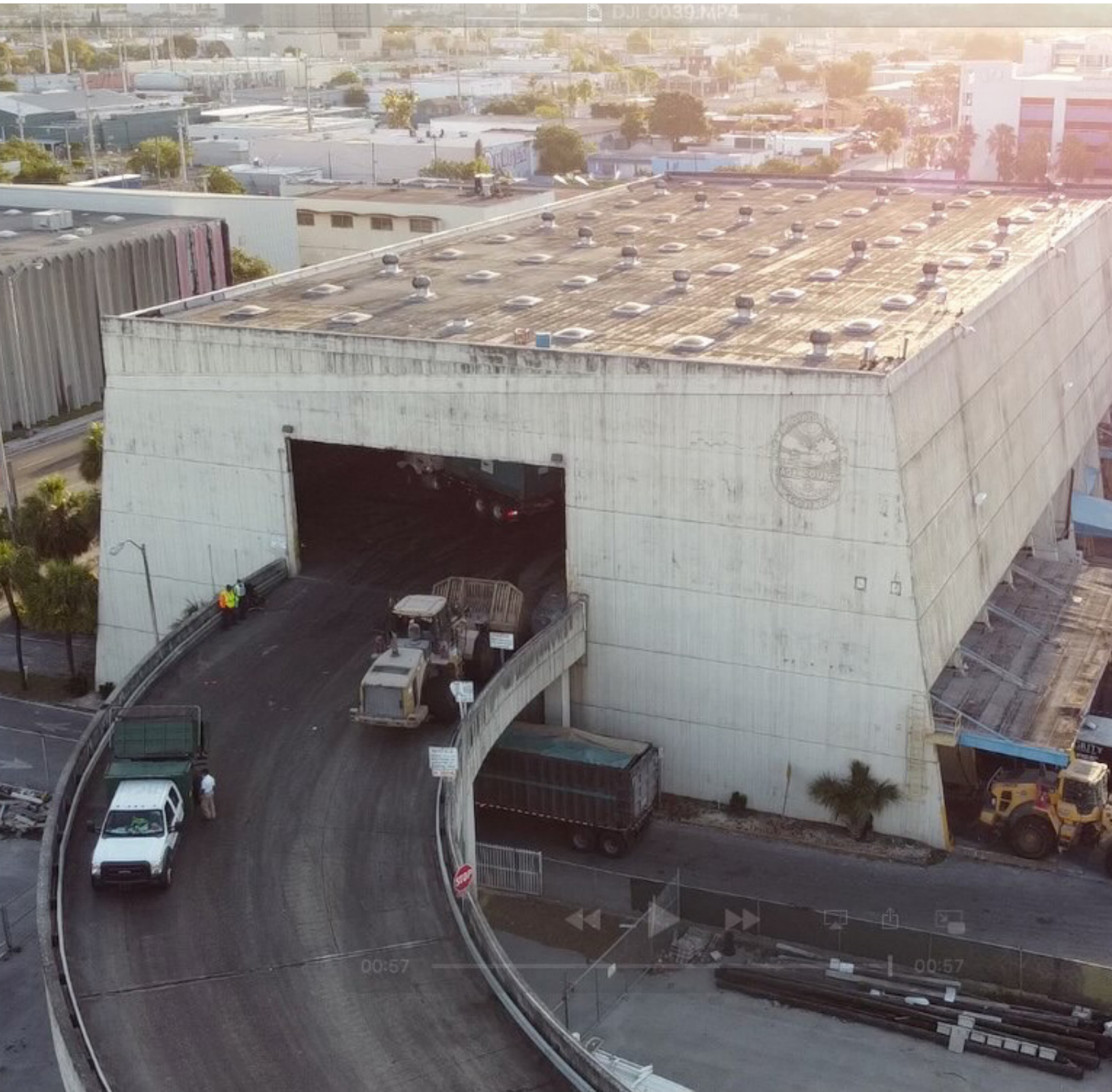




DADE COUNTY-CENTRAL TRANSFER STATION

Project Spotlight



Globally Proven Construction Solutions

Dade County-Central Transfer Station

The Situation

For more than 50 years, the Dade County Department of Solid Waste Management (MDCDSW) has provided customers with exceptional waste collection, recycling and disposal services that protect, preserve and improve the environment and the quality of life in the Dade County community. Today, MDCDSW is the largest government owned and operated waste collection and disposal system in the southeastern United States with a county population of approximately 2.6 million and the significant responsibility of managing approximately 1.6 million tons (1,451,495.8 metric tons) of municipal solid waste (MSW) per year.

Located near Miami's Civic Center on a 2.68-acre (1.08 hectare) or (10,845.6 m²) site, the Dade County-Central transfer station can move up to 1,200 tons (1,088.6 metric tons) of garbage and trash per day. This distribution system helps reduce truck traffic on roads, travel time for waste haulers and reduce fuel consumption by eliminating multiple trips to remote disposal sites. After years of significant wear and tear to the existing transfer station's floor, the city sought to repair the high maintenance areas throughout their transfer station to be more durable and longer-lasting so that they could effectively and efficiently continue serving the county.

Tipping floors are subject to some of the harshest chemical, impact and abrasion conditions one can find. After years of various repair patching, the overall slab disguised most of the defective areas. The topography didn't reveal all of the areas that needed removal when contractor SK Quality Contractors first estimated this job. Originally, the county intended to rehabilitate two separate areas in the facility that were visibly in rough condition from these elements. However, during the initial preparation work, it was discovered that about 80% to 90% of the floor had a failing cap or repair that needed to be removed. As a result, the county decided to utilize the entire 5,500 square-foot (511 m²) re-topping contract in the first area. Doing so, half of the transfer station would be resurfaced making it a lot more manageable to direct traffic when time comes to repair the adjacent bays.

