# FINAL RECORD OF DECISION
# ENVIRONMENTAL IMPACT EVALUATION

## POTENTIAL SOURCES OF WATER SUPPLY

## UNIVERSITY OF CONNECTICUT
## STORRS, CONNECTICUT

UNIVERSITY PROJECT #901662
MMI PROJECT #1958-59

July 30, 2013

***Prepared for:***

UNIVERSITY OF CONNECTICUT
Office of Environmental Policy
31 LeDoyt Road, U-3055
Storrs, CT 06269-3055

***Prepared by:***

MILONE & MACBROOM, INC.
99 Realty Drive
Cheshire, Connecticut 06410
(203) 271-1773
www.miloneandmacbroom.com

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## EXECUTIVE SUMMARY

This document constitutes the Record of Decision (ROD) for the November 2012 Environmental Impact Evaluation (EIE) under the Connecticut Environmental Policy Act (CEPA or the Act) to identify a potential source or sources of drinking water to supplement the existing supply of the University of Connecticut's (UConn's) main campus in Storrs, Connecticut and limited contiguous municipal areas in the Town of Mansfield. The EIE was scoped, noticed, and distributed for public review in accordance with Sections 22a-1 through 22a-1h of the Connecticut General Statutes and Sections 22a-1 through 22a-1a-12 of the Regulations of Connecticut State Agencies. Written and verbal comments were accepted from November 6, 2012 through January 31, 2013 and responses to all substantive comments are contained in the subject ROD. Consistent with the provisions of Section 92 of Public Act 11-57, the University has consulted with the Town of Mansfield through its town manager and other senior town staff throughout the development of EIE and the ROD. The following additional analysis was undertaken to address certain comments received during the public review period, and such analysis is presented in the body of the subject document:

- water demand projections have been refined;
- additional detail has been provided relative to secondary growth potential;
- the project has been evaluated in the context of the new State Plan, entitled *Conservation and Development Policies: The Plan for Connecticut, 2013-2018*, adopted in June 2013;
- additional investigation has been conducted relative to potential impact to farmland soils;
- additional consultation and analysis has been undertaken relative to cost and delivery mechanisms;
- feasible alternatives have been ranked and a preferred alternative has been selected.

While three water supply alternatives are believed to be technically feasible with the ability to meet the project purpose and need, UConn has elected to pursue as the preferred alternative a water supply agreement with the Connecticut Water Company (CWC). The CWC alternative was selected in consideration of the following:

- CWC pipeline routes are most consistent with the State Plan and present readily mitigated potential development and other environmental impacts;
- CWC can directly mitigate additional withdrawals from its water supply source;
- CWC provides the lowest construction cost alternative;
- CWC provides the lowest water cost alternative;
- CWC does not require a "take or pay" contract;
- CWC supply alternative is capable of a phased-implementation approach;
- CWC supply presents the shortest duration of time for implementation.

These and other considerations leading to selection of CWC as the preferred alternative are described more fully below.

- *Ability to Provide Water* – CWC possesses sufficient safe yield and sufficient registered and permitted capacity of sources to serve UConn and the Town of Mansfield. CWC possesses the technical, managerial, and financial capability to undertake the project.

- *Consistency with the State Plan* – UConn, Storrs, the Mansfield Four Corners area, and areas adjacent to the main campus are currently identified in the State Plan as areas that are desirable for growth via their Priority Funding Area (PFA) and Balanced Priority Funding Area (BPFA) designations.

Provision of public water to support such growth is consistent with state goals, including the recently adopted State Plan (June 2013). A pipeline from the CWC system will pass through a higher percentage of State-designated PFA lands than BPFA or Conservation Area (CA) lands as compared to the Metropolitan District Commission (MDC) and Windham Water Works (WWW) pipelines, and is also the alternative with the shortest distance of new pipeline. Therefore, it presents the lowest risk of unwanted induced development. Further, the Town of Mansfield has proposed the creation of an overlay zone under local regulations that would limit the density of development in locations along the public supply line to no greater than is demonstrated supportable by means of on-site wells.

- *Consistency with Local and Regional Plans* – The CWC alternative is consistent with UConn's *Water and Wastewater Master Plan* (2007), UConn's *Water Supply Plan* (2011), the Town of Mansfield's *Water Supply Plan* (2002), the Town of Mansfield's *Plan of Conservation and Development* (2006), and the *Windham Region Land Use Plan* (2010). The CWC alternative is not counter to any existing Coordinated Water Utility Coordinating Committee (WUCC) Plan.

- *Source Related Impacts/Mitigation* – CWC will continue to release water to the Hockanum River, directly mitigating additional withdrawals from Shenipsit Reservoir.

- *Pipeline Related Impacts* – The majority of pipeline installation will occur where roads are currently paved and therefore do not support significant biological communities, cultural resources, or visual resources. Construction methods and timing can occur in such a manner as to minimize temporary traffic impacts. Installation of pipelines will have minimal impacts where they cross special flood hazard areas, as piping will be below grade.

- *Energy* – Increases in energy usage would occur for all of the alternatives evaluated. By virtue of its location relative to the future service area, the CWC alternative will require less energy to move water as compared to the MDC alternative and about the same energy as required to move water from WWW.

- *Water Quality* – The CWC alternative has a low potential for high water age and formation of disinfection byproducts.

- *Cost* – The CWC alternative is the lowest-cost alternative overall, the lowest cost to taxpayers of the State of Connecticut, the University, and Mansfield, and the alternative that would have the lowest cost impact to the vast majority of water users in terms of water use fees after the interconnection is in place.

- *Ability to Phase* – CWC has the ability to phase-in the necessary improvements to serve UConn and the Town of Mansfield. CWC can install the pipeline and make one set of improvements in the short term, and then implement additional improvements over a longer time frame, which will defer some of the project costs.

Due to its proximity, potential to phase improvements, and second lowest cost, WWW is considered by the University to be a feasible alternate potential water supply in the event that any required regulatory approval or an acceptable water supply agreement with CWC cannot be secured for the project.

The MDC alternative will not be pursued. This alternative requires a higher level of expenditure than the CWC alternative overall and a higher level of financial exposure to taxpayers; requires the longest distance of water mains regardless of the selected route; has greater potential for induced development in BPFA and CA designated lands; has no potential to phase; requires the greatest use of energy for

transmitting water; and poses the greatest risk for high water age at the end of the pipeline with the potential to impact water quality. The MDC alternative may also be counter to the Upper Connecticut Water Utility Coordinating Committee (WUCC) Plan.

Based on the analysis undertaken in the preparation of the EIE as well as consideration of all comments received and supplemental assessment thereof, UConn concludes that the proposed action will have no significant adverse impact on the environment that cannot be mitigated. Additionally, UConn finds that all practical means to avoid or minimize environmental harm have been identified.

# 1.0 INTRODUCTION

This document constitutes the Record of Decision (ROD) for the November 2012 Environmental Impact Evaluation (EIE) under the Connecticut Environmental Policy Act (CEPA or the Act) to identify a potential source or sources of drinking water to supply the University of Connecticut's (UConn's) main campus in Storrs, Connecticut and limited contiguous municipal areas in the Town of Mansfield.

## 1.1 PROJECT SCOPING

In 2011, following enactment of the May 2011 Technology Park (Tech Park) legislation and in coordination with the Town of Mansfield, UConn commenced preparation of the EIE. The EIE process has included three scoping periods.

The initial scoping period considered evaluation of the no action alternative, potential interconnections with the Connecticut Water Company (CWC) and Windham Water Works (WWW), and two categories of potential new wellfield alternatives (in aquifers adjacent to the Willimantic River and Mansfield Hollow Lake) for additional water supply to provide "*at least 0.5 to 1.0 million gallons per day.*" The initial scoping period opened on June 7, 2011, closed July 7, 2011, and included a public information meeting held on June 28, 2011.

The second scoping period was conducted to allow for inclusion of an additional alternative water supply to replace or relocate the Fenton River Well A in the vicinity of the existing well. The second scoping period opened on December 20, 2011, closed February 1, 2012, and included a public information meeting held on January 24, 2012.

The final scoping period was conducted to allow for inclusion of an interconnection with MDC as an additional alternative water supply with transmission capacities of 0.5 to 5.0 million gallons per day. The third scoping period opened on June 5, 2012, closed July 6, 2012, and included a public information meeting held on June 21, 2012.

Notice of all scoping meetings was published in the *Environmental Monitor* and the *Willimantic Chronicle*. The third meeting was additionally published in the *Hartford Courant*, due to the inclusion of the MDC alternative.

Outreach occurred with numerous Connecticut state agencies during the preparation of the EIE, including the Council on Environmental Quality (CEQ), the Department of Energy & Environmental Protection (DEEP), the Department of Public Health (DPH), the Office of the State Archeologist, and the State Historic Preservation Office (SHPO). Municipal outreach also occurred in the Towns of Mansfield, Coventry, Windham (via Windham Water Works (WWW) representatives), Tolland, and Bolton in an effort to introduce municipal representatives to the project and to gain an understanding of the local perspective on water supply. Outreach occurred through a combination of face-to-face meetings and telephone communications.

## 1.2 PUBLIC REVIEW OF THE DRAFT EIE

Notice of the availability of the Draft EIE was published in the *Hartford Courant*, the *Willimantic Chronicle*, and in the *Environmental Monitor* on November 6, 2012. An electronic copy of the

document was made available on the *Environmental Monitor*. Paper copies of the EIE were sent to the following agencies and entities for review and comment:

- Council on Environmental Quality
- Connecticut DEEP
- Connecticut DPH
- Connecticut Commission on Culture and Tourism
- Connecticut Office of Policy and Management
- Town of Bolton
- Town of Coventry
- Town of East Hartford
- Town of Manchester
- Town of Mansfield
- Town of Tolland
- Town of Vernon
- Town of Windham

A public hearing was held on December 11, 2012 in Storrs. As required, the hearing was scheduled no sooner than 30 days following the date of availability of the Draft EIE. Notice of both the document availability and the scheduled public hearing was published in the Environmental Monitor, as well as in the *Hartford Courant* and the *Willimantic Chronicle* on November 20, November 27, and December 4, 2012.

The public comment period was initially scheduled to close on December 21, 2012. Comments from Farmington Valley representatives prompted UConn to extended the public comment period (initially by an additional two weeks to January 4, 2013 and then to January 31, 2013) to allow more time for comments to be received. Additionally, a second public hearing was held on January 22, 2013 in the Town of Farmington to provide additional opportunity for Farmington Valley representatives to provide comment. Notice of the hearing was publicized in the *Hartford Courant* as well as local internet-based news outlets such as the *Canton Patch*. The public comment period then closed on January 31, 2013. Public comments received were posted on the UConn Office of Environmental Policy web site.

Documentation of EIE notification, distribution, and public hearing notification is included herein as Appendix A. Copies of the public hearing transcripts are included as Appendix B.

Section 22a-1a-9 of the Regulations of Connecticut State Agencies (RCSA) requires that a sponsoring agency (in this case UConn) review all comments submitted on its EIE and any other pertinent information it obtains following circulation of the EIE and conduct further environmental study and analysis or amend the evaluation if it determines that such action is appropriate. In all cases, the sponsoring agency must prepare responses to the substantive issues raised in review of the EIE and forward such responses as well as any supplemental materials or amendments and all comments received on the evaluation, to the Connecticut Office of Policy and Management (OPM). The sponsoring agency must prepare a concise public record of decision (ROD), taking into consideration its findings in the EIE and comments received. The ROD must then be forwarded it to OPM for their review and finding of consistency. The subject document comprises the public record of decision for this project.

In accordance with RCSA Section 22a-1a-9, comments have been reviewed and further study and analysis has been undertaken to respond to issues raised in the review of the EIE. Responses have been prepared to all substantive issues raised during the review of the EIE and are presented in the subject ROD.

## 1.3 UPDATED WATER DEMAND PROJECTIONS

During the course of the EIE review, Next Generation Connecticut (NextGenCT) was announced by Governor Dannel P. Malloy. NextGenCT is aimed at expanding educational opportunities, research, and innovation in the science, technology, engineering, and math (STEM) disciplines at UConn over the next decade. The goal of this proposal is to leverage the strength and resources of UConn to build Connecticut's future workforce, create jobs, and bring new life to the State's economy. The cornerstone of NextGenCT is an increase in the University's enrollment, expansion of faculty, and introduction of new and updated facilities to accommodate enhanced STEM research and teaching. NextGenCT will also support the academic missions and the expansion of critical programs at UConn's Greater Hartford and Stamford campuses.

NextGenCT represents one of the most ambitious state investments in economic development, higher education, and research in the nation. Key, targeted strategic investments in facilities, faculty, and students are proposed with the goal of establishing UConn as a vital STEM institution as well as fueling Connecticut's economy with new technologies, highly skilled graduates, new companies, patents, licenses, and high-wage STEM jobs. Goals of this 10-year plan include:

- Hire 259 new faculty (of which 200 will be in STEM);
- Enroll an additional 6,580 talented undergraduate students (1,500 of which would be accommodated in Stamford);
- Build STEM facilities to house materials science, physics, biology, engineering, cognitive science, genomics, and related disciplines;
- Construct new STEM teaching laboratories;
- Create a premier STEM honors program;
- Upgrade aging infrastructure to accommodate new faculty and students;
- Expand digital media and risk management degree programs and provide student housing in Stamford;
- Relocate UConn's Greater Hartford Campus to downtown Hartford.

Specific proposals that come out of NextGenCT will undergo further environmental analysis as appropriate and required by regulatory statutes and regulations, including CEPA analysis as applicable to the various components. Relative to the subject EIE, analysis was undertaken to understand if and how NextGenCT fits within the parameters of future water supply. Specifically, potential increases in projected demand were evaluated for students based upon actual metering data at representative dormitories from December 2011 to December 2012 to derive representative per student demand, and from metered facility records from the Chemistry building to derive a representative unit demand per square foot of space. These rates were then applied to projected NextGenCT metrics to yield potential additional water demands.

As indicated in Table 1-1 below, with the addition of NextGenCT, average day demands are projected to increase by an additional 0.16 million gallons per day (mgd) (including projected

margin of safety) in the 50-year planning period (2060) and peak day demands are projected to increase by 0.28 mgd, with resultant average and peak day demands of 1.39 and 2.20 mgd. These projections remain within the framework of scoping and analysis of the EIE which articulated the need for "at least" 0.5 to 1.0 mgd. The additional water demand projected for NextGenCT ranges from an average daily demand of 24,125 gallons per day (gpd) in 2015 to 138,500 gpd in 2060. These additional volumes are approximately 1.5% and 4.9% of total demand (without margin of safety volumes) for the years 2015 and 2060, respectively. The additional peak day demand projected associated with NextGenCT is estimated to range from 43,425 gpd in 2015 to 239,700 gpd in 2060. These additional volumes are approximately 2.0% and 6.6% of total demand (without margin of safety volumes) for the years 2015 and 2060, respectively.

**TABLE 1-1**
**Projected Average Day Demands**

| Year | Tech Park | Off-Campus | NextGenCT | Adjusted Demand[1] | Margin of Safety (MOS) | Adjusted Demand plus MOS | Existing Supply[2] | Required Additional Supply[4] |
|---|---|---|---|---|---|---|---|---|
| Projected Average Day Demand (gpd) | | | | | | | | |
| 2015 | 0 | 0 | 24,125 | 1,564,133 | 234,620 | 1,798,753 | 1,830,000 | 0 |
| 2030 | 126,480 | 242,000 | 138,500 | 2,353,855 | 353,078 | 2,706,933 | 1,830,000 | 876,933 |
| 2045 | 333,900 | 369,000 | 138,500 | 2,928,274 | 439,241 | 3,091,516 | 1,830,000 | 1,261,516 |
| 2060 | 333,900 | 453,500 | 138,500 | 2,795,900 | 419,385 | 3,215,285 | 1,830,000 | 1,385,285 |
| Projected Peak Day Demand (gpd)[3] | | | | | | | | |
| 2015 | 0 | 0 | 43,425 | 2,116,623 | 317,493 | 2,434,116 | 1,970,000 | 464,116 |
| 2030 | 168,219 | 321,860 | 239,700 | 3,051,082 | 457,662 | 3,508,744 | 1,970,000 | 1,538,744 |
| 2045 | 444,087 | 490,770 | 239,700 | 3,495,860 | 524,379 | 4,020,239 | 1,970,000 | 2,050,239 |
| 2060 | 444,087 | 603,155 | 239,700 | 3,626,942 | 544,041 | 4,170,983 | 1,970,000 | 2,200,983 |

1. "Adjusted Demand" includes estimated existing demands plus "committed" demands, plus Tech Park, Off-Campus (including the Four Corners service area, the proposed managed care facility, and other additional demands in the EIE), Next Generation CT (including residential, STEM, and other academic demands) and a water demand deduction applied for recycling reclaimed wastewater at the UConn Central Utility Plant. Additional water deductions through the use of reclaimed water in other applications are expected to materialize over the planning period; however, these have not been quantified and have not been included in the adjusted demands. Therefore the adjusted demands presented herein are assumed to be conservatively high.
2. Reflects Willimantic Wellfield supply pumped at safe yield (1.48 mgd), and Fenton Wellfield to include Well "D" at 0.35 mgd.
3. Peak Day Existing Supply reflects Fenton Wellfield offline, no Well "D" supply, and Willimantic Wellfield is producing at diversion registration limit.
4. The "Required Additional Supply" figures are the volumes for the requested action. Potential water demands along the preferred pipeline in Tolland and Coventry were developed in the EIE and will be on the order of 33,000 gpd in addition to the above figures. Water demands in Mansfield between the Coventry town line and Mansfield Four Corners will be nominal, as the overlay zones will restrict withdrawals from the pipeline.

Based on the above analysis, substantive changes to the CEPA analysis and EIE have not occurred from inclusion of NextGenCT in the overall development of future water demands. The revised peak day figure of 2.20 mgd is within the framework of scoping and analysis for this EIE.

# 2.0 RESPONSE TO PUBLIC COMMENTS

## 2.1 OVERVIEW OF COMMENTS RECEIVED

Written comments on the EIE were received by UConn via email and U.S. Postal Service mail from approximately 300 individuals, organizations, and agencies, including the following Connecticut state agencies:

1. Connecticut Department of Energy & Environmental Protection – Memorandum dated January 2, 2013 from David J. Fox, Senior Environmental Analyst

2. Council on Environmental Quality – Letter dated December 24, 2012 from Barbara Wagner, Chair; Email dated January 4, 2013 from Karl Wagener, Executive Director

3. Connecticut Department of Public Health – Letter dated January 31, 2013 from Lori Mathieu, Public Health Section Chief, Drinking Water Section with an enclosed Technical Review Memorandum dated January 30, 2013

4. Connecticut Department of Agriculture – Letter dated January 31, 2013 from Joseph Dippel, Bureau Director

5. Connecticut Office of Policy and Management – Letter dated January 28, 2013 from Dimple Desai, Community Development Director

Verbal comments were also conveyed during the two public hearings as documented in hearing transcripts (Appendix B).

Copies of all written comments (with attachments) are included as Appendix C. Responses to state agency comments are addressed individually below. Due to the volume of public comments received (both written and verbal) and the commonality of comments from individuals, private entities and town governments, they are addressed by topic herein.

Table 2-1 on the following pages presents a topic index.

**TABLE 2-1**
**Topic Index**

| *Topic* | *Commenters* | *ROD Section* |
|---|---|---|
| **General Comments** | | |
| Additional Study is Warranted / DEEP Diversion Permit Process Should be Followed / Public Should Have Additional Input in Decision-Making | Central Connecticut RPA<br>Connecticut Fly Fisherman's Assoc.<br>Farmington Valley Trout Unlimited<br>Naugatuck River Revival Group<br>Connecticut River Watershed Council<br>Willimantic River Alliance, Inc.<br>New Hartford Cons. Commission<br>Town of Mansfield<br>Charles McCaughtry, Ashford Resident<br>Alison Hilding, Mansfield Resident<br>Carolyn Flint, Granby Resident<br>Gregory M. Miller (Address Not Provided)<br>Joseph and Dori Smith, Mansfield Residents<br>Patricia A. Bresnahan, Willimantic Resident<br>Town of Barkhamsted<br>Fred Laberge, Bristol Resident<br>Elizabeth Wassmundt, Mansfield Resident<br>Talat Azimi, Mansfield Resident | 2.2.1<br>2.16 |
| Lack of Consistency with the Connecticut Conservation and Development Policies Plan ("State Plan") | Central Connecticut RPA<br>New Hartford Cons. Commission<br>Alison Hilding, Mansfield Resident<br>Talat Azimi, Mansfield Resident | 2.2.13<br>2.3.1 |
| Overlay Zones as Mitigation | Windham Regional COG<br>Central Connecticut RPA<br>Town of Mansfield<br>Alison Hilding, Mansfield Resident<br>Vera S. Ward, Mansfield Resident | 2.2.13<br>2.3.1<br>2.4.3 |
| Basis for Demand Projections, Potential Additional Water Needs, Increased Demand from Initial Scoping to Final Scoping | Town of Mansfield<br>Farmington Valley Trout Unlimited<br>Friends of Simsbury Crew<br>Willimantic River Alliance, Inc.<br>Metropolitan District Commission<br>Tulay Luciano, Mansfield Resident<br>Raluca Mocanu, Mansfield Resident<br>Diana K. Perkins, Windham Resident<br>Joseph and Dori Smith, Mansfield Residents<br>Pat Suprenant, Mansfield Resident<br>Arthur Smith, Mansfield Resident<br>Vera S. Ward, Mansfield Resident | 1.3<br>2.7 |
| Potential Secondary Growth with Respect to Water Demand, Traffic Impacts, Environmental Impacts, Energy Impacts/General Pipeline Route(s) | National Park Service<br>Town of Mansfield<br>Tulay Luciano, Mansfield Resident<br>Donald F. Rieger, Jr., Simsbury Resident<br>Alison Hilding, Mansfield Resident<br>Joseph and Dori Smith, Mansfield Residents<br>John K. Jepson, Avon Resident<br>Melissa Shippee, Mansfield Resident<br>S. Lee Laplante (Address Not Provided)<br>Talat Azimi, Mansfield Resident<br>Winifred T. Gordon, Mansfield Resident | 2.2.7<br>2.2.13<br>2.3.1<br>2.3.2 |

| *Topic* | *Commenters* | *ROD Section* |
|---|---|---|
| Role of Water Conservation in Meeting and Reducing Demands / Water Pricing as Water Conservation / Water Loss Due to Leakage / Use of Alternative Technologies | Tariffville Water Commission<br>Town of Canton<br>Central Connecticut RPA<br>Canton Conservation Commission<br>Farmington Valley Trout Unlimited<br>People's Action for Clean Energy, Inc.<br>Farmington River Coordinating Committee<br>Connecticut River Watershed Council<br>CT Council of Trout Unlimited<br>Robert Miller, Bristol Resident<br>Raluca Mocanu, Mansfield Resident<br>Katherine Wadsworth, Farmington Resident<br>Edward Wazer, Mansfield Resident<br>Alison Hilding, Mansfield Resident<br>Katherine Wadsworth, Farmington Resident<br>Mitch Kennedy, Avon Resident<br>William Emerick (Address Not Provided)<br>Pat Suprenant, Mansfield Resident<br>Melissa Behney, Mystic Resident<br>Becky Latimer, Weatogue Resident<br>Diana K. Perkins (Address Not Provided)<br>Dina Pelletier, Avon Resident<br>Jonathan Kahl, Simsbury Resident<br>Kevin Gough, Bloomfield Resident<br>Laurel Urda, Simsbury Resident<br>Melissa Shippee, Mansfield Resident<br>Robert S. Capers, Mansfield Resident<br>Susan A. Olson, Simsbury Resident<br>Thomas Hart, New Hartford Resident<br>Talat Azimi, Mansfield Resident | 2.2.12<br>2.4.4<br>2.5.1 |
| Interbasin Transfer – General | Windham Regional COG<br>Alison Hilding, Mansfield Resident<br>Carolyn Flint, Granby Resident | 2.15 |
| Plans to shut down the Willimantic and Fenton River Wellfields | Town of Mansfield<br>Naubesatuck Watershed Council<br>Tulay Luciano, Mansfield Resident<br>Vera S. Ward, Mansfield Resident | 2.6.2 |
| Project Cost / Financing Method / Cost Allocation | Town of Tolland<br>Town of Simsbury<br>Central Connecticut RPA<br>Town of Farmington<br>Town of Mansfield<br>Farmington Valley Trout Unlimited<br>Aquarion Water Company<br>Connecticut River Watershed Council<br>Metropolitan District Commission<br>Tulay Luciano, Mansfield Resident<br>Donald F. Rieger, Jr., Simsbury Resident<br>Alison Hilding, Mansfield Resident<br>Joseph and Dori Smith, Mansfield Residents<br>Judith Peterson, West Hartford Resident<br>Talat Azimi, Mansfield Resident | 2.18 |

| *Topic* | *Commenters* | *ROD Section* |
|---|---|---|
| Siting of the Technology Park in Storrs | Central Connecticut RPA<br>Connecticut River Watershed Council<br>CT Council of Trout Unlimited<br>Park Watershed, Inc.<br>Tulay Luciano, Mansfield Resident<br>Ruth B. Moynihan, Storrs Resident<br>Edward Wazer, Mansfield Resident<br>Charles I. Motes, Jr., Plainville Resident<br>Alicea A. Charamut, Newington Resident<br>Barbara David, Lyme Resident<br>Jean de Smet, Willimantic Resident<br>Joseph and Dori Smith, Mansfield Residents<br>Mitch Kennedy, Avon Resident<br>Shari Goldman, Mansfield Resident<br>Jason Zheng (Address Not Provided)<br>Heidi Hand, Mansfield Resident<br>Davida Foy Crabtree, South Windsor Resident<br>David Morse, Mansfield Resident<br>Elizabeth Wassmundt, Mansfield Resident<br>Eunice S. Groark (Address Not Provided)<br>Ian M. Clark, East Granby Resident<br>Keith and Brenda Schaufler, New Hartford Residents<br>Lillian Nolan, West Hartford Resident<br>Melissa Shippee, Mansfield Resident<br>Peter Diamond, West Hartford Resident<br>Thomas Hart, New Hartford Resident<br>Talat Azimi, Mansfield Resident | 2.11 |
| Adequacy of UConn's WPCF / Effect of Additional Flow to Willimantic River | Town of Mansfield<br>Connecticut Fly Fisherman's Assoc.<br>Naubesatuck Watershed Council<br>Naugatuck River Revival Group<br>Connecticut River Watershed Council<br>Willimantic River Alliance, Inc.<br>Tulay Luciano, Mansfield Resident<br>Charles McCaughtry, Ashford Resident<br>Farmington River Anglers Association<br>Alicea A. Charamut, Newington Resident<br>Arthur Smith, Mansfield Resident | 2.10 |
| More Detail is Needed Relative to Governance / Access to Pipeline Water | Town of Mansfield<br>Alison Hilding, Mansfield Resident<br>Joseph and Dori Smith, Mansfield Residents<br>Pat Suprenant, Mansfield Resident<br>Winifred T. Gordon, Mansfield Resident<br>Vera S. Ward, Mansfield Resident | 2.2.13<br>2.18 |
| Alternatives Should Be Ranked / What is the Selection Process Moving Forward | Connecticut River Watershed Council<br>Willimantic River Alliance, Inc.<br>Rosemary and Thomas Clarke, West Simsbury Residents<br>Gregory M. Miller (Address Not Provided) | 2.3.4<br>4.0 |
| Need for Long-term (50-100 year) Impact Study of All Options before Proceeding / Need for thorough Environmental Impact Study | Edward Wazer, Mansfield Resident<br>Tom and Anneliese Frank, West Simsbury Residents<br>Melissa Shippee, Mansfield Resident<br>Talat Azimi, Mansfield Resident | 2.2.1 |

