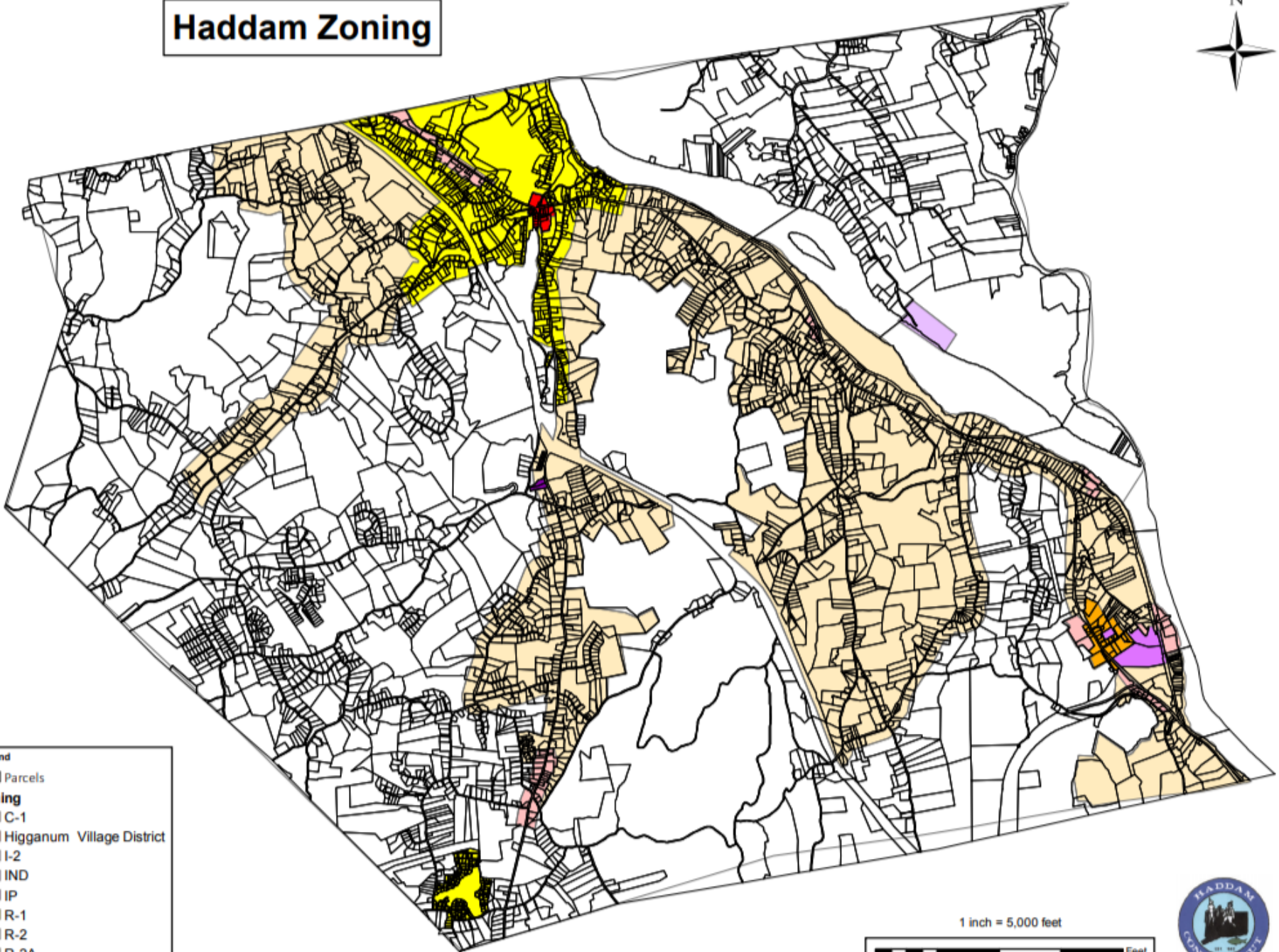




Rural Town Center Growth Possibilities and Wastewater Challenges

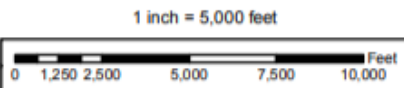
June 13, 2019

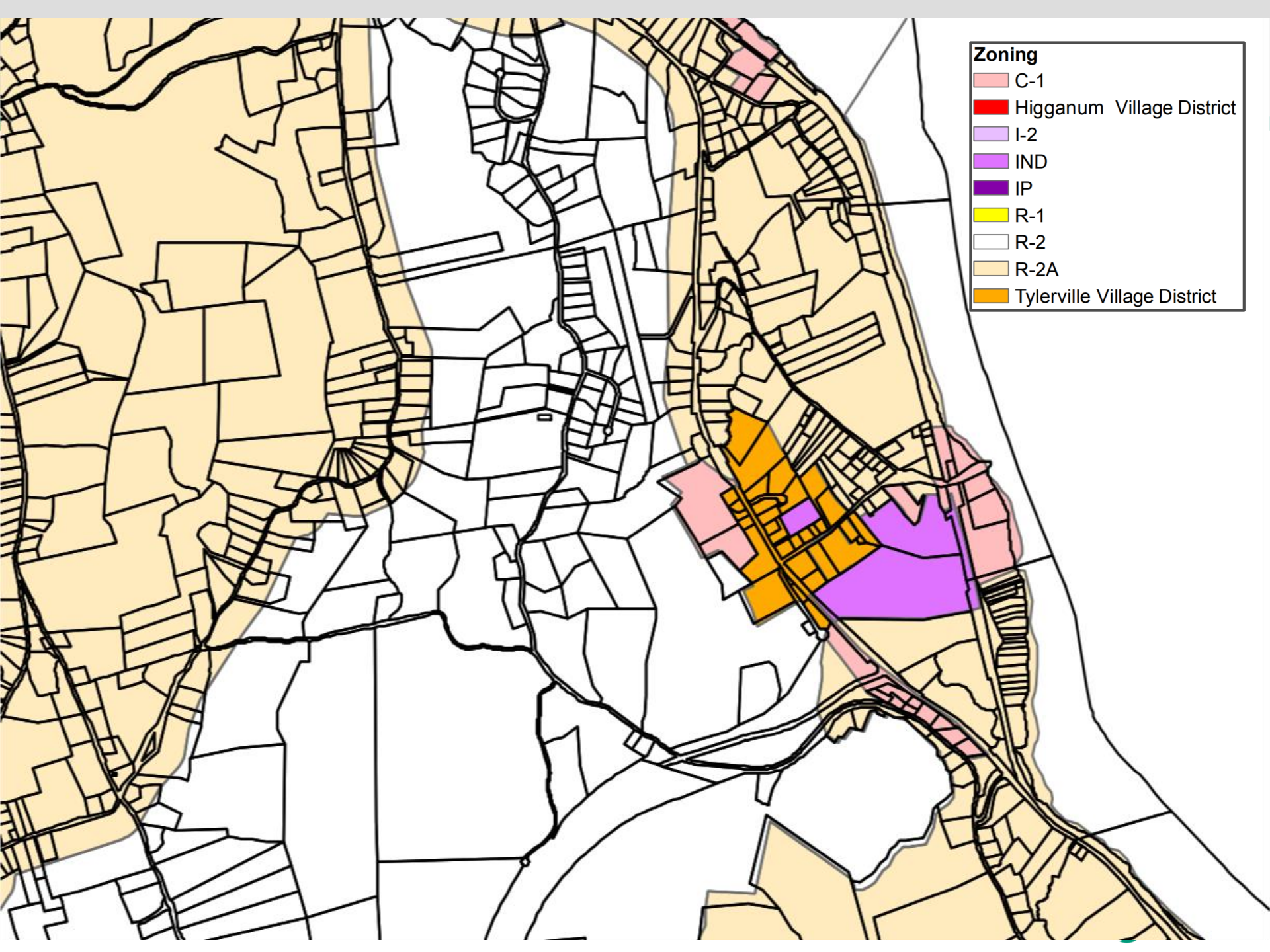
Haddam Zoning



