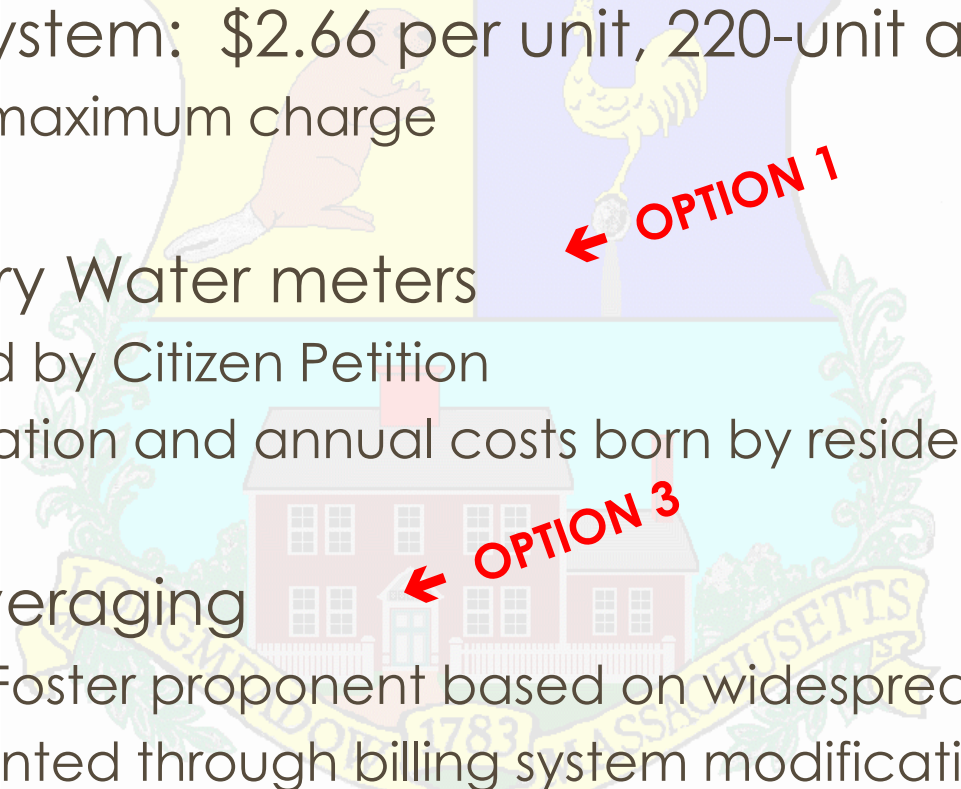
# WATER USE

- Water and sewer use is billed in “UNITS” (ccf)

1 unit of sewer =	100 cu ft of water =	748 gallons of water
10 units of sewer =	1,000 cu ft of water =	7,480 gallons of water
50 units of sewer =	5,000 cu ft of water =	37,400 gallons of water
100 units of sewer =	10,000 cu ft of water =	74,800 gallons of water
220 units of sewer =	22,000 cu ft of water =	164,560 gallons of water

- A 10,000 sq. ft lawn uses 50 units of water when watered:  $\frac{1}{2}$  - inch of water  
3 times per week  
for 4 weeks

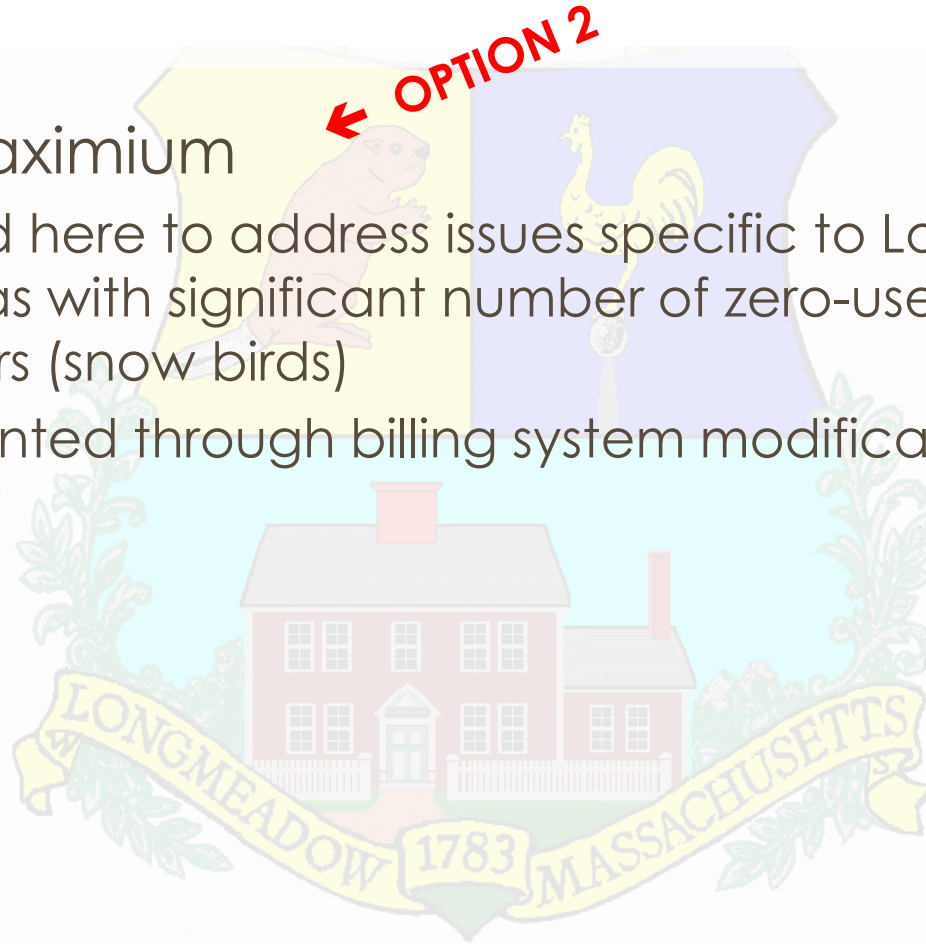
# BILLING OPTIONS ANALYZED

- Current system: \$2.66 per unit, 220-unit annual max
    - \$585.20 maximum charge
  - Secondary Water meters
    - Proposed by Citizen Petition
    - All installation and annual costs born by resident
  - Winter Averaging
    - Richard Foster proponent based on widespread use
    - Implemented through billing system modifications
- 
- OPTION 1** ←
- ← **OPTION 3**

