

Water for the Future:

**Delaware Aqueduct Rondout-West Branch Tunnel
Bypass Project**

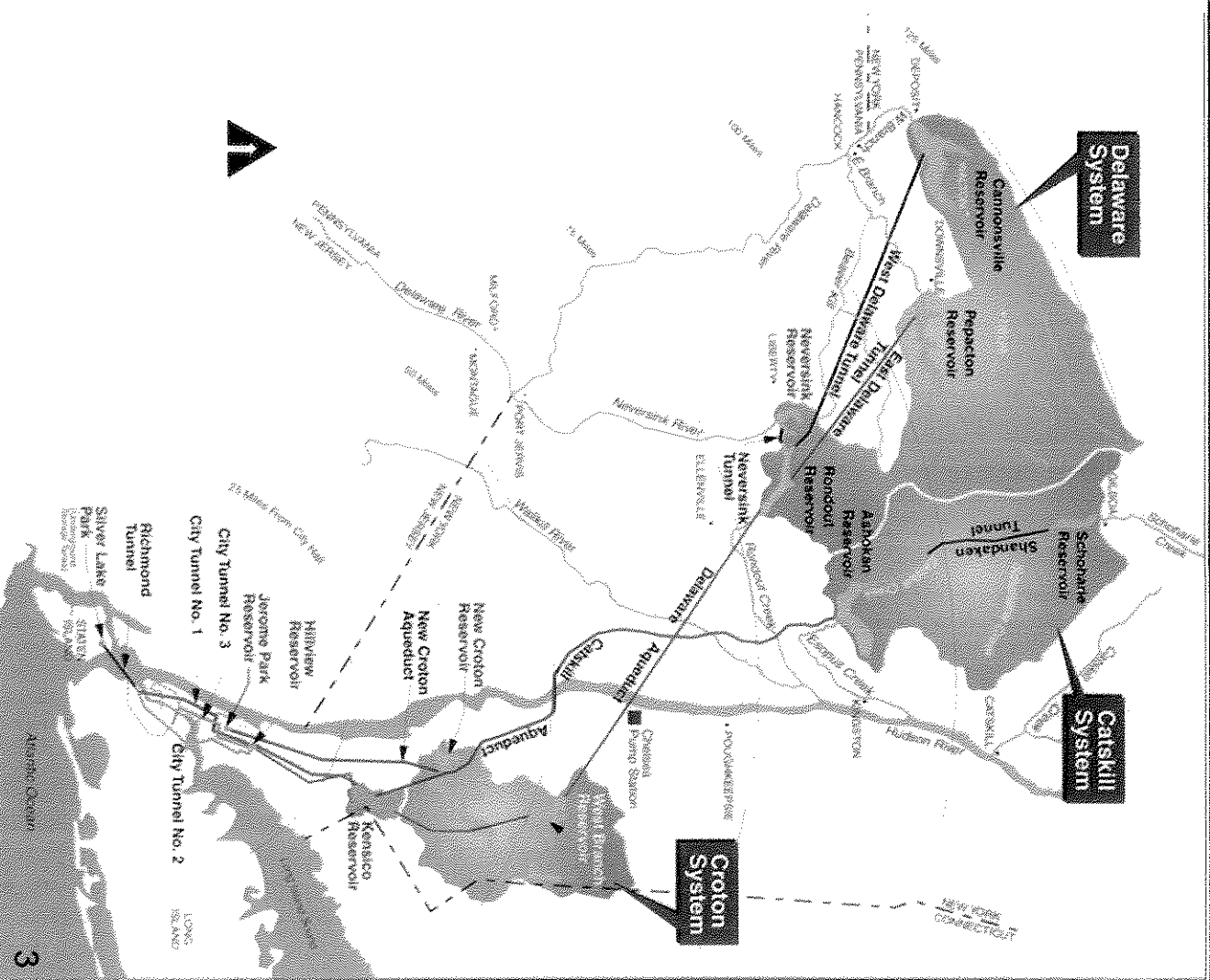
**Manhattan Community Board 8
Environmental Committee**

Today's Agenda

- ❖ Overview of NYC Water System
- ❖ Familiarization with Tunnel Repair Project
- ❖ Bypass Tunnel Repair- 3 Phases
- ❖ Environmental Impact Review
- ❖ Water Supply Planning and Augmentation
 - ❖ Conservation
- ❖ Overall Program Timeline

