

Hamilton Development Corporation

Conceptual Planning for Wastewater Management in the Hamilton/Wenham Village

June 17, 2014

Presented by:



Welcome

Hamilton Development Corporation (HDC)

Board of Directors

Brian Stein, Chairman

Anthony Nickas, Treasurer

Dave Carey

Bill Gisness

Rick Mitchell

Recent Activities

- 2013 - HDC began operation dedicated to fostering the economic vitality of the Hamilton Business District.
- 2013 – Through a grant from the MAPC, the HDC and towns of Hamilton & Wenham held public meetings & drafted recommendations on downtown infrastructure and zoning.
- 2014 – The HDC purchased 59 & 63 Willow Street. Their future use will be determined by input from the community, land use planning boards, and Selectmen.

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Purpose of This Meeting

- Bring together Hamilton and Wenham citizens, business owners, and local officials to shape the future of their communities.
- Learn how wastewater generation, treatment and disposal impact the Hamilton & Wenham business districts and their future uses.
- Begin a dialogue on the evolution of the two town's business districts and abutting neighborhoods.

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Purpose of This Meeting, cont'd

- Increase public awareness of potential options and costs
- Hear from the public on important issues
 - Need for wastewater infrastructure
 - Potential service areas
 - Build-out assumptions
 - Cost allocation issues
- *This is just the beginning of the planning process*

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How Did This Meeting Come About?

- 1982 Downtown Hamilton Plan
- 2004 Hamilton Master Plan
- 2009 Economic Development Charrette
- 2014 Hamilton-Wenham Village Plan

All recommended infrastructure investments including wastewater treatment, bikeways, sidewalks, parking, and zoning, etc., to support expanded uses in the business districts.

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Overview of Technical Presentation

1. The wastewater planning process
2. Possible planning areas in Hamilton and Wenham
3. Land use and water use information
4. Wastewater treatment options
5. Options for wastewater disposal or reuse
6. Illustrative costs

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Conceptual Wastewater Planning

Steps in developing wastewater infrastructure

- Planning
- Design
- Construction

We are just beginning—we are only in the **conceptual planning phase**

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Planning Phase Tasks



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Assessing Wastewater Needs

Why might more than a Title 5 system be needed?

1. It may not fully provide sanitary conditions
2. It may cause water supplies impacts
3. It may cause nutrient enrichment of surface waters
4. It may inhibit economic development
5. It may not be convenient or cost-effective

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Components of a Wastewater System

1. Collection (sewer system)
2. Treatment
3. Disposal/reuse

A system may also may involve transport

- From collection area to treatment site
- From treatment site to disposal/reuse site

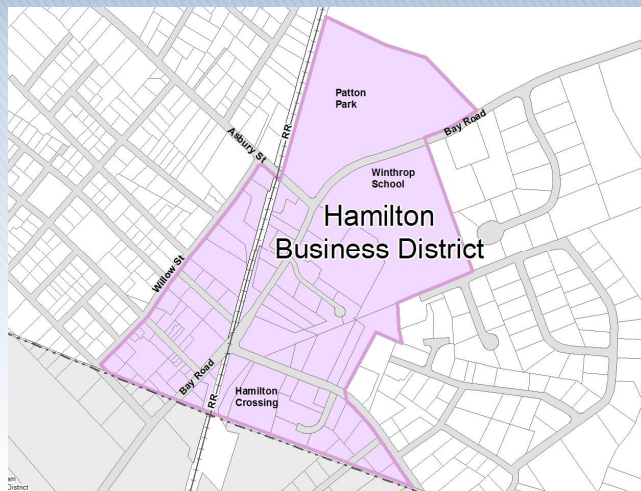
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Possible Sewer Service Areas

- Hamilton Business District (Area A)
- Nearby areas in Wenham (Area B)
- South Hamilton Village (Area C)
- Possible combinations
 - A alone
 - A + B
 - A + B + C