| *Topic* | *Commenters* | *ROD Section* |
|---|---|---|
| NE CT WUCC and/or Statewide Planning Should be Completed Prior to Expansion | Bloomfield Conservation Energy, and Environment Committee<br>Town of Simsbury<br>Town of Mansfield<br>Connecticut Fly Fisherman's Assoc.<br>Tariffville Village Association<br>Naubesatuck Watershed Council<br>Connecticut Fund for the Environment<br>Connecticut River Watershed Council<br>Friends of Simsbury Crew<br>Farmington Valley Trout Unlimited<br>Sierra Club<br>Willimantic River Alliance, Inc.<br>Tulay Luciano, Mansfield Resident<br>Alison Hilding, Mansfield Resident<br>Daria Hart, New Hartford Resident<br>David J. Blume, Simsbury Resident<br>Patricia A. Bresnahan, Willimantic Resident<br>Judy and John Schaefer, West Simsbury Residents<br>Elizabeth Wassmundt, Mansfield Resident<br>Mary Mushinsky (Address Not Provided)<br>Mirian Kurland, Mansfield Resident<br>Ray Elling (Address Not Provided)<br>Stephanie Fitzgerald, New Haven Resident | 2.14 |
| Jones River Crossing | Town of Mansfield<br>Willimantic River Alliance, Inc. | 2.13 |
| Section 5.19 Findings Should Be Added | Town of Mansfield | 3.0 |
| New Development in Mansfield Will Result in Additional Impervious Cover / Potential Impacts to Eagleville Brook TMDL | Connecticut Fly Fisherman's Assoc.<br>Willimantic River Alliance, Inc. | 2.12 |
| Evaluation of Potential Groundwater Supply Sources / Qualifications of Well Site Selection Team / USGS Involvement | Aquarion Water Company<br>Alison Hilding, Mansfield Resident | 2.8 |
| Possibility of Raising Eagleville Dam across the Willimantic River to potential increase volume of water adjacent to Willimantic River Wellfield | Alison Hilding, Mansfield Resident<br>Elizabeth Wassmundt, Mansfield Resident | 2.8 |
| Has USACE been Contacted Regarding Mansfield Hollow Dam? / Study of Conditions at Mansfield Hollow Lake | Alison Hilding, Mansfield Resident<br>Joseph and Dori Smith, Mansfield Residents | 2.17 |
| Why has the Town of Windham not been contacted? | Joseph and Dori Smith, Mansfield Residents<br>Kurt Hedinger, West Hampton, MA Resident | 2.17 |
| Protection of Mansfield interests? | Joseph and Dori Smith, Mansfield Residents | 2.7 |
| Install wells along Willimantic River in West Willington / Consider other potential sources of supply | Steve Lamont, Vernon Businessman<br>Josh Smilowitz (Address Not Provided) | 2.8 |
| What peer-reviewed research supports the use of gross square footage to calculate potential water use without reference to the intended enterprise use of a building? | Arthur Smith, Mansfield Resident | 2.2.11<br>2.6.2 |

| *Topic* | *Commenters* | *ROD Section* |
|---|---|---|
| **Comments Specific to MDC Alternative** | | |
| Lack of Transparency, Notification to and Inclusion of Farmington Valley Towns | Windsor Conservation Commission<br>Town of Simsbury<br>Town of Canton<br>Canton Conservation Commission<br>Town of Farmington<br>Farmington Valley Trout Unlimited<br>CT Council of Trout Unlimited<br>East Granby Land Trust<br>Friends of Simsbury Crew<br>Rosemary and Thomas Clarke, West Simsbury Residents<br>Donald F. Rieger, Jr., Simsbury Resident<br>Charles I. Motes, Jr., Plainville Resident<br>Diane D. Phillips, Simsbury Resident<br>Gregory M. Miller (Address not Provided)<br>Janet Lawler and Jeffrey Coppage, Farmington Residents<br>Katherine Wadsworth, Farmington Resident<br>Farmington River Watershed Association<br>Theodore Gordon Flyfishers<br>Noreen Watson, Barkhamsted Resident<br>Karen L. Brand, Simsbury Resident<br>Edward M. Cox, Simsbury Resident<br>Fred Laberge, Bristol Resident<br>Lilly Ackley, Canton Resident<br>Tom Cameron, Avon Resident | 1.1<br>1.2<br>2.16 |
| Potential Reduction in Flow / Impacts to the Farmington River / Lack of Analysis | National Park Service<br>Tariffville Water Commission<br>Town of Simsbury<br>Town of Farmington<br>Town of Canton<br>Simsbury Conservation Commission<br>Canton Conservation Commission<br>Town of New Hartford<br>Tariffville Village Association, Inc.<br>Lower Farmington River/Salmon Brook Wild & Scenic Study Committee<br>American Whitewater<br>Farmington Valley Trout Unlimited<br>Rosemary and Thomas Clarke, West Simsbury Residents<br>Edward Shaskan, West Hartford Resident<br>Donald F. Rieger, Jr., Simsbury Resident<br>Daria Hart, New Hartford Resident<br>Pat Suprenant, Mansfield Resident<br>Karen L. Brand, Simsbury Resident<br>Edward M. Cox, Simsbury Resident<br>Deborah Thibodeau, Simsbury Resident<br>Gian A. Morresi, Bridgeport Resident<br>Town of Barkhamsted<br>Tom Cameron, Avon Resident | 2.2.6<br>2.9 |

| *Topic* | *Commenters* | *ROD Section* |
|---|---|---|
| Drought / Low Flow Conditions in the Farmington River / Lack of Stream Flow Releases | National Park Service<br>Windsor Conservation Commission<br>Town of Simsbury<br>Central Connecticut RPA<br>Canton Conservation Commission<br>Bloomfield Cons. Energy, & Env. Committee<br>Town of East Granby<br>Town of New Hartford<br>Farmington Valley Trout Unlimited<br>Lower Farmington River/Salmon Brook WSSC<br>East Granby Land Trust<br>Friends of Simsbury Crew<br>Edward Shaskan, West Hartford Resident<br>Donald F. Rieger, Jr., Simsbury Resident<br>Charles I. Motes, Jr., Plainville Resident<br>B. L., Lebanon Resident<br>Briant Hogenson, Burlington Resident<br>Chris Karpeichik, Jr., Torrington Resident<br>Chris Karpeichik, Sr., Torrington Resident<br>David A. Sweeney, Pleasant Valley Resident<br>Donald P. Eddy, Barkhamsted Resident<br>Erika Gray, Cheshire Resident<br>Farmington River Anglers Association<br>Jeffery Edgerly, Bristol Resident<br>Mike Hertz, Farmington Resident<br>Nick Masi, Plainville Resident<br>Patrick J. Callahan, Winsted Resident<br>Paul Penetti, Bristol Resident<br>Robert P. Adams, Burlington Resident<br>Steve Chirdon, Farmington Resident<br>Tom Karpeichik, New Hartford Resident<br>William Johnson, New Hartford Resident<br>Daria Hart, New Hartford Resident<br>J. Jascot, East Haddam Resident<br>Rivers Alliance of Connecticut<br>Virginia Garratt, West Simsbury Resident<br>Sylvia Halkin, West Hartford Resident<br>Steve Vitti (Address Not Provided)<br>Richard Stanley, West Simsbury Resident<br>Ray Rosati, Simsbury Resident<br>Michael Schulde (Address Not Provided)<br>Marilyn C. Noble (Address Not Provided)<br>Hugh Rogers (Address Not Provided)<br>David Kinkead (Address Not Provided)<br>Cathy R. Macias, Winsted Businesswoman<br>David Sinish (Address Not Provided)<br>Ed Marchena and Jean Darlington, New Hartford<br>John Jacobson, Unionville Resident<br>Ian M. Clark, East Granby Resident<br>Maria Moore, New Hartford Resident<br>Linda F. Quenzer, Simsbury Resident<br>Mathew Dlugolenski (Address Not Provided)<br>Michael A. Krammen, East Granby Resident<br>Eric Lichtenberger, Simsbury Resident<br>Steve Silk (Address Not Provided)<br>Sue Tenorio (Address Not Provided)<br>Susan Van Kleef, Tarriffville Resident<br>Thomas Hart, New Hartford Resident<br>Thomas J. Daniels, Smithfield, RI Resident | 2.2.5<br>2.3.6<br>2.9 |

| *Topic* | *Commenters* | *ROD Section* |
|---|---|---|
| Expansion of MDC to Serve New Communities / Secondary Growth / Additional Potential MDC System Demand Considerations / Future Potential Demands on the Farmington River / MDC Charter | Town of Tolland<br>Town of Simsbury<br>Town of Farmington<br>Canton Conservation Commission<br>Central Connecticut RPA<br>Bloomfield Conservation Energy, and Environment Committee<br>Granby Conservation Commission<br>New Hartford Cons. Commission<br>Tariffville Water Commission<br>Town of East Granby<br>Connecticut Fly Fisherman's Assoc.<br>Farmington Valley Trout Unlimited<br>Simsbury Land Trust<br>Lower Farmington River/Salmon Brook Wild & Scenic Study Committee<br>Farmington River Coordinating Committee<br>Connecticut Fund for the Environment<br>CT Council of Trout Unlimited<br>Friends of Simsbury Crew<br>Willimantic River Alliance, Inc.<br>Donald F. Rieger, Jr., Simsbury Resident<br>Alicea A. Charamut, Newington Resident<br>Alison Hilding, Mansfield Resident<br>Rivers Alliance of Connecticut<br>Sylvia Halkin, West Hartford Resident<br>Susan Brachwitz, Simsbury Resident<br>Pat Suprenant, Mansfield Resident<br>Meg Reich, Mansfield Resident<br>Karen L. Brand, Simsbury Resident<br>Edward M. Cox, Simsbury Resident<br>Deborah Thibodeau, Simsbury Resident<br>David Morse, Mansfield Resident<br>Gian A. Morresi, Bridgeport Resident<br>John K. Jepson, Avon Resident<br>Shirley McCarthy, Branford Resident | 2.2.4<br>2.2.7<br>2.3.1<br>2.9 |
| Need to tap the West Branch Farmington River | National Park Service<br>Town of New Hartford<br>Town of Simsbury<br>Connecticut Fly Fisherman's Assoc.<br>Farmington Valley Trout Unlimited<br>Lower Farmington River/Salmon Brook Wild & Scenic Study Committee<br>Farmington River Coordinating Committee<br>Donald F. Rieger, Jr., Simsbury Resident<br>Alicea A. Charamut, Newington Resident<br>Daria Hart, New Hartford Resident | 2.2.5 |
| The Effect of Climate Change | National Park Service<br>Town of Simsbury<br>Salmon Brook Watershed Assoc.<br>Farmington River Coordinating Committee<br>Connecticut River Watershed Council<br>Sven P. Roepke, New Hartford Resident<br>Susan Brachwitz, Simsbury Resident<br>Diana K. Perkins (Address Not Provided)<br>Gian A. Morresi, Bridgeport Resident<br>Susan R. Barney, Bloomfield Resident<br>Alison Hilding, Mansfield Resident<br>Mitch Kennedy, Avon Resident | 2.9 |

| *Topic* | *Commenters* | *ROD Section* |
|---|---|---|
| Use of "Old Data" Relative to Evaluation of Farmington River Flows | Windsor Conservation Commission<br>Town of Simsbury<br>Simsbury Conservation Commission<br>Canton Conservation Commission<br>Town of East Granby<br>Granby Conservation Commission<br>Simsbury Land Trust<br>Lower Farmington River/Salmon Brook Wild & Scenic Study Committee<br>East Granby Land Trust<br>Friends of Simsbury Crew<br>Farmington Valley Trout Unlimited<br>Wolfried H. Mielert, Mansfield Resident<br>Rosemary and Thomas Clarke, West Simsbury Residents<br>Donald F. Rieger, Jr., Simsbury Resident<br>Carolyn Flint, Granby Resident<br>Daria Hart, New Hartford Resident<br>David J. Blume, Simsbury Resident<br>Kevin Noblet, Barkhamsted Resident<br>East Granby Land Trust<br>Catherine C. Delasco, East Granby Resident<br>Sylvia Halkin, West Hartford Resident<br>Susan Brachwitz, Simsbury Resident<br>Mike Brayton, Simsbury Resident<br>Karen L. Brand, Simsbury Resident<br>Edward M. Cox, Simsbury Resident<br>Ian M. Clark, East Granby Resident<br>Ken Owen, Granby Resident<br>Maria Moore, New Hartford Resident<br>Susan Van Kleef, Tarriffville Resident<br>Thomas Hart, New Hartford Resident | 2.9 |
| MDC Interbasin Transfer Goes Against State Policy | Town of Simsbury<br>Town of Farmington<br>Town of Canton<br>Central Connecticut RPA<br>Canton Conservation Commission<br>Town of East Granby<br>CT Council of Trout Unlimited<br>Wolfried H. Mielert, Mansfield Resident<br>Donald F. Rieger, Jr., Simsbury Resident<br>Alicea A. Charamut, Newington Resident<br>Barbara David, Lyme Resident<br>David J. Blume, Simsbury Resident<br>Rivers Alliance of Connecticut<br>Virginia Garratt, West Simsbury Resident<br>Susan Brachwitz, Simsbury Resident<br>Richard Stanley, West Simsbury Resident<br>Ray Rosati, Simsbury Resident<br>Karen L. Brand, Simsbury Resident<br>Edward M. Cox, Simsbury Resident<br>Judy and John Schaefer, West Simsbury Residents<br>Hugh Rogers (Address Not Provided)<br>Linda F. Quenzer, Simsbury Resident<br>Thomas Hart, New Hartford Resident | 2.15 |

| *Topic* | *Commenters* | *ROD Section* |
|---|---|---|
| MDC Alternative Lack of Consistency with the State Plan/Local Plans of Conservation and Development | Town of Simsbury<br>Town of Farmington<br>Town of Canton<br>Central Connecticut RPA<br>Bloomfield Conservation Energy, and Environment Committee<br>Connecticut Fund for the Environment<br>Connecticut River Watershed Council<br>Farmington Valley Trout Unlimited<br>Wolfried H. Mielert, Mansfield Resident<br>Donald F. Rieger, Jr., Simsbury Resident<br>Barbara David, Lyme Resident<br>Pat Suprenant, Mansfield Resident<br>Gian A. Morresi, Bridgeport Resident | 2.2.13<br>2.3.1<br>2.9 |
| Energy Demand for MDC Alternative | Bloomfield Conservation Energy, and Environment Committee<br>Alison Hilding, Mansfield Resident<br>Mitch Kennedy, Avon Resident<br>Alexander M. Cosentino (Cheshire Businessman)<br>Ken Owen, Granby Resident | 2.3.2 |
| Need for / Basis for Reduction in Demand Forecast from 5.0 mgd | National Park Service<br>Connecticut River Watershed Council<br>Connecticut Fund for the Environment<br>American Whitewater<br>Naugatuck River Revival Group<br>Donald F. Rieger, Jr., Simsbury Resident | 2.7 |
| Lack of Consistency w/Upper Connecticut WUCC Plan | Town of Farmington<br>Central Connecticut RPA | 2.9 |
| Lack of Analysis on Water Table Drawdown / Increased Fire Potential | Tom Cameron, Avon Resident | 2.2.6<br>2.9 |
| Construction-Related Impacts at Trout Stream Crossings | Thomas J. Daniels, Smithfield, RI Resident | 2.2.10 |

## 2.2 RESPONSE TO THE DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION

### 2.2.1 Additional Study Required to Support Future Permitting

All three identified alternatives will require a water diversion permit from DEEP. DEEP noted that certain issues will need to be appropriately addressed in the diversion permitting process. Specifically, DEEP commented that additional information should be evaluated and provided regarding potential impacts of the alternatives with respect to the flow regimes of the various donor basins and that resultant flows should be compared to the no-action alternative. DEEP stated that a "more realistic" evaluation of wetland impacts from pipeline installation should be provided. Finally, DEEP indicated that additional analysis is required for interbasin transfers of water.

The type of information identified by DEEP will be developed for the selected supply source following successful negotiation of an agreement for water supply and preliminary layout and design. Such work will be undertaken in preparation for filing of regulatory permit applications, including a water diversion permit from DEEP. At such time, pipeline routing, construction methods, and wetland impacts (if any) will be further quantified, as will detailed analysis of flow regimes of the donor basin, taking into account the specific requirements of an interbasin transfer.

The analysis undertaken during the development of the EIE, including assessment of current and historic permitted water withdrawals and identification of wetland systems, enables conclusions to be made relative to the magnitude and relative significance of potential impacts. Performing the type of detailed interbasin transfer analysis required by the Water Diversion Act permit process for all three interbasin supply alternatives under consideration in the EIE would be unduly costly, duplicative, and unnecessary for fulfilling the requirements under CEPA.

The EIE process is intended to be an early planning document that should identify sensitive resources and evaluate the potential for impact as a result of the proposed action. It is not intended to supplant the need for detailed analysis such as that required by the Water Diversion Act. In order to obtain a diversion permit, applicants are required to demonstrate that impacts are acceptable and/or can be mitigated. Any future permitting effort to supply a new source of water to UConn and Mansfield will require such demonstration.

### 2.2.2 Reliability of Connecticut Water Company (CWC) Groundwater Supply Sources

DEEP questioned the ability of the Powder Hollow, Hunt, and Preston wellfields to reliably supply the amounts of water being proposed from each. Section 7.0 of the EIE documented a number of steps to be taken by CWC to set aside sufficient water to meet the project purpose and need while meeting anticipated growth in consumption in the Western System. These steps include restoration of registered capacity at the Powder Hollow and Hunt wellfields, re-activation of the Preston Wells, and installation of a 3.0-mgd treatment plant adjacent to the existing Rockville WTP[1].

In the early scoping of this project, CWC advised that only the rehabilitation at the Powder Hollow and Hunt Wellfields and reactivation of the Preston Wellfield was necessary as part of its proposal to supply UConn and Mansfield with additional water (of at least 0.5 to 1.0 mgd). CWC also contemplated the use of a bulk water purchase via MDC to ensure adequate supply during peak demand periods. As the EIE process unfolded, the MDC indicated that it would not sell bulk

[1] Refer to ROD Section 2.18 for additional information received from CWC relative to these improvements.

water to CWC (refer to correspondence in Appendix E) and through the process, CWC has adjusted its proposed approach to supplying water.

CWC has clarified that the planned water treatment plant expansion will occur with or without the UConn interconnection. Such improvement will enable the necessary water for UConn and Mansfield such that rehabilitation at the Powder Hollow and Hunt Wellfields and reactivation of the Preston Wellfield will not be directly necessary in order to provide water to UConn and Mansfield. Water from these wellfields will not be allocated to the proposed diversion, nor will they need to offset water that is currently pumped to the Western System from the Shenipsit Reservoir. However, CWC notes that these improvements are prudent from an overall water supply reliability standpoint to keep up with projected water demands in the remainder of the Western System because they contribute to overall margin of safety in the Western System.

The installation of a 3.0-mgd treatment plant expansion adjacent to the existing Rockville WTP is a key component of the CWC proposed improvements. The construction of additional treatment plant capacity at Rockville WTP will increase the available water supply from 6.0 mgd to 9.0 mgd. Total withdrawals from Shenipsit Reservoir to the Rockville WTP will continue to be within the diversion registration (15.0 mgd) and safe yield (9.8 mgd) of this water source. An increase of 3.0 mgd is more than sufficient on its own (without the wellfield improvements) to provide the water needed for UConn and Mansfield (estimated at 1.39 mgd average day demand and 2.20 mgd peak day demand). The current 6.0 mgd production from the Rockville WTP will continue to be used to meet overall Western System demands.

**TABLE 2-2**
**Shenipsit Reservoir Storage, Safe Yield, and Diversion Authorization**

| Source | Storage Capacity | Safe Yield | Diversion Registration |
|---|---|---|---|
| Shenipsit Reservoir | 5.04 BG | 9.8 mgd | 15.0 mgd |

Assuming that 2.2 mgd peak day demand is allocated to UConn and Mansfield (15% of which is attributable to margin of safety rather than actual flow of potable water) from the expanded water treatment facility, more than 1.0 mgd will be available from the new plant to provide additional supply and/or margin of safety to the Western System.

In light of the planned water treatment expansion, the ability of the Powder Hollow, Hunt, and Preston wellfields to reliably supply the amounts of water being proposed from each does not have a bearing on the feasibility of the CWC alternative.

DEEP also requested confirmation of the cost of additional treatment and that such cost should be included in the comparative analysis presented in the EIE. In response, all three perspective suppliers were asked to provide more detailed cost information. This is presented in Section 2.18 of the subject ROD.

### 2.2.3 Potential Instream Flow Impacts Related to the CWC Alternative

DEEP identified the need to fully quantify potential impacts to the Scantic River, Gulf Stream, and Hockanum River streamflows as a result of increased withdrawals from the associated aquifers and reservoir, noting that these streams support a diversity of finfish. Such level of analysis will be required through the diversion permitting process.

Page 7-51 of the EIE ("Cumulative Impacts") erroneously lists "Interbasin transfer of water from the Scantic River basin and Hockanum River basin to the Willimantic and Natchaug River basins" as an impact. The correct bullet should read "Interbasin transfer of water from the Hockanum River basin to the Willimantic and Natchaug River basins." This is corrected as presented in ROD Section 3.0.

DEEP has requested comparison of the no-action alternative to the proposed alternative in the context of the Scantic River and its tributaries. In the no-action scenario, CWC would not be providing water to UConn and Mansfield but would still be required to rehabilitate the Powder Hollow and Hunt Wellfields and reactivate the Preston Wellfield to provide for long-term growth in the Western System. These actions are necessary capital improvements for the Western System. Thus, there will be no differentiable impacts to the Scantic River (from the Powder Hollow or Hunt Wellfields) or Abbey Brook and Gulf Stream (from the Preston Wellfield) as a result of the transfer of water to UConn and Mansfield as compared to the no action alternative.

DEEP notes that the Shenipsit Reservoir is the uppermost impoundment on the Hockanum River, and that the proposed transfer of water from the reservoir requires impacts to the Hockanum River to be considered. Regional regression equations indicate that the annual 99% exceedance flow in the Hockanum River below Shenipsit Reservoir should be 0.73 cfs. In actuality, the flow in the river downstream of the Shenipsit Reservoir is a minimum of 3.26 cfs due to relatively constant reservoir releases by CWC in accordance with the Minimum Stream Flow Standards (RCSA Section 26-141a(6)) effective April 1979.

CWC's current management activities maintain a higher level of flow in the Hockanum River during dry periods than would be naturally realized. In its comments, DEEP indicated that the current CWC releases have "*been instrumental in the support of the coldwater fish community within the upper region of the Hockanum River during summer and early fall low flow periods.*" However, they went on to say that compliance with the recent streamflow standards and regulations cannot be considered mitigation for utilization of water in a reservoir. This is counterintuitive, as the *Stream Flow Standards and Regulations* (RCSA Section 26-141b-1 to 26-141b-8, inclusive) were adopted to protect instream flow and provide water needed to maintain an acceptable level of fisheries habitat. Maintaining the current release schedule would provide a higher flow than the minimum flow (2.14 cfs) required during the rearing and growth bioperiod.

Regardless of whether CWC supplies water to UConn, they will be required to comply with streamflow regulations. Further, CWC is required to comply with conditions imposed by DEEP permits, including a diversion permit to supply water to UConn. Given that CWC has indicated that it can continue, and is not opposed to continuing the current release schedule in the Hockanum River, impacts to instream flows or to fisheries habitat downstream of Shenipsit Reservoir are not anticipated. This issue will be a key consideration for any future diversion permit.

### 2.2.4 Potential Acceleration of New Source Development to Supply MDC

DEEP noted that any new out-of-basin transfer of water could hypothetically accelerate the pace at which new water sources may be needed by the MDC in the future. As reported in their most recent Water Supply Plan in 2008 (publicly available from DPH and DEEP), MDC water consumption for the period 2002 through 2007 (rolling average) was approximately 55 mgd. Average demand in 2012 was approximately 50 mgd. The MDC Water Supply Plan reports a steady decline in water demands in this system over the past two decades, with a reduction in

average daily demand of 13% since 1990. Much of this reduction is attributable to the widespread installation of water saving devices, consumer behavioral shifts towards water conservation, and the decline of industrial water consumption. This downward consumption trend is not expected to continue indefinitely and in fact, MDC's 2008 Water Supply Plan indicated an increase in the average daily demand of approximately 2.4 mgd for 2012, approximately 4.2 mgd by 2020, and approximately 6.5 mgd by 2050 (a total average daily demand of 57.4 mgd, 59.1 mgd, and 61.5 mgd, respectively).

The EIE analysis of the data contained in MDC's Water Supply Plan indicates that, even adding an additional 1.23 mgd average day demand withdrawal for UConn and Mansfield, the average daily demand in 2050 would only increase to 62.73 mgd, an increase of only 2% and well below the system safe yield of 77.1 mgd. This increase remains nominal even with the revised average day demand withdrawal for UConn and Mansfield of 1.39 mgd. Furthermore, it is notable that MDC's water demands in 2012 were only approximately 50 mgd, 7.4 mgd *less than* the projected 2012 value. Peak day demand is not a concern, as there is ample treatment capacity and peak day withdrawals are not constrained by safe yield. Thus, there is no foreseeable need for accelerating new source development attributable to provision of water service to UConn/Mansfield in the five, 20, or 50-year planning horizons.

