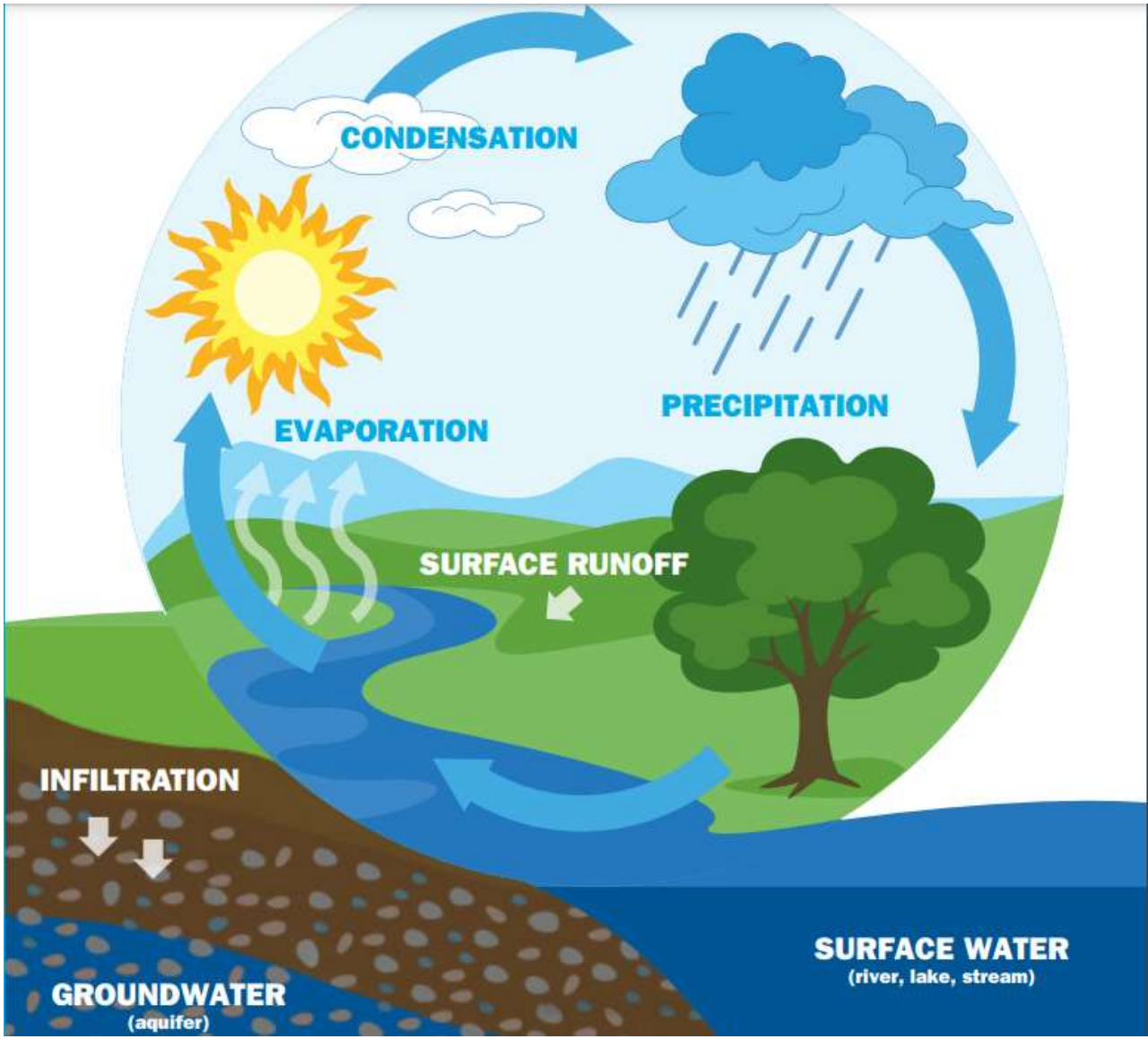
NATURAL SYSTEMS

Hydrologic Cycle

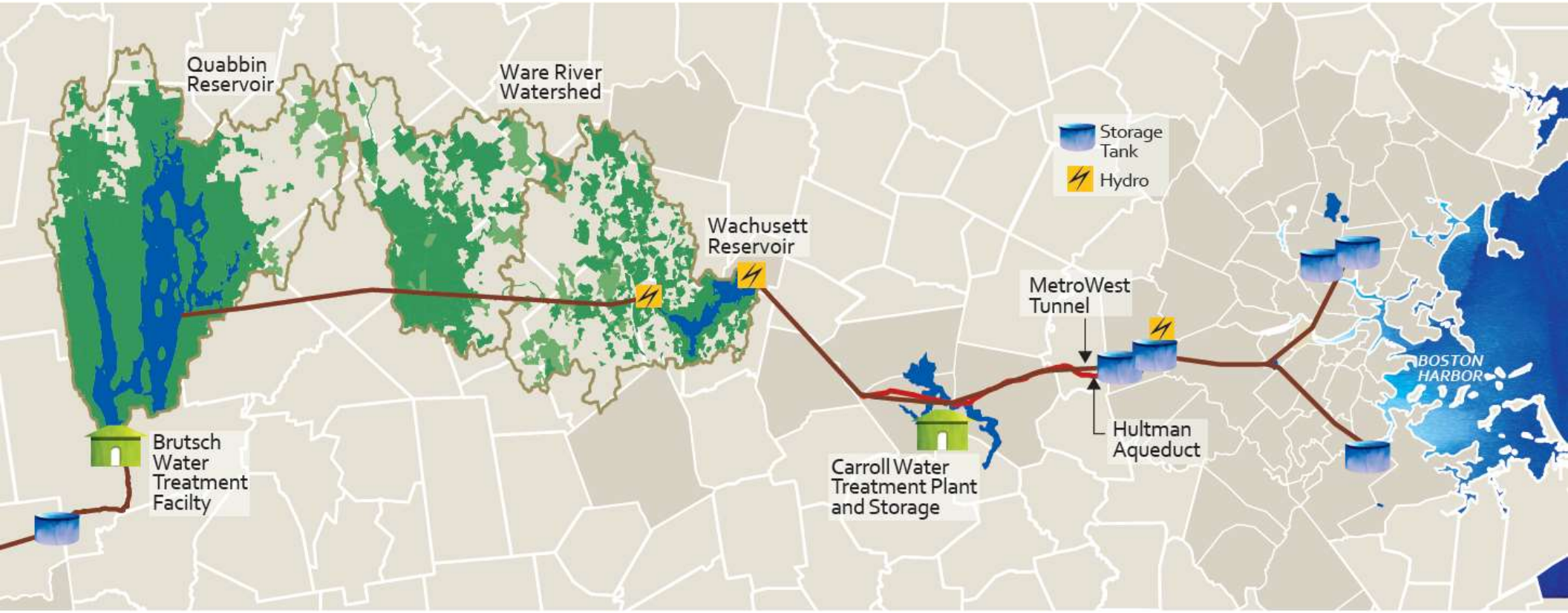
- Condensation
- Precipitation
  - Runoff
  - Evapotranspiration
  - Infiltration
  - Surface Water
  - Ground Water



DRINKING WATER SUPPLY

- **Weston's Water Supply History**
  - Private Wells
  - Public Supply Infrastructure
  - Reservoirs
  - Gravity and Pressure Systems
  - Weston Well Settlement Fund
  - MWRA Regional System

