



TECHNOLOGIE  
HLAVNÍHO MĚSTA  
PRAHY

Pulz naší metropole

# Concept of Prague Public Lighting

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# Technologie hlavního města Prahy, a.s. (Technology of the capital city of Prague) *- The company introduction*



## municipal company THMP

- Provides investments, design, maintenance, servis and building-up of the infrastructure:
  - public lighting (road lighting)
  - architectural and special lighting
  - public shelters and urban furniture
  - public clocks
  
- Provides maintenance and servis of:
  - traffic light signalization
  - velocity measurement system
  - city monitoring system (CCTV)
  - tunnel lighting system

# II. Concept of public lighting - Introduction



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graph TD; A([CONCEPT OF PUBLIC LIGHTING]) --> B([LIGHTING MASTERPLAN]); A --> C([RENEWAL PLAN]); A --> D([STANDARDS]);
```

**CONCEPT OF  
PUBLIC LIGHTING**

**LIGHTING  
MASTERPLAN**

**RENEWAL  
PLAN**

**STANDARDS**

## II. Introduction

- Lighting Masterplan:* tool to maintain a defined night appearance of the city through the proposed parameters and rules  
(analysis of current night time situation, specification of aspects and parameters)
- Renewal plan:* tool for financial planning of the city in the field of public and architectural lighting, (analysis of existing public lighting system etc., schedule renewal, cost estimation)
- Standards:* tool for maintain the required quality and operation and maintenance efficiency  
(requirements for activities in public lighting and products)

## II. Background - lighting masterplan

- Safety and security

(EN 13201 Road lighting)

(CIE 115:2010 Lighting of roads for motor and pedestrian traffic)



- Environmental aspects

(CIE 150:2017 Guide on the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations)



- Appearance of cities

(CIE 094:1993 Guide for Floodlighting)

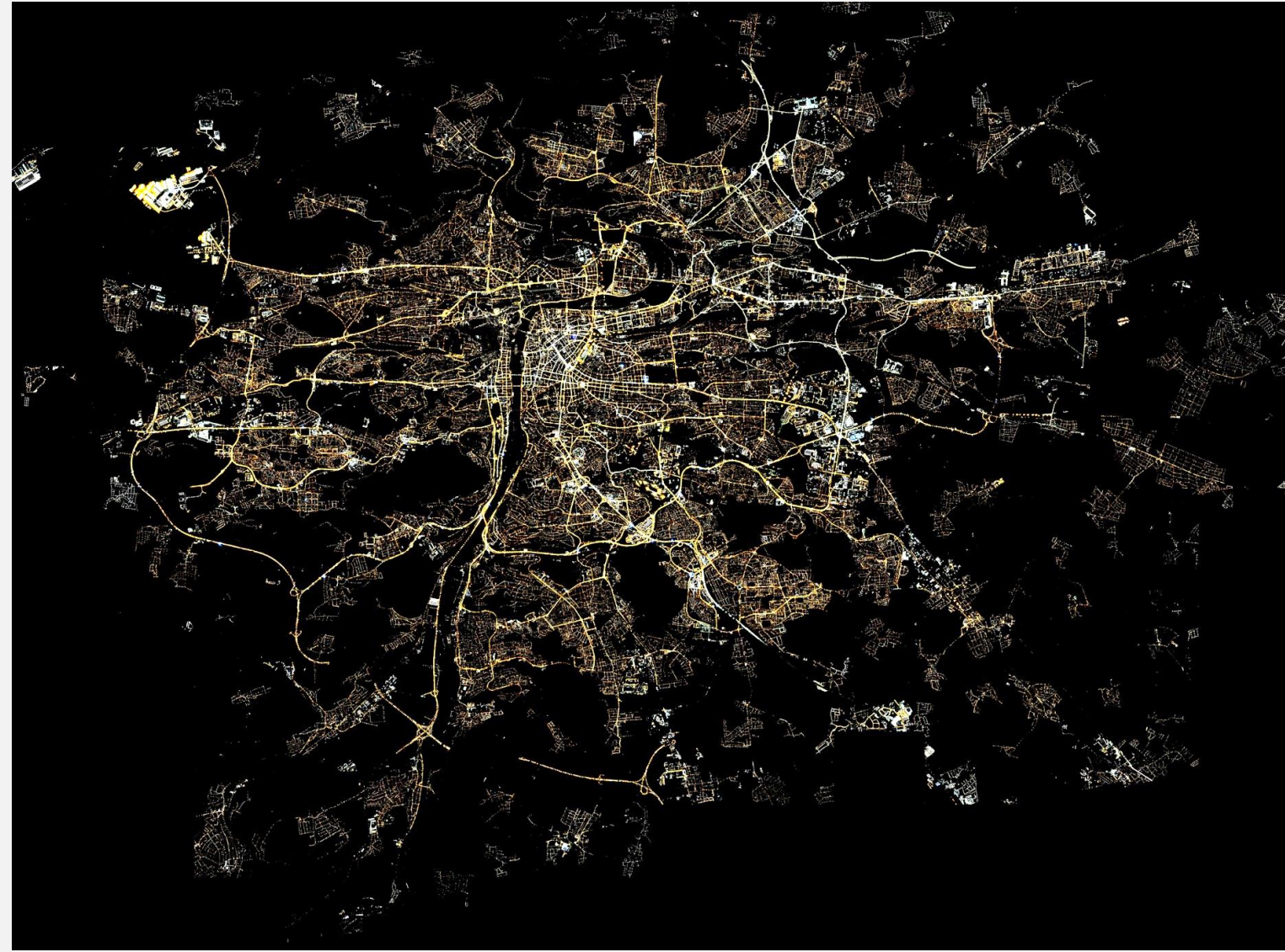
(CIE 234:2019 A Guide to Urban Lighting Masterplanning)



# IV. Analytic part – area analysis

## Important insights:

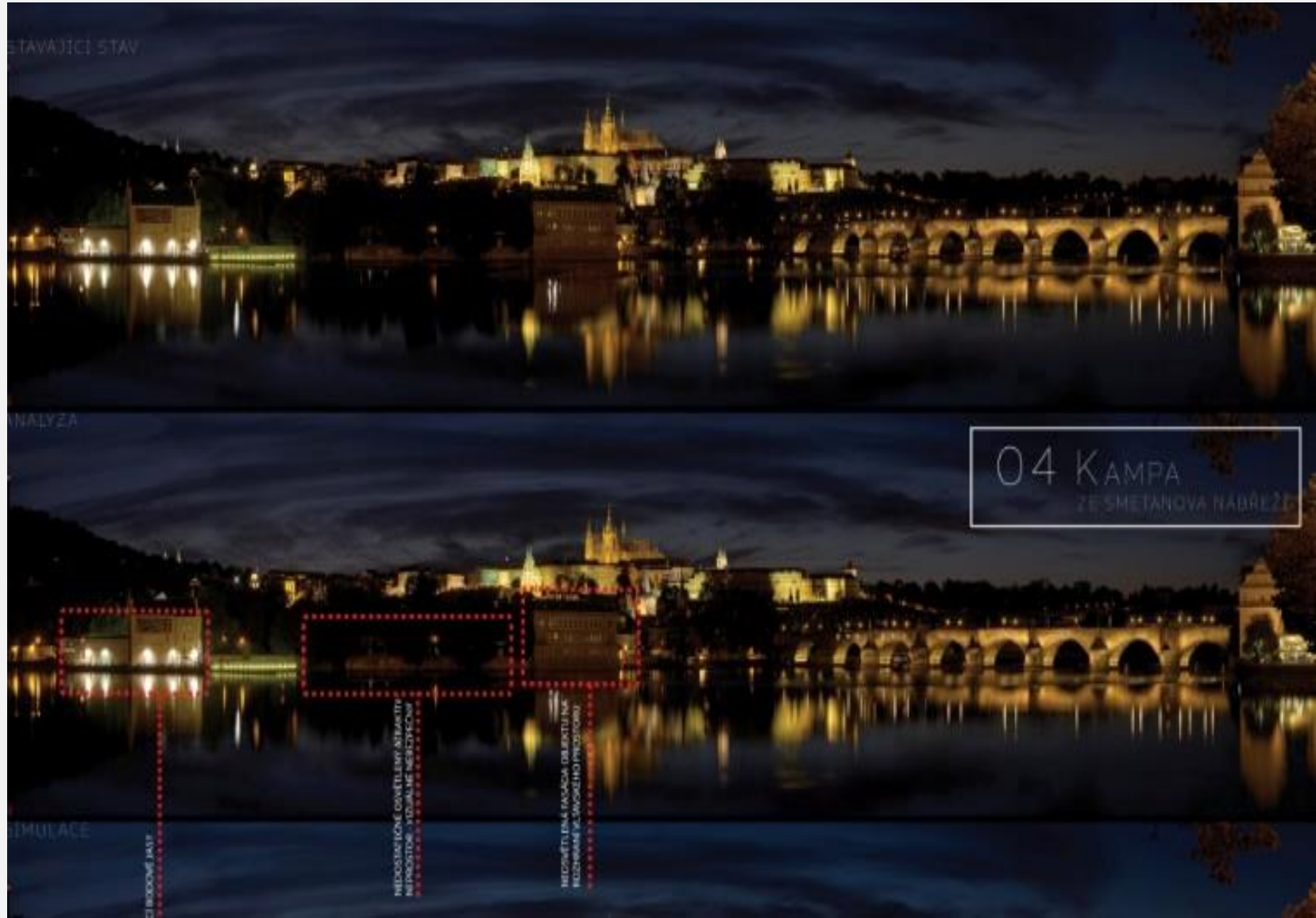
