



2021 NEWEA Annual Conference

What's that pipe worth? Calculating Economic Return on Sewer Investment

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Session 7:
Small Communities
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The Challenge...

Even with a community pollution problem, the public often doesn't want sewer...

...Why Not?

- The 5 most common objections to sewer:
 1. High capital costs
 2. Disruptions during construction
 3. Too much potential for unwanted growth
 4. Long-term maintenance costs
 5. Annual sewer fees





The Challenge...

- It is easy for us to articulate the environmental benefits of sewer:
 1. Clean rivers, streams, lakes & oceans
 2. Improved wildlife habitat
 3. Safe drinking water
 4. Disease prevention
 5. ...and many more!!!

- So how do we quantify the economic benefit of sewer?





Estimates on infrastructure investment...

- US Department of Commerce's Bureau of Economic Analysis
 - Each \$1 of investment in water/sewer generates \$2.62 in the private economy
 - For every 1 job added in water, 3.68 jobs are added to the national economy
- US Clean Water Council
 - Each \$1B invested in water, wastewater & stormwater creates >26,000 jobs
 - For every \$1B invested creates a demand for products & services of \$2.87 - \$3.46B
- U.S. Conference of Mayors
 - For every \$1 of public investment, private long-term Gross Domestic Product (GDP) output is increased by \$6.35

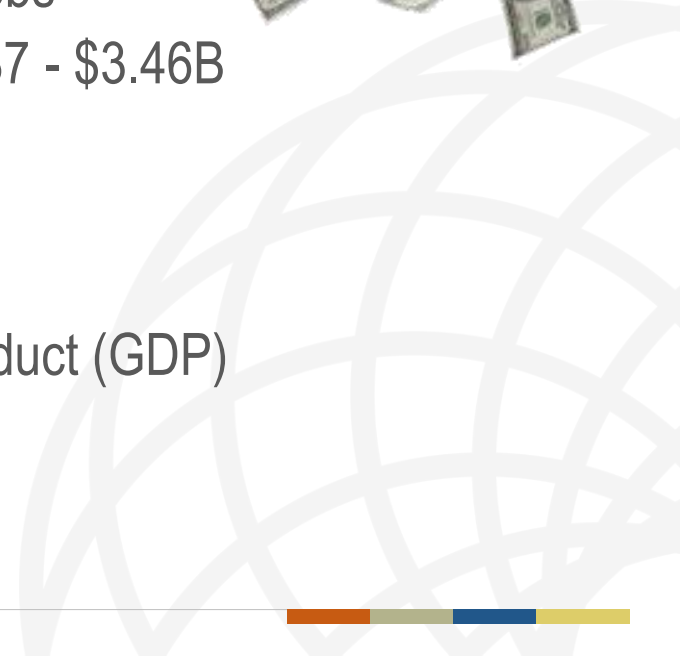




Estimates on infrastructure investment...

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 - Each \$1 of investment in water/sewer creates \$2.02 in the private economy
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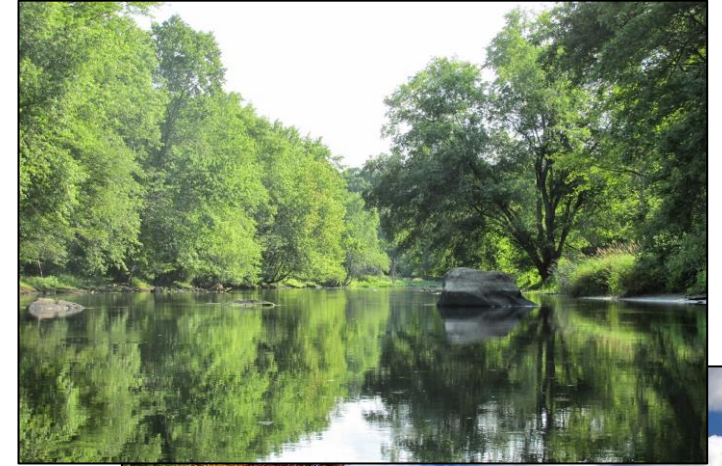
**FACT?
OR
FICTION?**





Case Study: Acton, MA

- Pollution problem in the Assabet River
 - High N & P loadings
 - MA Title 5 (Septic Rules) becoming challenging for real estate
 - Community saw opportunity: fix pollution & economic growth
- First sewer system approved in 1999
 - Sewer construction began in 2000
 - Sewer completed in 2002
- Project costs of \$25 million
 - Financed through MA SRF loan, paid for with betterments
 - WWTF designed & operated by Woodard & Curran



Assabet River (top) / Acton WWTF (bottom)



Acton, MA: Economic Metrics

- Unemployment rate
- Population growth
- Property values
 - Benchmark Acton vs comparable Communities & County
- Sewer costs (over time)

