UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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Response to Questions and Issues
Raised by Planning and Zoning Commission, Common Council, and nearby Property Owners relating to Middletown Water Main and Water Storage Tank
For Durham Meadows Superfund Site
October 2017

Introduction:

The United States Environmental Protection Agency (EPA) selected a cleanup plan for the Durham Meadows Superfund Site in 2005. One component of the cleanup plan was to provide a clean water supply to those residences and businesses with contaminated private water wells at the Superfund Site. The clean water was to be provided by extending the water main from the City of Middletown to the Town of Durham. The City of Middletown provided comment on the cleanup plan and indicated its willingness to provide the water and identified that a water storage tank would be necessary to meet that commitment. The City of Middletown comment letter stated that the water storage tank should be located on a City of Middletown owned parcel on Talcott Ridge Drive, known as the Cherry Hill site. In 2012, the City of Middletown Common Council passed a resolution authorizing the Mayor of Middletown to enter into a Memorandum of Understanding with the Town of Durham to document the commitment to this project. The Memorandum of Understanding was signed in June 2012 and specifically mentions that the proposed location of the water storage tank would be the Cherry Hill location. In 2012, the Durham Water System Extension Feasibility Study and associated Durham Water System Extension Environmental Impact Assessment (collectively, the "Durham Water System Extension Reports" or "Reports") were completed. The Reports focused on addressing water quality issues at eight separate areas within the Town of Durham and the City of Middletown, including the Durham Meadows Superfund Site. These Reports identified the need for a water storage tank and identified the Cherry Hill site as the location for the tank. The State of Connecticut Department of Energy and Environmental Protection (CTDEEP) solicited public comment regarding the Reports by placing a legal notice in the Middletown Press once a week for three consecutive weeks, and also by other methods as described in the Section of Public Outreach for Design below and in Appendix E.

Based upon the commitments documented in the Memorandum of Understanding and the lack of objection to the project concepts identified in the Durham Water System Extension Reports, EPA initiated the design for the water line extension and water tank in 2013. In 2013, EPA also issued a public information fact sheet and held a public information meeting to solicit public input at the beginning of the design project. EPA completed the design in 2015. In 2015, EPA was able to secure funding for the water line project and retained the United States Army Corps of Engineers (USACE) to manage the procurement of a contractor and provide construction oversight. In 2015, CTDEEP was also able to secure Bond Commission funding for the required state cost-share for this project. During 2016, EPA and the USACE began activities in preparation for placing the project for bid. EPA issued about 180 letters seeking access permission to either install a water line connection, a curb stop, a booster pump, or for access to

the tank site. EPA also included the August 2016 public information fact sheet with these letters. By the end of 2016, the project was ready to proceed to bid provided the project received approval of a wetland permit and a positive review by the Planning and Zoning Commission.

On December 7, 2016 and January 4, 2017, the Inland Wetlands and Watercourse Agency (IWWA) held hearings relating to the wetland permit application. The IWWA granted the wetland permit after the January 4, 2017 hearing.

On January 11, 2017 and January 25, 2017, the City of Middletown Planning and Zoning Commission met to perform the 8-24 review of the project. An 8-24 review is required pursuant to Title 8 of the Connecticut General Statutes which applies to Zoning, Planning, Housing and Economic and Community Development.

On January 25, 2017, the City of Middletown Planning and Zoning Commission, pursuant to the statutory 8-24 review, issued an unfavorable review for the proposed use of a parcel owned by the City of Middletown as the location of the water storage tank.

At the December 7, 2016 IWWA hearing, a group of the property owners along Talcott Ridge Drive and Watch Hill Drive expressed concerns about the project. Their concerns included: lack of outreach and involvement of the property owners in proximity to the proposed water tank; potential impacts associated with the construction of the new water main and paving; extent of tree clearing and watershed impacts due to the widening of the shared access driveway to the tank location; visual and property value impacts of the water storage tank; concerns with changes in water pressure and recommendation for eight properties to receive booster pumps; and the overall benefit of this project to the City of Middletown. These concerns were reflected in the meeting minutes for the IWWA hearings on December 7, 2016 and January 4, 2017 and the 8-24 review meetings with the Planning and Zoning Commission on January 11, 2017 and January 25, 2017. The concerns of these property owners and the associated issues were identified as the primary basis for the unfavorable 8-24 review by the Planning and Zoning Commission.

To facilitate the decision-making for this matter, the City of Middletown Common Council held a workshop on February 13, 2017 to allow a detailed presentation by EPA and the City of Middletown Water and Sewer Department, along with time for comments by the property owners and the members of the Common Council. Following the February 13, 2017 workshop, EPA hosted two outreach meetings on February 21, 2017 and February 28, 2017 to solicit additional feedback from the property owners.

This document provides a response to the questions and issues raised during the IWWA, Planning and Zoning, and Common Council workshop meetings relating to the water main and water storage tank project and consolidates them into categories. The responses are based on information that is currently available. A response to each category of questions and issues is provided along with supporting information. The response developed by the City of Middletown Water and Sewer Department for the questions and issues relating to water rates and the benefits to the City of Middletown is included as an appendix. The full list of questions and issues is also included as an Appendix D.

Project Need and Timeline

Summary of questions and issues: The urgency of the project was questioned as well as the representation of Durham at the City of Middletown meetings. A comment was also made regarding the need for Durham to make the project a high priority.

Response: The individuals with contaminated water supplies have been waiting a long time, almost 40 years in some cases, for clean water. For those who can only use bottled water for drinking and cooking, the contamination creates a significant impact on their daily life. Even if the project were to be out for bid in early 2017, it could be late 2018 or even 2019 before the new water main is operational. Those working on the project believe strongly that the water supply should be accomplished as soon as possible.

The Durham First Selectwoman spoke at the January 25, 2017 Planning and Zoning 8-24 meeting and a representative for the Town of Durham was also present at the February 13, 2017 Common Council Workshop. The strong support for this project by the Town of Durham is well documented and this project continues to be a very high priority for the Town of Durham.

Booster Pumps and water pressure

Summary of questions and issues: The input on this issue covered a broad range of topics. There was a request for a clear presentation of what the water pressure would be at each residence for both the first and second floor. A request was also made that the final water pressure numbers be checked by an independent entity. There were also numerous comments regarding the equity of the additional cost to maintain and eventually replace the booster pumps and why the existing system or a similar system could not provide for those properties where the need for a booster pump was identified.

Response: The outcome of the re-evaluation of the project design based on the questions and issues is that individual booster pumps which were proposed to be installed inside the 8 residential properties are no longer included in the design. Property owners on Talcott Ridge Drive and Watch Hill Drive will be provided a separate hydro-pneumatic system that will be operated and maintained by the City of Middletown and will utilize as much of the existing infrastructure as possible. A conceptual schematic for the revised water main extension and separate hydro-pneumatic system is included as Appendix A.

Why were the booster pumps included in the design? The project was designed to meet the requirements of the State of Connecticut Department of Public Health (CTDPH) which provides the following criteria for a water main: Section 19-13-B102(p) of the Regulations of Connecticut State Agencies (RCSA) requires transmission facilities to be sized to provide flows in excess of the maximum flows experienced in the community water system or service area. In addition, Section 19-13-B102(f)(1) of the RCSA requires that all service connections have a minimum water pressure at the main of 25 pounds per square inch (psi) under normal operating conditions which in these guidelines includes normal peak demands but excludes fire flow demands. Whenever feasible, it is recommended that the minimum water pressure be 35 psi. Positive pressure (20 psi minimum recommended) should be maintained under all flow conditions,

including fire flows if fire protection is provided, at all points in the distribution system. The water line and storage tank design achieves these regulatory requirements.

In addition to the CTDPH requirements, the City of Middletown criteria for review of a subdivision includes the following note*: If the normal water pressure at the second floor showerhead is less than 40 psi, a home hydro-pneumatic booster pump system shall be installed.* The elevation of a second floor showerhead relative to the first floor elevation will vary by home construction. To simplify the analysis, the evaluation was performed using the first floor elevation of a residence and the lowest allowable daily operating level for the water tank. To achieve 40 psi under gravity flow conditions, there must be a difference of 92 feet in elevation between the water in the tank and the elevation of the first floor. The lowest allowable daily operating level in the proposed water storage tank is 491 mean sea level (msl). This means that the first floor for a residence must be at an elevation of 399 msl or lower for the pressure to be 40 psi or higher. Based on this criteria, eight properties (seven on Watch Hill Drive and one on Talcott Ridge Drive) would not meet the City of Middletown recommended criteria of 40 psi.

Had the booster pumps been included in the final design, the booster pumps would have been installed at no cost to the owners for these eight properties. The property owners would have been responsible for the maintenance, including electrical costs or non-warranty replacement, unless an alternative arrangement is made with the City of Middletown. The pump selected in the project specification is the Amtrol Model RP-15HP with digital control system, or equal as approved by the engineer. This brand of pump is not considered inferior based on the input of the design engineer. A different pump could be substituted if it also meets the project requirements. The pump manufacturer reports the sound level as 65 decibels. Any measures to further reduce the sound level would be the responsibility of the property owner. It should be noted that other properties may see a change in their respective water pressure, but a pressure booster would not be recommended unless the water pressure is below 40 psi.

Difference between water pressure provided by existing system and proposed water storage tank: The existing service for the property owners currently served by the Long Hill Pump Station is a hydro-pneumatic system that uses pumps and a pressure tank to create the pressure to deliver the water. To push the water from Long Hill to the top of Talcott Ridge Drive, the pressure tank operates at a fairly high pressure. Because the water pressure is created by a pressure tank and pump system, the hydro-pneumatic system operates over a wider range of pressure and at a higher pressure than would be provided by an atmospheric tank. For an atmospheric tank, the pressure at a given location is the difference between the elevation of the water in the tank relative to the elevation of the user. This results in properties that are closer to the tank elevation having lower pressure.

