



# MURSKA SOBOTA – CVETKOVA STREET SLOVENIA

## RECONSTRUCTION OF STREET LIGHTING TO LED TECHNOLOGY



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## GENERAL

### Street:

Cvetkova street, Murska sobota, Slovenia

### Number of lamps:

11 street lamps

### Installation:

5m pole height with distance from 21 to 31m

### Lamps before installation:

Ball lamps with mercury bulb of 125W

### Lamps after reconstruction:

LED lamps LSL30, full dimming version

### Measuring before reconstruction:

Date: 3.3.2010 between 20.30 and 21.30 hour, temperature 6 deg C, clear weather, dry road.

### Measuring after reconstruction:

Date: 25.3.2010 between 20.15 and 21.30 hour, temperature 4 deg C, clear weather, dry road.

### Measuring equipment:

- Camera LMK mobile advanced, TechnoTeam Bildverarbeitung GmbH, number of calibration 3630718002
- Instrument for measuring illumination, T10, (class A), Konica Minolta, number of calibration 6569

## ILLUMINATION LEVEL BEFORE RECONSTRUCTION

m/m	0	1,6	4,7	7,8	10,9	14,0	17,1	20,2	23,3	26,4	29,5	31,0
0												
0,50		13,25	7,73	3,89	2,13	1,55	1,46	1,91	3,12	5,77	10,77	
1,50		10,77	6,77	3,61	2,04	1,5	1,46	1,88	3,06	5,09	8,96	
2,50		8,76	5,72	3,34	1,95	1,43	1,44	1,84	2,79	4,42	7,2	

Middle value of illumination: **4,5 lx**  
 Minimum value of illumination: 1,43 lx  
 Maximum value of illumination in direction of observer: 10,77 lx  
 Minimum value of illumination in direction of observer: 1,46 lx

Lamp, White ball **137 W**



## ILLUMINATION LEVEL AFTER RECONSTRUCTION

m/m	0	1,6	4,7	7,8	10,9	14,0	17,1	20,2	23,3	26,4	29,5	31,0
0												
0,50		33,1	16,3	8,86	4,58	1,97	1,96	4,31	9,08	19,85	38,5	
1,50		27,5	18,59	9,75	4,25	2,23	2,25	4,28	9,78	20,2	30,7	
2,50		21,04	14,54	7,98	3,6	2,1	2,04	3,2	6,68	13,14	20,4	

Middle value of illumination: **12,1** lx  
 Minimum value of illumination: 1,96 lx  
 Maximum value of illumination in direction of observer: 30,7 lx  
 Minimum value of illumination in direction of observer: 2,23 lx

Lamp, LED street lamp LSL30 **35 W**





## Brightness measuring before reconstruction

Lamp: White ball  
Bulb: HME 125 W  
Height of installation: 5 m



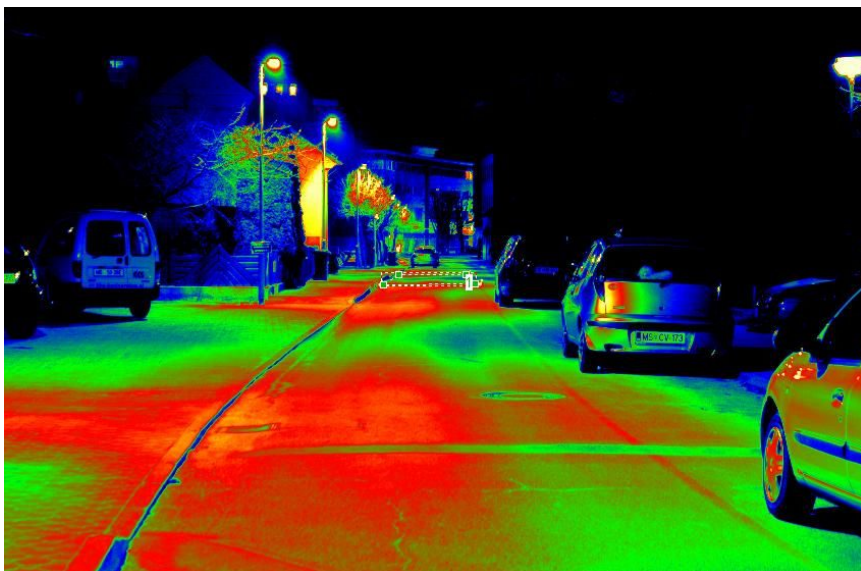
Middle value of brightness on measured area:  
Minimum value of brightness on measured area:

$0,52 \text{ cd/m}^2$   
 $0,20 \text{ cd/m}^2$



## Brightness measuring after reconstruction

Lamp: LED street lamp LSL30  
Bulb: LED module 30W  
Height of installation: 5 m



Middle value of brightness on measured area:  
Minimum value of brightness on measured area:

$0,76 \text{ cd/m}^2$   
 $0,26 \text{ cd/m}^2$



## ENERGY SAVINGS

### BEFROE RECONSTRUCTION

11 ball lamps 125 W, total consumption including ballast **137 W**.

Total consumption of street:

11 x 137 W= **1.507 W**

Planned consumption of street per year (4.000 working hours) is **6.028 kWh**.

Cost of electricity consumption (0.12 €/kWh) on Cvetkova street per year is **723,36 EUR**.

### AFTER RECONSTRUCTION

11 ball lamps 30 W, total consumption including driver **35 W**.

Total consumption of street:

11 x 35 W= **385 W**

Planned consumption of street per year (4.000 working hours) is **1.540 kWh**.

Cost of electricity consumption (0.12 €/kWh) on Cvetkova street per year is **723,36 EUR**.