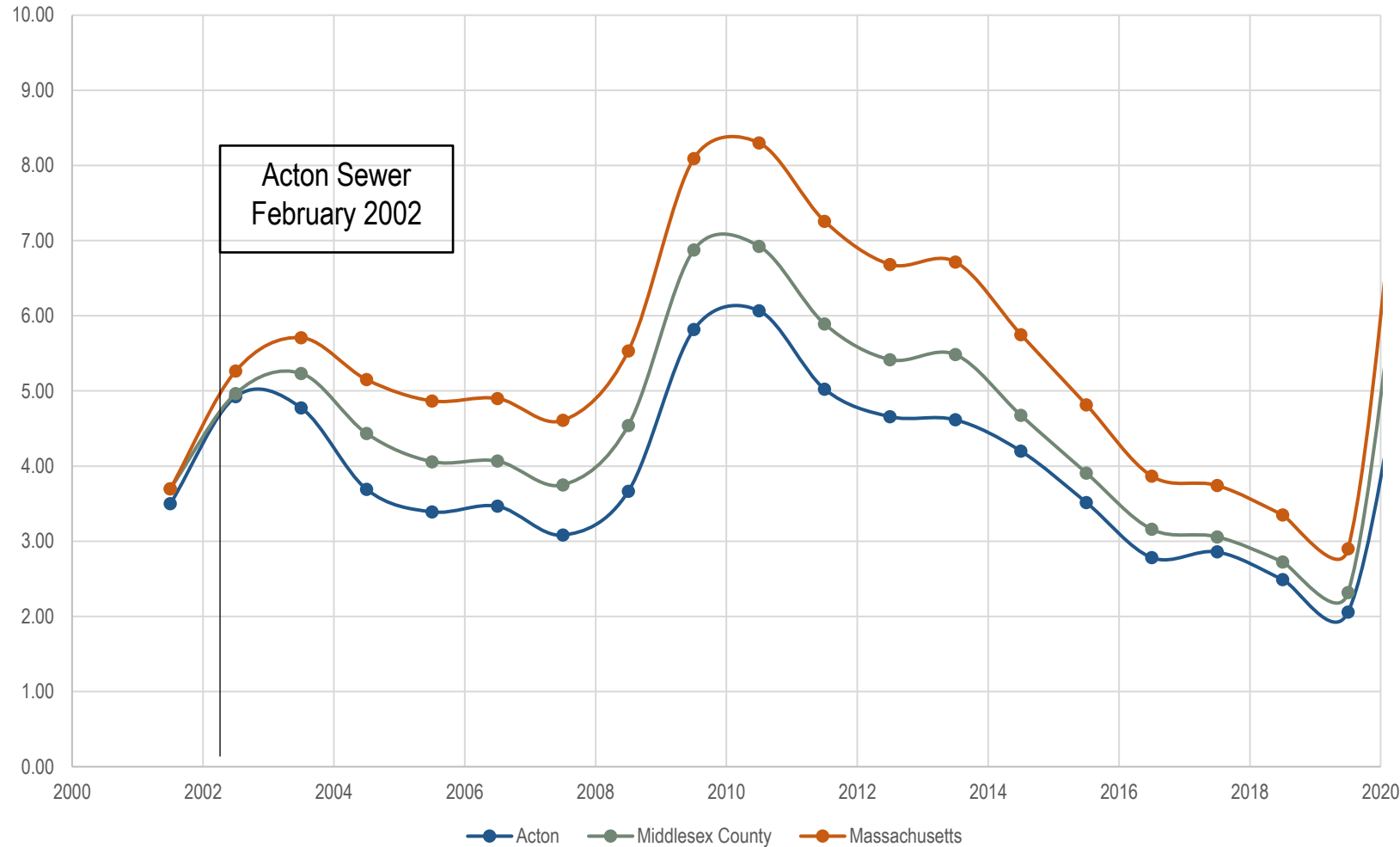


Acton, Massachusetts



Acton, MA: Labor Indicators

Average Unemployment Rate Compared to County and State



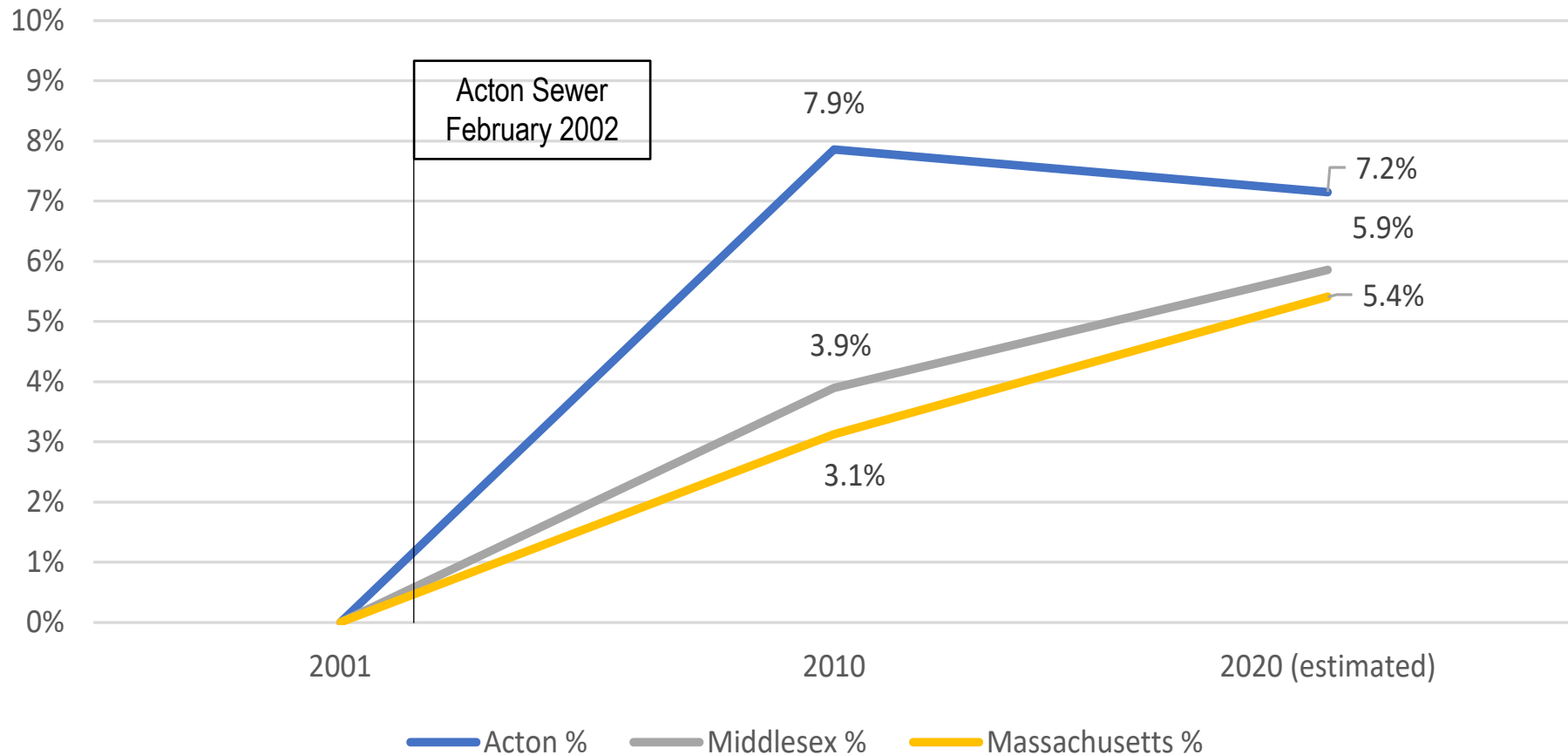
- How much lower is unemployment?
 - 2001 (before sewer) –
 - 0.2% ↓ County & State
 - 2009 (after sewer)