A question was asked about whether someone might need a booster pump in the future. The water pressure is controlled by the elevation of the water in the tank and the elevation of the home. Once the water tank is constructed, neither of these are likely to change. As long as the tank design is not changed, the water pressure charts should be representative of long-term

conditions. Once the water main and water storage tank are constructed and operational, all future inquiries should be directed to the City of Middletown Water and Sewer Department.

Water pressure charts: In response to the comments provided by the some of the property owners on Talcott Ridge Drive and Watch Hill Drive, EPA presented a table showing the approximate water pressure readings at the eight properties where booster pumps were recommended. The table was an attempt to provide clarity as to what the relative water pressure would be versus the current water pressure. This chart was not a part of the design and has been the subject of many comments. As discussed above, the specific water pressure at each residence is not the critical issue, rather the properties where a booster pump was recommended were 92 feet or less in elevation below the low daily water level in the water storage tank. Any property where the first floor is located more than 92 feet below the low daily water level in the tank would not need to have the water pressure estimated. The updated water pressure charts are attached as Appendix B. These charts are no longer applicable to the properties on Talcott Ridge Drive and Watch Hill Drive since they will not be served by the new water tank. While they have not been reviewed by an independent contractor, EPA requested that the United States Army Corps of Engineers review the charts. The attached charts have been reviewed by the USACE.

The charts present the water pressure at the water main, first floor, and second floor for each of the properties currently served by the Long Hill pump station. The elevation of the water main and first floor for each property was obtained from the City of Middletown geographic information system topographic maps. The second floor was assumed to be ten feet in elevation above the first floor. During normal operation, the water tank as currently designed is expected to operate within the top ten feet of the tank. For the water storage tank, three elevations are relevant for water pressure: 512 msl represents a full tank which should occur at the start of each day; 502 msl is the lowest level the tank should reach during normal demand days; and 491 msl is the lowest level the tank will be allowed to reach except when there is a fire. The 491 msl level should only be experienced during very high demand days (Durham Fair and additional high demand). The tank stores about 130,000 gallons from 502 msl to 513 msl. The design estimate for the expected demand from Durham and existing demand in Middletown is 90,000 gallons per day, which is within the capacity of the tanks upper 11 feet. As long as the Long Hill pump station is operational, the water level in the tank should very rarely drop below 502 msl.

Retain hydro-pneumatic system for Watch Hill Drive and Talcott Ridge Drive: The outcome of the re-evaluation is that the booster pumps which were proposed to be installed inside the 8 residential properties are no longer included in the design. Property owners on Talcott Ridge Drive and Watch Hill Drive will be provided a separate hydro-pneumatic system that will be operated and maintained by the City of Middletown and will utilize as much of the existing infrastructure as possible.

Benefits to the City of Middletown

Summary of questions and issues: A number of questions focused on the projected revenue from the municipal expansion to provide water to Durham and whether the additional revenue would exceed the expenses. There were also questions regarding the impact of any revenue on the water rates for City of Middletown water customers. Additional questions included the number of connections that can be assured, the degree of additional fire protection, whether additional staff would be required to perform the operation and maintenance, and the details of the water service agreement with Durham.

Response: Middletown is blessed with ample water supplies. Middletown's water resources can produce on average 7.98 million gallons per day. Current utilization on average is just below 4.0 million gallons per day. Recent studies indicate that Middletown will have more than 1.0 million gallons per day in excess water resources than what will be needed to serve the long term needs of the City of Middletown.

A 2010 study performed by Fuss & O'Neill identified Middletown as the only local water utility that had the water resources available that could potentially provide a public water supply to properties in the Town of Durham affected by groundwater contamination. To that end, the City of Middletown and the Town of Durham approved a MOU that memorialized Middletown's willingness to provide Durham with potable water for the properties affected by the groundwater contamination.

The USEPA retained an Engineer, AECOM, to design the necessary infrastructure to convey potable drinking water to the properties in Durham. The infrastructure necessary for Middletown to convey water to Durham consists of water mains, an atmospheric storage tank, a hydro-pneumatic pump station, a water metering facility and revisions to an existing pump station. The capital costs associated with these Middletown facilities is nearly $8.0 million and will be paid solely by USEPA with a 10% contribution from the State of Connecticut.

The sale of water to Durham will be governed by a 20-year Agreement and will result in the generation of revenue for Middletown. Water will pass through a meter that will measure the flow into Durham. This meter will provide the water consumption data necessary to bill Durham for the water on a monthly basis. Bills will be based upon a "bulk rate" that will be the current Middletown water consumption rate in effect at the time of the billing plus a percentage that represents an impact fee. The impact fee was a result of an analysis of the impacts on the various regulatory factors utilized to evaluate a public water utility's capability to produce and treat water under a number of various water demand scenarios. The impact fee was determined to be 12%. Therefore, Durham will be billed at Middletown's water consumption rate (which may be revised from time to time) plus an additional 12% above that rate.

Durham will also be charged an additional onetime connection fee for all Durham properties that will be connected to the water being supplied from Middletown. These fees are to pay for the existing capacity of the Middletown water system to supply water to where the proposed infrastructure would be installed to carry it to Durham. The connection fees are consistent with the existing basic connection charges contained in Middletown's Ordinances. The additional

onetime connection fee will total $166,625. Furthermore, Durham will be subject to any and all use restrictions that may be imposed on Middletown customers due to drought or any other system limitations.

The amount of annual revenue that Middletown will receive is based upon the number of properties in Durham within the groundwater contamination area that are ultimately connected to the infrastructure that is being provide by the USEPA and the CTDEEP. The initial project that is being funded by the USEPA will construct and pay for the infrastructure in Middletown as well as the water mains in Durham that will bring water down Route 17 and connect to the existing Durham Center service area. Included in this portion of the project will be the schools and residential properties in the area of Route 17 and Maple Ave. This portion of the project is known as the Superfund Area. There are 197 service connections in this area and studies indicate that these connections will utilize approximately 83,120 gallons per day.

The remainder of the project area in Durham will be funded by the CTDEEP and other funding sources. Funding has been delayed as a result of the State Budget situation. These remaining 310 properties will be connected as State Funding allows and will constitute an estimated additional 36,880 gallons per day. This is the long-term portion of the project.

The estimated annual revenues to Middletown are identified in the table below. It identifies revenues for both the initial (Superfund) as well as for the total project. The table shows the net revenues after the costs associated with resource withdrawal, treatment, pumping and maintenance is taken into account. Additionally, the revenues are further broken down to show the annual savings for the average Middletown residential customer who consumes about 5000 cubic feet of water semi-annually if the net Durham revenues were directly applied as rate relief.

Estimated Revenue from Sale of Water to Durham		
	Initial (Superfund) Area (83,120 gpd)	**Total Project (220,000 gpd)**
Annual Net Revenue@	$91,083	$247,051
Reduction in Rate ($/1000 cuft)	$0.55/1000 cuft	$1.50/1000 cuft
Annual savings for average Middletown customer ($/year)	$5.53/year	$14.98/year
% annual savings for average Middletown customer	1.61%	4.36%

Based upon Middletown's existing consumption rate plus 12% impact fee. ie: Middletown's rate times 1.12

@ less cost for resource withdrawal, treatment, pumping and facility and system maintenance

As indicated above, Durham will pay a onetime connection charge in accordance with Middletown's Ordinances. The connection charge compensates Middletown for the capacity in Middletown's existing water system to deliver water to the infrastructure that will be installed by the USEPA to provide water to Durham. The total connection charge of $166,625 will be paid upfront for all properties that will be served by the total project prior to connection of any properties in Durham.

If the one-time revenue from the connection charge was directed to rate relief for Middletown customers it would result in the savings for average Middletown customer as indicated in the table below. This savings would only be in effect for 1 year.

Revenue from Onetime Connection Charges from Durham	
Revenue from Connection Charges	$166,625
Reduction in Existing Rate ($/1000cuft)	$1.01
Annual Saving for Average Middletown Customer	$10.11
% Annual Savings	2.94%

Another alternative for the revenues received from the sale of water to Durham would be to utilize them to periodically finance the annual principal and interest payments on an infrastructure improvement project. The initial net revenue ($91,083/yr.) from Durham could provide the average P&I payments for a 10 year $725,000 note at approximately 4.5 % interest. Once the Durham project is totally complete and all affected Durham properties are connected the net revenue ($247,051/yr. at 220,000 gpd) could finance the average P&I payments for a 10 year $1,900,000 note at approximately 4.5 % interest. This could for example replace 10,000 feet of water mains within Middletown's existing water system. An Infrastructure improvement project of the size identified above could be financed every 10 years just from the revenues from Durham without having a cost impact on the Middletown ratepayer.

The Revenues from the Durham project have the added benefit of reducing urban sprawl in Middletown. For example, to generate the same revenue that Durham would provide, Middletown would have to develop at least 270 new average customers. Furthermore, Middletown would avoid the associated public services, public safety and education costs. The generation of the equivalent revenue from within Middletown would require the development of well over 100 acres of currently vacant farm or forested lands from within its border.

The installation of the new atmospheric distribution storage tank will enhance the existing fire protection for the existing Middletown properties that were served by the old Long Hill hydro-pneumatic system. While this may not translate into a tangible benefit, the improved reliability and enhancement in fire flows may at some point may reduce fire damage or save a life for those served by the new infrastructure.

Lastly, the new infrastructure necessary to support and supply water to Durham will extend water in close proximity to existing developed properties in the Acorn Dr. subdivision. At some point in the future, these properties may desire or need public water. The basic infrastructure would be available. The cost to actually extend water to each existing customer would be more economically feasible than it would have been prior to the Durham Project.