# BILLING OPTIONS ANALYZED

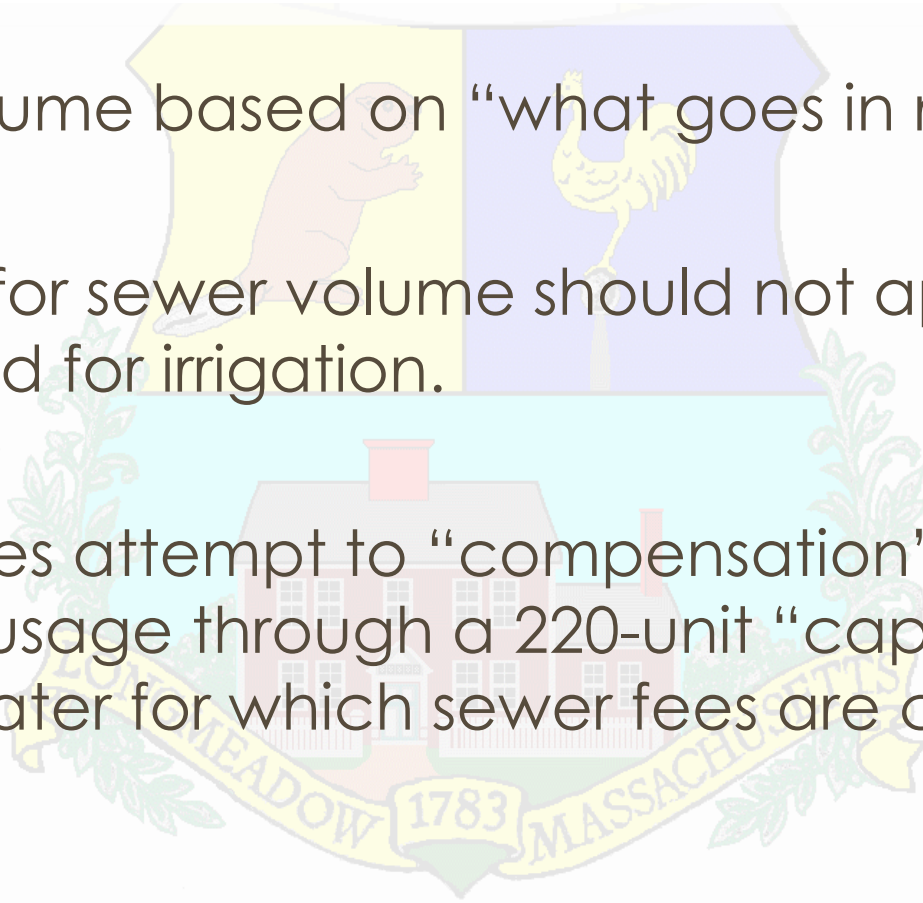
- Winter Maximum

- Proposed here to address issues specific to Longmeadow and areas with significant number of zero-use winter customers (snow birds)
- Implemented through billing system modifications



# CURRENT SEWER CHARGE METHODOLOGY

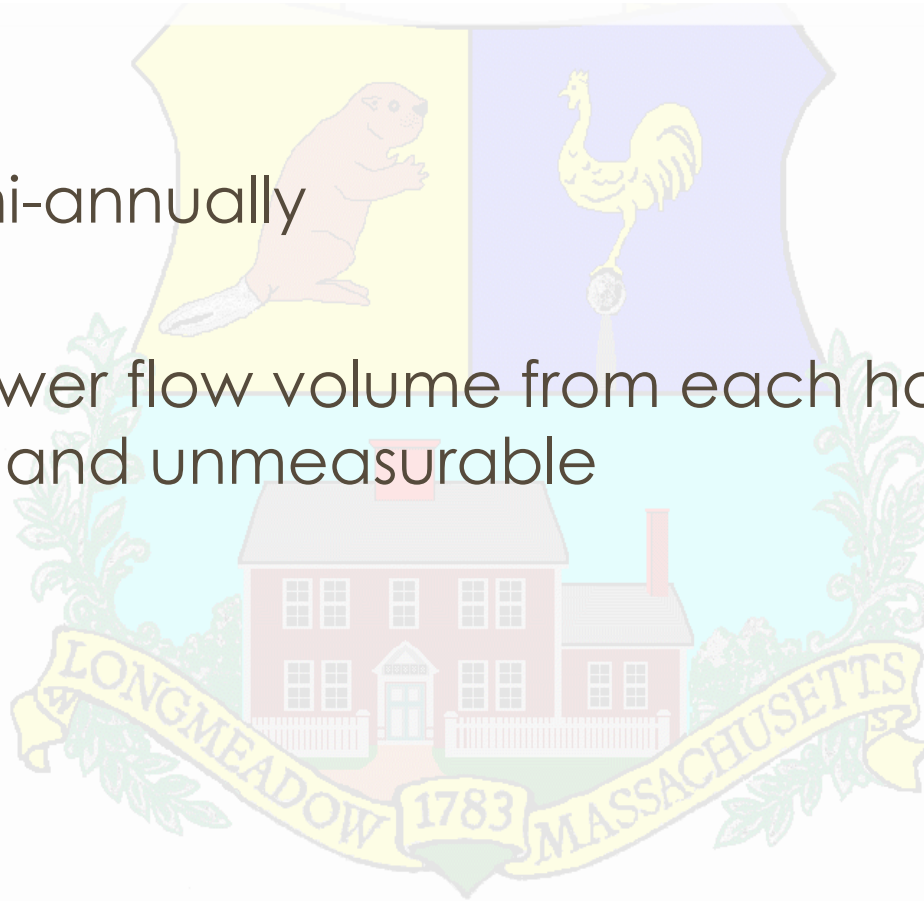
- Sewer volume based on “what goes in must go out”
- This basis for sewer volume should not apply to water used for irrigation.
- Sewer rates attempt to “compensation” for irrigation usage through a 220-unit “cap” on the units of water for which sewer fees are charged.





# SEWER RATE STRUCTURE (THROUGH FY 2021)

- Billed semi-annually
- Actual sewer flow volume from each home is unknown and unmeasurable





# SEWER VOLUME

- Sewer volume equals the measured water usage for that residence. Once the 220-unit cap is reached, no additional sewer charges accrue
- For the 5441 residences studied, the current water use volume is 760,840 units
- For the 5441 residences studied the current sewer volume charged is 671,000 units
- For the 142 commercial customers, the current water use (and sewer use) is 71,985 units
- The FY 2020 Sewer rate was \$2.66
- Maximum residential sewer cost is \$585.20 for 220-unit cap

# SEWER RATE ALTERNATIVES

## GENERAL COMMENTS

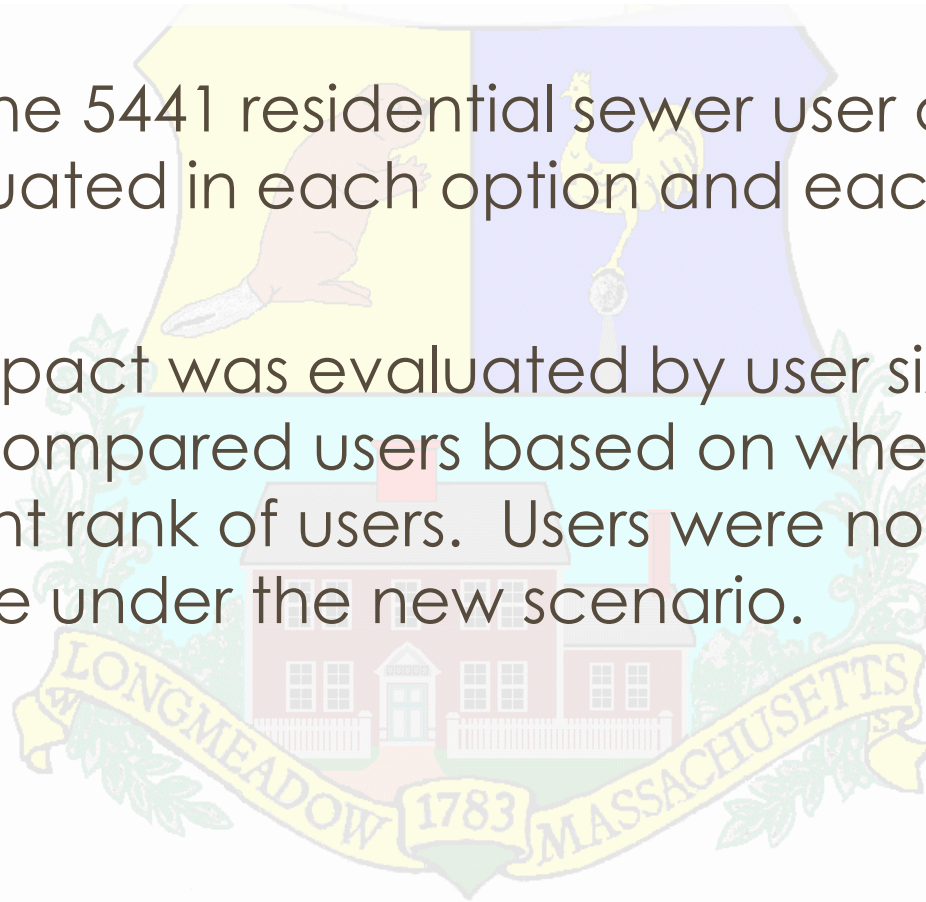
- Each of the evaluated options is an effort to charge people more accurately for the actual volume of material they cause to be sent to Bondi's Island
- **All new rate proposals more fairly represent an individual residence's actual share of sewage treatment costs.**
- All reviewed options result in a reduction in the Town's total sewer billing volume. Therefore...
- To maintain equal revenue with lower volumes, the sewer fee (rate) must increase.