### 2.2.5 Need for Water from the West Branch Farmington River

The MDC has long identified the West Branch Farmington River as a potential source of future supply. In fact, the MDC originally constructed the West Branch Reservoir to be a supply source. However, the West Branch Farmington River would not be needed to supply an interconnection with UConn. The MDC interconnection alternative does not require MDC to generate new supply sources through the year 2050. Moreover, MDC is required by its agreement with the Farmington River Watershed Association (FRWA) and the Town of Portland to pursue sand and gravel aquifer wells in Glastonbury prior to utilizing the West Branch for water supply. An interconnection supply from MDC would not require diversion of water from the West Branch Farmington River, nor is such a diversion contemplated in the EIE.

### 2.2.6 Exacerbation of Low Flows in the East Branch Farmington and Nepaug Rivers

DEEP correctly identified a 1.1 mile segment of the East Branch Farmington River and a 0.9 mile segment of the Nepaug River as being impaired due to flow regime alterations. These river segments have essentially already been fully allocated to water supply. There are no mandated releases of water from the Barkhamsted Reservoir, Lake McDonough, or the Nepaug Reservoir to support instream flows. The flow in these reaches is supported by runoff, groundwater recharge, dam seepage, dam spillage, and tributary inflow. DEEP questioned the potential for the proposed diversion to exacerbate existing low flow conditions. These are discussed below.

**TABLE 2-3**
**MDC Reservoirs Storage, Safe Yield, and Diversion Authorization**

| Source | Storage Capacity | Safe Yield | Diversion Registration |
|---|---|---|---|
| Barkhamsted & Nepaug Reservoirs | 39.80 BG | 68.21 mgd | 259.0 mgd |

Additional withdrawals from Barkhamsted and Nepaug Reservoirs from increased demand (due to interconnection or growth within the existing MDC service area) may result in reduced spillage

from these reservoirs. The effects of reduced spillage would manifest in the downstream channels, but only to a minimal extent in the main stem Farmington River. This is because the main stem Farmington River is supported by releases from the West Branch Reservoir (Goodwin Dam) in accordance with the Upper Farmington River Management Plan, which assumes that zero flow will enter the main stem from the East Branch Farmington or Nepaug Rivers.

An increase in withdrawals to supply water to UConn and Mansfield would only nominally reduce overflow spillage downstream of the Barkhamsted and Nepaug reservoirs. Reduced spillage from these sources has been calculated based on information in the 2008 MDC Water Supply Plan for the period 2002 through 2007 as presented below. Note that in reality any such withdrawal would likely primarily come from the Barkhamsted Reservoir, with the remaining water coming from the Nepaug Reservoir. However, the entire withdrawal amount has been attributed individually to each reservoir to account for a scenario through which a transfer of water to UConn and Mansfield would originate entirely from one of the two sources. Additional detail follows.

Barkhamsted Reservoir – East Branch Farmington

Barkhamsted Reservoir has a storage capacity of 30 billion gallons. According to the 2008 MDC Water Supply Plan, the mean water elevation of Barkhamsted Reservoir was above the spillway elevation a mean of 3.6 months each year between 2002 and 2007, with a minimum of zero months (in 2002) and a maximum of six months (in 2003 and 2005).

The incremental foot of storage above the spillway elevation equates to a storage capacity of 746 million gallons. A potential withdrawal of 2.20 mgd (peak day demand) is equivalent to 0.3% of this volume and would lower the reservoir by 0.003 feet (0.04 inches) each day. This is equivalent to 0.09 feet (i.e. less than one inch) to supply 30 consecutive days of peak day demand. Subtracting 0.09 feet from the mean monthly water elevations reported in the MDC's 2008 Water Supply Plan would reduce the mean monthly water elevation of Barkhamsted Reservoir such that the water would have been above the spillway elevation a mean of 3.3 months each year between 2002 and 2007, with potentially a month of spillage lost in both 2005 and 2006 if an additional 2.20 mgd had been continuously withdrawn.

Nepaug Reservoir – Nepaug River

Nepaug Reservoir is smaller in volume as compared to the Barkhamsted Reservoir, with a storage capacity of 9.5 billion gallons. According to the 2008 MDC Water Supply Plan, the mean water elevation of Nepaug Reservoir was above the spillway elevation a mean of 5.5 months each year between 2002 and 2007, with a minimum of zero months (in 2002) and a maximum of eight months (in 2004 and 2006).

The upper foot of storage below the spillway elevation constitutes 275 million gallons. The potential withdrawal is therefore equivalent to 0.8% of the top one foot of storage in the reservoir and would lower the reservoir by 0.008 feet (i.e. 0.1 inches) each day. This is equivalent to a reduction of 0.24 feet over 30 days. This reduction would reduce the average water elevation of Nepaug Reservoir such that the water would have been above the spillway an average of 3.2 months each year between 2002 and 2007, with a maximum of six months of spillage occurring in 2006 and other reductions in spillage occurring in 2003 and 2004 if an additional 2.20 mgd had been continuously withdrawn.

The above analysis is overly conservative since water demands from 2002 through 2007 ranged from 52.5 mgd to 57.3 mgd annually, which is much higher than the recently realized 50 mgd in 2012. As such, it is likely that the reservoirs spill more often under existing (50 mgd annual average day) demands. Nevertheless, an increase in withdrawals to supply water to UConn and Mansfield would only nominally reduce overflow spillage downstream of the two reservoirs.

Lake McDonough

The MDC maintains water levels in Lake McDonough (also known as the Compensating Reservoir) in the event flows need to be released to satisfy downstream riparian requirements. Typically, MDC releases five to 15 billion gallons per year into the East Branch from Lake McDonough. Management of water levels in Lake McDonough has the benefit of protecting recreational uses at the nearby public beach. Given the relatively minimal drawdowns associated with additional withdrawals that would be needed to supply UConn and Mansfield, and the fact that the MDC system's existing and projected water demands are significantly below the safe yield of the reservoir system, an interconnection with UConn would not be expected to result in significant impacts to recreation at Lake McDonough.

### 2.2.7 Water Demands Along Pipeline Routes

DEEP stated that "*In evaluating the potential impact of additional withdrawals from the East Branch, demand from development areas along the routes should be added to that projected from UConn and Mansfield.*" These water demands were included in Section 8 of the EIE; however, they include both new potential development as well as connection of all existing systems. Based upon the comments from DEEP and others regarding this topic, further clarification is warranted. The following analysis and discussion is a recap and clarification of the EIE. It describes induced demand attributable to land that is currently vacant or undeveloped along the pipeline routes.

#### East Hartford

The MDC routing alternatives through East Hartford occur within Silver Lane in areas that are fully developed and currently served by MDC. As such, no secondary population growth or water supply demands would result from pipeline transmission through East Hartford.

#### Manchester

MDC routing alternative 4B through Manchester occurs within Interstate 84 and its interchanges in areas that are developed and currently served by the Manchester Water Department (MWD). Similarly, MDC routing alternative 4A through Manchester occurs almost entirely within Interstate 384 in areas that are developed and currently served by MWD. As such, no secondary population growth or water supply demands would result from pipeline routing through Manchester.

#### South Windsor

The MDC routing alternative 4B occurs through the very edge of the southeast corner of South Windsor within Interstate 84 in an area that is developed and currently served by Connecticut Water Company. As such, no secondary population growth or water supply demands would result from pipeline routing through South Windsor.

## Vernon

The MDC routing alternative 4A does not traverse Vernon. The MDC routing alternative 4B through Vernon occurs within Interstate 84 in areas that are developed and currently served by Connecticut Water Company. As such, no secondary population growth or water supply demands would result from pipeline routing through Vernon.

## Tolland

A portion of the MDC routing alternative 4B occurs within Interstate 84, between interchange 67 and 68 (at Route 195) adjacent to areas that are currently unserved by public water. The Connecticut Department of Transportation (CT DOT) has indicated that service connections are not permitted from within utility strips. The character of land uses in the I-84 corridor in Tolland is rural to the north and south of I-84. Connecticut Water Company's Northern Region is the water provider to the north of I-84. Despite the availability of public water supply nearby, development is low in density and is centered on major transportation routes, such as Route 30 and Route 74.

Figure 3.4-1 of the EIE shows the approximate 1.6-mile segment along Route 195 that would contain a pipeline in either the MDC 4B routing alternative or the CWC service scenario. Approximately half of the distance is currently served by the Tolland Water Department. The Tolland Water Commission has entered into agreement with CWC to interconnect this section of the Tolland Water System with CWC's Western System. This interconnection will increase the resilience of the Tolland system and CWC's South Willington System, and is therefore planned for implementation in the near future.

Part of the area currently served by Tolland Water Department was zoned Neighborhood Commercial Zone when the EIE was published but has since been rezoned Technology Campus Zone. The revised zoning map and revised Zoning Regulations became effective on July 1, 2013. The remainder of the area currently served by Tolland remains Gateway Design District[2]. Because these areas are already served by a public water system, this change does not affect or influence the discussion below.

The vast majority of land within the unserved portion of the 195 corridor is either currently developed and served by individual wells, or has physical and/or regulatory restrictions that would limit development, including the presence of wetlands, floodplain, and/or steep slopes. A parcel-based analysis follows, with population projections based on 2.81 persons per unit per the 2010 census as reported in Section 4.2 of the EIE.

*East Side of Route 195*

- The parcels between Anthony Road and Walbridge Hill Road are zoned Residential Design District (RDD), are relatively small, and are developed with single-family homes. These are unlikely to be redeveloped.
- The parcels between Walbridge Hill Road and the Norwegian Woods apartment complex are zoned RDD, are relatively small, and are developed with single-family homes. These are unlikely to be redeveloped.
- The parcel containing Norwegian Woods has additional land for expansion. Expansion of multifamily/moderate-density residential on this parcel is consistent with Tolland's future land use plan in its *Plan of Conservation and Development*. It is possible that the number of

[2] The Neighborhood Commercial Zone and Gateway Design District are described in the EIE.

apartments at this location could double, resulting in a coincident doubling of population (currently 252 people per Connecticut DPH) and water demands (as presented in Section 7.6.2 of the EIE). Additional demands of up to 18,000 gpd could therefore occur. However, this parcel is zoned in Tolland's Natural Resource and Wildlife Protection Area. Actual expansion on this parcel may therefore be limited or infeasible.

- The large parcel between Norwegian Woods and Dimock Road is preserved as open space and unlikely to be developed.

*West Side of Route 195*

- The majority of the parcels between Anthony Road and Walbridge Hill Road are zoned RDD, are relatively small, and are developed with single-family homes. Parcels with existing single-family homes are unlikely to be redeveloped.
- An 11.4-acre parcel at 424 Merrow Road near Anthony Road contains the headwater swamp to Clark Brook and is zoned RDD. At least 75% (8.5 acres) of this parcel is believed to be developable. This parcel could support an estimated nine single family homes, a population of 26, and potential water demand of 1,950 gpd based on the Connecticut DPH conservative estimate of 75 gallons per capita per day (gpcd).
- An 11.6-acre parcel at 436 Merrow Road has an existing home fronting Route 195 but has an extensive upland area behind the home. It is zoned RDD. Approximately 10 additional acres are believed to be developable. This parcel could therefore support an additional 10 homes, a population of 28, and would have a potential water demand of 2,100 gpd based on the Connecticut DPH conservative estimate of 75 gpcd.
- A 23.5-acre parcel at 496 Merrow Road is zoned RDD. At least 75% (17.6 acres) of this parcel is believed to be developable. However, a single-family home was constructed on this parcel between 2004 and 2008, and this home occupies the northeastern section of the parcel leading to Route 195 such that the parcel would be difficult to subdivide. Further development of this parcel is therefore unlikely.
- A 1.5-acre parcel located at 548 Merrow Road is zoned RDD and undeveloped but appears to be dominated by wetlands draining to Clark Brook. Development of this parcel is therefore unlikely.
- A 49.7-acre parcel located at 584 Merrow Road is zoned in the Natural Resource and Wildlife Protection Area. Clark Brook and several small, unnamed tributaries and associated wetlands traverse the parcel. The estimated developable area on this parcel suggests that 10 single family homes could potentially be developed, although these would require several wetland and watercourse crossings. This parcel could therefore support an estimated maximum population of 28, and potential water demands of 2,100 gpd based on the Connecticut DPH conservative estimate of 75 gpcd.
- The small parcels fronting Route 195 from the vicinity of Norwegian Woods to the Coventry boundary are developed with single-family homes. Parcels with existing single-family homes are unlikely to be redeveloped.
- The 10.1-acre parcel at 636 Merrow Road is zoned RDD and appears to be dominated by wetlands. A bridge would need to be constructed across Clark Brook to access the limited developable area. It is unlikely that this parcel will be developed.
- The 10.5-acre parcel at 660 Merrow Road appears to have approximately five acres of developable area. The existing crossing of Clark Brook would need to be enhanced to subdivide this property. This parcel could support an estimated five single family homes, a population of 14, and a potential water demand of 1,050 gpd based on the Connecticut DPH conservative estimate of 75 gpcd.
- The 39.6-acre parcel at 728 Merrow Road is bisected by Clark Brook and its tributaries. Most of the southern and southeastern portion is utilized for farming, and the parcel is zoned in

Tolland's Natural Resource and Wildlife Protection Area. Approximately 16 acres appear developable outside of the existing agricultural area. Assuming that only eight acres could be developed due to the zoning restriction, this parcel could support an estimated eight single family homes, a population of 23, and potential water demands of 1,725 gpd based on the Connecticut DPH conservative estimate of 75 gpcd.

Table 2-4 presents a build-out analysis for Tolland along Route 195. These numbers assume that every currently vacant developable parcel along the pipeline corridor (that is not protected open space) develops and is connected to a new water supply line.

**TABLE 2-4**
**Build-Out Analysis Along Pipeline Route in Tolland**
**(MDC Routing Alternative 4B and CWC Alternative)**

| Parcel or Location | Total Parcel Acreage | Potentially Developable Acreage | Build-Out Population | Potential Demand (mgd) |
|---|---|---|---|---|
| Norwegian Woods – Possible Expansion* | 59.0 | 21.8 | 252 | 0.018 |
| 424 Merrow Road | 11.4 | 8.5 | 26 | 0.002 |
| 436 Merrow Road | 11.6 | 10.0 | 28 | 0.002 |
| 584 Merrow Road* | 49.7 | 10.0 | 28 | 0.002 |
| 660 Merrow Road | 10.5 | 5.0 | 14 | 0.001 |
| 728 Merrow Road* | 39.6 | 16.0 | 23 | 0.002 |
| *TOTALS* | *181.8* | *71.3* | *371* | *0.027* |

* Subject to Natural Resource and Wildlife Protection Area designations.

The above analysis shows that population in Tolland could increase by 371, with resulting water demand of 26,925 gpd at full build-out. Most of these increases are associated with a theoretical expansion (doubling) of the Norwegian Woods apartments, although such expansion is a conservative speculation, and none has been proposed. The remainder of the water demand is generated from a relatively small amount of land dominated by wetland areas. Secondary growth impacts, if they occur, will be limited in Tolland.

Section 2.2.13 of this Record of Decision describes the Residential Design District (RDD)-Natural Resource and Wildlife Protection Area zoning in Tolland and the Low Impact Development (LID) guidelines used to guide development projects in the town. These tools will further constrain development along the Route 195 corridor.

**Bolton**

As depicted on Figure 3.5-2 of the EIE, MDC routing alternative 4A runs along Route 44 in Bolton for approximately 1.6 miles. EIE Section 8.3.1 evaluated potential build-out development along the pipeline corridor in Bolton under the MDC routing alternative 4A. Approximately 187 acres within eight parcels are currently undeveloped. Zoning types along this routing alternative include Residential zones R-1, R-2, and R-3; General Business (GB), and Industrial (I). The analysis assumes large parcels would be subdivided. Such development is estimated to increase population by 482, with a potential water demand of 0.036 mgd based on the Connecticut DPH conservative estimate of 75 gpcd. As indicated in the EIE, the analysis does not account for unbuildable lots and assumes one-acre lot subdivisions. While some of the potential water demands could be obtained through the use of on-site wells, it is likely that the full build out of this area contemplated herein would only be achievable with public water supply.

**Coventry**

Numerous routing alternatives were evaluated within the Town of Coventry as described below.

*MDC Routing Alternative 4B / CWC Supply*

Figure 3.4-2 of the EIE shows two alternate routes through Coventry, each approximately 0.3 miles along Route 195 (12A) or Jones Crossing Road (12B) that is not currently served by public water. These routes would have a pipeline under MDC routing alternative 4B or CWC service scenario. A parcel-based analysis follows, with population projections based on 2.59 persons per unit per the 2010 census as reported in Section 4.2 of the EIE.

The following parcels occur along Route 195 routing (12A):

- Two parcels within the Special Planning Area (Neighborhood Commercial [NC] zone) are currently developed with single-family homes. Such use is allowed under NC zoning. It is possible that with the availability of public water, these two parcels could be sold and redeveloped into some form of business such as professional services, offices, studios, or a restaurant consistent with the NC zoning. Such uses would not contribute significantly to direct population growth. Assuming an average of 5,000 square feet of commercial floor space is developed per lot, this area could have a potential water demand of 1,000 gpd (based on Connecticut DPH septic system estimation guidelines of 0.1 gpd/sf).

- The large parcel associated with the Storrs Community Church is located within the River / Aquifer Zone and predominantly located in the 1% annual chance floodplain of the Willimantic River such that subdivision of this parcel is unlikely.

- The 8.8-acre parcel located between Jones Crossing Road and Route 195 is also located within the River / Aquifer Zone and predominantly located in the 1% annual chance floodplain of the Willimantic River such that subdivision of this parcel is unlikely.

The following parcels occur along the Jones River Crossing routing (12B):

- The 60.9-acre parcel west of Jones Crossing Road slopes steeply upward to the west and northwest up Cassidy Hill. The parcel is zoned GR-80. Development of this parcel could be difficult due to the slopes involved. It is possible that this parcel is 80% developable (approximately 49 acres) and could support up to 27 single family homes, a population of 69, and potential water demands of 5,175 gpd based on the Connecticut DPH conservative estimate of 75 gpcd. This parcel is close enough to also be served from routing 12A.

- The 13.0-acre parcel located at 102 Jones Crossing Road currently supports a home and agricultural uses. The parcel is located within the River / Aquifer Zone. Limited development potential exists there since the entire parcel lies within the 1% annual chance floodplain.

In summary, if public water were made available through Coventry along Route 195 or Jones Crossing Road, population could increase by 69, with a potential additional water demand of 0.006 mgd at full build-out. The remaining parcels are unlikely to be developed due to significant coverage by the Special Flood Hazard Area of the Willimantic River. The estimated water

demands herein are low enough that they could potentially be served by on-site wells should future development be desired in the absence of a water main.

*MDC Routing Alternative 4A*

The MDC routing alternative 4A would run along Route 44 through its entirety within the Town of Coventry, a distance of approximately 5.4 miles. EIE Section 8.3.1 evaluated potential build-out development along the pipeline corridor in Coventry under the MDC routing alternative 4A. Zoning types along this route include Professional Office (PO), General Residential GR-80 and GR-40, River / Aquifer (R/A), Commercial (C), and Commercial / Agriculture (C/A). Approximately 227 acres within 18 parcels are currently undeveloped. The analysis assumes large parcels would be subdivided. Such development is estimated to increase population by 414, and potential water demands of 0.031 mgd based on the Connecticut DPH conservative estimate of 75 gpcd.

**Mansfield**

Numerous routing alternatives were evaluated within the Town of Mansfield as described below.

*MDC Routing Alternative 4B / CWC Supply*

Refer to EIE Section 7.3.1. The ten separate routing combinations applicable to CWC and MDC (routing alternative 4B) through Mansfield were evaluated relative to build-out development potential on land in Mansfield that is currently vacant, not protected open space, and located adjacent to one of the pipeline routes. The combinations yielded a range of values, with potential developable acreage and population growth fairly similar for each scenario. Possible population increases (if every vacant lot were developed) ranged from 561 to 763. These numbers are conservative in that they do not account for unbuildable lot areas. A likely routing alternative would travel south on Route 195 to Baxter Road, cross Route 44 and to Hunting Lodge Road. The resulting population would be 597 and the resulting water supply demand at 75 gpcd would be 0.045 mgd. Note that this analysis does not account for any zoning changes that Mansfield institutes in the near future.

*MDC Routing Alternative 4A*

As presented in EIE Section 8.3.1, a build-out analysis of MDC pipeline routing alternative 4A results in a potential population increase of 170, with a resulting water demand of 0.013 mgd within the Town of Mansfield.

*WWW Routing*

Refer to EIE Section 9.3.1. The six separate routing combinations applicable to WWW through Mansfield were evaluated relative to build-out development potential on land in Mansfield based on existing zoning that is currently vacant, not protected open space, and located adjacent to one of the pipeline routes. The combinations yielded a range of values, with potential developable acreage and population growth were fairly similar for scenarios A and B (connection to the Fenton River Wellfield and the Clover Mill Road routing, respectively) and much lower for scenario C (Route 195 routing). Possible population increases (if every vacant lot were developed) ranged from 273 to 663. These numbers are conservative in that they do not account for unbuildable lot areas. The resulting water supply demand at 75 gpcd would range from 0.02 mgd to 0.05 mgd.

As the numbers convey, even assuming full build-out with current zoning, the potential for secondary development along the various pipeline routing alternatives through Mansfield is modest. These projections are conservative, as they do not reflect potential restrictions on development during local zoning and wetland agency conditions of approval or potential municipal restrictions on water service connections.

**Summary of Secondary Growth Analysis**

Tables 2-5 through 2-7 present the potential population and water demands represented by the development of every currently vacant parcel along the pipeline routes. These numbers are based on current zoning requirements and do not account for potential future zoning amendments.

**TABLE 2-5**
**Build-Out Analysis by Community – MDC Interconnection Routing Alternative 4A**

| Community | Build-Out Population Increase | Build-Out Water Demand Increase |
|---|---|---|
| East Hartford | 0 | 0.000 mgd |
| Manchester | 0 | 0.000 mgd |
| South Windsor | 0 | 0.000 mgd |
| Vernon | 0 | 0.000 mgd |
| Tolland | 0 | 0.000 mgd |
| Bolton | 482 | 0.036 mgd |
| Coventry | 414 | 0.031 mgd |
| Mansfield | 170 | 0.013 mgd |
| *TOTALS** | *1,066* | *0.080 mgd* |

*Totals may not add precisely due to rounding

**TABLE 2-6**
**Build-Out Analysis by Community – MDC Interconnection Routing Alternative 4B and Connecticut Water Company Interconnection**

| Community | Build-Out Population Increase | Build-Out Water Demand Increase |
|---|---|---|
| East Hartford | 0 | 0.000 mgd |
| Manchester | 0 | 0.000 mgd |
| South Windsor | 0 | 0.000 mgd |
| Vernon | 0 | 0.000 mgd |
| Tolland | 371 | 0.027 mgd |
| Bolton | 0 | 0.000 mgd |
| Coventry | 127 | 0.011 mgd |
| Mansfield | 597 | 0.045 mgd |
| *TOTALS** | *1,067* | *0.081 mgd* |

*Totals may not add precisely due to rounding

**TABLE 2-7**
**Build-Out Analysis by Community – Windham Water Works Interconnection**

| Community | Build-Out Population Increase | Build-Out Water Demand Increase |
|---|---|---|
| East Hartford | 0 | 0.000 mgd |
| Manchester | 0 | 0.000 mgd |
| South Windsor | 0 | 0.000 mgd |
| Vernon | 0 | 0.000 mgd |
| Tolland | 0 | 0.000 mgd |
| Bolton | 0 | 0.000 mgd |
| Coventry | 0 | 0.000 mgd |
| Mansfield | 663 | 0.050 mgd |
| *TOTALS** | *663* | *0.050 mgd* |

*Totals may not add precisely due to rounding

### 2.2.8 Natural Diversity Database Response

DEEP highlighted Page 8-52 of the EIE that states "*a request to the Natural Diversity Data Base (NDDB) related to the two pipeline routes for the MDC interconnection was pending*." The NDDB response dated November 8, 2012 identified a number of species listed by the State, pursuant to section 26-306 of the CGS, as endangered, threatened or special concern that occur along each route and included recommendations for mitigation. The NDDB response has been received, and the project will incorporate as appropriate the best practices identified by DEEP.

### 2.2.9 Windham Water Works Interconnection

As indicated in the EIE, unmitigated increased WWW withdrawals above 4.1 mgd would have a greater than minimal impact on the target fish species studied in the previously conducted instream flow study. The Inland Fisheries Division of the Connecticut DEEP has indicated that they "*would be supportive of additional withdrawals at the Willimantic Reservoir only if waters were dedicated for instream flow maintenance*" but indicates that further investigations would be required to determine if this is achievable.

As the Willimantic Reservoir dam at WWW is a run-of-the-river dam without a low-level outlet, there is currently no mechanism in place to support downstream releases. Use of releases from Mansfield Hollow Reservoir is a potential method of increasing instream flow. Any permit from DEEP would require the completion of an analysis of the reservoir to provide releases during the 99% drought year that will maintain instream flow downstream in the Natchaug River while maintaining recreational use and the fisheries habitat in Mansfield Hollow Reservoir. In addition, the Instream Flow Study previously undertaken for the Natchaug River would need to be updated to account for any future proposed flow regime. In the interim, the following analysis is presented to show that releases of water from Mansfield Hollow Lake are indeed feasible.

The acreage of Mansfield Hollow Lake is listed by the Connecticut DEEP as being 459.15 acres. The top foot of the reservoir (neglecting side slopes) holds approximately 459.15 acre-feet in volume, equivalent to approximately 20 million cubic feet. This amount of water released over a 30-day period would increase the amount of water in the river by 7.7 cubic feet per second. Such a release would likely be sufficient to buttress the fisheries habitat in the lower portion of the

Natchaug River through a severe drought period, although the reservoir analysis and the instream flow study would need to confirm this assessment and ensure that recreational uses and fisheries in Mansfield Hollow Reservoir would not be significantly impacted.