The water infrastructure that will be installed in Middletown for the Durham project will not create urban sprawl in Middletown. Zoning has already been established for the project area and the limiting factor in changing that zoning would be a reduction in lot sizes based upon the

availability of public sanitary sewers. The Sewer Department's Master Sewer Plan that was previously submitted and approved by CTDEEP for Middletown has designated that public sanitary sewer service would not be extended into this project area. Therefore, CT DEEP formally classified this area as "Conservation Area". This designation limits development for the area based upon the lot sizes necessary for on-site sewer disposal and hence this project will not create urban sprawl. There is no plan to change the States' "Conservation Area" designation.

The City of Middletown Water & Sewer Department does not anticipate that additional staff will be necessary to support the infrastructure, including the new water tank that will be installed to extend and supply water to Durham.

Aesthetic Issues

Summary of Questions and Issues: Comments were received concerning the impact of the water tank on the vista from Talcott Ridge Drive and Watch Hill Drive as well as the Guida conservation area. Comments also questioned whether additional concealment measures were available and why the tank height was necessary.

Response: The water storage tank, as noted in the comments, is a significant physical feature. It must be large enough to contain sufficient water to serve the community and at an elevation above the properties to be provided water service to achieve the required water pressure. As currently designed, the tank is 79 feet high. While a balloon test at the tank location indicated that the trees are also about 80 feet high, the removal of some of these tress is likely to allow the tank to be visible from the upper portions of Talcott Ridge Drive and Watch Hill Drive. The tank would also be visible from the Guida conservation area. An estimated 10-15 feet of the tank could be visible above the tree line from these locations. The majority of the tank would not be visible as there is 0.25 miles of distance with mature tree cover between the tank and the cul-de-sac on Talcott Ridge Drive. There will also be tree cover hiding the majority of the tank from the Guida conservation area. Views from a second floor window in residences where the tank is visible should not reveal significantly more of the tank due to the tree cover.

Concealment measures could be evaluated. Unless these are required by a local or state regulation; it would be the responsibility of the City of Middletown to pay for and install such measures.

Aesthetic issues pertaining to the partial paving of the road have been addressed as a result of the design revision to pave the entire width of the road.

Tree Clearing and Stormwater

Summary of Questions and Issues: There were comments about the visual impact of the tree clearing for the project along with the changes in surface water hydrology. There also are comments regarding the potential to increase flooding.

Response: The applicable permit submitted to the IWWA assessed the potential impacts to wetlands. As presented to IWWA, the change in flow as a result of the changed road conditions and clearing at the tank site would increase the peak flow from the project area by 0.69 cubic feet

per second (cfs) for the 2-year storm, 0.98 cfs for the 10-year storm, and 0.22 cfs for the 100-year storm. In terms of the percentage increase, the flows would be 6.3% higher for the 2-year storm, 2.2% for the 10-yr storm, and 0.25% for the 100-year storm. These changes should not impact the flood level downstream. Based on the information provided, the IWWA granted the wetland permit. The implementation contractor will be required to follow sediment and erosion control best management practices to minimize impacts to wetlands and streams. It is also important to note that even though the periodic flooding and ongoing stream channel degradation will not be made worse by the project, the project will not reduce the potential for such activities. If any area flooded before the project, it will be just as likely to flood after the project.

The project does not require a large area of clearing. There will be about 1.5 acres of clearing associated with the construction activities, which includes the tank, the driveway, and the area to perform the construction activities. The construction activities will be managed to minimize clearing and leave as much vegetation in place as practicable. One design revision that could reduce clearing and wetland impacts is to align the City of Middletown Right of Way with the existing driveway. This change will be implemented if all the applicable landowners and the City of Middletown can come to agreement.

Paving and Construction Issues

Summary of Questions and Issues: Comments were received regarding the initial design requirement that only the half of Talcott Ridge Drive where the water main trench cut occurs will be paved. There were also questions about water pressure and water service during construction.

Response: EPA re-evaluated the paving requirement and has included the paving of the full width of Talcott Ridge Drive. This is based on the anticipated impact to this residential road from the construction equipment and material deliveries to install the water tank. This change will be documented in the design documents that are released for bid. Water service and water pressure will be maintained during construction. Temporary lines may be run to provide water when the section of water main is being installed. There may also be some short-term interruption of service when the existing service lines are connected to the new water main. The construction will be implemented to minimize impact on existing trees to the extent practicable.

Tank Siting

Summary of Questions and Issues: Comments were received questioning why the tank is located at the proposed location, what other locations were evaluated, where else could the tank be located, and why the Long Hill tank or location could not be used.

Response: The best location for a structure is a function of both the design criteria and availability. Locations that may be better suited to the design criteria may not be available. Also, not all locations that are available meet the design criteria. For the water main and water storage tank project, the location would need to be owned by the municipality in reasonable proximity to the water main and be above 440 msl. The placement of the tank in the City of Middletown is also a design criterion because the operation of the tank must be coordinated with the Long Hill pump station, which is operated by the City of Middletown.

The City of Middletown evaluated potential tank locations prior to 2000. As stated above, a tank location is only a viable option if that property is available for use, has reasonable access, and is at an elevation that would allow for an atmospheric tank. The City of Middletown had the opportunity to acquire the proposed location in 1994. The ownership of the proposed tank location by the City of Middletown for use by the Water and Sewer Department was then included in the final subdivision plans approved in 1997. In the initial 2000 Durham Water System Extension Feasibility Study prepared by Fuss and O'Neill, the location on Talcott Ridge Drive was identified as the preferred location for the water storage tank due to the ownership of this parcel by the City of Middletown for that specific use. This was re-affirmed in the 2005 letter from the City of Middletown to EPA in comment on the EPA proposed cleanup plan and in the 2012 update of the Durham Water System Extension Feasibility Study. The location was also specifically mentioned in the Memorandum of Understanding between the City of Middletown and the Town of Durham. EPA designed the tank for the location that the City of Middletown designated as the tank site. As a result, there was no evaluation of other locations as part of the EPA design.

A preliminary evaluation after receipt of the comments indicates that there are no properties that are currently owned by the City of Middletown or the Town of Durham that would be suitable as the tank location using the current project criteria. There are other locations that are both undeveloped and at an elevation of 440 msl or higher, but these properties are not owned by either municipality.

Using the existing Long Hill pump station as the source of water and pressure for the water main extension into Durham would be possible. The pump station could possibly be upgraded to include a much larger hydro-pneumatic system but that would be contrary to good engineering practices for water supply design. The existing tank site elevation is 440 msl, which is 120 feet higher than the Long Hill location. A tank installed at the Long Hill location, which is about 320 msl, to only serve Durham would need to store water at an elevation above 423 msl to provide the 40 psi of water pressure at the first floor of the highest elevation structure. If the tank was 45 feet wide, the top of the tank would be 453 msl at Long Hill, which would be 133 feet high. If the tank was also designed to provide water to serve properties along Route 17 in Middletown from Talcott Ridge Drive to the Durham town line, the tank would need to be 172 feet high. If the tank was designed to replicate the range of water pressure provided by the existing hydro-pneumatic system serving Talcott Ridge Drive and Watch Hill Drive, the tank would need to be 240 feet high. A tank this high would have numerous construction, visibility, and other issues.

One question asked about installing a tank at elevation 330 msl. This is only ten feet higher than the location of the Long Hill tank site as discussed above and the elevations for the tank would be the same.

Water Line Connections

Summary of Questions and Issues: Comments questioned whether properties in undeveloped subdivisions have to connect to the water line once installed. Other comments requested to better explain projections for potential new users and whether the system could be expanded to serve beyond Durham.

Response: The requirement for anyone outside of the Durham Meadows Superfund Site to connect to the water line is an issue for CTDPH, the City of Middletown, and the Town of Durham. EPA is only connecting those properties in Durham within the Durham Meadows Superfund Site that EPA has designated for a full water line connection.

The City of Middletown has approval from CTDPH to sell a certain volume of water. Any increase would require a new permit and have to address many regulatory issues. There are eight areas identified as having water quality issues that could result in water service to each area. The Durham Meadows Superfund Site is one of the areas. For the EPA project, only those properties within the Durham Meadows Superfund Site are being connected to the water line at this time. The design for the water tank and water main assumes that all of these areas could be connected at some time in the future.

Water Line and Tank Design

Summary of questions and issues: The comments requested an explanation as to why the new water storage tank could not be located at the site of the Long Hill tank or why the existing system could not provide the water to Durham. Other comments requested the daily demands in cubic feet and gallons and an explanation of the size of the tank. Another questioned why the project designers did not present alternative water tower designs. Comments also questioned why the existing system must be removed.

Response: See response relating to the tank location and height in the Tank Siting response above.

A table with the design flows in gallons and cubic feet is attached as Appendix C.

There are few options for a large potable water storage tank. Concrete and steel are the two most common materials. The height of the tank is controlled by the elevation necessary to achieve water pressure and the width is both a function of the required volume and structural integrity. The current tank height is the minimum that would meet the project requirements. With respect to disguising the tank, there are some measures that could be employed, but they would need to be specified in a city regulation or permit condition for EPA to be able to pay for such measures.

The primary reason for eliminating the existing hydro-pneumatic system is to prevent the City of Middletown Water and Sewer Department from maintaining two systems that serve the same area. The outcome of the re-evaluation is that the booster pumps which were proposed to be installed inside the 8 residential properties are no longer included in the design. Property owners on Talcott Ridge Drive and Watch Hill Drive will be provided a separate hydro-pneumatic system that will be operated and maintained by the City of Middletown and will utilize as much

of the existing infrastructure as possible. In addition, the atmospheric tank would offer better fire support and greater reliability. The City of Middletown has accepted the responsibility and cost for maintaining two separate systems.

Public Outreach for Design

Summary of questions and issues: The comments expressed concern that no direct efforts were made to contact the property owners along Talcott Ridge Drive and Watch Hill Drive and that previous outreach efforts that included legal notice in the Middletown Press and direct mailing of a Durham Meadows public information fact sheet describing the work were not considered sufficient to engage these individuals in a discussion about the potential project impact to their neighborhood. Additional comments relating to the lack of contact by the City of Middletown is not addressed below as this is not an EPA/CTDEEP issue.

