



# Town of Plymouth

## Department of Public Works – Water Division

### Water Balance Program

Withdrawal of water resources from the Commonwealth of Massachusetts to serve customers in the Town of Plymouth is regulated and limited by the Massachusetts Department of Environmental Protection (DEP). In order to manage these water withdrawals within the limits established, regulated, and enforced by the DEP, and in order for the Town of Plymouth to maintain the ability to supply water to its existing customers, water usage for new developments and the expansion of existing uses must be offset through compliance with the Town of Plymouth's Water Balance Program.

The Water Balance Program shall pertain to all new and expanded water use projects, except a single family residential housing unit limited to 3 bedrooms and a single water service connection. The Water Balance Program (WBP) Threshold is defined as any new use or expansion of existing use of public water, except for the above noted residential single family 3 bedroom (or less) residential dwelling. All future water use projections will be calculated using Title V (310 CMR 15.203). Metered usage credit may be applied to existing facilities proposing a change in use or expansion if there has been activity/usage at the building within the past two years.

Applicants to the Water Balance Program have several options for means to comply with the Water Balance Program including:

1. **Applicant-Directed Conservation** – Applicant identifies, implements, and completes water conservation activities approved by the Town of Plymouth, at existing Plymouth customer facility/location(s) within the same pressure zone as the proposed connection.
2. **Water Balance Mitigation Fee** – Applicant provides a water balance mitigation fee that will be used by the Town of Plymouth to fund water conservation activities or water infrastructure projects within the applicable service area.
  - a. Proposed projects with an estimated use of 10,000 gallons per day (gpd) or less will be assessed at water balance mitigation fee of \$10 per gpd.
  - b. Proposed projects with an estimated use greater than 10,000 gpd will be assessed \$20 per gpd for every gpd above 10,000 gpd.
3. **Supplemental Water Supply Source** – Must be developed and coordinated with the Town of Plymouth on a case by case basis for:
  - a. Identification and development of a supplemental water source for the Town of Plymouth.
  - b. Development and payment for a supplemental water source for the Town of Plymouth.

More detailed descriptions and requirements for each of these options are provided within this document. The Town of Plymouth will work with the Applicant in connection with any of these options. A pre-application meeting between the Applicant and the Town of Plymouth is encouraged to explore the options. The development of a supplemental source of supply is subject to further negotiations and agreement between the Town of Plymouth and the Applicant.

## **Applicant-Directed Conservation Requirements**

With the Applicant-Directed Conservation option, the Applicant must provide the Town of Plymouth with an estimate of the annual water usage or expanded water usage for the proposed project and must develop and implement a Conservation Plan that will reduce the existing water usage within the applicable pressure zone equal to the proposed increase in usage associated with the project. The proposed usage or the proposed usage increase amounts are hereinafter referred to as the “WBP Amounts”. Details are provided below.

### **Submit Application with Water Demand Information**

- Water use projections shall include an estimate of average annual water usage (expressed in gpd - gallons per day). All relevant, supporting data must be provided. Estimated usage must represent full project build-out. If the project is phased, then the incremental increases in water demand must be shown and explained.
- Applicable Massachusetts Title 5 regulations (310 CMR 15.203) shall be used to project and/or estimate average day water demands based on the proposed facility usage category(s).
- Upon request, the Town of Plymouth will provide historical water consumption data for any pre-existing property associated with the proposed project.
- Irrigation demand must be estimated separately in each demand projection.
- All water demand estimates shall be subject to review and acceptance by the Town of Plymouth.

### **Submit a Water Conservation Plan**

The WBP Amounts must be offset by an equal amount of water conservation savings. Developing and implementing the Water Conservation Plan is the responsibility of the Applicant. A proposed Plan shall be submitted with this Application. Methods to offset WBP Amounts include:

- Implementing water demand reductions from existing water customers in the applicable pressure zone within the Town of Plymouth water service area. This can be done by retrofitting existing buildings with water saving plumbing fixtures, water efficient appliances, or removing irrigation systems. Estimated savings from retrofits can be derived from the information shown in Table 1. Higher water saving estimates may be considered with supporting documentation.
- Implementation of demand reduction measures (e.g., independent irrigation systems, decreasing commercial and industrial consumptive use) associated with the results of water audits conducted for significant water users. (Large users will be identified by the Town of Plymouth upon request.).

