



THE COMMONWEALTH OF MASSACHUSETTS  
WATER RESOURCES COMMISSION  
100 CAMBRIDGE STREET, BOSTON MA 02114

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**REPORT OF THE FINDINGS, JUSTIFICATIONS AND DECISION  
OF THE WATER RESOURCES COMMISSION  
Relating to the Approval of the  
Auburn Water District's Request for an Interbasin Transfer  
Pursuant to M.G.L. Chapter 21 § 8C**

DECISION

On April 14, 2022, by a nine to one (9-1) vote, the Water Resources Commission (WRC) approved, with Conditions, the Auburn Water District's request for an Interbasin Transfer to purchase 0.54 million gallons per day (MGD) of water from the City of Worcester. This vote was taken after review of the facts provided by the applicant, analysis of the associated data, and consideration of comments received concerning this proposal.

INTRODUCTION

On April 8, 2020, the Massachusetts Water Resources Commission (WRC) received a request from the Auburn Water District (AWD) for approval of an action to increase the present rate of interbasin transfer under the Interbasin Transfer Act (ITA) (M.G.L. Chapter 21 §§ 8B-8D) as part of a Draft Environmental Impact Report (DEIR) submitted to the Massachusetts Environmental Policy Act (MEPA) office. The DEIR proposed a water supply transfer through a new interconnection to the City of Worcester's water system. Additional information was requested by the WRC and received in the Final EIR, submitted in September 2021. The Secretary's Certificate on the FEIR was issued on October 29, 2021. The WRC accepted AWD's application as complete at its December 9, 2021 meeting.

AWD is proposing to purchase a maximum of 0.54 MGD of water from Worcester to supplement its existing groundwater supply sources. AWD's average day demand (ADD), based on the years 2010 to 2020, has ranged from 0.99 MGD to 1.33 MGD, while the maximum day demand (MDD) for the same time period has ranged from 1.36 MGD to 2.12 MGD.

This interconnection triggers the ITA because some of Worcester's sources are located in the Nashua River Basin. Auburn has land area in the Blackstone and French River basins and discharges its wastewater to the Upper Blackstone Water Pollution Abatement District (UBWPAD). Worcester also has sources in the Blackstone River basin, but because Auburn returns water from these sources back to the basin of origin, the portion of water derived from Worcester's Blackstone River basin sources is not jurisdictional under the ITA. Also, since wastewater from the Town of Auburn and City of Worcester is currently treated at the UBWPAD and discharged in the Blackstone River Basin, no interbasin transfer of wastewater is expected due to this water supply transfer from Worcester to Auburn.

A summary of the facts described in the application is as follows:

1. AWD has its distribution system mainly in the Blackstone River Basin, with a small portion in the French River Basin.
2. AWD's existing sources consist of twelve groundwater wells.
3. These wells are vulnerable to contamination due to the proximity of multiple major roadways. Deicing chemicals and fuel spills are of concern.
4. AWD is proposing to purchase water from the City of Worcester, which has its sources in the Blackstone River Basin and the Nashua River Basin.
5. Because Worcester has some of its sources in the Blackstone River Basin and the AWD is in the Blackstone River Basin, only the portion of Worcester's water supply from the Nashua River Basin (0.36 MGD, apportioned based on major basin storage) is jurisdictional under the ITA.
6. A MEPA environmental review, pursuant to M.G.L. c. 30, §§ 61-62I, was required for this proposed action. The ITA application was submitted as part of the DEIR for this project (EOEEA #16070). Additional information for ITA review was requested through the MEPA process and provided in the FEIR.
7. The Secretary's Certificate on the FEIR was issued on October 29, 2021, stating that no further MEPA review was needed.
8. Two required public hearings were held virtually via Zoom to take comment on this application, for the donor basin on January 20, 2022 and for the receiving basin on January 26, 2022. Written public comments were accepted until February 2, 2022.
9. A Staff Recommendation to approve the request was presented to the WRC on February 10, 2022.
10. A public hearing on the Staff Recommendation was held virtually via Zoom on March 2, 2022. Written public comments were accepted until March 9, 2022.
11. Responses to comments received through the public comment periods are available in a separate report from the WRC.

#### EVALUATION OF THE PROPOSED INTERBASIN TRANSFER

This Interbasin Transfer application was reviewed on its own merits and is applicable solely to AWD's purchase and use of Worcester's water supply in the amount of 0.54 MGD. This Decision is made based on facts contained in AWD's MEPA submissions and additional information submitted at the WRC's request during the MEPA process and during staff review. The application was evaluated against the seven Criteria outlined in the ITA regulations (313 CMR 4.09), as well as the ITA Performance Standards and with consideration of comments received from the agencies and through the public comment process.

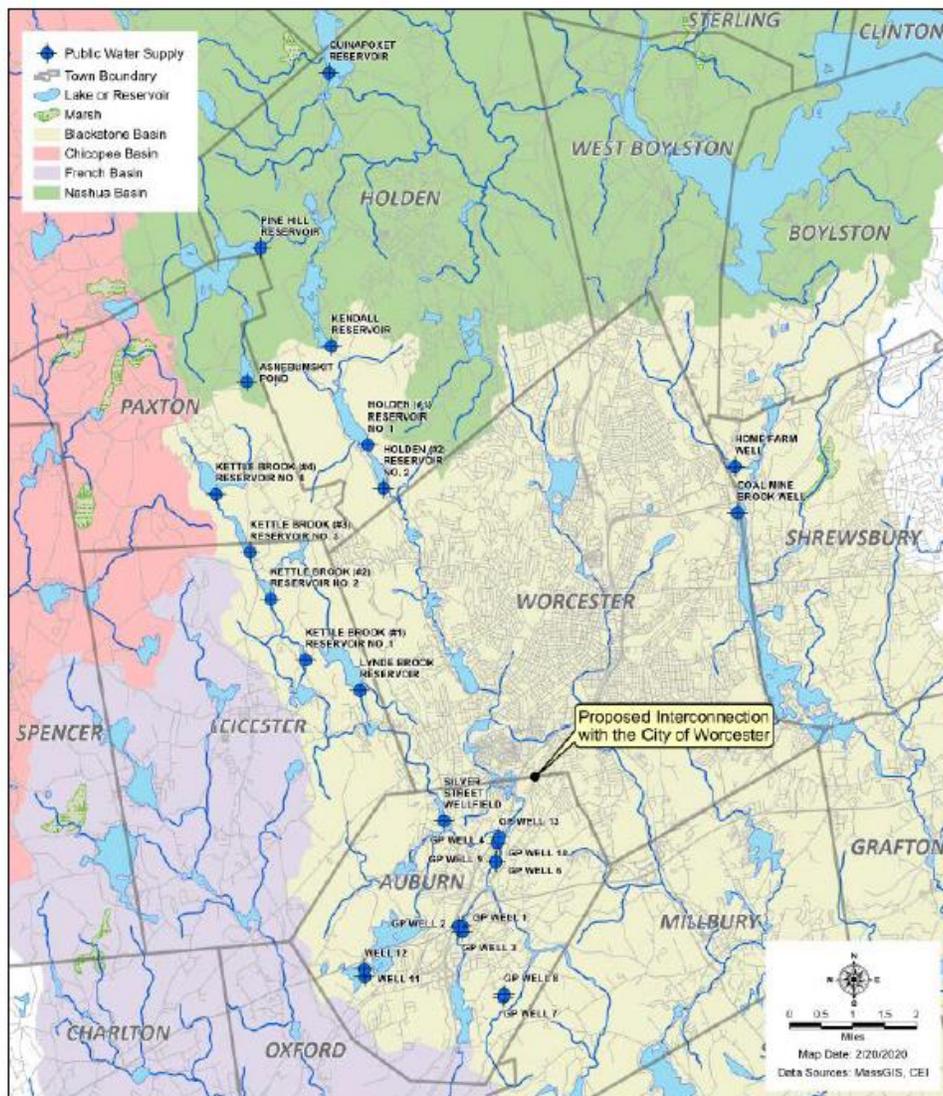
#### SYNOPSIS OF THE EVALUATION CRITERIA (313 CMR 4.05)

