



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

100 Cambridge Street Suite 900 Boston, MA 02114 • 617-292-5500

Maura T. Healey
Governor

Kimberley Driscoll
Lieutenant Governor

Rebecca L. Tepper
Secretary

Bonnie Heiple
Commissioner

May 3, 2024

Hans Keijser, Water Supply Division Supervisor
Town of Barnstable
47 Old Yarmouth Rd
Hyannis, MA 02601

Town: Barnstable
PWS ID# 4020004
WMA Permit #: 9P-4-22-020.04
Program: Water Management Act
Action: FINAL Permit Renewal

Dear Mr. Keijser:

Please find the following attached:

- FINAL Findings of Fact in Support of the renewal of Permit #9P-4-22-020.04; and
- FINAL Water Management Act Permit #9P-4-22-020.04 to the Hyannis Water System, Town of Barnstable.

If you have any questions concerning this permit, please contact Julie Butler at (781) 742-8467 or Julie.Butler@mass.gov.

Sincerely,

Duane LeVangie
Water Management Program
Bureau of Water Resources

ecc: Anne Carroll, MassDCR OWR
Jim McLaughlin, MassDEP-SERO
Kristy Senatori, Cape Cod Commission
Jennifer Pederson, MWWA
Julia Blatt, Mass Rivers Alliance
Misty-Anne Marold, MassDFG NHESP
Jason Zimmer, MassDFW
Mark Ells, Barnstable Town Manager
Andrew Gottlieb, Association to Preserve Cape Cod
Kirsten Ryan, Kleinfelder

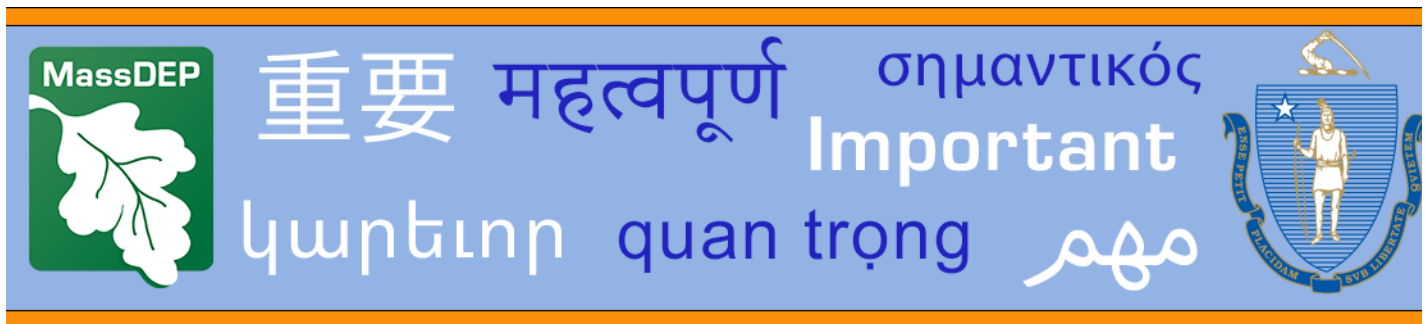
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如需對本文檔進行翻譯，請透過如下列示電話號碼與 MassDEP 的環境司法總監聯絡。

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Việt Vietnamese

Tài liệu này và quan trọng và phải được dịch ngay. Nếu quý vị cần bản dịch của tài liệu này, vui lòng liên hệ với Giám Đốc Phòng Công Lý Môi Trường của MassDEP theo số điện thoại được liệt kê bên dưới.

ប្រទេសកម្ពុជា Khmer/Cambodian

ឯកសារនេះមានសារៈសំខាន់
ហើយគួរត្រូវបានបកប្រែភ្លាមៗ។
ប្រសិនបើអ្នកត្រូវការអោយឯកសារនេះបកប្រែ
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MassDEPតាមរយៈលេខទូរស័ព្ទដែលបានរាយដូចខាងក្រោម។

Kriolu Kabuverdianu Cape Verdean

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Contact Deneen Simpson 857-406-0738

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العربية Arabic

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한국어 Korean

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հայերեն Armenian

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فارسی Farsi Persian

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Ελληνική Greek

Το έγγραφο αυτό είναι πολύ σημαντικό και πρέπει να μεταφραστεί αμέσως. Αν χρειάζεστε μετάφραση του εγγράφου αυτού, παρακαλώ επικοινωνήστε με τον Διευθυντή του Τμήματος Περιβαλλοντικής Δικαιοσύνης της Μασαχουσέτης στον αριθμό τηλεφώνου που αναγράφεται παρακάτω

Italiano Italian

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Język Polski Polish

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हिन्दी Hindi

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Contact Deneen Simpson 857-406-0738

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Findings of Fact in Support of Water Management Permit #9P-4-22-020.04 Hyannis Water System, Town of Barnstable

The Department of Environmental Protection (“MassDEP” or “the Department”) has completed its review of the Town of Barnstable’s Hyannis Water System (“Hyannis”) Water Management Act (WMA) permit renewal application. This review was conducted in regard to the permit for Hyannis to withdraw water from the Cape Cod Basin. The Department hereby issues Water Management Permit #9P-4-22-020.04 (the “Permit”) in accordance with the Water Management Act (M.G.L. c. 21G) and the regulations promulgated thereunder at 310 CMR 36.00. The Department makes the following Findings of Fact in support of the attached Permit and includes herewith its reasons for issuing the Permit and for the conditions of approval imposed, as required by M.G.L. c. 21G, § 11, and 310 CMR 36.00. The Permit is being issued since such action is necessary for the promotion of the purposes of M.G.L. c. 21G. The Department may modify, suspend or terminate the Permit, after notice and hearing, for violations of its conditions, of M.G.L. c. 21G, or of regulations adopted or orders issued by the Department, and when deemed necessary for the promotion of the purposes of the Water Management Act.

Withdrawal Description and History

Hyannis currently operates 12 groundwater wells within the Cape Cod Basin, as shown in Table 1 of the Permit. Hyannis holds WMA Registration # 4-22-020.13, which was originally issued February 17, 1989 and allocates 2.71 million gallons per day (MGD) from the Cape Cod Basin. All of Hyannis’s groundwater sources are registered except the Straightway #2 (4020004-12G).

Hyannis’s permitting history is as follows:

Original Permit, February 1, 1992: Hyannis’s original permit authorized an additional 0.54 MGD in Period 1 of the permit (through 11/30/1995), increasing to 0.71 MGD by Period 4 (12/1/2005 through 11/30/2010), for a total authorized withdrawal volume of 3.42 MGD. Along with conditions common to all PWS permits, this permit required monitoring of wetlands at the Maher wellfield and set a combined monthly average withdrawal limit from each of Hyannis’s three well clusters (Maher wellfield, Mary Dunn Pond area, and Airport wellfield).

Amended Permit, March 29, 1993: This amendment was the result of a permit appeal (by Hyannis) and a subsequent settlement agreement. The amendment added conditions requiring water-level monitoring in the Hyannis Ponds Complex, and flora and fauna monitoring at Mary Dunn Pond, and a prohibition of recreational vehicle use on trails around Mary Dunn Pond. In addition, the permit modified the combined monthly withdrawal limits of the original permit by

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distinguishing “on season” (June through August) and “off season” (September through May) rates.

Amended Permit, May 7, 1997: This amendment included the following changes: addition of the DEP-approved Zone II pumping rates at each groundwater source’s authorized daily withdrawal volume; removal of seasonal withdrawal limits at the Maher and Airport wellfields; a reduction in water-level monitoring requirements; and a minor modification to the permit’s water conservation requirements.

Amended Permit, April 12, 1999: This amendment added Hyannis’s 12th groundwater source, named Straightway #2 (4020004-12G). No other changes were made.