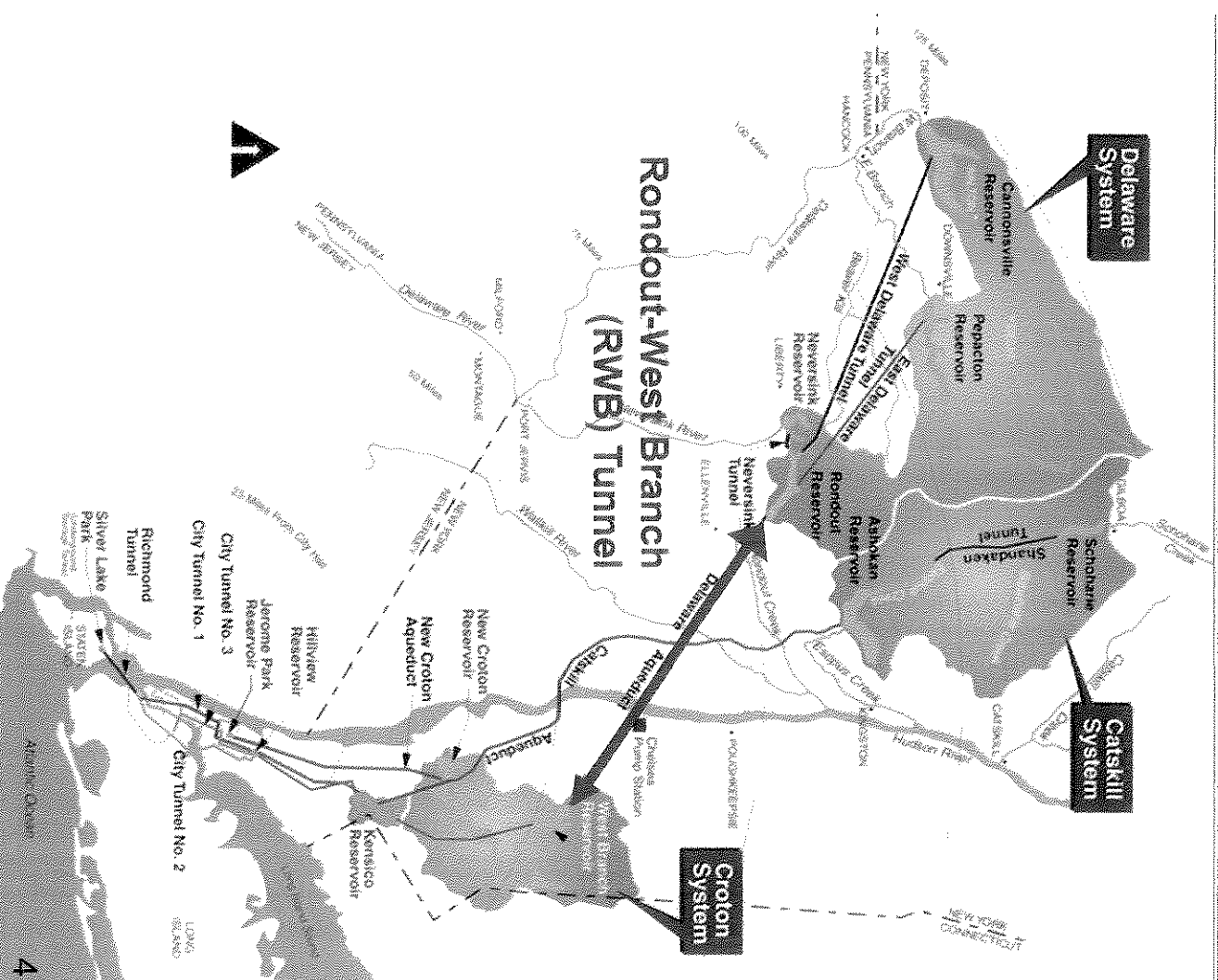
NYC Water Supply System

- Supplies average water demand of 1,000 MGD
- 3 Systems
 - Croton
 - Catskill
 - Delaware

