Minutes of the Special Meeting of the
Suffield Water Pollution Control Authority & Treatment Facility
May 10, 2022

| MEMBERS PRESENT: | MEMBERS ABSENT: | ALSO PRESENT: |
|---|---|---|
| Janet Davis, Chairman | Frank Bauchiero | Jamie Kreller, Superintendent |
| Jeff Davis | John Murphy | Julie Nigro, Business Administrator |
| Dan Holmes | | Andrew Lord, WPCA Attorney |
| Roger Ives | | Mike Headd, WPCA Engineer (Woodard & Curran) |
| Chris Rago | | Jack Troidl, Woodard & Curran |

1. **CALL TO ORDER:** Janet Davis called the Special WPCA Meeting for May 10, 2022 to order at 6:30 p.m.

2. **PRESENTATION OF LAKE CONGAMOND STUDY BY WOODARD & CURRAN:**
   - Project Manager, Jack Troidl of Woodard & Curran presented a review of the study
   - The Presentation is attached, as part of the meeting minutes
   - A copy of the entire report is available on the Town's website at the following link (listed under "Resources": https://www.suffieldct.gov/departments/wpca

3. **ACTION BY BOARD ON PRESENTATION:** None

4. **ADJOURNMENT:**
   - Jeff Davis motioned to adjourn the Special Meeting of May 10, 2022 at 7:00 pm.
   - Frank Bauchiero seconded the motion; the motion passed unanimously.

Respectfully submitted,

Julie M. Nigro
Business Administrator

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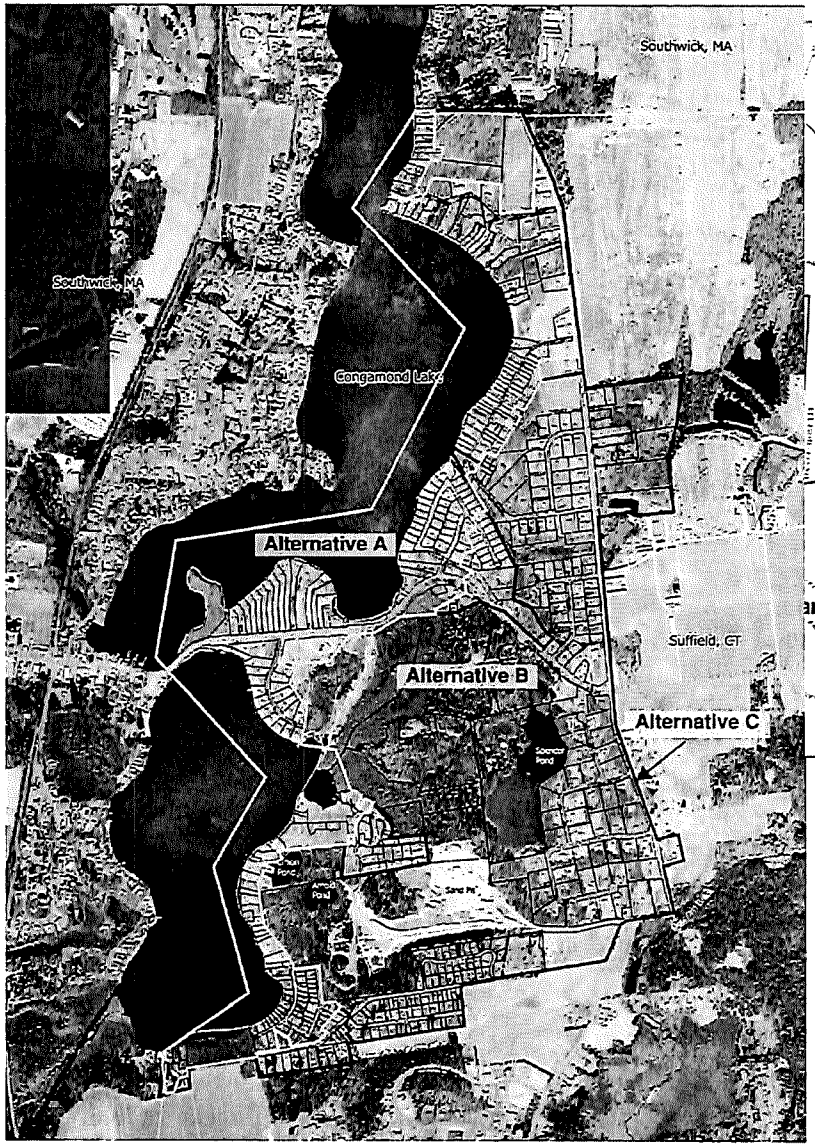
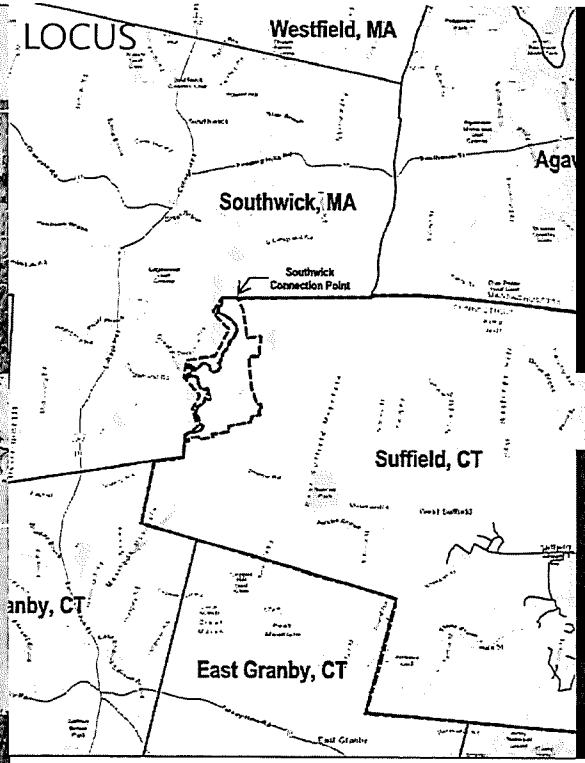
SUFFIELD TOWN CLERK