Amended Permit, March 16, 2004: This permit amendment removed the wetlands monitoring at the Maher wellfield. In addition, water level monitoring requirements at the Hyannis Ponds Complex were reduced (namely, Flint Rock Pond, Lewis Pond and the HW-2 well cluster were phased out). The fauna monitoring in and around Mary Dunn Pond was also modified by reducing the frequency of Odonate (dragonfly) species monitoring. The permit added conditions requiring the following: meeting Basin Performance Standards (including 80 residential gallons per capita day (RGPCD) and 15% Unaccounted for Water (UAW)); an Enhanced Water Conservation Plan; reporting of both raw and finished withdrawal volumes in Hyannis’s ASRs; and minimizing environmental impacts pursuant to MEPA Chapter 30 Section 61 findings.

Amended Permit, April 12, 2007: This amendment expanded the Water Conservation Requirements condition and removed the Enhanced Water Conservation Plan condition. The permit also included a transfer from the Barnstable Water Company to the Hyannis Water System.

Hyannis’s 2007 permit was set to expire on November 30, 2010. However, as a result of legislative actions the permit was extended (see “Permit Extensions” below), and Hyannis’s existing permit continues in force and effect until the Department issues a final decision on the permit renewal application. Prior to issuance of the extensions, Hyannis did file a WMA permit renewal application (dated September 10, 2010), in which it requested a renewal volume of 3.25 MGD based on a 2010 Water Needs Forecast (WNF) developed by the Department of Conservation and Recreation (DCR). This volume of 3.25 MGD reflects a 0.17 MGD reduction from its previously authorized volume of 3.42 MGD.

On April 15, 2015, the Department sent Hyannis a Permit Renewal Order to Complete that outlined additional information necessary for Hyannis to complete the Cape Cod Basin permit renewal process. After email correspondence and a meeting with the Department about the renewal in 2016, Hyannis was forced to turn its attention to pressing public health and safety concerns, such as 1,4-dioxane and PFAS contamination. These concerns led to the purchase of water from Yarmouth and a new source exploration effort in the Mary Dunn Pond area, which involved a USGS groundwater modeling study and collaboration with the Massachusetts Division of Fisheries and Wildlife.

In the fall of 2021 Hyannis reached out to the Department to resume its WMA permit renewal process, and it responded to the Department’s Order to Complete on October 4, 2021. The response indicated that Hyannis wished to maintain its authorized withdrawal volume request of 3.25 MGD in its 2010 permit renewal application. However, upon further discussion of potential mitigation requirements, Hyannis decided to limit its authorized withdrawal volume at this time to its baseline withdrawal volume of 2.89 MGD, with the possibility through a permit

amendment to increase up to 3.25 MGD (see discussion on Special Condition 1 and “Mitigation of Impacts for Withdrawals that Exceed Baseline”, below).

This permit renewal does not authorize a change in withdrawal sources. As detailed below (see “Findings of Fact for Special Permit Conditions”), the permit does make the following changes: lowers the authorized annual average withdrawal volume (Special Condition 1); removes the seasonal withdrawal rate restriction (formerly Special Condition 3) and performance standard requirements (formerly Special Condition 9); modifies the flora and fauna monitoring, water-level monitoring, recreational use of the pond shore area, UAW performance standard, and water conservation conditions (Special Conditions 5, 6, 7, 8 and 10, respectively); and adds a condition requiring outdoor water-use restrictions (Special Condition 9), which is based on the 2014 Water Management Regulation revisions.

Permit Extensions

Hyannis’s original Cape Cod Basin permit (later amended) was issued on February 1, 1992 and was originally set to expire on November 30, 2010. The Department accepted a renewal application from Hyannis dated September 10, 2010, and later issued a one-year interim permit until November 30, 2011, to continue operation while the permit renewal review was ongoing. The Department published notice of the permit renewal application in the Environmental Monitor on September 22, 2010.

The expiration dates for all Water Management permits were later extended for four years by Chapter 240 of the Acts of 2010, as amended by Chapter 238 of the Acts of 2012, collectively known as the Permit Extension Act. In addition, in a letter dated September 25, 2015, the Department informed Hyannis that the Department would need additional time before making a determination on the application in order to ensure that all permit renewal applicants in the Cape Cod Basin fully understood the new Water Management Regulations (discussed below), and to give proper consideration to all permit renewal applications within the basin. Pursuant to M.G.L. c. 30A, § 13, and 310 CMR 36.18(7), Hyannis’s existing permit continues in force and effect until the Department issues a final decision on the permit renewal application. The expiration date for all permits going forward in the Cape Cod Basin will be March 6, 2032, in order to restore the staggered permitting schedule set forth in the regulations.

The Water Management Act (M.G.L. c. 21G)

The WMA requires the Department to issue permits that balance a variety of factors including without limitation:

- Impact of the withdrawal on other water sources;
- Water available within the safe yield of the water source;
- Reasonable protection of existing water uses, land values, investments and enterprises;
- Proposed use of the water and other existing or projected uses of water from the water source;
- Municipal and Massachusetts Water Resources Commission (WRC) water resource management plans;
- Reasonable conservation consistent with efficient water use;
- Reasonable protection of public drinking water supplies, water quality, wastewater treatment capacity, waste assimilation capacity, groundwater recharge areas, navigation,

hydropower resources, water-based recreation, wetland habitat, fish and wildlife, agriculture, flood plains; and

- Reasonable economic development and job creation.

Water Management Regulation Revisions

In 2010 the Executive Office of Energy and Environmental Affairs (EEA) convened the Sustainable Water Management Initiative (SWMI) for the purpose of incorporating the best available science into the management of the Commonwealth's water resources. SWMI was a multi-year process that included a wide range of stakeholders and support from the Departments of Environmental Protection, Fish and Game, and Conservation and Recreation. In November 2012 the *Massachusetts Sustainable Water Management Initiative Framework Summary* (<http://www.mass.gov/eea/docs/eea/water/swmi-framework-nov-2012.pdf>) was released.

On November 7, 2014, the Department adopted revised Water Management Regulations at 310 CMR 36.00 that incorporate elements of the SWMI framework and the Water Conservation Standards adopted by the Massachusetts WRC. The regulations reflect a carefully developed balance to protect the health of Massachusetts' water bodies while meeting the needs of businesses and communities for water.

Without limitation, the Department has incorporated the following into Water Management permitting:

- Safe yield determinations for the major river basins based on a new methodology developed through SWMI (see description that follows);
- Water needs forecasts for public water suppliers developed by the Department of Conservation and Recreation, Office of Water Resources (DCR), using a methodology reviewed and approved by the Massachusetts WRC;
- Water supply protection measures for public water supplies including Zone II delineations for groundwater sources, and wellhead and surface water protection measures as required by Massachusetts Drinking Water Regulations (310 CMR 22.00);
- Water conservation and performance standards reviewed and approved by the WRC in July 2018 (<https://www.mass.gov/massachusetts-water-conservation-standards>), including without limitation:
 - Performance standard of 65 residential gallons per capita day or less;
 - Performance standard of 10% or less unaccounted-for-water;
 - Seasonal limits on nonessential outdoor water use;
 - A water conservation program that includes leak detection and repair, full metering of the system and proper maintenance of the meters, periodic review of pricing and education and outreach to residents and industrial and commercial water users;
- Environmental protections developed through SWMI, including without limitation:
 - protection for coldwater fish resources;
 - minimization of withdrawal impacts in areas stressed by groundwater use;
 - mitigation of the impacts of increasing withdrawals; and
- The special permit conditions in each Water Management Act permit.

Safe Yield in the Cape Cod Basin

This permit is being issued in accordance with the Safe Yield methodology adopted by the Department on November 7, 2014, in the Regulations at 310 CMR 36.13. As of the date of issuance of this permit, the Safe Yield calculation for the Cape Cod Basin is 266.0 million gallons per day (MGD), and total registered and permitted withdrawals are 50.87 MGD. The maximum withdrawals that are authorized in this permit, and all other permits currently under review by the Department within the Cape Cod Basin, will be within the Safe Yield and conditioned in accordance with the regulations. Withdrawal authorizations may be further limited by other factors, such as the impact to local resources, water quality constraints, pumping rate limits placed on individual wells and surface water supplies, and the regulatory requirement that permit holders demonstrate a need for the water, which for public water systems is done through Water Needs Forecasts prepared by the Department of Conservation and Recreation.