<b>Criteria</b>	<b>Application Meets?</b>
<b>Criterion #1:</b> MEPA Compliance	Yes
<b>Criterion #2:</b> Viable In-Basin Sources	Yes
<b>Criterion #3:</b> Water Conservation	Yes, with conditions
<b>Criterion #4:</b> Forestry Management	Not Applicable
<b>Criterion #5:</b> Reasonable Instream Flow	Yes
<b>Criterion #6:</b> Impacts of Groundwater Withdrawals	Not Applicable

**BASIS FOR THE WRC DECISION**

This application was reviewed by Executive Office of Energy and Environmental Affairs (EEA), WRC staff at the Department of Conservation and Recreation’s (DCR) Office of Water Resources, Department of Environmental Protection (MassDEP), and Department of Fish and Game’s (DFG) Division of Fisheries and Wildlife. This Decision was made after an evaluation of AWD’s application and compliance with the five applicable Criteria of the ITA regulations and the ITA Performance Standards. The following section describes in detail compliance with the Criteria.

**Figure 1: Auburn Water District’s and City of Worcester’s Sources**



**Criterion #1: Compliance with MEPA**

An environmental review, pursuant to MEPA (M.G.L. c. 30, §§ 61-62I) and the MEPA regulations, 301 CMR 11.00, was required for this proposed transfer. The ITA application was submitted as part of the DEIR for this project (EOEEA #16070). The FEIR was submitted in September 2021. The FEIR Certificate was issued on October 29, 2021 and stated that no further MEPA review was necessary.

**Criterion #2: Viable In-Basin Sources**

AWD had to demonstrate that it has made all reasonable efforts to identify and develop all viable sources in the receiving area. Several studies and reports have been prepared for AWD under past MassDEP Water Management Act (WMA) Grant projects that discussed and analyzed alternative water supply sources, both in-basin and out of basin. AWD evaluated several alternatives to provide additional reliable sources of water, to be used when supplies are offline for maintenance or potential contamination, during periods of high demand, and to prepare for future demands. These alternatives included implementing enhanced treatment for existing sources, activating permitted but currently inactive new water supply sources, and exploring in-basin/out of town connections. However, none of these alternatives was deemed an acceptable solution that would provide the capacity needed. Following is a summary of all issues considered relating to viability.

*Existing Sources*

The AWD water system includes 12 active drinking water supply wells, three water storage tanks, and 70 miles of water distribution mains. The majority of AWD's water supply wells are vulnerable to potential contamination due to the proximity of numerous major highways (i.e., I-90, I-290, I-395, SR 20, SR 12). Potential contamination sources include sodium and chloride loading from winter road salting and fuel spills from frequent accidents. Accidents are most frequent on I-90. Water supply wells have not yet been directly contaminated from fuel spills, but each occurrence requires select wells to be taken offline as a precautionary measure whenever they may be potentially impacted by a spill. Wells may remain offline for weeks to months at a time pending environmental and water quality testing. The wells are returned to service once the release extent has been determined and mitigated. For example, Wells No. 1 and 3 were temporarily taken offline in 1999 as a precautionary measure when there was a fuel spill at the intersection of I-90 and I-290. This spill resulted in fuel reaching Dark Brook, which is in proximity to the wells. The wells were returned to service after 6 months of water quality testing performed in the brook and TPH (total petroleum hydrocarbons) levels had returned to pre-release baseline levels. Additionally, many AWD water supply wells have elevated levels of sodium and chloride resulting from their proximity to major highways. Ongoing sampling data shows increasing levels of sodium and chloride that eventually may lead to the loss of these wells. One well with the highest measured levels of sodium and chloride was taken offline and is no longer pumped into the distribution system. The loss of this well in conjunction with frequent fuel spills further stress the AWD's water supply system by concentrating groundwater withdrawals among fewer sources.

MassDEP established a drinking water guideline of 20 mg/L for sodium and a Secondary Maximum Contaminant Level (SMCL) of 250 mg/L for chloride. Most of AWD's wells consistently exceed the sodium guideline and Wells No. 1, 2 and 3 exceed the chloride SMCL.

Additionally, the World Health Organization (WHO) has established a taste threshold for sodium of 150 mg/L. Sodium levels in Wells No. 1, 2, 3, 4, and 13 consistently exceed this level. In response to the drinking water guidelines, AWD issues public notification in its annual consumer confidence report. AWD stopped pumping Well No. 2 into the distribution system in the 1990's since it has the highest levels of sodium and chloride contamination. Water from this well is pumped to Dark Brook in an effort to intercept groundwater with the highest sodium and chloride levels before it reaches Wells No. 1 and 3. While it is believed that this effort has helped to abate some of the sodium and chloride contamination of Wells No. 1 and 3, the levels in these wells have continued to rise. In May 2013, sodium in Wells No. 1, 2 and 3 reached 180, 470 and 140 mg/L respectively and chloride in Wells No. 1, 2 and 3 reached 338, 867 and 265 mg/L respectively. AWD has concerns that Wells No. 1 and 3 may need to be taken out of service in the future unless measures are taken to prevent the continued influx of sodium and chloride.

Due to close proximity to I-290, Wells No. 4 and 13 are vulnerable to contamination from fuel spills caused by accidents on the highway. If there was to be a significant spill on I-290 in the area, Wells No. 4 and 13 may need to be taken out of service until the contamination is remediated.

AWD's distribution system has two pressure zones, the High-Pressure Zone and the Low-Pressure Zone. The High-Pressure Zone is serviced by Wells No. 1 and 3 and Wells No. 11 and 12, all of which are vulnerable to fuel spills that may occur on I-90. If either or both well systems were to be taken offline, AWD's system would not be able to meet the demands in the High Zone.

AWD's system can typically meet water demands while sustaining normal pressures during a maximum demand week; however, if one or two wells are rendered inoperable, storage tanks may not recover during a maximum demand week. This could result in water shortages and/or decreased water pressure below normal levels. MassDEP concurs that AWD has difficulty meeting demand when wells are offline and needs another source to provide AWD with water for emergencies and to improve resiliency.