May 10
2022

Woodard & Curran

**PRESENTED BY**

Mike Headd

Jack Troid

# CONGAMOND LAKES SEWER FEASIBILITY STUDY

## PRESENTATION TO WATER POLLUTION CONTROL AUTHORITY

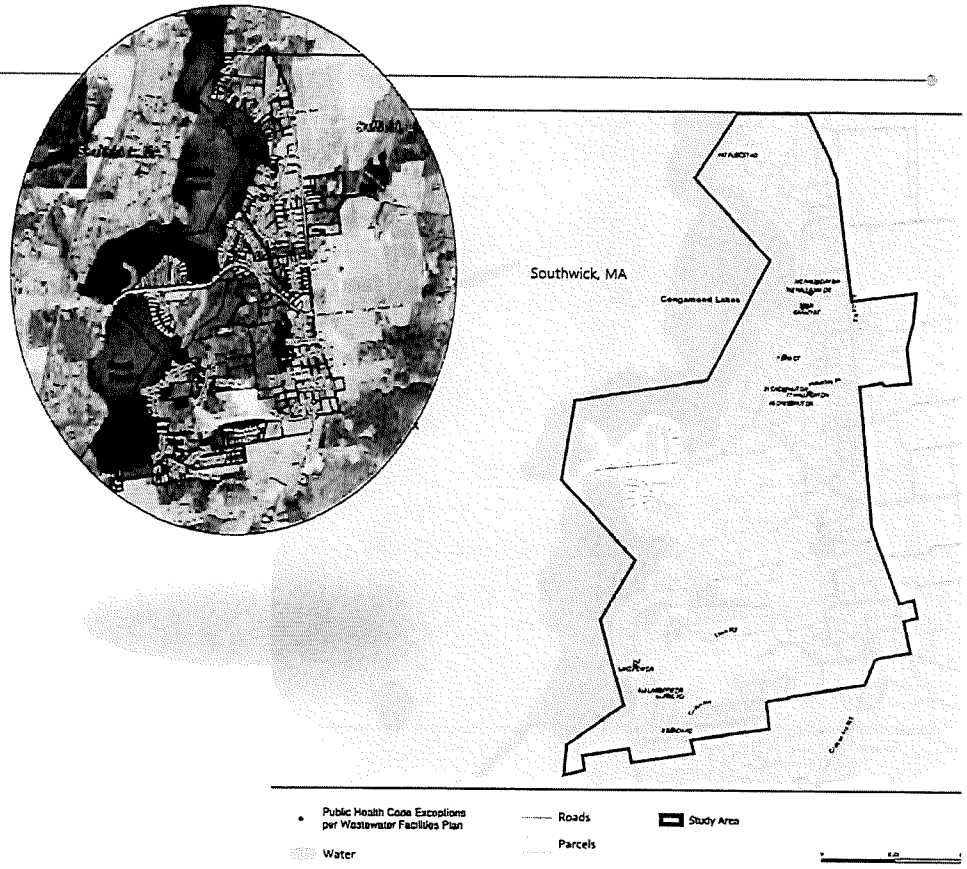
## SUFFIELD, CT

# AGENDA

- → Study Area, Purpose, & Scope of Work
- → Capacity Need (Flows)
- → Alternatives
  - Southwick/Westfield
  - Suffield WPCA
  - Community WWTF
- → Alternatives Analysis & Summary of Alternatives
- → Conclusions & Next Steps

# Congamond Lakes – Study Area & Purpose

- Study Area:
  - Primarily Residential ~ 500 homes; limited commercial area
  - Remote from WPCA's sewer system
  - 644 acres (26%<0.5 acres)
  - 604 parcels
- Purpose:
  - Improve water quality in the Lakes - Eastern Shore of Congamond Lakes
  - Within Southwick's Drinking Water Supply Protection Area
  - Wastewater Solution for small parcels adjacent to Lakes
  - Advance efforts from April 2013 Wastewater Management Study to actionable recommendations



# Scope of Work

- **Existing Conditions Assessment:** Reviewing previous efforts from the 2013 report and analyzing zoning, land use, and environmental conditions.
- **Design Flows:** Estimating current and future wastewater flows based upon zoning and land use data along with Connecticut Department of Public Health (CT DPH) requirements and the New England Interstate Water Pollution Control Commission "TR-16 Guides for the Design of Wastewater Treatment Works" (TR-16) design guidelines.
- **Alternative Analysis:** Evaluating alternatives including a community system, a sewer system connected to Southwick and Westfield, MA, combinations of the two, and a force main to the Suffield WPCA collection system.