All proposed water conservation work shall be reviewed and approved by the Town of Plymouth. The water savings achieved by completing water conservation work shall be estimated using the information provided below in Table 1. Alternative conservation usage estimates may be proposed and are subject to review and

approval by the Town of Plymouth. If plumbing fixtures are proposed to be replaced, then all fixtures of the same usage category (toilets, faucets, etc.) must be replaced in the premises in order to achieve the maximum calculated savings (100%).

<b>Device</b>	<b>Projected usage</b>
Vintage Toilet (pre-1978): 5 to 7 gpf	25 to 35 gallons per capita day
Conventional Toilet (1978-1993): 3.5 gpf	17.5 gallons per capita day
Low Consumption Toilet (after 1993): 1.6 gpf	8.0 gallons per capita day
High Efficiency Toilet : 1.3 gpf	6.5 gallons per capita day
Dual Flush Toilet: 1.1 gpf	5.5 gallons per capita day
Conventional Showerhead: 3 gpm or more	13 gallons per capita day
Low Flow Showerhead: 2.5 gpm or less	11 gallons per capita day
Vintage Faucets (pre-1994): 3 gpm	12 gallons per capita day
Standard Faucet (post-1993): 2.2 gpm	11 gallons per capita day
Vintage Urinal (pre-1994): 3.5 gpf at 3 flushes per capita per day	7.5 gallons per capita day
Standard Urinal (post-1993): 1.0 gpf at 3 flushes per capita per day	3 gallons per capita day
Waterless Urinal	0 gallons per capita day

gpf = gallons per flush

Sources:

- American Water Works Association (AWWA) Manual M22 – Sizing Water Service Lines and Meters and AWWA Manual M52 Water Conservation Programs
- Manufacturers Literature

## **Water Balance Fee Requirements**

Under the Water Balance Mitigation Fee Option, the Applicant must provide the Town of Plymouth with an estimate of the annual water usage or expanded water usage for the proposed project, and provide a Water Balance Mitigation Fee, calculated as described below. All Water Balance Mitigation Fees collected shall be used by the Town of Plymouth to fund water conservation activities or water infrastructure projects within the Town of Plymouth water distribution system.

### **Submit Application with Water Demand Information**

- Water use projections shall include an estimate of average annual water usage (expressed in gpd - gallons per day). All relevant, supporting data must be provided. Estimated usage must represent full project build-out. If the project is phased, then the incremental increases in water demand must be shown and explained.
- Applicable Massachusetts Title 5 regulations (310 CMR 15.203) shall be used to project and/or estimate average day water demands based on the proposed facility usage category(s).
- Upon request, the Town of Plymouth will provide historical water consumption data for any pre-existing property associated with the proposed project.
- Irrigation demand must be estimated separately in each demand projection.
- All water demand estimates shall be subject to review and acceptance by the Town of Plymouth.

### **Provide Funding (Water Balance Mitigation Fee)**

Once the Town of Plymouth has reviewed and approved the Applicant's estimated water demand projections, the owner/developer must provide a Water Balance Mitigation Fee in the amount of \$10 per gallon per day (gpd) for proposed projects with an estimated new or expanded usage of 10,000 gpd or less, based on the proposed annual average water demand. The Town of Plymouth will use the funds at its discretion to fund water conservation activities or water infrastructure projects.

If a project's estimated average daily water demand is greater than 10,000 gpd, a Water Balance Mitigation Fee of \$20 per gpd will be assessed for every gpd above 10,000 gpd.

The Town of Plymouth shall have the discretion on a case-by-case basis to require the owner/developer to perform mandatory water conservation work in lieu of paying the mitigation fee, or a portion of the mitigation fee.

## **Case Examples for Water Balance Program Requirements**

### **Case #1: New Construction**

Compliance with the Water Balance Program is required for all new buildings and/or structures (temporary or permanent) except for a residential single family 3 bedroom (or less) dwelling where water service is proposed. The amount of water requested for service shall be determined using Massachusetts Title 5 regulations (310 CMR 15.203). If the amount exceeds the WBP Threshold the applicant shall comply with the Water Balance Program.