 - 1.1% ↓ County
 - 2.3% ↓ State
 - 2020 (with sewer)
 - 2.1% ↓ County
 - 3.8% ↓ State





Acton, MA: Community Growth

Population Growth



Acton Population

- 2000: 20,331
- 2010: 21,929
- 2020: 23,497

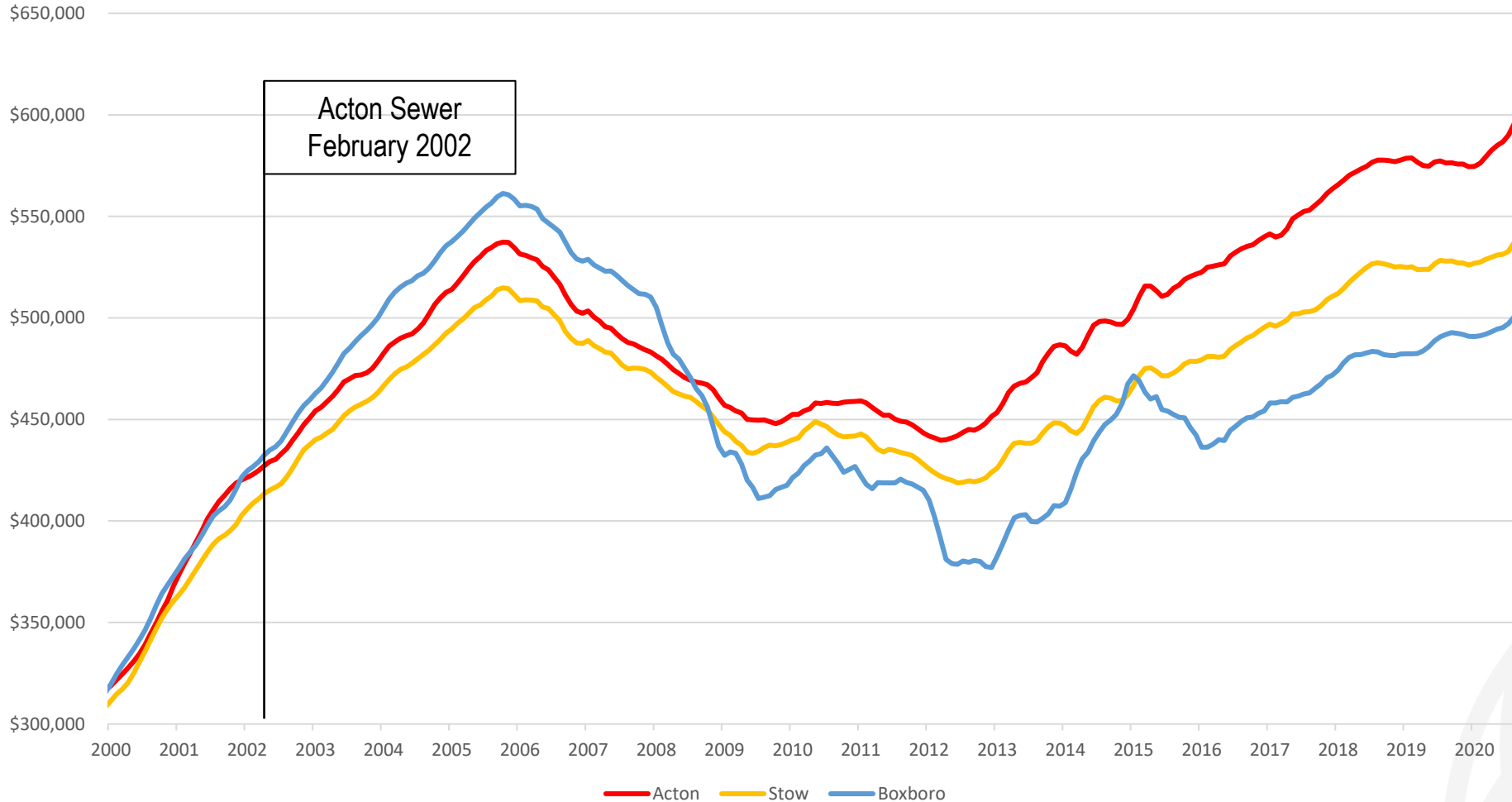
Acton growth
outpacing
Middlesex County
and state of MA





