

## **BSC Kranj**

### **Dynamic Light – Gorenjska- Pilot Areas**

- *Municipality Bled (2 pilot locations)*
- *Municipality Tržič (1 pilot location)*
- *Municipality Jezersko (1 pilot location)*

### *Where?*

#### *Location*

Gorenjska region is situated in northwest of Slovenia. Capital city of the region is Kranj with 40.000 inhabitants. Gorenjska consist of 18 municipalities and 3 of them will be our pilot municipalities with different type of areas.

To test new dynamic lightning technologies we identified 4 pilot areas in 3 different municipalities. First municipality is Bled, which is a town on Lake Bled. It is most notable as a popular tourist destination in the region and in Slovenia. In Bled we will implement pilots in two different locations. First is in Park Vile Zora which is situated as a walking path from the building of the Municipality Bled to the lake. Second is also walking path within the Park under the Vila Bled.

Pilot location in Municipality Tržič is a local connecting road within the Industrial zone Mlaka. Road is intended exclusively for motor traffic.

Last pilot location is lake Planšarsko jezero in municipality Jezersko, which is the highest located and smallest municipality in Gorenjska region with main focus in tourism.

### *Why?*

#### *Strategic value*

Pilot areas will demonstrate dynamic lighting solutions in the context of smaller municipalities and includes different types as tourist, mountains, park, industrial areas. Existing public lighting infrastructure will be upgraded. Those two pilot areas in municipality Bled are regulated landscape parks, which are placed on the connecting area between the hotels, shopping malls, restaurants, parking and a walking path around the lake. Depending on the purpose of use of the illumination areas we can define the main purpose of the participants as recreation and relaxation. Adequate lighting must be at night to ensure a favorable sense of security and reduce the risk for crime.

In municipality Tržič the pilot area is connecting road within the Industrial zone. Depending on the purpose of use in the area of illumination we can define that Lighting has to ensure during night time adequate levels of illumination for the safety reason of transportation of cars and transport vehicles.

Using dynamic lighting with a high light quality in the main tourist point (lake Planšarsko jezero where is in summer time walking path, in winter time are there ski-cross trails) of Jezersko the investment promotes the use of energy - efficient lighting.

Generally this is a great opportunity to test and implement new lighting approaches which are solutions not only to the energy efficiency criteria but also to the specific social needs such as improvement of safety of all participants (walkers, skiers, car drivers, nearby residents,...). Environmentally friendly and multifunctional lights will be an example of good practice for other areas in Alpine region.

## *What?*

### *Expected results and Technical approach*

At the Council of the Gorenjska Region in January 2016, the municipalities of Gorenjska adopted the proposal by the Regional Development Agency (BSC) Kranj to draw up a Sustainable Energy Plan for Gorenjska region, with objective to reduce CO2 emissions by at least 40% by 2030 compared to 2011.

One of the several actions or projects to reach that goal is implementation of project Dynamic light with pilot investments in three different municipalities in Gorenjska region.

The public lighting in the areas under consideration are by the Municipality Bled prescribed unique type lamps and candelabra. Lamps and candelabra are approved by the Municipality of Bled and the use of these lamps is required to achieve a coherent integrated landscape image of the area around Lake Bled. On lamps of public lighting presence sensors will be installed. At the general turn on of public lighting lamps light up only 30% of the luminance, which ensures the proper light - Orienteering guiding for walkers to the start of walking paths. When the visitor/walker approaches the lamp is activated presence sensor and put lamp in operation at 100% light output.

In municipality Tržič (industrial zone Mlaka) for renovation of existing lighting replacement of the existing lamps to the new LED lamps is foreseen, which have a built-in automatic reduction of the luminous flux of the software-defined time function. For the reconstruction of pilot area 13 lamps is foreseen.

New lamps have module for automatically reduction of the luminous flux on the software-defined time function. At General turning on of public lighting lamps are illuminated with a 100% power during the night is performed automatic power reduction and with the luminous flux. For connecting road in the industrial area Mlaka in comparison to the typical time-traffic load, control of the luminous flux in function DDF2 is provided. This type of regulation could achieve additional electricity savings up to 32% for 4,000 hours of annual operation lighting.

Pilot area in municipality Jezersko includes 15 new generation luminaires based on LED technology complemented with controllers and managing devices that will make public lighting dynamic and multifunctional. The basic idea of the lantern type: the upper part is removable and is only used in the winter. Besides the functionality is crucial design - the lights should match with the natural and unique environment.