Linking communities **with light**

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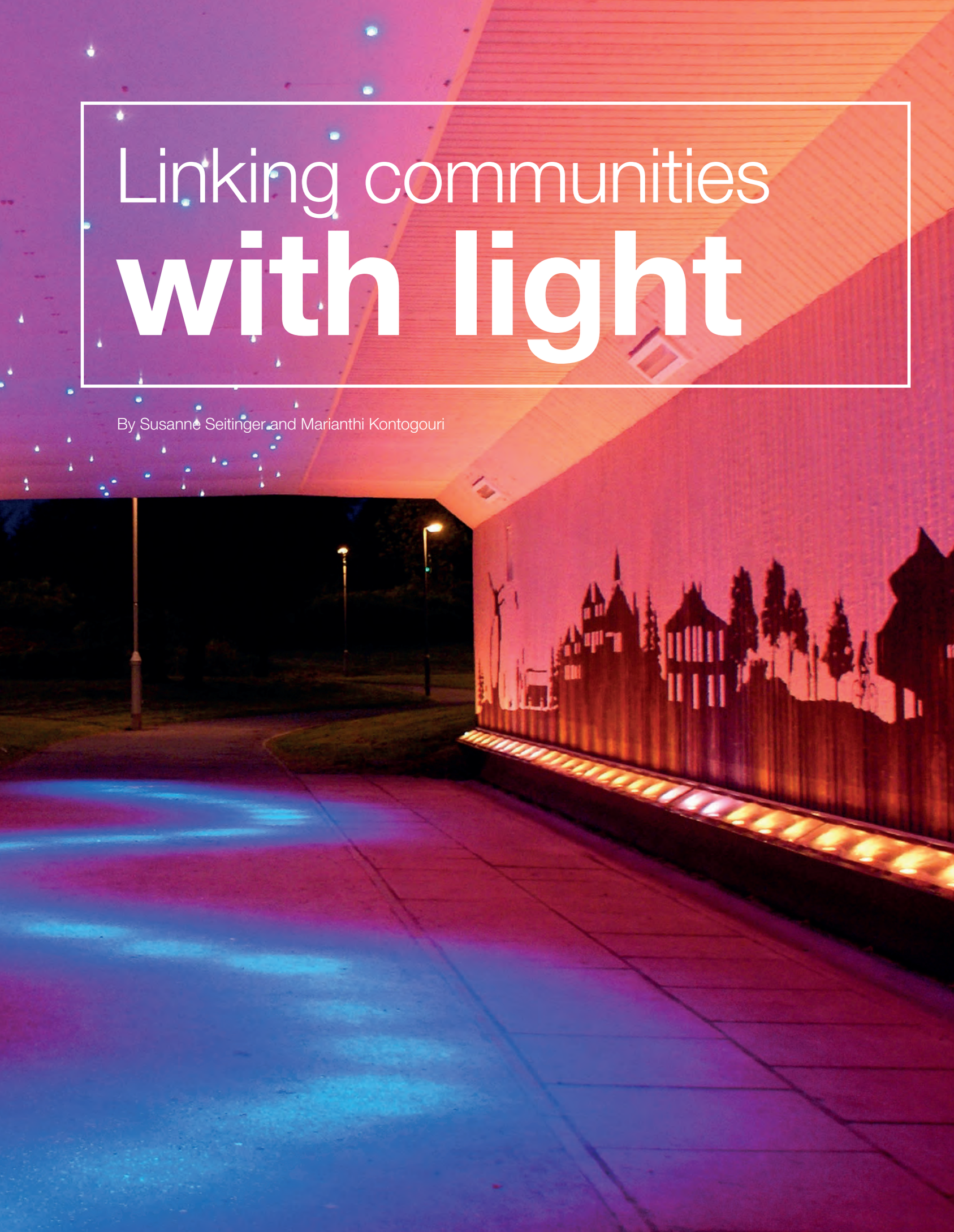

Euclid Underpass, daylighting for tunnels, Boulder, Colorado, USA
Lighting design: Nancy Clanton, Clanton & Associates

Underpasses are those convenient shortcuts connecting neighborhoods for pedestrians and cyclists. However, they often receive little design attention and put a burden on maintenance crews. Now stakeholders around the world are joining forces to rethink the value of these forgotten spaces.