- **Proposed Alternative and Preliminary Design:** Developing a preliminary sewer layout based upon the study area topography, design flows, and current buildout. An engineer's opinion of probable cost was included in the sewer development for several feasible alternatives.
- **Project Cost and Funding:** Reviewing funding and financing opportunities with various cost recovery options, including public funding, betterments, and a sewer rate charge analysis.
- **Regulatory Requirements and Environmental Permitting:** Discussions with regulatory authorities on permitting requirements and other considerations for future design.

# Capacity Needs | Flow Calculations

→ Flow Calculations:

- 182 GPD per household; (Consistent with Facility Plan – 70 gpd/capita x 2.8)
- Non-Residential – Converted to average flow
- Calculated for entire project area

→ Current/Existing Wastewater Flow Needs:

- Include I/I for sewers (@ 250 gpd/IDM)

→ Future Wastewater Flow Needs:

- Includes I/I for sewers and 4,000 gpd Contingency
- Sand Pit Property (75 acres – 12,000 GPD +2,000 gpd for I/I)
- Babb's Beach (7,000 gpd)

**Table 3-1: Estimated Current Wastewater Flows**

| Land Use | Average Daily Flow (ADF) | | Peaking Factor[1] | Peak Hourly Flow (PHF) | |
|---|---|---|---|---|---|
| Residential | 94,000 | GPD | 5 | 326 | GPM |
| Commercial / Industrial | 2,000 | GPD | 5 | 7 | GPM |
| I/I | 12,000 | GPD | - | 8 | GPM |
| Total | **108,000** | GPD | - | **342** | **GPM** |
| Equivalent Dwelling Units[2] | 633 | EDUs | | | |

[1] Based on peaking Factor of 5 per TR-16
[2] EDU value was developed by dividing the total flow by the flow per EDU as developed in Section 3.1.1