Findings of Fact for Special Permit Conditions

The following Findings of Fact for the special conditions included in the Permit generally describe the rationale and background for each special condition in the Permit. These Findings of Fact also explain any changes to special conditions from prior permits, when applicable. This summary of permit special conditions is not intended to, and should not be construed as, modifying any of the permit special conditions. In the event of any ambiguity between this summary and the actual permit conditions, the permit language shall control.

Special Condition 1, Maximum Authorized Annual Average Withdrawal Volume, authorizes an annual average withdrawal volume of 65.70 million gallons per year (MGY) of water, or 0.18 million gallons per day (MGD) annually from its 12 groundwater sources in the Cape Cod Basin. The permitted volume may be increased to the full volume requested in the renewal application of 197.10 MGY (or 0.54 MGD) of water with a permit amendment and the required mitigation. The permitted volume is in addition to the 989.15 MGY (2.71 MGD) previously authorized to Hyannis under WMA Registration #422020.13. Therefore, the total annual authorized withdrawal at this time is 1,054.85 MGY (2.89 MGD). As described previously (see “Withdrawal Description and History”), this volume is 0.53 MGD lower than the 3.42 MGD authorized in the previous permit.

Hyannis’s reported annual average withdrawal volumes have been below 2.89 MGD throughout its permit history available in the Department’s electronic records, which date back to 2000. The table below provides Hyannis’s reported withdrawal volumes and purchased volumes over the past 5 years. The reported withdrawal volumes are below Hyannis’s historical average in 2018-2020 due to the purchase of water from the Town of Yarmouth. Hyannis has historically relied on its own sources but purchased water regularly from the Town of Yarmouth from May of 2016 through October of 2020.

Hyannis’s Reported Annual Withdrawal and Purchased Volumes, MGD

Year	2018	2019	2020	2021	2022
Withdrawal Volume	1.86	1.28	1.50	2.38	2.57
Purchased Volume	0.44	0.85	0.76	0.0	0.0
Total Volume	2.31	2.13	2.26	2.38	2.57

Special Condition 2, Maximum Authorized Daily Withdrawals from each Withdrawal Point, identifies the approved maximum daily withdrawal volumes for all 12 of Hyannis's permitted groundwater sources. These values have not been changed from the previous permit. Based on a review of the past ten years of Annual Statistical Reports (ASRs; 2013-2022), Hyannis has occasionally exceeded the maximum daily volume in a few wells. However, the reported monthly withdrawal volumes for those wells indicate average daily volumes much lower than the reported maximum daily volume; therefore, the exceedances were not prolonged. Hyannis should nonetheless be aware of the authorized maximum daily withdrawal volume for all of its sources and continue to demonstrate compliance with those volumes in the future.

Former Special Condition 3, Authorized Seasonal Withdrawal Rates, has been removed from the renewed permit at the request of Hyannis and in consultation with the Natural Heritage and Endangered Species Program (NHESP). NHESP noted that the initial objective was to limit the alteration of natural flow regimes and to guarantee periodic flooding of the Mary Dunn Pond shoreline and surrounding pondlets. Without periodic flooding, pitch pine and other woody species may migrate or seed into the exposed pond shore areas, and such incursions could eventually become permanent. However, when withdrawals from the Mary Dunn Pond wellfield were reduced, the pondlets that had been supporting rare plant populations for over 50 years became permanently inundated and those populations were lost. In recent decades since monitoring began, NHESP has observed dynamic, wetter than anticipated conditions and learned that the local ecosystems are incredibly dynamic. If recent trends continue, NHESP anticipates that these systems are likely to be well within the natural range of variability even if altered by withdrawals, and the greater threat to wetland biodiversity may be excessive flooding (beyond the periods the extensive seed banks can endure). NHESP also noted that Hyannis's withdrawals have remained below its permitted volumes and are lower than NHESP anticipated when the permit was first issued.

Special Condition 3, Zone II Delineations (formerly Special Condition 4), requirements have been met and no further action is required as a condition of this permit. All of Hyannis's wells have approved Zone II delineations. The Zone II areas for Maher Wells 1, 2 and 3 extend into the Town of Yarmouth.

The Town of Barnstable maintains multiple protection districts within its Zoning Ordinance. Only the Groundwater Protection Overlay District meets MassDEP requirements for groundwater supply protection. In February 2014, the Town zoning map was updated so that the Groundwater Protection Overlay District covers all Zone II areas within the Town of Barnstable, including Hyannis's Zone II areas.

Special Condition 4, Wellhead Protection (formerly Special Condition 5), requirements have been met and no further action is required as a condition of this permit. Hyannis has demonstrated compliance with the wellhead protection requirements set forth in 310 CMR 22.21(2) for all permitted wells.

Special Condition 5, Flora Monitoring (formerly Special Condition 7, Floral and Faunal Monitoring), has been modified at the request of Hyannis and in consultation with NHESP. NHESP concluded that the fauna monitoring to date has provided sufficient information on the

Mary Dunn Pond species of concern. Therefore, the requirement to collect fauna monitoring data has been removed from the permit.

Regarding flora monitoring, NHESP recommended that the protocol be replaced with monitoring only plant species protected by MESA and only during years when pond shore exposure allows germination and reproduction to occur. NHESP further advised that identifying appropriate years be done in consultation with NHESP. The permit condition has been updated to reflect NHESP's recommendations. The permit condition has also been updated to reflect a recommendation of the 2021 and 2022 Rare Plant Species Survey Reports; namely, the reports recommend that Hyannis contact NHESP regarding the control of invasive species growth observed in recent years, as noted below in Special Condition 6.

Special Condition 6, Water Level Monitoring, has been modified at the request of Hyannis and in consultation with NHESP. The condition continues the water level monitoring of Mary Dunn Pond and Israel Pond, but the groundwater level monitoring requirement has been removed. Groundwater level monitoring was partly aimed at determining the degree to which Mary Dunn Pond is perched, and past monitoring reports (1999-2007) clearly document a strong groundwater-surface water connection at the pond, thus indicating a lack of perched conditions.

The pond level monitoring remains a requirement based on the findings and recommendations of the 2021 and 2022 Rare Plant Species Survey Reports, which were submitted to the Department per the annual reporting requirement of Special Condition 5. These reports document the growth of invasive woody species due to below-average pond levels, with the 2022 report noting that the pond levels appeared to be at record lows. The reports attribute the invasive species growth to the predominantly dry conditions (observed by the botanist in 2020 through 2022) and to Hyannis's well withdrawals. Prior water-level monitoring reports (1999-2007) also acknowledge the influence of the Mary Dunn wellfield withdrawals on pond levels, with climatic conditions as the more dominant influence.

Special Condition 7, Recreational Use of the Pond Shore Area (formerly Special Condition 8), continues the requirement to eliminate the use of recreational vehicles on the trails around Mary Dunn Pond. In its October 4, 2021 OTC response, Hyannis summarized its efforts to protect the shore area. Namely, Hyannis installed "No Trespassing" signs and a guardrail to restrict vehicle access, posted an informational plaque on plant species along the shoreline, and evaluated the shore area in 2017 for vehicular traffic. No evidence of vehicular traffic was found.

Special Condition 8, Performance Standard for Unaccounted for Water (UAW) (formerly Special Condition 10) is part of the Water Conservation Standards for the Commonwealth of Massachusetts adopted by the WRC in July 2018. In the previous permit, Hyannis was required to meet a UAW standard of 15%. The current UAW performance standard required for all PWS permittees is 10% for 2 out of every 3 years.

Permittees that cannot comply within the timeframe in the permit must meet the Functional Equivalence requirements based on the *AWWA/IWA Water Audits and Loss Control Programs, Manual of Water Supply Practices M36*, as outlined in Appendix A. As shown in the table below, Hyannis has met the standard for each of the past five years.