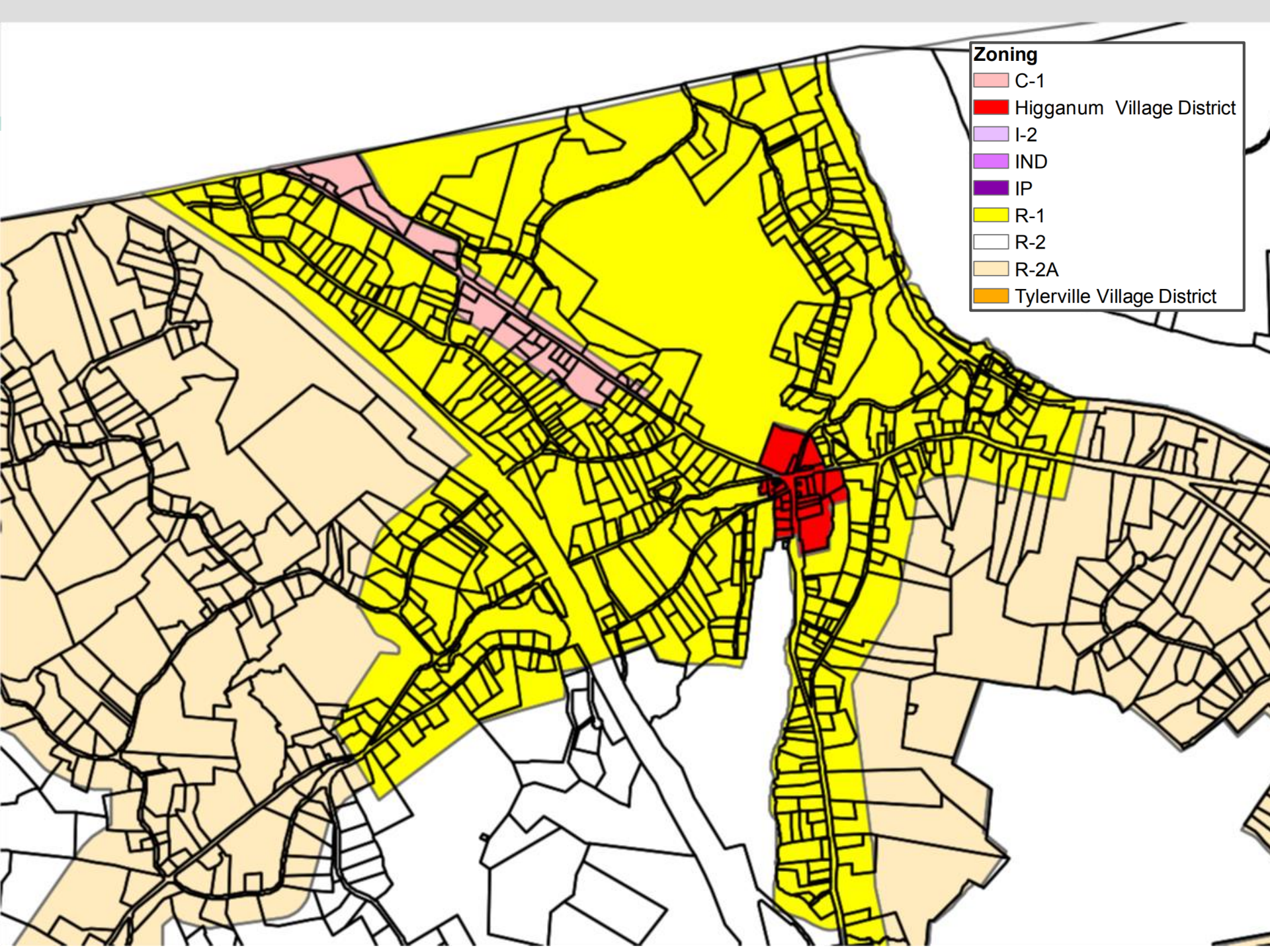
- Legend**
- Parcels
 - Zoning**
 - C-1
 - Higganum Village District
 - I-2
 - IND
 - IP
 - R-1
 - R-2
 - R-2A
 - Tylerville Village District










Zoning Effective July 1, 2018





Zoning	
C-1	
Higganum Village District	
I-2	
IND	
IP	
R-1	
R-2	
R-2A	
Tylerville Village District	



Zoning	
	C-1
	Higganum Village District
	I-2
	IND
	IP
	R-1
	R-2
	R-2A
	Tylerville Village District