# IMPACT OF THIS STUDY

- For all of the examined options, the sewer fee increases, BUT THE FEE DOESN'T TELL THE FULL STORY.
- Not all users of irrigation water will benefit from alternative billing proposals because even though they'll be billed for fewer units, the billing cost per unit will increase.
- Low volume and non-irrigation system users will pay more in each proposed system than they do under the current system.

# READING THE ANALYSIS

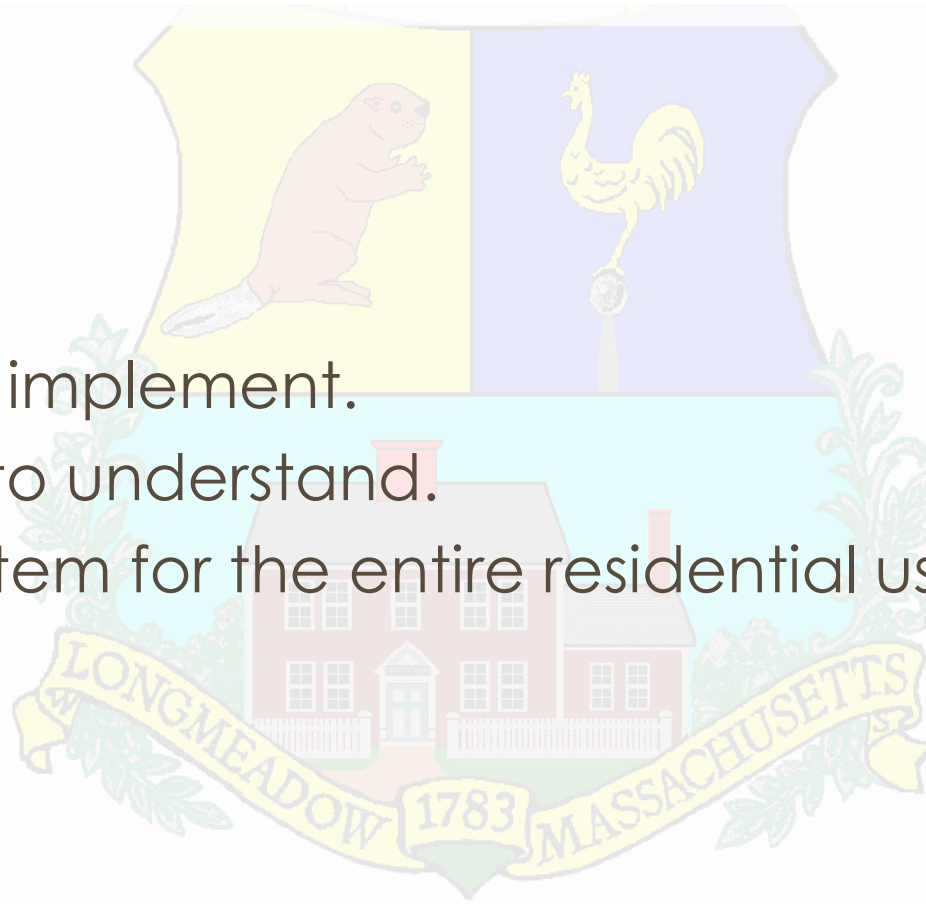
- Each of the 5441 residential sewer user accounts was evaluated in each option and each scenario.
- Where impact was evaluated by user size, the analysis compared users based on where they fell in the current rank of users. Users were not re-ranked by volume under the new scenario.



# CURRENT SYSTEM

## BENEFITS / ADVANTAGES

- Simple to implement.
- Easy(ish) to understand.
- Single system for the entire residential user base.



# CURRENT SYSTEM

## DRAW BACKS / DISADVANTAGES

- Big year-round users underpay for sewer use (due to cap on sewer charges).
- People are paying sewer fees for irrigation\* water.
- 220-unit maximum is an arbitrary number.
- Doesn't capture true sewer burden
- **“Irrigation” users are subsidizing the sewer revenue**
- Does not encourage water conservation

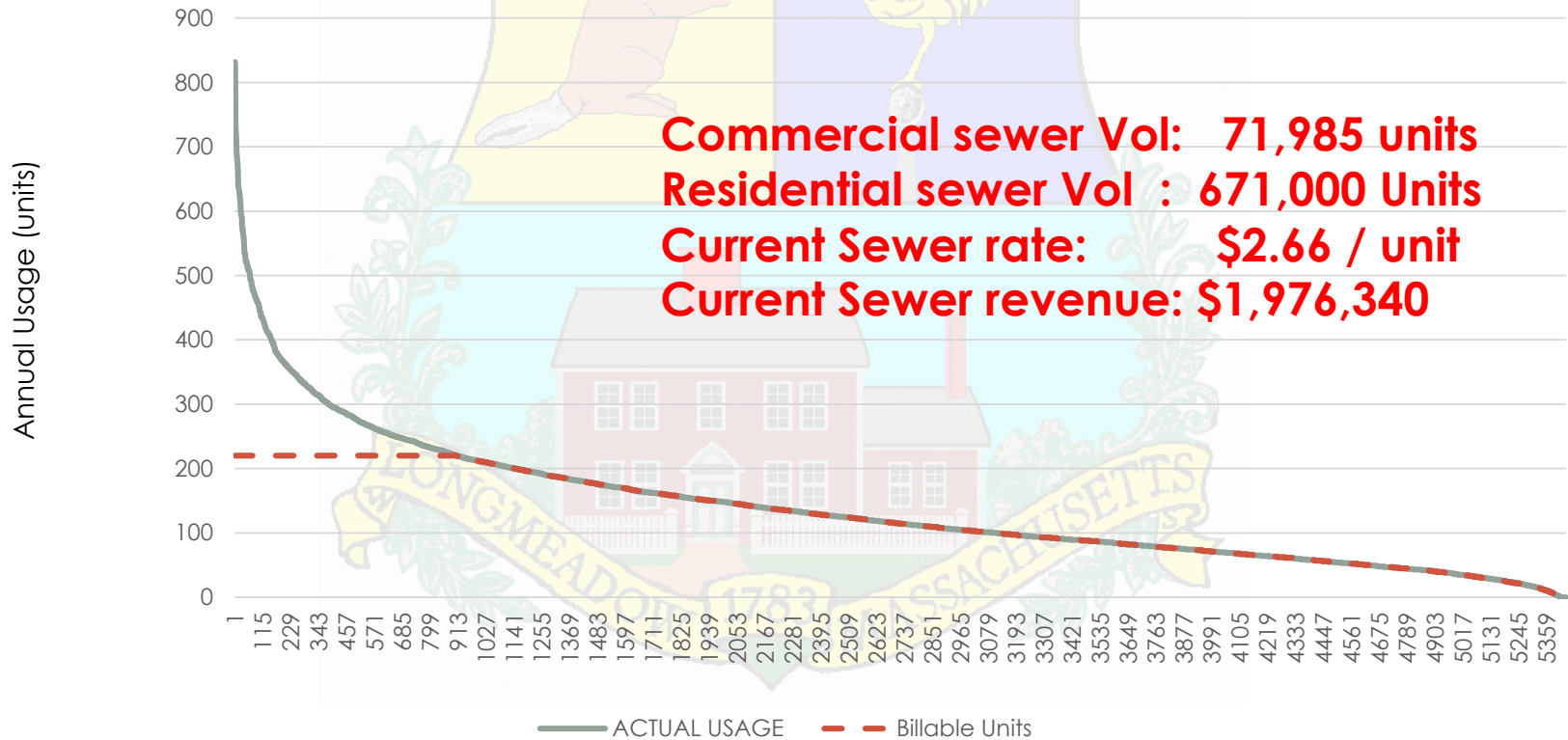
\*As used in this presentation, “Irrigation” includes all metered water that does not go to Bondi’s Island, such as lawns, car washing, pools, etc.