Performance Standard	2018	2019	2020	2021	2022
UAW	4%	6%	8%	8%	10%

Former Special Condition 9, Performance Standard for Residential Gallons Per Capita Day (RGPCD), is removed from all renewed permits in the Cape Cod Basin. In areas that experience significant seasonal fluctuations in population, as is the case in Cape Cod communities, calculation of an accurate RGPCD is difficult and has not been standardized to date. Therefore, at this time, MassDEP does not require that permittees on Cape Cod meet a specific RGPCD performance standard. The omission of a numerical standard from Hyannis’s permit does not imply that water conservation is not important for resource protection. Hyannis should still take every opportunity to encourage water conservation (see Special Condition 9), especially during the high-use summer season.

Special Condition 9, Seasonal Limits on Nonessential Outdoor Water Use, requires Hyannis to implement nonessential outdoor water use restrictions from May 1st through September 30th when:

- Groundwater levels fall to the monthly 25th percentile for 60 consecutive days at the assigned groundwater monitoring well; or
- A Level 1- Mild Drought or higher is declared for the Cape Cod Region by the Secretary of Energy and Environmental Affairs.

Nothing in this permit prevents Hyannis from implementing additional water use restrictions. The Department encourages all PWS’s to adopt the Massachusetts Drought Management Plan’s recommendations during times of a declared drought (below). The current drought status across Massachusetts can be found at <https://www.mass.gov/guides/drought-management-in-massachusetts#-current-status->. The map is updated monthly during a declared drought.

Massachusetts Drought Management Plan Recommendations
At Level 1 - Mild Drought: <ul style="list-style-type: none"> ○ Outdoor watering with irrigation systems and sprinklers should be limited to no more than one day per week; and ○ Watering with a handheld hose or watering can should be limited to after 5 pm or before 9 am (to avoid evaporative losses).
At Level 2 - Significant Drought: <ul style="list-style-type: none"> ○ Outdoor water use should be limited to handheld watering with a hose or a watering can after 5 pm or before 9 am (to avoid evaporative losses); and ○ Filling swimming pools, washing cars and washing buildings should be prohibited.
At Level 3 - Critical Drought: <ul style="list-style-type: none"> ○ Outdoor water use should be eliminated.

Special Condition 10, Water Conservation Requirements (formerly Special Condition 11), incorporates the previously referenced Water Conservation Standards for the Commonwealth of Massachusetts adopted by the WRC in July 2018. The requirements are provided in Table 5 of the Permit.

In prior correspondence regarding this condition (in March 2012), Hyannis had noted that certain requirements were not fully met. In its April 2015 OTC, the Department requested a status update on compliance with the requirements listed below. Hyannis responded to the OTC as follows:

- Metering – Because Hyannis previously indicated that some service connections were not metered, the Department requested a list of unmetered connections and a schedule to install meters. In its October 4, 2021 OTC response, Hyannis reported that all service connections are metered.
- Residential and Public Sector Conservation – The April 2007 permit required Hyannis to retrofit all municipal buildings with water-saving devices within its service area by January 1, 2012. Because Hyannis indicated in its March 2012 correspondence that some municipal buildings had not been retrofitted, the Department requested a list of the buildings and a schedule to complete the retrofitting. Hyannis responded with a table of municipal buildings that showed the year each was retrofitted. The table included five buildings yet to be retrofitted, four of which are managed by different Town departments. Hyannis did not provide a schedule for those four buildings because it “has no control over operational and funding decisions” for them. The fifth building is scheduled for completion in 2022.

As the Department noted in its April 2015 OTC, the renewed permit will be issued to the Town of Barnstable as opposed to the Hyannis Water System because conditions of the renewed permit will require cooperation between municipal departments within the Town of Barnstable. The Town shall submit within six months of permit issuance a plan and schedule to complete the retrofitting of the four buildings. The retrofitting shall be completed within three years of permit issuance.

- Industrial and Commercial Water Conservation – The Department requested a list of Hyannis’s large (use greater than 0.05 MGD) industrial, commercial and institutional customers with a description of outreach to those customers. Hyannis responded with a list of three customers and noted that water conservation pamphlets were provided to each of them.
- Lawn & Landscape – The Department requested a copy of the bylaw that gives Hyannis authority to declare a water ban. In its October 2021 OTC response, Hyannis provided an excerpt of the bylaw.
- Public Education and Outreach – The Department requested a selection of outreach materials from Hyannis’s water conservation public education program. Hyannis attached a sample flyer and a link to its website, which contains several educational materials.

Special Condition 11, Reporting Requirements (formerly Special Condition 12), ensures that the information necessary to evaluate compliance with the permit conditions is accurately reported. This information includes the contents of Hyannis’s ASRs and ASR attachments.

Special Condition 12, Chapter 30 Section 61 Findings (formerly Special Condition 13), has not been modified from the previous permit.

Mitigation of Impacts for Withdrawals that Exceed Baseline, requires mitigation, where feasible, of withdrawals over a baseline volume. Baseline withdrawal means the volume of

water withdrawn during calendar year 2005 plus 5%, or the average annual volume withdrawn from 2003 through 2005 plus 5%, whichever is greater, provided that:

- (a) baseline cannot be less than a permittee's registered volume;
- (b) baseline cannot be greater than the permittee's authorized volume for 2005; and
- (c) if, during the period from 2003 to 2005, the permittee's withdrawals from the water source were interrupted due to contamination of the source or construction of a treatment plant, the Department will use best available data to establish a baseline volume from the water source.

The calculated baseline withdrawal volume for Hyannis is 2.89 MGD, which is the 2005 withdrawal volume plus 5%. This permit authorizes Hyannis to withdraw up to its baseline volume of 2.89 MGD; therefore, mitigation is not required. Should Hyannis need to exceed the baseline volume, it may do so for volumes up to 3.25 MGD by obtaining a permit amendment or by obtaining a new permit for volumes beyond 3.25 MGD. Either approach will require the necessary mitigation, where feasible.

Minimization of Groundwater Withdrawal Impacts in subbasins¹ with an August net groundwater depletion of 25% or more in August to minimize their withdrawal impacts on those subbasins to the greatest extent feasible. Minimization is not required because there are no delineated subbasins in coastal areas, including Cape Cod, and therefore no delineation of net groundwater depletion.

Coldwater Fish Resource Protection was incorporated into the Water Management Regulations in November 2014. Coldwater Fish Resource Protection is not a condition of this permit because Hyannis's withdrawals do not impact any waters that MA Division of Fisheries and Wildlife has identified as supporting coldwater fish at this time.

Response To Comments on the DRAFT WMA Permit

During the public comment period on the DRAFT WMA Permit, one comment letter was submitted to the Department on March 8, 2024 on behalf of the Massachusetts Rivers Alliance, Association to Preserve Cape Cod, and Barnstable Clean Water Coalition. The letter included two main recommendations for the Permit: 1) minimization measures should be required and be based on information from a 2015 USGS report²; and 2) the nonessential outdoor water use restrictions condition should be updated to clarify the drought-triggered restrictions period and to shorten the 60-day period that precedes groundwater-triggered restrictions.

Regarding the first recommendation, the letter asserts that "*requiring comprehensive minimization planning would encourage Hyannis to reduce withdrawals to the maximum extent possible.*" The Department notes that the Permit does encourage reduced withdrawals through

¹ Subbasins used for WMA permitting are the 1,395 subbasins delineated by the U.S. Geological Survey (USGS) in *Indicators of Streamflow Alteration, Habitat Fragmentation, Impervious Cover, and Water Quality for Massachusetts Stream Basins* (Weiskel *et al.*, 2010, USGS SIR 2009-5272). The Water Management Regulations, 310 CMR 36.03, define August net groundwater depletion (NGD) to mean the unimpeded median flow for August minus 2000-2004 groundwater withdrawals plus 2000-2004 groundwater returns described by the USGS in Weiskel *et al.*, 2010. A subbasin is groundwater depleted if it has an August NGD greater than 25%.

² Carlson, C.S., Walter, D.A., and Barbaro, J.R., 2015, Simulated responses of streams and ponds to groundwater withdrawals and wastewater return flows in southeastern Massachusetts: U.S. Geological Survey Scientific Investigations Report 2015-5168, 60 p., <http://dx.doi.org/10.3133/sir20155168>.

several means, most notably the substantial reduction in Hyannis's authorized withdrawal volume (0.53 MGD). As the letter indicates, the Permit also includes other conditions that support minimizing withdrawals, such as those focused on water conservation requirements and outdoor water-use restrictions.