Higganum Village

Development Area Capacity Study


Development Capacity

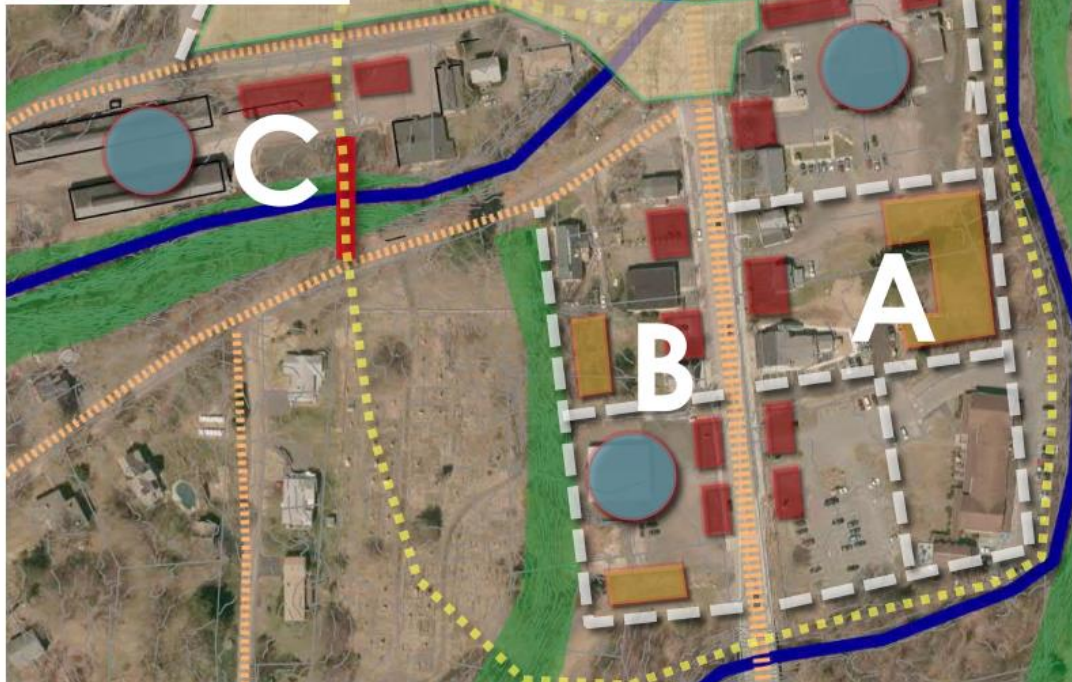
- Assumes cross property collaboration
- Resolution of waste disposal and water issues
- Generally supportive of market demand (less commercial more residential).

 Commercial uses only on ground floor of street side infill buildings

 Standalone residential to the rear.

- Shared parking ratios
- Limited to two to three story's (preserve existing character)

 Preserve Historic Architecture



Existing Condition

BLOCK	USE	SF	# UNITS	AREA (ac)
A	GND FLOOR COMM	31,000	13	7.7
	2ND FL RES (ESTIMATED)			
	2ND FL OFFICE	14,000		
	STAND ALONE RES			
B	GND FLOOR COMM	11,200	9	2.7
	2ND FL RES (ESTIMATED)			
	2ND FL OFFICE	0		
	STAND ALONE RES			
C	GND FLOOR COMM	27,000	4	3.6
	2ND FL RES (ESTIMATED)			
	2ND FL OFFICE			
	STAND ALONE RES			
D	GND FLOOR IND	30,400	5	5
	2ND FL RES (ESTIMATED)			
	2ND FL OFFICE			
	STAND ALONE RES			
E	GND FLOOR IND/MUNICIPAL	10,000	1.6	1.6
	2ND FL RES (ESTIMATED)			
	2ND FL OFFICE			
	STAND ALONE RES			
SUBTOTAL		123,600	26	20.6
	MINUS REDEVELOPED ROSSI AND DPW SITE	-30,400		
	REMOVAL OF IND/MUNICIPAL USES (DPW site)	-10,000		
	TOTAL	83,200	26	20.6