### 2.2.10 Feasibility of Installing Pipeline Beneath Highways

DEEP suggested that the feasibility of installing pipeline beneath highways, particularly interstate highways, should be more fully explored. According to the CT DOT Utility Accommodation Manual (February 2009), "*In general, new utility installations shall not be permitted longitudinally within the right-of-way of a limited access highway except that in special cases, the State may allow such occupancy under strictly controlled conditions … When the documentation submitted by the utility has been reviewed and the Department has determined that the utility has met the [above] criteria, permission to occupy the right-of-way may be granted by the Chief Engineer on an individual basis. This permission by the Chief Engineer will be in writing and granted only under the following conditions:*

*a. The area to be occupied by the utility is not required for future expansion of the highway.*
*b. The median area of the highway will not be occupied in any way by the installation.*
*c. A utility strip will be established along the outer edge of the right-of-way by locating a utility access control line between the proposed utility installation and the highway. In no instance will the utility strip be located within the clear zone of the highway.*
*d. Ownership of the utility strip shall remain with the Department.*
*e. The utility and any associated appurtenances shall be located outside the clear zone of the existing highway.*
*f. Service connections will not be permitted from within the utility strip.*
*g. The utility shall agree to enter into an Encroachment Agreement with the Department, the terms and conditions of which are acceptable to the Department, for such occupancy of the highway right-of-way. No construction activities may proceed until such agreement is fully executed.*
*h. The utility is to be located and designed in such a manner that they can be constructed and serviced without direct access from the limited access highway or connecting ramps. Such direct access shall not be permitted except for special cases where alternate locations and/or means of access are unavailable or impractical due to terrain or environmental constraints, and such use will not adversely affect safety or damage the State's facility. Where direct access is permitted by the Department, an encroachment permit must first be obtained for the installation and any subsequent maintenance.*
i. *The facility shall be designed and constructed with added capacity, at no cost to the Department, to provide one (1) gain for use, without payment therefore, by the Department. The gain shall be reserved for use by the Department pursuit to CGS 16-233.*"

CT DOT personnel were contacted regarding the potential for water main installations along Interstates 84 and 384. There is some precedent for utilities being sited in limited access highway corridors as demonstrated by the sewer installation in CT Route 9. CT DOT representatives have indicated that any such installations would need to be located as far as possible to the outer edges of the rights-of-way, off pavement. As a result, direct construction-related impacts due to installation of a water pipeline were re-evaluated.

The MDC pipeline routing along Interstate 384 and Interstate 84 was re-evaluated assuming piping was located as far as possible to the outer edges of the rights-of-way, off pavement. The occurrence of wetlands in units of length along each interconnection segment was then tabulated

based on the presence of State wetland soils, nearby watercourses and water bodies, and nearby wet areas (as seen in the field or viewed on aerial photographs). Potential direct impacts (i.e. a wetland that would be directly crossed) and indirect impacts (i.e. a wetland area within 100 feet of the pipeline) were tabulated. Direct impacts were prioritized over indirect impacts in the calculations (i.e., if both occurred, the direct impact was counted).

MDC Routing Alternative 4A – MDC routing alternative 4A traverses 3,480 linear feet of mapped wetland soils (including those that are mapped beneath roadways) and pass in close proximity of 16,400 linear feet of mapped wetland soils. Mitigation measures (e.g. pipelines installed in roadways, hung from bridges, directional boring under wetlands) would eliminate any direct wetland impact and reduce potential indirect impacts (i.e. work within 100 feet of mapped wetland soils) to 0.8 acres. Direct wetland impacts would be largely (if not entirely) eliminated by staying beneath existing paved roadways (for local roads) and in the previously disturbed highway right-of-way (for I-84 and I-384). Field delineation of wetlands would need to take place along a selected pipeline route as part of design and permitting. Such refined analysis would likely further reduce or eliminate identified indirect impacts associated with wetland soils in the vicinity of paved areas.

MDC Routing Alternative 4B – MDC routing alternative 4B traverses 7,310 linear feet of mapped wetland soils (including those that occur beneath pavement) and passes in close proximity of 19,780 linear feet of mapped wetland soils. Mitigation measures (e.g. pipelines installed in roadways, hung from bridges, directional boring under wetlands) would eliminate any direct wetland impact and reduce potential indirect impacts (i.e. work within 100 feet of a wetland) to 0.7 acres associated with installing pipelines above or below wetlands associated with large brook and river crossings along Interstate 84, including the Hockanum River, the Skungamaug River, and the Willimantic River. Direct wetland impacts would be largely (if not entirely) eliminated by staying beneath existing paved roadways and in previously disturbed rights-of-way. Field delineation of wetlands would need to take place along a selected pipeline route as part of design and permitting. Such refined analysis would likely further reduce or eliminate identified indirect impacts associated with wetland soils in the vicinity of paved areas.

DEEP expressed similar concerns relative to installation of pipeline beneath Routes 44 and 195. CT DOT personnel have stated that pipelines may be installed in Routes 195 and 44. Therefore, the environmental impacts discussed in the EIE are unchanged.

The CWC and WWW routings have been similarly calculated based on the methods above, although they did not require re-evaluation. Results are presented below:

CWC Routing – The CWC routing scenario (Route 195 crossing and Baxter Road with connection to the 16-inch transmission main at Hunting Lodge Road) traverses 2,990 linear feet of mapped wetland soils and passes in close proximity (within 100 feet) of 6,470 linear feet of mapped wetland soils. Direct impact involved in crossing wetland soils would be mitigated through use of construction best management practices, installing pipe beneath existing roadways, hanging pipe on the sides of bridges, or directionally drilling beneath watercourses. These mitigation measures would reduce temporary direct impacts to 760 linear feet (0.44 acres) associated with installing pipelines above, below, and nearby wetlands near the Skungamaug River and the Willimantic River. Direct wetland impacts would be largely (if not entirely) avoided by staying beneath existing paved roadways. Field delineation of wetlands would need to take place along a selected pipeline route as part of design and permitting. Such refined analysis would likely further reduce or eliminate identified indirect impacts associated with wetland soils in the vicinity of paved areas.

Windham Water Routing – The WWW routing scenario (Maple Road) traverses 1,740 linear feet of mapped wetland soils and passes in close proximity to 9,080 linear feet of wetlands. Mitigation measures would largely (if not entirely) eliminate direct wetland impact and would reduce potential indirect impacts (i.e. work within 100 feet of a wetland) to 250 linear feet (0.14 acres) associated with installing pipeline above or below wetlands associated with the Mill Brook culvert on Route 195. Wetland impacts would be avoided by staying beneath existing paved roadways. Field delineation of wetlands would need to take place along a selected pipeline route as part of design and permitting. Such refined analysis would likely further reduce or eliminate identified indirect impacts associated with wetland soils in the vicinity of paved areas.

### 2.2.11 Rationale for Increase in Technology Park Water Demands

DEEP questioned the rational for increase in Technology Park water demands. The Tech Park water demands were modified subsequent to the publication of UConn's individual Water Supply Plan in May 2011. The previous estimate of 89,600 gpd was based on the CT DPH septic system design guidance water usage estimate of 0.1 gpd/square foot for 896,000 square feet of potential new building space. The Water Supply Plan of 2011 (which was developed and submitted prior to enactment of Tech Park legislation) documented that the University's current supply could support the 89,600 gpd demand, but in combination with other committed demands an adequate margin of safety could not be maintained over the long term planning horizon.

Concurrent with the preparation of the EIE, the University commissioned a Master Plan of the Tech Park. Subsequent to scoping but prior to the publication of the EIE, the Master Planning team provided UConn with updated water demand estimates developed based on the targeted technologies and uses for the Tech Park, for a total average day demand of 423,500 gpd. With 89,600 gpd already accounted for in the Water Supply Plan, the EIE reflects the difference of 333,900 gpd and adds 15% of that for margin of safety to yield the 383,985 gpd stated in the EIE. Peak demands presented in the EIE were estimated from the average day estimate by applying a standard peaking factor of 1.33.

### 2.2.12 Water Conservation Efforts of the Donor Water Utilities Pursuant to the Water Diversion Policy Act

DEEP stated that "*Pursuant to the Connecticut Water Diversion Policy Act, the conservation efforts of MDC, CWC and WWW should also be explored. The chosen supplier could institute additional water conservation measures to offset the required diversion volume, thus mitigating any additional stream flow or other impacts. If sufficient new conservation measures can be instituted, the proposed diversion could actually be net neutral, i.e., the project would not result in any incremental impact to the water resources of the donor basin.*"

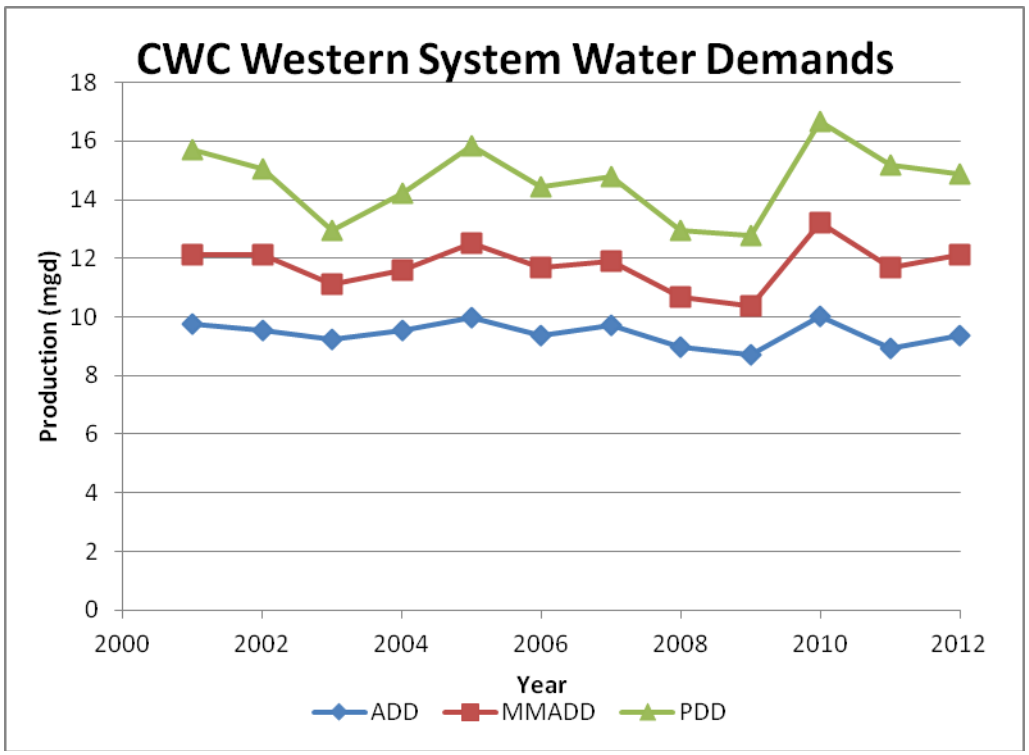
CGS Section 22a-373(10) of the Water Diversion Policy Act requires applicants to provide information regarding "*whether the water to be diverted is necessary and to the extent that it is, whether such water can be derived from other alternatives including, but not limited to, conservation*." As stated in ROD Section 2.4.4, UConn already aggressively practices tactical and strategic water conservation, with the result of reducing demands by 250,000 gpd or 15% since 2005 while serving a growing population and physical plant and limiting its unaccounted for water to 7.5%. Water conservation in the existing UConn system cannot realistically provide the additional water needed by UConn and Mansfield. Each of the three potential donor water utilities practices a variety of water conservation measures and prepares Water Conservation Plans as part

of their Water Supply Plan updates. Legislation passed in June 2013 will further incentivize water conservation among the state's water utilities.

The MDC's water consumption for the period 2002 through 2007 was approximately 55 mgd, and water demands in the MDC system have been steadily declining over the past two decades, with a reduction in average daily demand of 13% since 1990. Much of this reduction has been due to the widespread installation of water saving devices and the decline of industrial water consumption. MDC's water demands in 2012 were approximately 50 mgd, about 7.4 mgd less than its projected 2012 values. Therefore, use of MDC's water to serve UConn and Mansfield is, essentially, net neutral as compared to historic conditions.

WWW has also experienced decreased per-capita water consumption as well as decreased non-residential water usage. However, because the system operates in the relatively low span of 2.5 mgd to almost 4.0 mgd (the range between a low average day demand and a high peak day demand), further conservation cannot "produce" sufficient water to serve UConn and Mansfield. For example, a system-wide reduction of 10% (which is substantial) would produce less than 0.4 mgd for UConn and Mansfield. This alone would not meet the stated purpose and need; however, ongoing conservation efforts remain important for all water utilities, including WWW.

Unlike MDC and WWW, CWC's Western System has not experienced a long-term year-by-year decrease in water demand, as depicted in the graph below. There have been a handful of years in the last decade where overall system demands have increased relative to the prior year, although the subsequent year typically experiences reduced water demands.



Nevertheless, the conservation potential for CWC is somewhat intermediate between MDC and WWW. Average day demands are on the order of 9 mgd and peak day demands are on the order of 14 mgd. A system-wide reduction of 10% (which is substantial) would produce about 1.0 mgd for UConn and Mansfield. This alone would not meet the stated purpose and need; however, ongoing conservation efforts remain important for all water utilities, including CWC.

The diversion permit process will require a renewed evaluation of water conservation potential for both UConn and the donor utility.

### 2.2.13 Consistency with the Conservation and Development Policies Plan for Connecticut

In their comments, DEEP stated that consistency with the State Conservation and Development Policies Plan ("State Plan") should be an influential factor in selecting a preferred alternative for this project because it has significant long-term land use implications for the state. Consistency with the policies enumerated in the State Plan is taken into account in the EIE and the ROD. With the exception of Alternative #1 ("No Action or No-Build") and Alternative #2 (Replacement of Well "A" at Fenton River), all other alternatives require construction of supply pipelines through areas formerly designated as Preservation Area, Conservation Area and/or Rural Lands under the State Plan in effect at the time of EIE development. Provision of water supply through areas that have the potential to spur development in Conservation and Preservation Areas could be inconsistent with the State Plan; however, it is often necessary to route source water from or through Conservation and Preservation areas to the demand areas, resulting in transmission main routing through protected or non-growth areas.

In June 2013, the Connecticut Legislature adopted the latest State Plan entitled *Conservation and Development Policies: The Plan for Connecticut, 2013-2018* (the "State Plan"). The State Plan became effective upon adoption as the plan of conservation and development for the state (C.G.S. § 16a-30 (a)). As a result, the project was evaluated for consistency with the new State Plan.

*Project-Applicable Growth Management Principles and Policies*

The State Plan does not create a single die from which all state projects are cast, nor does it dictate that each element must be wholly consistent with all principles or policies. The details of some projects may appear more consistent with some policies and less consistent with other policies. In fact, the legislature acknowledged that projects acceptable overall may diverge from elements of the State Plan when it provided for OPM to opine on the extent to which proposed actions are consistent with the plan (C.G.S. § 16a-31(c) and (d)).

Some Growth Management Principles may not be directly applicable to a specific project. However, the policies under these principles may apply to a project notwithstanding their placement under non-applicable principles. The State Plan states that "*OPM recognizes that a number of polices can apply to more than one Growth Management Principle; however, there was an intentional effort to limit such cross-references. Whenever a state agency is required to determine the consistency of a proposed action with the State C&D Plan, it may cite any relevant policies contained in the Plan – regardless of the particular Growth Management Principle under which it appears*." (State Plan, p. 6). The growth management principles are addressed below.

*Growth Management Principle ("GMP") #1: Redevelop and Revitalize Regional Centers and Areas with Existing or Currently Planned Physical Infrastructure*

The proposed project is consistent with GMP #1 policies that focus on development opportunities in areas with existing infrastructure at a scale appropriate for the area. The planned improvements to supplement existing University water supplies are located in an area presently served by public water and sewer service. The Storrs campus is also the location of the most expansive university infrastructure in the state educational system, and the location of legislatively-mandated expansion per UConn 2000, UConn Tech Park, and the NextGenCT improvements. The proposed water infrastructure enhancements support state policy by focusing development opportunities within existing university infrastructure and promoting the complimentary use of educational and research resources and faculty already in place at the University. The development of a supplemental water supply for the Storrs campus promotes the efficient distribution of planned and existing overhead costs to new uses.

The Project is consistent with policies to coordinate infrastructure expansions to meet state growth objectives for the University. The planned system expansion is also coordinated with the schedule of water supply demands. The water demands of the University include planned expansion of the Technology Park, NextGenCT and municipal demand requirements consistent with legislative directives. A new supply will be able to provide additional resources to meet projected demand.

*Growth Management Principle #2: Expand Housing Development and Design Choices to Accommodate a Variety of Household Types and Needs*

The proposed project is consistent with GMP #2 policies in that it will provide the additional water supply required to continue to provide potable water service to the Storrs area of Mansfield. The Plan identifies the project area of Mansfield as an urban area. GMP #2 policies include enhancing housing choices across income levels, and promoting mixed income neighborhoods. The project will provide the water required to serve increasing water demand and municipal operations including senior care facilities.

*Growth Management Principle #4: Conserve and Restore the Natural Environment, Cultural and Historical Resources, and Traditional Rural Lands*

The project is consistent with GMP #4 policies to continue to protect permanently preserved open space areas. The project pipelines will be primarily located within existing roadway rights-of-way. The pipeline will not traverse areas designated in the State Plan as Protected Lands.

The project is consistent with GMP #4 policies to protect and preserve specified state resources. There are no Connecticut Heritage Areas or archaeological areas of regional or statewide significance located in the proposed project footprints. The majority of supply pipeline construction will occur in previously disturbed rights of way. Outside such areas, construction may be preceded by site-specific field investigations. The pipeline routes from CWC, MDC, and WWW sources either do not impact identified habitats of endangered, threatened or special concern species, or the identified habitats can be protected through the best practices cited by DEEP Wildlife Division personnel and discussed in the EIE.

All river crossings will use bridges or directional boring beneath water bodies. There are no ridgelines, large forest areas, or highland areas that will be impacted by construction of the

pipeline. There are no direct impacts to Long Island Sound, although UConn recognizes that stormwater and treated wastewater effluent eventually drain into the Sound.

The State Plan policies seek to achieve no-net-loss of wetlands by avoiding, minimizing and mitigating impacts, and preserving wetland functions. Those standards are adopted by the project in the design and construction strategies. The project minimizes wetland impacts by avoiding wetlands when possible, locating supply pipelines along transportation routes, and using bridges to transit waterways. Directional boring to install pipes beneath wetlands can be employed to minimize disturbance of wetlands and maintenance of wetland functions. Encroachments into wetlands will be subject to state and local regulatory requirements for protection of wetland resources, depending on whether the applicant is the water utility or UConn.

The project has to potential to revitalize the area surrounding the UConn campus by providing water supply that could support redevelopment of adjacent areas of Storrs in Mansfield in a manner consistent with the Town's Plan of Conservation and Development. The interconnection water supply will supplement the projected demand related to new uses in the redeveloped Storrs Road area.

The project relies upon the capacity of the land, to the extent possible, to provide drinking water to meet projected needs. UConn will continue to rely primarily on the capacity of existing water supply wells along the Willimantic and Fenton Rivers, seeking only to address incremental demand and margin of safety supply requirements and comply with well withdrawal limitations to reduce impacts to the Fenton River. The University has substantially enhanced its ability to rely upon the local well systems' capacity to meet water demand by implementation of its water conservation program and the use of reclaimed water, as well as maintaining a continuing program of using improved water conservation appliances and fixtures.

In part, the project calls for the expansion of public water interconnections based on the demonstrated need to maintain public health-derived water supply margin of safety standards. The proposed interconnection also will address the projected water supply needs of the Town of Mansfield and UConn. Coordination of efforts to address both UConn and Mansfield community water utility needs was mandated by the Connecticut Legislature (See P.A. 11-57, Sec. 92). The Project addresses the needs of the Tech Park and the NextGenCT projects. These projects were specifically declared by the state legislature to promote the welfare and prosperity of the people of the state including providing facilities, structures and related systems for the educational and economic development needs of the State and the University of Connecticut, all to the public benefit and good (P.A. 13-233).

The scale of the project addresses the existing needs of UConn and Mansfield (including margin of safety volumes), the requirements related to current and authorized development projects at the Storrs campus (Tech Park and NextGenCT) and sound water supply planning standards (see also GMP #5 below). The preferred water supply option and mitigation measures will provide service at a scale which addresses the existing and projected water demand needs without leading to inappropriate additional development at UConn and in Mansfield. Other water supply issues are discussed further below regarding pipeline development.

*Growth Management Principle #5: Protect and Ensure the Integrity of Environmental Assets Critical to Public Health and Safety*

The project supports GMP Principle #5 policies by engaging in sound water supply planning, and water conservation and management measures over a projected 50 year planning period. The project has provided detailed water supply demand estimates and has identified water supply resources sufficient to meet those needs. The project is designed to address the water supply needs of UConn and the community taking into account drought-related impacts to the existing and proposed systems.

The project ensures that water conservation is a priority consideration in all water supply planning activities and regulatory decisions. UConn has successfully implemented a water conservation program and the use of recycled reclaimed water, as well as maintaining a continuing program of using improved water conservation appliances and fixtures.

*Mitigation, Conservation Areas and Potential for Induced Development*

UConn has determined that the project is consistent with the State Plan and its growth management principles as detailed above. The project is considered a "growth-related project" in light of the fact that the available options for providing the needed water supply include the development or improvement of real property at a cost in excess of $200,000 (C.G.S. § 16a-35c). The UConn campus at Storrs is located within a Priority Funding Area (PFA) as established by the State Plan. Depending on the specific location on campus, this designation reflects three or four PFA criteria, with the primary criteria factors supporting the PFA designation being: (i) urban area; (ii) sewer service; and (iii) water service. The State Plan does not impose mitigation requirements on project elements within a designated PFA.

The area of the Town of Mansfield in the vicinity of UConn is designated either PFA or Balanced Priority Funding Area (BPFA). The BPFA classification reflects an overlay of both PFA and one or more of the nine Conservation Area factors[3]. Given the linear nature of the pipeline elements of some project alternatives, there are off-campus areas along the pipeline routes that are outside of designated PFAs or within these Conservation Areas. For example, some areas along the pipeline routes, including areas within the Town of Mansfield, are identified by a BPFA classification.

A town-by-town commentary is provided below for the other municipalities.

- East Hartford – The MDC routing alternative through East Hartford occurs on Silver Lane in areas that are fully developed and served by MDC. Adjacent land areas are designated in the State Plan as PFAs, although a very small BPFA area is mapped in East Hartford.

- Manchester – MDC routing alternatives through Manchester occur within Interstate 84 and Interstate 384 in areas that are developed and currently served by the Manchester Water Department. Adjacent land areas are designated as PFAs and BPFAs.

[3] The nine conservation area factors are: Core Forest Areas Greater than 250 acres based on the 2006 Land Cover Dataset; Existing or potential drinking water supply watersheds; Aquifer Protection Areas; Wetland Soils greater than 25 acres; Undeveloped Prime, Statewide Important and locally important agricultural soils greater than 25 acres; Category 1, 2, or 3 Hurricane Inundation Zones; 100 year Flood Zones; Critical Habitats (depicts the classification and distribution of twenty-five rare and specialized wildlife habitats in the state); and Locally Important Conservation Areas (based on data authorized/submitted by municipalities).

- South Windsor – The MDC routing alternative through South Windsor occurs within Interstate 84 in an area that is developed and currently served by Connecticut Water Company. The adjacent land is designated in the State Plan as a PFA.

- Vernon – The MDC routing alternative through Vernon occurs within Interstate 84 in areas that are developed and currently served by Connecticut Water Company. The adjacent land is designated in the State Plan as a PFAs and BPFAs.

- Tolland – A portion of the MDC routing alternative occurs within Interstate 84 between interchange 67 and 68 (at Route 195). CT DOT has indicated that service connections will not be permitted from within the utility strip. The character of land uses in the I-84 corridor in Tolland is rural to the north and south of I-84. CWC's Northern Operations Western System is the water provider to the northwest of I-84. The adjacent land is designated in the State Plan as a PFA and BPFA. A segment of Route 195 southeast of Interstate 84 is partly served by the Tolland water system (the area recently rezoned Technology Campus Zone; refer to ROD Section 2.2.7) although part of this segment is not currently served by a public water system and would receive a pipeline under the MDC (routing alternative 4B) or CWC service scenarios. This corridor includes mainly PFA with some BPFA lands.

- Coventry – For MDC routing alternative 4B and the CWC service scenario, only approximately 0.3 miles of pipeline is proposed in the Town of Coventry. Public water supply is not currently available in this area, with individual homes and a church served by private wells. Two parcels are zoned for commercial use but currently have single-family homes. The corridor includes areas of PFA, BPFA, and Conservation Area (CA). Some of the CA is dominated by the Special Flood Hazard Area of the Willimantic River. Relatively limited development potential exists in this area with the exception of the one large potentially developable parcel and potential reuse of the commercially-zoned parcels. Conflicts in this area are limited due to the short distance along Route 195 in Coventry and the fact that some of this short distance is PFA and BPFA.

- Coventry – MDC routing alternative 4A runs along 5.4 miles in Coventry through areas that are designated as Village Priority Funding (VPF), PFA, BPFA, and CA. The majority of this route is CA. Provision of water supply that has the potential to spur development in these areas may be inconsistent with the State Plan.

- Bolton – MDC routing alternative 4A runs along 1.6 miles in Bolton through areas that are exclusively designated BPFA and PFA.

An evaluation of project consistency with the State Plan requires consideration of how the conservation area-designated resources will be protected when UConn proceeds with the project. UConn proposes to address conservation resources by implementation of the following mitigation measures.

*Mitigation of Potential for Inappropriate Induced Development* – The installation of public water supply pipelines in an unserved area presents the potential for inducing development that might otherwise not have occurred due to on-site water supply limitations. Such development could be inconsistent with the State Plan depending upon the funding or conservation designation of specific locations.

The State Plan policies direct state agencies to "*RELY upon the capacity of the land, to the extent possible, to provide drinking water and wastewater disposal needs beyond the limits of the existing service area. Support the introduction or expansion of public water and/or sewer services or advanced on-site wastewater treatment systems only when there is a demonstrated environmental, public health, public safety, economic, social, or general welfare concern, and then introduce such services only at a scale which responds to the existing need without serving as an attraction to more extensive development.*" (See State Plan p. 20).

All WWW routes, and portions of the CWC and MDC routes, are located within the jurisdictional limits of the Town of Mansfield and subject to local regulation. As discussed in the EIE, Mansfield has proposed the creation of an overlay zone under local regulations to protect rural areas from more intensive development. The overlay district would limit the density of development in locations along a public water supply line to no greater than is demonstrated supportable by means of on-site wells, unless the property is located within a designated Planned Development Area in the Town's Plan of Conservation and Development. These Planned Development Areas are located in designated PFA and BPFA designated lands.

Potential water supply connections in Mansfield for new developments would occur only upon receipt of regulatory approvals, including zoning approvals that would reflect application of the overlay zone restrictions. The overlay zone approach is consistent with the policy stated above, in that it limits development in conservation areas that intensity that otherwise would have been supportable by use of on-site water resources without use of a project-related pipeline. UConn submits that reliance upon the Mansfield overlay zone, or similar restrictions in other municipalities as available, addresses the need to mitigate potentially more intensive development resulting from the availability of a pipeline water supply.

