



INTRODUCTION

The National Park Service (NPS) is considering potential improvements to the water system at the North Rim and certain inner canyon sites at Grand Canyon National Park and is requesting feedback from the public on the possible improvements. The initial proposal for these improvements is provided below. The information obtained from the public will be used to refine the proposal. Once the proposal is refined, the NPS will begin the appropriate environmental compliance pathway, which would lead to decisions for long term solutions.

PURPOSE AND NEED

The purpose of the improvements is to provide a reliable water system to meet water supply needs at the North Rim and in the cross canyon corridor from Supai Tunnel to Cottonwood Campground for a project lifespan of up to 75 years. The improvements are needed because the existing North Rim water system, specifically the waterline from the North Rim to Roaring Springs, is past its design life, resulting in frequent failures with extended periods of service outages that require continual repairs in a hazardous environment.

Project objectives include:

- Improve the reliability and resiliency of the North Rim water system, including delivery, treatment, and storage
- Reduce high hazard operations and maintenance of the water system
- Provide infrastructure that meets current and future visitor operational needs

Additional Background

- The North Rim waterline was constructed in the late 1920s and is critical to supporting park operations on the North Rim.
- The waterline conveys water from Roaring Springs, the source of all potable water on the North Rim, to the Roaring Springs Pumphouse, where the water is then treated and pumped to the North Rim water storage tanks.
- The North Rim waterline is largely surface mounted in steep and rugged terrain, with only a few short sections installed underground.
- The waterline has exceeded its 50-year design life and requires an average of five repairs per year due to pipe failures such as failing joints, damage from falling rocks, and freezing.
- The North Rim waterline is susceptible to freezing because it is surface mounted and exposed; as such, the waterline is drained prior to winter to prevent freezing, and water is not pumped to the North Rim from approximately December-March. During this time, the North Rim must rely on water stored in the North Rim water tanks.
- Repairs to the waterline are challenging and hazardous due to the steep, rugged terrain and difficult access.
- The Roaring Springs Pumphouse, which is located in the inner canyon, is a critical component of the North Rim water system. At the pumphouse, raw water is treated, then pumped to the North Rim water tanks where it is stored prior to distribution. While the existing water treatment system meets drinking water standards, it is beyond its design life. Due to its remote location, repairs to address failures, general operations and maintenance, and water quality monitoring at the pumphouse are challenging.



Left: Overhead view of a section of the North Rim waterline that was destroyed by rockslides resulting from high snow accumulation in Winter 2022-23. Several hundred feet of pipe was lost, requiring costly repairs in a hazardous environment. This section of waterline is surface mounted, and with the improvements would be placed in a borehole. (NPS Photo)



Right: Close-up view of broken North Rim waterline resulting from heavy snow in Winter 2022-23. (NPS Photo)



PROJECT PROPOSAL

Water Distribution

- Replace the entire North Rim waterline from the North Rim to the Roaring Springs water source. Roaring Springs, which is in the inner canyon, would continue to serve as the sole source of water for the North Rim and at the Manzanita, Cottonwood, and Supai Tunnel inner canyon sites.
- Install new waterline sections from the North Rim to the Roaring Springs Pumphouse, and from Roaring Springs Pumphouse to the Roaring Springs water source.
- The waterlines would be installed using various methods, such as open cut (trenching), directional drilling, and surface mounting. To improve the reliability and resiliency of the waterlines, underground installation (open cut and directional drilling) would be preferred, while surface installations would generally only occur where underground installation methods are not feasible or reasonable due to constructability or resource concerns.
- The waterlines would be installed in a new borehole that would be directionally drilled from the North Rim to Roaring Springs Day Use Area.
 - ◆ The borehole/drill entry site would be in the vicinity of a North Rim administrative clearing area.
 - ◆ The borehole/drill exit site would be in the vicinity of Roaring Springs Day Use Area.

Water Treatment

- Construct a new water treatment plant (WTP) on the North Rim near the existing water storage tanks.

Water Storage

- Construct additional water storage tanks at the North Rim near the existing storage tanks.
- Construct water storage at Roaring Springs Pumphouse to meet potable water needs in the inner canyon.

Roaring Springs Pumphouse

- Rehabilitate and stabilize Roaring Springs Pumphouse to accommodate future water system operations.

Access and Staging

- Provide access improvements to the borehole/drill entry site.
- Other access and staging areas would be determined in the future.

HOW TO COMMENT

Submit comments on the project via the NPS planning website at <https://parkplanning.nps.gov/NorthRimWaterSystem> or write to: Grand Canyon National Park, Attn: Planning, Environment, and Projects, PO Box 129, Grand Canyon, AZ 86023. The preferred method for submitting comments is on the project website listed above. The civic engagement period begins June 22, 2023 and ends July 5, 2023.



Left: Example of the North Rim waterline surface installed in steep, rugged terrain near Supai Tunnel. (NPS Photo)



Right: Example of the North Rim waterline surface installed in rugged, vertical terrain. (NPS Photo)

