

**NVCOG REGIONAL WASTEWATER TREATMENT CONSOLIDATION STUDY  
 WORKSHOP #3  
 SUMMARY REPORT**

**Meeting Date:** June 25, 2020

**Meeting Time:** 10:00 AM – 12:00 PM

**Meeting Location:** Virtual Meeting via Zoom

**Attendees:**

Name	Organization
Rick Dunne	NVCOG
John DiCarlo	NVCOG
Richard Crowther	NVCOG
George Hicks	CT DEEP
Stela Marusin	CT DEEP
Christopher Makuch	Naugatuck
James Stewart	Naugatuck
Annmarie Drugonis	Seymour
Walter Royals	Seymour
Edward Abel	Derby
Andrew Baklik	Derby
Jack Walsh	Derby
Brian Capozzi	Ansonia
Mario Francucci	B&V
Will Walkup	B&V
Jeff Stillman	B&V
Patrick Dunlap	B&V
Carla Romo	B&V
Sarah Concannon	Collins Center
David Colton	Collins Center

Workshop #3 for the NVCOG Regional Wastewater Treatment Consolidation Study was held on June 25, 2020 virtually via Zoom. The following summary report follows the flow of information and discussion at the workshop.

**Introduction and Roles**

1. John Di Carlo started the meeting by thanking everyone for attending and introduced all the participants in the call.
  - a. He emphasized that the intent of the workshop was for B&V to present Task 2 and for the Collins Center to introduce themselves briefly.
  - b. Noted that there was no one present from Beacon Falls.



2. Mario Francucci provided an overview of the presentation and encouraged interaction from all participants. He provided a background on Phase 1 explaining how 23 regionalization alternatives were developed and in Task 2 these were short-listed to seven regionalization alternatives.

### **Review Long List of Alternatives** (Mario Francucci)

Mario reviewed the 23 alternatives from Phase 1:

1. There is a total of 23 alternatives, but they can be seen as 13 alternatives with subparts that include aggressive I/I reduction.

Mario presented the methodology used to screen-out alternatives:

1. Each alternative was further developed to understand their attributes and be able to screen them out.
2. Three assessment categories were taken into consideration:
  - a. Aggressive I/I: can flows be removed through aggressive I/I control and up to what extent?
  - b. Conveyance Corridors: feasibility of routes between communities.
  - c. Plant Processes and Site Layouts: what equipment/processes will be needed to handle projected loads and flows from other communities? Is there enough space to fit these processes?

### **Aggressive I/I Evaluation** (Jeff Stillman)

Jeff explained that the purpose of the I/I evaluation was to determine whether aggressive I/I should be further evaluated as a part of this regionalization study or if standard I/I mitigation ongoing or planned for the study communities.

1. Jeff provided an overview of I/I and how it can be quantified
  - a. I/I is infiltration and inflow that adds both to the peak flow and average flow in sewer systems.
  - b. There are different ways to quantify the amount of I/I in a system:
    - i. Flow monitoring
      1. Most common way.
      2. Flow meters are placed at strategic locations to compare flow rates during dry weather and storm events.
      3. Good way to understand what is coming into a sewer system and whether its possible to remove it.



- ii. Major inflow sources
  - 1. Its crucial to identify major inflow sources that lead to high peaks in the sewer system and potentially cause other issues such as overflows.
- iii. Infiltration
  - 1. There are two types of infiltration:
    - a. Slow infiltration: flow leaking through joints.
    - b. Rapid infiltration: gushers due to groundwater conditions.
- iv. SSES (Sewer System Evaluation Survey)
  - 1. Do additional testing to find the actual sources of I/I:
    - a. Smoke testing: determine where there is I/I based on where you see smoke coming out.
    - b. Dye testing.
    - c. CCTV: allows us to see what is actually going on inside the sewer system.
- c. Examples of I/I
  - i. Typical sources of inflow:
    - 1. Rain drains.
    - 2. Faulty manhole cover or frame.
    - 3. Storm connections.
    - 4. Foundation drain.
  - ii. Typical sources of infiltration: associated with deterioration of pipes
    - 1. Broken side sewers.
    - 2. Cracked pipes.
- 2. Jeff discussed the current I/I studies/programs at each community:
  - a. Derby
    - i. They have been the most active due to consent degree and currently in the process of strategically reducing I/I from the greatest sources.
  - b. Ansonia & Seymour
    - i. Haven't been as active.
    - ii. No broad I/I efforts in over 15 years.
  - c. Beacon Falls
    - i. There is I/I but no need for aggressive I/I since the system is relatively new and flows are small.
  - d. Naugatuck
    - i. They've done work in the past and are currently in the process of re-procuring professional O&M services which will include I/I mitigation activities.
- 3. Jeff explained that since there available I/I information is limited, basic interpretations can be drawn from MOR data. B&V has placed flow meters in Derby,



Ansonia, and Seymour and will be using that data to make some preliminary I/I conclusions in those communities as they related to the short list of regional alternatives.