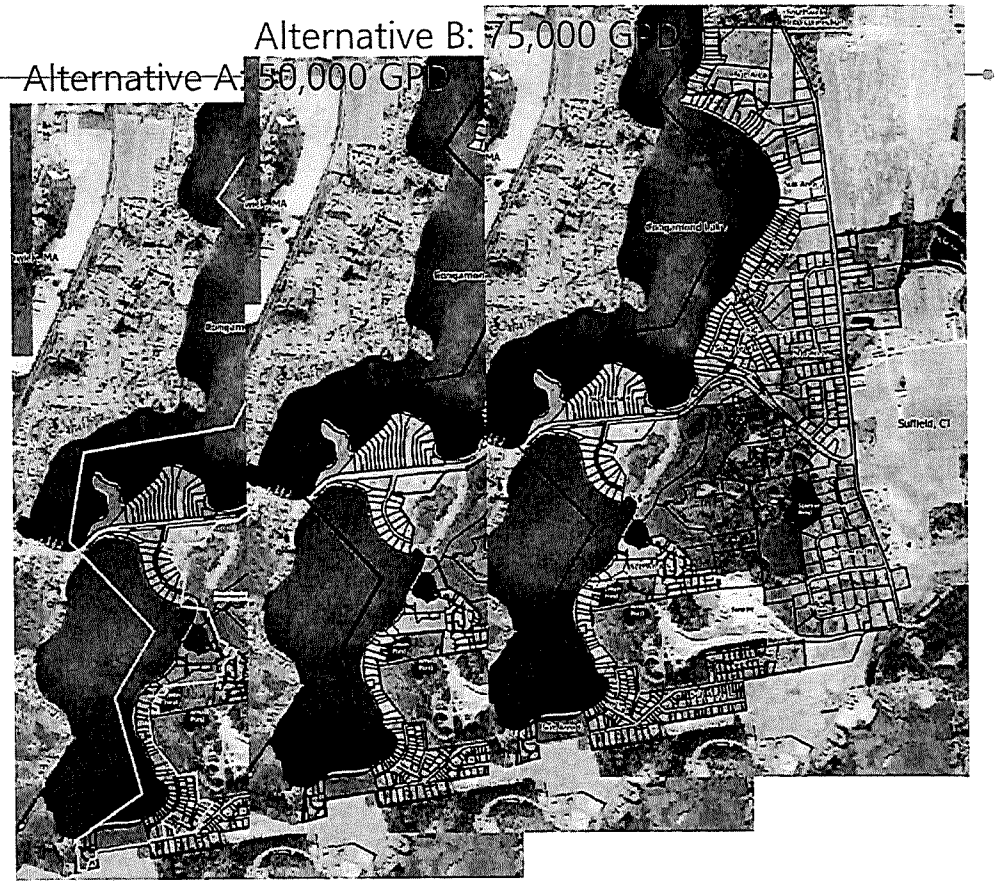
**Table 3-3: Future Wastewater Flows**

| Land Use | Average Daily Flow (ADF) | | Peaking Factor[1] | Peak Hourly Flow (PHF) | |
|---|---|---|---|---|---|
| Residential | 127,000 | GPD | 5 | 427 | GPM |
| Commercial / Industrial | 9,000 | GPD | 5 | 31 | GPM |
| I/I | 14,000 | GPD | - | 10 | GPM |
| Contingency | 4,000 | GPD | 5 | 14 | GPM |
| Total | **150,000** | GPD | - | **482** | GPM |
| Equivalent Dwelling Units[2] | 748 | EDUs | | | |

[1] Based on peaking Factor of 5 per TR-16
[2] EDU value was developed by dividing the total flow by the flow per EDU as developed in Section 3.1.1

# Alternatives Analysis | 3 Service Area Alternatives

- → Alternative A: Maximum 50,000 GPD (Based on a 300-foot buffer from the lakefront)
- → Alternative B: Maximum 75,000 GPD (Serves only the subareas abutting the lake)
- → Alternative C: 150,000 GPD (Serves the entire study area)



# Alternatives Analysis | Collection System Costs

→ Assumptions:

- Low Pressure Sewer for A, B and part of C
  - » Due to topography/spread out nature of area (initially looked at many pump station)
- Providing Grinder Pumps - $5k
  - » A: ~$2.15M (10% of total project cost)