Outside Mansfield, other regulatory tools can be identified that restrict induced development. For example, the EIE describes RDD-Natural Resource and Wildlife Protection Area zoning in Tolland. From Anthony Road to the Coventry town line, Route 195 traverses a relatively rural area (identified as PFA in the State Plan) with Residential Design District (RDD) and RDD-Natural Resource and Wildlife Protection Area zoning. The purposes of the Natural Resource & Wildlife Protection Areas zoning is to provide a greater level of review by protecting large blocks of diverse contiguous land; protecting critical stream corridors to protect and enhance surface water and groundwater quality and to provide important connections in the life-cycles of wildlife; and keeping watersheds intact to provide the greatest diversity of wildlife resources. Furthermore, the Town of Tolland requires that low impact development (LID) techniques be implemented on all development projects within the boundaries of the Town to protect high quality wetlands, watercourses, open water bodies and other sensitive areas from the impacts of point and non-point sources of storm water due to land development projects.

UConn proposes as a mitigation measure for potential impacts along the portions of the project pipelines outside PFAs that other service connections be limited to only serve uses of an intensity that could otherwise be serviced by on-site water resources or upon a determination by state or local agencies, within their applicable authorities, that connection of an existing use is necessary to address a demonstrated environmental, public health, public safety, economic, social, or general welfare concern. All such connections also shall comply with standards, terms and conditions of applicable permit and approval requirements relevant to the nine conservation area factors.

*Mitigation of Pipeline Construction Impacts* – All options for connection with off-site water supplies would result in pipeline construction in certain areas designated as Conservation Areas.

As noted throughout the EIE, construction-related impacts are to be mitigated by avoiding sensitive areas and employing construction best management practices. The project pipelines will be located within existing rights-of-way and roadway areas to the fullest extent available. The pipelines will not be located in any core forest areas, undeveloped prime agricultural land, hurricane inundation zones, critical habitats, or locally important conservation areas. All wetland and watercourse crossings will be mitigated by means of crossing watercourses by hanging pipes on bridges or directional boring under watercourses and wetlands. Subsurface installation of pipelines does not impact or conflict with 100-year flood zone criteria. Any pipeline construction within water supply watershed lands or aquifer protection areas will employ best management practices as recommended by the DPH in the agency's submitted comments on the project or additional DPH recommendations that may arise in connection with permitting procedures. Pipeline construction will only occur in regulated areas, including those areas designated under the nine conservation area factor categories, in conformance with the standards, terms and conditions of approvals issued by state or local authorities.

Additional discussion of this topic is presented in ROD Section 2.3.1 below in response to CEQ comments.

## 2.3 RESPONSE TO COUNCIL ON ENVIRONMENTAL QUALITY

### 2.3.1 Role of State-Wide and Regional Planning Documents

CEQ raised issues of consistency with the State Conservation and Development Policies Plan (the State Plan) and sought an understanding of what regional plan(s) the proposed project would support. Further, CEQ stated: "*EIE is not clear as to what, if any, regional water plan this project advances. It has long been established in state policy that major expansions of service areas should not be conducted project by project, for economic and environmental reasons, but should be conducted to further well-conceived regional plans*" and asks "*What is the plan that the proposed project supports?*" The Council notes that the Northeast Water Utility Coordinating Committee was never convened.

UConn, Storrs, the Mansfield Four Corners area, and areas adjacent to the main campus are currently identified in the State Plan as areas that are desirable for growth via their PFA and BPFA designations. Provision of public water to support such growth is consistent with state goals, including the current State Plan.

Extension of water to UConn and Town of Mansfield has been discussed in various plans for more than a decade, including the Town of Mansfield water supply plan (2002); the individual water supply plans of The Connecticut Water Company (2006 and 2011), Windham Water Works (2004 and 2009), and UConn (2011); and UConn's Water and Wastewater Master Plan (2007). These individual water supply plans have been reviewed by DEEP, DPH, OPM, DPUC (now PURA), and WinCOG and/or CRCOG. The Water and Wastewater Master Plan was reviewed by DPH and DEEP.

As early as 1994, DPH began to encourage UConn to secure additional long-term sources of supply. The approval of UConn's individual Water Supply Plan on October 24, 1994 included the statement "*The University of Connecticut must show significant progress towards obtaining additional water supply. Obtaining additional water supply should be the top priority for the University of Connecticut system. Without this additional supply, the University of Connecticut may not be able to serve future planned developments.*"

Thus, the idea of extending water supply to UConn and the Town is not a new concept, but one that would support multiple long-range plans. In addition, as a matter of state policy the Connecticut Legislature has directed development of the Tech Park project at the Storrs campus, and required UConn to coordinate utility projects with the Town of Mansfield.

Aside from the water supply planning history and context, the Technology Park has been subject to significant planning as well as an approved federal Environmental Impact Statement. The recent enactment of NextGenCT is a further clear expression of state policy.

Outside of UConn, other regional plans support the proposed project. The Northeastern Connecticut Comprehensive Economic Development Strategy (CEDS) is the result of collaboration between the Northeastern Connecticut Council of Governments (NECOG) and WinCOG. These two entities joined forces in 1999 to form the Northeastern Economic Partnership for the purpose of developing a Comprehensive Economic Development Strategy for Northeastern Connecticut. The geographic area for the partnership encompasses 21 communities in northeast Connecticut.

The CEDS identifies a vision, goals and objectives for economic development in the 21-town region. Additionally, the CEDS includes specific projects that have been evaluated for consistency with specific criteria, including the CEDS goals and objectives and consistency with state, regional, and local plans of conservation and development and the Connecticut Economic Development Plan. The "University of Connecticut Technology Park and Incubation Facilities" is identified in the CEDS as a priority regional project, and the Mansfield Four Corners Water and Sewer Project is identified as a community project of regional significance. Both of these projects would be supported by the new water supply.

It is important to note that while the CEDS focus is on economic development, it is approached through a lens of smart growth. One of the plan's five goals is to "*Balance growth with the desire to protect the region's rural character and natural resources*." One of the objectives for that goal is to "*direct development to regional growth centers and areas with existing physical infrastructure*." The two projects identified above are located in the Storrs Downtown and Four Corners Regional Center identified in the 2010 Windham Region Land Use Plan.

The Windham Region Land Use Plan (2010) prepared by WinCOG cites that "*regional centers are the highest priority for all forms of redevelopment and development*." The Mansfield Four Corners area is part of one of the two regional centers identified in the Windham Region Land Use Plan.

There are specific locations along the various alternative pipeline routes that, if served with public water supply, have the potential for lack of conformity to the State Plan. However, the potential for any degree of non-conformity does not dictate the outright rejection of an alternative. In part, consistency with the State Plan takes into account those measures proposed to mitigate potential inconsistencies in the course of design, construction and operation of the proposed Project.

CEQ states that it is not aware of any provisions in statute that would allow an agency to implement an infrastructure project that is not "*in conformance with the [2005-2010] State Plan*." Two example projects in which perceived inconsistency with the State Plan did not bar approval include:

- Middlebury Water Supply Project: Several years ago the Town of Middlebury and the Connecticut Water Company installed a 12-inch water main through areas designated in the then State Plan as Rural, Conservation, and Preservation in order to connect the public water systems serving western and eastern Middlebury, provide redundancy to the Westover School public water system, and remove small transient and non-transient public water systems from operation. This project was sponsored by the Department of Environmental Protection (currently DEEP) and was analyzed in conformance with a CEPA Environmental Impact Evaluation. DEEP cited the Middlebury project as an example in its scoping comments for the subject EIE. The proposed mitigation in the Middlebury project called for the municipality to amend its zoning regulations and the municipal Plan of Conservation and Development to restrict more intensive induced growth. This is an example of how a potential inconsistent aspect of a project can be addressed.

- East Lyme Water Supply Project: More recently, the interconnection between the public water system in East Lyme and the Lake Konomoc Reservoir (owned by the City of New London) has received several state agency approvals. This example offers several potential methods of reducing or preventing connections to the pipeline that will be installed through East Lyme, Montville, and Waterford. The towns of East Lyme and Montville entered into a Memorandum of Understanding regarding what areas would be served from the pipeline.

The potential for low-density development currently exists in areas along all potential pipeline routes regardless of the decision on project supply routing. If economic conditions were such that construction was desirable in any of the communities affected by this Project, low-density housing or commercial development could be constructed with individual wells, without the need for a regional pipeline.

### 2.3.2 Energy Use/Resource Consumption/Sustainability

CEQ states that the "*MDC alternative appears to this Council as a proposal that runs counter to the general path of state policy, specifically in the areas of transportation, energy use, and general sustainability.*" Each of these policies is discussed below.

Transportation

The Council points to traffic-inducing secondary growth along the pipeline routes, leading to automobile-dependent sprawl, noting that this runs counter to the state's emphasis on transit-oriented development and suggests that traffic impacts should be fully addressed. The premise and potential scope of induced secondary growth is addressed in the EIE and the ROD. While on the surface, secondary growth appears to be a significant risk of this project, in fact, there is limited potential for secondary growth. Refer to the discussion in ROD Section 2.2.7.

Energy Use

The Council correctly notes that the EIE projects the MDC alternative to be the most energy-consuming. The Council further states that the EIE should "*give additional weight to the relative energy demands of the alternatives.*" The EIE established that because the CWC and WWW alternatives are more proximal and at higher elevations, they will use less energy than the MDC system, given its greater distance and lower elevations. The EIE also points to incremental energy usage as a cumulative impact. However, it is unlikely that the incremental increased energy usage for the more distant alternatives, taken alone, would materially stratify the three alternatives.

Responsible Growth

The Council notes that construction of water mains has historically led to suburban sprawl, and further concludes that the EIE does not fully describe this effect. Refer to ROD Sections 2.2.7 and 2.2.13 for a discussion on induced growth and development. It is further noted that pipelines can be a deterrent to urban sprawl, if development is concentrated in areas that are most appropriate, leaving other areas in their undeveloped state.

### 2.3.3 Permitability of Alternatives

CEQ commented that the likelihood of a project alternative to be permitted should be considered in the EIE with respect to any required water diversion permit from the CT DEEP. CEQ notes that the possible denial of a diversion permit and the complexity of the permitting process for a specific alternative should be considered. Naturally, a full range of outcomes is possible for any required permit proceeding, from rejection without prejudice to outright granting of the permit, with an infinite number of intermediate outcomes such as the crafting of alternative permit language with various special conditions.

A diversion permit will require evaluation of the effectiveness of past and potential water conservation efforts. Refer to ROD Sections 2.2.12, 2.4.4, and 2.5.1 for information about water conservation. Such information and analysis will be part of any future diversion permit application.

The EIE is intended to be an early planning process; however, its successful conclusion in no way ensures the approval of future permit applications. Local, state, and possibly federal permits will be required from multiple regulatory agencies. The likelihood of permit issuance is based on many factors, including project details that are not available in the EIE process. It is therefore not plausible to conclusively forecast the ultimate outcome of such a rigorous and complicated process.

### 2.3.4 Ranking of Alternatives

CEQ notes that impacts are not equal among the alternatives and that a matrix or chart that clearly illustrates the impacts of the three alternatives should be provided, with a ranking of level of impact. UConn did not intend to imply in the EIE that individual types of impacts are equal among the three selected alternatives. For example, the EIE goes to great lengths to explain how impacts to instream flow vary widely for the three alternatives.

Subsequent to the publication of the EIE, alternatives have been ranked based on the environmental evaluations in the EIE, supplemental financial and business information received from the potential suppliers, and consideration of the current Connecticut Conservation and Development Policies Plan published in June 2013. This analysis is presented in ROD Section 4.0.

### 2.3.5 Small Water System Supplies

CEQ raises the possibility that smaller water systems will want to connect to a regional pipeline for economic or water quality reasons, leaving the displaced sources available to communities to the east. It is anticipated that small systems in the vicinity of Mansfield Four Corners will connect and abandon their sources. These water demands were built into the projections in the EIE. While some small public water systems (transient non-community, non-transient non-community, and community systems) may connect to a new source of water and relinquish their existing supplies, these

"displaced" sources will not be locally or regionally significant for any other communities. For the most part, all of these small public water systems rely on one or two bedrock wells with poor yields and elevated levels of iron, manganese, hardness, or in some cases polluted groundwater.

### 2.3.6 Effects of Drought Conditions on the Farmington River

CEQ questioned potential effects during drought conditions in the Farmington River basin. Comments related to the Farmington River have been addressed together in ROD Section 2.9.

### 2.3.7 Need for State vs. Local Wetland Permitting

CEQ commented (via addendum email) that the EIE needs to explain the circumstances under which State wetland permitting or local wetland permitting would be necessary. The EIE acknowledges that wetland permitting would be required for construction of any of the alternatives, and that potential wetland impacts would also be reviewed during the water diversion permit process. If the project is administered by the State of Connecticut (i.e. UConn), then wetland permitting through the Connecticut DEEP will be required. If the project is administered by the donor water utility, then local wetland permitting will be needed. It is possible that both types of permitting may be needed if portions of the construction are administered by UConn and a second water supplier. The specific requirement for whether the project requires state or local wetland permitting (or both) will be determined as the project moves forward. This is not an impediment to the EIE process.

## 2.4 RESPONSE TO THE DEPARTMENT OF PUBLIC HEALTH

### 2.4.1 Construction of Pipeline within Level A Aquifer Protection Areas and Public Water Supply Watersheds

As noted by DPH, construction best management practices would be necessary for pipeline segments that occur in the Manchester Water Department and Windham Water Works public water supply watersheds and through the CWC and Manchester Water Department aquifer protection areas. UConn will work with the future water supplier, as appropriate, to develop site-specific implementation plans incorporating best practices to protect drinking water supplies. Details and documentation on pipeline construction practices will be part of future permit applications.

### 2.4.2 Construction of Pipeline Near the Fenton River

Alternatives #5 (interconnection with WWW) and #7 (installation of wells near Mansfield Hollow Reservoir) include transmission main scenarios that would be installed in the vicinity of Mansfield Hollow Reservoir and the Willimantic Reservoir. All of the water mains associated with these alternatives lie within the watershed of the Willimantic Reservoir and Mansfield Hollow Reservoir public drinking water supply watersheds (additionally, pipeline segment 19 associated with the CWC alternative also lies within these watersheds, although this segment is not part of the CWC routing).

DPH expressed concern regarding pipeline segments #33, #35, and #36. These segments include a primarily off-road area between Route 89 and Chaffeeville Road, Chaffeeville Road in the vicinity of the Fenton River, and Gurleyville Road and the utility access road from Fenton Well D to Fenton Well A, respectively. Pipeline segment #33 would only be utilized with Alternative #7,

which was deemed infeasible in the EIE. Thus, only segments #35 and #36 are in play. Water main would be installed within the existing road along segment #35 and segment #36 to Fenton Well D, but beneath an unpaved roadway for the remainder of segment #36.

Regardless of selected routing, potential impacts will be minimized through the use of best management practices during construction. Such practice is common throughout water supply watersheds in Connecticut.

### 2.4.3 Land Use Regulation Modifications

DPH requested the opportunity to review any plans and regulations proposed to be effective within the public drinking water supply watershed to ensure that they are consistent with state policies in place to protect sources of public drinking water (CGS 25-32f.). The Town of Mansfield is familiar with the statute, understands that DPH has the ability to comment, and plans to work with the agency directly in the event that proposals are advanced for these public drinking water supply watershed areas.

### 2.4.4 Water Conservation Practices

DPH requested that UConn provide additional implementation details of current, ongoing, and future water conservation practices including the construction of the water reclamation plant and future planned uses of reclaimed water.

UConn has reduced its water production and consumption metrics while serving a greater number of students, faculty, and facilities. UConn maintains a 7.5% rate of unaccounted-for water, which is significantly below (i.e. better than) industry standards. Water conservation has been at the forefront of water supply management at the University for over a decade with remarkable results. In addition to one of the most rigorous conservation efforts in the state, the University commissioned design and construction of a water reuse facility that now supplies a substantial water need at the Central Utility Plant and for irrigation water in the future. Notwithstanding these efforts, the University still needs additional water. This need has been driven by the shortfalls that result from protection of the Fenton River during droughts wherein the wellfield is completely shut down.

UConn maintains information on its water conservation practices in a number of other documents including its Water Conservation Plan. The following information is provided to help address DPH's comment and similar comments by others relative to water conservation.

UConn recognizes two important categories of water conservation: (1) ongoing tactical methods available each year to guide UConn through the various protocols of its Wellfield Management Plan and protect instream fish habitats; and (2) strategic, long-term methods of reducing water usage. Each is described below.

Tactical Conservation: UConn has an advantage over municipal water departments or private water companies in that it has direct operational control of the majority of end-uses of its water as well as methods of regulating and enforcing conservation. Voluntary and mandatory conservation measures are implemented when instream flows in the Fenton River and Willimantic River call for such conservation as set forth in UConn's Wellfield Management Plan.

Voluntary water conservation measures communicated to students, faculty, and staff as well as off-campus customers include but are not limited to the following:

- Taking shorter showers and condensing washing of dishes and laundry into full loads.
- Avoid letting water run to warm up or cool down, and not letting faucets run while brushing teeth, shaving, etc.
- Eliminating non-essential consumption of water (lawn watering, garden watering at night only, car washing).
- Raising air conditioning thermostats for centrally-chilled buildings to 75 degrees.

Mandatory water conservation measures include but are not limited to the following:

- Cessation of any routine maintenance flushing of hydrants, pipes and sewer lines.
- Use of the UConn Motor Pool vehicle wash bay is suspended.
- Irrigation of athletic fields, landscaping, and research facilities must be reduced by 50% unless separate irrigation ponds or off-system wells are used.
- The use of lasers, autoclaves and other research lab devices that consume water for once-through cooling must be curtailed.
- No use of University water for construction site dust control or rinsing activities.
- No use of University water for street sweeping.
- No pool filling using University water.
- Thermostats set to 78 degrees for centrally-cooled buildings.

Strategic Long-Term Conservation**:** The last decade has seen a significant increase in water conservation measures implemented by UConn. Long-term conservation measures as a whole have caused a decrease in total water consumption and are causing water usage to hold steady even as student population has increased. Average daily demand on UConn's two wellfields has steadily decreased from 1.49 mgd in 2005 to 1.23 mgd in 2009. Average daily demand in 2010 and 2011 increased to 1.29 mgd, but again declined in 2012 to 1.26 mgd. The maximum month average day demand (typically September) has also decreased over the years although it is now relatively steady at approximately 1.6 mgd. The trends demonstrate that long-term conservation efforts have resulted in overall water savings.

Some of the more significant water conservation efforts are described below.

- Construction of the Reclaimed Water Facility for non-potable water demands has been completed and the facility is operational. Reclaimed water production and industrial on-campus reuse began in early May 2013. For the months of May and June, the overall Central Utility Plant demand for potable water dropped an average of approximately 200,000 gpd (-19%) compared to the same interval for the previous year (2012). Full implementation of operations will decrease potable water demands by 400,000 to 500,000 gpd, depending on the time of year with the ability to expand to 1.0 mgd.

- Since 2007, UConn's green building policy has ensured that newly-constructed buildings have water-efficient fixtures and other water conserving design features by setting LEED Silver certification as a minimum performance standard for all new construction and major renovation projects.

- The new Oak Hall includes UConn's first rainwater harvesting system for irrigation of plants and lawn areas. Two 25,000 tanks beneath the building will collect roof runoff and intercept underlying groundwater to irrigate the core campus green.

- The overall lack of irrigation on campus in other areas is itself a water conservation measure. In fact, except to establish new plantings and new sod or seeding projects, UConn does not irrigate its campus landscaping or lawns except for the core campus green. Instead, for the landscaping around new LEED-certified building projects like Laurel Hall, UConn uses "xeriscaping" involving native, drought tolerant plants often installed in rain gardens and bioretention swales that collect runoff and roof drainage.

- In 2009, Student Affairs constructed new and improved existing grass playing fields for multiple Club Sports teams at the Depot Campus. Mindful of UConn's commitment to sustainable water use, they installed a state of the art sprinkler system that detects soil moisture levels and irrigates only as needed, saving thousands of gallons daily during the growing season. Elsewhere, irrigation nozzle retrofits at Morrone Field were made to better match nozzle size to delivered water pressure, allowing overall water use to decrease.

- Through the "EcoMadness" program every year, 23 residence halls that house thousands of mostly first- and second-year students compete to conserve energy and water over the four-week contest. The goal is to instill more sustainable, resource-efficient habits among students early in their academic careers. It's typical for several of the most motivated dorms to reduce their water use by 20% during the competition, averaging little more than 30 gallons of water per student per day for nearly a month.

- In the dining halls, a food waste reduction initiative proved to also have water conservation benefits. When all but one of the dining halls on campus went "trayless" to start the 2008-2009 academic year, they experienced a corresponding 20-25% reduction in water used in the kitchens from not having to wash the trays. The dining halls have remained trayless ever since.

- Water conservation has been especially important for heating and cooling water demands. The Central Utility Plant facility has replaced many independent furnaces and facilities throughout campus, resulting in a more energy- and water-efficient heating system. A similar impact has occurred with the replacement of smaller air-cooling systems with the centralized chiller facility.

- Leak detection and repair is an important subset of water conservation methods. UConn's contract operator performs targeted leak detection surveys every two years. Water savings as a result of leak detection surveys is exemplified by the survey performed between November 1 and December 30, 2005 that located four leaks in UConn water distribution system totaling 11 gpm (15,840 gallons per day) of water loss. These leaks were repaired. Leak detection surveys were also completed in 2009 and 2011. Notable leaks were not found during these surveys.

- In 2006, UConn commissioned a water conservation audit by the firm Water Management, Inc. Many of the recommendations have been implemented (some are listed above), and many are ongoing. To date, the following water conservation measures have been implemented:

  - ✓ On-campus meters are recorded continuously and can be reviewed in real time; detection of sudden increases in water use may be indicative of leakage and can therefore be corrected quickly. For example, a major 85 gpm leak was discovered in the Burton Football Practice Facility in July 2012 through the use of meter records and was repaired.

- ✓ Off-campus meters are read quarterly.
- ✓ For 2012, 92.5% of water produced was accounted for. Industry standard is 85%.
- ✓ Continued retro-commissioning of campus buildings improves heating and cooling performance, and for buildings centrally heated and cooled, this results in a decrease in Central Utility Plant consumption.
- ✓ A uniform rate structure was adopted for commercial and metered residential customers in 2006, replacing a declining block structure. The change was made to encourage conservation by commercial users.
- ✓ The UConn 2000 program resulted in the installation of water-saving fixtures in new University buildings and building renovations. For example, several hundred high-efficiency front loading washing machines were installed throughout campus saving an estimated 2.6 million gallons of water per year. Older residential facilities such as the Northwest Quadrangle have been renovated and water-saving fixtures were installed. Note that the newest residential facilities, such as Charter Oak Apartments & Suites, have experienced extremely low per-capita water consumption.
- ✓ UConn's Poultry Unit switched from continuously running bubbler-drinkers for the chickens to a system of on-demand "nipple drinkers", saving one million gallons of water per year.
- ✓ UConn's infirmary replaced its water-intensive X-ray processor with digital type processors that have no corresponding water use, saving 300,000 gallons of water per year.

The Town of Mansfield has also participated in long-term water conservation efforts. The town completed water audits of several town-owned facilities served by UConn's water system, including the Mansfield Nursing and Rehabilitation Facility, Juniper Hill, the Senior Center, and the Discovery Depot preschool. The audits have identified a small number of improvements to enable moderate reductions in the amount of water consumed by these facilities.

### 2.4.5 Additional Small Water Systems Along Pipeline Routes

Additional small water systems along the pipeline routes have been added to the EIE tables as requested by DPH. Updated tables are presented below:

**Revised EIE TABLE 4.5-9**
**Non-Transient Non-Community Water Systems Along Potential Pipeline Routes**

| Segment | Town | System | Service Population | Connections |
|---|---|---|---|---|
| 2 | Bolton | Able Coil | 50 | 1 |
| 2 | Coventry | Meadowbrook Shopping Center | 40 | 2 |
| 8 | Tolland | 70 Merrow Road (Subway) | 60 | 2 |
| 10 | Tolland | Children's World Day Care | 50 | 1 |
| 10 | Tolland | U.S. Department of Agriculture | 36 | 1 |
| 17 | Mansfield | Goodwin School | 340 | 1 |
| 18 | Mansfield | Mansfield Professional Park | 100 | 4 |
| 20 | Mansfield | Mansfield Shopping Center | 30 | 9 |
| 25 | Mansfield | Mt. Hope Montessori School | 88 | 1 |
| 30 | Mansfield | Southeast School | 311 | 1 |
| 39 | Mansfield | Mansfield Middle School | 715 | 1 |

**Revised EIE TABLE 4.5-10**
**Transient Non-Community Water Systems Along Potential Pipeline Routes**

| Segment | Town | System | Service Population | Connections |
|---|---|---|---|---|
| 2 | Bolton | 1135 Boston Turnpike (Valero) | 25 | 1 |
| 2 | Bolton | Bolton Notch Plaza | 25 | 1 |
| 2 | Bolton | Bolton Professional Building | 25 | 1 |
| 2 | Bolton | St. George Episcopal Church | 48 | 1 |
| 2 | Bolton | U.S. Post Office | 25 | 1 |
| 2 | Bolton | United Methodist Church | 35 | 1 |
| 2 | Coventry | 7-Eleven | 25 | 1 |
| 2 | Coventry | CVS Plaza | 30 | 1 |
| 2 | Coventry | Dunkin' Donuts | 25 | 1 |
| 2 | Coventry | Presbyterian Church of Coventry | 25 | 1 |
| 2 | Coventry | Storrs Community Church | 25 | 1 |
| 2 | Coventry | Walgreens | 25 | 1 |
| 4 | Mansfield | Thompson's General Store | 25 | 1 |
| 9 | Tolland | Tolland Citgo | 25 | 1 |
| 10 | Tolland | 404 Merrow Road (Sunoco) | 33 | 1 |
| 10 | Tolland | Agora Sandwich Shop | 27 | 1 |
| 12A | Mansfield | Mansfield X-tra Mart | 25 | 1 |
| 14 | Mansfield | Holiday Mall | 45 | 3 |
| 14 / 20 | Mansfield | Public America | 25 | 1 |
| 18 | Mansfield | Yukon Jack's | 25 | 1 |
| 20 | Mansfield | 603 Middle Turnpike (Market & Deli) | 25 | 3 |
| 23 / 24 | Mansfield | Mansfield Hollow State Park | 25 | 1 |
| 28 | Mansfield | Mansfield Center General Store | 25 | 1 |
| 28 | Mansfield | Mansfield Restaurant Pizza & Pub | 25 | 1 |
| 30 | Mansfield | Mansfield Library Buchanan Center | 217 | 1 |
| 33 | Mansfield | Lions Park | 25 | 1 |
| 34 | Mansfield | First Church of Christ | 25 | 1 |
| 35 | Mansfield | Camp Holiday Hill | 132 | 3 |
| 39 | Mansfield | Bicentennial Park | 25 | 1 |
| 40 | Mansfield | Altnaveigh Inn & Restaurant | 25 | 1 |
| 40 | Mansfield | First Baptist Church | 25 | 1 |
| 41 | Mansfield | 847 Stafford Road (Pub 32) | 25 | 1 |

Note: Population is estimated by CT DPH for most systems and reported in sanitary surveys and/or on the inventory of public drinking water systems; 25 is the benchmark for TNC system classification and is sometimes used as the default for transient systems.