Regarding the letter's second recommendation, the nonessential outdoor water use restrictions condition (Special Condition 9) does require that drought-triggered restrictions be implemented while a Drought Level 1 or higher is in effect between May 1st and September 30th. Wording was added to Table 4 of the Permit for clarification. In regards to the 60-day period preceding groundwater-triggered restrictions, consistency and equity among permittees are important aspect of the permitting process and in this case, the 60-day period has been applied to the other Cape Public Water Suppliers. Imposing entirely different permit requirements on this permittee would be inconsistent with other suppliers on the Cape and given that the comment letter did not provide an analysis or propose an alternative period, the Department does not have a means of considering or justifying a change to the 60-day period. This permit, and all permits on the Cape, expire in 2032. New information on hydrology and environmental conditions, and updated permit requirements should be assessed at that time and universally applied as applicable.



Department of Environmental Protection

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Commissioner

WATER WITHDRAWAL PERMIT M.G.L. c. 21G

This issuance of Permit #9P-4-22-020.04 is approved pursuant to the Massachusetts Water Management Act (WMA) for the sole purpose of authorizing the withdrawal of a volume of water as stated below and subject to the following special and general conditions. This permit conveys no right in or to any property.

PERMIT NUMBER: 9P-4-22-020.04

WATERSHED: Cape Cod

PERMITTEE: Town of Barnstable-Hyannis Water System
47 Old Yarmouth Rd
Hyannis, MA 02601

ISSUANCE DATE: May 3, 2024

EXPIRATION DATE: March 6, 2032

NUMBER OF WITHDRAWAL POINTS: Groundwater: 12; Surface Water: 0

USE: Public Water Supply

DAYS OF OPERATION: 365

LOCATION(S):

Table 1. Withdrawal Point Identification

Source Name	Source ID	Location
Straightway #1	4020004-01G	Straightway Rd.
Straightway #2	4020004-12G	Straightway Rd.
Maher Well #1	4020004-07G	Old Yarmouth Rd.
Maher Well #2	4020004-02G	Old Yarmouth Rd.
Maher Well #3	4020004-11G	Old Yarmouth Rd.
Mary Dunn #1	4020004-04G	Mary Dunn Rd.
Mary Dunn #2	4020004-05G	Mary Dunn Rd.

This information is available in alternate format. Please contact Melixza Esenyie at 617-626-1282.

TTY# MassRelay Service 1-800-439-2370

MassDEP Website: www.mass.gov/dep

Printed on Recycled Paper

Mary Dunn #3	4020004-08G	Mary Dunn Rd.
Mary Dunn #4	4020004-09G	Mary Dunn Rd.
Airport #1	4020004-10G	Airport Rd.
Hyannisport	4020004-03G	Smith St.
Simmons Pond	4020004-06G	Smith St.

SPECIAL CONDITIONS

1. Maximum Authorized Annual Average Withdrawal Volume

This permit authorizes the Hyannis Water System (Hyannis) to withdraw water, on average over a calendar year, from the Cape Cod Basin at the rate described in Table 2. The volume reflected by this average rate is in addition to the 2.71 million gallons per day (MGD) or 989.15 million gallons per year (MGY) previously authorized to the permittee under Water Management Act Registration # 4-22-020.13 for withdrawal from the Cape Cod Basin.

The permitted volume is expressed in millions of gallons, both as an average daily withdrawal rate per year and as a total annual withdrawal volume for each permit period over the term of the permit.

Permittees whose authorized volume exceeds their baseline volume are required to develop a plan to mitigate the authorized volume above the baseline volume as adjusted by the volume of wastewater returned to the groundwater within the basin and to implement that plan prior to withdrawing more than the baseline volume. To allow Hyannis to avoid this mitigation requirement, the permit provides that Hyannis shall limit its withdrawal volume to its baseline volume of 2.89 MGD, or 1054.85 MGY, unless and until:

- Hyannis submits to MassDEP an application for a permit amendment requesting authorization to withdraw more than its baseline volume of 2.89 MGD up to a total authorized volume of 3.25 MGD, and a plan to mitigate the amount of the total requested authorized withdrawal volume that exceeds the baseline volume of 2.89 MGD, as adjusted for any wastewater returned via groundwater disposal to the basin;
- MassDEP issues a permit amendment in response to that application; and
- Hyannis, in accordance with the amended permit, implements the mitigation plan prior to withdrawing more than its baseline volume of 2.89 MGD.

The Department of Environmental Protection (the Department) bases these withdrawal volumes on the raw water withdrawn from the authorized withdrawal points and will use the raw water amount to assess compliance with the registered and permitted withdrawal volumes.

Table 2: Maximum Authorized Annual Average Withdrawal Volume

Permit Periods	Total Authorized Raw Water Withdrawal Volumes Prior to Permit Amendment and Mitigation Plan			
	Permit		Permit + Registration	
	Daily Average (MGD)	Total Annual (MGY)	Daily Average (MGD)	Total Annual (MGY)
5/3/2024 to 3/6/2027	0.18	65.70	0.18+2.71=2.89	1054.85
3/7/2027 to 3/6/2032	0.18	65.70	0.18+2.71=2.89	1054.85

Permit Periods	Maximum Authorized Total Raw Water Withdrawal Volumes After Permit Amendment and Mitigation Plan			
	Permit		Permit + Registration	
	Daily Average (MGD)	Total Annual (MGY)	Daily Average (MGD)	Total Annual (MGY)
5/3/2024 to 3/6/2027*	0.27	98.55	0.27 +2.71=2.98	1087.70
3/7/2027 to 3/6//2032	0.54	197.10	0.54+2.71=3.25	1186.25

*Withdrawals up to 3.25 MGD may be authorized prior to 2027 with the required permit amendment and a demonstration of compliance with the existing permit conditions.

2. Authorized Withdrawal Points

Withdrawals from individual withdrawal points are not to exceed the approved daily volume listed in Table 3 without specific advance written approval from the Department. The authorized maximum daily volume is the approved rate of each source. In no event shall the combined withdrawals from the individual withdrawal points exceed the withdrawal volumes authorized above in Special Condition 1.

Table 3. Maximum Daily Withdrawal Rate (MGD)

Source Name	Source ID	Maximum Daily Rate
Straightway #1	4020004-01G	0.72
Straightway #2	4020004-12G	1.58
Maher Well #1	4020004-07G	1.01
Maher Well #2	4020004-02G	1.01
Maher Well #3	4020004-11G	1.01
Mary Dunn #1	4020004-04G	0.72
Mary Dunn #2	4020004-05G	1.01
Mary Dunn #3	4020004-08G	0.72
Mary Dunn #4	4020004-09G	0.72
Airport #1	4020004-10G	1.44
Hyannisport	4020004-03G	0.72
Simmons Pond	4020004-06G	1.01

3. Zone of Contribution (Zone II or Zone III) Delineations

Department records indicate that the Town of Barnstable town-wide Zone II delineation has been submitted to and approved by the Department. Therefore, no further Zone II work is required as a condition of this permit.

4. Wellhead Protection

Department records indicate that Hyannis's sources meet the requirements of 310 CMR 22.21(2); therefore, no further wellhead protection work is required as a condition of this permit.

5. Flora Monitoring

Monitoring of the flora at Mary Dunn Pond to measure plant population and natural community response to variable hydroperiods and to any changes in the hydrologic regime created by water withdrawal is required as specified below. The objectives of the monitoring plans are to measure the response of the rare plant community to hydroperiod and to measure the effects of water withdrawal on the pond shores hydroperiods.

Flora monitoring for rare plant populations will consist of monitoring only plant species protected by MESA during years when pond shore exposure allows germination and reproduction to occur. Hyannis shall consult with NHESP to identify the appropriate years. Hyannis shall also consult with NHESP regarding the control of recent invasive species growth.

The Department will consider requests to modify the monitoring plan. Approval of modifications which are likely to further the objectives outlined above will be considered by the Department. Modifications in the monitoring procedures require the specific advance written approval of the Department.