### **Case #2: Existing Buildings Renovations/Modifications**

The renovation or modification of an existing building which results in a change in use of the building space will trigger an evaluation of water usage. If the same amount of building space will be used for the same activities (e.g. a 2,000 sf retail store being renovated into a new 2,000 sf retail store), then the determination will be that there is no change in water usage, provided that the building has been occupied and in use within the past two years. When the building renovations will result in a change in the current usage of building space (e.g. a 2,000 sf retail store being renovated into a 2,000 sf medical office; or a 4 bedroom house being converted into a fast food restaurant), then the change in water usage will be evaluated as follows:

Existing water usage for the building will be determined based on the average metered usage for the most recent two year period. If the proposed usage, calculated using Massachusetts Title 5 regulations (310 CMR 15.203), is greater than the existing metered usage then the net increase in water usage is the basis for determining whether compliance with the Water Balance Program is required. The net increase in usage will be determined by subtracting the existing metered usage (credit) from the future proposed usage. The metered usage credit will only be applicable if there has been activity/usage at the building within the past two years.

For Example: a building on Main Street has an average 2-year metered water usage of 100 gpd. A dentist's office is planned for the building that will use 400 gpd. The net increase in usage is 400 gpd minus the 100 gpd credit, or 300 gpd.

Existing Usage: 100 gpd

New Dentist Office (2 dentists @ 200 gpd/dentist): 400 gpd

Net Increase: 400 gpd – 100 gpd = 300 gpd

### **Case #3 Additions to Existing Buildings**

Additions to existing buildings are treated in a similar manner as new construction. The Water Balance Program is applicable to any proposed increase in the existing base usage.

Example: a 1-bedroom addition is proposed for an existing 3-bedroom house. The water balance program will be applicable to the net increase in water usage as a result of the 1-bedroom addition. Based on the tables found in 310 CMR 15.203, the net increase in usage is 110 gpd.

### **Case #4: New Building Replacing Existing Building**

This situation is applicable to a site where there is an existing building with plans for it to be demolished and a new building constructed in its place. If the building space activities are the

same for both the existing and future proposed buildings, and the size of the new building is equal to or less than the size of the existing building, then the Water Balance Program is not applicable. However, if the proposed building is a change in use from the existing building or increase in size, then the change in water usage will be evaluated based on the change in building size or usage. The Water Balance Program will only be applicable if there is a proposed net increase in water usage exceeding the WBP Threshold. The net increase in water usage will be determined as follows:

Water usage for the existing building will be determined based on the average metered usage for the most recent two year period. If the proposed usage, calculated using Massachusetts Title 5 regulations (310 CMR 15.203), is greater than the existing metered usage then the Water Balance Program shall apply. The net increase in usage will be determined by subtracting the existing metered usage (credit) from the future proposed usage. The metered usage credit will only be applicable if there has been activity/usage at the building within the past two years.

For Example: a building on Main Street has an average 2-year metered water usage of 300 gpd. Plans call for the building to be torn down and a new doctor's office constructed in its place. The future proposed usage of a doctor's office with 2 doctors is 500 gpd. Therefore, the net increase in usage is 500 gpd (proposed) minus 300 gpd (existing credit) or 200 gpd.

Existing Usage: 300 gpd

New Doctor's Office (2 doctors x 250 gpd/doctor): 500 gpd

Net Increase: 500 gpd – 300 gpd = 200 gpd

#### **Case #5: New Occupancy of an Existing Vacant Building**

The Water Balance Program requirements for this situation are similar to Case 4. If the building space activities planned for the building are the same as those of the prior occupant, and the building has had water usage within the past year, then the Water Balance Program is not applicable. However, if the building space activities are different in comparison to the prior occupant, or there has been no water usage within the past year, then the change in water usage will be evaluated to determine the applicability of the Water Balance Program. The Water Balance Plan will only be applicable if there is a proposed net increase in water usage that exceeds the WBP Threshold. The net increase in water usage will be determined as follows:

Buildings that have not been occupied within the past year and/or have not had any water usage within the past year will be treated as new construction as defined in Case 1. If the building has been occupied within the past year and has had water usage, then the existing water usage for the building will be determined based on the average metered usage for the most recent two year period. If the net increase in proposed usage for the building exceeds the WBP Threshold, then the applicant must comply with the Water Balance Program. The net increase in usage will be determined by subtracting the existing metered usage (credit) from the future proposed usage. The metered usage credit will only be applicable if there has been activity/usage at the building within the past two years (refer to prior case descriptions).

#### **Case #6: New Water Connection for an Existing Building**

If an existing building is currently not connected to the Town of Plymouth Water System, but requests to be connected, then the Water Balance Program will be applicable similar to Case 1, new construction.

