



## Van Nuys Airport Runway Improvement

### Van Nuys, California

**APPLICATION:** Van Nuys Airport is one of the busiest general aviation airports in the United States. For this project, the owners, Los Angeles World Airports (LAWA), awarded a \$14 million contract to Security Paving to improve the airport's main runway 16R (One Six Right), a run-up apron, and a general-purpose perimeter road.

**THE CHALLENGE:** Nicknamed "Hollywood's Airport," Van Nuys serves a high-profile clientele that has helped to make it one of busiest general aviation facilities in the world. LAWA was primarily concerned with modernizing 16R to comply with current Federal Aviation Administration (FAA) design standards and to achieve a 20-year predicted lifespan. LAWA insisted on a plan that would dramatically limit the number of days when the runway would be unable to serve aircraft.



*Tensor® TriAx® Geogrid allowed for faster construction while dramatically reducing material and installation costs.*

**SITE CONDITIONS:** Sections of runway 16R included multiple layers of existing pavements. The underlying subgrade primarily consisted of clay and sand with a California Bearing Ratio of 10 (CBR value = 10) along with isolated pockets of very soft soils.

**ALTERNATIVE SOLUTION:** Standard construction methods would have required deep excavation and the import of massive amounts of aggregate. This solution would have been very expensive, time-consuming and disruptive to the airport's primary mission. Project engineers at HNTB Corporation estimated 17 weeks of runway closure and limited runway availability with a conventional rehabilitation strategy.

**THE SOLUTION:** HNTB devised a phased approach that required much less excavation and aggregate and limited the full or partial closure of the runway to 10 days and 26 nights.

"We broke the runway into three distinct work areas," says HNTB civil engineer James Long, PE. "We shortened the runway to 5,000 feet so we could work on the north section. We then shifted the runway to the north to reconstruct the south section. Finally, we closed the middle section for 10 days and used accelerated construction methods to complete the final phase."

Tensor's Spectra Roadway Improvement System, a mechanically stabilized layer incorporating TriAx® TX160 Geogrid, played an essential role in ensuring the success of this ambitious strategy by allowing faster construction with lower material requirements.

### PROJECT HIGHLIGHTS

**Project:**

Van Nuys Airport Runway Improvement

**Location:**

Van Nuys, California

**Installation:**

June 2013

**Product/System:**

Spectra® System  
Tensor® TX160 Geogrid

**Quantity:**

50,000 sq yds

**Owner/Developer:**

Los Angeles World Airports

**Design Engineer:**

HNTB Corporation

**General Contractor:**

Security Paving

**Materials Supplier:**

Tensor International Corporation

“Based on accelerated pavement testing and California research, TriAx Geogrid’s hexagonal shape and 360-degree load distribution provides superior aggregate base confinement within the structural section,” says Tensar International Corporation Regional Manager Lars Nelson.

The typical non-stabilized pavement section consisted of four inches of asphalt concrete (P-401), five inches of asphalt concrete (P-403), and sixteen inches of aggregate base (P-154). The Tensar TriAx stabilized section consisted of four inches of asphalt concrete (P-401), four inches of asphalt concrete (P-403), and 12 inches of aggregate base (P-154) with Tensar TriAx TX160 at the subgrade interface. Because the TriAx Geogrid allowed for a thinner section, 1-inch less asphalt concrete (P-403) and 4-inches less aggregate base (P-154), HNTB was able to eliminate approximately 1,200 trucks of asphalt concrete and aggregate base and cut 11 days from the project schedule. The combination of reduced material and installation time saved the customer more than \$700,000 in overall project costs.

Security Paving was responsible for all on-site work, including installing the 50,000 square yards of TriAx TX 160 Geogrid. Their crew began by removing approximately 16 inches of old paving material and soil. Next, they covered the subgrade longitudinally with TriAx TX160 Geogrid, overlapped each row by 18 inches, and loosely secured the layers together using standard zip ties. To prepare the base, they installed 12 inches of aggregate base and vibrated it to 95 percent compaction. With the base prepared, they installed the four inches of asphalt base course and four inches of asphalt surface course. In areas with significant soft soils, they excavated the material, installed an additional layer of TriAx Geogrid, and covered it with compacted aggregate to return the subgrade to the required profile depth.

“Finding the right strategy took some effort,” says Long. “It seemed like a science project before it

became a construction project. But that’s what it took to meet such an aggressive schedule. Tensar provided incredible support throughout this process, and TriAx Geogrid was a huge help in expediting the construction and keeping us on track. The final result was a huge success for HNTB, LAWA and the Van Nuys Airport management team.”

**THE SPECTRA SYSTEM ADVANTAGE:** Owners are selecting the Spectra System incorporating TriAx Geogrid to optimize pavement sections to:

- Simplify and speed construction while increasing the performance of pavement structures
- Decrease labor and equipment requirements
- Reduce aggregate fill thickness
- Reduce undercut, overexcavation and removal requirements
- Enable construction to proceed even in difficult working conditions.

#### **ADDITIONAL INFORMATION AND SERVICES:**

Tensar International Corporation, the leader in geosynthetic soil reinforcement, offers systems for improving structures such as roadways, rail yards, construction platforms and parking lots. Our products and technologies, backed by the most thorough quality assurance practices, are at the forefront of the industry. Highly adaptable, cost-effective and installation-friendly, they provide exceptional, long-term performance under the most demanding conditions. Our support services include site evaluation, design consulting and site construction assistance.

For innovative solutions to your engineering challenges, rely on the experience, resources, and expertise that have set the industry standard for three decades.

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**For more information on the Spectra System or other Tensar Systems, call 800-TENSAR-1, email [info@tensarcorp.com](mailto:info@tensarcorp.com) or visit [www.tensarcorp.com](http://www.tensarcorp.com).**

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