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CITY OF RALEIGH, CREE TEAM UP TO CREATE FIRST “LED CITY”

Almost two years ago, the City of Raleigh and Cree, Inc. announced a partnership to form the first “LED City” effort. The initiative is a city-wide effort to deploy and promote the use of light-emitting diode (LED) technology for general illumination purposes. Since that time, seven other cities from Tianjin, China to Torraca, Italy have joined the consortium.

In late 2006, the City and Cree, Inc. created the “LED City” concept to foster a “living laboratory” to test the economic and environmental benefits of LED lighting in public settings. Beginning with the installation of LED replacement light fixtures in the City’s Municipal Parking Deck in early 2007, the initiative serves as a model and testimony to the advantages of the new energy-efficient technology. The lighting fixtures in the parking deck are never turned off, providing a constant illumination for the garage’s third level. The LED lights on the perimeter of the garage are on at night but turned off in the daytime when natural lighting is adequate. The LED lights use approximately 40 percent less energy than the standard lighting system.

“It’s advantageous on several levels,” said Assistant City Manager Dan Howe. “The reception from the public has been more than we hoped for. The lights save us money and we are helping promote a new technology with a center of innovation in the Research Triangle region that has real, practical benefits.”

Depending on the specific application, savings in maintenance and energy costs from the LED technology will yield a payback ranging from four to seven years, assuming an annual increase in maintenance and energy costs of approximately 3 percent. The effective lifetime of LEDs range from six to 12 years (depending on how they are used) with little or no maintenance.

The success and popularity of the of the initial LED project prompted the installation of LED fixtures in the City’s new underground parking garage on the south end of Fayetteville Street. The 544 LED fixtures are even more efficient than the fixtures used in the original pilot project (saving more than 60 percent of the normal energy demand for comparable metal halide fixtures), and will save the City more than \$75,000 in energy and maintenance costs in the first year alone. The savings will total more than

\$700,000 over the lifetime of the fixtures. The second phase of the underground parking facility, currently under construction will also will be lit by LED fixtures.

In addition, the City has installed new LED streetlights in the block surrounding the new Convention Center, LED pedestrian lighting in Exchange Plaza off of Fayetteville Street, LED lighting in a greenway underpass on the Rocky Branch greenway, and is in the process of completing an LED parking lot lighting project at Carolina Pines Park, and also installation of interior LED light fixtures in the Mayor's office in the Avery Upchurch Municipal complex. Funding has been approved by City Council for the retrofit of four additional parking decks to LED lighting over the next five years, and LED streetlights are planned to be installed on Hillsborough Street adjacent to North Carolina State University. NCSU has also embraced this new technology, and became the first LED University in partnership with Cree, Inc.

Experience so far has shown that LED technology for general illumination provides real cost savings in energy, lasts longer, is more dependable and demands far less maintenance than traditional lighting sources, provides high quality light that creates a safe and bright environment, and contains no toxic waste products that could cause disposal problems in the future.

Cree, Inc. has also donated the \$1 million "shimmer wall" for the western exposure to the new Raleigh Convention Center. The wall is designed to be a signature symbol for the revitalized downtown. The wall features almost 80,000 four-inch by four-inch aluminum pixels hinged on louvers on 4-foot by 4-foot grids. The design depicts an oak tree and "shimmers" as air moves over the tiles.