For many of the students from St. Maurice's High School in Cumbernauld, Scotland, their everyday journey to school consisted of passing through the dark and uninviting Craiglinn underpass, which was often subject to vandalism. In 2011, colorful artistic lighting elements transformed the atmosphere of the passageway throughout the day and night. Now it is celebrated by the community as a town landmark.

"For public spaces such as pathways, underpasses, bridges and parks, lighting plays an instrumental role in people's perception of safety, and as such is hugely important for connecting people and neighborhoods," said Hamish Bigg, the lead designer for the Craiglinn underpass.

Pedestrians frequently avoid underpasses and pedestrian connectors if they are poorly maintained or convey a sense of abandonment. This behavior can disconnect certain districts from key citywide resources like open spaces. Suburban areas with more car-centric infrastructures are often particularly isolated from pedestrian and cycling networks. To leverage the capital outlay and maintenance cost of these infrastructures, diverse stakeholders,

Dolmen Light, Emmen, Netherlands
Artist: Titia Ex

including artists, urban designers, and municipalities are collaborating to develop creative approaches to renovation and new construction challenges. Projects such as the one undertaken in Cumbernauld are part of a global trend to revitalize forgotten spaces with holistic thinking that incorporates lighting in many different ways.

At IES Light + Behavior 2014, lighting practitioners discussed how inadequate lighting and low visibility can lead pedestrians to avoid certain urban spaces. A study undertaken for the UK's Department for Transport (2000) found that pedestrians, and in particular female pedestrians, identified subways or underpasses as unsafe places to walk, citing a sense of isolation and vulnerability to crime. Pedestrians' fears for their personal safety deter them from using these convenient connectors.

Evidence-based design guidelines suggest that designers and urban planners need to focus on delivering well-lit structures that provide easy orientation both within and beyond the structure and have an aesthetic appeal. Project examples from diverse communities demonstrate the myriad means available to creative practitioners for addressing safety and comfort issues, including poor lighting, water drainage problems, uneven sidewalks and general deterioration of the underpass structure.

The restoration of the Craiglinn underpass, a project commissioned by North Lanarkshire Council and designed by Bigg Design and Zero-Waste Design, aimed to rejuvenate a structure that serves as a key route to St. Maurice's High School. The designers collaborated with students and members of the local community to develop a unique solution with minimal energy use and low maintenance costs. Murals on the wall celebrate scenes from the local area, while dynamic LED lighting slowly changes color according to the time of day. "LED lighting technology liberates us to create spectacular effects with minimal energy use, great product lifespan, minimal maintenance, and the flexibility to control the lights to meet and even exceed our artistic vision," Bigg said.

Gregg Adams of Clanton & Associates took a different approach to relight the artwork along the walls of the Euclid connector under a major road in Boulder, Colorado, USA. He selected light fixtures with an asymmetric light distribution to evenly light the entire bas relief. Pedestrians are drawn into the space by the vertical light, which also provides even illumination within the tunnel.

In addition to enhancing safety, lighting installations can create new experiences in overlooked spaces. LITE, an architectural lighting firm, and Capita, a professional management and service solutions provider, partnered with local electrical contracting group Miltech to revitalize the Oxford Road Underpass in Workington, England in 2009. They used a programmable LED lighting system to reposition the passageway as a beacon of vitality. The solution has not only reinvigorated the tunnel and established a new town landmark but also enabled significant savings, with annual energy and maintenance costs decreasing by 45% compared to the previous system.