**Case #7: Businesses Relocating within the Town of Plymouth Service Area**

Businesses relocating to new or different buildings within the Town of Plymouth service area are subject to the Water Balance Program. Water usage credits shall remain with the original or existing building site prior to the move. Water usage credits do not migrate with the relocating customer unless the existing place of business is demolished and a new one constructed in its place. The Water Balance Program will therefore be applicable as defined in the preceding six cases.



## Town of Plymouth Water Balance Program Application

### Section 1 – Applicant Information

Applicant's Name:		Date:	
Mailing Address:		Cell Phone:	
Email Address:		Other Phone:	

### Section 2 – General Project Information

Project Name ( <i>if applicable</i> ):			
Project Address:			
Type of Project:	Residential	Commercial	Mixed Use
Brief Project Narrative:			

### Section 3 – Water Demand Information

Type of Water Service: <i>(check all that apply)</i>	Domestic	Irrigation	Fire Protection
Number of new domestic services:		Number of irrigation systems:	
Number of new fire services:		Number of new fire hydrants:	
Does the property have an existing water account?		Existing account number: <i>(if applicable)</i>	
<b><i>Residential/Mixed Use Properties</i></b>			
Total Number of Bedrooms:		Type of irrigation proposed: <i>(drip or spray)</i>	
Area of lawn ( <i>square feet</i> ):		Area of shrubs ( <i>square feet</i> ):	
<b><i>Commercial/Mixed Use Properties</i></b>			
Type of facility:		Area of building ( <i>square feet</i> ):	
Area of lawn ( <i>square feet</i> ):		Area of shrubs ( <i>square feet</i> ):	

#### Section 4 – Water Balance Option (choose one)

<b>Option 1: Applicant-Directed Conservation</b> <p>Applicant identifies, implements, and completes water conservation activities approved by Plymouth Water Division at existing Plymouth Water Division customer facility/location(s) within the applicable pressure zone.</p>	
<b>Option 2: Water Balance Mitigation Fee</b> <p>Applicant provides a water balance mitigation fee that will be used by the Plymouth Water Division to fund water conservation activities or infrastructure projects within the applicable pressure zone.</p>	
<b>Option 3: Supplemental Water Supply Source for Plymouth Water Division</b> <p>Must be developed and coordinated with the Plymouth Water Division on a case by case basis for:</p> <ul style="list-style-type: none"><li>a. Identification and development of a supplemental water supply source</li><li>b. Development and payment for a supplemental water supply source</li></ul>	

#### Section 5 – Applicant Acknowledgements

The Applicant acknowledges that:

- The Applicant is responsible for all costs of the Water Balance Plan development and implementation. In order for the Town of Plymouth to complete the review of the application, all fees associated with the review of the permit application shall be paid for by the applicant. A permit application fee of \$100 is required to be submitted with this application for all projects.
- The Applicant acknowledges that the requirement for a Water Balance Plan is based upon current water withdrawal limits regulated by the DEP. The Town of Plymouth reserves the right to alter the requirements, mitigation fees, or discontinue this program at any time.
- For the Applicant-Directed Water Conservation Option, water service will not be provided to the Applicant's project until the activities described by the Applicant's Water Conservation Plan have been completed by the Applicant. A written acknowledgement that the Applicant has complied will be provided. Projects involving expansion of existing water demand requiring either construction or change in use must comply with the plan in order to maintain water service.
- For the Water Balance Mitigation Fee Option, water service will not be provided to the Applicant's project until the Applicant has provided the Town of Plymouth with the required funds.
- The Town of Plymouth, or its designee has the right to review the project's water use. In the event the actual usage exceeds the estimated usage the applicant shall immediately submit another Water Balance Program application under the existing terms and conditions of the program and take steps as required by the Water Balance Program to offset the additional usage.

Print Name:		Date:	
Signature:			

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**FOR OFFICE USE ONLY****Plymouth Water Division Acknowledgement**

Print Name:		Date:	
Signature:			

**Water Balance Requirement Summary**

Estimated Residential/Commercial Water Usage (gpd)	
Estimated Irrigation Water Usage (gpd)	
Total Estimated Water Usage (gpd)	
Mitigation Option Chosen:	
Amount of Conservation Required (gpd) ( <i>if applicable</i> )	
Mitigation Fee ( <i>if applicable</i> )	