**Table 4-4: Opinion of Probable Costs – Sewer Collection System**

| | | | Alternative A – 50,000 gallons | | Alternative B – 75,000 gallons | | Alternative C – 150,000 gallons | |
|---|---|---|---|---|---|---|---|---|
| Item | Unit Cost | Units | Quantity | Cost | Quantity | Cost | Quantity | Cost |
| Gravity Sewer | $500 | LF | 0 | $0 | 0 | $0 | 30,500 | $15,250,000 |
| Low Pressure Sewers | $300 | LF | 23,000 | $6,900,000 | 27,050 | $8,116,000 | 16,500 | $4,950,000 |
| Force Main | $250 | LF | 0 | $0 | 0 | $0 | 9,600 | $2,400,000 |
| Pump Station | $400,000 | EA | 0 | $0 | 0 | $0 | 7 | $2,800,000 |
| Grinder Pumps | $5,000 | EA | 296 | $1,480,000 | 396 | $1,980,000 | 177 | $885,000 |
| Water Crossing | $100,000 | EA | 2 | $200,000 | 2 | $200,000 | 1 | $100,000 |
| *Construction Subtotal* | | | | *$8,580,000* | | *$10,296,000* | | *$26,400,000* |
| Contingency | 20% | | | $1,716,000 | | $2,059,000 | | $5,280,000 |
| Engineering – Design | 10% | | | $858,000 | | $1,030,000 | | $2,640,000 |
| Engineering – Construction | 15% | | | $1,287,000 | | $1,544,000 | | $3,960,000 |
| ***Total Collection System Construction Cost*[1]** | | | | ***$12,441,000*** | | ***$14,929,000*** | | ***$38,280,000*** |

All costs are listed in 2022 dollars.

# Alternatives Analysis | Wastewater Solutions

→ Three conveyance, treatment and disposal options:

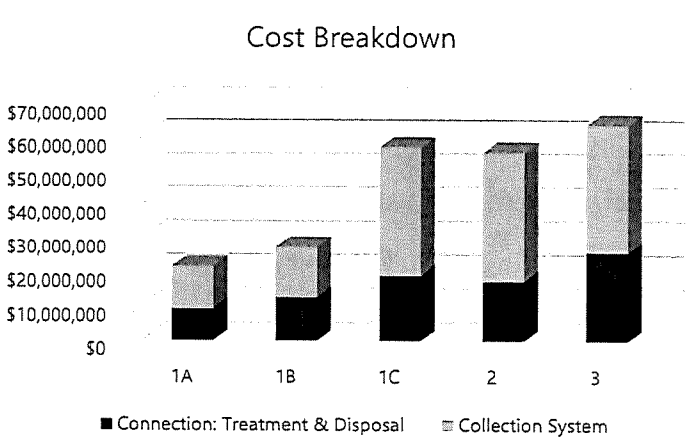
- 1: Connection to Southwick & Westfield WRF
  - » Limited to 50,000 GPD (requires further negotiation to go above 50,000 gpd)
- 2: FM to Suffield System
- 3: Community WWTF & Groundwater Discharge

| Alt. | Service Area Alt. | Flow |
|---|---|---|
| 1 – Connection to Southwick & Westfield WRF | A: 300' Buffer | 50,000 GPD |
| | B: Lake Abutting Area | 75,000 GPD |
| | C: Entire Study Area | 150,000 GPD |
| 2 – FM to Suffield System | Entire Study Area | 150,000 GPD |
| 3 – Community WWTF & Groundwater Discharge | Entire Study Area | 150,000 GPD |

# Alternatives Analysis | Project Costs

→ Key Assumptions:

