

**URETEK**

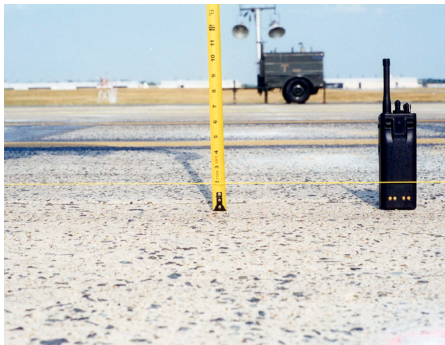
**USA**

# ANDREWS AIR FORCE BASE RUNWAY REPAIR PROJECT



## PROBLEM

**LOCATION: ANDREWS AIR FORCE BASE, MARYLAND**



### SITUATION:

A significant dip (2" deep) had developed Runway 1L/19R at Andrews Air Force Base, Maryland. An engineering investigation revealed the settlement was caused by water infiltrating the pavement system and

transporting soil particles through a leaking culvert underlying the runway. The settlement presented operational problems, particularly for small aircraft.

### FACTORS FOR CONSIDERATION:

Runway 1L/19R is the primary runway for Air Force One. Disruptions to this runway cause far-reach impact. Consequently, U.S. Air Force engineers sought an alternative to reconstruction. URETEK USA provided an alternative that minimized runway downtime, security concerns, and upheaval of the President's schedule. In addition, URETEK USA delivered a solution that conservatively cost 50% than reconstruction.

### LEADERSHIP

Leader in cost and time savings, accuracy and precision  
Environmentally inert materials and processes

### INNOVATION

Inventor of polymer-based technology in use today  
Most patents in industry - Period  
Ongoing engineering research and development

### EXPERTISE

Developed the industry's most accurate, monitoring process  
Developed URETEK 486 STAR material  
Pioneered the URETEK Deep Injection Process  
Most experienced technicians and best safety record in industry

### PROVEN SUCCESS

85,000+ successful projects  
20+ years experience solving complex soil/pavement problems  
Industry-leading warranty and customer care



## SOLUTION

URETEK USA's solution involved 5 key elements:

- Initial Slab Lifting Using High-Density Polyurethane
- URETEK Deep Injection® (UDI) Soil Stabilization  
This unique process relies on a two-part polymer system, injected beneath the concrete through pre-drilled holes of 5/8-inch diameter (penny-size). The polymer system travels through tubing to elevations beneath the pavement surface characterized by weak soils (determined by cone penetration testing). Expansion of the polymer compacts the surrounding soils – eliminating voids in the soil mass and improving bearing capacity.

- Leaking Culvert Repair by Injecting Resin (from inside the culvert)
- Final Slab Alignment Using High-Density Polyurethane
- Pavement Joint and Crack Sealing Using Urethane Caulk

## RESULTS

- URETEK USA realigned the 15 slabs fully encompassed in the 60' x 88' work area.
- URETEK USA stabilized the soft soils in the work area down to -14' elevation (measured from the surface) using the UDI process.
- Acting as Prime Contractor, URETEK USA oversaw repair of the leaking culvert and pavement joint/crack sealing by hand-picked subcontractors.



## BENEFITS

### TRADITIONAL REPAIR METHODS

**COST:** \$250,000 **REPAIR TIME:** 30 DAYS

### URETEK USA REPAIR METHODS

**COST:** \$125,000 **REPAIR TIME:** 10 DAYS

**COST SAVINGS:**  
**\$125,000**

**TIME SAVINGS:**  
**20 DAYS**

**Time Savings:** Conservatively Reduced Runway Closure Time by 60% (versus the initial proposal of reconstruction).

**Cost Savings:** Conservatively Reduced Repair Costs by 50% (versus the initial proposal of reconstruction).

**Performance:** Repair was evaluated by USAF and their consultants in 2000, 2004, 2006, 2007 and found to be performing well each time.

**Longevity:** Sample excavated in December 2010 during a runway keel replacement project was still intact after 11+ years of service.

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