After 18 Years – Surface Condition and IRI Rating

Use and Performance of Advanced Soil Stabilization

Synthesis Summary of Projects in Dallas, Texas — ARA Report No. 003563-1*

Project Identification	Surface Condition Category	IRI Category
Interstate Highway 30** (TxDOT - Dallas Fort Worth Turnpike)	Excellent	Good
SH 161 (NTTA - President George Bush Turnpike, DNT-346)	Excellent	Good
SH 190 (NTTA - President George Bush Turnpike, DNT-323)	Excellent	Good
Interstate Highway 635 Frontage Road** (TxDOT - LBJ Freeway)	Excellent	Good
Luna Road** (TxDOT)	Good	Good

For the past thirty years, road and highway projects constructed with EMC SQUARED® System stabilizers have demonstrated the capability of this advanced stabilization product technology to build roads that are strong, durable and uniquely smooth running. The five projects listed above included four Dallas Area freeways and a major arterial expressway. A later review study confirmed the contribution of the EMC SQUARED System product technology to the construction of smooth running highways. The study incorporated the most up to date IRI data collected by the two public agencies responsible for the construction and maintenance of these highway projects, the Texas Department of Transportation (TxDOT) and the North Texas Tollway Authority (NTTA).

As of 2018, these five projects had all been in service for approximately 18 years. All five projects presented the challenge of constructing pavements over famously problematic expansive soils with a history of cracking, buckling up and heaving asphalt and concrete pavements constructed on top of them. Two of the four freeway projects were the subject of the Tx-98/3929-1 Research Study that recommended the use of EMC SQUARED System products for subgrade stabilization. Lime treatment, the traditional chemical stabilizer used throughout Texas was found to be ineffective, and in fact counterproductive, when applied to these Dallas Area soils. The study was tasked with identifying an effective alternative to lime treatment. The study found that EMC SQUARED System products were superior to lime in strength, stiffness, swell resistance and permeability and it recommended use of EMC SQUARED System products for all projects with similar problem soils.

The four freeway projects that were subsequently constructed in Year 2000 and evaluated in 2018, as shown above, were all constructed on top of highly problematic soils. They were constructed with proper drainage conditions. The alignment of the fifth project, a major six-lane arterial (Luna Road) located in the Trinity River Watershed, required construction of a tall embankment running through two lakes. The design consultant (HDR Engineering) protected the stability of the clay embankment soils by including a 12-inch thick EMC SQUARED System moisture barrier layer within the lower portion of the embankment just above the water level of the lakes.

These freeway and highway projects have now been in service under very heavy traffic volume for more than twenty years since their construction. As shown above, results from ARA Report No. 003563-1 confirm that the pavements constructed on top of subgrades stabilized with the EMC SQUARED System treatments remain in Excellent condition overall. The International Roughness Index (IRI) test results demonstrate that the stabilized subgrades are performing very well. The ARA Report validates the findings of Dr. Robert Lytton at the Texas Transportation Institute (TTI) in his Tx-98/3929-1 Research Study recommending the EMC SQUARED System stabilizer products for effective treatment of these highly problematic soils.

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Full report available upon request
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