- Downstream Upgrade
- Capacity Acquisition




| Alt | Description | Flow (gpd) | EDUs | Connection (Treatment & Disposal) Cost | Collection System Construction Cost (Section 4) | Total Project Cost | Supports Existing Use or Buildout of Area |
|---|---|---|---|---|---|---|---|
| 1A | Southwick Connection | 50,000 | 264 | $9,480,000 | $12,441,000 | $21,921,000 | Existing Use Only |
| 1B | | 75,000 | 319 | $12,860,000 | $14,929,000 | $27,789,000 | Existing Use Only |
| 1C | | 150,000 | 528 | $19,190,000 | $38,280,000 | $57,470,000 | Buildout |
| 2 | FM to Suffield | 150,000 | 528 | $17,690,000 | $38,280,000 | $55,970,000 | Buildout |
| 3 | Community WWTF | 150,000 | 528 | $26,125,000 | $38,280,000 | $64,405,000 | Buildout |

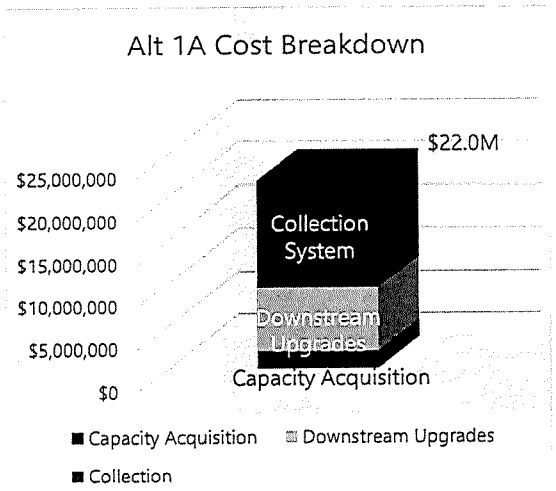
All costs are listed in 2022 dollars.

# Summary of Alternatives | Cost Breakdown

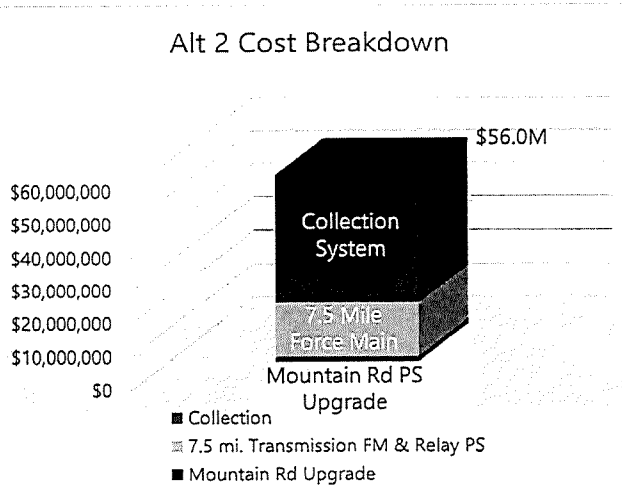
All costs are listed in 2022 dollars.

→ Relative Cost Components

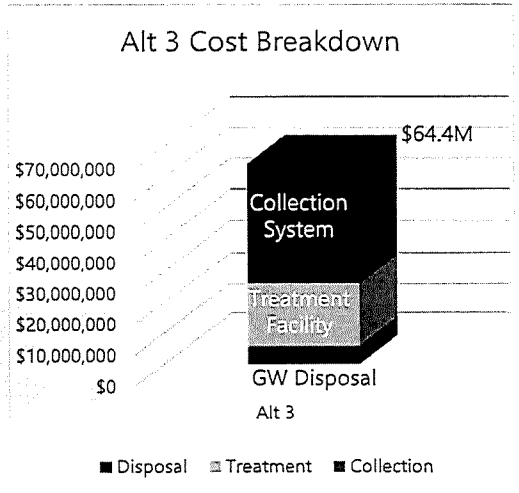
- Driven by collection system




Southwick Connection
50,000 GPD




FM to Suffield
150,000 GPD




Community WWTF
150,000 GPD

# Summary of Alternatives |

| Alt | Description | GPD | Estimated Total Project Cost | Reduces Pollutants in Lake? | Addresses all Public Health Code Exceptions? [1] | Additional Considerations | Notes |
|---|---|---|---|---|---|---|---|
| 1A | Southwick Connection | 50,000 | $22.0M | Yes | Most | Southwick and Westfield seem amenable | $ Least Total Cost and Least per EDU Cost |
| 1B | | 75,000 | $27.8M | Yes | Yes | Southwick has indicated this will require additional negotiation | $$ |
| 1C | | 150,000 | $57.4M | Yes | Yes | Southwick has indicated this will require additional negotiation | |
| 2 | FM Suffield | 150,000 | $56.0M | Yes | Yes | Potential maintenance and odor issues with a long force main | $$$ Highest Total Costs and Highest Cost per EDU |
| 3 | Community WWTF | 150,000 | $64.4M | Yes | Yes | Will require significant additional permitting requirements | |

[1] This assessment is for the study area only. There are additional public health exceptions in the Town of Suffield that are not in the Congamond Lakes study area.