Response: EPA and CTDEEP acknowledge that there should have been a more intensive targeted outreach effort for the properties along Talcott Ridge Drive and Watch Hill Drive. This is a major lesson learned for both agencies and we regret not confirming that the property owners near the tank site were aware of the project. Since becoming aware of the issue, EPA and CTDEEP along with the City of Middletown Water and Sewer Department have engaged these individuals in a dialogue to develop an understanding of their concerns and issues. In addition, it is clear from the unfavorable review submitted by the Planning and Zoning Commission and the feedback from the Common Council at the February 13, 2017 workshop that the issues and concerns of these individuals are being given serious consideration by the City of Middletown. Further, EPA and CTDEEP along with the City of Middletown Water and Sewer Department hosted additional public outreach meetings on February 21 and 28, 2017 to provide an opportunity for an informal discussion. Finally, the changes made to the project in light of these comments and concerns reflect the full consideration given to the input from these and other property owners.

The use of the Middletown Press for a legal notice and the inclusion of the water design update in the Durham Meadows public information fact sheet are reasonable and common methods to solicit public involvement for a large project.

Other Comments or Issues

1. Is the February 13, 2017 workshop presentation the same presentation made to Planning and Zoning Commission for the 8-24 review?

Response: It is similar. The February 13, 2017 workshop presentation was more detailed and included additional background information. The January 4, 2017 presentation to the Planning and Zoning Commission was a brief overview of the proposed municipal improvements. The January 25, 2017 presentation to the Planning and Zoning Commission provided the photos with the potential tank view presented along with two profiles. In addition, a response to the comments provided by the Talcott Ridge Drive and Watch Hill Drive property owners, a copy of key relevant documents, and a document providing additional information regarding the municipal improvements were provided.

2. What is situation at Acorn Drive and how likely is it that they will need public water?

Response: The Durham Water System Extension Feasibility Study, prepared by Fuss and O'Neill, dated November 2012, identifies an area H which includes Oak Hill Terrace and Acorn Drive as an area where future water service may be requested due to the presence of iron and manganese in the private well water. There was no information provided regarding the concentration of the iron or manganese.

3. Send any responses to Council and property owners.

Response: EPA will provide the response to questions and issues to both the Common Council and the property owners along with other members of the public who may have an interest in the information.

4. What will happen to Long Hill Tank once upgrades are in place?

Response: The Long Hill Tank will not change as a result of the project. The high capacity fire pumps at the Long Hill Pump Station will be modified with pumps that are better suited to support the new water main and water storage tank. In addition, a chlorine dosing system will be added to provide chlorination for the new water main and water tank. The existing smaller pumps and associated hydro-pneumatic system would remain in case needed in the future.

5. There were questions about the future expansion relating to whether this was to existing homes versus new homes and how that relates to the revenue projections.

Response: The water main and water storage tank were designed to address demand from existing structures. The design flow estimates did include an estimate for currently undeveloped lots which was also factored into the potential water demand. The Durham Water System Extension Feasibility Study, prepared by Fuss and O'Neill, dated November 2012, provided the initial analysis regarding the water demand for each of the eight areas evaluated.

6. If this tank does move forward to the detriment of our neighborhood, this will most likely result in urban sprawl to the area in the future. This is in direct opposition to the stated mission of the city in this area of Middletown.

Response: The water main and water tank are sized to address potential demand for existing areas and would allow expansion of the customer base without additional construction. The system has the capacity to accommodate some future development but that is not the purpose of the water main or water tank.

7. It has been claimed that such a sprawl will not be possible because there are no sewer lines in place in this part of the city, however our own neighborhood already exists without sewer lines.

Response: This is an issue for the City of Middletown to address. The purpose of the water main and water storage tank is to provide clean water to the properties in Durham impacted by the groundwater contamination or threatened by the contamination.

8. Can gas lines be put in at the same time?

Response: EPA would not be installing any other utilities. Only work that is required to provide water to the Durham Meadows Superfund Site can be performed by EPA using federal funds. EPA has been coordinating with Eversource regarding a future gas main project that may be installed by Eversource in the near future.

9. Would residents have to pay to connect to gas lines?

Response: This question does not relate to the water main and water tank discussion.

10. Can back-up cable be put in to increase reliability?

Response: The installation of a back-up electrical cable is not included in the design.

11. Ensure that any subsurface work that needs to be done will be verified by utility companies, such as cable, gas, and power companies.

Response: All of the required and other best management practices will be implemented to avoid impacting other utilities lines.

12. Has an agreement been reached with the three property owners to allow for moving the right-of-way?

Response: Not yet. EPA is working on this issue and hopes to complete the agreement as soon as possible.

13. Would EPA go through with building the tank at that location even with no agreement?

Response: EPA has access agreements with the three property owners to allow the construction of the water main and water storage tank along the existing private shared driveway.

14. Are the three property owners going to get city water?

Response: The three property owners currently have private wells and have not requested city water.

15. Durham's need for fire protection is already being met by pumper trucks.

Response: That is correct. The inclusion of fire protection in the design was based on the need to replace the existing fire protection for the Regional School District #13 schools. The existing water supply well and existing fire suppression system must be decommissioned once the

schools are connected to the water line. It is also important to note that for the existing design parameters, the volume of water in storage to provide fire protection is also part of the volume of water necessary to achieve the elevation of the water intended for use as daily water demand.

16. Middletown does not need additional fire protection.

Response: The water main and tank provide the volume to support fire protection for Middletown and Durham. The volume would not change if the fire protection for Middletown was eliminated because the volume is based on the water required to suppress a fire at the school buildings or at a large building. In addition, the volume of water in fire storage is part of the volume of water needed to raise the height of the water in the tank to the level needed to achieve the required water pressure.

17. Do Durham residents get better insurance rates because of the fire protection?

Response: The insurance rating for the areas of Durham where hydrants will be located could improve and the result could be lower rates. That is a question that should be addressed by the insurance companies and fire marshal.

18. How many fire hydrants are going to Durham?

Response: There are 14 hydrants in Middletown and 42 in Durham.

19. Is there any concern that there is not enough water to serve both Middletown and Durham? For how many years?

Response: The City of Middletown performed an evaluation to demonstrate to the CTDPH that they have the capacity to serve Middletown and Durham.

20. Does the water line go through Middlefield? Will Middlefield benefit from the water main? Is anyone from Middlefield going to connect to the water main?

Response: The water line will run in Middlefield for a short section that is also within the Route 17 CTDOT Right of Way. At this time, one property in Middlefield will receive a curb stop.

21. Are the 3 immediate area homes currently using wells for water? If yes, will those 3 homes get hooked up to city water? If yes, who's paying for that?

Response: The 3 properties adjacent to the water tank are currently using well water and have indicated an intent to remain on well water.

22. Do you have agreement with the City and the 3 homeowners to move the Right of Way?

Response: There is not current agreement. A new property survey and title work must be performed first. Once that is completed, EPA will work with the City of Middletown and the property owners in an attempt to align the Right of Way with the shared driveway.

23. First issue is boosters/water pressure; secondary goal is to lower tank height

Response: As described in the responses, the project team has evaluated all of the issues brought to our attention.

24. Common Council agreed to move the date to hear this matter – will be either April meeting or the following month; or a special meeting mid-month is possible.

Response: We appreciate the continued cooperation of the Common Council.

25. Residents/Common Council are looking for detailed responses

Response: The responses provided in this document are based on the level of detail available at this time. We believe the responses are detailed and considerate of the comments provided.

26. There was very little information that was provided to the common council when they approved the MOU with Durham; also the MOU said this is not a done deal; there was no outreach in the neighborhood; we are not the bad guys

Response: Only those present at the meeting can provide a response to the exact details provided. The meeting minutes do indicate that there was a discussion of the project prior to the vote to support the signing of the MOU. The MOU specifically referenced the Fuss & ONeill Report which did include significant detail regarding the project, including the proposed dimensions and location of the water tank. The project requires many approvals to proceed, including the approval of the Common Council, and that the MOU was not a final approval. The outreach issue was discussed in a previous comment. Clearly, it would have been much more efficient if the issues and concerns of the property owners had been identified earlier in the design process. As in most projects, there are multiple perspectives based on the potential benefit and/or impact to any specific person or entity. While there may be fundamental disagreements based on these differences, each perspective should be respected.

Attachments:

Appendix A – Conceptual Schematic of Middletown Water Main Extension

Appendix B – Individual Water Pressure Table Based on Water Tank (note that this table is no longer applicable due to decision to retain separate hydro-pneumatic system for Talcott Ridge Drive and Watch Hill Drive)