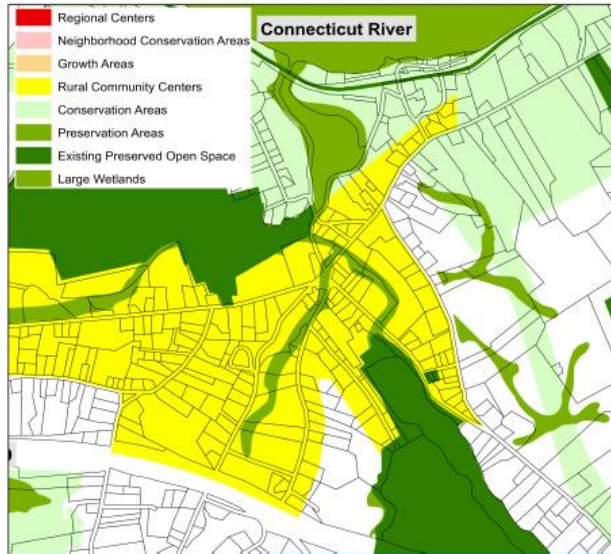
Proposed Condition

BLOCK	USE	SF	# UNITS	AREA(ac)
A	GND FLOOR COMM	39,000	22	7.7
	2ND FL RES (ESTIMATED)			
	2ND FL OFFICE	14,000		
	STAND ALONE RES			
B	GND FLOOR COMM	17,200	14	2.7
	2ND FL RES (ESTIMATED)			
	2ND FL OFFICE	0		
	STAND ALONE RES			
C	GND FLOOR COMM	35,000	11	3.6
	2ND FL RES (ESTIMATED)			
	2ND FL OFFICE			
	STAND ALONE RES			
D	GND FLOOR COMM	25,000	20	5
	2ND FL RES (ESTIMATED)			
	2ND FL OFFICE			
	STAND ALONE RES			
E	GND FLOOR COMM	9,000	8	1.6
	2ND FL RES (ESTIMATED)			
	2ND FL OFFICE			
	STAND ALONE RES			
SUBTOTAL		139,200	205	20.6
	TOTAL	139,200	205	20.6

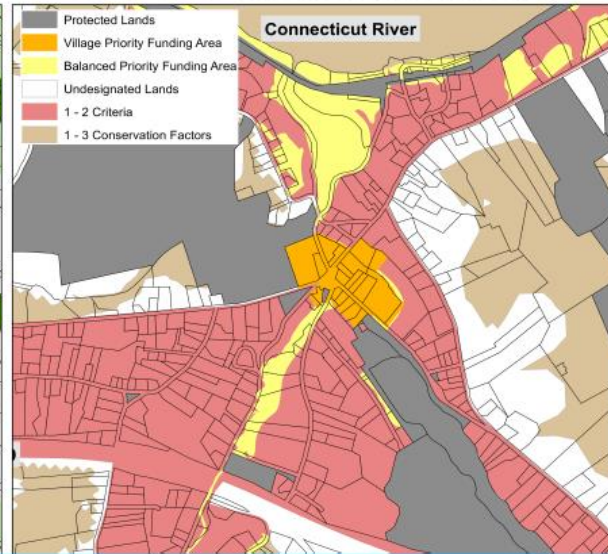
Higganum Village



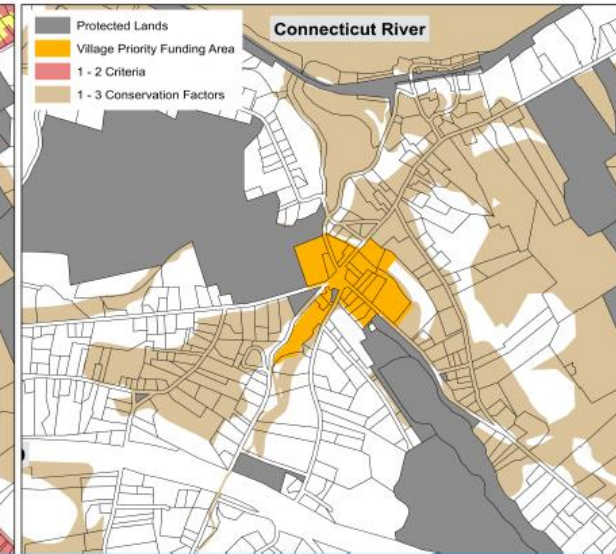
2004 - 2012 C&D Locational Guide Map



2013 - 2018 C&D Locational Guide Map



2018 - 2023 Draft C&D Locational Guide Map



Infrastructure Needs

- Ongoing struggle for small towns to attract new small business into their town centers
- Traditionally need higher density to make economics of sewers work
- The desired density of village centers doesn't leave enough room for onsite septic systems