All costs are listed in 2022 dollars

# Summary of Alternatives | Capital/Operations Costs

→Capital Costs:

- Assessments ~$75k to $100k per home
  - » Look to alternative funding to lower assessments

→Operations Costs

- Early connections are key to sustainable costs
- O&M costs are typical at buildout.

**Table 6-2: Summary of Feasible Alternatives per Assessable EDU**

| | Alternative 1A | Alternative 1B | Alternative 1C | Alternative 2 | Alternative 3 |
|---|---|---|---|---|---|
| Description | 50,000 GPD to Southwick | 75,000 GPD to Southwick | 150,000 GPD to Southwick | FM to Suffield | Community WWTF |
| **CAPITAL COSTS** | | | | | |
| Capital Outlay | $22,921,000 | $28,789,000 | $58,470,000 | $56,970,000 | $65,405,000 |
| Grant % of Capital | 0% | 0% | 0% | 0% | 0% |
| Assessable EDU Count | 295 | 358 | 633 | 633 | 633 |
| Betterment/Assessable EDU | $77,698 | $80,416 | $92,370 | $90,000 | $103,325 |
| Repayment Period | 30 | 30 | 30 | 30 | 30 |
| Finance Rate (APR) | 3% | 3% | 3% | 3% | 3% |
| Annual Repayment | $3,964 | $4,103 | $4,713 | $4,592 | $5,272 |
| | | | | | |
| **OPERATIONS COSTS** | | | | | |
| Collections Costs | $49,505 | $74,257 | $148,515 | $148,515 | $148,515 |
| Treatment Costs | $85,775 | $128,663 | $257,325 | $148,515 | $193,069 |
| Wheeling Costs | $8,578 | $12,866 | $25,733 | $0 | $0- |
| Annual Cost/Assessable EDU | $524 | $524 | $524 | $360 | $414 |

Notes:

1 These scenarios finance the debt associated with each scenario with a 30-year loan, a 3% financing rate, and no grant percentage from the ARPA:

   a. The per EDU costs shown for capital also include the assumption that the properties in the service areas will be developed by 50% of the remaining expansion capacity through the term of the financing.

2 These differences provide significantly different outcomes for the capital spending but the outcomes for the annual operational costs, being based upon existing budgets and IMA agreements, are accurate given the existing WPCA budgets and inter-municipal T&D contract between Southwick and Westfield.

3 Attached to this report is a file which will allow the WPCA to assess changes in financing outcomes as more information on ARPA rollout becomes available.

All costs are listed in 2022 dollars

# Conclusion & Next Steps | Next Steps & Funding

→Path Forward for most advantageous alternative:

- Alt. 1A: Southwick Connection; $21.9M; ~264 EDUs;
  - » ~$333 per month ($4,000 per year or $78,000/EDU)
  - » Best opportunity to defray costs (lowest capital cost)
  - » Project Cost Factors (need several):
    - > Inflation / Construction Climate / Availability **(X)**
    - > Eliminate purchasing grinder pumps ($2.15M) (√)
    - > Catalyst (mutually beneficial project) (√)
    - > Town Contribution (√)
    - > Refined downstream capacity upgrades costs (√)
    - > Negotiated Capacity Acquisition with Southwick (√)
    - > Benefit to Southwick (Lake improvement & water supply protection) (√)
    - > Stimulus/Grant Funding (√)

**Funding Options to Explore:**

- ❖ Tax Increment Financing TIF (Capital Recovery)
- ❖ Sewer Assessments (Capital Recovery)
- ❖ Clean Water Fund (Financing)
- ❖ Federal Funding (Infrastructure Bill and Earmarks)

All costs are listed in 2022 dollars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