

Value Engineering Helps Ohio DOT Save Millions in Future Operating Costs On Lytle Tunnel Project



Project: Lytle Tunnel (Interstate 71)
 Location: Cincinnati, Ohio
 Engineering: Mott MacDonald, New York City
 Agent: King Lighting, Cincinnati, Ohio



Project Summary: The Lytle (Interstate 71) tunnel in Cincinnati underwent a \$32.3 million renovation that included upgrading the incumbent high-pressure sodium lighting to LED.

Challenge: Identifying and, ultimately, value-engineering the right LED lighting solution to meet numerous requirements, including energy efficiency, reliability, vibration resistance, ingress of water and durability under the harshest conditions – then coordinating delivery to prevent construction delays.

Solution: Kenall's LuxTran™ LTSI Series LED luminaires

Benefits: The LuxTran LTSI luminaires were customized for the project and feature one-piece, type 304 stainless steel housings and doorframes with passivated post welds for the highest degree of corrosion, water and vibration resistance. Improved technology from time of design to time of installation allowed specifiers to reduce the number of fixtures from 2,402 to 1,317, saving the state of Ohio millions of dollars in initial fixture costs and ongoing operating costs over a ten year period.

Historic Lytle Tunnel Shines after LED Lighting Upgrade



The Lytle Tunnel (Interstate 71) is a 3-tube, 6-lane tunnel that runs under the Lytle Park Historic District in Cincinnati, Ohio. It is the only vehicular tunnel in the state of Ohio, and is just completing a two-year, \$32.3 million dollar upgrade to its tiles, lighting and ventilation system.

The contractor selected Kenall luminaires because they fully complied with the Mott MacDonald lighting design specifications. The spec required LED products made by an experienced tunnel lighting manufacturer, with a proven history of tunnel lighting installations and demonstration of galvanic corrosion management. Kenall's stainless steel LTSI luminaires, combined with a stainless steel lighting support system, met these specs.

The selection of value-engineered LuxTran LTSI luminaires reduced the total number of fixtures required from 2,402 to 1,317, reducing the initial investment for the Ohio Department of Transportation (ODOT). Having fewer fixtures will also save millions of dollars in operating costs over the next decade.

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According to an article published in February 2017 in *The Electrical Distributor*, Marvin Schultz of Becker Lighting said, "They [Kenall] helped us out with the design. It was a group effort to find the right solutions. It takes a lot of time to get any government organization to accept changes to original plans but we succeeded. Kenall enabled us to replace the LED modules and drivers easily to maintain the fixtures."

Support is what specifiers value when working with a lighting manufacturer, and Kenall fits the bill well. As a result, their luminaires can be found in tunnel projects coast to coast, from the SR-99 tunnel project in Seattle, Washington to the newly repaired and renamed Hugh L. Carey tunnel in New York City.

The controls-compatible LuxTran LTSI luminaires are now fully operational and reactive to outside light levels, which is critical for driver safety. Schultz added, "Light levels in tunnels are important and uniformity is critical because people are driving through them at 55 mph. It's a combination of dimming at certain hours for energy savings and reducing or increasing light levels based on time of day."¹

¹The Electrical Distributor, February 2017 www.tEDmag.com



Above: The custom LuxTran LTSI luminaires are expected to dramatically reduce the number of maintenance hours needed in the next decade.

LuxTran LTSI Features

- Lumen packages: 18,661 to 90,295
- Minimum 70 CRI
- 80,000-125,000 hr LED Lifetime (L70)
- Suitable for interior and exterior supplemental lighting
- Type II, III, IV, IV-Narrow and V-Square distributions available
- Meets ANSI certifications
- UL certified IP66 per IEC 60598

Benefits to the Ohio DOT

- High-wattage packages with enhanced optical distributions means ODOT needs fewer fixtures, reducing overall initial investment
- Fewer fixtures, long-life LED lamping and corrosion-resistant stainless-steel construction requiring far less maintenance than incumbent high-pressure sodium lighting
- Customized solutions specifically address unique ODOT needs
- On-site technical support standard
- Prompt delivery and service allows work stay on schedule, minimizing traffic disruptions

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