City of Baytown

Baytown, TX

The City of Baytown invests in the future of its community and provides an energy-saving model for others to follow with the state’s first LED highway upgrade using Cree LEDway® street lights.

- 50 to 60 percent energy savings
- Dramatically improved visibility
- Decreased relamping and labor maintenance costs
AWARD-WINNING LED UPGRADE UNPRECEDENTED IN STATE

OPPORTUNITY

The City of Baytown has led the way for the state of Texas with LED highway lighting that reduces energy use, lowers maintenance and curbs city expenditures for roughly 70,000 taxpayers. While a few Texas cities are installing LED streetlights on city streets, the new street lights in Baytown are the first installed on state highways. The upgrade from high pressure sodium (HPS) fixtures to Cree LEDway® LED street lights has also dramatically improved the quality of roadway lighting and visibility for motorists.

Baytown is situated approximately 26 miles east of Houston and is a coastal gateway to the greater metropolitan area. Nearly 350 LEDway street lights manufactured by Cree are installed on previously existing double-arm 54-foot light poles spaced at 270-foot distances along the major four-lane state highways that intersect the city corridor including Interstate 10, a portion of Highway 146 and the 330 spur.

The upgrade followed a ground-breaking test program in 2010.

Six 400-watt HPS fixtures on three light poles along Highway 146 at the Garth Road overpass were replaced with six Cree® LED luminaires and observed by city management and the Houston transportation operations division of the Texas Department of Transportation (TxDOT). For three months prior to installation of the LED test fixtures, the city monitored existing HPS lights for energy consumption and lighting levels. The Cree luminaires were monitored for a similar period of time but less than a month into the program officials from Baytown were pleased to report to TxDOT that visible and measurable benefits could be obtained by replacing the remainder of the city’s highway fixtures — a solution that could be replicated on highway lighting throughout the state.

The entire process — from research and testing to approval and complete installation — spanned 2.5 years.

SOLUTION

Energy and maintenance cost savings anticipated during the testing phase have been realized in a 50 to 60 percent energy reduction from the Cree LEDway street light upgrade, equating to a $30,000 cost savings annually. TxDOT records indicate average relamping costs of HPS fixtures along interstate roadways to be between $130 and $150 per fixture with costs to municipalities considerably higher when labor costs are factored in. Approximately 50 percent of HPS fixtures burn out within two years, resulting in the need for frequent replacement that further compounds high maintenance costs. Patti Jett, Public Affairs Coordinator of the City of Baytown states: “The cost savings have directly offset other important budgetary items, while reduced maintenance needs allow staff to work on other projects city-wide. The lighting upgrade has certainly impacted taxpayer dollars in a very positive way.”

Additionally, work crews often must close lanes while relamping traditional street light technologies like HPS, resulting in traffic slowdowns and dangerous conditions. Cree LEDway street lights are tested to provide up to 20 years of use while maintaining the same quality of illumination — a tremendous benefit to municipalities and residents.

BENEFITS

Baytown city officials are pleased with the savings the LED upgrade has provided. Escalating operational costs and decreased revenue have forced U.S. municipality managers like City of Baytown purchasing manager Drew Potts to implement scalable cost-saving initiatives. Potts found that the Cree LEDway street light installation provided flexibility of operating and capital expenses, creating an opportunity for redistribution of funds toward other high-priority projects. Because of the annual energy savings and lower relamping and labor maintenance costs, the city has not had to cut back in other areas.

City of Baytown management first became interested in LED street lights in an effort to improve upon the short lifespan of conventional lighting. The targeted illumination performance delivered by the Cree LEDway street lights is visibly apparent and has motorists, including the city’s law enforcement, remarking that the highways are now well-lit, presenting safer nighttime conditions. All feedback about the appearance of the new lighting has been very positive, including that there are no longer any shadows.

The LED street lighting upgrade is winning the City of Baytown recognition through awards including the State Excellence Award from the Texas Municipal League — an organization comprised of City Managers, Council and Mayors — for their continued efforts utilizing LED lighting. The City also garnered the APWA® (American Public Works Association) sustainability practice award for outstanding contributions to promote sustainability in public works.

Cree LEDway® street lights provide energy efficiency and environmental sustainability using no toxic mercury and offering significant reductions in operating and maintenance costs.
LED lighting has made a huge difference in our highway safety through improved visibility and provided immediate and repeat savings by reducing energy use.

Patti Jett, Public Affairs Coordinator, City of Baytown
IN THIS CASE STUDY

LEDway® Series
STREET LIGHT LUMINAIRE

- Minimum 70 CRI
- CCT: 4000K (+/-300K), 5700K (+/-500K)
- Utilizes BetaLED® Technology
- UL wet listed
- Two-Level options
- Modular, low-profile design

Cree BetaLED® Technology uses a total systems approach combining the most advanced LED sources, driver technologies, optics and form into each product. The patented NanoOptic® technology, available in more than 20 distributions, provides a level of optical control and thermal management that traditional light source technology cannot provide. Combined with the DeltaGuard® Finish, the finest industrial-grade finish available, the result is outstanding target illumination, lasting performance and optimum energy efficiency.

PARTICIPANTS
End User: City of Baytown, TX