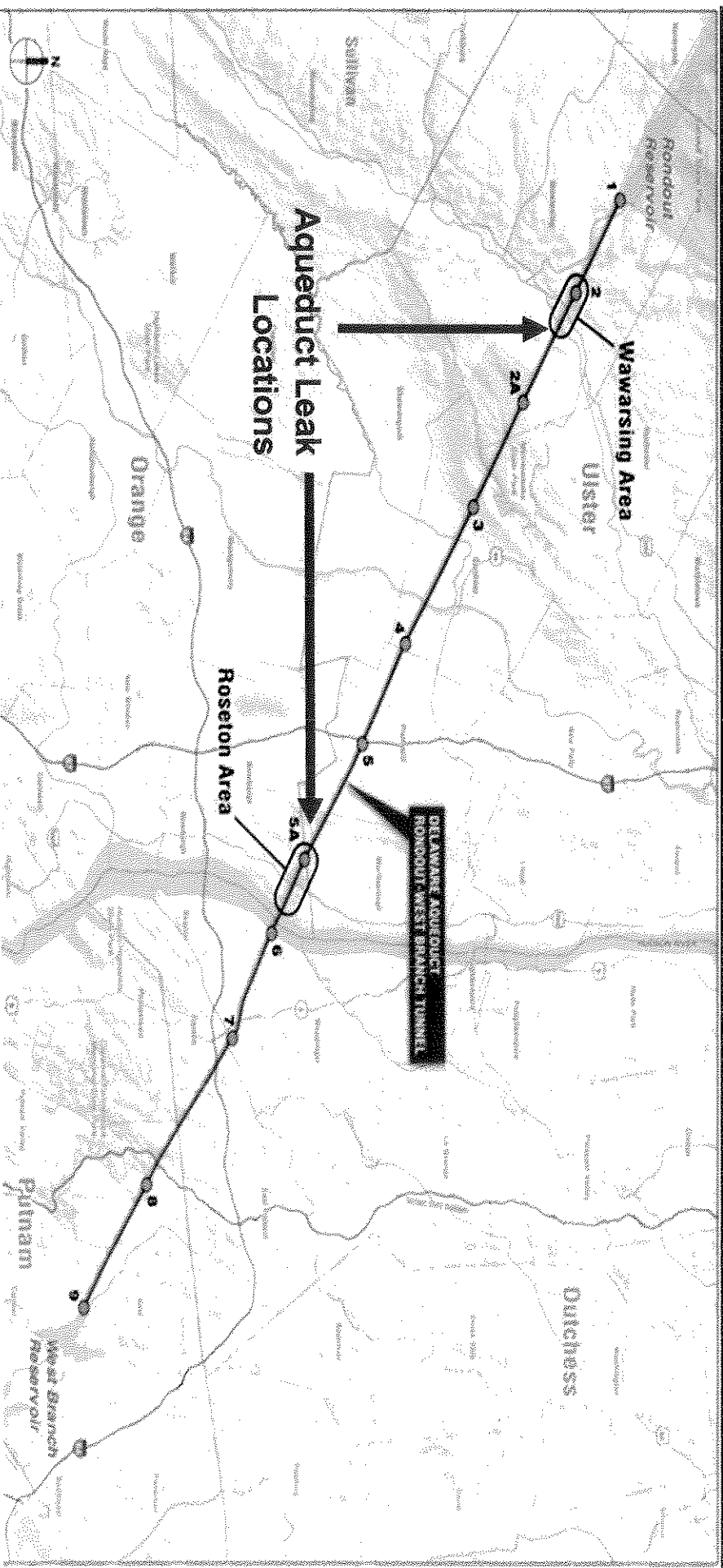


Rondout-West Branch (RWB) Tunnel

- Conveys Delaware System Supply across Hudson River
- In service since 1944
- Last drained 1957
- Critical system component that typically conveys more than half of total daily supply
- Tunnel Dimensions
 - 45 miles long
 - 13.5 feet diameter
 - 300 to 2,400 feet below ground