**Q (Rick Dunne):** When did the flow monitoring start and are we expecting to get good data?

**A (Jeff & Mario):** We started the flow monitoring mid-April and we just took the meters out this week (June 24). We experienced some wet weather at the beginning of the metering period; however, the last five weeks have been dry. Data analysis is just starting and we expect to be able to draw some conclusions from it.

Based on MOR data from the five past years Jeff explained the following:

- a. Derby
    - i. Lots of fluctuation in flow.
    - ii. Peak flow of approximately 10 MGD which indicates large I/I.
    - iii. The flow meter at the plant max reading is 10 MGD so I/I could conceivably be worse.
  - b. Ansonia
    - i. Flow metering is pump driven so it's hard to determine what the exact peak really is.
    - ii. The peak factor is around six which is excessive.
  - c. Seymour
    - i. Variation in average flow demonstrate long term I/I problem.
    - ii. Peaking factors are around four.
    - iii. There are not a lot of rapid spikes for the peak flow so I/I seem to be stable but there is still an issue.
  - d. Beacon Falls
    - i. Random variation on the flow and very little seasonal influence.
    - ii. There is peaking from storm events and groundwater but not considerably high.
  - e. Naugatuck
    - i. A lot of variation in flow rates which makes data hard to interpret.
    - ii. There are significant peak and low average flows indicating existing I/I.
    - iii. Naugatuck has a consent order so they will be starting to address I/I.
4. Jeff provided an overview of standard vs. aggressive I/I and why aggressive I/I shouldn't be further considered at this point of the study.



a. Comparing I/I:

Standard I/I	Aggressive I/I
Target: reduce peak flows	Target: reduce peak flow and average flow
Inflow and rapid infiltration priority	Commonly used when the plant capacity is very limited
Point repair based on major sources	Comprehensive rehabilitation: <ul style="list-style-type: none"> <li>- Line pipes at all connections</li> <li>- Fix laterals</li> <li>- Engagement programs with home owners</li> </ul>
Only focus on private sources where there is rapid infiltration	

b. All communities need some degree of I/I but all the alternatives that include aggressive I/I will not be further considered because:

- i. There is limited ongoing I/I work at the communities so its hard to determine if more aggressive measures are really needed.
  - ii. Costs of aggressive I/I removal is very high compared to standard I/I removal.
  - iii. Standard I/I should suffice to reduce flows.
  - iv. Plant upgrades are needed regardless of regionalization and treatment needs can be sufficiently met without aggressive I/I reduction.
5. Jeff explained that all alternatives that include aggressive I/I will no longer be considered but a certain degree of I/I is still needed and recommended in each community regardless of regionalization.

**Q (Rick Dunne):** Can you be clearer and explain why we eliminated the I/I option? Are you eliminating because aggressive I/I is expensive or because standard I/I is sufficient?

**A (Mario Francucci and Patrick Dunlap):**

Mario: There is no question that a robust I/I plan needs to take place at all communities. Aggressive I/I is different because we would have to consider each foot of the sewer system and private laterals. We are suggesting some level of I/I reduction similar to what Derby is currently doing and they will be doing that for at least another 10 years. We don't know exactly about costs and don't have the data to come up with them. We would need some basis on what a community has already achieved with an I/I program to build on; for example, we might say - we can see 30% reduction after standard I/I, that could lead us to then decide whether we want to continue with aggressive I/I. However, we don't have such a platform for any of the 5 communities and thus we just do not know how quantifiably effective an aggressive I/I program can really be here. With that uncertainty, we are



recommending that the aggressive I/I regional alternatives be removed from further study at this time.

**Conveyance Corridors** (Mario Francucci)

Mario explained how the conveyance corridors from Phase 1 were preliminary routes to connect communities and that they were further assessed in Task 2 to determine whether these were implementable.

1. Mario reviewed Phase 1 routes and explained how these were screened out based on their alignment along major rights-of-way (ROW)
  - a. Since there are no direct corridors, the initial plan was to align pipes along already existing infrastructure such as the railroad, highway, and transmission lines. This was the case between all communities but especially between Beacon Falls and Naugatuck due to the challenging topography.
  - b. After researching these ROW and consulting B&V experts, B&V determined that it is almost impossible to build along these ROW. This is especially the case when we want to share the easement in a longitudinal manner.
    - i. Route 8
      1. They emphasize safety and even if the pipeline is on the side or a grass area it compromises Route 8 infrastructure and safety.
      2. B&V had discussed this with Jim Stewart at Naugatuck.
    - ii. Railroad
      1. The railroad easement is very narrow and they have plans to expand so their limited easement area is at a premium.
    - iii. Eversource transmission line
      1. B&V consulted internally with our power transmission experts and found that it is very unlikely to get permission from a private utility company to share their easement land with other utilities.
  - c. The pipeline would not cross these ROWs but actually be aligned for miles along these infrastructures so it is very unlikely to obtain such permission

**Q (John Di Carlo):** Eversource transmission lines are overhead, it makes sense that Route 8 and the railroad wouldn't want to share their space, but can we really not put a pipeline underground the transmission?