### 2.4.6 Additional Requirements Associated with Groundwater Supply Alternatives

UConn understands that a more in-depth evaluation of the potential impacts of historic land uses and identified sources of contamination on the area groundwater would be required should any of the potential well options be selected for implementation. The EIE provides a comprehensive baseline of information that will facilitate any future applications for well sites. Additionally, UConn recognizes that any groundwater sources that are determined to be under the direct influence of the Willimantic River would be prohibited from use as a public water supply pursuant to CGS Section 22a-417 because the Willimantic River receives sewage discharge from both the Town of Stafford's and UConn's wastewater treatment facilities. However, none of the groundwater supply alternatives meet the project purpose and need and none are being pursued.

## 2.5 RESPONSE TO THE DEPARTMENT OF AGRICULTURE

### 2.5.1 Water Conservation

The Connecticut Department of Agriculture suggested that water conservation efforts should be presented as an alternative to meet at least some of UConn's future water needs. This topic is discussed in great detail in ROD Sections 2.2.12 and 2.4.4. UConn has implemented significant water conservation measures as a first phase of its water supply management strategy, and plans to use conservation to meet some of its future water needs. However, additional water is still needed in addition to these conservation measures. UConn's aggressive water conservation efforts have caused the quantity of required new water to be significantly lower than would be needed without the conservation results achieved to date. For example, if UConn had not proceeded with the reclaimed water facility, the amount of water needed by UConn would be up to 0.5 mgd more than the current proposed action.

Water conservation can be a viable means of mitigating future water supply demands for some public water systems, especially when conservation has not been attempted and future needs are nominal. However, this is not the case for UConn which has successfully implemented substantial water conservation measures.

### 2.5.2 Farmland Conversion and Farmland Soils

The Department of Agriculture expressed concern for direct impacts to farmland soils and induced development of agricultural areas adjacent to the pipelines. UConn recognizes the importance of protecting farmland soils. For example, in connection with the development of the Tech Park, a one-to-one replacement ratio is being provided for impacted areas. Pipelines that convey a new source of water supply to UConn and Mansfield will be largely installed beneath paved roadways or beneath the adjacent roadway right-of-way. Direct impacts to farmlands are not anticipated outside of the exception of the North Hillside Road extension associated with the Tech Park.

UConn understands that indirect impacts to agriculture and farmland soils could occur along the proposed pipeline routes due to induced development, although potential impacts to farmland soils resulting from such potential development are expected to be minimal based on an analysis of specific sites. A breakdown of agricultural uses (based on recent aerial photography) and farmland soils along each pipeline segment associated with the interconnection alternatives is provided in Appendix D. Relative to the routing scenarios for the three interconnection alternatives, with the exception of MDC routing alternative 4A, potential impacts are less than 20 acres. MDC Routing alternative A has the potential to impact more than 300 acres.

- Alternative #3A (CWC): Approximately 17.3 acres
- Alternative #4A (MDC): Approximately 314.5 acres
- Alternative #4B (MDC): Approximately 17.3 acres
- Alternative #5B (WWW): Approximately 12.2 acres

## 2.6 RESPONSE TO THE OFFICE OF POLICY AND MANAGEMENT

### 2.6.1 Supporting Documentation

OPM has asserted that all supporting documentation should be made a part of the EIE, which is already on the order of 1,000 pages in length. Some materials are referenced throughout the EIE when information originates from other documentation. The CEPA regulations stress that the EIE should be "*clear, concise, and to the point, and written in plain language so that it may be understood by the general public.*" (RCSA 22a-1a-7(e)). The regulations go on to say "*[a]n agency may incorporate material by reference in to an environmental impact evaluation when to do so will cut down on bulk without impeding agency and public review of the action.*" (RCSA 22a-1a-7(c)). To incorporate whole scientific studies and lengthy system-wide technical reports would be contrary to the spirit and intent of the regulations. As such, relevant information from such documents has been summarized in the EIE relevant to the salient components of the evaluation.

UConn's Water and Wastewater Master Plan and Individual Water Supply Plan have been made available at http://www.envpolicy.uconn.edu/reportsplans.html, UConn's Office of Environmental Policy web page. Individual water supply plans are subject to limited distribution for security reasons. Such plans are not subject to the Freedom of Information disclosure policies and are not generally made public. Although UConn has made its plan available for public review, this is not the case for CWC, WWW, and MDC. However, these plans were available to UConn for development of this EIE.

### 2.6.2 Project Purpose & Need

OPM stated that the EIE should include a variety of additional information to support the project purpose and need, as enumerated in italics below:

1. *A detailed accounting of existing and projected water demands so that a clearer picture can be portrayed as to the overall water needs of UConn and all opportunities for additional conservation, including expansion of water recycling and the retrofitting of existing buildings; a schedule of additional water demands relative to the timeframe of projected developments, providing information relative to the timing of water needs over the next 50 years.*

   ROD Table 1-1 presents overall projected water demands, including the refined estimates to account for NextGenCT. This table also presents the timing of demands over the 50-year planning period.

   The most recent Water Supply Plan for the UConn system was prepared in May 2011. It is publically available and continues to be posted on UConn's website. This document includes a thorough discussion of historic, existing, and projected supply and demand over a 50-year planning horizon; water conservation measures (including retrofitting and construction of a reclaimed water facility); a discussion of UConn water users; and a discussion of how projection estimates were generated. The timing of future demands is presented as well. Additional information relative to water conservation is presented in ROD Sections 2.2.12 and 2.4.4. Relevant information from the Water Supply Plan was incorporated into the EIE as needed in summary form.

A variety of published water planning documents support the project purpose and need. Water supply plans analyze present and future water supply demand for three standard planning periods (five years, 20 years, and 50 years) as directed by DPH regulations (RCSA §25-32d-3(b)). The rationale for the specified planning periods is that future build schedules are not known for an extended planning horizon. The long-range planning process, therefore targets short-term, intermediate-term, and long-term planning periods within which, a best estimation of build conditions is made.

Additional information has become available since the publication of the Water Supply Plan in May 2011. For example, 2011 and 2012 per capita demands were much lower than in previous years, as attributed to water conservation measures on campus despite continued campus construction and reconstruction. As such, the projections in the Water Supply Plan are conservatively high and remain valid. The recently constructed reclaimed water facility can reuse as much as 0.5 mgd for non-potable uses, resulting in an immediate reduction in demand on the two wellfields. The rate of reuse is consistent with the May 2011 Water Supply Plan projections. In addition, the Bergin Correctional Facility has closed, thereby eliminating approximately 73,000 gpd of use. However, any future use of this facility will likely have a similar water usage, and inclusion of this level of demand in the projections (as was done in the May 2011 Water Supply Plan) is appropriate.

Section 7.0 of the Water Supply Plan demonstrates that UConn must develop a new source of water that will satisfy identified water demands in an efficient manner consistent with appropriate water supply planning standards. While the majority of the projections in the 2011 Water Supply Plan are still appropriate, the projected Tech Park water demands have been modified (see ROD Section 2.2.11) and water demand estimates associated with NextGenCT have been estimated (see ROD Section 1.3).

2. *Future plans for the two existing well fields (Fenton River and Willimantic River) if one of the three water companies becomes the primary source of water.*

   Section 4.5.2 of the EIE states that the Willimantic River and Fenton River Wellfields will remain active sources of supply. UConn plans to continue to use its existing wells as the foundation of its supply. While the amended scoping for the MDC alternative made reference to evaluating the MDC alternative routes "*for transmission capacities of 0.5 to 5 million gallons per day*", the EIE maintained identification and implementation of a long-term source at quantities less than 5 mgd. The maximum increment of future water demand was subsequently determined to be 1.93 mgd, revised currently to 2.2 mgd with NextGenCT, which is consistent with the lower threshold limit of <u>at least</u> 0.5 to 1.0 mgd. UConn has never estimated the need for an additional 5.0 mgd of supply. Rather, that volume was offered by MDC in the event that wellfields were shut down.

3. *Describe options for a phased approach in meeting the demand based on the various time frames of future developments and expected water needs of these future developments.*

   UConn has a near-term need for an additional supply source to satisfy system margin of safety. As such, the required pipeline associated with a new supply will need to be installed in the short-term. Given the long infrastructure life of a pipeline, it is sensible to install a pipeline and pumping facilities that will be able to convey the maximum amount of water identifiable over the 50-year planning period, even if that amount of water is not immediately needed. Installation in this manner avoids recurrent and increased cumulative construction impacts.

In the case of MDC, phasing is not possible; however, the CWC and WWW interconnections both provide opportunities for phasing construction of certain project elements. This is because both alternatives require supply-side improvements to treatment capacity in order to provide the required maximum amount of water through the 50-year planning period. Such improvements do not need to be completed immediately or all at once, as treatment modules can be added incrementally. It is anticipated that demands will require expanded treatment capabilities within five to ten years from the time that the pipeline is constructed.

4. *Information relative to current demands.*

Information relative to current demands is contained in UConn's 2011 *Water Supply Plan* as well as the Draft EIE. Table 2-8 summarizes this data.

**TABLE 2-8**
**Summary of Annual Production – UConn System**

| Year | Average Daily Production (MGD) | Year | Average Daily Production (MGD) |
|---|---|---|---|
| 1984 | 1.21 | 1999 | 1.22 |
| 1985 | 1.08 | 2000 | 1.22 |
| 1986 | 1.36 | 2001 | 1.28 |
| 1987 | 1.35 | 2002 | 1.26 |
| 1988 | 1.57 | 2003 | 1.29 |
| 1989 | 1.61 | 2004 | [not available] |
| 1990 | 1.54 | 2005 | 1.49 |
| 1991 | 1.54 | 2006 | 1.36 |
| 1992 | 1.48 | 2007 | 1.29 |
| 1993 | 1.31 | 2008 | 1.26 |
| 1994 | 1.37 | 2009 | 1.23 |
| 1995 | 1.37 | 2010 | 1.29 |
| 1996 | 1.30 | 2011 | 1.29 |
| 1997 | 1.13 | 2012 | 1.26 |
| 1998 | 1.17 | | |

5. *Water conservation measures.*

This information is contained in UConn's 2011 *Water Supply Plan* and *Water Conservation Plan*, both of which are publicly available on their website. Additional discussion is presented in ROD Sections 2.2.12 and 2.4.4.

6. *Historic water supply availability from various sources.*

This information is contained in UConn's 2011 *Water Supply Plan*.

7. *UConn water users as per various agreements.*

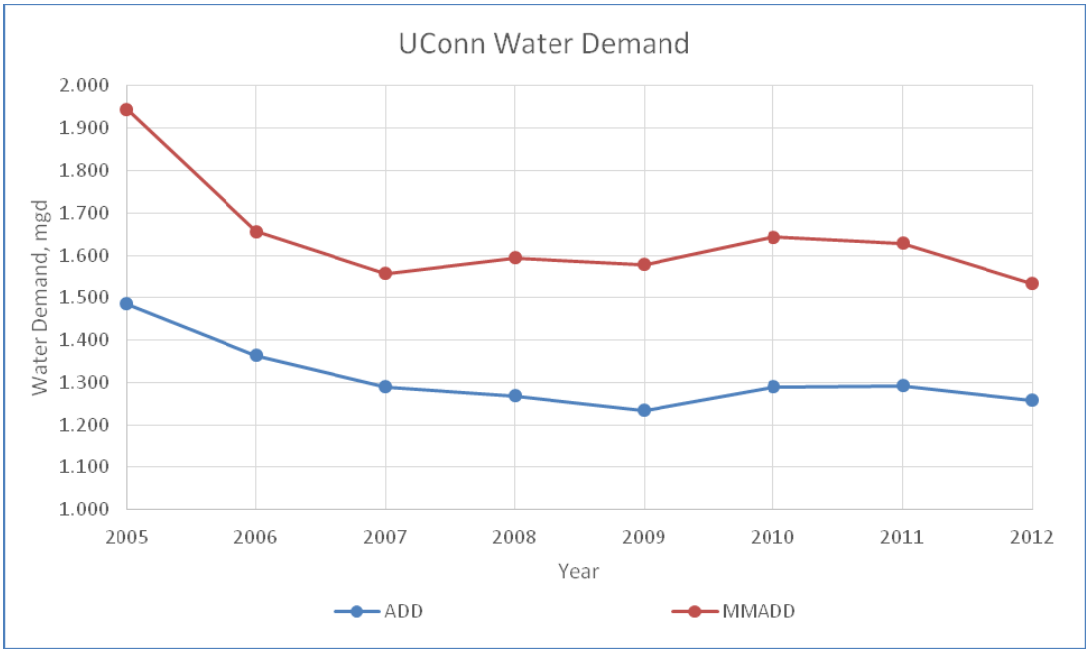
   UConn currently has agreements with the Town of Mansfield and homes on Hunting Lodge Road where individual water supply wells were potentially impacted by the University's former landfill. Copies of these agreements are included in the 2011 *Water Supply Plan*. The University also provides service through formal agreement to certain municipal users in the Storrs Center area.

8. *Businesses that have closed their doors and are no longer UConn water users.*

   Neither UConn nor the Town of Mansfield maintains an inventory of businesses that have closed their doors. However, the UConn water system does not supply any large use commercial or industrial customers. In fact, 18 of the top 20 water users are internal to the University and University-owned housing. The remaining two are Bergin Correction Facility and Celeron Square Apartments. Although the use of Bergin has changed, the overall impact to system-wide production and consumption has been minimal. The cumulative demand of businesses that are no longer operational is likely a very small value and one that would likely have minimal impact on water demands. For example, when small businesses like restaurants close, new restaurants typically move into the vacant space within a relatively short amount of time as compared to the decades over which water supply planning is conducted.

9. *A graph depicting supply and demand over the last decade.*

   A graph is provided below.




10. *A discussion of how estimates for the Tech Park and the Town of Mansfield were generated.*

    A discussion of how the Tech Park demands were estimated is provided in ROD Section 2.2.11. Water demands in Mansfield were originally estimated in the 2002 Water Supply Plan prepared by the Town. This document has been repeatedly referenced by both the 2011

UConn Water Supply Plan and the 2007 UConn Water and Wastewater Master Plan relative to potential areas that could be served by public water supply. Demands in the Four Corners area were further refined by the January 2008 Four Corners Areas Wastewater Facilities Plan prepared for the Town by Earth Tech. While the Mansfield Plans are not publically available in electronic format, they are available from the Town of Mansfield. Additionally, the UConn Water and Wastewater Master Plan are publically available as described in Section 2.6.1. Subsection 3 of Section 1.2 of the EIE provides a detailed accounting of how potential Mansfield demands were tallied; the EIE accounts for more than 0.45 mgd of potential demand for Mansfield.

### 2.6.3 No-Action or No-Build Alternative

OPM indicated that the No-Action or No-Build Alternative should include all options that are available in the absence of the proposed action. Further conservation and the use of reclaimed water for non-potable water demands are a part of *all* evaluated alternatives. In other words, conservation and use of reclaimed water are fundamental to meeting future water needs. However, it is important to understand that reclaimed water cannot cost-effectively meet all non-potable demands on campus. It is more feasible and cost-effective to extend reclaimed water to new non-potable uses in areas such as the Tech Park rather than retrofitting existing non-potable water uses elsewhere on campus.

Refer to ROD Sections 2.4.4 and 2.5.1 for discussions pertaining to water conservation. Likewise, the No Action alternative already considers water conservation as the baseline condition. As indicated elsewhere in the subject ROD, the projected water demand, including the requirements of the Tech Park and other uses cannot be met by additional conservation measures.

### 2.6.4 Findings for Alternatives 6 and 7

OPM inquired as to whether additional groundwater testing should be undertaken to better evaluate potential yield. The EIE includes an evaluation of available hydrogeological information for potential well sites. The background research suggested by OPM (survey of existing wells) was conducted for the Town's individual Water Supply Plan (2002), for UConn's Water and Wastewater Master Plan (2007), and by the Four Corners Water and Sewer Advisory Committee (*Draft Report of the Water Source Study for the Four Corners Area, January 6, 2011*). The Town of Mansfield expended approximately $124,000 to evaluate new potential wellfields. Based on this research, potential new wellfields (1) are believed to have yields lower than 0.5 mgd; (2) are believed to have yields incapable of meeting the stated project purpose and needs; and (3) have water quality or sanitary issues that would affect well siting.

### 2.6.5 Indirect Impacts from "Known" Developments

OPM identified the need to evaluate the indirect impacts of the proposed action and suggested impacts of known developments such as the Storrs Center development, the North Campus Technology Park, Depot Campus redevelopment, the King Hill Road Planned Business area, Mansfield Four Corners area, and other areas outside of Mansfield be quantified.

The Tech Park (North Campus), Depot Campus, Storrs Center, Mansfield Four Corners, and King Hill Road business area are all currently developed or planned for redevelopment. In some cases, such as the Tech Park and North Hillside Road, the specific land area has been subject to a number of environmental impact evaluations as well as the DEIS/FEIS process. These known

development areas are located in Priority Funding Areas consistent with the State Conservation and Development Policies Plan. Individual site impacts at Mansfield Four Corners and the King Hill Road business area will be quantified as individual projects are advanced and will be subject to local planning and zoning review. The specific design elements of these future developments are not known at this time.

### 2.6.6 Indirect Impacts from Future "Unknown" Developments

OPM indicated a lack of specificity as to the type of arrangements that will be required or should be in place to control development. The use of an overlay zone or zoning text amendments, such as those under consideration by Mansfield, would prohibit use of the project infrastructure (i.e. a water main) to allow the approval of development proposals along the water supply line that would otherwise not be approvable. However, development of those lands can occur now and could in the future through the installation of individual wells or use of other sources not related to the proposed action. Secondary growth impacts are addressed at length in ROD Section 2.2.7. The use of a contract restriction in an agreement with the supplier to the project is discussed in ROD Section 2.2.13.

### 2.6.7 Project Phasing

OPM indicated that the EIE should provide a realistic time frame for various developments proposed, including their water demand as they come on line, suggesting that a reasonable alternative or combination of alternatives should be considered as part of a strategic phased approach. UConn's Water Supply Plan presents water demands for the 5-, 20- and 50-year planning periods. ROD Table 1-1 presents updated incremental demands over time through the year 2060. It is clear from both analyses that not all water will be required immediately.

As indicated in ROD Section 2.6.2, some phasing is possible with the full implementation of the CWC and WWW interconnection alternatives and is considered relative to the projected timeframes in which water demands occur, as analyzed in UConn's 2011 *Water Supply Plan*. There is no potential for phasing associated with the MDC alternative. The CWC's proposal for scheduling system connections and supply enhancements are outlined in ROD Section 2.18.

### 2.6.8 Construction Costs and Sustainability

OPM requested justification for the various size pipelines associated with the different supply alternatives. Smaller pipe diameters for the WWW alternative would be possible because the distances involved lead to relatively lower head loss than the MDC and CWC alternatives. In response to the University's request for financial and business related information subsequent to publication of the draft EIE, CWC indicated that it would use a 16-inch diameter pipeline[4] to supply water from its Western System. In all cases (MDC, CWC, and WWW), pipeline water velocities of less than 5.0 feet per second are desired and achievable. The 12-inch and 16-inch diameter pipes meet this criterion.

[4] This modification has no bearing on the environmental analysis in the EIE, as the EIE assumed that induced development could occur from any of the pipelines discussed in the EIE that exceed 12 inches diameter. Furthermore, this modification has no bearing on the cost estimates in the EIE, as CWC has identified updated project costs in the follow-up correspondence dated June 7, 2013. These updated costs are based on the 16-inch water mains.

### 2.6.9 Costs and Benefits

OPM suggested that the EIE lacked specifics relative to how the project would be funded. In response to OPM as well as similar comments by others, additional cost analysis has been undertaken and is included in ROD Section 2.18.

## 2.7 RESPONSE TO COMMENTS RELATED TO PROJECTED DEMANDS

The comments in this section and all sections moving forward are from members of the public as opposed to State agency comments addressed in the preceding sections.

1. Commenters inquired whether employee growth and/or student population at UConn can be capped.

   As the state's flagship public land and sea grant institution, UConn sets its enrollment processes and methodologies in conjunction with policy objectives established for it by the State's executive and legislative bodies. While the University's ability to fulfill those objectives will always be dependent on the availability of resources, UConn has an obligation to fulfill its academic mission and contribute to Connecticut's economic development and vitality by making the most productive use of all resources. In specific regards to the required water supply, this ROD identifies a preferred alternative that will allow the University to meet its statutorily directed objectives.

2. Commenters inquired whether higher development densities will result along Hunting Lodge Road, and have asked the town to rezone this area to a lower density.

   Mansfield's 2006 Plan of Conservation and Development identifies certain areas located along Hunting Lodge Road, north of North Eagleville Road, as appropriate for medium to high density residential development. Nevertheless, most of these properties remain zoned for low-density residential uses at this time. Any request to change to a higher density zoning would be tied to a specific development plan as part of the special permit process. For a rezoning/special permit to be considered, a proposed project must be served by public water and sewer facilities, or be able to readily connect to such facilities. For the purposes of this requirement, community well water supply systems are considered to be public water facilities.

3. Commenters implied or stated that additional water in Mansfield is reserved for developers and those who would have financial gain from accessing such water.

   Additional water will serve potential uses that currently exist or are determined by local authorities to be consistent with the Town's Plan of Conservation and Development and zoning. Some projects may be advanced by residential property owners, and some by developers of other types of projects. The water made available in Mansfield is not earmarked for one type of user.

4. Commenters questioned why projections changed throughout the planning process.

   The demand projections, presented in EIE Section 1.2 (Project Purpose and Need) are based upon numerous prior planning documents. The projections are comprised of three distinct

components: (1) committed water supply demand; (2) incremental Technology Park demand; and (3) Town of Mansfield demand. The genesis for each is described below:

Committed Water Supply Demand – The University's committed water supply demand was quantified their 2007 *Water & Wastewater Master Plan* and incorporated into their 2011 *Water Supply Plan* at 0.32 mgd.

Incremental Technology Park Demand – The historic Tech Park water demand estimate of 89,600 gpd (0.09 mgd) was based on the CT DPH septic system design guidance water usage estimate of 0.1 gpd/square foot for 896,000 square feet of potential new building space. This is consistent with projections included in the University's 2011 *Water Supply Plan* and was a component of the 0.32 mgd committed water supply demand. Concurrent with the EIE, the University also commissioned a Master Plan of the Tech Park. Subsequent to scoping but prior to the publication of the EIE, the Master Planning team provided UConn with updated water demand estimates developed based on the targeted technologies and uses for the Tech Park, for a total average day demand of 423,500 gpd. With 89,600 gpd already accounted for in the Water Supply Plan, the EIE reflects the difference of 333,900 gpd and adds 15% of that for margin of safety to yield the 383,985 gpd stated in the EIE. Peak demands presented in the EIE were estimated from the average day estimate by applying a standard peaking factor of 1.33.

Town of Mansfield Demand – The Town of Mansfield demand of 453,500 gpd was based upon the estimates in the 2002 Mansfield Water Supply Plan and 2007 *Water & Wastewater Master Plan* and was adjusted based on more recent projections for the Four Corners area included in the 2011 *Draft Report Water Source Study for the Four Corners Area* and for the proposed senior care facility. The EIE adds the appropriate 15% margin of safety.

The initial EIE scoping identified UConn's intent to identify additional water supply to provide "*at least* 0.5 - 1.0 million gallons per day" (emphasis added). Both subsequent scoping notices also identified "*a long-term source of at least 0.5 - 1 million gallons of water per day*." The proposed action in the EIE was for a long-term source of supply that will provide an average day demand of 1.23 mgd and a peak day demand of 1.93 mgd, consistent with all scoping notices. These numbers have been adjusted slightly upward to account for the NextGenCT initiative, recently announced by Governor Malloy. The adjusted demand projections are revised to 1.39 mgd and 2.20 mgd; however, they remain consistent with all scoping notices.

5. Commenters stated or implied that future demands are/will be 5.0 mgd.

In the early scoping materials, the MDC alternative was described as capable of providing 5.0 mgd, however neither future demands nor the project's stated purpose and need were ever estimated to be 5.0 mgd. Detailed analysis and projections demonstrated the need for an average daily demand of 1.23 mgd and peak day demand of 1.93 mgd above and beyond what UConn's existing sources can reliably supply during low river flow conditions for the planning horizon through the year 2060. These quantities are currently revised to 1.39 mgd and 2.20 mgd. MDC has indicated that it is prepared to replace use of UConn's water supply wells with its own water. However, the project's purpose and need is to supplement UConn's existing sources of supply; not replace them. UConn has no intention of pursuing this option.

6. Commenters inquired whether proposed actions are desired by the Town of Mansfield, why a public water system is needed at Mansfield Four Corners when new developments are drilling water supply wells, and how the Town's interests will be protected.

   Existing development in the Four Corners area is served by on-site wells. The Town of Mansfield has determined that a public water system is needed at the Four Corners to enable the area to develop with the higher densities that are called for in the Town's Plan of Conservation and Development. Additionally, there is documented contaminated groundwater within the area that prevents increased withdrawals to meet these densities.

   The Town of Mansfield has been planning to bring sewer and water systems to its Four Corners area for a number of years. Several public meetings and public hearings have been held before the Town Council and the appointed Four Corners Advisory Committee to make residents aware of these plans. The Town Council, which is the charter-designated legislative body of the Town, has been supportive of the Four Corners development and the Town itself appropriated $330,000 acting in a Town meeting to support the study, permitting and design at Four Corners.

## 2.8 RESPONSES TO COMMENTS RELATED TO WELL SITE ALTERNATIVES

1. Why are additional test wells not recommended?

   Additional test wells are not recommended because the quantity of water likely to be derived from such sources is not sufficient to meet the project purpose and need. In total, less than 150,000 gpd is estimated to be available from well sites MH-2 through MH-6. There are many environmental, agricultural, and historical considerations associated with this site in addition to the uncertainty regarding the amount of water available. Other evaluated sites also present water quality impairment concerns.

   Additional test wells at the Willimantic River locations are also not warranted. The review of geological reference materials and pump test data identified no source location likely to provide required water supply volumes. Potential adverse impacts to the Willimantic River are also a factor of concern, and water quality issues were identified for location MD-3.

   This evaluation does not preclude additional test wells being drilled in the future for unrelated projects. For example, some commenters suggested the installation of wells at other areas within the Willimantic River valley such as in West Willington. While these areas were not considered to be suitable for meeting the project purpose and need and were therefore not included in the EIE, other projects may wish to consider the use of such areas for potential public water supply consistent with their needs.