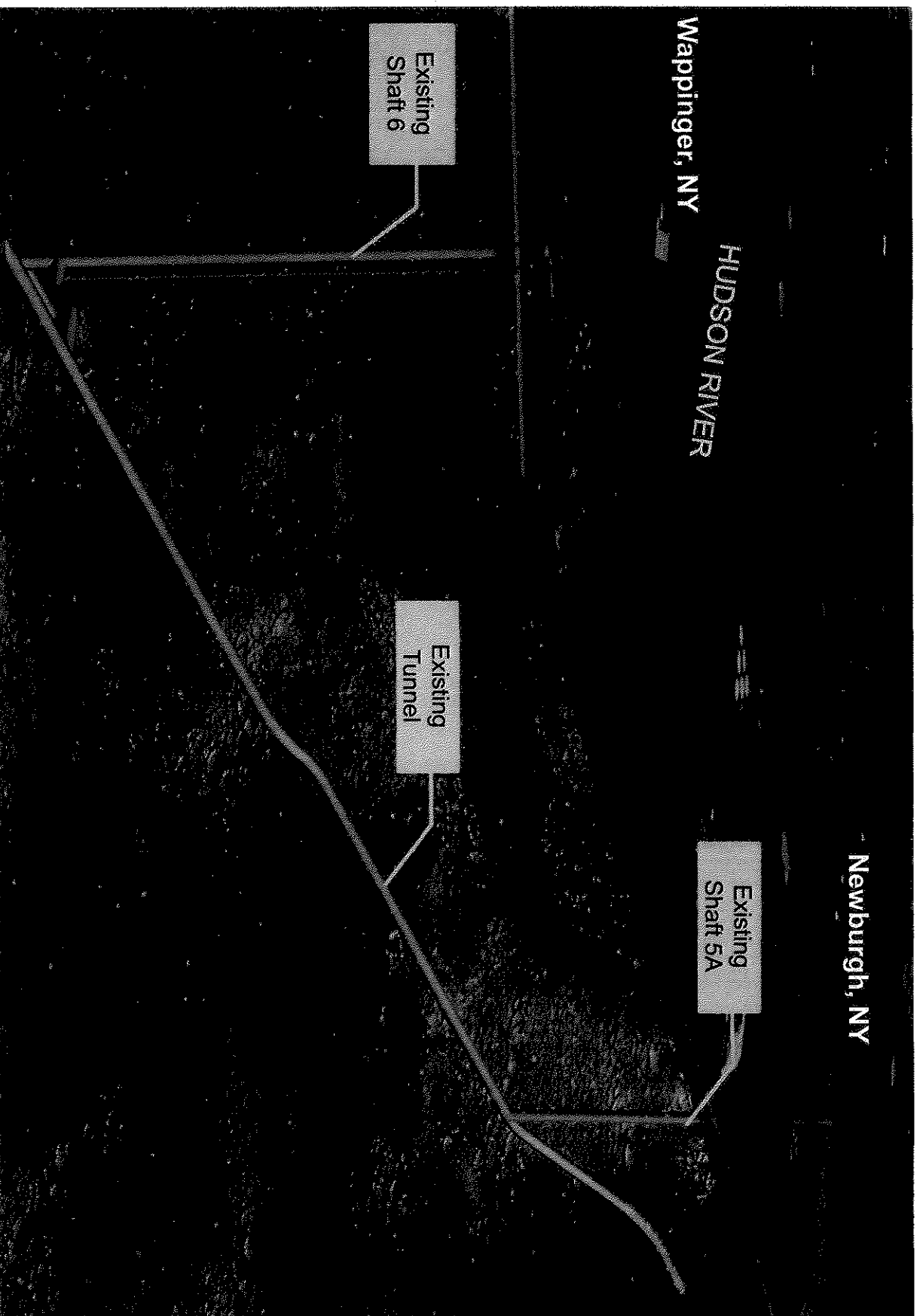


Rondout-West Branch Tunnel Leakage

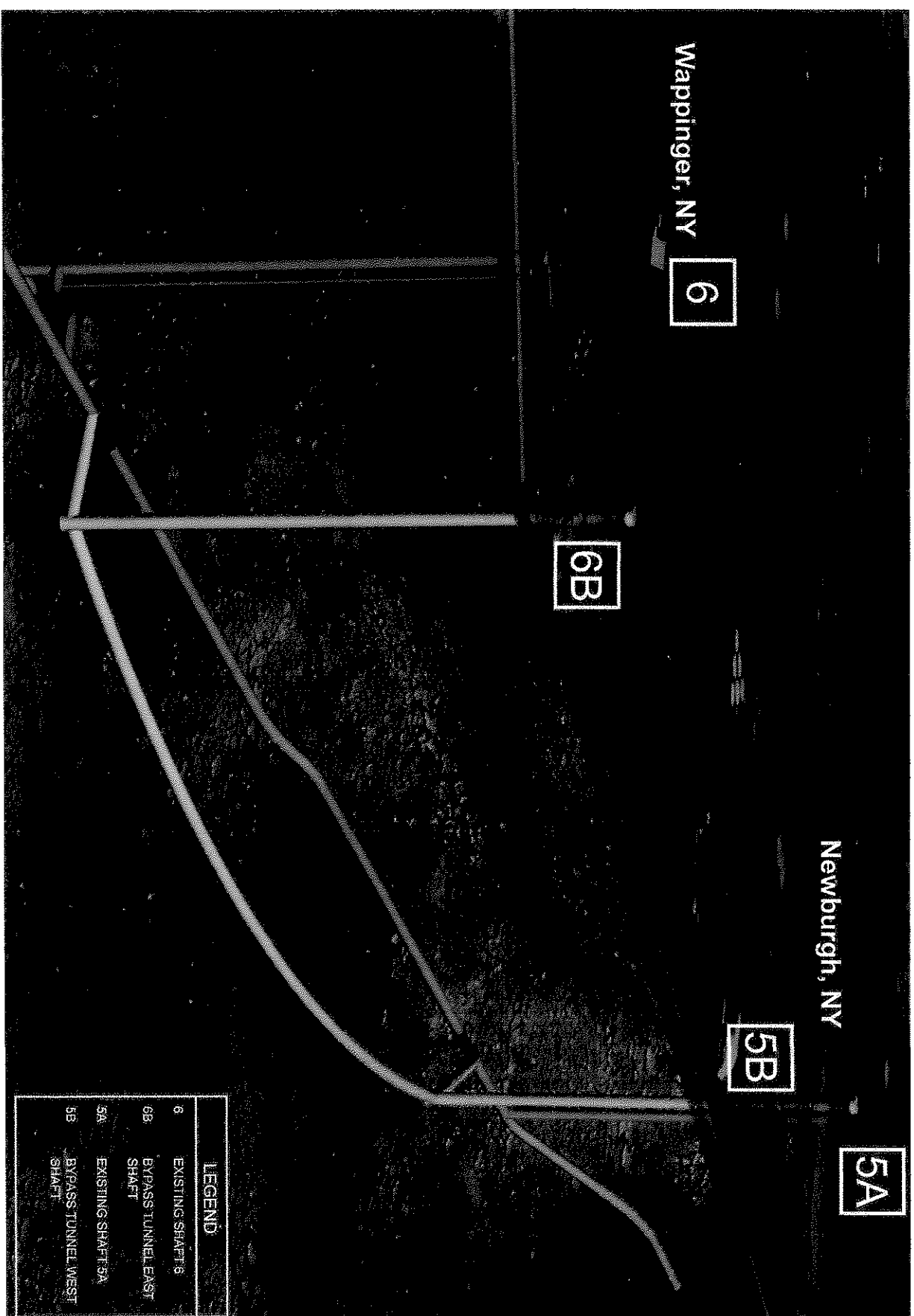


- Total leakage rate estimated at 15 mgd to 35 mgd
- Leakage reaches ground surface in the vicinity of Wawarsing and Roseton.
- Difficult conditions were encountered at both locations during aqueduct construction

Existing Tunnel



Existing Tunnel with Bypass



Bypass Tunnel Repair- 3 Phases