# CURRENT SYSTEM

## IMPACT ON USERS

Current Billing vs. Usage by Customer





# OPTION 1: ALLOW FOR THE INSTALLATION OF SECONDARY IRRIGATION METERS

- This option will allow residents who wish to do so to install a secondary water meter that will only measure water used in irrigation. No sewer charges will accrue to water metered through this irrigation system.
- Concerns if secondary meters are authorized:
  - The town has no way of knowing or limiting the number of homes that install a secondary meter.
  - The more homes that install a secondary meter, the lower the town-wide sewer billing volume becomes and the higher the sewer rate needs to be.

# OPTION 1: SECONDARY METERS

## PROGRAM DETAILS

Residents would be authorized to purchase and have a second water meter professionally installed (and inspected) that will measure water flow for irrigation.

Residents who opt to install a second meter would be charged for all water measured by that meter as well as a billing fee to reflect the added cost to the town to bill this meter separately.

# OPTION 1: SECONDARY METERS

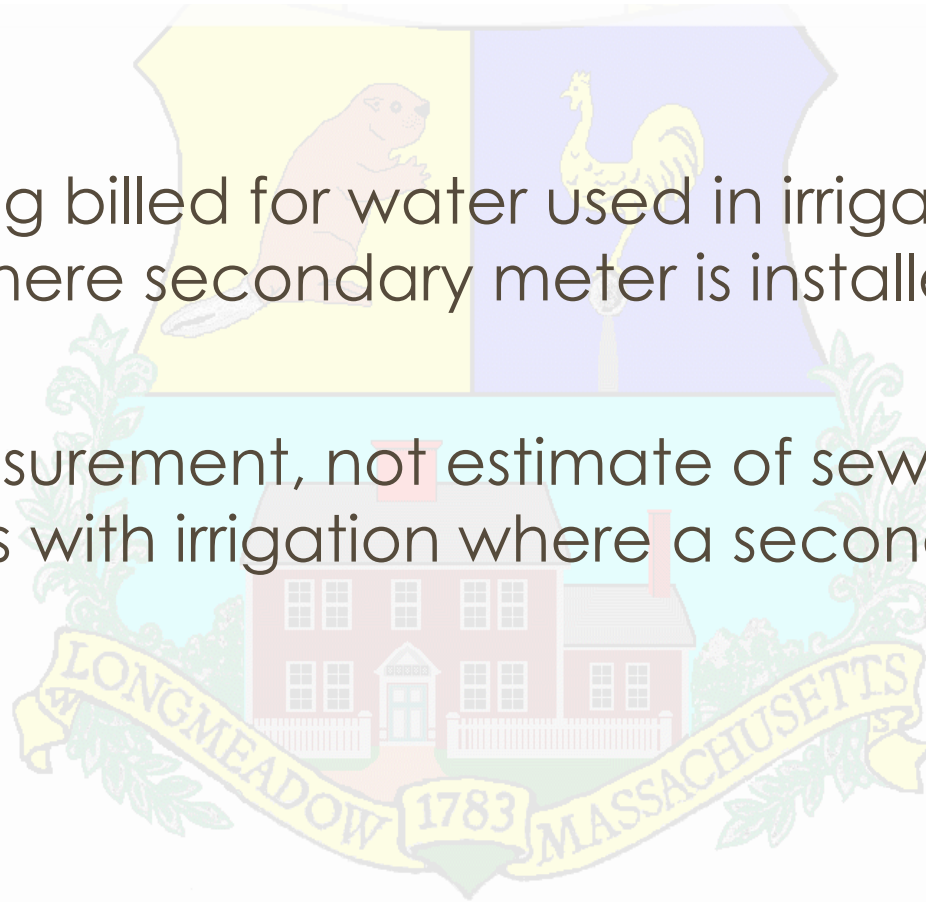
## EVOLUTION OF OPTION 1 SCENARIOS

- Scenario 1A: Installation of secondary meters by the highest 5% of water users
- Scenario 1B: Installation of secondary meters by the highest 10% of water users
- Scenario 1C: Installation of secondary meters by the 25% of water users
- Scenario 1D: Installation of secondary meters by anyone who saves \$200 or more per year
- ➔ • Scenario 1E: Installation of secondary meters by everyone who can get a payback in 5 years or less

# OPTION 1: SECONDARY METERS

## BENEFITS / ADVANTAGES

- Ends being billed for water used in irrigation in homes where secondary meter is installed
- Uses measurement, not estimate of sewer demand for homes with irrigation where a second meter is installed.



# OPTION 1: SECONDARY METERS

## DRAW BACKS / DISADVANTAGES

- Costs homeowner \$850 to install.
- Impact of this sewer billing proposal on the “billing” sewer volume and rate is unknown because *the number of people who install secondary meters is unknown and will change from year to year.*
- This option would appear to only attract 15% of residents and, if implemented, their savings would be transferred to the rest of the users.
- **Only benefits those residents who pay to put in a secondary meter**
- Even with the 220-unit cap retained, homes with irrigation that don't install a secondary meter pay more as rates go up

# OPTION 1: SECONDARY METERS

## DRAW BACKS / DISADVANTAGES

- Sewer cost for those that don't install a second meter go up 23.3% because fee increases.
- Even after installing a second meter, the **largest users** will still be at the 220-unit cap, and **will now be paying a higher sewer bill.**
- Does not encourage water conservation.
- Adds additional bill handling, although bills will have added billing fee as part of their second bill.



# OPTION 1: SECONDARY METERS

## PREFERRED SCENARIO (1E)

- DESCRIPTION: Every home that has a payback of less than five years (based on \$850 cost) installs a second meter (1190 homes).

	Sewer <u>Volume</u>	Sewer <u>Rate</u>
Current:	671,000	\$2.66
Option 1E:	530,790	\$3.28

4251 pay more  
1190 pay less

- This a 23.3% increase in the fee  
The cap (220-unit) price goes from \$585.20 to \$721.60. Many people will pay that increase.



# OPTION 1: SECONDARY METERS

## PREFERRED SCENARIO (1E)

1190 customer install a meter

- 4251 customer will pay more
- 1190 customers will pay less
- Of the customers with changes,

