

6.0-1 SUMMARY

Cumulative adverse impacts are two or more individual effects on the environment that, when taken together, compound or increase other environmental impacts, which may then rise to the level of significance. Cumulative adverse impacts can result from a single action or from a number of individually minor but collectively significant actions taking place over a period of time. They may include indirect or secondary impacts, long-term impacts, and synergistic effects.

For the Water for the Future Program, potential cumulative adverse impacts—to the extent they can be identified at this time—are addressed in Chapter 2 through Chapter 6 of this EIS for Project 1, Shaft and Bypass Tunnel Construction; those portions of Project 2B, Bypass Tunnel Connection and RWBT Inspection and Repair, including Wawarsing that would occur at the west and east connection sites (i.e., connection); and future operation of the tunnel after repairs.

For example, the potential cumulative traffic, air, and noise impacts that could occur from construction on both connection sites are considered in the respective impact evaluations. With Project 1, the maximum predicted total cumulative concentrations of carbon monoxide, sulfur dioxide, nitrogen dioxide, PM₁₀, and PM_{2.5} would be below the applicable ambient air quality standards at both the west and east connection sites, including potential cumulative concentrations. Based on the modeling performed for the DEIS, when combined with the noise on the near side of the river, cumulative noise on the far side of the river would not have any cumulative effect on the construction-generated noise levels; therefore, there is no potential for cumulative impacts from noise. For traffic, the west and east sides were analyzed separately since each study area on each side of the Hudson River would have its own separate trip generation volumes and assignments for construction activity. I-84 is the only roadway that connects the west and east sides via the Newburgh Beacon Bridge and is the only channel for vehicular travel between the two study areas. By analyzing the I-84 ramps at both Route 9W and Route 9D, the analysis accounts for any traffic arriving to/departing from the two connection sites via I-84; therefore, there is no potential for additional significant cumulative adverse impacts from traffic. For the greenhouse gas analysis, the potential cumulative emissions from the construction of Project 1 and portions of Project 2B (described above) are included. For the assessment of impacts on water rates, the total cost of Project 1 and portions of Project 2B (described above) are included; however, it is noted in Section 5.4, “Operation Socioeconomic

Conditions,” that the second EIS will update the water rate analysis to include the rate impact of the Water for the Future Program. DEP has undertaken an analysis of the effects of water rates in the FEIS, located in the Section 5.4-3 “New York City Water Rate Structure and Water Rates.” For wholesale customers outside New York City, water rates are determined by the Water Board in accordance with the formula set forth in the Water Supply Act of 1905 (the “Act”). The Act states that the rate for water service to upstate wholesale customers is determined on the basis of the actual total cost of the water to New York City, after deducting the capital and operating costs incurred within the city limits in connection with the distribution and delivery of the water within the city¹ (see NYC Admin. Code §24-360(c)). The actual retail rates that upstate residents pay are further determined by the specific water supplier.

The Water Board retains rate consultants to release an annual report on the cost of supplying water to upstate wholesale customers, which includes an analysis of projected costs and consumption to derive a rate per million gallons. With regard to the Water for the Future Program, the Water Board will continue to set its rate for customers outside New York City based on the cost of service in accordance with applicable law.

Chapter 3, “Probable Impacts of Project 2A, Water Supply System Augmentation and Improvement,” provides a generic assessment of potential effects from implementation of Project 2A, and several sections in Chapter 4, “Bypass Tunnel Connection and RWBT Inspection and Repair, Including Wawarsing,” provide a generic assessment of potential effects that may occur from implementation of Project 2B.

DEP currently anticipates that the Water for the Future Program will take up to 9 years to complete. The first stage (approximately 7½ years) of the proposed program is to construct a bypass tunnel around the leaking areas of the Rondout-West Branch Tunnel (Project 1) segment of the Delaware Aqueduct, which typically supplies 50 percent of the city’s drinking water. Planning for Project 1 is well under way, and construction is currently anticipated to begin in 2013. In order to ensure a continued supply of drinking water during the shutdown of the Delaware Aqueduct, DEP is in the process of identifying water conservation and augmentation projects (Project 2A). The scope of these projects and the effects related to the shutdown are predicated on the duration of the connection of the bypass tunnel and repair of the Delaware Aqueduct. Currently, the shutdown is anticipated to take between 6 and 15 months starting in 2020 (Project 2B). Collectively, DEP refers to Projects 2A and 2B together as Project 2.

Given the need to start the construction work on the bypass tunnel as expeditiously as possible due to the risk to the city’s water supply should the Delaware Aqueduct fail, this FEIS contains a site-specific environmental review for Project 1. Project 2 is discussed in this FEIS to the extent feasible given the level of project development. The level of detail of that review is, of necessity, more preliminary in nature, as these projects have not been as developed as Project 1. DEP will

¹ See Report of the Cost of Supplying water to Upstate Customers for the 2012 Rate Year, page 19

conduct a full site-specific review of the impacts of Project 2 in the near future (in 2013-2014) when Project 2 elements are sufficiently identified so that the project's impacts can be fully analyzed on a site-specific basis.

In addition to a thorough review of the impacts of Project 1 and a preliminary review of the impacts of Project 2 based on currently available information, this EIS addresses the cumulative impacts for the Water for the Future Program to the extent possible. It should be noted that the locations and/or timing of impacts for Project 1 and Project 2 are separate such that it is reasonably anticipated that the impacts from Project 2 will not exacerbate any of the impacts identified in Project 1. That said, the second EIS or a subsequent environmental review, as appropriate, will comprehensively analyze any potential cumulative impacts of Projects 1 and 2 together. The two EISs will thus consider the full range of environmental impacts associated with the entire proposed Water for the Future Program, including short-term and long-term impacts; all impacts are being considered "as early as possible in DEP's formulation" of the action, as required by SEQRA. 6 NYCRR § 617.6(a)(1).

This approach satisfies the goals of SEQRA – to incorporate the consideration of environmental factors into agency planning at the earliest possible time, in a transparent, public process. In sum, the current FEIS addresses the environmental impacts associated with Project 1, as well as the potential impacts of the actions that are now identifiable in connection with Project 2. DEP acknowledges that elements of Project 2 will be developed at a later date and thus will require additional analysis. To address this, DEP has committed that it will undertake a second EIS or a subsequent environmental review, as appropriate, in order to ensure that such aspects are properly analyzed and undergo public review. In conjunction with DEP's commitment to complete a second EIS or a subsequent environmental review, as appropriate, for Project 2, the current review provided for Water for the Future Program complies with the legal requirements of SEQRA and is no less protective of the environment than a single EIS that, of necessity, could not be developed until a later date.

As part of the second EIS or a subsequent environmental review, as appropriate, DEP will undertake a detailed analysis of all potential individual and cumulative impacts associated with the program, including the Nassau County Interconnection and Queens Groundwater Reactivation. No actions will be undertaken in association with these projects until the appropriate environmental reviews have been completed. Because a determination of cumulative adverse impacts from these later potential actions cannot be made at this time, the second EIS will provide further details on Project 2A and Project 2B, and will quantitatively assess the potential cumulative impacts resulting from the proposed Water for the Future Program.

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