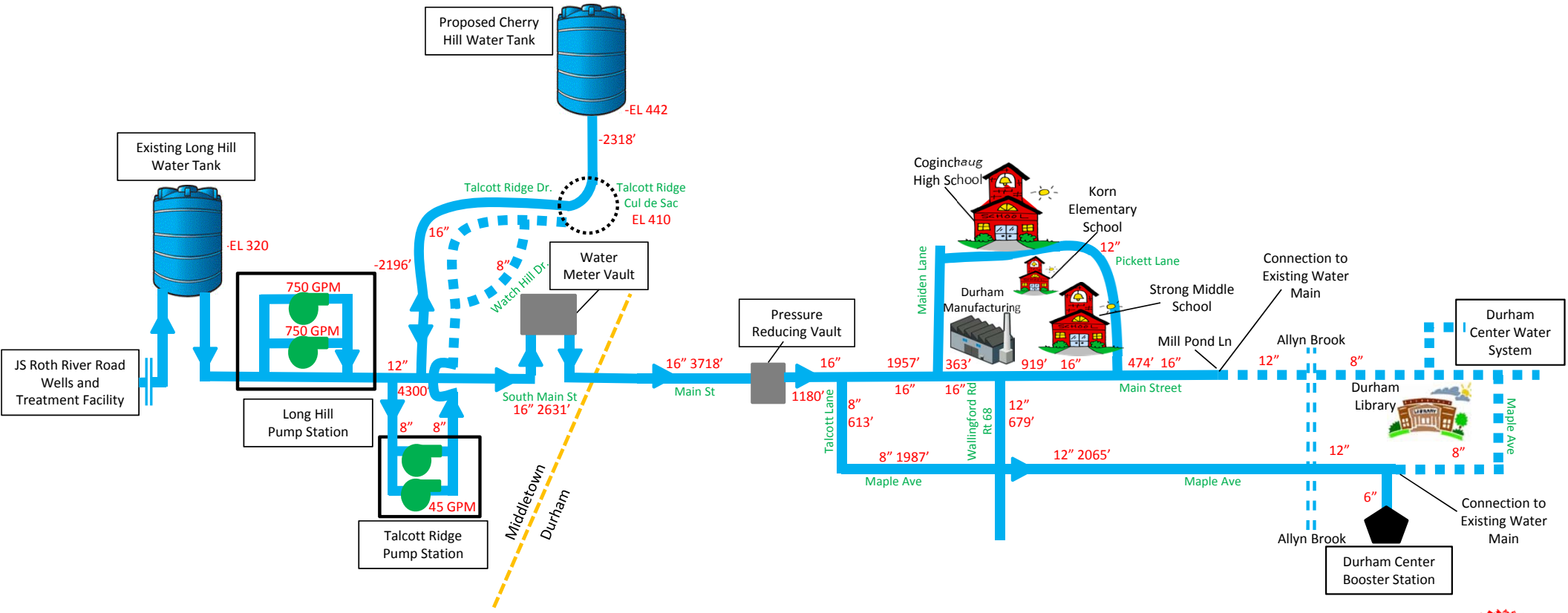
Appendix C – Table with estimate water demand and flow for water main extension in gallons

Appendix D – List of questions and issues raised during outreach

Appendix E - Detailed Chronology of reports, meetings, and notices associated with the water main extension and water tank project

APPENDIX A

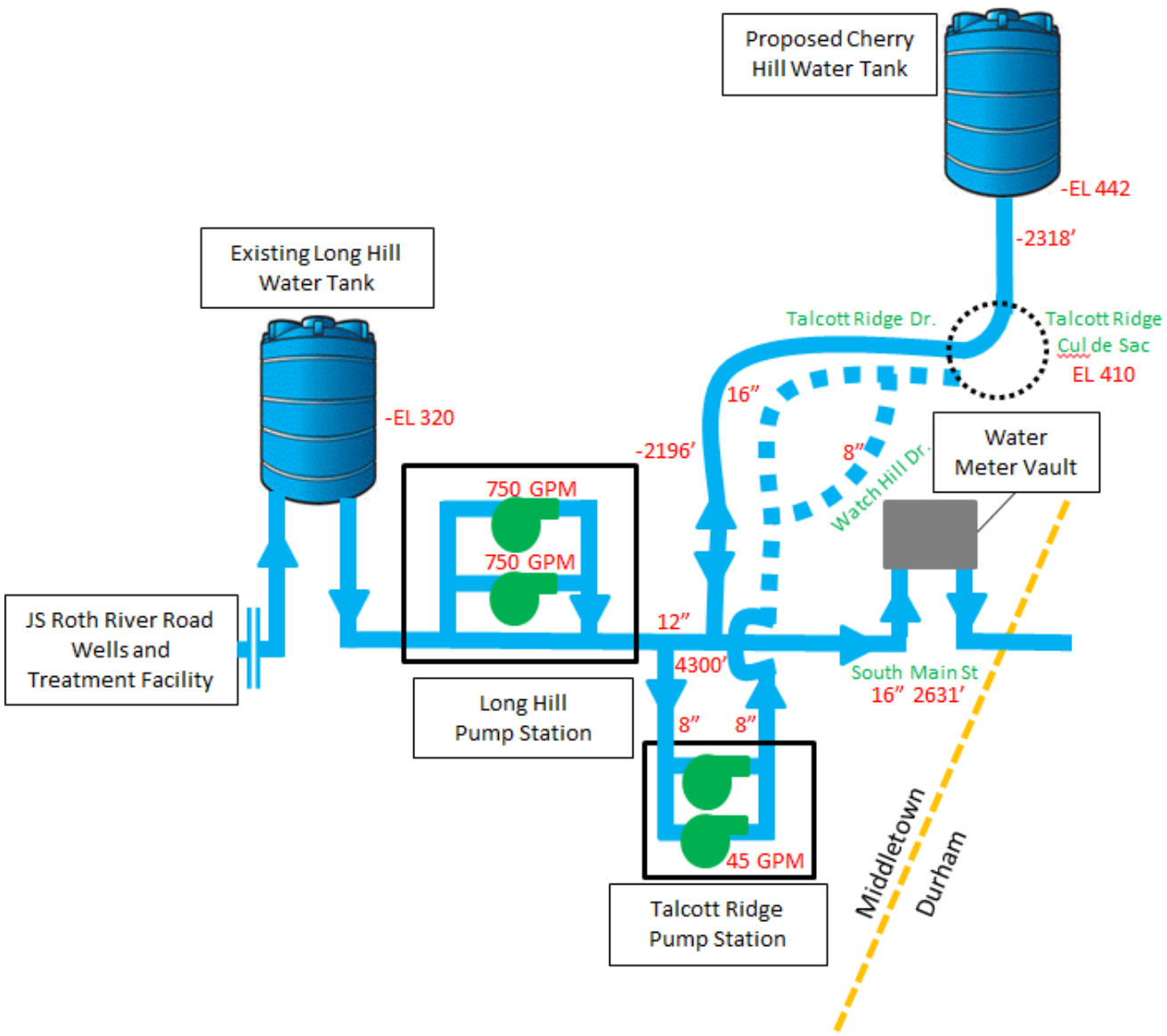
WATER MAIN EXTENSION SCHEMATIC



GROUNDS

Durham Meadows Waterline RD
Schematic Drawing
Not to Scale

AECOM



Durham Meadows Waterline RD
Middletown Portion
Schematic Drawing
Not to Scale

AECOM

APPENDIX B

WATER PRESSURE BASED ON CHERRY HILL WATER TANK
(NO LONGER VALID FOR TALCOTT RIDGE DRIVE AND WATCH HILL DRIVE)

ESTIMATED SERVICE AREA PRESSURES													
					Proposed 45 ft. Diameter 79 ft. Tall Atmospheric Tank System								
Address	Approx. Street Elevation	Water Main Elevation	Approx. First Floor Elevation	Approx. Second Floor Shower Elevation	Water Pressure At Water Main (psi)			Water Pressure At First Floor (psi)			Water Pressure At Second Floor Shower (psi)		
	(feet)	(feet)	(feet)	(feet)	Minimum	Normal Min.	Maximum	Minimum	Normal Min.	Maximum	Minimum	Normal Min.	Maximum
1133 Long Hill Road	312	307.5	313	328	79	84	89	77	82	86	71	75	80
1149 Long Hill Road	318	313.5	316	331	77	82	86	76	81	85	69	74	78
6 Round Hill Road	322	317.5	324	339	75	80	84	72	77	81	66	71	75
9 Round Hill Road	318	313.5	327	342	77	82	86	71	76	80	65	69	74
21 Round Hill Road	312	307.5	325	340	79	84	89	72	77	81	65	70	74
32 Round Hill Road	307	302.5	305	320	82	86	91	81	85	90	74	79	83
33 Round Hill Road	309	304.5	321	336	81	85	90	74	78	83	67	72	76
47 Round Hill Road	302	297.5	315	330	84	89	93	76	81	85	70	74	79
67 Round Hill Road	296	291.5	343	358	86	91	95	64	69	73	58	62	67
80 Round Hill Road	294	289.5	293	308	87	92	96	86	90	95	79	84	88
92 Round Hill Road	294	289.5	293	308	87	92	96	86	90	95	79	84	88
93 Round Hill Road	292	287.5	301	316	88	93	97	82	87	91	76	81	85
1862 South Main Street	294	289.5	275	290	87	92	96	94	98	103	87	92	96
1870 South Main Street	295	290.5	292	307	87	92	96	86	91	95	80	84	89
1885 South Main Street	298	293.5	302	317	85	90	95	82	87	91	75	80	84
1886 South Main Street	299	294.5	296	311	85	90	94	84	89	94	78	83	87
1904 South Main Street	302	297.5	301	316	84	89	93	82	87	91	76	81	85
1926 South Main Street	312	307.5	309	324	79	84	89	79	84	88	72	77	81
1933 South Main Street	312	307.5	312	327	79	84	89	77	82	87	71	76	80
1937 South Main Street	314	309.5	291	306	79	83	88	87	91	96	80	85	89
1963 South Main Street	316	311.5	320	335	78	82	87	74	79	83	68	72	77
1985 South Main Street	320	315.5	321	336	76	81	85	74	78	83	67	72	76
2015 South Main Street	338	333.5	356	371	68	73	77	58	63	68	52	57	61
2030 South Main Street	349	344.5	357	372	63	68	73	58	63	67	52	56	61
2036 South Main Street	344	339.5	345	360	66	70	75	63	68	72	57	61	66
2055 South Main Street	356	351.5	366	381	60	65	69	54	59	63	48	52	57
2080 South Main Street	353	348.5	359	374	62	66	71	57	62	66	51	55	60
2081 South Main Street	355	350.5	370	385	61	66	70	52	57	61	46	51	55
2100 South Main Street	355	350.5	358	373	61	66	70	58	62	67	51	56	60
South Main Street	362	357.5	360	375	58	63	67	57	61	66	50	55	59
2155 South Main Street	364	359.5	360	375	57	62	66	57	61	66	50	55	59
2156 South Main Street	362	357.5	371	386	58	63	67	52	57	61	45	50	55
2286 South Main Street	350	345.5	390	405	63	68	72	44	48	53	**37**	42	46
2292 South Main Street	350	345.5	351	366	63	68	72	61	65	70	54	59	63
2296 South Main Street	345	340.5	357	372	65	70	74	58	63	67	52	56	61
2175 South Main Street	356	351.5	328	343	60	65	69	71	75	80	64	69	73
2301 South Main Street	355	350.5	330	345	61	66	70	70	74	79	63	68	72
2303 South Main Street	343	338.5	338	353	66	71	75	66	71	75	60	65	69
2329 South Main Street	340	335.5	333	348	67	72	76	68	73	77	62	67	71
2330 South Main Street	342	337.5	377	392	66	71	76	49	54	58	43	48	52
2332 South Main Street	338	333.5	345	360	68	73	77	63	68	72	57	61	66
2337 South Main Street	337	332.5	333	348	69	73	78	68	73	77	62	67	71
2345 South Main Street	336	331.5	337	352	69	74	78	67	71	76	60	65	69