MWRA Regional Supply System

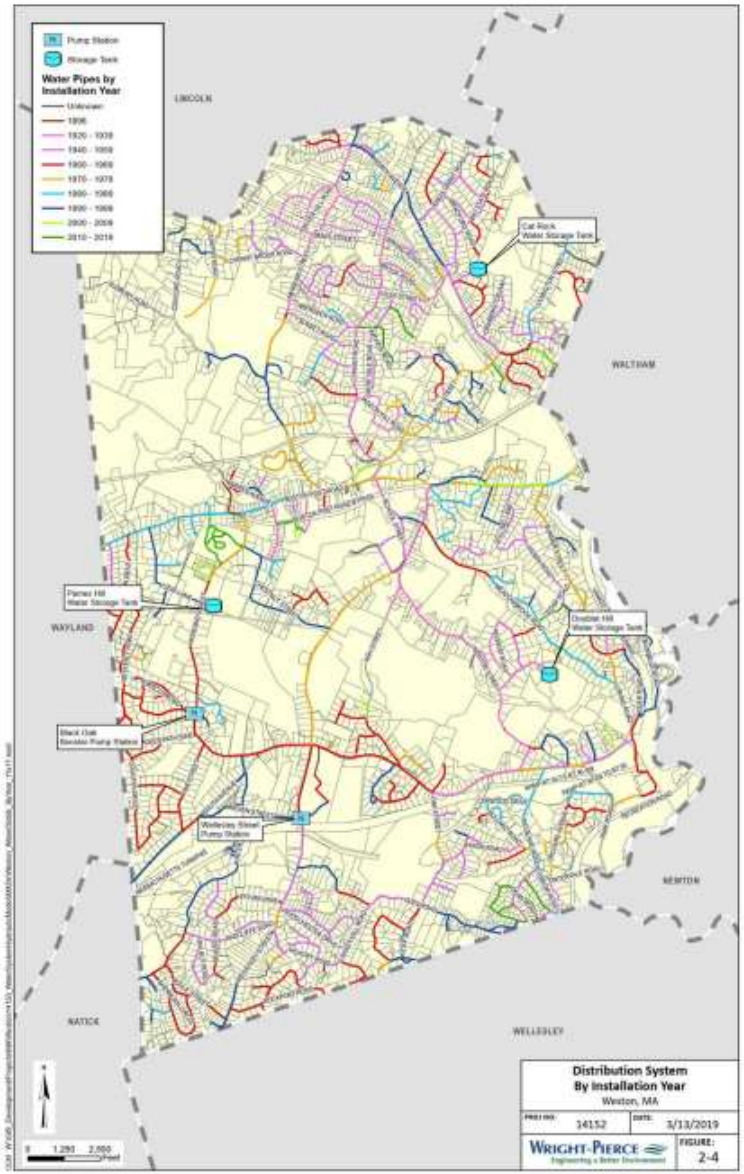


- Water Treatment
- Covered Storage
- EPA Rules

Weston Water Distribution Master Plan

2019, 178-page Report

- Evaluation of Current System for Sustainability and Reliability
- Seasonal Peak Demand on Storage Volume



DRINKING WATER USAGE

- **Current Water Usage**
  - 95% of Residents on Town System
  - Per Capita Average: 118 Gallons/per day
  - Town Daily Average: 1.85 million gallons/per day (Winter)
  - High Summertime Use: up to 5.45 million gallons/per day, largely created by irrigation use
- **Pumping**
  - Wellesley Street Pumping Station
- **Water Storage**
  - Active Storage
  - Town Water Tanks, Paine Hill, Doublet Hill, Cat Rock

CURRENT ISSUES

- Town Warrant
- Flooding Control
- Charles River Natural Valley Storage Project
- Drought Control
- Water Conservation
- Lawn Irrigation
- MVP (Municipal Vulnerability Preparedness) Grant Program