#### *Alternatives Analysis*

An alternatives analysis was performed to identify, evaluate, and select potential supplemental water supply alternatives. Six alternatives, including a no-action alternative, for supplemental water supply were reviewed for AWD's needs. Methods for maintaining water supplies included implementing additional treatment for existing sources, bringing new sources online, and purchasing water from the City of Worcester or surrounding towns.

Selection for the proposed design was based on several factors which included cost, construction and phasing feasibility, environmental concerns, and hydraulic design requirements. Of particular importance is that the selected alternative has the ability to offset any losses from AWD's largest producing well while providing an additional margin of safety should another source go down simultaneously. Required range is at least 500 gpm to 750 gpm for 12 hours per day, 365 days per year.

### *Church Street Wells Treatment*

The three existing Church Street Wells have a combined flow capacity of approximately 850 gpm: Wells No. 1, 2, and 3 have pumping rates of 500 gpm, 150 gpm, and 200 gpm, respectively. The Church Street Wells are currently impacted by increasing amounts of sodium and chloride contamination from nearby roads. Well No. 2 is no longer pumped into the distribution system since it has the highest levels of sodium and chloride contamination. In an effort to intercept groundwater with the highest sodium and chloride levels before it reaches Wells No. 1 and 3, groundwater from Well No. 2 is pumped to an adjacent brook (Dark Brook) instead of the distribution system. Despite these efforts, the sodium and chloride levels in Well No. 1 and 3 have continued to rise as evidenced by ongoing sampling efforts performed by UMass. In addition to sodium and chloride contamination, frequent vehicle accidents on Interstate I-90 (MassPike) threaten the Church Street Wells from potential fuel spill contamination.

Church Street Wells No. 1 and 3 currently supply approximately 150 million gallons of water per year. By implementing treatment, approximately 150-200 gpm of capacity could be regained for AWD's system; however, given the relatively low efficiency of reverse osmosis treatment processes, it is likely that the regained capacity would be lower. This expected capacity would not be adequate to offset losses from AWD's largest producing well while providing an additional margin of safety should another source go down simultaneously (i.e., 500-750 gpm, 12 hours per day, 365 days per year). Expected yield would also be limited by factors such as water quality, physical limits and recharge of the well, and authorized permitted withdrawals for the system.

### *Implementation of Silver Street Wells*

The three Silver Street Wells have been permitted and approved for a combined flow capacity of 390 gpm. These wells are permitted but not currently active. The permanent wells are in place; however, the pumping and treatment facilities have not yet been constructed. Implementation of these wells would help recover more than the lost capacity from Church Street Well No. 2. A test well program was previously conducted at the Silver Street site. The results of this test well program indicated that manganese in all three wells exceeds the Secondary Maximum Contaminant Level (SMCL) of 0.05 mg/L and the Health Advisory Level (HAL) of 0.3 mg/L. Therefore, treatment removal for iron and manganese will be required.

The combined pumping rate of the Silver Street Wells is 390 gpm; however, the Silver Street Wells cannot supply more than the safe yield of the wells, which is 300 gpm for 16 hours per day. If the Silver Street wells were to operate at this rate year-round, the wells could supply approximately 105.1 million gallons of water per year. This is approximately 61.3 million gallons more than the Church Street replacement well. This expected capacity, however, would not be adequate to offset losses from AWD's largest producing well while providing an additional margin of safety should another source go down simultaneously (i.e., 500-750 gpm, 12 hours per day, 365 days per year). Expected yield would also be limited by similar factors such as water quality, physical limits and recharge of the well, and authorized permitted withdrawals for the system. Additionally, the Zone I of the wells crosses the Lower Stoneville Reservoir and covers portions of parcels on the eastern shore of Lower Stoneville Reservoir not currently owned by AWD. AWD would need to work with the owners of these properties to

procure the needed pieces of these parcels prior to activation of these supplies. MassDEP will not approve construction of the permanent pumping facilities until all of the Zone I is owned or controlled by AWD.

#### *Other Sources to Avoid an Interbasin Transfer*

In addition to the City of Worcester, the Town of Auburn is bordered by the Town of Millbury, Town of Leicester, and Town of Oxford. Oxford is entirely within the French River Basin. Therefore, only Millbury and Leicester could be potential in-basin sources that would avoid an interbasin transfer.

The Town of Millbury's water system is operated by the Aquarion Water Company. One of Aquarion's main water supplies, Oak Pond Well, was shut off in October of 2019 due to PFAS test results of 78 ppt, which is well above the current DEP Massachusetts Maximum Contaminant Level (MMCL) of 20 ppt. Oak Pond Well is still offline; and as of August 2020, the PFAS test result of the raw water was still above the MMCL at 41 ppt. Two other sources, Jacques Well and Millbury Avenue Well, are below the 20 ppt MMCL; however, Aquarion's system capacity is still limited. According to the 2020 water quality report, 9.7% of water that year was supplemented from Worcester. Additionally, even if supply was not an issue, there are physical limitations to an interconnection between Auburn and Millbury. The border between Auburn and Millbury is sparsely populated and it located on the periphery of both water suppliers. Connecting one peripheral reach to another peripheral reach is typically problematic and results in poor hydraulics and water quality.

The Town of Leicester currently obtains its water from three different water districts: Cherry Valley and Rochdale Water District (CVRWD), Leicester Water Supply District (LWD), and Hillcrest Water District (HWD). The CVRWD obtains all water from the City of Worcester, therefore, an interconnection with the CVRWD would essentially be the same as a direct interconnection with Worcester and would require an interbasin transfer. The LWD has local sources, but these sources have capacity issues. AWD is in need of a reliable source to supplement their supply, therefore, there is no potential to interconnect with the LWD. Lastly, the HWD capacity is also limited and they purchase supplemental water from LWD.

There are three water supply districts in the Town of Auburn: Auburn Water District, Woodland Water District, and Elm Hill Water District. AWD operates and maintains Woodland Water District; however, the two distribution systems are separate and Woodland purchases all of its water from Worcester. Elm Hill Water District also receives its water from Worcester.

#### *Interconnection with the City of Worcester*

Worcester is willing to sell water to AWD and has confirmed that 750 gpm to 1,000 gpm is anticipated to be available at the interconnection without infrastructure improvements on Worcester's end. Worcester has agreed to a maximum use of the interconnection by AWD of 12 hours per day for 365 days of the year at a rate of 750 gpm, which translates to 0.54 MGD. The proposed interconnection has the potential to supply approximately 197.1 million gallons of water per year.

There are two existing interconnections for emergency use, however, these are not permanent metered connections. These interconnections are the Burnett Street and Washington Street locations. There is also a third interconnection with Worcester for the Woodland Water District (WWD) in Auburn; although AWD owns and operates WWD, the water from that distribution system does not mix with the water from AWD's distribution system. The WWD system is also old and undersized in many places (i.e., 6" vs. 8" pipe). Various hydraulic modeling scenarios indicated that the existing Burnett Street or Washington Street interconnections are not as efficient as the proposed new Southbridge/Sword Street interconnection location. In some scenarios, using either the Burnett Street or Washington Street interconnection, modeling showed that the system had difficulties re-stabilizing the tank levels.