ESTIMATED SERVICE AREA PRESSURES													
					Proposed 45 ft. Diameter 79 ft. Tall Atmospheric Tank System								
Address	Approx. Street Elevation	Water Main Elevation	Approx. First Floor Elevation	Approx. Second Floor Shower Elevation	Water Pressure At Water Main (psi)			Water Pressure At First Floor (psi)			Water Pressure At Second Floor Shower (psi)		
	(feet)	(feet)	(feet)	(feet)	Minimum	Normal Min.	Maximum	Minimum	Normal Min.	Maximum	Minimum	Normal Min.	Maximum
9 Talcott Ridge Drive	358	353.5	369	384	60	64	69	53	58	62	46	51	55
18 Talcott Ridge Drive	360	355.5	358	373	59	63	68	58	62	67	51	56	60
33 Talcott Ridge Drive	364	359.5	371	386	57	62	66	52	57	61	45	50	55
48 Talcott Ridge Drive	367	362.5	363	378	56	60	65	55	60	65	49	54	58
68 Talcott Ridge Drive	370	365.5	363	378	54	59	63	55	60	65	49	54	58
83 Talcott Ridge Drive	370	365.5	382	397	54	59	63	47	52	56	41	45	50
88 Talcott Ridge Drive	370	365.5	360	375	54	59	63	57	61	66	50	55	59
105 Talcott Ridge Drive	370	365.5	382	397	54	59	63	47	52	56	41	45	50
108 Talcott Ridge Drive	370	365.5	358	373	54	59	63	58	62	67	51	56	60
124 Talcott Ridge Drive	370	365.5	369	384	54	59	63	53	58	62	46	51	55
142 Talcott Ridge Drive	379	374.5	372	387	50	55	60	52	56	61	45	50	54
164 Talcott Ridge Drive	387	382.5	374	389	47	52	56	51	55	60	44	49	53
182 Talcott Ridge Drive	396	391.5	388	403	43	48	52	45	49	54	**38**	43	47
199 Talcott Ridge Drive	410	405.5	438	453	37	42	46	**23**	**28**	**32**	**16**	**21**	**26**
204 Talcott Ridge Drive	405	400.5	388	403	39	44	48	45	49	54	**38**	43	47
8 Watch Hill Drive	370	365.5	382	397	54	59	63	47	52	56	41	45	50
17 Watch Hill Drive	384	379.5	401	416	48	53	57	**39**	44	48	**32**	**37**	42
34 Watch Hill Drive	392	387.5	404	419	45	50	54	**38**	42	47	**31**	**36**	40
37 Watch Hill Drive	394	389.5	417	432	44	49	53	**32**	**37**	41	**26**	**30**	**35**
60 Watch Hill Drive	406	401.5	405	420	39	44	48	**37**	42	46	**31**	**35**	40
67 Watch Hill Drive	406	401.5	414	429	39	44	48	**33**	**38**	42	**27**	**32**	**36**
82 Watch Hill Drive	402	397.5	403	418	40	45	50	**38**	43	47	**32**	**36**	41
87 Watch Hill Drive	400	395.5	413	428	41	46	50	**34**	**39**	43	**27**	**32**	**36**

Notes

48 Connected customers in existing Long Hill Pressure Zone.

* - Not currently connected to water system.

Street and first floor elevations based upon City of Middletown GIS contour data.

Water main elevation is 4.5' below street elevation.

Second floor shower head estimated to be 15' above first floor elevation.

00 - Pressure at the water main less than 35 psi or pressure at the building less than 40 psi

Tank Level Settings

HGL - Tank Full Level	512	*Normal Tank Full Level (Overflow Elevation -2')*
HGL - Normal Low Water Level	502	
HGL - Bottom of Domestic Storage Leve	491	

APPENDIX C

ESTIMATE DEMAND AND FLOW ASSUMPTIONS

Attachment to Response to Comments

Area	Durham Water Main Design Flow Estimates: Average day demand (ADD) gpm	Maximum daily demand (MDD) gpm	Peak hourly demand gpm	ADD gallons	MDD gallons	cubic feet: ADD cubic feet	MDD cubic feet
Existing (includes Talcott Ridge Drive)	6.00	9.00	48.00	8,640.00	12,960.00	1,155.08	1,732.62
A (Superfund)	40.00	60.00	320.00	57,600.00	86,400.00	7,700.53	11,550.80
B	12.20	18.30	97.70	17,568.00	26,352.00	2,348.66	3,522.99
C	6.00	8.90	47.70	8,640.00	12,960.00	1,155.08	1,732.62
D	14.90	22.30	119.20	21,456.00	32,112.00	2,868.45	4,293.05
E -RSD#13 School Buildings	8.00	12.00	64.00	11,520.00	17,280.00	1,540.11	2,310.16
F	21.90	32.80	175.10	31,536.00	47,232.00	4,216.04	6,314.44
G	12.60	18.90	100.80	18,144.00	27,216.00	2,425.67	3,638.50
H (Acorn Drive and Oak Terrace)	25.70	38.50	205.30	37,008.00	55,440.00	4,947.59	7,411.76
I Durham Center (existing)	9.10	14.60	77.70	14,000.00	21,000.00	1,871.66	2,807.49
I Durham Center (future)	4.16	6.25	33.30	6,000.00	9,000.00	802.14	1,203.21
Durham Fair		66.84	384.72		96,250.00		12,867.65
Total	160.56	308.39	1,673.52	232,112.00	444,202.00	31,031.02	59,385.29
Superfund,E, Existing I (DCWS) , Fairgrounds	63.10	162.44	894.42	91,760.00	233,890.00	12,267.38	31,268.72
471 Area (B,C,D, remaining I)	37.26	55.75	297.90	53,664.00	80,424.00	7,174.33	10,751.87
Other (F,G,H)	60.20	90.20	481.20	86,688.00	129,888.00	11,589.30	17,364.71
Total	160.56	308.39	1,673.52	232,112.00	444,202.00	31,031.02	59,385.29
Fire Flow					300,000.00		40,106.95
MDD plus Fire Flow					744,202.00		99,492.25

Notes:

Durham Center current daily use estimated at 14,000

Middletown existing demand based on 7,566 gallons per day measured plus 10% = 8,233 gallons per day for average

Durham Fair peak flow for 2015 was 87,500 adjusted for 10% = 96,250 gallons per day (assume this is an MDD since it only occurs 4 days

All ADD and MDD not noted above are from the AECOM design/Fuss & O'Neill design

MDD is 1.5 times ADD. All ADD numbers are the ADD plus 10% derived by Fuss & O'Neill unless noted above

Peak hour is MDD divided by 3 to obtain the peak hour quantity then divided by 60 to get the peak hour flow in gallons per minute (gpm)

Revised design flows differ from AECOM BOD based on updated flow for Middletown "existing" and inclusion of Durham Fair in MDD

300,000 gallon fire flow based on 2,500 gpm for 2 hrs would not be sufficient for several commercial structures without sprinkler system

Appendix D

Durham Meadows Superfund Site City of Middletown Municipal Improvements

Water Main and Water Storage Tank

Questions and Issues by Category

March 13, 2017

Project Need and Timeline

1. Why is approval urgent when project has been around for so many years.
2. Where is Durham rep to express need?
3. Durham Reps/Counsel need to put this project as top priority.

Booster Pumps and water pressure

1. Better explanation of water pressures, expanded to include all properties on Talcott Ridge Drive and Watch Hill Drive.
2. The neighborhood is asking for a study to be done by an independent and credible agency for the water pressures for all houses in Watch Hill Estates.
3. What are the pressures at the fire hydrant, the first floor and at the second floor?
4. Explain when low pressure will take place?
5. Why were particular pumps specified?
6. Pressure drop on Talcott Ridge and Watch Hill during construction?
7. Pressure calculation check from independent consultant.
8. Will electrical work be included in booster pump install – balloon test guy said no.
9. Is the booster pump truly optional? Wouldn't be offering if it was and pressure calculations suggest otherwise.
10. Is there a way to insulate noise created by booster pumps?
11. How was the booster pump in the design selected, how does it work, how does it rate against other options, and what is the expected O&M frequency/cost?
12. Why did the pressure change from the chart provided to the Zoning Commission? Numbers should be fixed by now with project going on for so long. Requested independent consultant check on calculations.
13. Separate booster station for just the eight homes impacted by lowered pressure
14. Cost of booster replacement in 10-years
15. Can the noise made by the pumps be reduced/isolated?
16. Are the water pressure tanks and pumps made by Amtrol considered inferior?
17. Another serious concern is with regards to water pressure. The applicants have proposed to fund the installation of water pumps at 8 homes, which will be otherwise reduced to only minimal water pressure upon completion of this project without the use of the additional pumps. However, all operating and maintenance expenses will immediately become the burden of these homeowners. The replacement cost of these pumps is stated by the EPA to be over $1400, not including labor. We are told from our neighbors who have met with AECOM that the residents will be responsible for hiring an electrician and for wiring these pumps at their own

expense. We do not feel that it is fair to impose this added operating expense and financial risk to these residents as a result of this project.