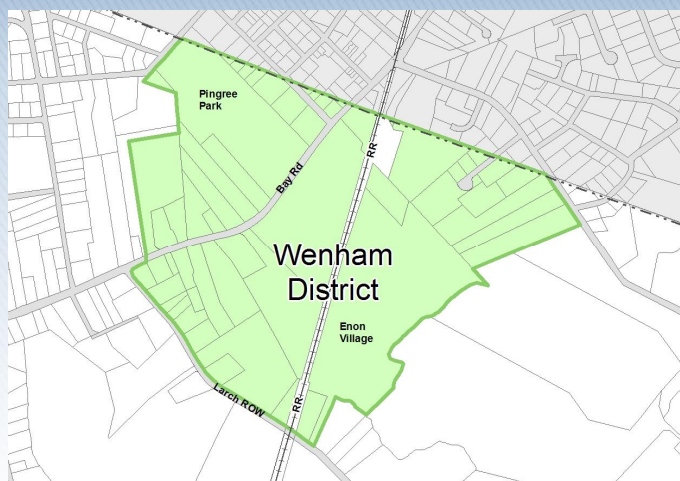
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Hamilton Business District (Area A)



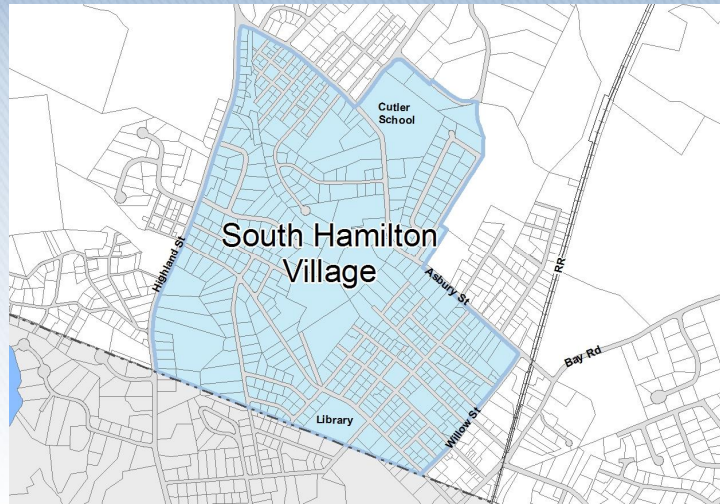
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Nearby Areas in Wenham (Area B)



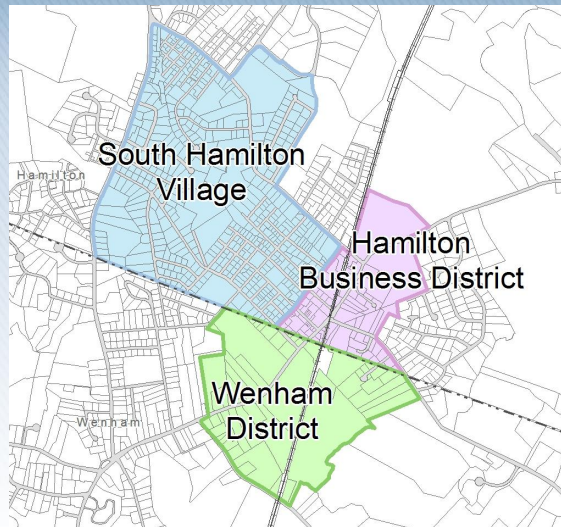
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South Hamilton Village (Area C)



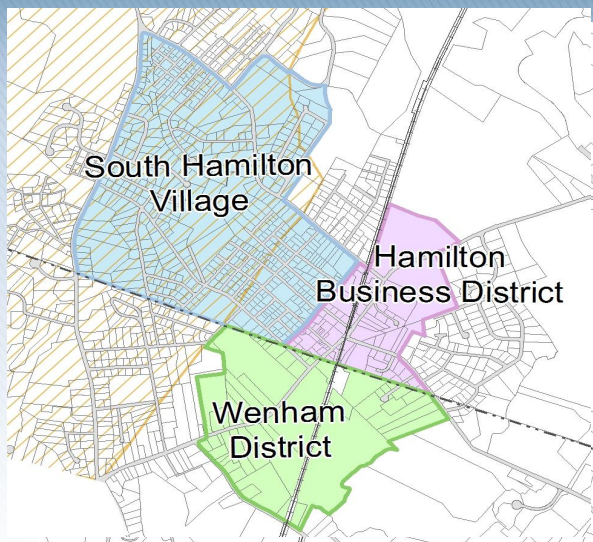
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Overall Area



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Water Supply Recharge Area



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Parcels and Lot Size

	Parcels	Avg. Lot Size, acre
Area A—Hamilton Business District	80	0.79
Area B—Nearby Wenham Neighborhoods	50	1.53
Area C—So. Hamilton Village	530	0.43

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Existing Land Use

	Resid. Parcels	Comm. Parcels	Munic./Instit. Parcels
Area A—Hamilton Business District	32	35	13
Area B—Nearby Wenham Areas	45	5	0
Area C—So. Hamilton Village	498	2	30