The permittee will evaluate the monitoring plan to assess its ability to measure, in a statistically and biologically meaningful way, the changes to the flora. If the monitoring plan as presented in this permit does not meet the stated objectives, the permittee shall propose modifications to address these deficiencies.

6. Water Level Monitoring

Monitoring of surface-water levels in Mary Dunn Pond and Israel Pond is required as specified below. Modifications in the monitoring procedures require the specific advance written approval of the Department.

- a. Pond Level Monitoring – Continue the pond stage monitoring program for Mary Dunn and Israel Ponds to evaluate pumping schedule impacts on pond levels. The use of permanent measuring devices (staff gages or other specified instruments), validated annually during the month of March or April, placed within the inundated portions of each pond is required. Pond level measurements shall be recorded and verified monthly according to the methods outlined in Appendix B.
- b. Statistical Analysis – Daily pumping records from Mary Dunn Wells 1, 2, 3, 4 and Airport Well 1 shall be documented monthly. Hyannis shall perform a linear regression of the pumping records with pond level data annually. Historical data (i.e., pumping and pond-level records from the prior years of this monitoring program) shall be included in the analysis. The analysis shall be submitted to the Department at the time of the filing of Hyannis's Annual Statistical Report (ASR).

The monitoring data and analysis outlined above will be used to determine the degree to which Mary Dunn Pond and Israel Pond are affected by well water withdrawals. The results of this determination will be used by the Department as guidance in modification and future design of well pumping schedules to achieve water supply and resource protection goals.

7. Recreational Use of the Pond Shore Area

The Permittee shall eliminate the use of recreational vehicles on the trails around Mary Dunn Pond by any and all feasible means including, but not limited to:

- posting "No Vehicle Access" signs at trail entry points;
- coordination with the local Conservation Commission and police department to educate the public about the environmental sensitivity of the area and to deter entry; and
- erecting log barriers, a wooden "stockade" fence, and/or hedge plantings across and around trail entry points as necessary to deter recreational vehicle use.

The Permittee shall evaluate the Mary Dunn Pond shore area annually for impacts resulting from foot traffic. If foot trails or other significant impacts are found, the Permittee shall restrict foot access to the pond shore area.

8. Performance Standard for Unaccounted for Water

Hyannis's performance standard for unaccounted for water (UAW) is 10% or less of overall water withdrawals for 2 of the most recent 3 years throughout the permit period. If Hyannis does not meet the standard, it shall be in compliance with the functional equivalence requirements based on the AWWA/IWA Water Audits and Loss Control Programs, Manual of Water Supply Practices M36, as outlined in Appendix A.

Nothing in the permit shall prevent a permittee who meets the 10% performance standard from demonstrating compliance with the UAW performance standard by developing and implementing a water loss control program following the AWWA M36 Water Audits and Loss Control Programs.

Hyannis shall report its UAW percentage annually in its ASR. Permittees meeting the Performance Standard for Unaccounted for Water through implementation of a water loss control program based on AWWA M36 annual water audits and guidance shall continue to report UAW annually as required in the ASR.

9. Seasonal Limits on Nonessential Outdoor Water Use

Hyannis shall limit nonessential outdoor water through mandatory restrictions from May 1st through September 30th as outlined in Table 4. To the extent feasible, all summer outdoor water use should take place before 9 a.m. and after 5 p.m. when evaporation and evapotranspiration rates are lower.

Table 4. Seasonal Limits on Nonessential Outdoor Water Use

Permittee must at a minimum implement the following outdoor water use restrictions:

Restrictions from May 1st through September 30th

Nonessential outdoor water use is allowed no more than TWO DAYS per week before 9 am and after 5 pm whenever:

a) Groundwater levels at USGS Monitoring Well 413930070190901 MA-A1W 306 Barnstable, MA (A1W 306) decline to or below the groundwater trigger for 60 consecutive days. The monthly trigger levels are listed below and are the period of record monthly 25th percentile depth to water level values, as determined and published by the USGS. Restrictions could start on May 1, so monitoring of A1W 306 begins on March 1 of each year.

Trigger Values for Outdoor Water Use Restrictions (feet below land surface)

March	April	May	June	July	Aug	Sept
25.77	25.36	25.33	25.47	25.91	25.95	26.37

Once implemented, the restrictions shall remain in place until the daily value of the groundwater levels at the assigned USGS monitoring well have recovered to less than the trigger for 30 consecutive days (when the water table elevation has risen above the trigger level).

Or

b) A Drought Level 1 (Mild Drought) or higher is declared by the Secretary of Energy and Environmental Affairs for the Cape Cod Region. Once implemented, the restrictions shall remain in place while a Drought Level 1 or higher is in effect between May 1st and September 30th.

Instructions for Accessing U.S. Geologic Survey Groundwater Level and Massachusetts Drought Advisory Website Information

Groundwater level information is available at the USGS National Water Information System (NWIS): Web Interface. The USGS NWIS default shows Massachusetts groundwater levels in real time, i.e., the most recent, usually hourly, water level measured and recorded at each USGS monitoring well.

Seasonal Limits on Nonessential Outdoor Water Use are implemented when the daily mean depth to water level exceeds the designated trigger for 60 consecutive days (*i.e.*, when the depth to water becomes larger than the trigger value as the water table elevation declines). The daily water level is compared to the trigger for that month. To determine if restrictions must be implemented on May 1 it is necessary to monitor the daily water level in March and April.

Mean daily groundwater level readings are available at the USGS NWIS Web Interface at http://waterdata.usgs.gov/ma/nwis/current/?type=gw&group_key=county_cd

- Scroll down to 413930070190901 MA-A1W 306 BARNSTABLE, MA.
- Click on the station number.
- On the pull-down menu “Available data for this site” choose “Daily data”.
- Under “Available Parameters” click on “WaterLevel, Below LSD (Mean)”.
- Under “Output Format” click on “Table” and enter the number of days of records (the default is 7 days; entering 60 will give you 60 days of data) and hit “GO”.
- The table provides the “Daily Mean Depth to water level, feet below land surface” for the most recent number of days chosen.

- Compare each day's value to its month's trigger value (25th percentile) in your permit. Outdoor water use restrictions must be implemented when the daily depth to water level is at or below the trigger for 60 consecutive days.

Drought information is available at the Massachusetts Department of Conservation and Recreation (DCR) Drought Status Website at <https://www.mass.gov/guides/drought-management-in-massachusetts#-current-status->

- The color coded map displays the seven drought regions in Massachusetts. Restrictions are implemented when a Drought Level 1, 2, 3 or 4 is announced in your region through the DCR website.

Restricted Nonessential Outdoor Water Uses

Nonessential outdoor water uses that are subject to mandatory restrictions include:

- irrigation of lawns via automatic irrigation system or sprinklers;
- filling swimming pools;
- washing of vehicles, except in a commercial car wash or as necessary for operator safety; and
- washing of exterior building surfaces, parking lots, driveways or sidewalks, except as necessary to apply surface treatments such as paint, preservatives, stucco, pavement or cement.

The following uses may be allowed when mandatory restrictions are in place:

- irrigation to establish a new lawn and new plantings during the months of May and September;
- irrigation of public parks and recreational fields before 9 am and after 5 pm;
- watering lawns, gardens, flowers and ornamental plants by means of a hand-held hose or drip irrigation system; and
- irrigation of lawns by means of a hand-held hose.

Water uses NOT subject to mandatory restrictions are those required:

- for health or safety reasons;
- by regulation;
- for the production of food and fiber;
- for the maintenance of livestock; or
- to meet the core functions of a business (for example, irrigation by golf courses as necessary to maintain tees, greens, and limited fairway watering, or irrigation by plant nurseries as necessary to maintain stock).

Public Notice of Seasonal Limits on Nonessential Outdoor Water Use Restrictions

Hyannis shall notify its customers of the restrictions and the consequences of failing to adhere to the restrictions.

- For calendar-triggered restrictions, customers shall be notified by April 15th each year.
- For streamflow-triggered restrictions, when streamflow at the assigned USGS local stream gage falls below a streamflow trigger for three consecutive days, customers shall be notified as soon as possible, but within three days of implementing the restrictions.