**378 (6.9%)**

accounts vary by less than \$20

## Summary of Values for Option 1E

1/20th Grouping	Current Average Costs	Scenario 1E Average Cost	Average cost increase <span style="color: red;">decrease</span>	Maximum Cost In this scenario	Minimum cost in this scenario	Number With Increase Cost	Maximum Increased Cost	Number with Decreased Cost	Maximum Decreased Cost
	\$2.66	\$3.28							
1	\$585.20	\$580.48	(\$4.72)	\$721.60	\$0.00	185	\$136.40	86	\$585.20
2	\$585.20	\$499.38	(\$85.82)	\$721.60	\$39.36	137	\$136.40	135	\$545.84
3	\$585.20	\$456.85	(\$128.35)	\$721.60	\$91.84	112	\$136.40	160	\$493.36
4	\$571.02	\$413.51	(\$157.51)	\$721.60	\$0.00	91	\$136.40	181	\$547.96
5	\$516.49	\$392.88	(\$123.61)	\$669.12	\$0.00	106	\$127.10	166	\$508.42
6	\$466.06	\$402.80	(\$63.26)	\$721.60	\$13.12	144	\$261.42	128	\$463.20
7	\$423.06	\$387.88	(\$35.17)	\$544.48	\$0.00	165	\$102.92	107	\$428.26
8	\$387.35	\$394.36	\$7.01	\$498.56	\$13.12	201	\$94.24	71	\$356.62
9	\$352.24	\$369.81	\$17.56	\$455.92	\$39.36	214	\$86.18	58	\$314.60
10	\$320.46	\$362.27	\$41.81	\$413.28	\$13.12	241	\$78.12	31	\$322.04
11	\$290.23	\$331.05	\$40.82	\$373.92	\$0.00	246	\$71.30	26	\$292.60
12	\$263.66	\$316.17	\$52.50	\$341.12	\$13.12	264	\$64.48	9	\$247.56
13	\$238.48	\$288.92	\$50.44	\$308.32	\$0.00	267	\$58.28	6	\$236.74
14	\$217.30	\$266.79	\$49.49	\$282.08	\$39.36	271	\$53.32	1	\$184.08
15	\$193.80	\$238.78	\$44.98	\$252.56	\$226.32	272	\$47.74	0	(\$42.78)
16	\$170.09	\$209.52	\$39.43	\$223.04	\$196.80	272	\$42.78	0	(\$37.20)
17	\$145.76	\$179.50	\$33.73	\$196.80	\$164.00	272	\$37.20	0	(\$31.00)
18	\$120.95	\$148.91	\$27.96	\$164.00	\$131.20	272	\$31.00	0	(\$25.42)
19	\$89.98	\$110.60	\$20.62	\$131.20	\$85.28	272	\$24.80	0	(\$16.12)
20	\$40.03	\$49.05	\$9.03	\$85.28	\$0.00	243	\$16.12	21	\$0.00

# OPTION 3: SEWER VOLUME BASIS: AVERAGE OF WINTER MONTHS' WATER USE

- This sewer volume calculation option will limit summer sewer volume to the average water use volume during the winter months.
- All residential sewer bills will be calculated using this method so unlike the secondary meter option (Option 1) the population is not segmented and the financial impact of this scenario can be precisely estimated.
- Concern: Residences with zero water use in all or part of the base winter months will have a calculated average usage lower than if the home was occupied for the full winter.

# OPTION 3: SEWER VOLUME BASIS: AVERAGE OF WINTER MONTHS' WATER USE

Scenarion 3B Examples

	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE
	USAGE	USAGE	USAGE	USAGE	USAGE	USAGE	USAGE	USAGE	USAGE	USAGE	USAGE	USAGE
USE	126	197	92	42	3	0	0	3	3	6	50	175
Max	2	2	2	2						2	2	2
Use	45	59	38	17	12	16	0	14	16	14	34	42
Max	12	12	12	12						12	12	12

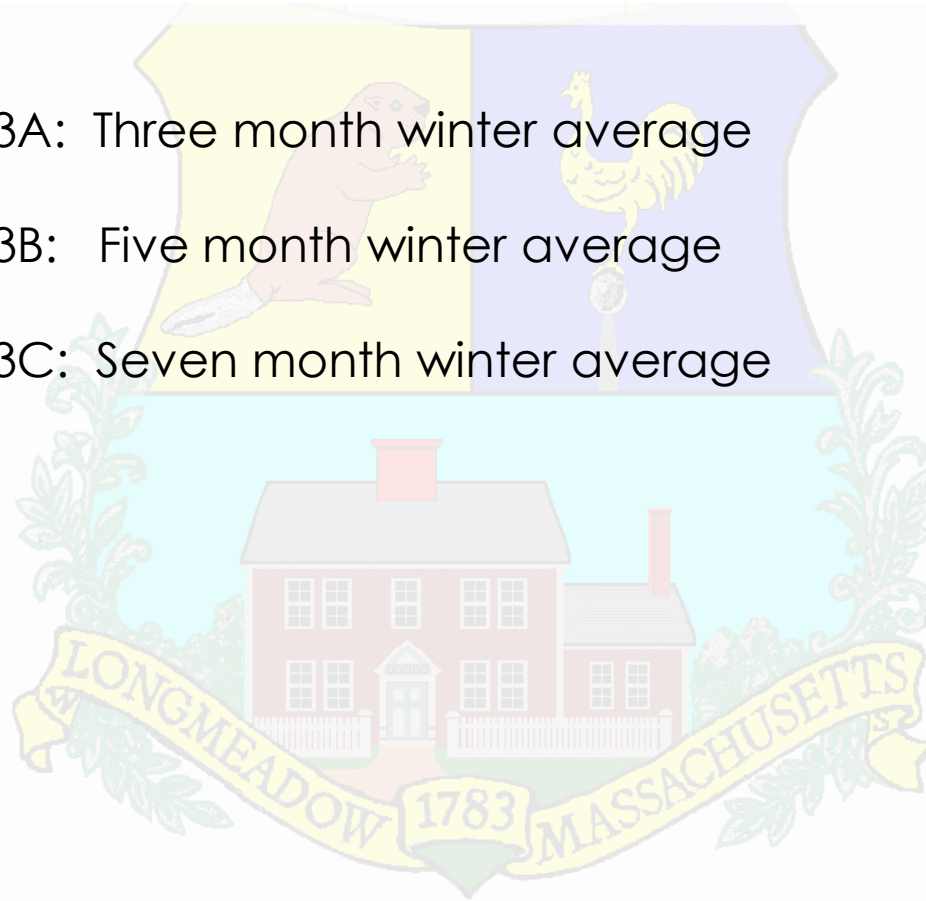
These two examples show average of five winter months applied to other seven months

Top set has winter avg = 2  
Bottom set has winter avg = 12

# OPTION 3: WINTER AVERAGING

## EVOLUTION OF OPTION 3 SCENARIOS

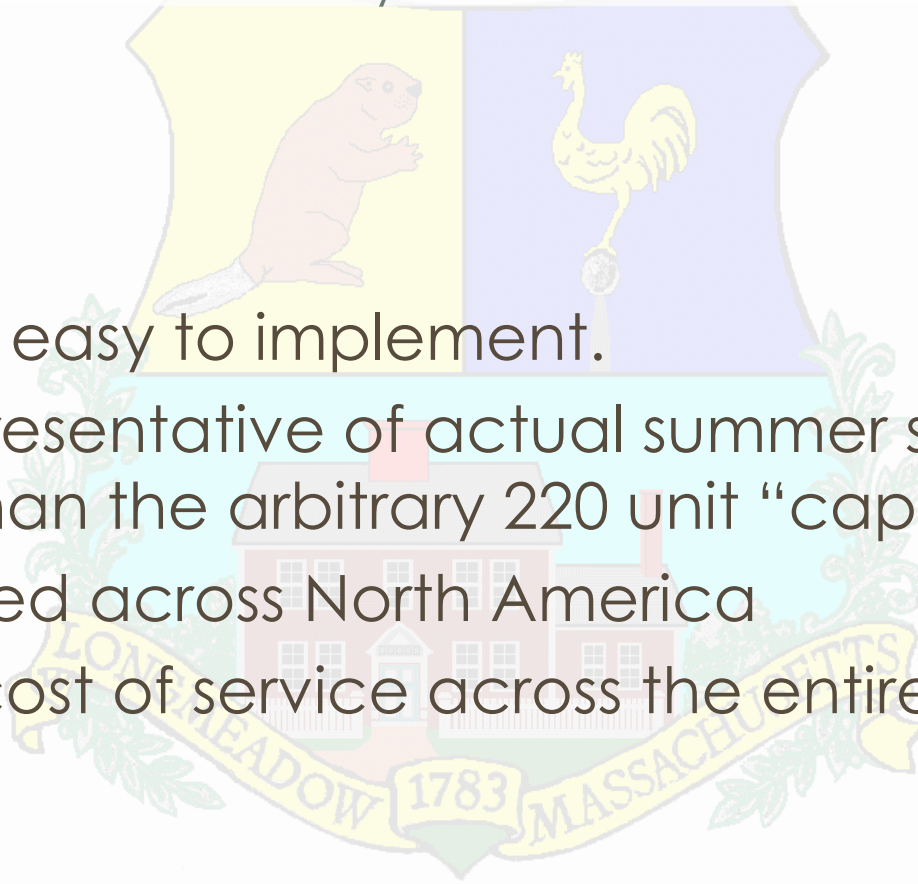
- Scenario 3A: Three month winter average
- ➔ • Scenario 3B: Five month winter average
- Scenario 3C: Seven month winter average



