PROJECT OVERVIEW

A VITAL ELEMENT IN AUSTIN'S WALLER CREEK TUNNEL PROJECT

THE WALLER CREEK TUNNEL IS A CORNERSTONE OF AUSTIN'S LONG-TERM VISION FOR FLOOD CONTROL, ENVIRONMENTAL RESTORATION, AND URBAN REVITALIZATION. THIS 5,600-FOOT-LONG TUNNEL, LOCATED APPROXIMATELY 70 FEET UNDERGROUND, WAS DESIGNED TO INTERCEPT AND REDIRECT FLOODWATERS FROM WATERLOO PARK TO LADY BIRD LAKE. BY SIGNIFICANTLY REDUCING THE SIZE OF THE 100-YEAR FLOODPLAIN, THE TUNNEL HAS UNLOCKED NEW POTENTIAL FOR DEVELOPMENT, RECREATION, AND ECOLOGICAL ENHANCEMENT IN THE HEART OF DOWNTOWN AUSTIN.

TO SUPPORT THIS AMBITIOUS INFRASTRUCTURE, THE CITY OF AUSTIN PARTNERED WITH OVIVO TO INSTALL A CRITICAL PIECE OF EQUIPMENT AT THE TUNNEL'S WATERLOO PARK INLET: THE BRACKETT BOSKER® AUTOMATIC TRASH RAKE. WHILE OVIVO'S ROLE WAS FOCUSED ON A SINGLE SYSTEM, ITS CONTRIBUTION WAS ESSENTIAL TO THE TUNNEL'S LONG-TERM RELIABILITY, ENVIRONMENTAL PERFORMANCE, AND OPERATIONAL EFFICIENCY.

THE CHALLENGE

The inlet at Waterloo Park presented a complex engineering challenge. It required a debris management system that could:

- Handle large and unpredictable volumes of urban runoff, including storm debris, vegetation, and man-made waste
- Operate autonomously with minimal manual intervention
- Integrate seamlessly with the tunnel's automated control systems
- Maintain the visual and spatial integrity of a high-traffic public park

The solution needed to be both technically robust and aesthetically unobtrusive—capable of performing heavy-duty work while blending into a civic space designed for public enjoyment.

THE SOLUTION

Ovivo delivered a custom-engineered Brackett Bosker Automatic Trash Rake system, designed for continuous, automated operation under demanding conditions. The system features an overhead monorail-mounted unit that traverses the screen and dump zones, using a hydraulic gripper to extract debris and deposit it into designated containers.

Key features of the system include:

- 3,000 kg lifting capacity per unit, with two machines operating on a shared track for redundancy and efficiency
- Curved monorail design, enabling flexible dumping at remote locations without obstructing park pathways
- Multiple automatic start options, including push button, timer, level differential signal, and remote telemetry
- Heavy-duty grippers capable of removing large and irregular debris such as tree trunks, oil drums, and ice sheets
- Low-noise operation, ideal for integration into urban green spaces like Waterloo Park

The system's structural framework was custom fitted to the existing site, mounted to existing floors and walls to minimize civil modifications and preserve the park's architectural and environmental design.

BROADER SIGNIFICANCE

While Ovivo's scope was limited to a single system, the Brackett Bosker trash rake exemplifies how specialized engineering solutions can have a far-reaching impact on urban infrastructure. Its successful integration into the Waller Creek Tunnel supports the City of Austin's broader goals of:

- Flood mitigation
- Ecological restoration
- Urban renewal and public space revitalization

A representative from the Waterloo Greenway Park system noted: "Now, over 30 acres in the eastern portion of downtown Austin are no longer in the 100-year floodplain, providing new opportunities for parklands, trails, businesses, and revitalization."

OPERATIONAL IMPACT

Since its commissioning, the Brackett Bosker system has played a vital role in maintaining the tunnel's performance and protecting downstream infrastructure. Its impact includes:

- Uninterrupted floodwater diversion, even during high-flow storm events
- Reduced manual maintenance, lowering operational costs and improving worker safety
- Improved water quality, by intercepting debris and pollutants before they enter the tunnel system

Ovivo also designed the system with long-term serviceability in mind. Routine maintenance procedures—such as inspections, lubrication, and hydraulic system checks—are clearly outlined in the system's documentation and supported by Ovivo's technical team.

HIGHLIGHTED FEATURE: INNOVATIVE FLOW MANAGEMENT

One of the most groundbreaking aspects of this project is its dynamic water flow strategy.

During storm events, screened water is diverted into a 30-foot diameter pipe that bypasses downtown Austin entirely and flows directly into Lady Bird Lake. Then, during dry periods, water is pumped back from the lake into the tunnel inlet structure, allowing a continuous stream to flow through Waller Creek—from the Austin Capitol on 12th Street all the way to the lake.

This bidirectional flow system not only enhances flood control but also ensures year-round ecological vitality, supports urban beautification, and maintains a consistent water presence in the creek—making it a truly innovative approach to urban water management.

The tunnel has enabled reinvestment in public parks and trails, enhanced wildlife habitats, and ensured a continuous flow of water into Waller Creek—even during dry periods. The success of this installation has also informed similar deep tunnel projects across the United States, with the Brackett Bosker system now operating with greater speed and capacity to meet evolving infrastructure demands.

Sources:

- City of Austin – Waller Creek Tunnel Project
- ULI – Waller Creek District Case Study
- Waterloo Greenway

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