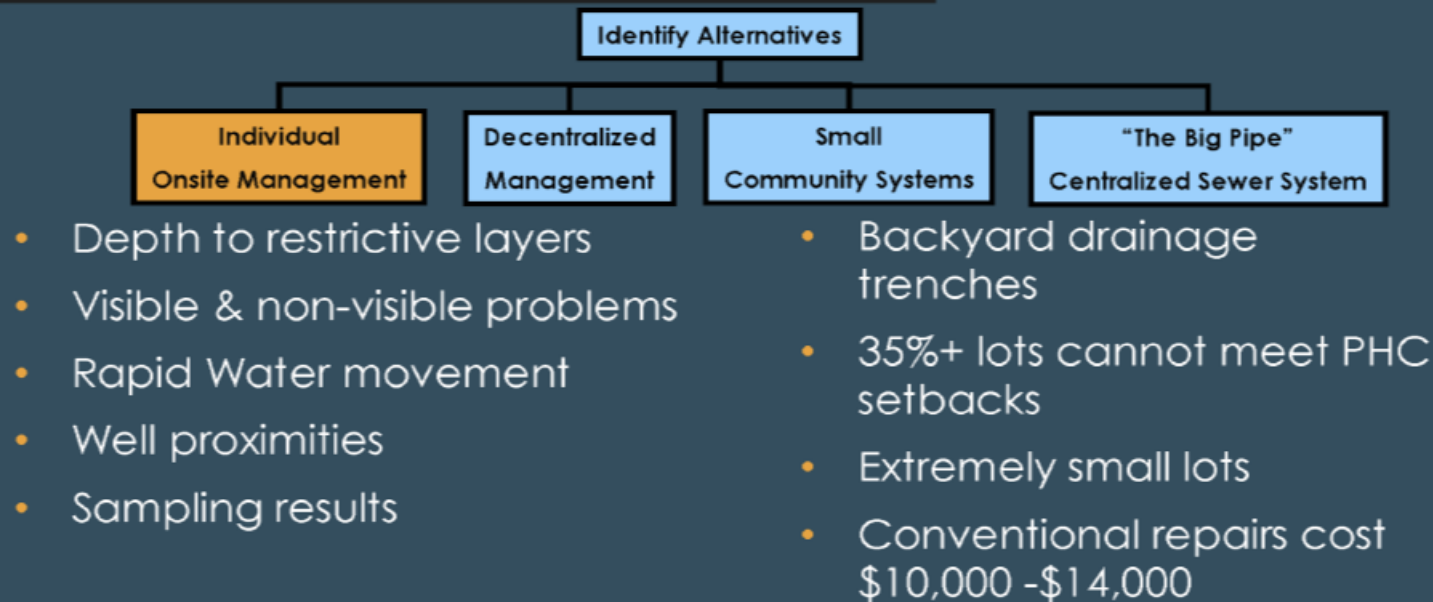
Wastewater Facilities Planning

- **Compare and Contrast**
 - **Public sewer extension**
 - **Mini treatment plant with surface water discharge**
 - **Community septic system**
- **Look at construction and lifecycle costs upfront**
 - **\$\$ is usually not intuitive**

Wastewater Facilities Planning - Example

#6

Summary of Individual Onsite Management (Septic Systems)



Takeaway: Individual Onsite Management is a Serious and Worsening Problem

Wastewater Facilities Planning - Example

Recommended Plan - Sanitary Sewers with Discharge to East Lyme with Additional Association Improvements

ORDER OF MAGNITUDE OPINION OF CAPITAL COSTS⁽¹⁾

OLD LYME SHORES BEACH ASSOCIATION

June 30, 2012

- That's a lot of number crunching!