Multiple hydraulic modeling scenarios indicate that the proposed new Southbridge/Sword Street interconnection is the most efficient standalone interconnection. Based on a potential increase in capacity of 750 gpm, potential hydraulic benefits, and source reliability, the new interconnection with Worcester was chosen as the most viable alternative. Construction of the proposed new interconnection will involve the installation of approximately 3,400 feet of underground water main along the western side of Southbridge Street from Worcester's existing water main at the Auburn/Worcester line to AWD's existing water main located on Sword Street. The Project will also involve the construction of an aboveground pressure relief valve (PRV)/water metering facility situated approximately 400 feet from the Auburn/Worcester line on the western side of Southbridge Street.

In conclusion, the basic requirement of the ITA is that an applicant shows that local water supply sources are used to the maximum extent possible and that other sources cannot be reasonably developed prior to the applicant obtaining permission to transfer water from out of basin. Given the above-described conditions, the WRC determined that all reasonable efforts have been made to identify and develop all viable sources in the receiving area of the proposed interbasin transfer.

### **Criterion #3: Water Conservation**

AWD had to demonstrate that all practical measures to conserve water have been taken. The WRC water conservation performance standards are numbered below, followed by a bulleted narrative of AWD's actions.

1) A full leak detection survey should have been completed within the previous two years of the application. The proponent should provide documentation regarding repair of leaks identified during the survey.

- AWD currently conducts a leak detection survey of the entire distribution system at least every three years.
- The last system-wide leak detection survey was completed in December 2020. Documentation of the survey and leaks repaired was provided. Another leak detection survey is currently underway.
- AWD also becomes aware of leaks based on customer reports and responds to these calls immediately for meter repairs or replacements.
- AWD plans on updating various water supply infrastructure components to minimize leaks due to old infrastructure.

2) The water supply system should be 100% metered, including public facilities served by the proponent. A program of meter repair and/or replacement must be in place. Documentation of annual calibration of master meters and a description of the calibration program should be included in the application.

- All water users are metered and meter replacement programs are continuous. The water meter supplier informs AWD which meters are in need of replacement. The replacement meters themselves are more accurate and efficient than previous models.
- AWD targets and prioritizes repair and replacement of old meters with new meters based on (1) failure to read, (2) high water use, and (3) age.
- Master meters are calibrated annually to ensure accuracy of the readings. Meters are maintained in accordance with American Water Works Association (AWWA) and manufacturer standards.

3) Unaccounted-for Water (UAW) should be 10% or less. The proponent should provide documentation of UAW, in both gallons and percentage of the total finished water entering the distribution system, for each of the past five years. The definition of accounted-for and UAW for use in Interbasin Transfer applications is given in Appendix C of the Performance Standards.

- For more than the past five years, UAW has been 10% or below.
- AWD's average UAW from 2016-2020 was approximately 9% and has not exceeded 10% from 2009 onward.

4) The proponent should provide documentation to show that there are sufficient sources of funding to maintain the system, including covering the costs of operation, proper maintenance, proposed capital improvements, and water conservation. The rate structure must encourage water conservation.

a) Sufficiency of Funds

- AWD is financially independent and does not receive funding from the Town of Auburn. Per charter, AWD may have the Town of Auburn's assessor impose a tax on properties within the district to address utility costs, but currently no such taxation process is utilized. Water rates provide funding to cover most water supply system costs, including operation, maintenance and repair, small capital improvements, source protection, water conservation activities, and debt service. Larger capital investments, including the infrastructure for the proposed interbasin transfer, rely on some combination of loans and the issuance of bonds. In both cases, debt service is covered by rates over the long term. AWD typically budgets on a 10-year planning horizon for the water system.

b) Strength of Water Rate Conservation Signal

- AWD has the same two-tiered rate structure that applies to all customers regardless of customer class/category. The rate includes a \$48.00 service charge that covers a base allocation of 600 cubic feet (4,488 gallons) per quarterly billing cycle. Above this base allocation, there are two volumetric tiers: Tier 1 @ \$7.89 per hundred cubic feet (HCF) for volumes greater than 6 HCF up to 50 HCF; Tier 2 @ \$10.62 per HCF for all volumes greater than 50 HCF per quarterly billing cycle. The base allocation is roughly equivalent to 20 gallons per capita per day (gpcd) for the average Auburn household (2.48 people). About 21% of customers stay within the base allocation and effectively

receive no price signal, but their usage is already very low, so this does not present a concern with respect to the overall water conservation signal of AWD's rate structure. The threshold between Tiers 1 and 2 is roughly equivalent to 165 gpcd for the average Auburn household. About 74% of all customers fall into the Tier 1 category. The volumetric charge for a household of average size using 65 gpcd (the state year-round residential standard) is in the top 20% among Massachusetts water rates. The WRC accepts this as a sufficiently strong water conservation price signal. However, only 5% of customers are ever charged at the Tier 2 rate. To more effectively use the tiered rate structure to curb inefficient and nonessential use, it is recommended that as part of its forthcoming rate study for which AWD has been awarded a MassDEP WMA Grant, AWD pursue lowering the volume threshold between Tiers 1 and 2 to send the Tier 2 price signal to a greater percentage of high water users.

5) The proponent should bill its customers at least quarterly based on actual meter readings. Bills should be easily understandable to the customer (e.g., providing water use in gallons and including comparison of the previous year's use for the same period).

- AWD bills their customers on a quarterly and rotating basis; customers are on either a (1) January-April-July-October, (2) February-May-August-November, or (3) March-June-September-December billing schedule.
- The utility receives monthly meter software reports that flag potential ongoing/continuous leaks and intermittent leaks, based on algorithms that analyze customer usage in 15-minute increments. For customers showing potential ongoing/continuous leaks, AWD communicates by mail to inform them of potential leaks. To more quickly and comprehensively address the potential presence of leaks, it is strongly recommended that AWD:
  - develop and utilize a phone and/or email database for rapid customer communication, rather than relying on paper mail for correspondence about potential leaks, and
  - contact a wider range of customers with suspected leaks on a monthly basis, including those reported by the metering software as potentially having intermittent leaks lasting multiple days.

Ideally, AWD would install automated metering infrastructure (AMI) to be able to communicate with customers on the first day of a potential leak and to enable customer portals through which customers could engage directly in analysis of their own usage, although the WRC recognizes the considerable expense of implementing AMI.

- The AWD bill provides water use in hundred cubic feet (HCF), with no information to show customers trends in their usage or allow them to compare their usage to the previous year for the same period. AWD must redesign its bills to include usage volume in gallons and trend or comparison data.

6) A drought/emergency contingency plan, as described in 313 CMR 4.02, should be in place. This plan should include seasonal use guidelines and measures for voluntary and mandatory water use restrictions and describe how these will be implemented. There should be a mechanism in place to tie water use restrictions to streamflow and/or surface water levels in the affected basin(s) where this information is available.