# OPTION 3: FIVE-MONTH WINTER AVERAGE

## BENEFITS / ADVANTAGES

- Relatively easy to implement.
- More representative of actual summer sewer volume than the arbitrary 220 unit “cap”
- Widely used across North America
- Spreads cost of service across the entire user base





# OPTION 3: FIVE-MONTH WINTER AVERAGE

## DRAW BACKS / DISADVANTAGES

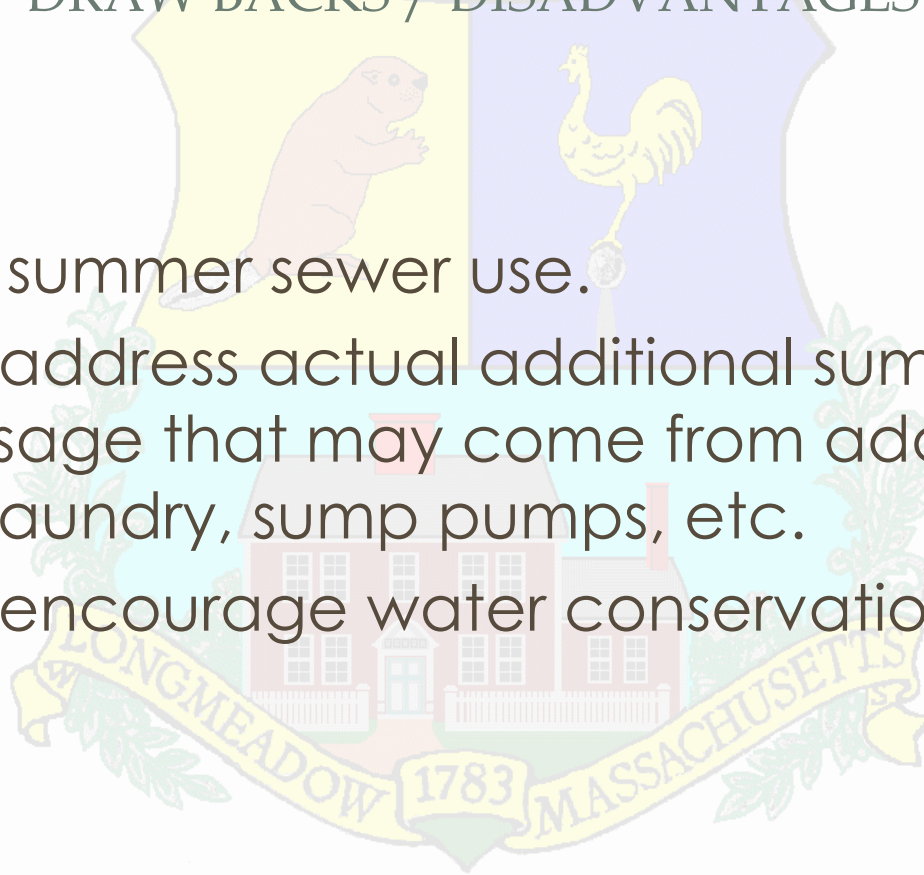
- Requires operational changes:
  - Calculating monthly usage, not just six-month usage.
  - Calculating Summer month maximum charges each year
  - reprogramming changes to sewer billing system.
  - Requires annual data review to address usage pattern changes.
- **Residents who go away** for all or part of the winter have an **artificially low** calculated number used for their summer sewer volume. (RF Comment: Assign town-wide WA to these accounts)
- Will require system (computer) adjustments to address the number of households with short-periods of zero usage during the basis months (Nov-March)



# OPTION 3: FIVE-MONTH WINTER AVERAGE

## DRAW BACKS / DISADVANTAGES

- Estimates summer sewer use.
- Does not address actual additional summer sewer volume usage that may come from additional showers, laundry, sump pumps, etc.
- Does not encourage water conservation



# OPTION 3: AVERAGE WINTER USE

## PREFERRED SCENARIO (3B)

- DESCRIPTION: Uses the average water used during the five winter months as the maximum sewer volume in the summer

	<u>Sewer</u> <u>Volume</u>	<u>Sewer</u> <u>Fee</u>
Current:	671,000	\$2.66
Option 3B	324,025	\$5.23

3096 pay more  
2335 pay less

This a 96.6% increase in the fee but charges don't go up by that amount because there is a reduction in the number of units.

# OPTION 3: WINTER AVERAGING

## PREFERRED SCENARIO (3B)

- 3096 customer will pay more
- 2335 customers will pay less
- Of the customers with changes,  
**507 (9.3%)**  
accounts vary by less than \$20

### Summary of Values for Option 3B

1/20th Grouping	Current Average Costs	Scenario 3B Average Cost	Average cost increase decrease	Maximum Cost In this scenario	Minimum cost in this scenario	Number With Increase Cost	Maximum Increased Cost	Number with decrease Cost	Maximum Decrease Cost
RATE =>	\$2.66	\$5.23							
1	\$585.20	\$586.64	\$1.44	\$3,341.97	\$0.00	93	\$2,756.77	177	(\$585.20)
2	\$585.20	\$482.78	(\$102.42)	\$1,595.15	\$8.37	65	\$1,009.95	206	(\$576.83)
3	\$585.20	\$453.09	(\$132.11)	\$1,349.34	\$28.24	61	\$764.14	210	(\$556.96)
4	\$571.02	\$416.83	(\$154.19)	\$1,093.07	\$0.00	49	\$521.17	223	(\$577.88)
5	\$516.49	\$405.88	(\$110.61)	\$987.42	\$0.00	65	\$463.40	207	(\$514.88)
6	\$466.06	\$412.97	(\$53.09)	\$911.07	\$8.37	92	\$440.25	180	(\$464.34)
7	\$423.06	\$374.13	(\$48.93)	\$819.02	\$0.00	91	\$387.71	180	(\$408.00)
8	\$387.35	\$376.36	(\$11.00)	\$746.84	\$0.00	121	\$361.14	151	(\$396.34)
9	\$352.24	\$366.91	\$14.67	\$696.64	\$0.00	129	\$333.35	143	(\$367.08)
10	\$320.46	\$366.68	\$46.22	\$642.24	\$0.00	162	\$310.31	110	(\$313.88)
11	\$290.23	\$349.64	\$59.41	\$577.39	\$0.00	179	\$276.81	92	(\$292.60)
12	\$263.66	\$343.34	\$79.68	\$524.05	\$0.00	202	\$252.73	71	(\$260.68)
13	\$238.48	\$326.27	\$87.79	\$480.11	\$25.10	220	\$230.07	54	(\$203.66)
14	\$217.30	\$290.16	\$72.86	\$436.18	\$7.32	211	\$210.08	60	(\$213.46)
15	\$193.80	\$286.60	\$92.81	\$396.43	\$0.00	241	\$191.61	31	(\$191.52)
16	\$170.09	\$253.09	\$83.00	\$345.18	\$3.14	239	\$164.30	33	(\$159.12)
17	\$145.76	\$213.77	\$68.01	\$298.11	\$5.23	238	\$143.92	35	(\$141.07)
18	\$120.95	\$182.02	\$61.06	\$251.04	\$0.00	243	\$120.79	27	(\$120.36)
19	\$89.98	\$130.43	\$40.45	\$201.88	\$0.00	236	\$95.48	36	(\$84.91)
20	\$40.03	\$51.44	\$11.41	\$129.70	\$0.00	159	\$61.68	109	(\$63.93)

## OPTION 2: SEWER VOLUME BASIS: HIGHEST OF WINTER MONTHS' WATER USE (ZERO WINTER USE EXCEPTED)

- This sewer volume calculation option will limit summer sewer volume to the largest water use volume during the winter months.
- All residential sewer bills will be calculated using this method so unlike the secondary meter option (Option 1) the population is not segmented and the financial impact of this scenario can be narrowly estimated.