Notice to customers shall include the following:

- A detailed description of the restrictions and penalties for violating the restrictions;
- The need to limit water use, especially nonessential outdoor water use, to ensure a sustainable drinking water supply and to protect natural resources and streamflow for aquatic life; and
- Ways individual homeowners can limit water use, especially nonessential outdoor water use.

Notice that restrictions have been put in place shall be filed each year with MassDEP within 14 days of the restriction's effective date. Filing shall be in writing on the Notification of Water Use Restriction Form at

<http://www.mass.gov/eea/agencies/massdep/water/watersheds/municipal-water-use-restrictions.html>.

Nothing in this permit shall prevent Hyannis from implementing water use restrictions that are more stringent than those set forth in this permit.

10. Water Conservation Requirements

At a minimum, Hyannis shall implement the following conservation measures forthwith. Compliance with the water conservation requirements shall be reported to MassDEP upon request, unless otherwise noted below.

Table 5: Minimum Water Conservation Requirements	
Leak Detection	
1.	At a minimum, conduct a full leak detection survey every three years. The first full leak detection survey shall be completed no later than 3 years from the date of the last documented leak detection survey. At the time of Permit issuance, Hyannis reports that its Contract Operations vendor is under contract to survey half the distribution system annually.
2.	Conduct leak detection of the entire distribution system within one year whenever the percentage of UAW increases by 5% or more (for example an increase from 3% to 8%) over the percentage reported on the ASR for the prior calendar year. Within 60 days of completing the leak detection survey, submit to the Department a report detailing the leak detection survey, any leaks uncovered as a result of the survey or otherwise, dates of repair and the estimated water savings as a result of the repairs.
3.	Conduct field surveys for leaks and repair programs in accordance with the <u>AWWA Manual 36</u> .
4.	Repair reports shall be kept available for inspection by MassDEP. The permittee shall establish a schedule for repairing leaks that is at least as stringent as the following: <ul style="list-style-type: none">○ Leaks of 3 gallons per minute or more shall be repaired within 3 months of detection.○ Leaks of less than 3 gallons per minute at hydrants and appurtenances shall be repaired as soon as possible.○ Leaks of less than 3 gallons per minute shall be repaired in a timely manner, but in no event more than 6 months from detection, except that leaks in freeway, arterial or collector roadways shall be repaired when other roadwork is being performed on the roadway.○ Leaks shall be repaired in accordance with the permittee's priority schedule including leaks up to the property line, curb stop or service meter, as applicable.○ The permittee shall have water use regulations in place that require property owners to expeditiously repair leaks on their property.

Table 5: Minimum Water Conservation Requirements

The following exceptions may be considered:

- Repair of leakage detected during winter months can be delayed until weather conditions become favorable for conducting repairs;* and
- Leaks in freeway, arterial or collector roadways may be coordinated with other scheduled projects being performed on the roadway**.

*Reference: MWRA regulations 360 CMR 12.09

**Mass Highway or local regulations may regulate the timing of tearing up pavement to repair leaks.

Metering

1. Calibrate all source, treatment, and finished water meters at least annually and report date of calibration on the ASR.
2. One hundred percent (100%) metering of the system is required. All water distribution system users shall have properly sized service lines and meters that meet AWWA calibration and accuracy performance standards as set forth in AWWA Manual M6 – Water Meters.
3. Hyannis shall have an ongoing program to inspect individual service meters to ensure that all service meters accurately measure the volume of water used by its customers. The metering program shall include regular meter maintenance, including testing, calibration, repair, replacement and checks for tampering and sealing meters where possible, to identify and correct illegal connections.
4. Ensure sufficient funds in the annual budget to calibrate, repair, or replace meters as necessary.

Pricing

1. Establish a water pricing structure that includes the full cost of operating the water supply system. Full cost pricing recovers all costs as applicable, including:
 - pumping and distribution equipment cost, repair and maintenance;
 - water treatment;
 - electricity;
 - capital investment, including planning, design and construction;
 - debt service;
 - administrative costs including systems management, billing, accounting, customer service, service studies, rate analyses and long-range planning;
 - conservation program including audits, leak detection equipment, service and repair, meter replacement program, automated meter reading installation and maintenance, conservation devices, rebate program, public education program;
 - regulatory compliance; and
 - staff salaries, benefits training and professional development.

At the time of Permit issuance, Hyannis reports that funding for the Town of Barnstable’s land purchases derive from the Town’s Community Preservation Program; therefore, land purchases are not accounted for in Hyannis’s pricing structure.
2. Evaluate rates at a minimum every three to five years and adjust costs as needed.
3. Hyannis reports using an increasing block rate structure and shall continue to do so. The permittee shall not use decreasing block rates.
4. Hyannis reports that it bills residential customers quarterly and large industrial/commercial customers monthly, and it shall continue to do so.

Residential and Public Sector Conservation

1. Permittee shall meet the standards set forth in the Federal Energy Policy Act, 1992 and the Massachusetts Plumbing Code.
2. Meter or estimate water used by contractors using fire hydrants for pipe flushing and construction.

Table 5: Minimum Water Conservation Requirements

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| 3. The permittee shall ensure that water conserving fixtures are incorporated into existing municipal buildings as they are renovated and into the design of all new municipal capital projects. The permittee shall also ensure that water conserving landscaping practices are incorporated into the design, construction management, and operation of public parks, playing fields and other facilities. |
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Hyannis reports that five of its municipal buildings have not been retrofitted, one of which will be completed in 2022. The Town shall submit, within six months of permit issuance, a plan and schedule to complete the retrofitting of the four buildings within three years of permit issuance.

Industrial and Commercial Water Conservation

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| 1. Hyannis shall ensure water conservation practices, including the installation of WaterSense compliant low flow plumbing fixtures where applicable, and low water use landscaping, in all development proposals. |
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Lawn and Landscape

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| 1. Develop and adopt or update as necessary, a water use restriction bylaw, ordinance or regulation that authorizes enforcement of the seasonal limits on nonessential outdoor water use required by this permit. |
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MassDEP has developed the "DEP Model Outdoor Water Use Bylaw/Ordinance" to help municipalities and water districts implement seasonal water conservation requirements. The Model Bylaw also includes options for regulating private wells and in-ground irrigation systems. See <http://www.mass.gov/eea/agencies/massdep/water/regulations/model-water-use-restriction-bylaw-ordinance.html>

The Town of Barnstable Department of Public Works Water Supply Division Rules and Regulations for the Hyannis Water System (adopted October 13, 2009; revised August 14, 2014) include enforcement authority and establish penalties for violations of the permit restrictions.

Public Education and Outreach

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| 1. Develop and implement an education plan, including elements in the following list, as applicable: <ul style="list-style-type: none">○ Billing that helps customers track, compare, and make sense of their use.○ Target outreach to customers who may have a leak or who are using significantly more water than similar customers.○ Offer indoor low-flow retrofit/rebate programs.○ Provide information on “water-wise landscaping” and efficient irrigation and lawn care practices on-line and through model landscapes, workshops, local garden clubs, retailers, and environmental organizations.○ Partner with local schools to develop age-appropriate curricula on the local water system and water conservation.○ Use social media, online tools, public service announcements, and local events to promote water conservation and alerts.○ Develop multilingual materials as needed.○ Partner with garden clubs, farmers’ markets, environmental organizations, energy utilities, and others on campaigns promoting wise water use. |
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| 2. Upon request of MassDEP, permittee shall report on its public education and outreach efforts, including a summary of activities developed for specific target audiences, any events or activities sponsored to promote water conservation and copies of written materials. |
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11. Reporting Requirements

Hyannis shall report annually on its ASR the raw water volumes and finished water volumes for the entire water system. Monthly raw water volumes for individual water withdrawal points shall be reported annually in the ASR.

12. Chapter 30 Section 61 Findings

The Department, in issuing this permit, has required that the applicant has used or will use all feasible means or measures to avoid or minimize adverse environmental impacts. Measures that the Department deems necessary to mitigate or prevent harm to the environment are included in the conditions, if any, of this approval. The department has made its permitting decision under applicable law on a balancing, where appropriate, of environmental and socioeconomic objectives, as mandated by 301 CMR 11.00.