- AWD developed a drought management plan during development of its Water Conservation Plan. The drought management plan was prepared based on guidance from the AWWA's Manual of Water Supply Practices M60: Drought Preparedness and Response (2011), and the Massachusetts Drought Management Plan (DMP) (September 2019, EEA).
- AWD's Superintendent will be responsible for monitoring of precipitation and groundwater levels and responsible for determining when to impose and when to modify drought action levels. AWD's drought plan describes specific response actions corresponding to each drought trigger level. The triggering of these levels is not described in detail and appears to be left up to the Superintendent's judgement. Water use restrictions for AWD's drought levels are not clearly defined at each level and are less stringent than those in the 2019 MA DMP. AWD must determine and describe thresholds to clarify when water use restrictions will be enacted. AWD must also match its local restrictions to, at a minimum, those described in the MA DMP.
- AWD's drought plan states that at a minimum, AWD must comply with state-mandated drought response actions when a drought is declared by the Secretary of EEA, and will follow the state guidance on nonessential outdoor or other water-use restrictions at the various drought levels.
- Since AWD's emergency source is an interconnection with the City of Worcester, AWD must comply with the same in-city bans or water use restrictions as Worcester. The purchasing public water supplier (i.e., AWD) must enforce the restrictions on their customers when they are more stringent than AWD's.

7) All government and other public buildings under the control of the proponent should have been retrofitted with water saving devices.

- AWD is not a municipality; therefore, it does not have the authority to regulate or enforce water audits and plumbing inspections in municipal buildings. It is recommended that AWD makes efforts to work with the Town of Auburn to the extent possible to encourage these retrofits.

8) If the community's residential gallons per capita per day (rgpcd) is greater than 65, the proponent should be implementing a comprehensive residential conservation program that seeks to reduce residential water use.

- AWD's rgpcd has been below 65 for more than the past five years. The five-year average is 61 rgpcd.

9) A broad-based public education program, which attempts to reach every user at least two times per year, through such means as mailings, billboards, newspaper articles, cable television announcements or programs, or the use of other media, should be in place.

- AWD participates in public education programs to promote water conservation and awareness (e.g., nonessential outdoor water use), including school seminars, Boy Scouts' program, and a program for the fire department.
- Additionally, in an effort to maintain the rgpcd at less than 65, and promote water conservation and awareness, the AWD's website has a "Ways to Conserve" page with some basic guidance on how to conserve water. The page, located here, is in the process of being updated: <http://www.auburnwater.com/pages/conserves.htm>.

- In an attempt to reach every user twice a year, AWD must implement an approach that is more widespread than the public education programs noted above, which only reach a subset of users. Examples include annual or bi-annual mailings included in water bills and/or posts on social media.
- AWD must also link to the state water conservation website (<https://www.mass.gov/conservemawater>) and use those resources for more targeted water conservation tips, tools, and messaging.

10) A program which identifies and ranks all industrial, commercial, and institutional (ICI) customers according to amount of use and requires regular contact with the largest users to promote water conservation, should be in place. Materials on water reuse and recirculation techniques should be provided, where appropriate.

- AWD has not implemented a formal conservation program for ICI customers; however, all customers must follow the same odd/even non-essential water ban from May to September and other MassDEP-imposed water restrictions.
- AWD has compiled a list of its highest water users.
- AWD should continue to monitor water use on its metering system for high usage and suspected leaks and notify the users as needed. AWD must more proactively reach out to the top users to direct them to EPA's WaterSense website that has information regarding conservation strategies applicable to the top users (such as hotels, restaurants, retail, etc.) to help emphasize the importance of water conservation and encourage the same.

11) A program of land use controls to protect existing water supply sources of the receiving area that meets the requirements of MassDEP should be in place.

- The Town's existing Aquifer and Watershed Protection Bylaw is being updated in accordance with MassDEP's Model Groundwater Protection District Bylaw, 2011. This will maximize the effectiveness of the Water Conservation Plan and set controls to protect AWD's existing supply sources.
- AWD must provide the updated Aquifer and Watershed Protection Bylaw when complete to MassDEP for review and approval.

12) There should be a long-term water conservation program, which conforms with the 2018 Water Conservation Standards for the Commonwealth of Massachusetts and is informed by analysis of AWD's water use data. The program should include but not be limited to an indoor and outdoor component, a water loss control program, and the development of water rates that provide incentives for water efficiency. The program should also include a public outreach and education component. The program should be documented in written form and updated regularly or at a minimum after each significant drought event.

- AWD completed a written water conservation plan in July 2021 which was submitted as part of the FEIR.
- AWD must continue to implement its water loss control program to remain at or below 10% UAW, and review and revise the program as needed in accordance with standard industry best management practices.
- Review of the DEIR, FEIR, and supplemental information, in addition to the information evaluated above in performance standards 1 through 10, indicates that this standard is largely met, except for user-friendliness of bills, local drought plan water use restrictions,

public education and outreach, and ICI usage, all of which are specified as Conditions in this Decision.

- AWD's rgpcd is below 65. The five-year average is 61 rgpcd. AWD must continue its successful efforts to remain at that level or below.

Notwithstanding the above assessment, the WRC recognizes that in certain cases, local conditions may prevent a proponent from meeting or exceeding the "yardstick" that has been described in ITA guidance, even after a substantial effort has been made. In these cases, the proponent should explain why that standard cannot be met, demonstrate an alternate method of meeting the intent of the standard, and document any efforts that have been undertaken in order to comply with the standard. Therefore, the standards are presented as presumptions that can be rebutted in cases where local conditions or other extenuating circumstances must be taken into consideration.

#### Summary of Water Conservation Criterion

Based on the information evaluated in performance standards 1 through 12 above, the WRC finds that the water conservation Criterion of the ITA will be met upon implementation of conditions.

#### **Criterion #4: Forestry Management Program**

This Criterion requires that a comprehensive forestry management program has been implemented on any watershed lands with surface water sources serving the receiving area (AWD) and under the control of the receiving area. AWD only has groundwater sources; therefore, this Criterion is not applicable to this proposal.

#### **Criterion #5: Reasonable Instream Flow and Criterion #7: Cumulative Impacts**

AWD is proposing to purchase up to 0.54 MGD of water from Worcester. Criterion #5 requires that "reasonable instream flow in the river from which the water is transferred is maintained". In addition, per Criterion #7 the WRC must consider the "cumulative impacts of all past, authorized or proposed transfers on streamflows, groundwater, lakes, ponds, reservoirs or other impoundments in the Donor Basin and relevant sub-basins".

The ITA regulations (313 CMR 4.09(3)(e)) direct the WRC to consider "the impact of the proposed action to increase the Present Rate of Interbasin Transfer on the streamflow dependent ecosystems and water uses and the potential to affect instream values" in making its decision to approve or deny an Interbasin Transfer request. In this case, the WRC evaluated the impacts of transferring 0.36 MGD on Worcester's Nashua River Basin water supply sources, which include impacts to reservoir levels, drought levels, low flows, intermediate flows, and high flows, taking into consideration existing flow alterations. In addition, the cumulative impacts of the AWD transfer combined with other recently approved transfers were evaluated. These transfers include the Cherry Valley and Rochdale Water District (CVRWD) ITA transfer of up to 0.41 MGD from the Nashua River Basin, which was determined in 2015 by the WRC to be Insignificant. In its analysis of these Criteria, the WRC relied on data and information provided in preapplication meetings, in the AWD DEIR, FEIR, and previous ITA reviews and WRC Decisions. Streamflow data for the analysis were obtained from the U.S. Geological Survey.