A project of this magnitude requires a team with reputable experience and products, which is why SK Quality Contractors turned to Cornerstone Construction Services (CCS) and LATICRETE. Having a reputation of successfully resurfacing tipping floors for municipalities across the state of Florida, they knew this would be the solution MDCDSW has been in need of.

The Challenge

Unforeseen Conditions: Unlike new construction projects, the original transfer station left behind a handful of obstacles. For starters, what was originally intended to be two separate repairs grew into one large area due to the extent of the floor damage uncovered during preparation. Plus, there were multiple areas that required several inches of infill before the teams could proceed with rehabilitating the space. Because of these circumstances, major surface preparation requirements would be needed for this project.

Community Impact: Dade County disposed of more than 1.8 million tons (1,632,932.5 metric tons) of waste during fiscal year 2019 alone, meaning a long-lead time for this project would severely impact not only the business but the community as a whole. A high-strength topping system, specifically with a quick return-to-service was vital for the facility to operate at normal capacity.

A LATICRETE Solution

"No other type of concrete floor needs the degree of abrasion resistance, impact resistance or chemical resistance as a tipping floor, which is why after extensive research, L&M™ EMERYTOP 400™ was the obvious choice as an exceptional solution to resurface the floor," said Alejandro Luna, the LATICRETE Technical Sales Representative for Florida.



“This product extends the life cycle of the tipping-floors and will save the Dade County costs associated with downtime, rerouting trucks, demolition and repair.”

Since the original floor cap needed to be removed, the team began surface preparation procedures by keying in the edges, saw-cutting and chipping out the unbonded areas. Followed by a road-planer with carbide teeth recessing the floor 2 inches (5.1 cm) and leaving a CSP 7 to 9 profile. Once the mechanical surface preparations were completed, it was then washed down with a 5,000 psi (34.5 MPa) pressure washer, ensuring the substrate was clean and ready for the CCS crew to apply L&M EVERBOND™ slurry to bond the soon-to-be-placed L&M EMERYTOP 400 floor topping to the existing prepped substrate.

L&M EVERBOND ensures a high-performance bond between the existing concrete surface and the soon-to-be-applied topping. Once the concrete of the 5,500 square-foot (511 m²) area was demolished and prefilled with high strength concrete, CCS installed a two-inch (5.1 cm) monolithic cap of L&M EMERYTOP 400.

L&M EMERYTOP 400 is the best choice for any floor subject to leachate, heavy point loads, high-impact loads, and extreme abrasion, ideal for the Dade County-Central Transfer Station. The non-metallic, non-rusting L&M EMERYTOP 400 topping is effective indoors and outdoors and is chemically engineered to combat chemical attacks — which is when toxic chemicals destroy the cement paste holding the aggregate in place. These include milk, vinegar, urine, animal fat and most household chemicals — the leachate found in all solid waste spaces.

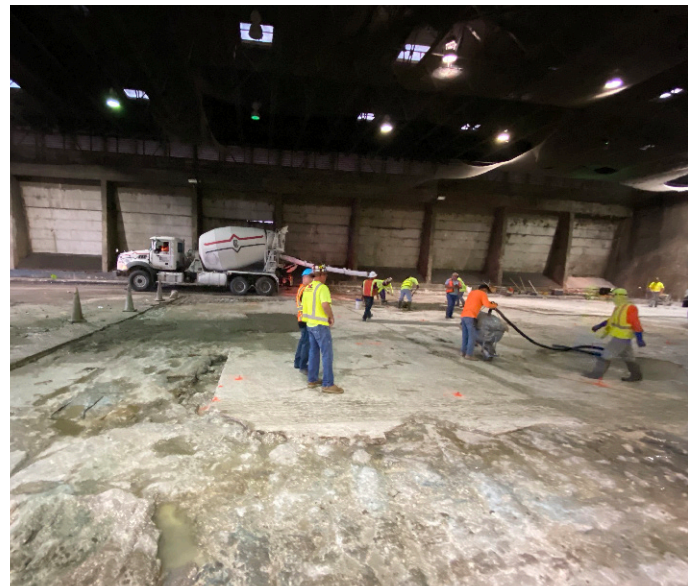
Lastly, L&M DRESS & SEAL WB 30™, a water-based, low VOC, high solids acrylic copolymer solution that cures, seals and dustproofs concrete, was applied. The tough film locks in moisture, curing the concrete for maximum hardness. This clear, fast-drying sprayable liquid is highly effective on both interior and exterior surfaces, adheres well to concrete surfaces and has excellent barrier properties.

“In the end, we were able to fix the floor deficiencies that we found and provide a new wear surface of L&M EMERYTOP 400 that will provide years of trouble-free service to the client,” said Jason Gonder, Vice President of Cornerstone Construction Services.

Outcome

The teams were able to successfully fix the floor deficiencies and provide a new wear surface that will welcome several years of abuse the Dade County-Central Transfer Station experiences. Thanks to the two-inch aluminum wear indicators that were installed throughout the facility, the county now has the ability to track an annual wear pattern for budget management purposes.

The Dade County Central Transfer Station is now decades away from any major repairs in the resurfaced area. The station can continue to serve the community by collecting municipal solid waste (MSW) from the 340,000 single-family households throughout the county.



“Combining the extensive concrete experience of both LATICRETE and Cornerstone, we exceeded the expectations of our client (Dade County) and left a neat and clean finish ready to return to operations in record time.”

– Walter de Oliveira with SK Quality Contractors Inc.



LATICRETE International, Inc. ■ One LATICRETE Park North, Bethany, CT 06524-3423 USA ■ 1.800.243.4788 ■ +1.203.393.0010 ■ www.laticrete.com

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