**A (Mario Francucci):** Utilities receive heavy scrutiny from the public when corridors are established and there is potential for backlash if it is modified. Overhead transmission corridors are considered assets and a pipeline can compromise the asset value. We reviewed this with our B&V professionals that work with Eversource and they agreed that obtaining permission is very unlikely.



**Q (Rick Dunne):** Did you contact someone at these departments?

**A (Mario Francucci):** We did not make direct contact with representatives but we are recommending this based on experience, our own review of guidance documents from CT DOT and after consulting others internally.

2. Mario discussed how B&V further developed the routes that were not aligned along major ROW. To do so, B&V used Connecticut geographic information system (GIS) data and aerial images. He then discussed the routes that were determined to be feasible.
  - a. Beacon Falls to Naugatuck
    - i. There are two routes that share an initial common alignment.
    - ii. The main concern with these routes is the terrain since they are aligned through Toby Rock Mountain.
    - iii. Route 2 includes a tunnel portion which would make the route shorter. A preliminary cost of the tunnel was estimated to determine whether it would be feasible. The tunnel portion alone will be around \$50 million including construction, engineering support allowance, and contingency.
    - iv. Route 1 has two more miles of pipe and two more pump stations than Route 2. It is important to be aware that flow needs to be conveyed at all times and since this route would be in the middle of the forest, it will be unreliable, especially given the need for 5 pump stations to make it work. Mario noted that no matter how much redundancy is provided, it will not be a reliable option.
  - b. Beacon Falls to Seymour
    - i. There are two routes that share an initial common alignment. Both routes are longer than the ones between Beacon Falls and Naugatuck.
    - ii. Route 2 has a tunnel portion that is longer than the tunnel between Beacon Falls and Naugatuck. The cost of this tunnel alone would be in the order of up to \$70 million.
    - iii. Route 1 has more pump stations and would not be reliable, similar to the route considered between Beacon Falls and Naugatuck.
  - c. Seymour to Ansonia
    - i. B&V identified one feasible route so this will remain and be further developed in Task 3.
  - d. Ansonia to/from Derby
    - i. One route was identified and appears possible. The pipeline can be routed along different town roads and this will be analyzed as part of Task 3.



3. Due to the irregular topography and long distance between Beacon Falls and the neighboring plants, all alternatives that include Beacon Falls will no longer be considered as a part of this study.

**Q (Rick Dunne):** Is it possible that we can cost Route 1 from Beacon Falls to Naugatuck along Route 8? The pipe alignment along Route 8 will be a political decision and there is potential to further discuss.

**A (Mario):** Yes, we can provide a cost for the route along Route 8.

**Q (James Stewart):** I agree that Route 8 is a political decision. The routes you're showing do not seem reasonable from a cost perspective. From Beacon Falls to Naugatuck you can align the routes along Route 8 where the routes diverge and there is already an existing ROW. Is that something you can look into?

**A (Mario Francucci):** We can take a further look at this, it just seems very unlikely. We will develop an approximate budgetary cost for Beacon Falls to Naugatuck and take a look into the existing sewer along Route 8.

**Q (John DiCarlo):** I am curious about the ROW in Seymour, Ansonia and DeBry, did you look at those?

**A (Mario Francucci):** We planned those routes to avoid major ROW. For task 3 we would take further look at what is in those streets.

**Q (Rick Dunne):** Would you be using already existing pipes?

**A (Mario Francucci):** No, we are only using existing streets to stay away from railroad, river, and highway.

### **Collins Center Introduction** (David Colton)

David introduced the Collins Center and provided some information on what they do, their expertise, and what their role will be with NVCOG.

1. The Collins Center has been around for over 12 years and they have worked in over 700 municipal projects.
2. They have a cross-disciplinary team and they do consulting in all aspects of public governance and management. Their work includes:
  - a. Regional governance structures.
  - b. Facilitation or organization change.
  - c. Financial cost benefit.
  - d. Sensitivity to local representation and equity, history and local control.





3. Their role in this study will be the following:
  - a. Recommend governance models for preferred alternatives.
  - b. Draft by-laws.
  - c. Complete cost benefit analysis that show capital O&M costs of regional models vs. base cases.
  - d. Environmental impact evaluation (EIE).
4. David explained they will be working closely with B&V and interviewing the communities.
5. Rick Dunne noted that regionalization might lead to a referendum depending on the governance of each community and the Collins Center will be key to provide a good base of governance.