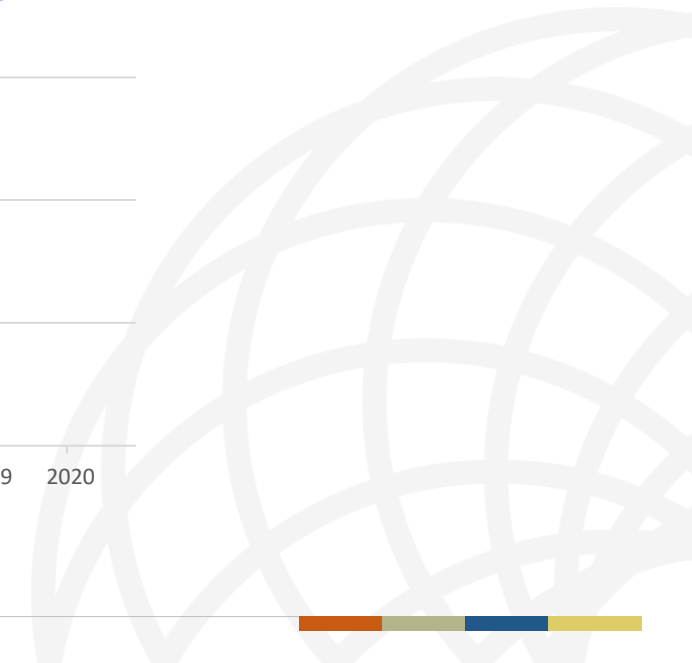
Acton, MA: Home Values

Property Values of Similar Towns (2000-2020)



Since 2000

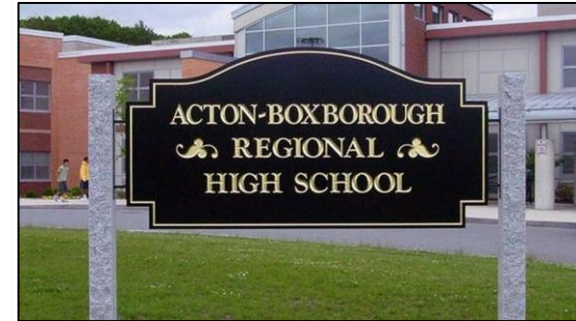
- Acton +152%
- Stow +127%
- Boxboro +102%





Acton, MA: Property Values of Sister Towns

Property Values of Similar Towns (Sewered vs. Unsewered)