## Background

The City of Worcester's water supply system is comprised of eleven surface water reservoirs located in the Nashua and Blackstone River basins with drainage areas totaling 40.74 square miles and over 7 billion gallons in storage. The oldest of the reservoirs still in use (Lynde Brook Reservoir) was built in 1864 and the newest (Quinapoxet Reservoir) in 1953.

Worcester has two groundwater sources (Coal Mine Brook and Home Farm Well) that have not been used for many years and are retained as emergency supplies. In addition, Worcester is able to purchase raw water from the Massachusetts Water Resources Authority (MWRA) during emergencies such as droughts when the capacity of the system is less than 50%. This has happened approximately every 20 years, most recently in 2016.

The proposed interbasin transfer will be from Worcester's Nashua River Basin reservoirs. These include Asnebumskit Pond, Pine Hill Reservoir, Kendall Reservoir, and Quinapoxet Reservoir. Under normal operating conditions, water from the Nashua River Basin reservoirs is transferred out of Kendall Reservoir to Holden Reservoir #1 in the Blackstone River Basin. When the capacity of a given reservoir exceeds 100%, excess water is discharged downstream (to the Nashua Basin) via passive (uncontrolled) spillways to Asnebumskit Brook and the Quinapoxet River, which flows into the Wachusett Reservoir. Worcester does not perform controlled releases from its reservoirs and the Quinapoxet River and Asnebumskit Brook receive direct flows from the reservoirs only when the capacity of the reservoirs is exceeded; at other times, seepage from the reservoirs and other surface or groundwater sources contribute base flows to the waterways. The proposed transfer will therefore only impact downstream streamflow when the reservoirs are actively spilling.

Worcester operates the reservoir system based on capacity, not demand, with the goal of keeping the reservoir system as full as possible throughout the year. Pine Hill Reservoir has the largest storage, but fills more slowly than Quinapoxet Reservoir because of its smaller upstream watershed. Thus, Quinapoxet Reservoir is a preferred summer source given its faster fill time. As a reservoir reaches 100% capacity, water may be transferred to other reservoirs in the network prior to spilling. In some instances, a reservoir may be held at 100% capacity for days or weeks prior to spilling as internal transfers are made. The Worcester reservoir system operations will not change as a result of the proposed AWD interconnection.

Worcester's average demand from 2009 to 2018 (the period of streamflow analysis) was 21.9 MGD. Current demand is lower than historical (for example, average day demand in 1988 was 26.78 MGD). The new interconnection will slightly increase demand. Worcester's authorized WMA volume is 29.5 MGD.

## Streamflow Analysis

### *Characterization of Existing Flow from Reservoirs*

The analysis characterized the existing reservoir flow by using historical spilling data (estimated weir discharge using weir data and equations) from Pine Hill, Kendall, and Quinapoxet Reservoirs. Asnebumskit Pond was not evaluated because Worcester does not estimate weir discharge from the Pond since it feeds directly into Pine Hill Reservoir. Reservoir flow (i.e., estimated weir discharge) from 2009-2018 was provided by Worcester to AWD's consultant.

These years included both dry and wet periods. Monthly mean reservoir flows were calculated and included in the FEIR. Annual exceedance curves of reservoir flow were plotted by the consultant and provided in the FEIR for each of the three reservoirs in addition to monthly exceedance curves of reservoir flows. Hydrographs of reservoir flows were provided for each of the reservoirs for the years 2009-2018 as well as plots of reservoir capacities over the same time period and the number of “no-spill” days by month.

*Characterization of Potential Flow from Reservoirs, Changes in Reservoir Capacity, and Changes in Frequency and Duration of Spilling Events*

An analysis of potential reservoir flow from the Nashua River Basin reservoirs was performed by AWD’s consultant. Potential reservoir flow as a result of the proposed interbasin transfer was characterized by subtracting the potential daily withdrawal from each reservoir from the historical reservoir flow data. If the resulting flow was less than zero (i.e., not spilling), potential reservoir flow was assigned a value of zero and additional “no-spill” days were accounted for. The additional impact of the increased withdrawal over time when the reservoirs were not spilling (i.e., periods of emptying or filling) was also characterized and the potential resulting daily reservoir capacities were provided in the FEIR. Potential maximum daily withdrawal from the Nashua River Basin from the proposed AWD interconnection is 0.36 MGD plus 0.41 MGD from the approved CVRWD withdrawal for a total of 0.77 MGD or 1.19 cubic feet per second (cfs). Potential daily maximum withdrawals were apportioned to each of the Nashua River Basin reservoirs based on contributing drainage area: Kendall Reservoir 6.1%, Pine Hill 24.0%, Quinapoxet 69.9%. Contributing drainage area was used rather than storage as it is a better proxy to estimate potential reservoir inflow and subsequent refill rates.

As with the characterization of the existing flows from the reservoirs, the characterization of potential flows from each of the reservoirs were provided in the FEIR including monthly mean reservoir flows, the annual exceedance curves, monthly exceedance curves, and hydrographs for the time period from 2009-2018 as well as reservoir capacities for the same time period and the number of potential “no-spill” days by month.

*Changes in Reservoir Flow*

The following table adapted from the FEIR shows the existing, potential, and change in “no-spill” days over the 10-year period of analysis.

Month	Total # Days	Quinapoxet			Pine Hill			Kendall		
		Existing “no-spill” days	Potential “no-spill” days	Change “no-spill” days	Existing “no-spill” days	Potential “no-spill” days	Change “no-spill” days	Existing “no-spill” days	Potential “no-spill” days	Change “no-spill” days
Oct	310	264	264	-	298	298	-	307	307	-
Nov	300	240	240	-	273	273	-	252	252	-
Dec	310	183	187	4	273	273	-	251	251	-
Jan	310	189	189	-	282	282	-	298	298	-
Feb	282	192	195	3	268	268	-	265	265	-
Mar	310	105	108	3	220	220	-	229	230	1
Apr	300	60	60	-	186	189	3	177	180	3
May	310	96	96	-	291	291	-	267	267	-
June	300	207	207	-	276	276	-	300	300	-
July	310	273	273	-	310	310	-	310	310	-
Aug	310	276	277	1	310	310	-	304	304	-
Sept	300	264	264	-	300	300	-	300	300	-
Total	3652	2348	2359	11	3287	3290	3	3259	3263	4
% Days	-	64.3%	64.6%	0.3%	90.0%	90.1%	0.1%	89.2%	89.3%	0.1%

Table 1. Comparison of Existing (Historical) vs. Potential “No Spill” Days for Worcester’s Nashua River Basin reservoirs from 2009-2018 (adapted from Table 3-14 in FEIR)

It is estimated that there would have been an additional 18 “no-spill” days from the Nashua River Basin reservoirs over the 10-year analysis period. The analysis in the FEIR concluded the highest consecutive number of additional “no-spill” days is three and at least one other Nashua River Basin reservoir was flowing during 10 of the 18 potential additional “no-spill” days to supplement and maintain downstream streamflow. Seventeen of the 18 “no-spill” days occur during months where historical streamflows are high (i.e., December to April). Most of the “no-spill” days are expected to occur during these months of higher streamflows because the reservoirs are typically operated to drawdown during the summer and through the fall, then refill during the winter and spring.