2. Evaluate increasing the height of the Eagleville Lake Dam to capture more yield at the existing Willimantic River Wellfield.

   This comment suggests that artificially increasing groundwater levels by raising the Eagleville Lake Dam will increase yield at the Willimantic River Wellfield. UConn's wellfield is located at approximately 300 feet in elevation, more than 20 feet above the spillway elevation at Eagleville Dam. Elevating the dam 20 feet to create a backwater condition upstream is not considered to be feasible given the inundation of current land uses along Route 32 in Mansfield that are within 20 feet (vertical) of the existing pool elevation.

## 2.9 RESPONSES TO COMMENTS RELATED TO THE MDC ALTERNATIVE

1. Clarification regarding whether the MDC Charter allows towns to access water along a treated water transmission main or a raw water main or both.

   As stated in the MDC FAQ document published on its website on January 25, 2013, Section 6-3 of the MDC Charter specifically limits the obligation to service water main location users to raw water mains and not to any water main as presented in the EIE (i.e. treated water). Raw water mains are installed between the Barkhamsted and Nepaug Reservoirs and direct water to the holding reservoirs and treatment plants in West Hartford and Bloomfield. Section 6-3 of their charter authorizes the MDC to provide raw water in certain circumstances. As Section 6-3 does not apply to the MDC water distribution system, the extension of the distribution system to UConn and Mansfield is not mandated to provide water service along the route. This has been confirmed by MDC.

2. Clarification whether customers can be served from a pressurized water main from MDC.

   As stated in the MDC FAQ document published on its website on January 25, 2013, multiple pump stations would be needed along the chosen route to pump the water over the elevation gains between East Hartford and Mansfield. MDC has indicated that system hydraulics would limit the flow in the pipe to 5.0 mgd regardless of pipe diameter, and further indicated that the water pressure in the pipeline will be higher than that normally allowed for domestic connections in order to achieve the necessary flows. A variety of pressure reducing devices and vaults would be used in the event that water service was to be provided to customers adjacent to the pipeline. Thus, the estimates of potential additional service flows along the new pipeline routes identified in the EIE remain valid.

3. How much future growth of the MDC service area is accounted for the MDC's future growth projections?

   The MDC utilizes a combination of town population projections and service area ratios based on projected development areas from local planning documents (most notably Plans of Conservation and Development) to determine its consumption projections. Projections are presented for the five-, 20-, and 50-year planning periods and include population growth in existing service areas as well as main extensions in Bloomfield, Glastonbury, and East Granby. The 2008 MDC Water Supply Plan estimated an increase of average daily water consumption from 54.55 mgd in 2007 to 61.47 mgd in 2050, including all treated water commitments. The MDC has been producing water at a rate lower than its projected demands since publication of this plan, using approximately 50 mgd in 2012.

4. Old Data was used to Evaluate Farmington River Flows

   A variety of comments received pertained to the use of the Farmington River Management Plan, some indicating that use of the "old" data from the instream flow study is inappropriate or that the plan itself is outdated. Others sought further explanation on how drought conditions were taken into consideration relative to MDC's safe yield analysis, on how the growth in Farmington Valley could have changed watershed hydrology, and on the water levels at the Tarriffville Gorge.

A draft update of the Farmington River Management Plan was released for comment in November 2012. As stated on Page 39 of the November 2012 draft update to the 1993 Upper Farmington River Management Plan:

> *"The Instream Flow Study and subsequent analysis performed by the Farmington River Study Committee provided critical information regarding the flows needed to protect instream resources as well as the potential for compatibility between resource protection and water supply withdrawals. The MDC, the Army Corps of Engineers, the CT DEEP, and others should incorporate this information into any planning, management, or regulatory activities that involve water quantity issues on the West Branch.*
>
> *Users of this information should keep in mind that the Instream Flow Study is not an evaluation of a specific withdrawal proposal, nor does it define a specific management regime for the West Branch Reservoirs. Rather, it incorporates two hypothetical levels of withdrawal into an intricate resource management and water allocation exercise. As with any scientific analysis, the study is based on a number of important assumptions; these assumptions have related limitations that should be considered in any future management decisions. Also, considering the possibility of long-term changes in regional precipitation and flow patterns, an update of the Instream Flow Study could be advisable to better inform future management decisions."*

The analysis contained in the EIE relied upon the published information in the Upper Farmington River Management Plan and the Instream Flow Study to evaluate the MDC alternative in accordance with the above recommendation of the Farmington River Study Committee. All water the MDC proposes to move to UConn and Mansfield would come from the Barkhamsted and Nepaug Reservoirs and not West Branch sources. The Barkhamsted and Nepaug sources were assumed to be fully allocated to water supply purposes in the Instream Flow Study and therefore to contribute zero flow to the Farmington River for the purpose of the analysis and subsequent recommendations.

The MDC utilized the 1960s drought period to determine the safe yield of its reservoirs, with such analyses being approved by Connecticut DPH. As shown in Table 4-5 of the Instream Flow Study, there is sufficient flow in the river under the 99% exceedance water year (a level of flow exceeded by 99% of other water years) to accommodate fisheries minimum flows under any of the three scenarios, recreation minimum flows, the fishery enhancement pool (at Colebrook), and riparian rights (power generation) without a withdrawal of water supply from the West Branch Reservoir. The water year utilized was 1965, widely considered to be driest year on record throughout Connecticut. In fact, as stated in Appendix G of the Instream Flow Study, the 1965 water year was found to be more extreme (i.e. drier) than what would be statistically expected for the 99% exceedance water year. An update to flow statistics is not necessary since the analysis is based on the driest year on record in the basin.

The Farmington River Instream Flow Study was performed in 1992 to study of how much water is needed in the West Branch and Main Stem of the Farmington River to meet the stated goals and objectives (recreation, fisheries habitat, waste assimilation, etc.). While UConn does not dispute that climate conditions may have changed or will change, the fact remains that the study defined how much water is needed in the river. The river is a managed stream.

The release of cold water from the West Branch is the reason that the river will continue to thrive under a changing climate.

MDC commissioned a study in 2010 that focused on a review of gauged river flows to characterize the condition of the Farmington River. Through this study, the review of gauged streamflows (publically available to all on the USGS web site) from the Farmington River gauges (Riverton, Unionville, and Tariffville) shows that the river has been outperforming other rivers in the state, in part because of its management and the cold water releases from the West Branch. The following discussion from the study is notable:

*"Most of the parties of the Upper Farmington River Management Plan concur that normal operations have resulted in beneficial instream flows. Actual river flow data supports these conclusions. Hydrologic data on the Farmington River is monitored by the USGS at seven locations throughout the watershed. Gauging stations on the main stem are located at Unionville and downstream at Tariffville. Other stations include Riverton (West Branch) and four stations located on tributaries to the Farmington River.*

*Flow duration curves were developed for the Riverton, Unionville, and Tariffville gauging stations for two periods of record: (1) water years 1978-2009 and (2) water years 1994-2009. The second set of curves was developed to focus on the period of time following the Instream Flow Study and the adoption of the Upper Farmington River Management Plan. Flow duration curves were also developed for three index gauging stations (Hubbard Brook, Mount Hope River, and Salmon River) located elsewhere in Connecticut, with flow normalized by a watershed ratio, for comparison to the three Farmington River gauging stations.*

*The 1978-2009 and 1994-2009 flow duration curves for the Riverton station are very similar, with very little change noted post-management plan. This is because the West Branch continued to be managed largely in the same manner before and after the plan was adopted. Both curves show a 99% duration flow of approximately 50 cfs, consistent with the 50 cfs required release. Additionally, both curves demonstrate significantly more water in the river at frequencies lower than approximately 25% as compared to the three index rivers. In other words, at the Riverton gauging station, the West Branch "outperforms" the index rivers at their gauging stations for flows that are lower than the 25% duration (including the median flow and all lower flows such as the 80% and 90% duration flows).*

*With the East Branch dedicated to public water supply, a decrease in this excess-water condition can be expected downstream of the confluence of the East and West Branches. Nevertheless, an examination of the flow duration curves at Unionville demonstrates that the main stem still outperforms the three index rivers. This condition is most apparent at flows below the 50% duration (median flow), and holds for both the 1978-2009 and 1994-2009 periods of records, before and after the management plan, respectively. In fact, the 99% duration flow at Unionville is approximately 100 cfs.*

*Even further downstream at Tariffville, these findings remain consistent. For both periods of record, before and after the management plan, flows at the gauging station are higher than they are at the index rivers for flows below the 20% to 30% flow duration. The 99% duration flow at Tariffville is approximately 200 cfs.*

*Therefore, it is certain that the Farmington River benefits from a greater instream flow than it would have without the management occurring in the West Branch. The greater instream flow is apparent both spatially and temporally, with all downstream gauging stations showing instream that are higher than "natural flows," and with the benefit apparent before and after the 1993 management plan was adopted. The allocation of the Nepaug and Barkhamsted Reservoirs to public water supply is entirely offset by management of the West Branch. In fact, it could be argued that West Branch management more than offsets the public water supply withdrawals, given the flow data from Unionville and Tariffville."*

5. Was MDC unable to meet flow obligations at the Rainbow Dam during a recent dry year?

   The Upper Farmington River Management Plan notes that MDC has the option to decline to provide water to the downstream riparian user for power generation purposes. In such a case, MDC is required to pay for the loss of water. MDC is able to perform this action during any year including drought years. MDC confirmed that releases from the Goodwin Dam were reduced to statutory minimums in August 2012. Riparian releases to the Rainbow Dam were suspended, and MDC opted to compensate through monetary payment in lieu of release of water.

6. Why can't excess water be returned to the river? If MDC has surplus water, why does the river get so low?

   Excess water supply is a manifestation of system demand compared to safe yield. Excess water in the East Branch and Nepaug River basins is not a volume of water that is physically held somewhere for other purposes such as streamflow releases; it is simply water in the reservoirs that is not used for public water supply. If it is not used, it will contribute to spillage from the reservoirs.

7. Commenters asserted that fisheries populations have already been harmed in the Farmington River basin and that recent low flows show that the river is stressed.

   The 1965 Water Year was drier than both the 2010 and 2012 water years on the West Branch at the New Boston gauge and also downstream of the Still River. While flow records are not publicly available for the MDC in 1965, data published by the U.S. Geological Survey indicate that demands were 56.7 mgd in 1970. This suggests that demands during the drought flows of the 1960s were likely similar to present day demands. The 1965 water year was drier than the more recent years at both flow locations, and was utilized by the MDC to develop the safe yields for the Barkhamsted and Nepaug reservoirs.

   Flows in the West Branch in Massachusetts were very low in 2010 and 2012, and the reduction of inflow to the reservoir prompted MDC to reduce releases from Goodwin Dam. Such reductions were performed in consultation with Connecticut DEEP. It is notable that flows downstream of the Still River were always above 80 cfs, and were above 95 cfs more than 90% of the time.

   Lower water levels in the West Branch and main stem Farmington River during dry periods may adversely affect fisheries and recreational uses. However, water from the East Branch and Nepaug Reservoir is not used to maintain instream flows in the West Branch or main stem Farmington River.

The MDC releases water from the Goodwin Dam to maintain instream flows in the West Branch Farmington River (and subsequently the main stem Farmington River). Water is not released from Barkhamsted or Nepaug for this purpose, although MDC does release some water from Barkhamsted to maintain the levels in Lake McDonough (the Compensating Reservoir). The MDC is legally required to release a minimum of 50 cfs from Goodwin Dam, but typically releases far more. It is these releases that allowed the Wild and Scenic River designation, for if the West Branch Farmington River was unregulated the flows in the river would be typically less than 50 cfs during the summer and fall, would very likely not support summertime coldwater fisheries or recreation, and would not support downstream power generation.

The 2012 Connecticut DEEP Integrated Water Quality Report issued December 2012 lists the following information regarding the Farmington River.

- A number of stream miles in the lower Farmington River are affected by extreme fluctuations in water levels resulting from hydropower generation.
- The reach from the Connecticut River to the Rainbow Reservoir Dam outlet list listed as "Not Supporting" aquatic life due to flow regime alterations and that "Insufficient Information" is available to make a recreational assessment.
- The Rainbow Reservoir is listed as "Not Supporting" aquatic life due to flow regime alterations and was "Not Assessed" for recreation.
- The reach from the Rainbow Reservoir inlet (Route 187 crossing in Bloomfield) to the confluence with the Pequabuck River in Farmington is listed as "Fully Supporting" aquatic life but "Not Supporting" recreation due to bacteria.
- The reach from the Pequabuck River confluence to the lower Collinsville Dam along Route 179 in Burlington is listed as "Fully Supporting" for both aquatic life and recreation.
- The reach from the lower Collinsville Dam to the confluence with the Still River in Barkhamsted is listed as "Fully Supporting" both aquatic life and recreation.
- The reach from the Still River to the West Branch Reservoir outlet in Hartland was "Not Assessed" for aquatic life but was "Fully Supporting" for recreation.

Based on the information above, it is apparent that the reach of the Farmington River from the West Branch Reservoir to the Pequabuck River is not stressed under normal conditions, as it is fully supporting both aquatic life and recreation. The Farmington River is a regulated river and is managed to have an increased flow regime over natural conditions. While during dry and drought years the amount of water in the river will be reduced thereby causing relatively short-term water quantity concerns, the Connecticut DEEP does not appear to have concluded that the river is stressed on a continual basis.

Recreation is not considered supported downstream of the Pequabuck River but this is due to the presence of bacteria and not due to flow reduction. The river is not considered to support aquatic life or recreation downstream of the Rainbow Dam, but this is related to the presence of the Rainbow Dam and the backwater and downstream conditions created by the dam.

One commenter noted that recreational flows in Tarriffville are impacted at stages below 1.80 feet. This is equivalent to a discharge of 639 cfs based on the current stage-discharge relationship on the USGS website. The flow of 639 cfs is equaled or exceeded approximately 65% of the time in the historic record based on the USGS gaging station at Tarriffville. The management of streamflows in the West Branch Farmington River allows this level to occur

approximately 10% more often than under the estimated unregulated condition, which has been benefiting recreational users for many years. A withdrawal of 2.2 mgd (3.4 cfs) from the MDC reservoirs would not appreciably diminish the instream flow of the Farmington River. However, even if 2.2 mgd were directly removed from the river, this quantity is equivalent to 0.5% of 639 cfs, and would reduce the stage by only 0.02 feet based on the current stage-discharge relationship. This would be imperceptible to recreational users.

A similar level of impact would be expected in groundwater levels nearby the river, which fluctuate in relation to the stage in the river. The potential lowering of groundwater levels by such a minimal amount is not expected to significantly increase fire potential by drying out the root zone.

8. Commenters inquired as to the potential impacts to Canton's future hydropower project.

Legislation to transfer existing but inactive licenses to generate hydropower at two dams along the Farmington River is currently pending before Congress. The project's feasibility has shown that it could generate enough electricity to power 1,500 homes.

According to the "Upper and Lower Collinsville Dams Hydroelectric Project Pre-Feasibility Study" prepared by GZA GeoEnvironmental, Inc. in May 2011, page i:

> *"Low-impact hydropower development at either of the sites would operate exclusively in an "instantaneous run-of-the-river" mode without any cycling of the impoundments…it is noted that the previous FERC license at the Upper Dam authorized only 292 cfs for the turbine due to concerns about aesthetic flows over the Upper Dam. The pending legislation which would transfer the existing Licenses appears to limit the Town to this reduced turbine design flow."*

The GZA report found that based on the flow regime in the Farmington River since 1989, 292 cfs would be available to generate hydropower a little more than 50% of the time in a typical year, and no hydropower generation would be possible for slightly more than 5% of the time during a typical year (Table 3-4b).

Based on the pre-feasibility study, it is expected that the Canton Hydropower project will be designed to utilize run-of-the-river flows and not require specified releases from upstream reservoirs. Utilization of additional water in the Barkhamsted and Nepaug Reservoirs may result in a reduction in the duration of spillage as discussed above. However, a reduction in the relatively minor spillage flows from the East Branch and Nepaug Reservoirs would have a minimal impact on the flows realized on the main stem Farmington River in Collinsville.

9. Commenters asserted that climate change will exacerbate the problem of low flows in the Farmington River and water supply reservoirs.

Climate change is being monitored by many water utilities including UConn and MDC. The potential exists that climate change could result in a very dry year such that 1965 is no longer the driest year on record. In such an event, it is possible that the DPH could request updated safe yield analyses for the Barkhamsted and Nepaug Reservoirs, reducing the amount of available water in these sources and necessitating system improvements or development of additional supply sources. Recent years, while dry, were not as dry as 1965. In fact, Connecticut has been seeing increased annual rainfall on the order of approximately one inch

per decade throughout the 20th century and into the 21st century. Most of this increase comes from higher magnitude rainfall events that would refill storage within supply reservoirs. The potential therefore exists that a drought year like 1965 does not occur again in the foreseeable future, and the safe yields of the MDC reservoirs will remain unchanged.

Regardless of the changing climate, MDC will continue to release the legally required minimum of 50 cfs into the Farmington River from the West Branch, with higher levels of releases whenever possible to comply with the recommendations of the Upper Farmington River Management Plan. This will continue until the Plan is updated or changed in some way requiring a different release schedule. The current proposal does not require modification of the plan or a different release schedule, as water will not be withdrawn from the West Branch.

10. Commenters inquired about the potential for new wells in South Glastonbury.

    MDC is in the process of evaluating a second site of two that have been investigated in Glastonbury. Results are pending. New groundwater supplies would not be needed to supply water to UConn and Mansfield.

11. Commenters noted a lack of consistency with the Upper Connecticut WUCC Plan.

    The Upper Connecticut Water Utility Coordinating Committee (WUCC) process defined exclusive service areas within the Upper Connecticut management area. MDC, CWC, and numerous other water utilities participated in that process. The provision of duplicative public water supply through another utility's exclusive service area is discouraged by the WUCC. Ultimately, any potential inconsistency with the Upper Connecticut WUCC exclusive service areas has the potential to be resolved through a variety of measures and agreements, such as a vote of the WUCC members and/or written legal agreements between the holder of an exclusive service area designation and another water utility.

## 2.10 RESPONSE TO COMMENTS RELATED TO THE UCONN WATER POLLUTION CONTROL FACILITY

1. How much of the new water from an interconnection source will be discharged to the Willimantic River as effluent?

   For this analysis, it is expected that 100% of the new water will be discharged to the Water Pollution Control Facility, as additional University buildings and Town of Mansfield demands are expected to be connected to UConn sewer system. Effluent will either be discharged to the Willimantic River as effluent or to the reclaimed water facility.

   The 2007 *Water and Wastewater Master Plan* indicates that UConn system treats wastewater at a rate that is approximately 85% of demand on the potable water system. This is less than most wastewater systems which realize a typical factor of 95%. The difference consists of water that is consumed (i.e. irrigation water, boiler and cooling tower evaporation, etc.). The 2007 Plan further indicates that "any expansion of the water and wastewater service areas around UConn will result in increases in wastewater flows at 95% to 100% of the increase in water demands." This recognizes that new water uses are not likely to consume significant water that is not returned to the sewer system.

2. Can the UConn WPCF handle the additional wastewater?

   The 2007 *Water and Wastewater Master Plan* states that the design capacity of the WPCF is 3.0 mgd of average daily flow and 7.2 mgd for peak hourly flow. Average daily flows at the WPCF currently average between 0.81 mgd and 1.32 mgd, similar to the values reported in the 2007 Plan. While peak flows have been up to 90% of WPCF peaking capacity in the past, these occurred during wet weather and were directly attributable to inflow and infiltration problems in the aging collection system. UConn has made several improvements in recent years to reduce inflow and infiltration issues into its wastewater collection system in an effort to reduce peak flows. The benefits of these improvements are anticipated to continue reducing inflow and infiltration, thus reserving capacity for sanitary wastewater treatment.

   Given the location of potential developments at UConn and Mansfield, they will likely be connected to UConn's wastewater system. Based on the existing information, a minimum of 1.68 mgd of additional capacity is available at the WPCF to meet average daily flows. This value is higher than the projected additional average daily water demand proposed by UConn and Mansfield.

3. Will increased effluent discharges exacerbate flooding?

   Potential flooding impacts as a result of increased effluent discharges will be negligible. According to the 1980 Town of Mansfield Flood Insurance Study, the following peak discharges are realized upstream and downstream of the effluent discharge point (at the Route 275 crossing) on the Willimantic River

**TABLE 2-9**
**Peak Discharge Rates in the Willimantic River**

| Location | Drainage Area (sq. mi.) | Peak Discharge (cfs) | | | |
|---|---|---|---|---|---|
| | | 10-Year | 50-Year | 100-Year | 500-Year |
| Above Cedar Swamp Brook (Upstream of Eagleville Lake) | 101 | 4600 | 10,300 | 14,000 | 26,900 |
| Above Mill Brook in Coventry (Depot Road) | 114 | 5,100 | 11,300 | 15,500 | 29,500 |

The current average daily effluent flow limit from UConn WPCF is 3.0 mgd (4.64 cfs). The maximum daily flow recorded from UConn WPCF was 4.35 MG (an average of 6.73 cfs over a 24-hour day) in the first quarter of 2010 with this maximum being due to a precipitation event. Even assuming that flows at the effluent discharge point are equivalent to those above Cedar Swamp Brook upstream (a conservative assumption), 6.73 cfs is equivalent to 0.15% of the 10-year peak discharge, 0.07% of the 50-year peak discharge, 0.05% of the 100-year peak discharge, and 0.03% of the 500-year peak discharge. Given the marginal increases in peak discharges associated with a concurrent peak plant effluent release (based on the historical value), impacts to downstream flooding will be negligible.

## 2.11 RESPONSE TO COMMENTS RELATED TO THE TECHNOLOGY PARK

A number of questions were raised regarding the Tech Park to be developed along North Hillside Road. Commenters have inquired why the Tech Park needs to be located at the Storrs Campus as opposed to being located in West Hartford or Hartford at existing University facilities, or be located in Windham or (in the case of one commenter) Southington.

Research and technology parks contain facilities that drive technology-led economic development by creating partnerships between research universities and industry. They are located adjacent to research universities and support the growth of existing companies and development of new companies by offering proximity and access to advanced technology and specialized equipment, faculty expertise, and graduate students. For these reasons, the Tech Park has been sited at UConn's main campus in Storrs, where the overwhelming percentage of its research activities is centered.

As a matter of public policy enacted pursuant to PA 11-57, the Connecticut General Assembly authorized the expenditure of $174 million of state bond funds by the University to develop the UConn Tech Park based on its plan to locate the park on its north campus in Storrs.

While the location of the Tech Park is not a central element to the subject EIE, separate evaluations had been undertaken for the Tech Park to meet the requirements of CEPA and NEPA. The previous CEPA EIEs and a NEPA Environmental Impact Statement acknowledged that it was Special Act 85-108 that specifically assigned the Tech Park to the North Campus section of the Storrs campus. Nonetheless, the EIE included an evaluation of alternatively siting the Tech Park at the Depot campus. The CEPA and NEPA analyses were approved at the state and federal levels. Sites beyond North Campus and Depot Campus had not been considered because of the importance of proximity to the campus noted above.

## 2.12 RESPONSE TO COMMENTS RELATED TO STORMWATER IMPACTS TO EAGLEVILLE BROOK

Several commenters raised the issue of stormwater impacts to Eagleville Brook. Future development by UConn within the Eagleville Brook watershed will require stormwater management design consistent with flood management regulations and the recommendations of the Eagleville Brook Total Maximum Daily Load (TMDL) Study. The study identifies impervious cover (IC) as the leading contributor to reduced water quality in the Eagleville Brook watershed and recommends the following:

> *"Successful implementation will be best accomplished through incorporating an adaptive management strategy. The strategy will include 1) reducing IC where practical, 2) disconnecting IC from the surface water body, 3) minimizing additional disturbance to maintain existing natural buffering capacity, 4) installing engineering best management practices [BMPs] to reduce the impact of IC on receiving water hydrology and water quality. UConn of Connecticut Campus Sustainable Design Guidelines (see page 11, Goal 1), 2004 Connecticut Stormwater Manual, and Stormwater TMDL Implementation Support Manual provide good background information for new site design, as well as technical guidance for stormwater BMPs for existing sites. It will be necessary to choose the appropriate strategies to reduce stormwater runoff on a case by case basis and the overall effectiveness of reducing stormwater loads will be evaluated as described in the following section, Water Quality Monitoring Plan."*

The TMDL study does not make specific recommendations for storm sizing based on an established return frequency, nor does it identify any recommended method for analyzing runoff. UConn typically utilizes the 1% annual chance storm event (more commonly known as the "100-year" storm event) as the maximum magnitude for stormwater runoff as presented in its *Stormwater Master Plan*. Any new developments in the Eagleville Brook drainage basin will need to show that there will be no net increase in stormwater runoff for storm events up to and including the 1% annual chance storm event to be consistent with the TMDL and the requirements of the Floodplain Management Certification. More information regarding development activities and potential stormwater mitigation measures in the Eagleville Brook watershed can be found in the Final Environmental Impact Statement for the North Hillside Road extension located on UConn's website (www.ecohusky.uconn.edu/NHDEIS.htm).

Given the fact that new developments will need to be consistent with the TMDL Study and the variety of supporting University planning documents required to be followed for new developments, stormwater impacts to Eagleville Brook are not expected.

## 2.13 RESPONSE TO COMMENTS RELATED TO JONES RIVER CROSSING

Some commenters in Mansfield were perplexed about the origin of the Jones Crossing Road option. At one time, CWC proposed (as one method of crossing the Willimantic River) the installation of a pedestrian bridge as an alternative to hanging a pipe on the Route 195 bridge, or to directionally drilling beneath the river. The proposed pipeline would be affixed to the underside of the pedestrian bridge. Such a bridge could become a fixture in the future of the Willimantic River greenway, but no formal proposal has been prepared outside of the discussion in this EIE. Coordination between local conservation commissions in Coventry and Mansfield, the Willimantic River Alliance, UConn, and the water utility would be needed at a minimum if such a bridge were to become a reality. CWC options include affixing pipe to the bridge at Route 195; constructing a pedestrian bridge at Jones Crossing and affixing pipe to it; directional drilling at one of the locations; and an aerial crossing independent of any bridge structure at one of the locations.

## 2.14 RESPONSE TO COMMENTS RELATED TO THE NORTHEAST CT WUCC

Numerous commenters suggested that the Northeastern Connecticut WUCC should be convened and that statewide planning should be completed prior to construction of a preferred alternative. As stated in ROD Section 2.3.1, the WUCC process for the Northeastern Connecticut region has not commenced. This process is overseen by Connecticut DPH and while UConn would participate in the WUCC process, it has no direct control over when the process occurs. Similarly, UConn has no direct control over the statewide water planning that has been previously legislated but has not yet occurred. As UConn has no control over the timing of such activities, it cannot time its water supply needs to such planning studies.