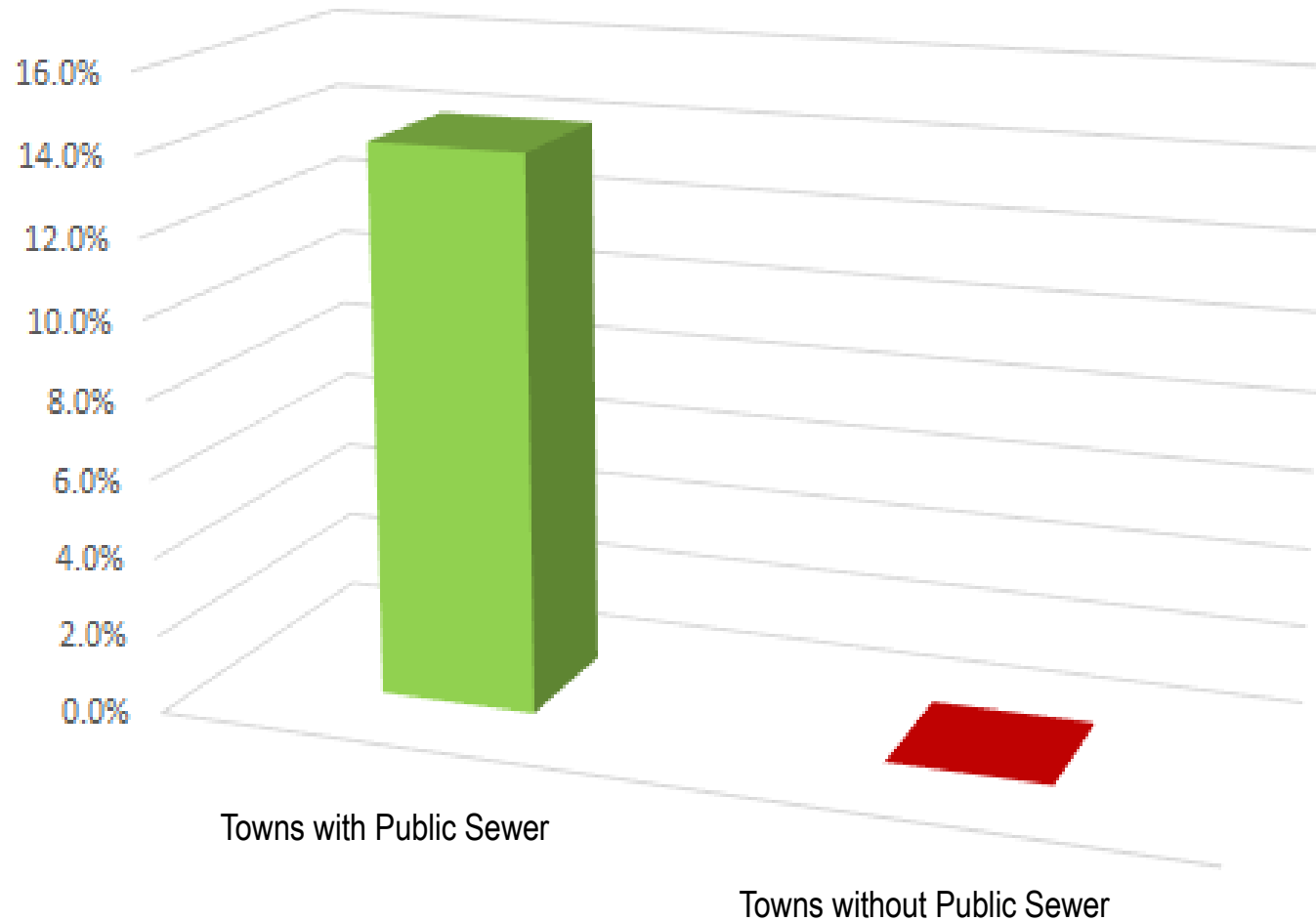
Since Sewer (2002)

- Acton values up \$188K (45%) since sewer installation
- Boxboro values up \$89K (21%)



Sewer Effect on Property Values in Middlesex County

Changes in housing values 2010-2018



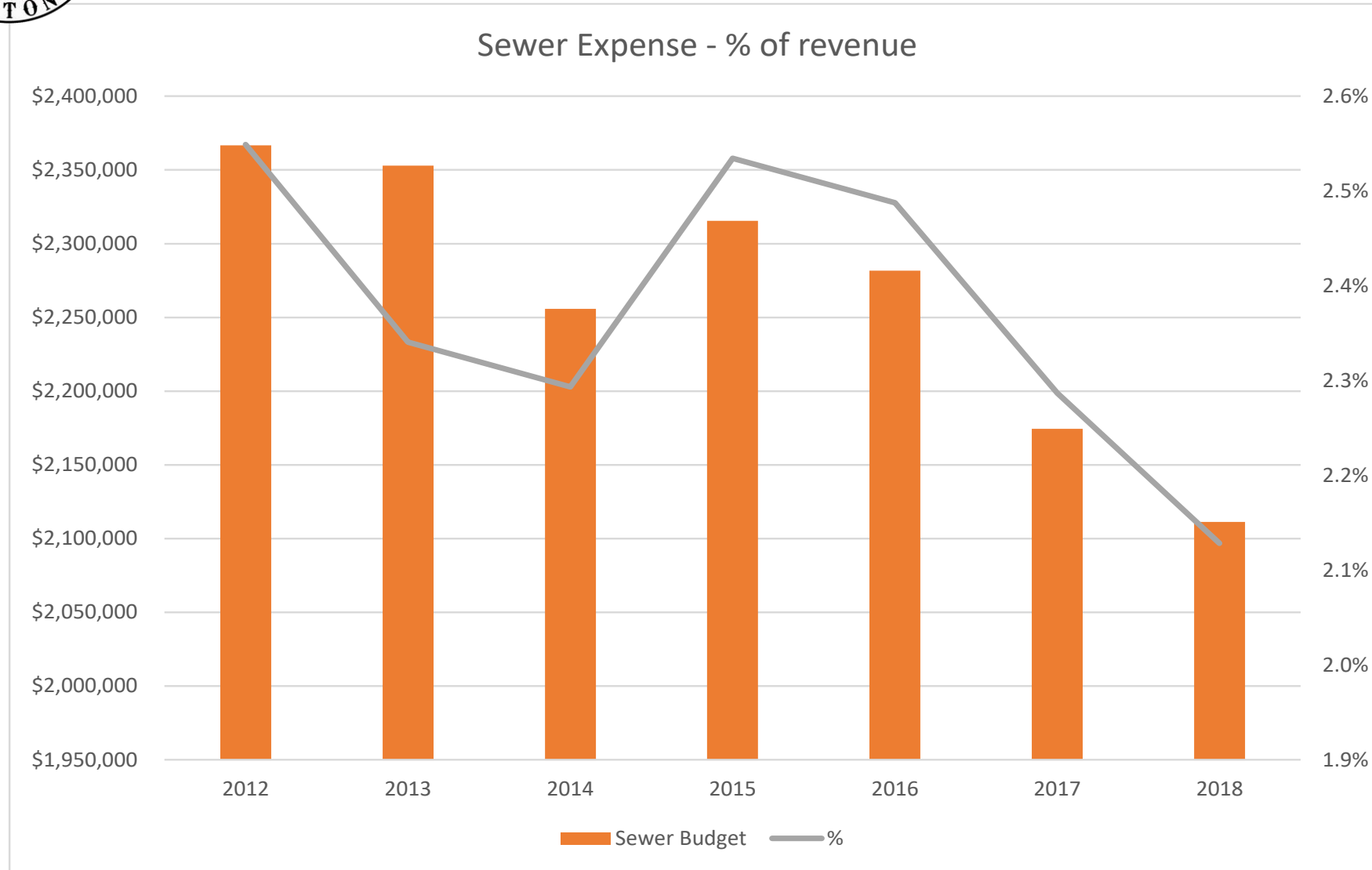
Since 2010:

- Sewered Towns (29 Towns)
 - Up 14.7% (average)
- Non-sewered Towns (4 Towns)
 - 0% change (average)





Acton, MA: Sewer Costs



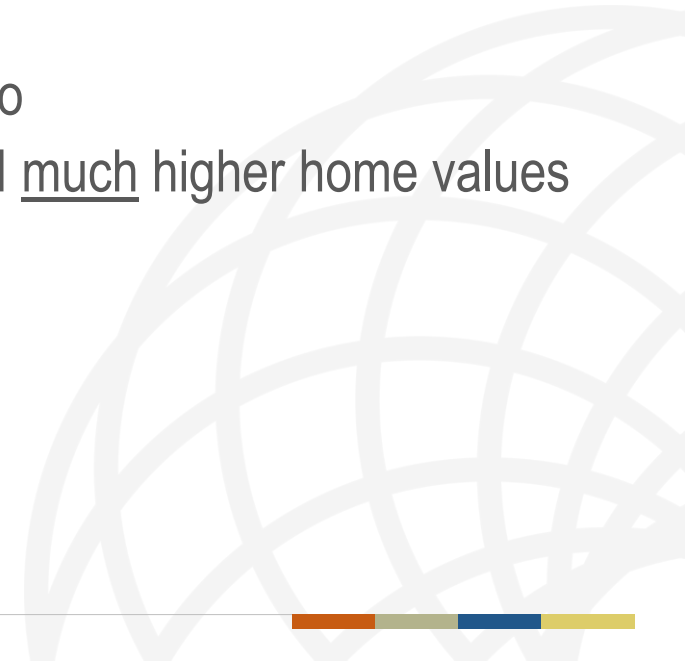
- Public Objection: “ever-rising sewer costs”
➤ FALSE!
- The sewer budget in Acton is actually decreasing over time...





Acton, MA: Conclusions

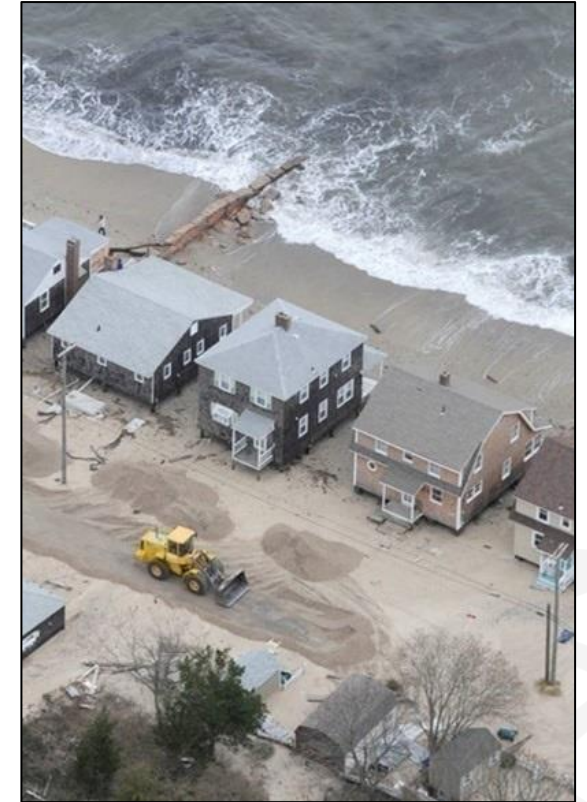
- Unemployment rate
 - Pre-sewer: 0.2% lower than County & State before sewer
 - Post-sewer: 2.1% lower than County, 3.8% lower than State
- Population growth
 - Outpacing other Towns in County/State by 2% – 5%
- Property values
 - Post-sewer: Acton home values up \$100,000 over sister Town Boxboro
 - Sewered Towns in Middlesex County experienced in total experienced much higher home values
- Sewer costs (over time)
 - Acton reduced its Sewer Budgets by \$250,000 since 2012





Case Study: Old Lyme, CT

- Pollution problem at Point O' Woods on the shoreline
 - 420-house beach community
 - High N loadings
 - Failed septic systems
 - CT DEP Order to address pollution in 2002
- Sewer system approved at Point O' Woods in 2006
 - Old Lyme was a "Sewer Avoidance" community
 - Project cost of \$12.8M completed in 2009
- New sewer program in 6 more beach communities began in 2019
 - Both Town & private beach communities collaborating