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Typical Wastewater Flows

Flows in gallons/day per parcel	Area A Hamilton Bus. Dist.	Area B Nearby Wenham	Area C So. Hamilton
Single-fam. residential	183	181	180
Multi-fam. residential	216		324
Housing Authority Boulders		4,300 1,850	1,800
General commercial	167	156	211
Hamilton Crossing	3,100		
Schools	740		716

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Build-Out Projections

Flows in gallons/day	Area A Hamilton Bus. Dist.	Area B Nearby Wenham	Area C So. Hamilton
Current flows	18,000	15,000	98,000
Growth allowances			
• Vacant land develop.	0	5,000	1,500
• Commercial re-develop.	20,200	1,500	0
• General increase	<u>1,800</u>	<u>1,500</u>	<u>9,500</u>
Total increase	22,000	8,000	11,000
<i>Increase as % of current</i>	122%	59%	12%

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Simplified Needs Assessment

	Area A Hamilton Bus. Dist.	Area B Nearby Wenham	Area C So. Hamilton
Sanitary	✓	✓	✓
Water Supply Protection			✓
Surface Water Protection			✓
Economic Development	✓✓	✓✓	
Cost, convenience	✓	✓	✓

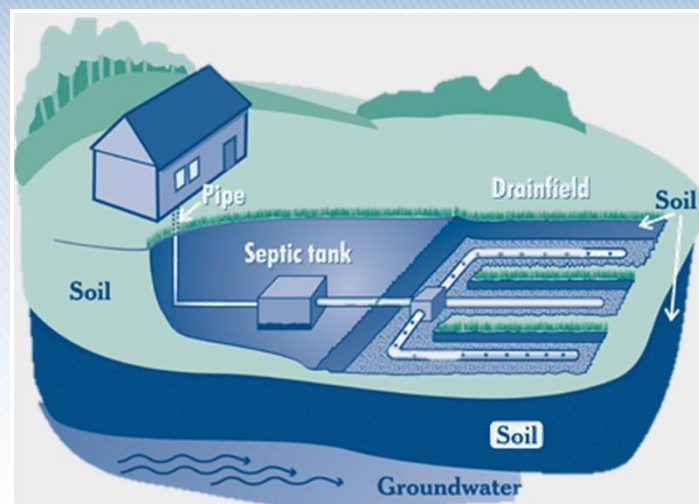
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Treatment Options