- ❖ Phase 1- Shaft construction: 2013 to 2015
 - ❖ West and East sides simultaneous
 - ❖ RWBT remains in service
- ❖ Phase 2- Bypass tunnel construction: 2014 to 2019
 - ❖ Eastward heading
 - ❖ RWBT remains in service
- ❖ Phase 3- Bypass connection and Wawarsing Repairs: 2020 to 2021
 - ❖ 6 to 15 month duration
 - ❖ RWBT is out of service

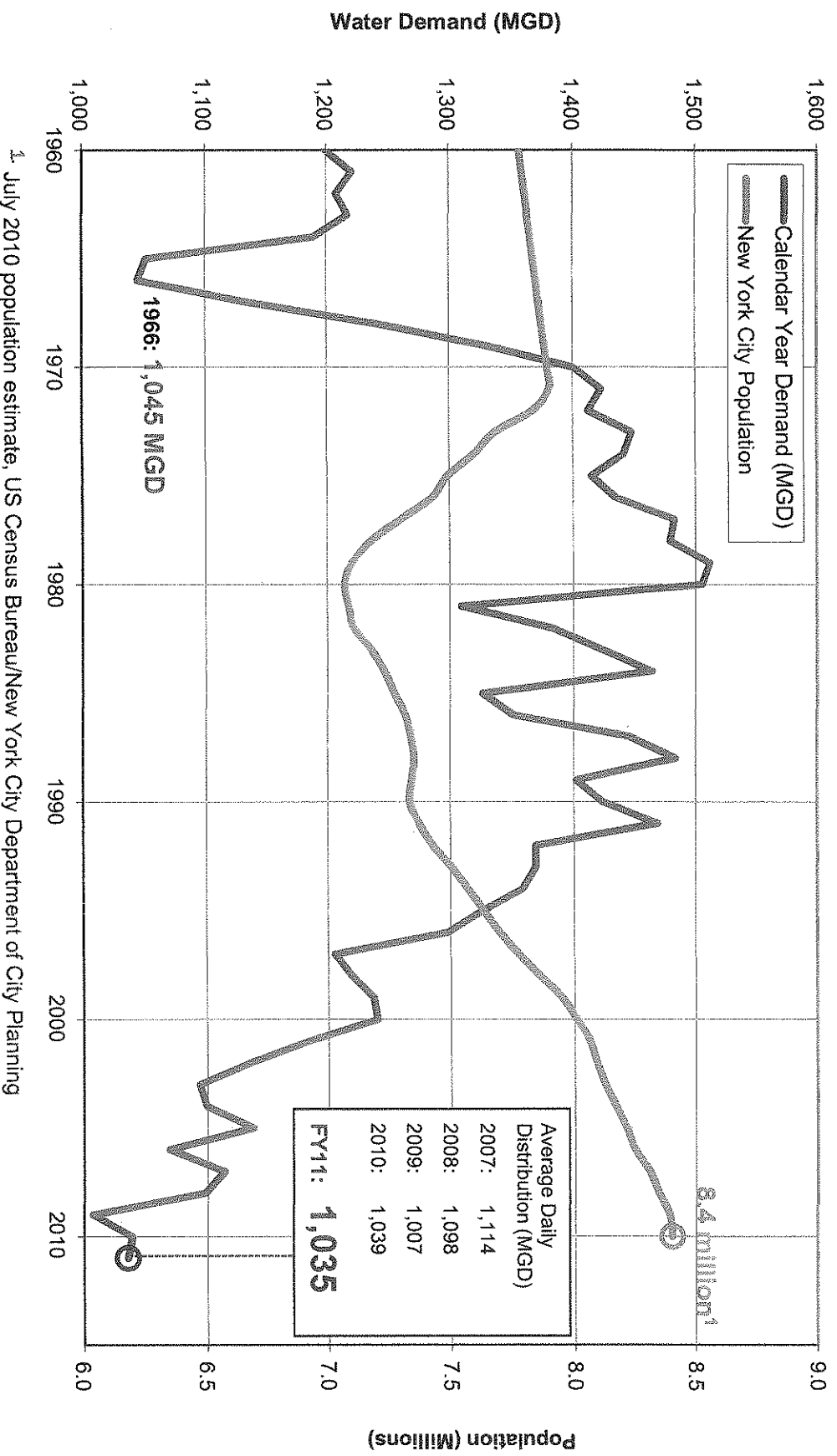
- ❖ DEP will take a two-part approach to the Program's environmental review.
- ❖ First EIS will assess:
 - ❖ Project 1, Shaft and Bypass Tunnel Construction—IN DETAIL
 - ❖ Project 2A, Water Supply System Augmentation—GENERICALLY
 - ❖ Project 2B, Bypass Tunnel Connection and RWBT Inspection and Repair—GENERICALLY
 - ❖ Wawarsing Repair—IN DETAIL
 - ❖ Operation of the proposed program—IN DETAIL
- ❖ Second EIS will assess:
 - ❖ Projects 2A and 2B—IN DETAIL