18. Independent study in layman's terms of the water pressure in Watch Hill Estates; pressure at the fire hydrant, the 1st and 2nd floors of each residence.
19. Contingency plan for the future in the event homes currently not being offered a pump experience water pressure drop and need a pump? Who pays if need a booster pump in the future?
20. City should be responsible for ANY problem associated with the tank or booster pumps (e.g., pay for pump repairs/replacements/flooded basements/etc); the City needs put in writing that it will cover any cost associated with the water tank and pump. Can City guaranty?
21. Unfair for this neighborhood to have to bear ANY of the costs of Durham getting clean water and Middletown getting more money, now or in the future.
22. Unfair that the neighborhood which bears the tank ends up with lower water pressure.
23. Residents need to be made whole – tax reduction/rebate/some kind of reimbursement; has this been done before in another town? Can DEEP or EPA compensate the impacted residents?
24. Separate pressure zone/loop?
25. Don't understand how the pump works. Don't understand why we have a big water tank in our backyard but have pressure problems. Need to understand how the tank and pump work.
26. Where are we getting our water now?
27. What are the City's contingency plans for those homes that are not being offered booster pumps if there are water pressure issues after the tank's completion?
28. What will the City do for those homes at that time if their water pressures are lower?
29. The 8 homes offered booster pumps objected to having to take on the financial burden of individual pumps and maintenance and replacement forever and are asking the City to cover the pumps.
30. How long will it take to see costs/plans re: a central pump?
31. Round Hill Rd – will water pressure be affected?
32. When will water pressure analysis be done? Most concerned re: peak demands and mostly on the 2nd floor (for showering, …)
33. Could you serve the homes without booster pumps if you raised the height of the tank?
34. Other people in Middletown with boosters – do they pay for them on their own? Problems?
35. What determines whether we all have pumps or 1 common pump?
36. Prefer one common pumps; otherwise consider warranty the 8 pumps
37. Have you done preliminary work on a common pump?

Benefits to Middletown

1. Detailed explanation of revenue projections.
2. Replacement and maintenance for pneumatic system
3. Estimated drop in Middletown water rates based on added Durham demand?
4. Show calculations that payment from Durham will cover O&M of the new system up to the town line.
5. Repeated request for revenue/financial calculations.
6. What are the real number of hookups and guaranteed demand?
7. Why are we making a deal with Durham without real numbers showing demand/revenue/impact on Middletown rates?
8. Quantifying monetary benefit to Middletown residents include percentage rate impact
9. When we ask what benefit this will be to the city of Middletown and our water system, the only benefit we are aware of is a few additional hours of supposed fire protection. In our opinion, as the people most directly affected by this supposed benefit, we already have more than adequate fire protection covered by the two pumps that currently serve the neighborhood at the Long Hill station. The engineers for the city have stated previously that if the current pumps were both to somehow become inoperable, it would take only a few hours to repair. Neighborhoods adjacent to ours have no requirement for city fire protection that we know of, including the potential new development that has been approved just to the south of ours. An upgrade to our fire protection appears completely unnecessary. For over 20 years since the development of this neighborhood, there has been no discussion of any upgrade needed to our current fire protection.
10. Given the limited staffing that already exists at the Middletown DPW, what additional staff will be required to facilitate the operation and maintenance of this project? What is the expected financial impact to the city taxpayers as a result of any operating expenses?
11. Not convinced this is cost-neutral for Middletown. Need maintenance for the water tank, pumps, and snow plow on access road.
12. If water bill doesn't go down, what's the benefit?
13. Where is the financial plan for this? Need to see costs vs revenues.
14. We don't need additional fire protection; that is not an added benefit.
15. How does the water tank serve Middletown residents?
16. Will insurance rate be getting lower for our neighborhood, not just for Durham?
17. Will Acorn Drive neighborhood be connected to this water main? Who pays for it? Will my tax rate go up because those connection?

Aesthetic Issues

1. View from 2nd floor window will be worse.
2. Issue with Guida conservation area?
3. View of tank from second floor?
4. The proposed water tower, as designed, does not incorporate site concealment techniques, which, if employed, could potentially minimize adverse visual impacts on the immediate neighborhood.

5. Vistas and views shall be adversely impacted since the water tower, as proposed, extends above the tree-line.
6. The project, as proposed, especially what is perceived as the physically prominent appearance of the water tower, will generally degrade views for several houses in the immediate area, which may, in turn, lower property values.
7. The partial re-paving of the road after construction site work, as proposed, will adversely impact the appearance of the neighborhood as a whole, which can adversely impact property values.
8. The proposed water tank, which will protrude approximately 20-30 feet above the existing tree line, threatens to be an eyesore and obstruct the views which were one of the reasons many bought their homes in this neighborhood. Such an eyesore will diminish both our property values and our ability to fully enjoy our homes.

Tree Clearing and Stormwater

1. In addition, the pending destruction of forestry which will be necessary during the tank's construction will impact the Guida conservation area. This is in direct opposition to the decades of effort and significant financial investments by the city to preserve this important conservation space.
2. At the Wetlands hearing, the stream that runs through the culverts was characterized as a trickle; at times, that stream is roaring with rushing water; concerned that clearing land will accelerate erosion and impact the stream and wildlife; don't want to see more trees falling into the stream because of the project.
3. Other landowners (the convent) are concerned about washout as well.
4. Property next to the convent – concern that clearing will increase chances of side yard and possibly basement flooding with water during storm conditions.
5. Is the stream going to be bigger after the clearing of land and trees for this project?
6. How do you protect trees during the construction?
7. Is clearing trees mandatory?
8. What is the required diameter clearing around the Cherry Hill tank location?
9. What is the drainage affect due to the clear cutting because there's so much clear cutting and paving around the tank that would then not absorb water?
10. Did you study Long Hill Brook behind 124 – 182 Talcott Ridge Drive homes and as it drains near homes on Round Hill Road? Round Hill Road homes currently have concerns of flooding and comment that heavy rains flood their yards at present time.
11. Round Hill Rd area – here, have seen much more water than when first moved in '98; concerned that runoff into the brook will accelerate erosion

Paving and Construction Issues

1. Details about providing water service during construction
2. To the further detriment of our neighborhood, the construction project itself is estimated to take approximately 3-4 months along our street and will be a major traffic and noise disrupt ion in our quiet neighborhood. Additionally, the current plans propose to only pave half of the street, while leaving the existing pavement on the opposite half. The claim has repeated l y been made that the DPW will pave "curb to curb" but this is patently untrue. Approximately 30% of the street is divided by a median, and in these areas the plan is to pave from the outside curb to the median. For the remaining 70% of the street, the new pavement will abruptly stop in the

center of the undivided road, creating both an eyesore and a disparity in road condition which will further reduce our property values.

3. Will there be a written agreement with the City for repaving all of Talcott Ridge Dr.?
4. If repaving, be careful to save the trees.
5. Do you have agreement with the City for the entire repaving of Talcott Ridge Drive?
6. When/where will commitment to pave whole road be included?

Tank Siting

1. What was done to evaluate alternative locations?
2. Why can't tank be in Durham?
3. Why can't pump station be modified to serve Durham?
4. Some homes pre-dated the 1997 acquisition.
5. Why can't Durham address the problem in Durham?
6. If we didn't own the Cherry Hill site, would we be looking elsewhere?
7. What would you do if this site were unavailable?
8. Did Middletown purchase the parcel for the Cherry Hill tank?
9. Where would the tank be if Middletown did not already own property?
10. Was siting tank on planned development next to Talcott Ridge Drive considered?
11. Why didn't approach Middlefield instead of Middletown? Any other alternative locations for the tank in Middlefield or other towns further down south?
12. What options exist in Durham? Water source/tank siting?
13. Build the tank 1/3rd lower (don't need additional fire protection)?
14. Build the tank at Long Hill? How does that system work? Is land available there? Neighborhood around Long Hill already has a tank – why not consider putting tank there?
15. Have a smaller tank at Long Hill, but incorporate additional stronger pumps at Long Hill to get the water to Durham or put additional pumps at various locations along the way to get the water there.
16. Have financial studies been done to show Long Hill could not be used?
17. How many houses would be affected if tank was at elevation 330' (elevation at Acorn Dr in Durham) as opposed to the 438' elevation where current tank bottom is designed?
18. Did Durham ever make efforts to acquire land to be used for tank site to serve Durham?
19. What is Durham's alternative if this option doesn't get approved?
20. Show us the study that proves this was the BEST location for this tank and what other locations were studied but not chosen.
21. What locations were evaluated in Durham?
22. What plans were looked at to build the tank closer to Powder Ridge to make use of the higher elevations there?
23. What studies were done that showed the Long Hill Tank could not be upgraded or replaced to provide the Durham water? What reasons were determined that you couldn't build the tank at the Long Hill Station?
24. If used a different system from Long Hill, could you do it?
25. If not delivering water to the Talcott Ridge homes, can height change?
26. What is the difference in elevation of new tank and bottom of Long Hill?
27. Move tank to Durham?
28. Is Round Hill Rd going to get water from the new tank? Will pressure change?

Tank and Water Line Design

1. Why can't you upgrade Long Hill instead of new tank?
2. If approved, could system be expanded to serve beyond Durham?
3. What is average daily demand in both CF and gallons, and how does that translate to size of tank?
4. The project designers did not present alternative water tower designs.
5. The information provided by the project applicants have indicated one of the benefits is to "avoid having to operate two water systems from the Long Hill Pump Station''. Why would adding a second water system to the existing station not be preferable to the significant disturbance and operation of a completely second site in our neighborhood?
6. Is the central pump possible?
7. Re: size of tank: What did Middletown request to serve Middletown? How much of the fire protection is for Durham? How far out for Middletown does it go (fire protection)? What parameters did Middletown request for the tank?

Water Line Connections

1. Do properties in undeveloped subdivision have to connect to water line once installed.
2. Better explain projection for potential new users.