1. Simple septic tank
Only permitted at flow < 10,000 gpd
2. Modular treatment system
3. South Essex Sewer District

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Simple Septic Tank



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Modular Treatment System



Modular Treatment System



Modular Treatment System

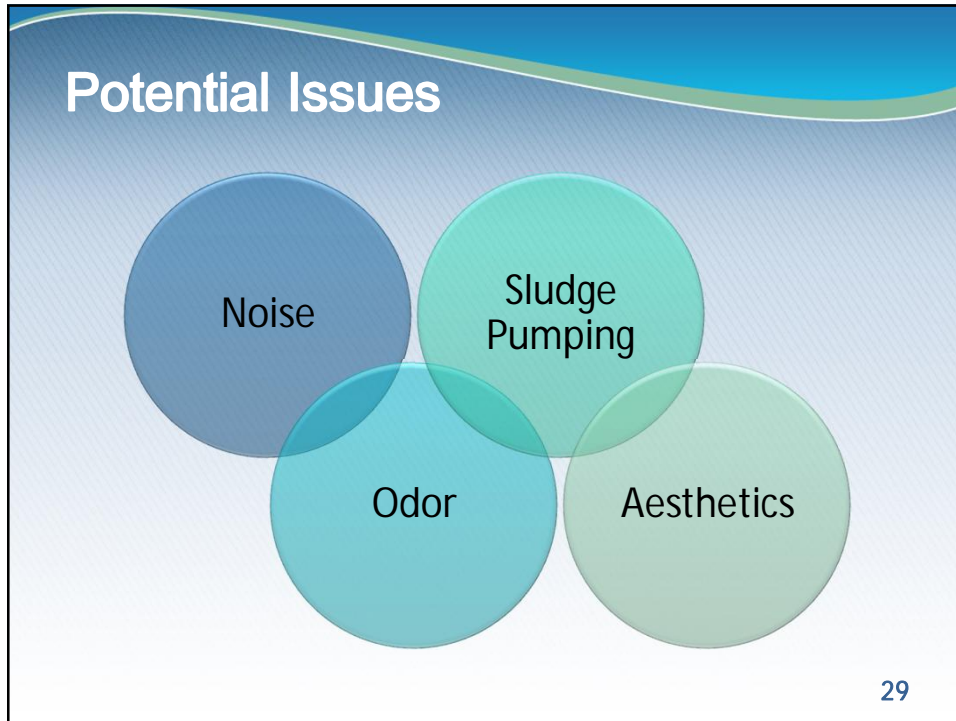




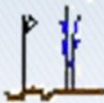
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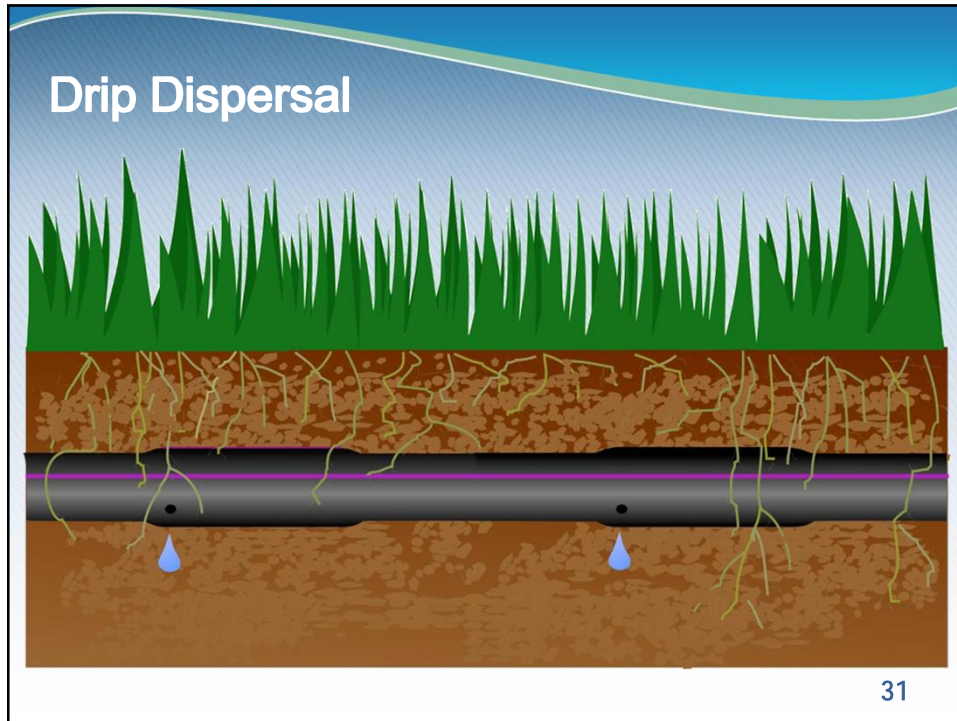
Modular Treatment System



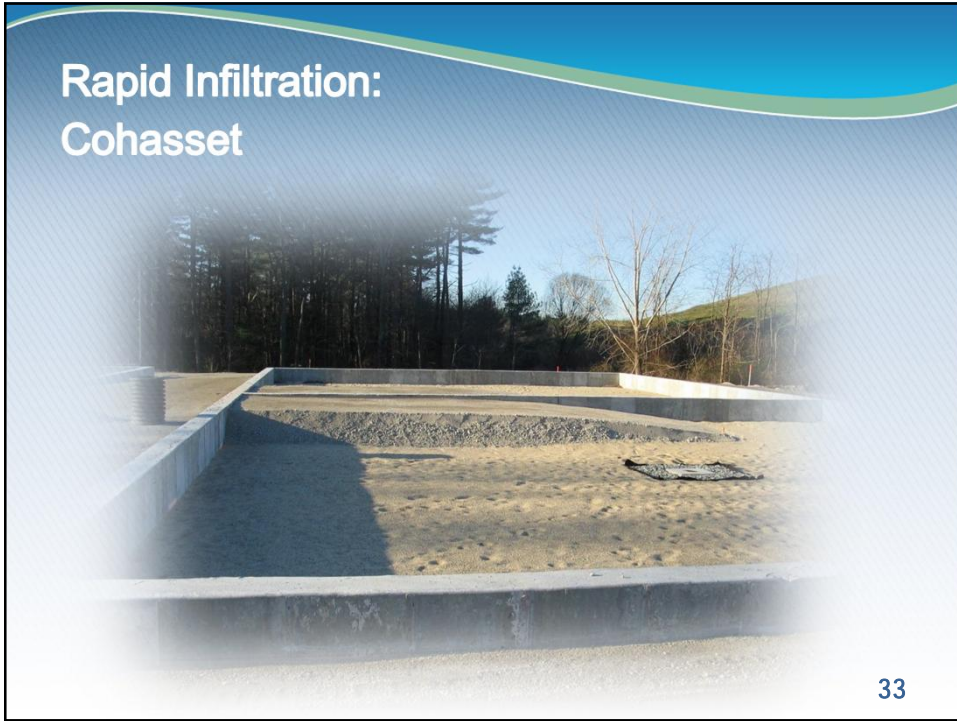
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- ## Disposal and Reuse Options
- Subsurface leaching 
 - Rapid infiltration 
 - Spray irrigation 
 - Drip dispersal
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Rapid Infiltration: Cohasset