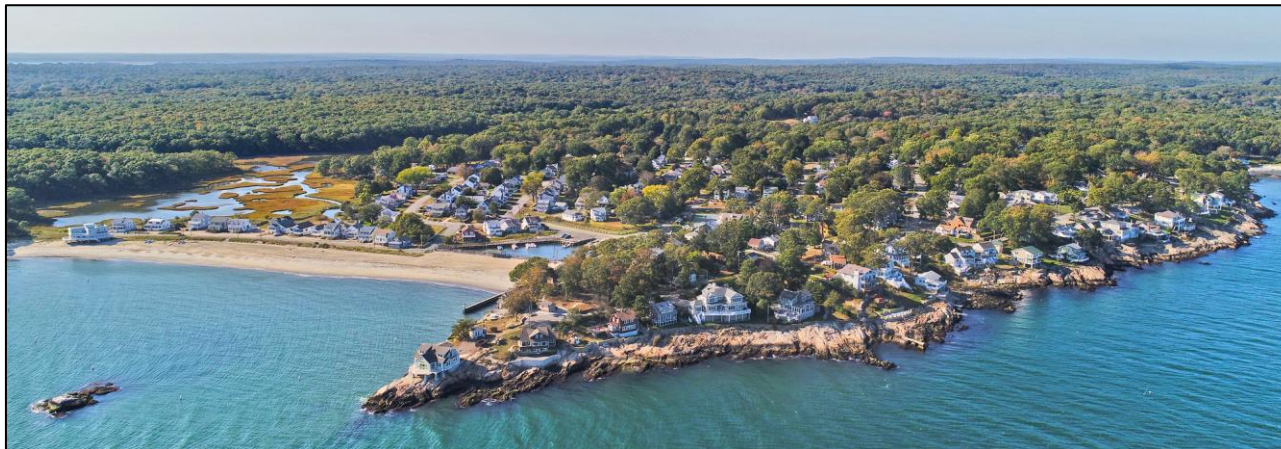


Beach Community in Old Lyme, Connecticut

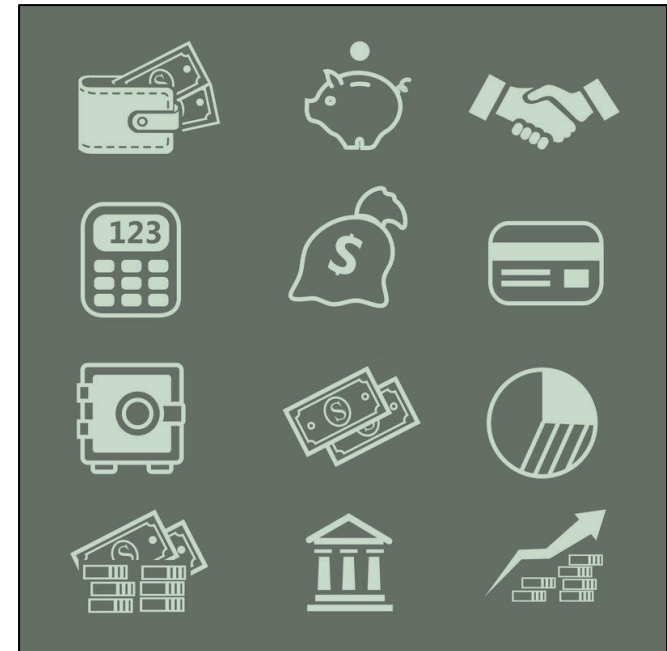


Case Study: Economic Metrics

- Residential property values
 - Benchmark Point O' Woods vs other Town beach communities
- Commercial property values
 - Restaurants on the CT shoreline
- Sewer costs (over time)



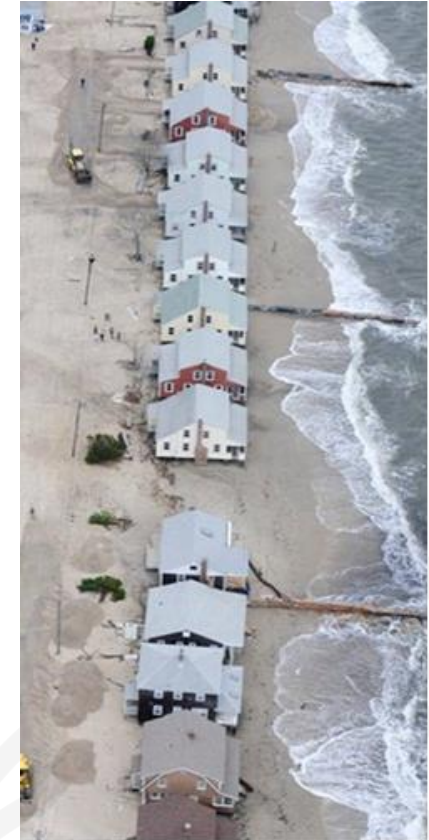
Point O' Woods in Old Lyme, Connecticut





Old Lyme: Home Values

- Pre-Sewer Survey (2003-2009) – All Homes
 - Point O' Woods: 35 properties with median sales price \$518,791
 - Sound View: 41 properties with median sales price \$348,940
 - Reveals premium for Point O' Woods (Sound View properties sold for 33% less)
- Post-Sewer Study (2015-2020) – Like Homes (<\$400K)
 - Point O' Woods: 20 properties with median sales price \$323,135
 - Sound View: 31 properties with median sales price \$286,972
 - Reveals market-derived premium of 6.93% benefit (after the market premium adjustment)
- **Conclusion:**
 - *There is a 7% home value increase attributable to sewer*