**Q (Jack Walsh):** How long will this work take? Is the state aware that Derby is taking into account this study and recommendations as it relates to meeting regulatory requirements and that we may be slowed down based on study progress?

**A (David Colton):** We will follow B&V work and if everything is on schedule we should be done by spring of 2021. We will only be looking at the final alternatives B&V will recommend.

Mario Francucci noted that they are on track for Task 3 and expect to have it done before the Holidays in December of 2020.

George Hicks acknowledged these milestones and understands that Derby is accounting for study progress as it relates to meeting their regulatory requirements.

### **Plant Process and Site Layouts** (Mario Francucci and Will Walkup)

1. Mario explained that the flows and loads have been updated using the MOR data from the past two years (since Phase 1 was conducted).
  - a. He acknowledged Derby has new projections for future growth so B&V will review what they did and decide whether flows will be reduced.
2. To determine the treatment capacity assessment at each plant, Mario explained B&V evaluated plant existing conditions and potential expansions for regionalization. For expansion they looked into footprint intensive processes and how these would fit within the plant constraints but for Task 3 they will look into all treatment processes.
3. Due to site constraints B&V considered intensification processes. Mario explained the following intensification processes:
  - a. CEPT: addition of coagulant that allows the increase of primary clarifier capacity by approximately three times.
  - b. BioMag: settling is enhanced through magnetite addition and recovery.



- c. IFAS: addition of plastic media to aeration tanks so more treatment is possible with same tank volume.
4. Will presented the proposed plant layouts to handle projected flows (base cases) and projected regionalized flows (combined flows). The following layouts were discussed:
  - a. Derby base case: upgrades needed on settling tanks and aeration basin.
  - b. Derby + Ansonia, Derby + Seymour and Derby + Ansonia & Seymour will require several upgrades to Derby WPCF. For all these scenarios the use of BioMag or IFAS was considered due to site constraints.
  - c. Ansonia base case: they have the infrastructure to handle flows until 2040.
  - d. Ansonia + Derby: addition of primary tank, modification of UV disinfection and addition of phosphorous treatment.
  - e. Ansonia + Seymour: additional primary settling tank.
  - f. Ansonia + Seymour + Derby: addition of primary settling tank, addition of secondary clarifier, modification of UV disinfection and addition of phosphorous treatment.
  - g. Seymour base case/Seymour + Beacon Falls: modify primary settling tanks and add a secondary clarifier.
5. Based on the plant layouts, Mario said the alternative of Derby to Seymour and Ansonia was eliminated.

**Ed Abel:** Derby is looking into a facilities upgrade and the regionalization study. The major challenge is upgrading a facility while still operating it. We have been looking at building an entirely new plant at North Division St behind BJ's. They've already sold part of this land but they might resell it. A new plant will remove a lot of the current site constraints associated with Derby WPCF. Would that new plant to accommodate both Derby and Ansonia be something to consider in this study?

**Q (Rick Dunne):** Is this something we should look into? Can B&V do that?

**A (Mario Francucci):** We have found a way to upgrade Derby and adjust other flows within the existing parcels but we haven't looked at the costs. We also point out that making use of the anaerobic digestors and potentially reduce the O&M costs through energy recovery might make sense in Task 3.

**Q (Rick Dunne):** Have you guys looked into the transitional issues of transitioning a plant while building?

**A (Mario Francucci):** We have not looked at the specific approach but we believe it is possible. We need to develop a cost and sequencing of regionalization.

**Q (Rick Dunne):** Have you guys considered using the Ansonia plant and discharge at Housatonic to avoid using phosphorous?

**A (Mario Francucci):** We have considered it and will look into it in task 3; from a plant layout perspective, we would not have to include as much space for the phosphorous treatment portion.

**Q (Rick Dunne):** Is Ansonia to Derby still being considered?

**A (Mario Francucci):** Yes we will further look into it in Task 3.

**Q (Rick Dunne):** How will you take into account the loss of Ansonia if the plant gets decommissioned? Rate payers will still be paying for the latest plant upgrade for about 10 years.

**A (Mario Francucci):** In task 3, we will take into account the asset value of Ansonia compared to other plants.

**Next Steps and Questions** (Mario Francucci)

1. B&V has reduced the alternatives to seven regionalization options. After task 3 the goal will be to reduce them to one.

**Q (Jack Walsh):** What's required from the communities?

**A (Rick Dunne):** Continue cooperation with B&V and Collins Center.

**Q (Rick Dunne):** Are we publishing the deliverables for this Task?

**A (John DiCarlo):** Report is already on the website we will publish the PPT.

2. John DiCarlo thanked all attendees and adjourned the meeting.