As summarized in the table above, existing “no-spill” days for the Nashua River Basin reservoirs during the 10-year analysis period as a percentage of total days are: 64.3% (Quinapoxet), 90% (Pine Hill), and 89.2% (Kendall). The proposed transfer could marginally increase the number of no-spill days by 0.3% (Quinapoxet), 0.1% (Pine Hill), and 0.1% (Kendall).

Comparisons of existing and potential reservoir exceedance curves (annual and monthly) provided in the FEIR show there are minimal to no expected differences in reservoir flow from July through November because the reservoirs generally spill infrequently during these months, i.e., the reservoirs are typically operated to drawdown during the summer and through the fall, then refill during the winter and spring. Given the proposed withdrawals from each reservoir are small relative to typical reservoir flow (i.e., spillway discharges), exceedance frequency changes between existing and potential reservoir flows are typically significantly less than 1%. The largest observable difference occurs at the Quinapoxet Reservoir in December; existing reservoir flow occurs 41.1% of the time versus potential reservoir flow occurring 39.8% of the time, a 1.3% difference.

The existing and potential annual hydrographs for each of the Nashua River Basin reservoirs over the 10-year analysis period show there is no noticeable change in seasonal reservoir flow patterns in any year from the proposed transfer.

The flow characterization and analysis of potential changes in reservoir flows show the difference between existing and potential mean reservoir flow for each month ranges from just 0.0 cfs to -2.16 cfs (in December at Quinapoxet Reservoir). The largest potential differences generally occur during months when streamflow is expected to be high and reservoir flows are occurring more frequently after the reservoirs have typically filled (e.g., December through May). There are little-to-no expected differences in mean reservoir flow during the summer and fall months (i.e., July through November). The reservoirs typically draw down and don't spill during the summer months unless there is a period of above-normal precipitation.

#### *Downstream Flow Analysis- Confluence of Asnebumskit Brook and Quinapoxet River*

AWD's consultant analyzed flow data from the confluence of the Asnebumskit Brook and Quinapoxet River to characterize historical instream flows and potential instream flows. Discharges from the Nashua River Basin reservoirs join at this point. As mentioned before, reservoir flow data from 2009-2018 were provided by Worcester. Streamflow data from United States Geological Survey gage 01095375 located approximately 1.5 miles downstream on the Quinapoxet River during the same time period were used for the streamflow analysis and adjusted for watershed size. Annual exceedance curves for existing and potential streamflows were provided in the FEIR as well as monthly exceedance curves for existing and potential streamflows. Potential streamflows were calculated by subtracting the AWD/CVRWD withdrawal apportioned across the Nashua River Basin reservoirs from historical streamflow data for those days presumed to have reservoir flow as estimated by the consultant and described in the section above.

#### *Low Flows*

The FEIR provided an evaluation of potential changes to extreme low-flow periods based on 7-day low flow statistics and exceedance curves. There is no change expected in low flow statistics at the confluence of the Quinapoxet River and Asnebumskit Brook because the Nashua River Basin reservoirs do not spill during these low flow periods. The seven-day two-year low flow and the seven-day ten-year low flow values are expected to be exceeded 95.1% and 99.8% of the time, respectively, under potential conditions, and the 95% exceedance flow of 3.27 cfs over the 10-year analysis period is expected to be maintained under potential conditions.

#### Drought Analysis

##### *2016 Drought*

In response to state agency comments submitted on the DEIR, the FEIR included a more detailed analysis relative to potential changes in the frequency, duration, and timing of reservoir flow and downstream streamflow relative to the drought of 2016 (June 2016 through May 2017). This drought occurred during the analysis period and was a significant drought.

##### *Reservoir Flows- 2016 Drought*

Monthly average existing and potential reservoir flows were evaluated for the 2016 drought. Additional "no-spill" days that potentially could have occurred during the drought were

identified. Hydrographs of existing and potential reservoir flows during the ten-year analysis period, which included the 2016 drought, were provided in the FEIR.

Analysis of monthly average reservoir flows during the drought of 2016 show there are no expected changes in average flow from the Pine Hill and Kendall Reservoirs. From June 2016 through January 2017 there are no changes in average flow from the Quinapoxet Reservoir. A difference in the average flow of -0.83 cfs could have occurred in the months of March, April, and May 2017 at the Quinapoxet Reservoir. The largest potential change of -6.92 cfs occurred in February 2017 because of an additional “no-spill” day at the Quinapoxet Reservoir.

#### *Streamflows at Confluence- 2016 Drought*

Monthly median streamflows at the confluence of the Quinapoxet River and Asnebumskit Brook during the 2016 drought were evaluated in the FEIR. The FEIR provided a hydrograph of existing and potential streamflow for the time period that included when streamflow was most impacted during the drought- June 2016 through October 2016.

It is expected that there would have been no change in monthly median streamflow from June 2016 through February 2017. The only expected minor changes are in March 2017 through May 2017 (-0.83 cfs). During the drought, the lowest recorded streamflow at the confluence point was approximately 1.1 cfs on August 9, 2016. Since no reservoirs were flowing at that time (and there were no potential additional “no-spill” days), there is no difference in existing and potential streamflow. The Quinapoxet Reservoir did not recommence spilling until February 2017. It is also notable that none of the three Nashua River Basin reservoirs spilled during the 2016 drought for a period of eight months from June 2016 through February 2017. Streamflow was maintained at the confluence for this entire period and ranged from a low of 1.1 cfs on August 9, 2016 to a high of 84.39 cfs on October 22, 2016.

#### *Drought- Safe Yield and Potential Drought Conditions*

The FEIR documented that the safe yield of the Worcester’s Nashua River Basin system is sufficient to meet the proposed interbasin transfer request. Note that the City of Worcester’s Drought Plan (i.e., Emergency Supply Plan) is based on operation of all reservoirs (Nashua and Blackstone). Therefore, the FEIR drought analysis was based on all reservoirs in the system.

#### *Safe Yield*

Worcester’s water supply sources in the Blackstone and Nashua River Basins have a combined safe yield of 29.5 MGD. Worcester’s existing average day demand from the last 10 years (2009-2018) is approximately 21.9 MGD, less than the approved safe yield of the system. The proposed increased withdrawals from the AWD and CVRWD is 3.9% of the system safe yield. If both districts were to use the maximum allowable withdrawal, this would result in an overall demand of approximately 23 MGD, still lower than the safe yield.

#### *Emergency Supply Plan*

Worcester’s Emergency Supply Plan is not only a guideline for droughts, but for all water supply emergencies. It includes water use restrictions and water bans that are implemented in four stages based on reservoir capacity. As a general operating guideline, when Worcester’s water supply capacity approaches 50%, the Shaft 3 Pump Station (MWRA raw water supply) can be

activated to alleviate the strain on Worcester's reservoir system. During the summer of 2016 Worcester reached a Stage 3 drought level and activated the Shaft 3 connection (MWRA raw water supply) for the first time in 20 years. Worcester has never reached a Stage 4 drought level.