Weston's 20-Year Water Supply Master Plan

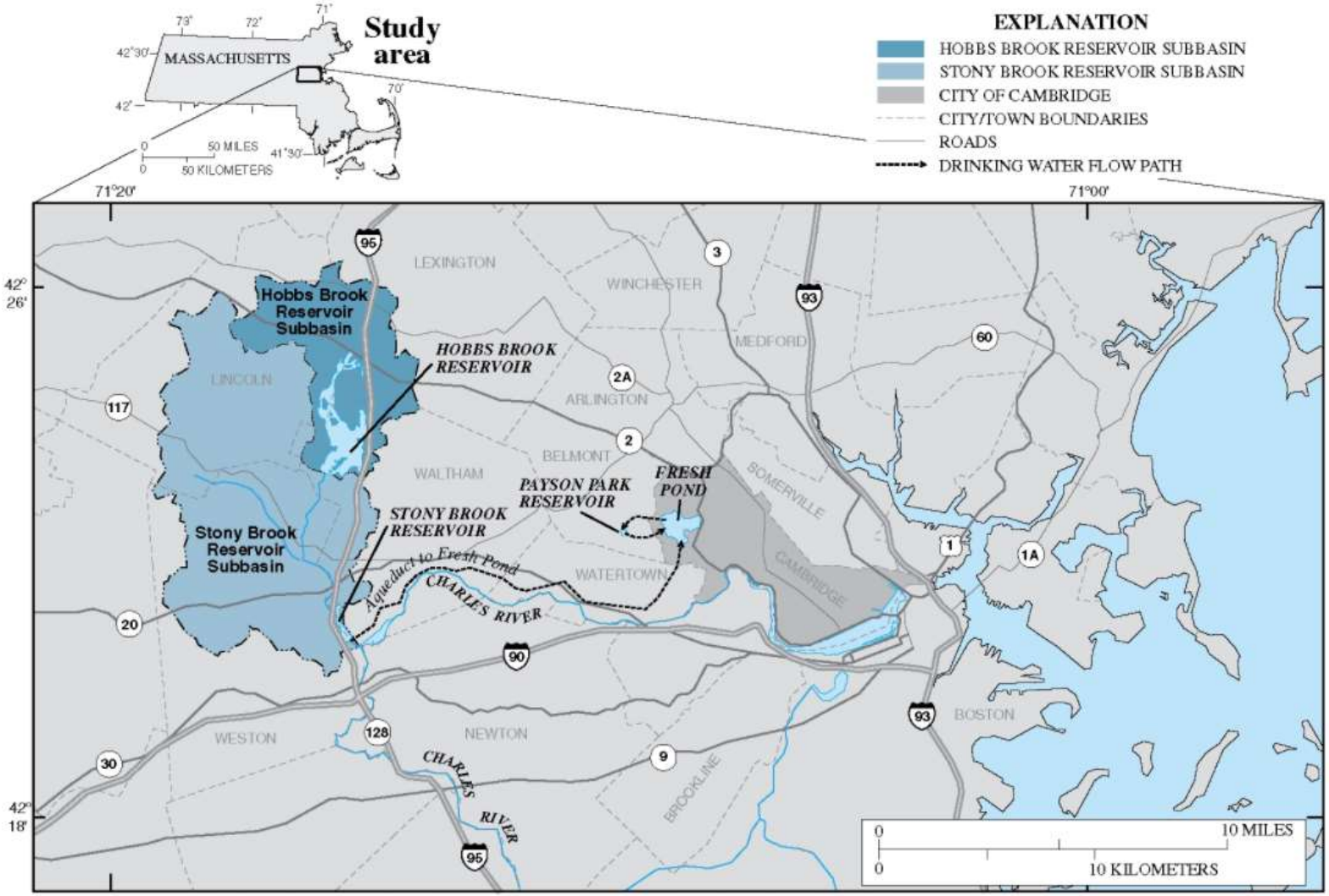
TABLE 8-2
CAPITAL IMPROVEMENT PLAN

Project Description	HIGH PRIORITY					MEDIUM PRIORITY					LOWER PRIORITY	Total*
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030-2040	
Tank Alternatives Study	$50,000											$50,000
Replace Paines Hill Tank & inlet/outlet pipe	$300,000	$3,643,000	$950,000									$4,893,000
Demolish and Restore Route 128 Well site	$25,000											$25,000
Second Connection To MWRA				$465,000								$465,000
Replace Cat Rock Tank & Level Instrument Tank			$300,000	$4,000,000	$2,278,000							$6,578,000
Upgrade Wellesley Street BPS					$150,000	$1,403,000						$1,553,000
Replace/Upgrade SCADA						$100,000	$378,000					$478,000
Replace inlet/outlet from Cat Rock tank to North Ave; North Ave south to Lexington Street						$250,000	$2,100,000	$438,000				$2,788,000
Booster Pump Station for Kings Grant Neighborhood									$200,000	$689,000		$889,000
Connect existing mains at intersection of Newton Street/Wellesley Street/Alphabet Lane							$9,500					$9,500
Connect Warren Place to Jericho Road							$72,000					$72,000
Replace Wellesley Street from the pump station to South Avenue											$1,997,000	$1,997,000
Replace South Avenue from Wellesley Street to Highland Street											$1,997,000	$1,997,000
Replace Brown Street from Wellesley to Winter Street											$990,000	$990,000
Replace Wellesley Street from South Avenue to School Street											$6,185,000	$6,185,000
Replace Highland Street from South Avenue to Paines Hill Tank											$5,090,000	$5,090,000
Replace Chestnut Street from Highland Street to Wellesley Street											$3,563,000	$3,563,000