# OPTION 2: MAXIMUM WINTER USE

## PROGRAM DETAILS

- Option 2 sets the maximum sewer volume during any of the summer (irrigation) months at 110% of the maximum water used during the five winter months of November through March.
- The period of November through March was selected to capture water use data in at least one month where there is a full month of water usage during the winter.
- The figure of 110% of the maximum winter use was selected to reflect that residents use slightly more water in the summer (showers, loads of clothes) than they do in the winter.
- This scenario tweaks the winter average to make sure there are no homeowners who have zero five month winter maximum useage but use water in the summer. The 220 unit cap on sewer volume is eliminated because this option is applied to ALL accounts.



# OPTION 2: MAXIMUM WINTER USE

## EVOLUTION OF OPTION 2 SCENARIOS

- Scenario 2A: Set the summer maximum use at 110% of the maximum use in the seven winter months of October – April)
- Scenario 2B: Set the summer maximum use at 100% of the maximum use in the seven winter months of October – April)
- Scenario 2C: Set the summer maximum use at 100% of the maximum use in the five winter months of November – March)
- Scenario 2D: Set the summer maximum use at 110% of the maximum use in the five winter months of November – March)
- Scenario 2E: Set the summer maximum use at 110% of the maximum use in the five winter months of November – March) with minimum summer use if winter maximum is zero.



# OPTION 2: MAXIMUM WINTER USE

## BENEFITS / ADVANTAGES

- Can be implemented across the entire town.
- No cost to homeowner to implement.
- Applicable through the entire town
- Zero water users during partial or one winter month has no impact on summer rate, but zero user during entire five month period has a minimum summer water charge of 3 units per month. (Suggested that for this situation, the town-wide winter average be applied)

# OPTION 2: MAXIMUM WINTER USE

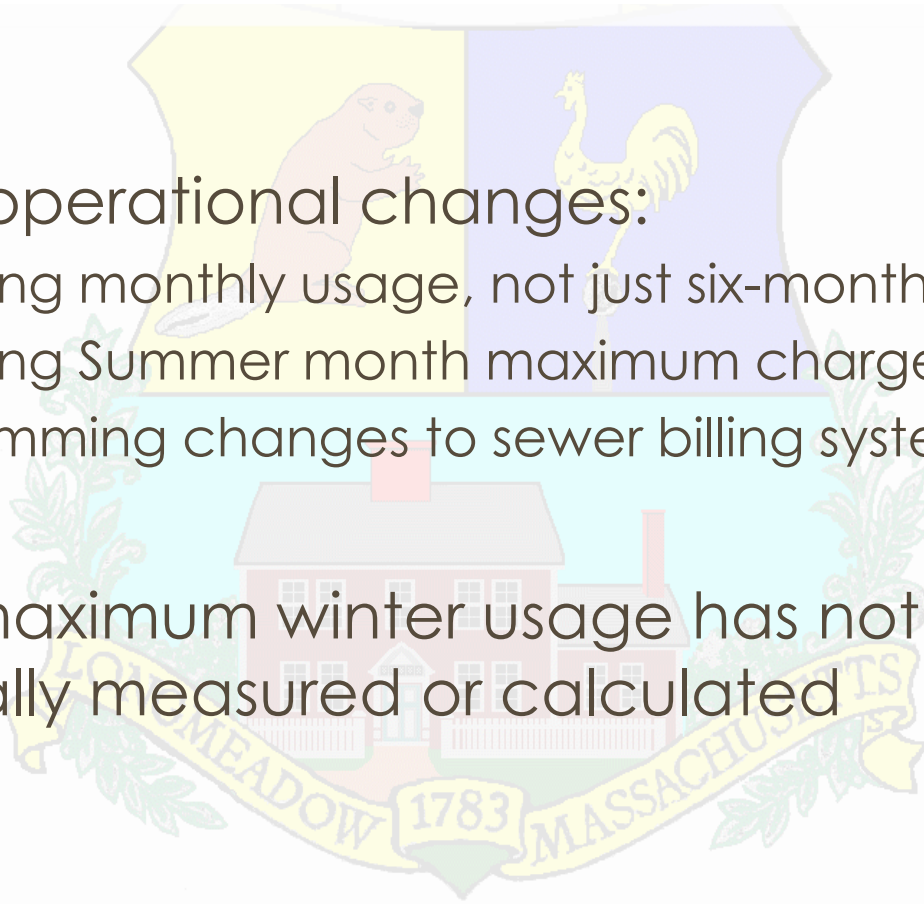
## BENEFITS / ADVANTAGES

- Captures high water usage accounts and bills them for the sewer rates year-round.
- More representative of summer sewer use than winter average system. (no zeroes in calculation)
- Encourages water conservation as customer can impact their summer sewer bill by conserving water year-around.
- Five month maximum assures that no irrigation months are included in the basis for the summer month maximum calculation

# OPTION 2: MAXIMUM WINTER USE

## DRAW BACKS / DISADVANTAGES

- Requires operational changes:
  - Calculating monthly usage, not just six-month usage.
  - Calculating Summer month maximum charges each year
  - reprogramming changes to sewer billing system.
- 110% of maximum winter usage has not been scientifically measured or calculated



# OPTION 2: MAXIMUM WINTER USE

## PREFERRED SCENARIO (2E)

- DESCRIPTION: Uses 110% of the maximum water use during the five winter months as the minimum sewer volume in the summer. If five month average is zero, summer sewer volume is lower of actual use or 3 units per month.

	<u>Sewer Volume</u>	<u>Sewer Fee</u>
Current:	671,000	\$2.66
Option 2E	412,918	\$4.12

3024 pay more  
2017 pay less

This a 54.8% increase in the fee but charges don't go up by that amount because there is a reduction in the number of units.

# OPTION 2: WINTER MAXIMUM

## PREFERRED SCENARIO (2E)

- 3024 customer will pay more
- 2417 customers will pay less
- Of the customers with changes,  
**557 (10.2%)**  
accounts vary by less than \$20

Summary of Values for Option 2E

1/20th Grouping	Current Average Costs	Scenario 2E Average Cost	Average cost increase decrease	Maximum Cost In this scenario	Minimum cost in this scenario	Number With Increase Cost	Maximum Increased Cost	Number with Decreased Cost	Maximum Decreases Cost
	\$2.66	\$3.89							
1	\$585.20	\$593.21	\$8.01	\$3,001.01	\$24.72	92	\$2,415.81	179	\$560.48
2	\$585.20	\$492.96	(\$92.24)	\$1,301.51	\$35.84	59	\$716.31	213	\$549.36
3	\$585.20	\$457.28	(\$127.92)	\$1,100.04	\$75.81	51	\$514.84	221	\$509.39
4	\$571.02	\$420.62	(\$150.39)	\$945.13	\$31.31	47	\$359.93	225	\$553.89
5	\$516.49	\$408.15	(\$108.34)	\$815.76	\$41.20	51	\$289.08	220	\$472.86
6	\$466.06	\$405.24	(\$60.82)	\$753.96	\$30.49	79	\$267.18	193	\$430.07
7	\$423.06	\$370.46	(\$52.60)	\$683.92	\$39.55	78	\$242.36	194	\$396.69
8	\$387.35	\$369.80	(\$17.55)	\$622.12	\$51.50	98	\$220.46	173	\$344.84
9	\$352.24	\$353.65	\$1.40	\$568.56	\$38.73	122	\$201.48	150	\$311.46
10	\$320.46	\$350.44	\$29.98	\$519.12	\$55.62	150	\$183.96	122	\$258.26
11	\$290.23	\$334.50	\$44.27	\$469.68	\$35.02	170	\$166.44	101	\$248.29
12	\$263.66	\$325.04	\$61.38	\$428.48	\$30.90	195	\$151.84	78	\$237.50
13	\$238.48	\$308.63	\$70.15	\$387.28	\$47.38	213	\$137.24	60	\$200.00
14	\$217.30	\$274.34	\$57.04	\$354.32	\$31.31	204	\$125.56	67	\$189.47
15	\$193.80	\$266.26	\$72.46	\$317.24	\$43.67	230	\$112.42	41	\$150.51
16	\$170.09	\$238.06	\$67.97	\$280.16	\$13.18	239	\$99.28	33	\$149.08
17	\$145.76	\$204.02	\$58.26	\$243.08	\$22.25	242	\$86.14	30	\$129.11
18	\$120.95	\$174.12	\$53.17	\$206.00	\$12.77	249	\$73.00	23	\$106.93
19	\$89.98	\$127.50	\$37.52	\$168.92	\$21.84	237	\$59.86	34	\$63.78
20	\$40.03	\$57.37	\$17.34	\$107.12	\$0.00	218	\$37.96	51	\$48.78