- ❖ During RWBT shutdown (to start in Fall 2020), approximately 830 MGD of normal supply capacity will not be available for transmission to NYC.
- ❖ NYCDEP intends to augment RWBT 'normal' capacity from a combination of:
 - ❖ Catskill Aqueduct Improvement Projects (Venting, Cleaning, etc)
 - ❖ Reactivation of Queens Well-field (DEP owned)
 - ❖ Interconnections with Non-NYC Suppliers
 - ❖ New Jersey
 - ❖ Nassau County
- ❖ Conservation- 5% (50 MGD) reduction in daily demand

Historical Water Distribution & Population

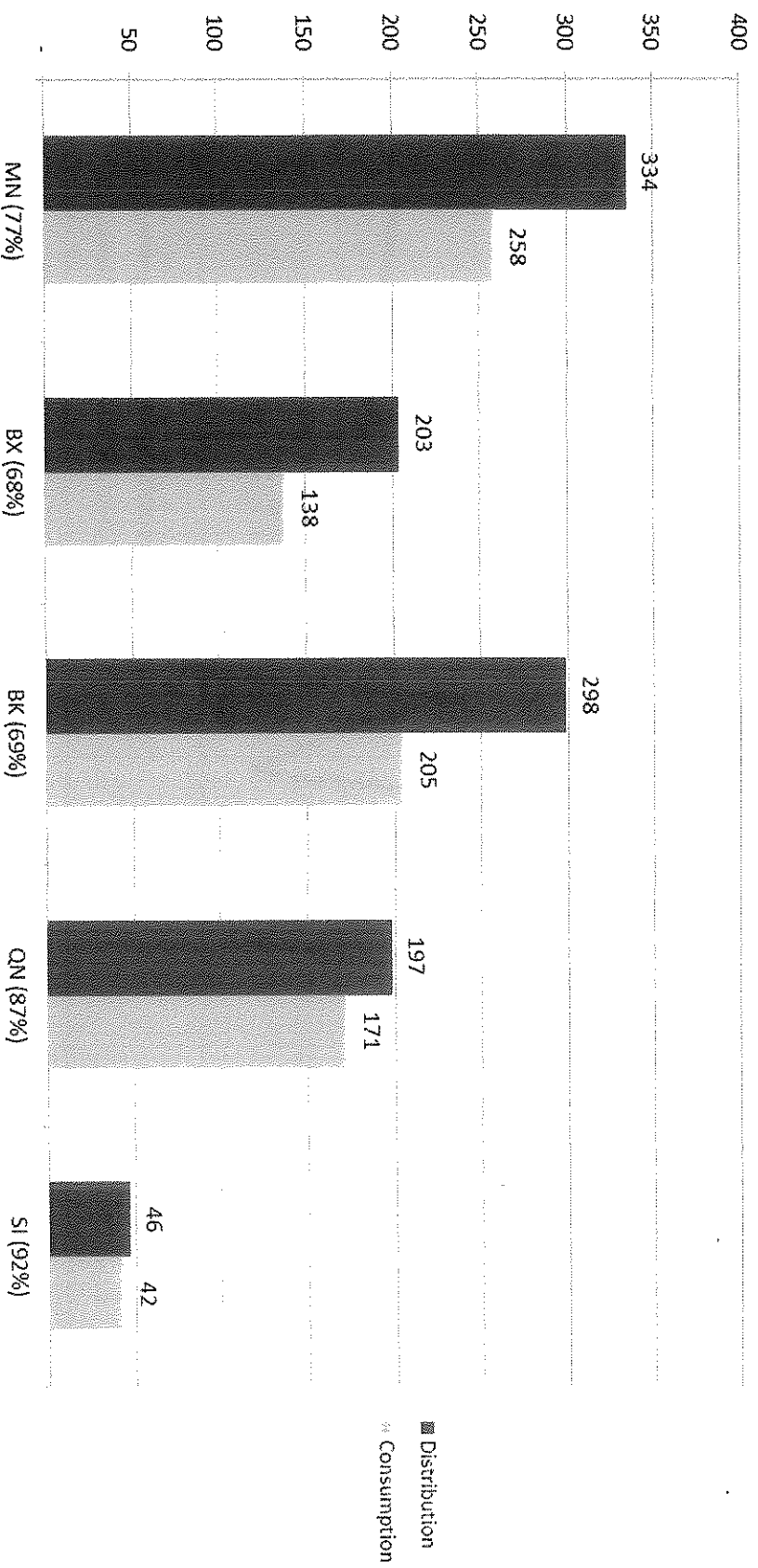


- ❖ Distribution has declined markedly since the early 1990s – despite increasing population.
- ❖ 2009 average daily distribution was the lowest since the 1960s drought-of-record.
- ❖ Average distribution has since rebounded to 1,039 MGD in 2010 and 1,035 MGD during FY11, but remains below drought-of-record levels.



❖ Accounted-for water ranges from 68% in the Bronx to 92% in Staten Island.

