

Adaptive roadway lighting saves over 60% energy

CASE STUDY

City of Nijmegen,
the Netherlands

"Why should each citizen pay for street lights that aren't being used?
When there are real practical proven solutions like this."



Visitor
City of Nijmegen



Background

Nijmegen, one of the oldest and densely populated cities in the Netherlands, constructed a new city ring road (s100) in the year 2013. The road stretches from national the highway through to the heart of the city and is aimed at facilitating a better traffic flow. As Nijmegen is reputed for adopting smart solutions and has won several awards for being clean and green, the municipality envisioned this road to be environmentally friendly through the use of intelligent solutions.

Challenges

This new road was enjoyed by the citizens and visitors, however the emerging issues could not be ignored. During the late night hours, the road usage was limited. However all the streetlights were illuminating at the full brightness which represented a significant waste of energy. Turning-off these lights would mean endangering the road-users and compromising their safety. Furthermore, several car-drivers complained that the lamps appeared too bright, especially during the normal weather conditions. Maximum level of brightness would only be necessary during poor weather conditions, such as heavy fog or rain. There were no methods to adjust the brightness level of lamps once they have been set. The city was looking for a solution that would intelligently adapt the lighting levels based on the weather conditions and traffic density. Furthermore, Nijmegen was facing frequent traffic congestions and was searching for real-time traffic information system so as to take corrective actions when necessary. The city aspired a solution that would not only solve the current challenges, but also help them create a foundation for a smart city.



// *City of Nijmegen is committed to energy efficiency in outdoor lighting while maintaining the lighting quality and public safety.* //

 **Gerald van Meijgaarden**
Public Lighting Quality Manager

Solution

Nijmegen chose Twilight. The intelligent lighting solution delivered by Twilight fully solved all these challenges and met the city's criteria. Within a week of installation, Twilight lighting controls made the roadway lighting adaptive. The lighting levels now adjust automatically based on the actual traffic conditions. When no presence is detected, the streetlights dim to 20% of their full-capacity. Such minimum light levels ensure that there is still visibility on the street and thereby assuring the safety and security. When a car approaches, a number of surrounding lights in front of the car glow-up to a brighter level, ensuring that the car is always surrounded by a safe circle of light. The lighting levels also adjust to the weather conditions, which allows for the on-demand lighting at all the time. In this way, the road-users enjoy the driving experience without noticing the lights glowing or dimming.

As expected, the city achieves over 60% in energy savings and an equivalent reduction in the CO2 emissions. Furthermore, the Twilight system allows remote monitoring, management and control of entire lighting infrastructure through the user-friendly CityManager software. By monitoring and counting the traffic, the system is able to analyze the traffic patterns and help in improving the traffic flow.

Intelligent outdoor lighting control solution provided by Twilight have been across many cities around the globe.

Are you looking for a solution that would help you realize excellent energy savings, lower CO2 emissions, gain access to valuable data or simply set a foundation for a smart city? Do contact us at www.twilight.com.

Project information

Location

Nijmegen, the Netherlands

Client

City of Nijmegen

Project scope

Intelligent roadway lighting
(from highway to the city center)

Average savings

60% *

Installation company

Ziut

Installation period

January 2014

Benefits*

City

- ✓ Significant reduction in energy usage without compromising vehicular safety
- ✓ Adaptive lighting control during low traffic hours to save further energy
- ✓ City gains control by better view on traffic flow, energy usage, lamp status and maintenance needs
- ✓ Reduced maintenance costs of up to 50% through increased lamp lifetime and smarter maintenance planning

Citizens

- ✓ Maintained sense of safety
- ✓ Right amount of light when and where it's necessary
- ✓ Reduced sky glow
- ✓ Better traffic flow

Planet

- ✓ Reduced CO₂ emissions
- ✓ Reduced light pollution
- ✓ Adapts to environmental changes

* Data collected x to b from CitySense



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