#### *Evaluation of Reservoir System*

The FEIR provided an evaluation of Worcester's reservoir system performance relative to capacity for both historical and proposed conditions and included an evaluation of historical and proposed performance during the 2016 drought. It is expected that withdrawals from AWD and CVRWD would have an almost imperceptible impact on overall long-term monthly reservoir storage.

The comparison of existing versus potential reservoir performance during the 2016 drought showed that the proposed cumulative increased withdrawal each month could have caused the reservoir system to potentially approach 50% capacity in mid-September 2016 as compared to what occurred in 2016 when the system approached 50% capacity later in September. Therefore, the Shaft 3 connection may need to be activated slightly sooner during extreme drought conditions.

#### State-Listed Species and Habitats Protected under the Massachusetts Endangered Species Act

According to the Natural Heritage and Endangered Species Program (NHESP), the Pine Hill Reservoir, Quinapoxet River, and Asnebumskit Brook contain Priority and Estimated habitat for four state-listed Species of Special Concern, including the Common Loon (*Gavia immer*), Wood Turtle (*Glyptemys insculpta*), Brook Snaketail (*Ophiogomphus asperses*) and Eastern Whip-poor-will (*Antrastomus vociferous*). In addition, Asnebumskit Brook and the Quinapoxet River, which receive flow from the Pine Hill, Kendall, and Quinapoxet Reservoirs, provide habitat for 14 warm- and cold-water fish species, including five that are listed in the Massachusetts State Wildlife Action Plan (SWAP) submitted to the U.S. Fish and Wildlife Service in 2015. The SWAP identifies the 570 species of greatest conservation need in the Commonwealth, the 24 types of habitat that support these species, and the actions necessary to conserve them.

The project consultant and WRC staff worked closely with MassWildlife to address questions raised during the review of the DEIR. In addition to the flow characterization and additional no-spill-days analyses described above, the FEIR provided MassWildlife with comparisons of the existing and proposed conditions to estimated unimpacted flow.

The spill and streamflow analysis under existing and proposed conditions of Asnebumskit Brook and the Quinapoxet River determined that the proposed withdrawal of water for the AWD and CVRWD would not exacerbate low flow conditions in those waterways. According to NHESP, the analysis documented that the Quinapoxet watershed is impacted by existing streamflow alterations within the basin, but that the increased alteration due specifically to the additional withdrawal for the AWD and CVRWD is not anticipated to result in a Take of rare species or require a Conservation and Management Permit (CMP).

### Summary & Conclusion of Reasonable Instream Flow and Cumulative Impacts Analysis

- It is expected that the proposed interconnection will have minimal impact on the duration and number of “spill” versus “no-spill” days.
- There is little-to-no expected change in mean monthly reservoir flow resulting from the proposed transfer.
- There is little-to-no expected change in the exceedance frequency or magnitude of monthly reservoir flow resulting from the proposed transfer.
- There is little-to-no expected change in seasonal reservoir flow patterns resulting from the proposed transfer.
- There is little-to-no expected change in monthly median streamflows resulting from the proposed transfer.
- There is little-to-no expected change in the exceedance frequencies of streamflow at any magnitude resulting from the proposed transfer.
- Potential increased withdrawals from the proposed transfer are not expected to impact extreme low-flow conditions as reservoirs are not flowing during extreme low streamflow time periods.
- Potential increased withdrawals are not expected to impact drought conditions as reservoirs generally will not be flowing during the portion of the drought with the lowest streamflow.
- It is expected that Worcester's reservoir system is sufficient to meet the proposed transfer request.
- It is anticipated that the increase in interbasin transfer due to AWD's request will not conflict with state-listed species protected under MESA.

### **Criterion #6: Impacts of Groundwater Withdrawals**

Worcester's sources are surface water sources. This Criterion is not applicable to this proposal.

### EXECUTIVE ORDER 385

This Decision is consistent with Executive Order 385, which has the dual objective of resource protection and sustainable development. This Decision does not encourage growth in areas without adequate infrastructure nor does it cause a loss of environmental quality or resources.

### CONDITIONS FOR APPROVAL

Based on the analyses of this project, the approval of AWD's application under the ITA to purchase water from the City of Worcester is subject to the following conditions. **AWD must commit in writing within 45 days of the approval to abide by all conditions required by the approval of this transfer.**

1. AWD must limit its purchase of water from the City of Worcester to a maximum of 0.54 MGD. WRC staff may periodically monitor AWD's DEP Annual Statistical Reports to verify this amount is not exceeded.
2. Worcester has agreed to a maximum use of the interconnection by AWD of 12 hours per day for 365 days of the year at a rate of 750 gpm, which translates to 0.54 MGD. If there is any change in the agreement between AWD and Worcester, AWD must notify the

WRC. Any increase in the rate of interbasin transfer is subject to the ITA and will require WRC approval.

3. To attain compliance with Performance Standards for rates and billing under Criterion #3 - Water Conservation - AWD bills must be redesigned within one year to include customer usage in gallons and trend or comparison data.
4. To attain compliance with Water Conservation Standard #6 - a drought/emergency contingency plan, AWD must revise its drought management plan to more clearly describe the procedure for triggering thresholds and clarify when water use restrictions will be enacted. AWD must also match local water use restrictions to those described in the 2019 MA DMP, and submit the revised drought plan to the WRC within two years. In addition, AWD must comply with the same water use restrictions/bans as the City of Worcester.
5. To attain compliance with Water Conservation Standard #9 - a broad based public education program, AWD must make efforts to reach every user at least two times per year by implementing a widespread approach, examples of which include annual or bi-annual mailings included in water bills and/or posts on social media. AWD must also link to the state water conservation website (<https://www.mass.gov/conservemawater>) and use those resources for more targeted water conservation tips, tools, and messaging.
6. To complete compliance with Water Conservation Standard #10 - Industrial, Commercial, and Institutional (ICI) Use, AWD must continue to monitor water use on its metering system for high usage and suspected leaks, and notify the users as needed. AWD must reach out annually to the top users to direct them to EPA's WaterSense website that has information regarding conservation strategies applicable to the top users (such as hotels, restaurants, retail, etc.) to help emphasize the importance of and encourage implementation of water conservation.
7. AWD must provide the Town of Auburn's updated Aquifer and Watershed Protection Bylaw to MassDEP for review and approval once it is complete.
8. To complete compliance with Water Conservation Standard #12 - A long-term water conservation program, AWD must:
  - a. continue to implement its water loss control program to remain at or below 10% UAW and review and revise the program as needed in accordance with standard industry best management practices. Elements of a water loss control program can be found in the 2018 MA Water Conservation Standards and EPA guidance. Water loss control strategies can be found in the AWWA guidance associated with M36 Audits.
  - b. continue its successful efforts to keep rgpcd below 65. The five-year average is 61 rgpcd.
  - c. provide annual summaries of progress and make all documents available upon request to WRC staff for review.

