## Billboard lighting breakthrough

Inefficient billboard lighting in Tucson, Arizona, USA

New fixture design reduces glare and puts light where necessary

After years of effort to bring billboard lighting practices into compliance with local light pollution control strategies, IDA members and other determined local citizenry have reached an agreement with national advertising company Clear Channel Outdoor (CCO) to provide fully shielded billboard lighting luminaires. These new fixtures will reduce total lumens in the nighttime environment, and result in significant energy savings.

To comply with the fully shielded optical requirement and a limitation of 1000 mean lumens allowed per linear foot of billboard face in the legal agreement, CCO's supplier (Holophane Lighting) developed the 'Pima County' version of their Advue luminaire to provide suitable billboard luminance with these restrictions. The final system reduces the luminaire count by 50% (2 luminaires per sign face in lieu of 4 luminaires per sign face) and reduces the per-luminaire wattage from 400 watts to 320 watts. As seen in the photos, off-site glare is greatly reduced for homeowners and drivers alike, and skyglow from high angle distribution is greatly curtailed. As with other local advertising signs, all lighted billboards in this area are subject to a curfew at midnight or earlier.

CCO staff has indicated that they were so pleased with the resulting billboard visibility, the decreased capital expense associated with the reduced luminaire count, and the 60% energy savings that they may use this application elsewhere in the U.S., regardless the potential lack of existing local light pollution control ordinances in various market areas. The efficiency and superior aesthetic of this style of billboard lighting gives IDA hope that this form of advertisement illumination may soon become the popular option in cities around the country. Voluntary choice of this technology could go a long way toward asserting the inherent value of quality outdoor lighting.

## LED adaptive lighting technology tested extensively

On 4 December, Pete Strasser and IDA Board Member Nancy Clanton met with lighting industry leaders and public servants in Anchorage, Alaska, USA to evaluate LED streetlight adaptive lighting capabilities. The city has proposed retrofitting their entire street light inventory with LED driven fixtures. Approximately 100 representatives of utilities, manufacturers, state Departments of Transportation, engineers, politicians and nonprofit organizations met to verify proof of concept for adaptive lighting techniques and evaluate different LED-based luminaire products. These lights have the capability of being dimmed for curfew or high snow reflectance.

Adaptive lighting is a cutting edge lighting application that utilizes dimming technology to automatically adjust the light output of a public street fixture to match optimal lighting levels. This technology gives streetlights the ability to be programmed to emit fewer lumens when ambient light levels are higher, and increase output as natural light levels recede. Light levels would stay steady throughout changes in natural conditions. Such visual consistency would create the least stress on the eye and use the lowest possible energy output to achieve adequate light. Pete's press statement expressed his enthusiasm for the concept: "This is an important arena for IDA. These test sites show that light output controls, such as dimming capabilities, occupancy sensors, etc. are the wave of the future which will regulate the amount of light while enhancing safety and visibility. We will save energy, save money and help bring back the natural nighttime sky. Everyone wins."

Organized by Anchorage Mayor Mark Begich (also Senator Elect) and the award-winning lighting engineering firm Clanton and Associates, this evaluation is the most extensive LED street light test to date. As part of the product testing procedure, attendees were driven to several locations throughout the Anchorage area to view the different products in action. Approximately a dozen people utilized a vehicle with sophisticated human reaction and perception instrumentation (provided by Virginia Tech) to measure response times for small target visibility and detection studies.

These tests are garnering attention from numerous parties. Engineers from other Alaskan cities, including Kodiak, Cordova, and Fairbanks, attended the evaluation to determine whether this new technology would be feasible for their communities. The results of this evaluation will have a profound impact on energy use. Preliminary results are promising and further testing is already underway.