	NO COST SHARING		SHARE COSTS WITH OCBIC	
	Low Range Costs ⁽²⁾ -25%	High Range Costs ⁽²⁾ +25%	Low Range Costs ⁽²⁾ -25%	High Range Costs ⁽²⁾ +25%
Procure Agreements for Recommended Plan				
1. Technical Services to Procure Stakeholder Agreements	\$ 21,250	\$ 32,500	\$ 10,625	\$ 16,250
2. Legal and Administrative Services to Procure Stakeholder Agreements (2)	\$ 34,000	\$ 52,000	\$ 17,000	\$ 26,000
3. Total - Procure Agreements for Recommended Plan (Rounded)	\$ 55,000	\$ 85,000	\$ 28,000	\$ 42,000
Project Construction				
4. Construction Cost-Gravity Sewer with Central Pump Station ⁽³⁾	\$ 2,184,500	\$ 3,341,000	\$ 2,184,500	\$ 3,341,000
5. Construction Cost-Force Main Along Route 156 to East Lyme ⁽³⁾	\$ 2,448,000	\$ 3,744,000	\$ 2,448,000	\$ 3,744,000
6. Construction Cost-Cost Sharing Along Route 156	\$ -	\$ -	\$ (1,224,000)	\$ (1,872,000)
7. Buy-In Fee to East Lyme/Waterford/New London ⁽³⁾	\$ 1,000,000	\$ 1,000,000	\$ 500,000	\$ 500,000
8. Technical Services-Design, Permitting & Construction Administration ⁽⁴⁾	\$ 926,500	\$ 1,417,000	\$ 681,700	\$ 1,042,600
9. Legal & Administrative ⁽⁵⁾	\$ 171,000	\$ 268,000	\$ 127,000	\$ 194,000
10. Total - Project Construction Costs (Rounded)	\$ 6,730,000	\$ 9,770,000	\$ 4,720,000	\$ 6,950,000
DEEP CWF Eligible Design & Construction Costs				
11. Procure Agreements for Recommended Plan (Excluding Legal & Admin)	\$ 21,250	\$ 32,500	\$ 10,625	\$ 16,250
12. Project Construction Costs (Excluding Legal & Admin)	\$ 6,560,000	\$ 9,500,000	\$ 4,590,000	\$ 6,760,000
13. DEEP CWF 25% Design & Construction (Small Community) Grant Amount	\$ (1,645,313)	\$ (2,383,125)	\$ (1,150,156)	\$ (1,694,063)
14. Total - DEEP CWF Loan Eligible Costs (Rounded) ⁽⁶⁾	\$ 4,936,000	\$ 7,149,000	\$ 3,450,000	\$ 5,082,000
DEEP Ineligible Costs⁽⁷⁾				
15. Short Term Financing at 1.5% ⁽⁸⁾	\$ -	\$ -	\$ -	\$ -
15a. Legal and Administrative Fees (Table Line Items #2, #9)	\$ 205,000	\$ 320,000	\$ 144,000	\$ 220,000
16. Storm Drainage Improvements ⁽⁹⁾	\$ 199,750	\$ 305,500	\$ 199,750	\$ 305,500
17. Extensive Road Reconstruction ⁽¹⁰⁾	\$ 674,900	\$ 1,032,200	\$ 674,900	\$ 1,032,200
18. Fire Hydrants (Quantity: 16)	\$ 136,000	\$ 208,000	\$ 136,000	\$ 208,000
19. Drinking Water System Improvements ⁽¹¹⁾	\$ 403,325	\$ 616,850	\$ 403,325	\$ 616,850
20. Technical Services-Design, Permitting & Construction Administration ⁽⁴⁾	\$ 282,795	\$ 432,510	\$ 282,795	\$ 432,510
21. TOTAL - DEEP Ineligible Costs (Rounded)	\$ 1,902,000	\$ 2,915,000	\$ 1,841,000	\$ 2,815,000
Estimated Local Share				
22. DEEP CWF Loan Eligible Costs ⁽⁷⁾	\$ 4,936,000	\$ 7,149,000	\$ 3,450,000	\$ 5,082,000
23. DEEP Ineligible Costs	\$ 1,902,000	\$ 2,915,000	\$ 1,841,000	\$ 2,815,000
24. Estimated Local Cost Share (Rounded)	\$ 6,838,000	\$ 10,064,000	\$ 5,291,000	\$ 7,897,000
Net Capital Cost Per EDU				
25. Estimated Local Cost Share	\$ 6,838,000	\$ 10,064,000	\$ 5,291,000	\$ 7,897,000
26. Number of EDU's (Properties) Served	192	192	192	192
27. Net Cost Per EDU (Rounded)	\$ 36,000	\$ 52,000	\$ 28,000	\$ 41,000
Annual Capital Cost Per EDU (Rounded)⁽¹²⁾	\$2,200	\$3,200	\$1,700	\$2,500