GENERAL PERMIT CONDITIONS (applicable to all Permittees)

No withdrawal in excess of 100,000 gallons per day over the registered volume (if any) shall be made following the expiration of this permit, unless before that date the Department has received a renewal permit application pursuant to and in compliance with 310 CMR 36.00.

- 1. Duty to Comply** The Permittee shall comply at all times with the terms and conditions of this permit, the Act and all applicable State and Federal statutes and regulations.
- 2. Operation and Maintenance** The Permittee shall at all times properly operate and maintain all facilities and equipment installed or used to withdraw up to the authorized volume so as not to impair the purposes and interests of the Act.
- 3. Entry and Inspections** The Permittee or the Permittee's agent shall allow personnel or authorized agents or employees of MassDEP to enter and examine any property, inspect and monitor the withdrawal, and inspect and copy any relevant records, for the purpose of determining compliance with this permit, the Act or the regulations published pursuant thereto, upon presentation of proper identification and an oral statement of purpose.
- 4. Water Emergency** Withdrawal volumes authorized by this permit are subject to restriction in any water emergency declared by MassDEP pursuant to M.G.L. c. 21G, §§ 15-17, , 310 CMR 36.00, M.G.L. c. 111, § 160, or any other enabling authority.
- 5. Transfer of Permits** This permit shall not be transferred in whole or in part unless and until MassDEP approves such transfer in writing, pursuant to a transfer application on forms provided by MassDEP requesting such approval and received by MassDEP at least thirty (30) days before the effective date of the proposed transfer. No transfer application shall be deemed filed unless it is accompanied by the applicable transfer fee established by 310 CMR 36.37.
- 6. Duty to Report** The Permittee shall submit annually, on a form provided by MassDEP, a certified statement of the withdrawal. Such report is to be received by MassDEP by the date specified by MassDEP. Such report must be mailed or hand delivered to the address specified on the report form.
- 7. Duty to Maintain Records** The Permittee shall be responsible for maintaining withdrawal records as specified by this permit.

8. **Metering** Withdrawal points shall be metered. Meters shall be calibrated annually. Meter shall be maintained and replaced as necessary to ensure the accuracy of the withdrawal records.
9. **Amendment, Suspension or Termination** The Department may amend, suspend or terminate this permit in accordance with M.G.L. c. 21G or 310 CMR 36.29.

APPEAL RIGHTS AND TIME LIMITS

Any person aggrieved by this decision may request an adjudicatory hearing by timely filing a Notice of Claim for an Adjudicatory Appeal (“Notice of Claim”) in accordance with 310 CMR 36.37 and 310 CMR 1.00 within twenty-one (21) days of receipt of this Permit. The Notice of Claim shall state specifically, clearly and concisely the facts that are grounds for the appeal, the relief sought, and any additional information required by applicable law or regulation. A copy of this Permit shall be included with a Notice of Claim. No request for an appeal of this permit shall be validly filed unless a copy of the request is sent at the same time by certified mail, or delivered by hand, to the local water resources management official in the community in which the withdrawal point is located; and for any person appealing this decision, who is not the permit applicant, unless such person notifies the permit applicant of the appeal in writing by certified mail or by hand within five (5) days of mailing the appeal to the Department.

The Notice of Claim and supporting documentation must be sent to:

Case Administrator
Office of Appeals and Dispute Resolution
Department of Environmental Protection
100 Cambridge Street, 9th floor
Boston, MA 02114

In addition, the Department’s fee transmittal form, together with a valid check made payable to the Commonwealth of Massachusetts in the amount of \$100 for the appeal filing fee, if required, must be mailed to:

Commonwealth of Massachusetts Lock Box
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

The Notice of Claim may be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver. The filing fee is not required if the appellant is a city, town (or municipal agency), county, district of the Commonwealth of Massachusetts, or a municipal housing authority. The Department may waive the adjudicatory filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, along with the hearing request, an affidavit setting forth the facts believed to support the claim of undue financial hardship.



5/3/2024

Duane LeVangie
Water Management Program
Bureau of Water Resources

Date

Appendix A – Functional Equivalence with the 10% Unaccounted for Water Performance Standard

MassDEP will consider PWS permittees who cannot meet the 10% UAW performance standard to be functionally equivalent, and in compliance with their permit, if they have an on-going program in place that ensures “best practices” for controlling water loss. The water loss control program will be based on annual water audits and guidance as described in the AWWA/IWA *Manual of Water Supply Practices – M36, Water Audits and Loss Control Programs* (AWWA M36).

If, as of December 31, 2020, the permittee fails to document compliance with the Unaccounted for Water performance standard (UAW of 10% or less for 2 of the 3 most recent years throughout the permit period), then the permittee shall develop and implement a water loss control program following the AWWA M36 *Water Audits and Loss Control Programs* within 5 full calendar years.

1. Conduct an annual “top down” water audit, calculate the data validity level/score using AWWA Water Loss Control Committee’s Free Water Audit Software, and submit the AWWA WLCC Free Water Audit Software: Reporting Worksheet and data validity score annually with its Annual Statistical Report (ASR).
 - If a PWS’s data validity level/score is less than Level III (51-70), steps recommended through the audit(s) shall be taken to improve the reliability of the data prior to developing a long-term program to reduce real and apparent water losses.
 - Data with a validity score of 50 or less are considered too weak to be used to develop a component analysis or for infrastructure planning and maintenance.
 - Developing data with an acceptably strong validity score can be a multi-year process.
2. When the data validity score meets the Level III (51-70) requirement, the permittee shall conduct a component analysis to identify causes of real and apparent water loss and develop a program to control losses based on the results of the component analysis. The Permittee shall submit the component analysis and water loss control program with a proposed implementation schedule to the Department.
3. Continued implementation will be a condition of the permit in place of meeting the 10% UAW performance standard.
4. Upon request of the Department, the permittee shall report on its implementation of the water loss control program.

A PWS permittee may choose to discontinue the water loss program implementation if UAW, as reported on the ASR and approved by DEP, is below 10% for four consecutive years, and the water audit data validity scores are at least Level III (51-70) for the same four years.

NOTE FOR SMALL SYSTEMS: For small systems with less than 3,000 service connections or a service connection density of less than 16 connections per mile of pipeline, the Unavoidable Annual Real Loss (UARL) calculation and the Infrastructure Leak Index (ILI) developed as the final steps of the top down water audit may not result in valid performance indicators, and may not be comparable to the UARL and ILI calculations for larger systems.

However, these small systems can benefit from developing reliable data and conducting an annual top down water audit. Small systems can rely on the real losses (gallons per mile of main per day) performance indicator developed in the water audit as a measure of real water loss when developing a water loss control program. The M36 Manual discusses the audit process for small systems, and includes a chapter to guide small systems in understanding the results of their audits and in developing a water loss control program (*Manual of Water Supply Practices – M36, Fourth Edition, Chapter 9: Considerations for Small Systems*, pp. 293-305).

Appendix B – Pond Level Monitoring Methods

Conduct pond level measurements at monitoring stations that shall be verified monthly. Each of the pond monitoring stations shall be measured within five working days of the end of every month. They shall be measured in feet, tenths of feet and hundredths of feet, so far as possible given wave effects and potential ice formation. Forms shall be established on which to record the measurements in the field, and they shall be retained as original records in a file at the Hyannis Water System office. All measurements and calculations shall be recorded. For example, if the wetted tape method is employed, both the length of tape suspended below the measuring point and the length of wet tape shall be recorded, and the results of subtraction shown. The elevation of the measuring point and the calculated elevation of the pond stage shall also be recorded. In addition, pumping conditions for all wells within 1,000 feet of the monitoring site shall be recorded. Notes indicating that the pond surface was frozen or dry at the monitoring site shall also be recorded.

Each measurement shall be duplicated in the field with a check measurement, and if the results are not reasonably consistent, additional measurements shall be made to resolve the discrepancies. The measurements shall be recorded monthly in an electronic format for future use and for automatic scan for error.