Collaborating with artists to achieve more holistic and engaging solutions has inspired many communities, including the city of Emmen, in the Dutch province of Drenthe. Artist Titia Ex based her project Dolmen Light on "The Gold of Drenthe," a reference to the town's earliest history. The site connects the center of the town with Emmen Zoo, a key civic institution in the city. The light program in the tunnel is adapted to the speed of cars which take about 70 seconds to pass through the tunnel at 50 km/h. The light sculpture plays dynamic and gradually changing video content inspired by biological phenomena and the animals in the nearby zoo.

Like Emmen, Southwark Council on the South Bank in London refreshed its Victorian elevated railroad arcades with bespoke artistic guidance. Clink Street Tunnel near the Tate Modern art gallery further reinforced the contemporary arts-focused character of the neighborhood. Much of the project's success hinges on artists' ability to navigate the balance between functional lighting and the psychological and social experience

LightRails, Birmingham, Alabama, USA
Artist: Bill FitzGibbons

of the space, especially at different times of the day and night. “Let’s seek to engage the interplay between psychological states, the whisper of fear, unease, or even delight and the realities of the communities into which it is being introduced,” said Linnaea Tillett, environmental psychologist and lighting designer.

Light can improve pedestrian underpasses by shortening perceived and real distances and lowering barriers between different neighborhoods. As more cities seek to promote economic activity around the clock, the link can be made between lighting these dark spaces and the socio-economic wellbeing of the community. Greensboro, North Carolina is a lively business, cultural, and historic destination. However, a lack of development in pedestrian networks between the downtown and surrounding areas to the south curtails further growth. The Downtown Greenway Project was conceived as a way to redevelop Greensboro’s city center, as well as to create better connections to the diverse neighborhoods that surround it.

Designers Jim Gallucci and Scott Richardson designed iron gates, modeled on the Art Deco style of architectural features found on a nearby structure, in order to decorate an abandoned railroad underpass that had not been used since the 1970s. The Over.Under.Pass is illuminated by interactive LED lights, which are triggered by motion sensors when pedestrians, runners, or cyclists pass by. Interaction designers like Jason Bruges are experimenting with these dynamic systems in public space, such as in his Shortcut project for Dover Yard in London. Rather than simply turning on abruptly, the lights trigger a moving pattern ahead of the pedestrian.

There are parallels to Greensboro in the way that REV Birmingham, a revitalization group in Alabama, and the Community Foundation of Greater Birmingham led a renewal program that uses lighting as a connective thread through key pedestrian routes. Bill Fitzgibbons’ lighting installation, LightRails, in Birmingham’s 18th Street railroad underpass connects two major areas of the city, the Parks

Above: Clink Street, London, United Kingdom
Lighting design: Yann Guenancia and Chris Page, Halo Lighting
Lighting solutions: Architainment Lighting
Right: Oxford Road underpass, Workington, United Kingdom
Lighting Design: Ian Harker and Capita
Installation: Miltech
Far right: This Way, Brooklyn Bridge underpass art installation, New York, USA
Lighting design: Linnaea Tillett

District and the city center. “Projects [like this], across many cities, demonstrate that the creative economy which produces things such as public art has a direct influence on how citizens feel about those urban areas,” Fitzgibbon said. “When you do this, you start attracting residential activity, that attracts restaurants and retail, and then the urban center becomes an exciting vibrant place where people want to live.” Since its installation in 2013, LightRails has attracted residents and visitors to the downtown area and new park.

LightRails and many other examples are conceived with community-oriented goals in mind to knit neighborhoods together and enhance citizens’ quality of life. Groups like the Social Light Movement have been working to engage communities in participatory design efforts to raise their awareness of lighting and its transformative potential. Their efforts also provide a vehicle for engaging with diverse stakeholders when larger development projects are under review. One thing is clear: these projects are most successful when they emerge from strong cooperation between citizens, engineers, designers, and municipalities.

Websites
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