## 2.15 RESPONSE TO COMMENTS RELATED TO INTERBASIN TRANSFER

Numerous commenters stated that interbasin transfers should be avoided, are contrary to state policy, or should be considered as a last resort. Interbasin transfers are defined under Section 22a-367(5) as "*any transfers of water for use from one subregional drainage basin to another*." All three of the supplier alternatives would involve an interbasin transfer:

- The MDC alternative involves a transfer from the Connecticut River major basin (Farmington River regional basin) to the Thames River major basin (Willimantic River regional basin and Natchaug River regional basin, depending on the locations of water users).
- The CWC alternative involves an interbasin transfer from the Connecticut River major basin (Hockanum River regional basin) to the Thames River major basin (Willimantic River regional basin and Natchaug River regional basin, depending on the locations of water users).
- The WWW alternative involves an interbasin transfer from the Natchaug River subregional basin to the Willimantic River subregional basin (and back to the Natchaug River regional basin, depending on the locations of water users).

The State's water resources policy is enumerated in CGS Section 22a-380 as follows:

"*The following are declared to be the goals and policies of the state: (1) To preserve and protect water supply watershed lands and prevent degradation of surface water and groundwaters; (2) to protect groundwater resource areas critical to existing and potential drinking water supplies; (3) to make water resources conservation a priority in all decisions; (4) to conserve water resources through technology, methods and procedures designed to promote efficient use of water and to eliminate the waste of water; (5) to prevent contamination of water supply sources or reduction in the availability of future water supplies; (6) to balance competing and conflicting needs for water equitably and at a reasonable cost to all citizens; and (7) to reduce or eliminate the waste of water through water supply management practices."*

There is no prohibition on interbasin transfers, and potential restrictions on such transfers are only provided through procedures under the Water Diversion Policy Act. In fact, interbasin transfers can advance State policy by providing environmentally responsible solutions to water supply challenges and by facilitating resource allocation.

The Connecticut Water Diversion Policy Act recognizes that interbasin transfers are permittable supply options, although DEEP is authorized to require additional evaluation of such proposals. Section 22a-369(10) allows DEEP to require that an applicant file an environmental impact report for a proposed interbasin transfer that considers the effect of the proposed diversion on current and future water uses in the proposed donor basin, includes a plan for meeting water supply needs in the donor basin for a minimum of 25 years, and analyzes alternative solutions to the water supply diversion.

The DEEP website (http://www.ct.gov/deep/cwp/view.asp?A=2720&Q=404934) lists 797 permitted diversions. At least 440 of these diversions are active. Out of the 440 active diversions, 250 of the permits are related to consumptive use, with 101 of the permits related to public water supply. A review of well locations and water system locations throughout Connecticut (based on former GIS shapefiles offered by the Connecticut DPH as updated by MMI) revealed the following statistics regarding interbasin transfer:

- 88 of the 101 (87.1%) active diversion permits for public water supply involve interbasin transfer.
- 69 of these permits are individual permits; 61 of these (88.4%) involve interbasin transfers.
- 32 of these permits are general permits; 27 of these (84.4%) involve interbasin transfers.

In summary, interbasin transfers are not uncommon for public water supply withdrawals in Connecticut, and there is no empirical evidence that Connecticut DEEP has been following a

policy against interbasin transfers given the magnitude of such transfers occurring with water diversions for public water supply.

## 2.16 RESPONSE TO COMMENTS SUGGESTING LACK OF TRANSPARENCY/ NOTIFICATION/ INCLUSION OF FARMINGTON VALLEY TOWNS

Comments from individuals and municipal representatives in the Farmington Valley claimed a lack of notification and/or lack of opportunity for public comment from the Farmington Valley communities. Several commenters requested an extension of the public comment period.

Of the three public notices and associated scoping periods held for this project, only the third-added option affected Farmington Valley towns by virtue of the addition of the MDC alternative. The third scoping notice was published in the Hartford Courant, which is the prevalent news journal in the Farmington Valley area. The availability of the Draft EIE was also published in the Hartford Courant. Relevant to Farmington Valley constituents, notice of both hearings was published in the Hartford Courant. Additionally, notice of the second hearing was published in local internet-based news outlets such as the Canton Patch. The Environmental Monitor also provided the requisite notifications and updates.

The EIE and proposed water supply action was heavily covered in newspapers, the internet, radio, and television news as well as many local interest groups in the Farmington Valley area throughout the public comment period, which spanned more than 12 weeks beginning on November 6, 2012 and running through January 31, 2013. A review of the full public comment record reveals that the vast majority of comments received were by representatives from and/or organizations and government representing Farmington Valley communities. Many of the comments of this nature were submitted prior to the extension of the comment period and the scheduling of the second hearing.

Based on the number of comments received from Farmington Valley representatives, it is clear that this constituency was well represented during the comment period. Both the array of topics and redundancy of issues raised leads to the conclusion that wide-spread notification to Farmington Valley constituents was achieved.

## 2.17 RESPONSE TO COMMENTS RELATED TO WWW ALTERNATIVE

1. Commenters requested an analysis of potential impacts to Mansfield Hollow Lake should the lake need to be managed for public water supply.

   The Inland Fisheries Division of the Connecticut DEEP has indicated that they "*would be supportive of additional withdrawals at the Willimantic Reservoir only if waters were dedicated for instream flow maintenance*." As the Willimantic Reservoir dam at WWW is a run-of-the-river dam without a low-level outlet, there is currently no mechanism in place to support downstream releases. Use of releases from the upstream Mansfield Hollow Reservoir is a potential method of increasing instream flow.

**TABLE 2-10**
**Willimantic Reservoir Storage, Safe Yield, and Diversion Authorization**

| Source | Storage Capacity | Safe Yield | Diversion Permit |
|---|---|---|---|
| Willimantic Reservoir | Negligible (Run-of-River) | 7.9 mgd | 4.1 mgd |

As stated by the Connecticut DEEP, "*further investigation of the ability of the [United States Army Corps of Engineers (USACE)] to provide additional flows both for water supply and habitat augmentation is warranted and should consider the availability of water and potential legal impediments*." Any permit from DEEP would require the completion of an analysis of the reservoir to provide releases during the 99% drought year that will maintain instream flow downstream in the Natchaug River while maintaining recreational use and the fisheries habitat in Mansfield Hollow Reservoir. In addition, the Instream Flow Study would need to be updated to account for any future proposed flow regime. In the interim, the following analysis is presented to show that releases of water from Mansfield Hollow Lake are indeed feasible.

As explained in ROD Section 2.2.9, the top foot of Mansfield Hollow Lake (neglecting side slopes) is approximately 459.15 acre-feet in volume, equivalent to approximately 20 million cubic feet. This amount of water released over a 30-day period would increase the amount of water in the river by 7.7 cubic feet per second. Such a release would likely be sufficient to buttress the fisheries habitat in the lower portion of the Natchaug River through a severe drought period.

2. Commenters wished to know if USACE had been contacted regarding potential management of the lake for public water supply.

   The USACE has not been contacted regarding potential management of Mansfield Hollow Lake for public water supply. Such contact would be conducted should the WWW alternative be advanced.

3. Commenters wanted to know why the Town of Windham and the City of Willimantic had not been contacted regarding the EIE.

   Outreach was conducted with WWW during the preparation of the Draft EIE. In addition, Windham and Willimantic were notified through the public notice process associated with project scoping and EIE availability as described in ROD Sections 1.1 and 1.2. Finally, the Town of Windham was provided with a hardcopy of the EIE to promote municipal and public review.

## 2.18 RESPONSE TO COMMENTS REQUESTING SUPPLEMENTAL ASSESSMENT OF COST AND DELIVERY MECHANISMS

In response to public comment and coincident with the preparation of the subject ROD, UConn prepared a request for supplemental information and sent such request to MDC, CWC, and WWW on May 16, 2013, with a deadline of June 7, 2013 specified for receipt of responses. A response dated May 23, 2013 was received from WWW (through its Water Commission) and responses dated June 7, 2013 were received from MDC and CWC on June 7, 2013. Copies of this correspondence are included in Appendix E.

*Windham Water Works* – The response from WWW stated that the Windham Water Commission would be unable to participate in further discussions regarding its willingness and /or ability to provide water to UConn unless (or until) UConn and/or the Town of Mansfield were willing to commit that UConn and/or the town would fund planning and preliminary design efforts associated with the questions in the May 16, 2013 request from UConn. In response, UConn notified the Windham Water Commission that information received through April 2013 would be used to develop cost information associated with the alternative; this included information already presented in the EIE document.

*Metropolitan District* – The response from MDC provided a number of key clarifications including the following:

- MDC would require a long-term take-or-pay agreement with UConn for providing water.
- MDC would be a wholesale provider of water to a single customer (UConn with the town of Mansfield).
- MDC adopted the capital cost estimates in the EIE to respond to UConn's questions about project costs.
- MDC would take ownership and maintain the pipeline eastward to a meter in Mansfield unless service connections along the pipeline were precluded; in that case, the meter would be located near the west end of the pipeline and UConn would retain ownership and maintain the pipeline depending if MDC chose not to accept ownership of the pipeline. MDC estimated that annual operations and maintenance costs to be borne by UConn as owner of the pipeline would be on the order of $500,000.
- MDC would not assist with financing of the capital costs of the project.
- MDC would charge UConn its prevailing and current commodity charge for water plus the prevailing and current flat rate charges applicable to non-member towns; both charges are set annually through the budgeting process.

*The Connecticut Water Company* – The response from CWC provided a number of key clarifications including the following:

- CWC would fund construction and maintenance of the requisite treatment, transmission and other infrastructure with no tax dollars or capital contribution from the State of Connecticut, UConn, or the Town of Mansfield.
- CWC would expect to be allowed to transfer water through the University system to serve non-University customers without paying a "wheeling fee."
- CWC would assume responsibility for the long-term maintenance and repair of the infrastructure fronting the non-University customers now served by University infrastructure. Once such infrastructure is fully depreciated, or upon its replacement by CWC, ownership would transfer to CWC at which time CWC would begin paying local property taxes on the plant.
- CWC proposes extending to UConn the rate that is already in place for its Bradley International Airport customers, which is 60% of its public authority basic service charge and commodity rate for government authorities, subject to Public Utilities Regulatory Authority (PURA) approval.
- All existing non-University customers would become customers of CWC served at rates approved by PURA, as would any new non-University customers requesting water service.
- Existing rates would be maintained for existing non-University customers, subject to PURA approval, to reflect the University and/or Town's prior investment in infrastructure. The Company would adjust the existing non-University customers' rates at any future Connecticut

Water rate cases before PURA, by the same percentage amount as the Company's overall rate increase.

- New customers, such as those in the newly served parts of the Storrs area, would be served directly by CWC and would pay the same rates as other water customers in the CWC Western system, including a basic service charge and a commodity water rate. They would be subject to future rate increases in the same manner as other CWC Western system customers.
- Water entering the system would be metered from the various inputs (the Fenton wells, Willimantic wells and CWC water main) and compared to metered consumption in order to net out the volume used by CWC or the University.
- CWC would work with the Town of Mansfield to facilitate the provision of water service to those areas identified and prioritized by the Town. In so doing and as requested, CWC would assist the Town with any grant or loan applications to further the installation of infrastructure to targeted areas.
- A formal governance structure would be established to include representatives from the University and the Town of Mansfield such that any issues related to water system operation, expansion or integration were collaboratively addressed.
- CWC also proposed consideration of forming a Customer Advisory Council model in its Maine operations as a successful means of involving community representatives in matters regarding the water system in their communities. While the specifics of a Customer Advisory Council would need to be developed with the UConn and the town, one such model would include representatives from the UConn, area towns, and environmental organizations; establish a regular meeting frequency (e.g., quarterly); and provide for an annual report on its activities to the Water Planning Council, the University's Board of Trustees, and local municipal governance bodies such as the Mansfield Town Council.
- CWC understands that Mansfield is considering the targeted restriction of water service ("overlay zone"), especially through the use of lateral connections, as a means of mitigating development pressure in conservation and similar rural areas. CWC would support such mitigation as an appropriate tool under CEPA, especially given that CWC initiated the use of zoning amendments in the town of Middlebury during a similar EIE process.

CWC also provided additional information about how the project would be implemented, which differs slightly from the explanation provided in the EIE. In particular, the following would occur:

- Interconnect CWC's existing system in Tolland to the Town of Tolland system along Route 195. Facilities would include 4,100 feet of 16-inch water main along Route 195 in Tolland, and a pressure regulating vault and meter at the intersection of Old Post Road and Route 195 in Tolland.
- Install 15,000 feet of 16-inch water main along Route 195 in Tolland, Coventry and Mansfield; 4,900 feet of 16-inch water main along Baxter Road (Route 195 to Route 44) in Mansfield; 5,700 feet of 16-inch water main along Route 44 to the Mansfield Four Corners; a pressure regulating vault in Route 195 between Walbridge Hill Road and Norwegian Woods Apartments in Tolland; and an interconnection metering vault at the tie-in to the UConn system.
- Upgrade the Tolland Booster Station to 1.0 mgd capacity.
- Complete the connection to enable CWC to flow 1 mgd through the Tech Park to the University system and meet the public health and redevelopment needs of the Mansfield Four Corners area. (Alternatively, a connection could be made to the UConn system along Hunting Lodge Road.)

CWC explained that future upgrades would be undertaken to provide more water. In effect, a phased approach would be used.

- To provide up to 2.5 mgd capacity, related facilities *within* the existing Western System would include 6,500 feet of 16-inch water main along Tolland Stage Road in Tolland; 3,000 feet of 16-inch water main on Dunn Hill Road in Tolland; and 2,000 feet of 16-inch water main along Route 195 from Old Post Road to I-84 crossing. Sections of lower-diameter pipeline are already in existence in these roads within the Western System.
- A 3 mgd pump station would be constructed on CWC property in Tolland.
- At the same time, source of supply improvements would be initiated within the Western System as overall demands necessitated the addition of available supply to maintain an adequate margin of safety. The primary focus would be an upgrade of the Rockville surface water treatment plant. The capacity would be increased by 3.0 mgd or more depending on projected need. The groundwater supply improvements described in the EIE and this Record of Decision would also be conducted.
- The timing of supply improvements would be related to the demands of the University and Mansfield, but would benefit all customers of the Western System.

CWC's total project cost estimate was $19.3 million, which is slightly lower than the estimate developed in the EIE.

CWC's response to the Business and Regulatory Information category requires a clarification. Information Request 14 states: "*Would the Water Users be under any obligation or restriction prohibiting their use of existing or development of new potable water or reclaimed/ graywater supplies to meet the Water Users' varied water demands, in the event that your organization was selected to serve the Project?*" Request 14 had the objective of asking whether innovative methods of water supply could be used by public water system customers in order to reduce the draw of potable water from the public water system. Some of these methods could include using existing irrigation wells that may be on-site or nearby, rainwater or runoff collected on-site for non-potable uses, graywater for non-potable uses, and/or reclaimed water from the University's reclaimed water system. Continued water conservation is desired by UConn and town, and these methods would essentially help conserve potable water from the public water system. CWC is not opposed to its customers implementing these types of methods for conserving potable water. However, the avoidance of cross connections is crucial, and CWC would need to monitor for such potential cross connections as part of its overall maintenance of the public water system. For this reason, it would not be prudent to allow a customer to have access to the public water system as well as another potable water source, such as a well, unless cross connection prevention measures were approved by CWC.

*Financial Analysis* – UConn retained Environmental Capital LLC to prepare a financial analysis of the MDC, CWC, and WWW alternatives as clarified by the correspondence received in May and June 2013. Refer to the "Summary of Financial Proposals" analysis in Appendix F.

Two different models were developed to analyze the responses to the request for information. The first model assumed that the capital costs developed in the EIE for the MDC and WWW alternatives would be financed with conventional tax exempt bonds issued at 4.5% with an amortization period of 30 years with level debt service payments (equal combined payments of principal and interest each year as in a home mortgage). The second model assumed that financing would be available through Connecticut's State Drinking Water Revolving Fund program (the "SRF"). The terms were assumed to be an interest rate of 3.0% with an amortization period of 20 years with level debt service. In neither model were capital costs attributed to the CWC

alternative, as CWC stated that they would finance the required capital improvements themselves as part of their normal capital expenditures.

The models calculated the total cost to the water users for each year over the 30 year analysis period. The cost inputs were specified by the respondents or were published rates. Operating and maintenance costs for the transmission lines for WWW were not available and so the cost provided by MDC was pro-rated based on the length of the lines to derive a cost for WWW. The costs and water rates were adjusted annually by the assumed inflation rate of 2%.

The CWC analysis was based on the projections for annual water usage developed in the EIE and refined in the ROD. The table of projected water demand in ROD Section 1.3 shows no incremental water use for the water users in 2015; an additional 876,933 gpd by 2030; and 1,261,660 gpd by 2045. The models for the CWC alternative assumed that water usage would grow at an even rate from 2015 to 2030 and from 2030 to 2045. In 2015 there is no purchase water cost for CWC, since there is no incremental water usage. Thereafter the amount for water usage grows evenly until 2030 when usage reaches 876,933 gpd and so on. The usage amounts so determined are multiplied by the water rate proposed by CWC, as adjusted annually by the assumed inflation rate of 2% to calculate the purchase water cost for the CWC alternative. This is the total purchase water cost each year for CWC.

The CWC analysis contrasts with the MDC and WWW alternatives (see below) in which the take or pay nature of the water supply agreements require a minimum payment to be made in each year (assumed to be 1.2 mgd, 0.9 mgd and 0.6 mgd in the three different iterations of the models).

MDC specified that it would require a "take or pay" contract, under which a specified amount of water must be paid for, whether or not it is used. Three different analyses have been performed assuming three different levels of required take or pay amounts (1.2 mgd, 0.9 mgd, and 0.6 mgd). In each of the analyses, the required take or pay amount is multiplied by the water rate for each year to obtain an annual purchase water cost. All other costs are then added, including annual debt service to arrive at the total annual cost. The same method was used for WWW. The MDC and WWW alternatives show much higher purchase water costs in the early years as a result of the minimum take provisions of the take or pay contracts.

The total annual costs are summed for the 30 year period to derive the total cost for each alternative. The total annual costs are also discounted over the 30 years at 3% to obtain a net present value ("NPV") for each alternative.

*Summary* – The total cost and the NPV for the CWC alternative are substantially lower than for either of the other two alternatives. For the conventional bond financing model at 1.2 mgd, the CWC total cost is 33% of the MDC total cost and 37% of the WWW total cost. The CWC NPV is 28% and 32% of the MDC and WWW NPVs, respectively. At lower take or pay contractual amounts (0.9 mgd and 0.6 mgd), the CWC alternative remains in the 30% to 36% range of the other alternatives. For the SRF financing model at 1.2 mgd, the CWC total cost is 39% of the MDC total cost and 44% of the WWW total cost. The CWC NPV is 31% of the MDC and 35.5% of the WWW NPV. At lower take or pay contractual amounts (0.9 mgd and 0.6 mgd), the CWC alternative remains in the 33% to 50% range of the other alternatives.

The CWC alternative is substantially lower in each scenario for two main reasons. The first is that CWC does not require the water users to finance the capital improvements. The second is that

CWC does not require a take or pay contract. Consequently, its proposal is far lower in total cost and NPV cost than either of the other alternatives under either financing model.

# 3.0 SUMMARY OF EIE REVISIONS

The following errata revisions are made to the November 2012 EIE:

- Page ES-5 of the EIE (Executive Summary) contains three bulleted points under the heading "Water Resources." The third bullet erroneously consists of a repeat of the second bullet. The third bullet should read "*Provision of water from WWW would draw upon the Willimantic Reservoir, an impoundment of the Natchaug, Mount Hope, and Fenton Rivers. A new or modified diversion permit would be needed as well as removal of sediment from the reservoir to maintain adequate water quality. WWW operates its source of supply as a run-of-the-river withdrawal rather than relying on reservoir storage. Mitigation could take the form of increasing releases from Mansfield Hollow Lake by the U.S. Army Corps of Engineers, although this is beyond the control of the University, Town of Mansfield, or WWW.*"

- Section 5.19 entitled "Finding" is hereby added as follows: "*Under the no action or no-build alternative, the University would not obtain an additional source of water supply. Fundamentally, this alternative does not meet the project purpose and need.*"

- Page 7-51 of the EIE ("Cumulative Impacts") erroneously lists "Interbasin transfer of water from the Scantic River basin and Hockanum River basin to the Willimantic and Natchaug River basins" as an impact. The correct bullet should read "Interbasin transfer of water from the Hockanum River basin to the Willimantic and Natchaug River basins."

# 4.0 SPONSORING AGENCY DECISION

While three water supply alternatives are believed to be technically feasible with the ability to meet the project purpose and need, UConn has elected to pursue as the preferred alternative an interconnection with CWC. Consistent with the provisions of Section 92 of Public Act 11-57, the University has consulted with Mansfield, through its town manager and other senior town staff, throughout the development of EIE. The CWC alternative was selected in consideration of the following:

- CWC pipeline routes are most consistent with the State Plan and present readily mitigated potential development and other environmental impacts;
- CWC can directly mitigate additional withdrawals from its water supply source;
- CWC provides the lowest construction cost alternative;
- CWC provides the lowest water cost alternative;
- CWC does not require a "take or pay" contract;
- CWC supply alternative is capable of a phased-implementation approach;
- CWC supply presents the shortest duration of time for implementation.

These and other considerations leading to selection of CWC as the preferred alternative are described more fully below.

- *Ability to Provide Water* – CWC possesses sufficient safe yield and sufficient registered and permitted capacity of sources to serve UConn and the Town of Mansfield[5]. CWC possesses the technical, managerial, and financial capability to undertake the project.

- *Consistency with the State Plan* – UConn, Storrs, the Mansfield Four Corners area, and areas adjacent to the main campus are currently identified in the State Plan as areas that are desirable for growth via their Priority Funding Area (PFA) and Balanced Priority Funding Area (BPFA) designations. Provision of public water to support such growth is consistent with state goals, including the recently adopted State Plan (June 2013). A pipeline from the CWC system will pass through a higher percentage of State-designated PFA than BPFA or CA lands relative to the MDC and WWW pipelines, and is also the alternative with the shortest distance of new pipelines overall. Therefore, it presents the lowest risk of unwanted induced development. Further, the Town of Mansfield has proposed the creation of an overlay zone under local regulations that would limit the density of development in locations along the public supply line to no greater than is demonstrated supportable by means of on-site wells.

- *Consistency with Local and Regional Plans* – The CWC alternative is consistent with UConn's *Water and Wastewater Master Plan* (2007), UConn's *Water Supply Plan* (2011), the Town of Mansfield's *Water Supply Plan* (2002), the Town of Mansfield's *Plan of Conservation and Development* (2006), and the *Windham Region Land Use Plan* (2010). The CWC alternative is not counter to any existing Coordinated Water Utility Coordinating Committee (WUCC) Plan.

- *Instream Flow Impacts* – CWC will continue to release water to the Hockanum River, directly mitigating additional withdrawals from Shenipsit Reservoir.

- *Energy* – Increases in energy usage would occur for all of the alternatives. By virtue of its location relative to the future service area, the CWC alternative will require less energy to move water as compared to the MDC alternative and about the same energy as required to move water from WWW.

- *Water Quality* – The CWC alternative has a low potential for high water age and formation of disinfection byproducts.

- *Pipeline Related Impacts* – The majority of pipeline installation will occur where roads are currently paved and therefore do not support significant biological communities, cultural resources, or visual resources. Construction methods and timing can occur in such a manner as to minimize temporary traffic impacts. Installation of pipelines will have minimal impacts where they cross special flood hazard areas, as piping will be below grade.

- *Cost* – The CWC alternative is the lowest-cost alternative overall, the lowest cost to taxpayers of the State of Connecticut, the University and Mansfield, and the alternative that would have

[5] If water service is provided along the pipeline in accordance with zoning in Tolland and Coventry, and as constrained by various zoning and development mechanisms such as Tolland's RDD-Natural Resource and Wildlife Protection Area zoning and LID guidelines, then potential water demands along the CWC pipeline in Tolland and Coventry will be on the order of 33,000 gpd. This does not change the ability of CWC to provide the needed water to UConn and Mansfield. Water demands in Mansfield between the Coventry town line and Mansfield Four Corners will be nominal, as the overlay zones will restrict withdrawals from the pipeline.

the lowest cost impact to the vast majority of water users relative to water use fees after the interconnection is in place.

- *Ability to Phase* – The CWC has the ability to phase-in the necessary improvements to serve UConn and the Town of Mansfield. CWC can install the pipeline and make one set of improvements in the short term, and then implement additional improvements over a longer time frame, which will defer some of the project costs.

WWW is considered by the University to be a feasible alternate potential water supply to be pursued by UConn and the Town of Mansfield in the event that any required regulatory approval or an acceptable water supply agreement with CWC cannot be secured for the project. WWW possesses sufficient safe yield, but not sufficient permitted capacity. Any permit from DEEP would require the completion of an analysis to provide releases during the 99% drought year to maintain instream flow downstream in the Natchaug River while maintaining recreational use and the fisheries habitat in Mansfield Hollow Reservoir. An interconnection with WWW would have similar energy requirements as compared to the CWC interconnection; has a low potential for high water age and formation of disinfection byproducts; and has the ability to phase certain project elements. While the WWW interconnection route traverses through more Conservation Areas as compared to the CWC alternative, all occur within the Town of Mansfield, where creation of an overlay zone under local regulations would limit the density of development. The WWW interconnection is the second highest cost alternative.

The MDC alternative will not be pursued. While MDC possesses sufficient safe yield and sufficient registered and permitted capacity to supply UConn, this alternative requires a higher level of expenditure than the CWC or WWW alternatives overall and a higher level of financial exposure to taxpayers. It also requires the longest distance of water mains regardless of the selected route; requires the greatest use of energy for transmitting water, has no ability to phase project elements, and poses the greatest risk for high water age at the end of the pipeline which could impact water quality. A pipeline from MDC would be the longest of the pipelines evaluated in this EIE, opening up the highest acreage of lands exposed to the risk of induced development, whether classified as PFA, BPFA, CA, or otherwise. Additionally, a pipeline from MDC would pass through the exclusive service areas of other water utilities such as Manchester (for the southern route) and CWC (for the northern route). The furtherance of duplicative water service in the State is contrary to the State's statutory obligation for coordinated water supply planning.

Based on the analysis undertaken in the preparation of the EIE as well as consideration of all comments received and supplemental assessment thereof, UConn concludes that the proposed action will have no significant adverse impact on the environment that cannot be mitigated. Additionally, UConn finds that all practical means to avoid or minimize environmental harm have been identified.