Pipe Improvements for Fire Flow											$2,843,000	$2,843,000
Routine Pipe Replacement	$1,800,000	$1,854,000	$1,908,000	$1,962,000	$2,016,000	$2,070,000	$2,124,000	$2,178,000	$2,232,000	$2,286,000	$28,710,000	$49,140,000
TOTAL	$2,175,000	$5,497,000	$3,623,000	$5,962,000	$4,444,000	$3,823,000	$4,683,500	$2,616,000	$2,432,000	$2,975,000	$51,375,000	$89,605,500

*2019 costs from Table 8-1 inflated 3%/year.

Cambridge Water Supply

- Inter-basin Transfer
- Reservoir Recharge



WATER BUDGET:

MEASUREMENT OF THE DEFICIT OR SURPLUS OF GROUNDWATER RECHARGE IN A GIVEN WATERSHED

Is not a monetary measure, but it is a hydrologic calculation.

WATER BUDGET FOR CHARLES RIVER WATERSHED

MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
P	94	84	100	97	93	93	87	94	96	86	107	99	1130
PET	0	0	8	40	79	117	136	120	85	48	20	0	653
P–PET	94	84	92	57	14	–24	–49	–26	11	38	87	99	477
Storage	100	100	100	100	100	76	27	1	12	50	100	100	866
Delta Storage	0	0	0	0	0	–24	–49	–26	11	38	50	0	
AET	0	0	8	40	79	117	136	120	85	48	20	0	653
DEF	No deficit this year												
SURPLUS	94	84	92	57	14	0	0	0	0	0	17	99	457
AR	148	158	171	143	85	42	21	10	5	2	18	108	911
DET	74	79	85	71	42	21	10	5	2	1	9	54	454
GWR	74	79	86	72	43	21	11	5	3	1	9	54	458

All numbers in millimeters
P=Precipitation
PET=Potential Evapotranspiration
Storage=Water stored in zone of soil moisture
Surplus=Water that exceeds storage capacity
AET=Actual evapotranspiration
DEF=Water deficit, difference between PET and AET
AR=Water available for recharge
DET=Water detailed in vadose zone
GWR=Groundwater recharge

Surplus	457	Millimeters
Inches rain	18.0	Annual surplus
CFSM	1.32	Annual surplus cubic feet per square mile