Public Outreach for Design

1. Although this project has been in development for years, there was no input sought or any direct communication with most of the residents of the Watch Hill Estates neighborhood (Talcott Ridge Drive & Watch Hill Drive) outside of those homeowners directly adjacent to the water tank site.
2. Residents have been paying taxes for years, but never heard from the City that a tank may be located in neighborhood.
3. Developers were not required to inform buyers that there was a likelihood of a water storage tank being built in neighborhood.
4. No one read Middletown Press newspaper. Send me information in my mailbox.

Other

1. Is this the same presentation made to Zoning Commission?
2. What is situation at Acorn Drive and how likely that they will need public water.
3. Send any responses to Council and property owners.
4. What will happen to Long Hill once upgrades are in place?
5. There were questions about the future expansion relating to whether this was to existing home vs new homes and how that relates to the revenue projections.
6. If this tank does move forward to the detriment of our neighborhood, this will most likely result in urban sprawl to the area in the future. This is in direct opposition to the stated mission of the city in this area of Middletown. It has been claimed that such a sprawl will not be possible because there are no sewer lines in place in this part of the city, however our own neighborhood already exists without sewer lines.

7. Can gas lines be put in at the same time?
8. Would residents have to pay to connect to gas lines?
9. Can back-up cable be put in to increase reliability?
10. Ensure that any subsurface work that needs to be done will be verified by utility companies, such as cable, gas, and power companies.
11. Has an agreement been reached with the 3 property owners to allow for moving the right-of-way?
12. Would EPA go through with building the tank at that location even with no agreement?
13. Are the 3 property owners going to get City water?
14. Durham's need for fire protection is already being met by pumper trucks.
15. Middletown doesn't need additional fire protection.
16. Durham residents may get better insurance rates because of the fire protection?
17. How many fire hydrants are going to Durham?
18. Is there any concern that there is not enough water to serve both Middletown and Durham? For how many years?
19. Does the water line go through Middlefield? Will Middlefield benefit from the water main? Anyone from Middlefield is going to connect to the water main?
20. Are the 3 immediate area homes currently using wells for water? If yes, will those 3 homes get hooked up to city water? If yes, who's paying for that?
21. Do you have agreement with the City and the 3 homeowners to move the Right of Way?
22. First issue is boosters/water pressure; secondary goal is to lower tank height
23. Common Council agreed to move the date to hear this matter – will be either April meeting or the following month; or a special meeting mid-month is possible
24. Residents/Common Council are looking for detailed responses
25. There was very little information that was provided to the common council when they approved the MOU with Durham; also the MOU said this is not a done deal; there was no outreach in the neighborhood; we are not the bad guys

Appendix E

Detailed Chronology of reports, meetings, and notices associated with the water main extension and water tank project

Both EPA and CTDEEP performed outreach activities for the entire area of the water line and water tank for both the Fuss and O'Neill study and the EPA design. These activities and the associated City Department and Common Council activities that were all public are discussed below.

2000: Initial Durham Water System Extension Feasibility Study prepared by Fuss and O'Neill. To develop the report, a technical review committee (TRC) was formed to review and discuss the findings of the feasibility study and make decisions based on the findings. The TRC was comprised of representatives from: the Midstate Regional Planning Agency; Connecticut Department of Environmental Protection (now known as Connecticut Department of Energy and Environmental Protection, CTDEEP); Connecticut Department of Public Health; United States Environmental Protection Agency (EPA); City of Middletown; Town of Durham; and Town of Middlefield. The Report concluded that: the transmission main from Middletown would logically be extended south on Route 17 from the Talcott Ridge Drive area where the new Cherry Hill storage tank is proposed. In addition, there are water system facilities in this area of Middletown, including an existing water storage tank and booster station on Long Hill Road, a future water storage tank on Talcott Ridge Drive, and a dormant water treatment plant at the Laurel Brook Reservoir. The transmission route south along Main Street (Route 17) would form the backbone of the initial and future water distribution system. A 70-foot tall 950,000-gallon storage tank for Cherry Hill was presented in the report as part of the system.

2005: EPA completes remedial investigation and feasibility study for all phases of the Durham Meadows Superfund Site and presents a cleanup plan to the public. One component of the cleanup plan is the extension of the water main from Middletown. The plan, however, does not include the Cherry Hill water storage tank.

2005: The City of Middletown submits a comment letter to EPA indicating support for the project which also identified the need for the Cherry Hill water storage tank.

2009-2012: An updated Durham Water System Extension Feasibility Study was prepared by Fuss and O'Neill. The tank at Cherry Hill was prominently discussed and the revised tank would be 75 feet in height and 50 feet in diameter with a capacity just over 1,000,000 gallons. In 2008, CTDEEP published a notice of scoping for the engineering study for the extension of public water system from Middletown to Durham. The public notice of the scoping was placed on the Environmental Monitor of the Connecticut State Council on Environmental Quality website for 45 days. CTDEEP and EPA also held a public scoping meeting at Durham Public Library on November 12, 2008. The location and time of meeting were public noticed in the Middletown Press. In 2012, CTDEEP published a public notice on the Revised Environmental Impact Evaluation (EIE) and Feasibility Study (FS). The public notice was placed in the Middletown Press once a week for three consecutive weeks. CTDEEP also published a public notice on the

Environmental Monitor of the Connecticut State Council on Environmental Quality website and CTDEEP website for 45 days. The EIE and FS were uploaded to the websites. Only one person (from Round Hill Drive) contacted CTDEEP and inquired about the tank location. CTDEEP provided the location and map and did not receive any further comments. Before the 2012 public notice, the EIE and FS were distributed to Middletown Town Clerk, Inland wetland Commission, and Planning & Zoning Commission. The tank location is depicted in these reports.

2011-March: The Town of Durham hosted a public meeting to discuss the development of the updated Durham Water System Extension Feasibility Report.

2012: In June 2012, the City of Middletown Common Council approved a resolution in support of the water extension, including the water storage tank. The Mayor of Middletown entered into a Memorandum of Understanding with the Town of Durham confirming the City of Middletown commitment to the project.

2013: EPA initiated the design for the Superfund Site related component of the extension of the water main to Durham. The design evaluation quickly concluded that the Cherry Hill water storage tank was a necessary component of the project.

2013-May: EPA issues a public information fact sheet to update the public regarding the Durham Meadows Superfund Site. The Cherry Hill water storage tank design is mentioned in the fact sheet and the water main extension and Cherry Hill water storage tank are shown on the attached figure. While all of the property owners on Talcott Ridge Drive and Watch Hill Drive were included on the mailing list, some of the residents do not recall receiving the fact sheet during recent discussions about the Site. One resident did confirm receipt of the fact sheet. A notice for a public information meeting to be held on June 6, 2013 was also included with the fact sheet.

2013-June: EPA holds a public information meeting at the Coginchaug Regional High School to discuss the Durham Meadows Superfund Site. The presentation included a discussion of the water main extension and water tank as well as the soil boring program that would take place along the water main route and at the tank site.

2013-August: EPA conducts soil borings to confirm soil conditions along the water main alignment. Four soil borings were located on Talcott Ridge Drive. These investigations were discussed in the May 2013 public information fact sheet. EPA sent letters requesting access to the property owners abutting the tank site on Talcott Ridge Drive.

2014-December: EPA and the Town of Durham hold a public information meeting at the Durham Public Library to discuss the project including the water line and tank.

2015: EPA completes the design for the water main extension and Cherry Hill water storage tank and retains the United State Army Corps of Engineers (USACE) to develop the procurement package. The USACE performed a detailed technical review of the design and has developed the procurement.

2015-March 5: Middletown WPC unanimously vote to acquire the Talcott Ridge parcels surrounding the tank site (1 abstention – Rep. Bauer).

2015-April 6: Middletown Common Council approves acquiring the three parcels and using the one surrounding the tank site for construction purposes (not for permanent structure) to facilitate bringing water to Durham (unanimous vote; 1 abstention – Councilwoman Bartolotta).

2015-June: EPA and the Town of Durham hold a public information meeting in Durham at the Durham Volunteer Fire House to discuss the project including the water line and tank.

2016-August: EPA prepares a public information fact sheet about the water main extension and Cherry Hill storage tank and publishes information on the EPA website.

2016-September: EPA sends letters to seven properties on Watch Hill Drive and one on Talcott Ridge Drive requesting access for home inspections, describing the project, and providing a copy of the 2016 public information fact sheet. EPA also sent letters requesting property access for the water main installation to the three Talcott Ridge Drive property owners who abut the tank site. EPA subsequently met with these residents, reviewed the plans for the driveway modifications and tank site work, and revised the plans based on input from these property owners.

2016-September: EPA also sent access requests and public information updates to the 15 or so property owners along Route 17 (South Main Street) who will have a curb stop installed within the CTDOT Right of Way in front of their property. EPA has sent about 180 letters requesting property access and included a copy of the public information fact sheet with all of these letters.

2016-October: EPA presents project to the Middletown Inland Wetlands and Watercourse Agency for initial review.

2016-December 7: IWWA hearing for wetland permit. Hearing is continued due to concerns that signs were not visible for required period.

2016-December: Following the IWWA meeting EPA contacted the residents who attended the IWWA hearing in opposition to the water tank project and offered to meet with them to discuss their concerns. EPA also mailed each property owner along Talcott Ridge Drive a copy of the August 2016 Public Information Update. EPA also, upon request, provided a web link to the drawings for the water main extension and water storage tank at Cherry Hill to one of these residents.

2017-January 4: Continued IWWA hearing. Wetland permit is approved. The residents along Talcott Ridge Drive requested a PDF copy of the IWWA presentation and EPA provided that via email.

2017-January 11: Initial 8-24 review by Planning and Zoning Commission. Reviewed is continued.

2017-January 25: 8-24 review by Planning and Zoning Commission. PZC submits unfavorable review to Common Council.