Spray Irrigation



Drip Dispersal: Sherborn



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Drip Dispersal: Sherborn



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Drip Dispersal: Pine Tree Camp



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Potential Disposal Sites

- Patton Park
- Pingree Park
- Hamilton Library
- Schools

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Costs and Funding

- Two types of costs
 - Capital cost
 - O&M cost
- Grants and loans to offset capital costs
 - Economic Development Agency
 - Rural Development (FmHA)
 - State Revolving Loan Fund
- Public-private partnerships

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Costs and Funding

- Even with grants, there will be a **local share** of capital costs
- Two basic ways to fund local share
 - betterment assessments
 - general taxation
- Typical way to fund O&M costs
 - quarterly or monthly user fee
 - generally based on water use

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Capital and O&M Costs

Illustrative Costs	Hamilton Business District alone	HBD + Wenham Area	HBD + Wenham + So. Ham. Vill.
	Area A	Areas A & B	Areas A, B & C
Capital Cost, \$M	9	13	32
O&M Cost, \$/yr	360,000	470,000	800,000
Typical User Charges for connected parcels			
Residential, \$/yr	1,800	1,500	900
Commercial, \$/yr	6,400	5,300	3,300

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Capital Cost Components Areas A + B

Illustrative Cost	Cost, \$M
Collection	4.1
Treatment	6.6
Disposal/reuse	1.5
Land	<u>0.3</u>
Total	12.5

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Financing Capital Costs through Property Taxation (no grants)

Illustrative Costs	Hamilton Business District alone	HBD + Wenham	HBD + Wenham + So. Ham. Vill.
	Area A	Areas A & B	Areas A, B & C
Capital Cost, \$M	9	13	32
Debt service (5%, 20-yr)	720,000	1,000,000	2,580,000
Tax rate impacts, \$/yr, for all taxable parcels			
Residential—\$400,000	220	190	700
Commercial—\$400,000	220	190	700
Tax rate increase	2% to 3%	2% to 3%	9% to 10%

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Financing Capital Costs through Betterment Assessments (no grants)

Illustrative Costs	Hamilton Business District alone	HBD + Wenham	HBD + Wenham + So. Ham. Vill.
	Area A	Areas A & B	Areas A, B & C
Capital Cost, \$M	9	13	32
Properties Served	80	130	680
Costs per Property Served (not town-wide)			
(100% betterments)	110,000	96,000	47,000

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Cost Impacts of Growth

Illustrative Costs	Hamilton Business District alone	HBD + Wenham	HBD + Wenham + So. Ham. Vill.
	Area A	Areas A & B	Areas A, B & C
Capital Costs, \$M			
• No Growth	6.6	9.7	29.7
• With growth	8.9	12.5	32.2
• Incremental cost of growth	2.3	2.8	2.5
	+36%	+29%	+8%

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Growth Management Concepts

- Flow-Neutral Planning
Allow no more flow than would occur under Title 5
- Checkerboard Sewer System
Plan to serve only certain lots, with rest staying on Title 5

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Next Steps

Make your voices heard !!

Comment opportunities:

Written

US Mail:

Town Hall, P.O. Box 429, Hamilton 01936

Town Hall suggestion box

Email

Kristine Cheetham, Planning Coordinator

kcheetham@hamiltonma.gov

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Next Steps

- Obtain feedback from local boards and committees
- Continue discussions on important issues
 - Wastewater needs
 - Possible service areas
 - Amount of reserve capacity (build-out)
 - Grants and loans
 - Best mix of taxation and betterments

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