

STORIES OF STRENGTH

Georgia's Highways

Georgia Dept. of Transportation



Extending the life (and budget) of Georgia's roadways.

After reading a news story about the crumbling highway system in Georgia, **EdenCrete®** approached the Georgia Department of Transportation (GDOT) with an innovative proposal: Test our carbon **nanotube-enriched admixture** on a stretch of highway to observe **EdenCrete's®** abrasion resistance, permeability reduction, and overall strength improvement double the life expectancy of Georgia's highways.

The Test

GDOT selected two 35 ft. long sections of I-20 West near the State of Georgia's Welcome Center in Augusta, GA. The "control" was poured using the standard GDOT Class 24-Hour Accelerated Concrete mix that contains 752 lbs. of cement per cubic yard. The test section used the same GDOT Class 24-Hour Accelerated Concrete mix but included **EdenCrete®**. The crew also incorporated calcium chloride pellets into both mixes to ensure sufficient strength of the concrete so the roadway could reopen only a few hours after placement.

*"We began working with **EdenCrete®** on a collaborative project between their team and the Georgia Dept. of Transportation in 2015. The product can be dosed into trucks like any admixture at our ready-mix facility, and does not present any issues with the fresh properties or the ability of the concrete to be finished. **EdenCrete®** has demonstrated its ability to greatly enhance not only the resistance to abrasion, but also the strength of the concrete. Test results and field trials indicate many concrete applications, not just roadways, can benefit from **EdenCrete®**." **C.T. Davis, CEO** - Augusta Ready-Mix Concrete*

NO EdenCrete®



March 2016 [7-months in service]

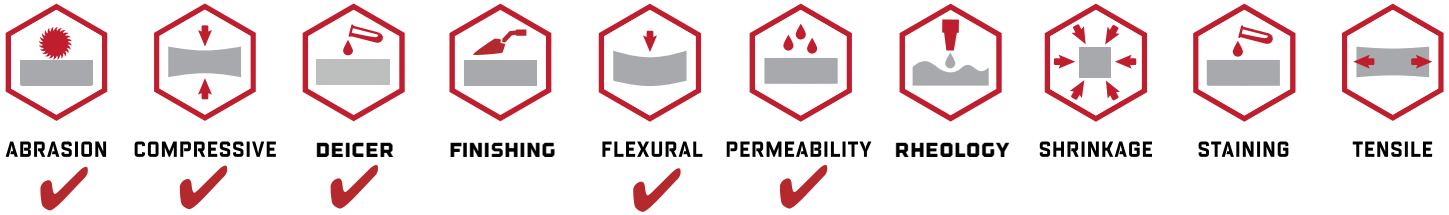
WITH EdenCrete®



March 2016 [7-months in service]

August 2017 [12-months in service]

Areas of significant improvement for this application



EdenCrete® enhances concrete in all seven areas, but was specifically selected to improve abrasion, permeability, compressive, and flexural strength for this project.

WITH EdenCrete®



August 2015 (0-months in service)

EdenCrete® enhances concrete performance with no adverse effects to the fresh concrete properties or its ability to be finished.

The Results

EdenCrete® significantly increased abrasion resistance and compressive strength of the concrete over the control mix design. After four months in service, the control slab was stained and cracked, and the joints were raveling. Additionally, the surface of the concrete had been abraded smooth in the primary path of vehicle travel, creating safety issues because braking distance is extended. The EdenCrete® section had a similar appearance to the first weeks after placement, maintaining a brighter albedo and resisting the staining that occurred on the control slab. The joints and the broom-finish were still intact, providing a safe level of friction for vehicles braking while at a high rate of speed. The reduced permeability was anticipated to lower the ingress of moisture carrying deicer chemicals and slow down (or eliminate) degradation from the inside outward.

After a 12-month evaluation, GDOT rewrote their specification to require EdenCrete® by name in projects using Class 24-Hour Accelerated concrete to make full-depth slab repairs. Today, contractors must use EdenCrete® to improve the durability of maintenance projects placing concrete on Georgia's highways. Because the ultimate strength of the mix is also increased by EdenCrete®, GDOT Engineers may reduce the cement content of their mix by 15% to provide a more economical and sustainable design.

For federally-funded projects, EdenCrete® works with GDOT to demonstrate compliance with stringent performance-based specifications that are impossible to achieve with only a single competitive product. EdenCrete® thanks GDOT for this trial opportunity and is proud to help provide more durable concrete for Georgia's highways.

Harness the strength of carbon nanotubes for your next pour.

Developed by Eden Innovations LLC, EdenCrete® is a carbon nanotube-enriched liquid admixture that elevates concrete structures to new levels of strength and toughness. When added to concrete mixtures, it performs like multiple admixtures rolled into one. It boosts surface abrasion resistance and produces extremely low permeability while improving strength properties [i.e., compressive, flexural, and tensile] like no other product on the market today.

Associations



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