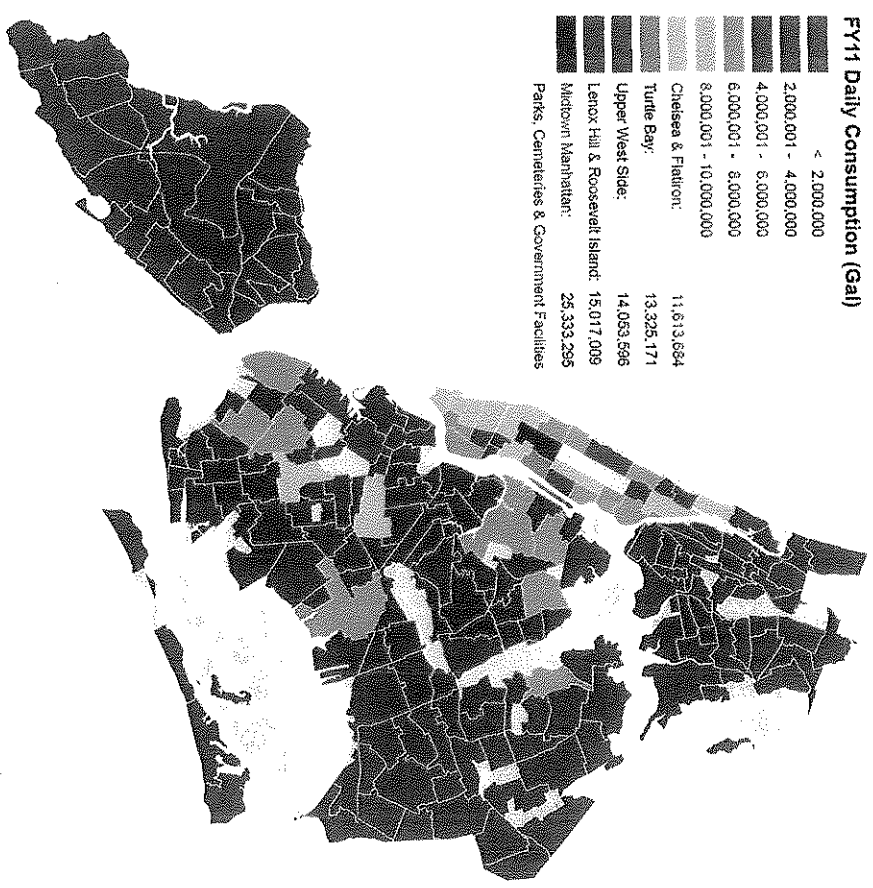
MGD



Conservation

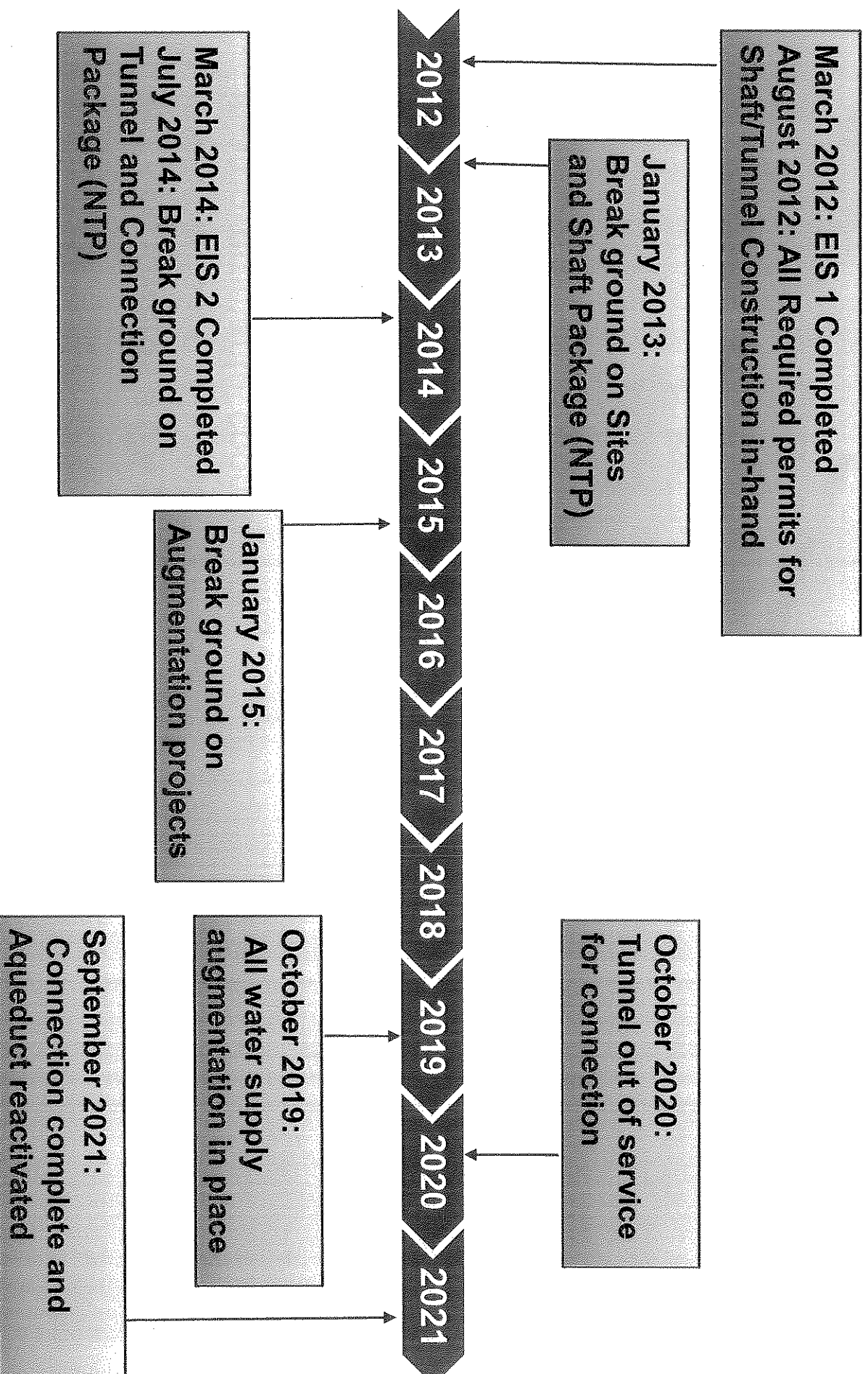


- ❖ Working towards a 5% goal for reductions
- ❖ Implementation requires significant intergovernmental coordination



Accountable Manager	Vlada Kenniff
Current Status	Planning
Key Stakeholders	NYCHA DOE/SCA DEP Parks WCS Department of Corrections NYPD FDNY DSNY DCAS Libraries CUNY

Water for the Future: Schedule Milestones



Open Discussion and Questions?

NYC
Environmental
Protection