Beach Houses in Old Lyme



Point O' Woods Sewer Costs

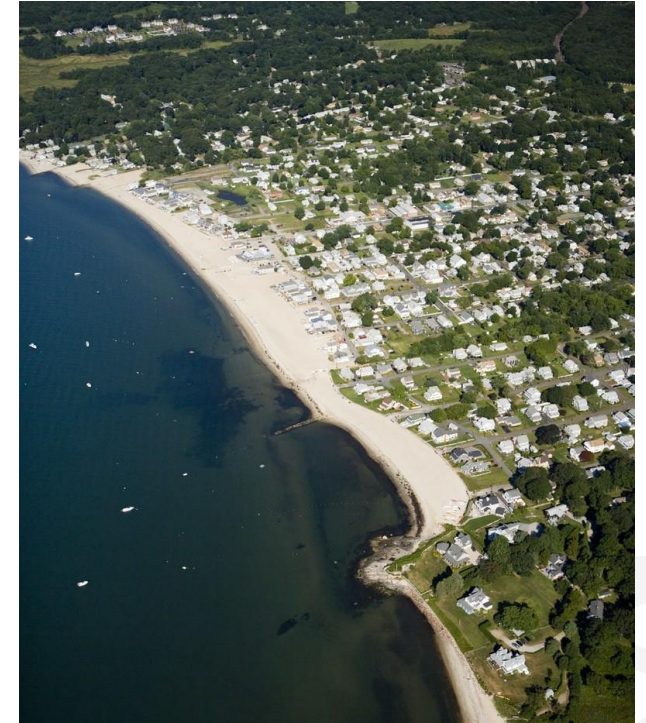
■ Sewer costs vs value

- Home value increase: $\$518,791 \times 7\% = \$36,315$
- Sewer connection cost: $\$17,500$
- Average return on Sewer investment: $\$18,815$ per household
- Annual sewer fee:
 $\$200/\text{year in 2010}, \$350/\text{year in 2020}$ $\$ 2,750$ for 10 years

Property values are **up \$16,065** /household after 10 years

■ Conclusion:

- **There is an average of +\$16,000 per house ROI on sewer investment at Point O' Woods in Old Lyme**



Beach Community in Old Lyme, Connecticut



Commercial Values for Sewer vs Non-Sewer

■ Restaurant properties (with sewer)

Location	Sales Date	Sale Price	Building Size	Location	SP/SF	Site Size
20 Mechanic St, Stonington	8/19	\$450,000	5,742	Good	\$78.37	0.30 acres
25 Roosevelt Ave, Mystic	1/18	\$780,000	4,637	Very Good	\$168.21	0.62 acres
<i>Average</i>			5,190		\$123.29	0.46

■ Restaurant properties (without sewer)

Location	Sales Date	Sale Price	Building Size	Location	SP/SF	Site Size
1835 Boston Post Road, Westbrook	8/19	\$540,000	5,320	Good	\$103.45	1.00 acres

■ **Conclusion:**

➤ *There is a 10% commercial value increase attributable to sewer*



Old Lyme, CT: Conclusions

■ Home Values

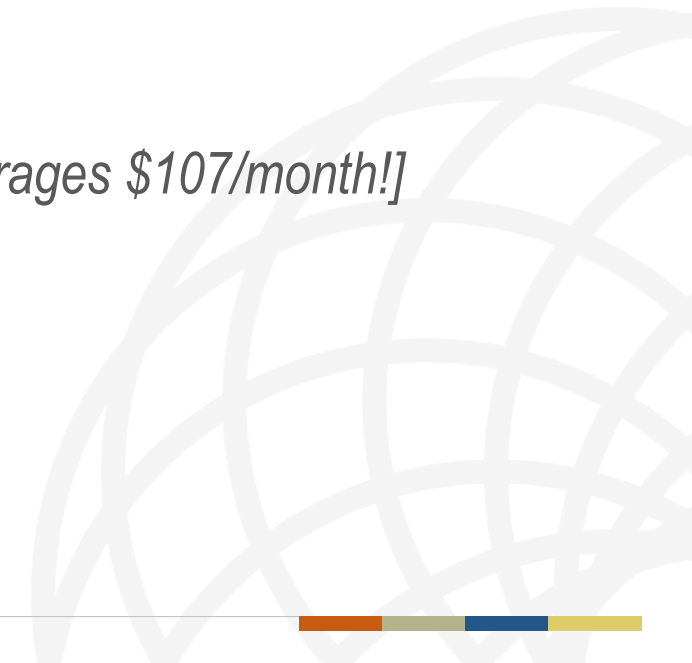
- 7% increase in property values
- \$16,000 per house average increase

■ Commercial Values

- 10% increase attributable to sewer (for restaurants)

■ Sewer costs (over time)

- \$200/year sewer fee in 2010, \$350/year in 2020
- 75% sewer increase in 10 years vs 43% for cable TV [*which now averages \$107/month!*]





Conclusions...

- Do sewer utilities have a positive financial Return on Investment?
 - Yes – almost always
- Should we use **National** estimates of economic impact?
 - Maybe – they aren't that convincing to the public because they are hard to prove
- Should we use **Local** estimates of economic impact?
 - Yes – they are easy to find & can be compelling to the public because they are relatable
- Public outreach & education is critically important!!!





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