Notes:
 (1) All Phase III costs developed in 2011 dollars.
 (2) Typical planning level costs carry contingencies of -15% to +30%. Opinion of costs will continue to be refined during subsequent phases. See Facilities Planning Cost Document for more Detailed Cost Breakdown.
 (3) Does not include cost of gravity service connections from the building to sewer stub in street and abandonment of existing system (this cost to be paid by homeowner). Average connection cost to sewer stub estimated to be \$2,000-\$3,500. Assumes \$1M Connection Fee Apportioned to East Lyme, Waterford, and New London. Actual Connection Fees and apportionment breakdown are not defined at this juncture. Assumes cost sharing of Force Main to East Lyme with Old Colony.
 (4) Technical Services During Design and Construction estimated @ 20% of construction for planning purposes. Services include engineering design, permitting, topographic survey, test borings, bidding services, construction administration and resident representative services.
 (5) Legal and Administrative Costs estimated based on construction cost. Services include bond Counsel costs, Finance Director Costs, setup assessment policy, setup user fee policy, create programmatic administrative proposal, and miscellaneous legal and administrative costs during design and construction of the project.
 (6) DEEP eligible costs include roadway improvements composed of temporary pavement repair, permanent pavement repair, and pavement mill & overlay to dimensions prescribed by DOT approval.
 (7) Ineligible costs include project costs not directly related to sewer design or construction including early WPCA Operating Administrative Costs and construction costs not required for the sewer project. Legal costs other than land acquisition are loan eligible only.
 (8) Assume DEEP funding of design and construction work within 3 months of CWF application submittal.
 (9) Assume 8000 feet of storm sewer with 12 catch basins.
 (10) Based on \$200,000 per street for road reconstruction (per quotes obtained by Paul Rowan) less \$466,000 pavement allowance in sewer project road restoration.
 (11) Assumes 18,000 feet of water main pipe installation. Assume F&O design water system.
 (12) Annual cost per EDU is over a 20 year period at an annual interest rate of 2%. Does not include connection to sewer, connection charge, or annual O&M costs. Fire hydrants include estimate of \$6,000 for materials and \$4,000 for installation.

Wastewater Facilities Planning - Example

#13

Estimate of Project Cost – Sewer Extension

- What will the **sewer** project cost to construct?
 - **\$4.8M to \$7.1M**
 - Assumes cost sharing of force main with Old Colony Beach Club
 - Assumes \$0.5M Connection to East Lyme Sewer infrastructure
 - Order of Magnitude Opinion of Cost in FY12 dollars
- What will the **sewer** project cost the Association?
 - **\$3.6M to \$5.3M (in 2012 dollars)**
 - Assumes 25% DEEP Clean Water Fund (CWF) Grant and low interest loan reduces local community costs
 - Assumes cost sharing with Old Colony Beach Club
- How much will I be assessed for the **sewer** project?
 - **\$19,000 to \$28,000 per parcel approx. in 2012 dollars**
 - Cost split among 192 Association parcels

GA.P2010A.1210.A10.Presentation02011-09-10.Public.Presentation20110910.Presentation.pdf

Takeaway: Annual costs can benefit from project cost sharing and DEEP CWF funding



State Wastewater Regulations

- **Continues to evolve - ever so slowly**
- **Connecticut**
 - **Septic systems up to 7,500 GPD are State Health Department Regulated (might increase to 10,000 GPD)**
 - **CT DEEP community septic systems with mini treatment plant (25k to 50k GPD) can be a good option for Village Center Areas**
- **Rhode Island & Massachusetts**
 - **Allowing small scale Innovative/Advanced Treatment Units**
 - *This allows smaller leaching system footprints because effluent is much cleaner*
 - *Only as good as the O&M of the equipment*

Infrastructure Funding

- **Economic development grant's are usually not large enough**
- **State environmental protection funding typically only available to solve existing water pollution issues and is not for economic development**
- **USDA Funding for Water and Environmental Projects**
 - **Funding available to develop a plan and construct the infrastructure needed to attract new small businesses**
 - **Preliminary Engineering Report and Environmental Report prepared during the loan/grant application**
 - **Funding can be applied to water, sewer, and stormwater improvements for the community**
 - **Grant calculated based on community household income**
 - **40 year loan repayment terms**

Considerations for Greater WW Disposal

- **Pre-packaged treatment systems can reduce upfront costs but can also have much higher O&M costs**
- **New treatment plant with surface discharge comes with years of permitting**
- **There is an entirely different rule book for large community septic systems**
- **Make wastewater cleaner before discharging into a community septic system to reduce leaching field size**
- **You really don't know the soils until you go out and dig test pits for a community septic system**

Common Obstacles Small Communities Face

- **Public concern that sewers may bring unwanted growth**
 - Create plan to provide 'just enough' wastewater disposal capacity
 - Allocate wastewater capacity parcel-by-parcel
- **Unable to solve all of the infrastructure needs**
 - Think creatively!
 - Consider meeting 'some' of the community WW needs (not all)
 - Mandate water conservation to lower sewage volumes in those old buildings
 - Use multiple sites for distributed leaching fields
- **Project Funding**
 - Distribute the cost among more properties
 - Consider USDA 40-year loan terms

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