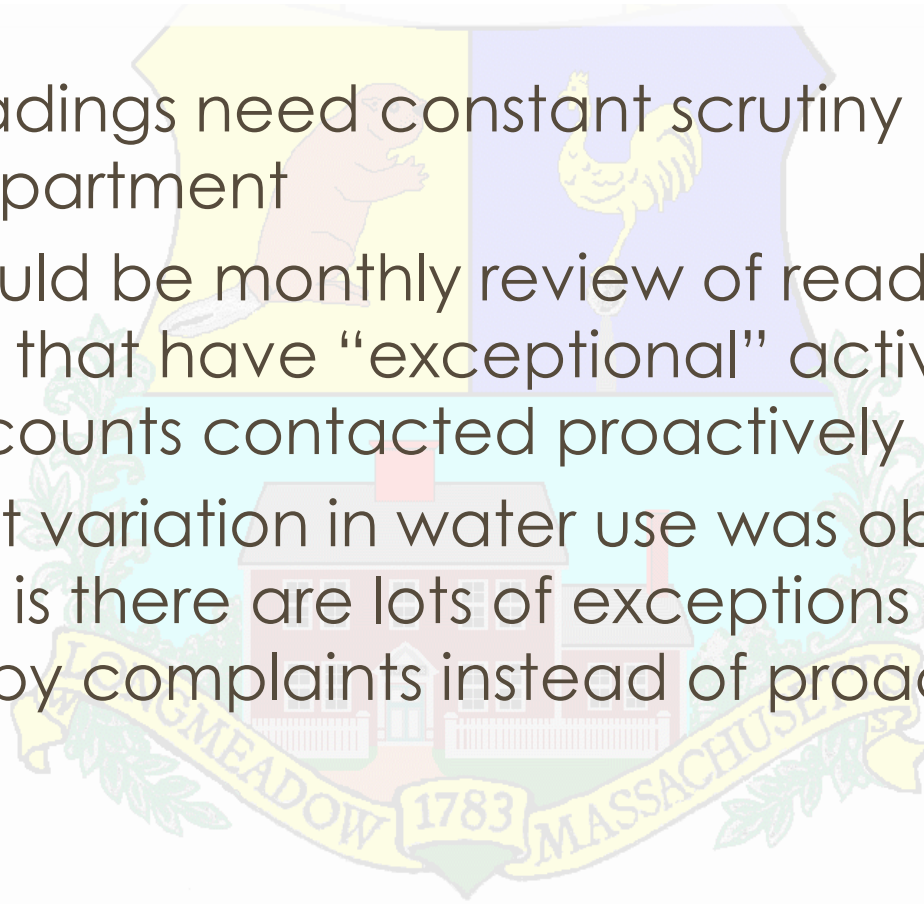


# SUMMARY OF ALTERNATIVES

Longmeadow Sewer Rate Evaluation				
	Current Billing Methodology	1E: 2nd Meter Allowed For Irrigation	2E: 110% of 5-Month Winter Maximum	3B: 5-Month Winter Average
Commercial Volume	71,985	71,985	66,520	53,730
<b>Residential Volume</b>	<b>671,000</b>	<b>530,790</b>	<b>412,918</b>	<b>324,025</b>
Total Volume	742,985	602,775	479,438	377,755
<b>Fee</b>	<b>\$2.66</b>	<b>\$3.28</b>	<b>\$4.12</b>	<b>\$5.23</b>
Percent Increase	---	23.3%	54.9%	96.6%
Sewer Revenue	\$1,976,340	\$1,976,340	\$1,976,340	\$1,976,340

# OTHER FINDINGS

- Water readings need constant scrutiny by the Water Department
- There should be monthly review of readings with accounts that have “exceptional” activity with those accounts contacted proactively
- Significant variation in water use was observed, and the sense is there are lots of exceptions that are handled by complaints instead of proactively.





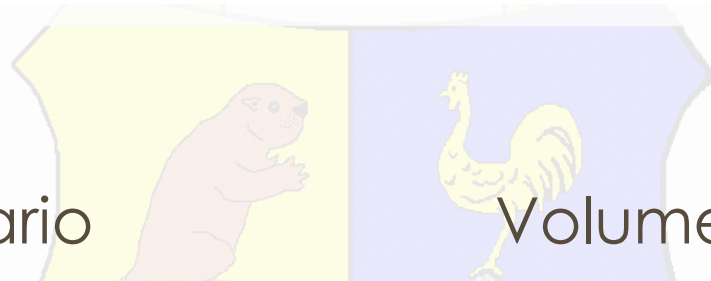
# QUESTIONS

# OTHER FINDINGS



# OTHER OPTION 1 SCENARIOS

Scenario



Volume Fee Increase

0	<b>Current Sewer Rate System</b>	<b>671,000</b>	<b>\$2.66</b>	
1A	2nd Meter: Top 5% put in 2nd meter, 220 cap stays	653,899	\$2.72	2.3%
1B	2nd Meter: Top 10% put in meter	628,403	\$2.82	6.0%
1C	2nd Meter: Top 25% put in meter	544,211	\$3.21	20.6%
1D	2nd Meter: Everyone with \$200 annual savings puts in a meter	507,795	\$3.41	28.1%
1E	2nd Meter: Everyone with Payback < 5 Years puts in 2nd meter	530,790	\$3.28	23.3%

# OTHER OPTION 2 SCENARIOS

Scenario  Volume  Fee Increase

0	Current Sewer Rate System	671,000	\$2.66	
2A	110% of 7 month Winter maximum (Oct - APR), as maximum for other five months; no 220 cap	489,988	\$3.55	33.5%
2B	100% of 7 month winter maximum (Oct-APR), as maximum for other five months; no 220 cap	473,507	\$3.66	37.5%
2C	100% of 5 month winter maximum (Nov-Mar) as maximum for other seven months; no 220 cap	396,611	\$4.27	60.4%
2D	110% of 5 month winter maximum (Nov-Mar) as maximum for other seven months; no 220 cap	410,799	\$4.14	55.6%
2E	Same as 2D but with minimum charge in summer months for zero winter use but measured summer use	441,163	\$4.12	55.2%



# OTHER OPTION 3 SCENARIOS

Scenario   Volume Fee Increase

Scenario	Volume	Fee	Increase	
<b>0</b>	<b>Current Sewer Rate System</b>			
	<b>671,000</b>	<b>\$2.66</b>		
<b>3A</b>	Winter Average: 3 month (Nov - Jan) average as maximum for other nine months; no 220 cap	385,799	\$4.50	69.0%
<b>3B</b>	Winter Average: 5 month (Nov - Mar) average as maximum for other seven months; no 220 cap	324,025	\$5.23	96.6%
<b>3C</b>	Winter Average: 7 months (Oct - Apr) average as maximum for other five months; no 220 cap	341,334	\$5.00	88.1%

