TenCate develops and produces materials that function to increase performance, reduce costs and deliver measurable results by working with our customers to provide advanced solutions.

THE CHALLENGE
The City of Tolleson, Arizona is located just west of Phoenix. As part of a downtown redevelopment project, Van Buren Street was reconstructed to reduce the number of travel lanes to just one in each direction. This decrease in lanes reduced the traffic volumes and greatly restricted truck volumes and truck types. The street class changed from a major arterial to a local collector. The city desired a cost effective engineered roadway design to incorporate this change.

THE DESIGN
The Geotechnical Engineer, RAMM Engineering of Tempe, Arizona recommended 3 inches of asphalt over 15 inches of aggregate base based on subgrade soil strengths and proposed traffic loading. The engineer also provided an option for a 3.5 inch reduction in aggregate base for every 1 inch increase in asphalt. RAMM Engineering contacted TenCate Geosynthetics for pavement design alternatives. TenCate engineers used TenCate’s MiraSpec pavement design software which incorporates Mirafi® RS-Series high strength roadway reinforcement geosynthetics. TenCate Mirafi® RS380i was selected to provide superior tensile reinforcement, as well as separation for the base course gravel from the subgrade soils. A reduced pavement section of 3 inches of asphalt over 9 inches of aggregate base was realized by including Mirafi® RS380i.
THE CONSTRUCTION
The city hired Hunter Contracting to construct the roadway. The roadway was kept open to traffic by staging construction of the east and west bound lanes separately. The original road section was excavated 12 inches to the natural subgrade. The contractor placed Mirafi® RS380i geosynthetic directly on the subgrade followed by 9” of compacted aggregate base. Three inches of compacted hot mix asphalt was then placed on top of the compacted aggregate base. By using TenCate Mirafi® RS380i roadway reinforcement geosynthetic, a stable roadway section was achieved and the project was built on time and within the budget.

THE PERFORMANCE
With the use of Mirafi® RS380i geosynthetic, RAMM Engineering was able to design the road section allowing for superior subgrade enhancement. Mirafi® RS380i performed as intended and now the roadway that supports the downtown traffic for the City of Tolleson will be supporting that traffic for years to come.

TenCate Mirafi® RS380i provides:
- Superior tensile strength for subgrade support
- Separation of the natural subgrade soils from the Class 2 base
- Lateral confinement of the base section
- Filtration of water from the pumping soils

Undercut to native subgrade soils.

Completed west bound lanes.