- main influence of transport infrastructure (roads, airports, railways)
- significant lighting levels of parking areas of shopping centers
- illumination level of roads according to transport function;
- color tone of the light can be different.
- structure of the housing
- built-up / non built-up areas
- changes of the night city image



# IV. Analytic part - Panorama analysis

## Night panoramas

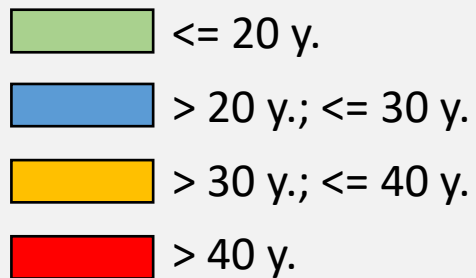
- base on daytime panorama;
- insufficient lighting;
- inappropriate lighting;
- excessive lighting of common objects or (privat) buildings



# IV. Analytic part – age of light points

## Condition of the system

- base on GIS;
- age for each construction part;
- long period of lifetime



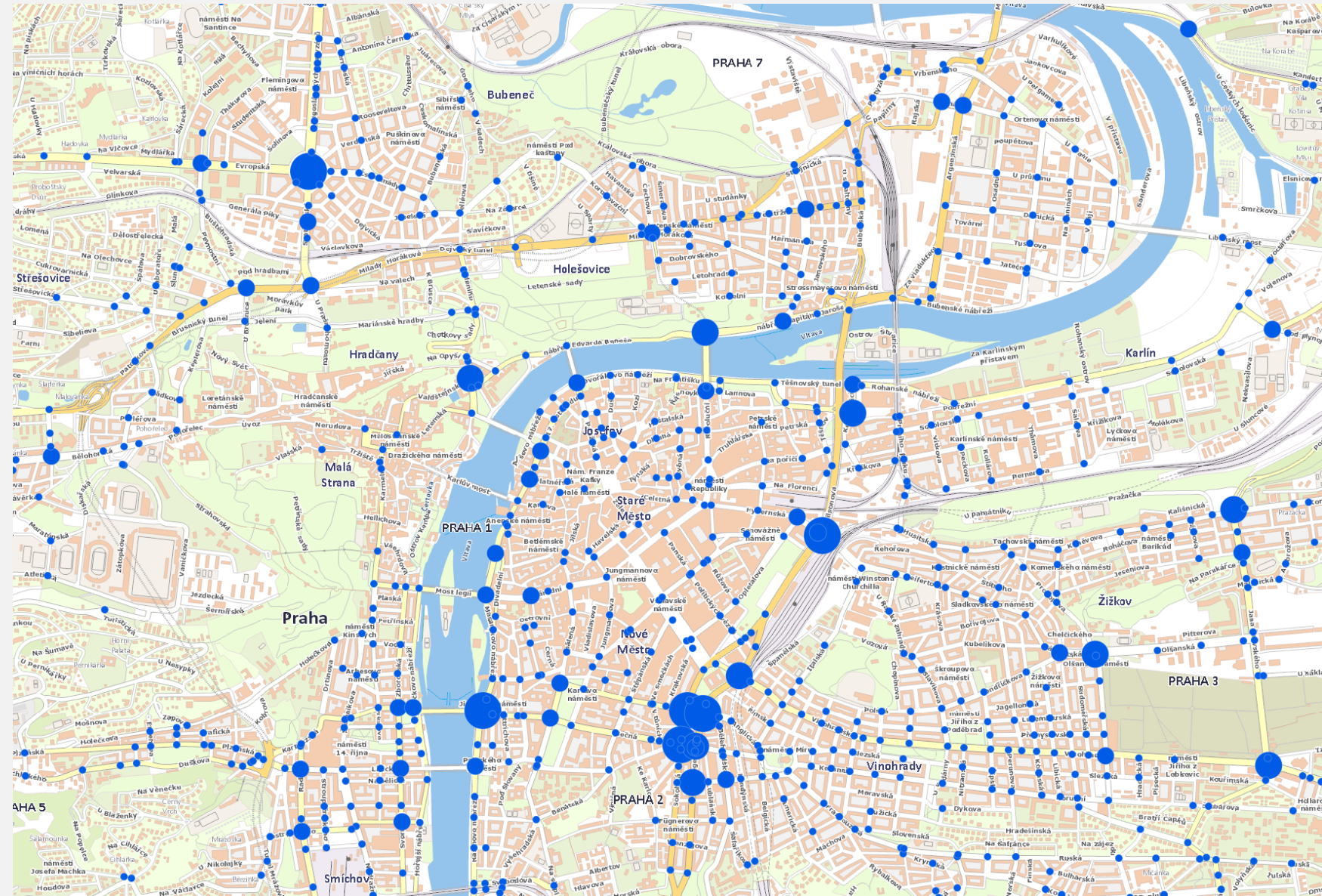
# IV. Analytic part – traffic accidents

## Accident analysis

- intersections;
- all kind of accident;
- during nighttime;
- with operation of road lighting;

## Results

- probability of accident for each intersection
- default background
- future monitoring of the connection between lighting and accidents



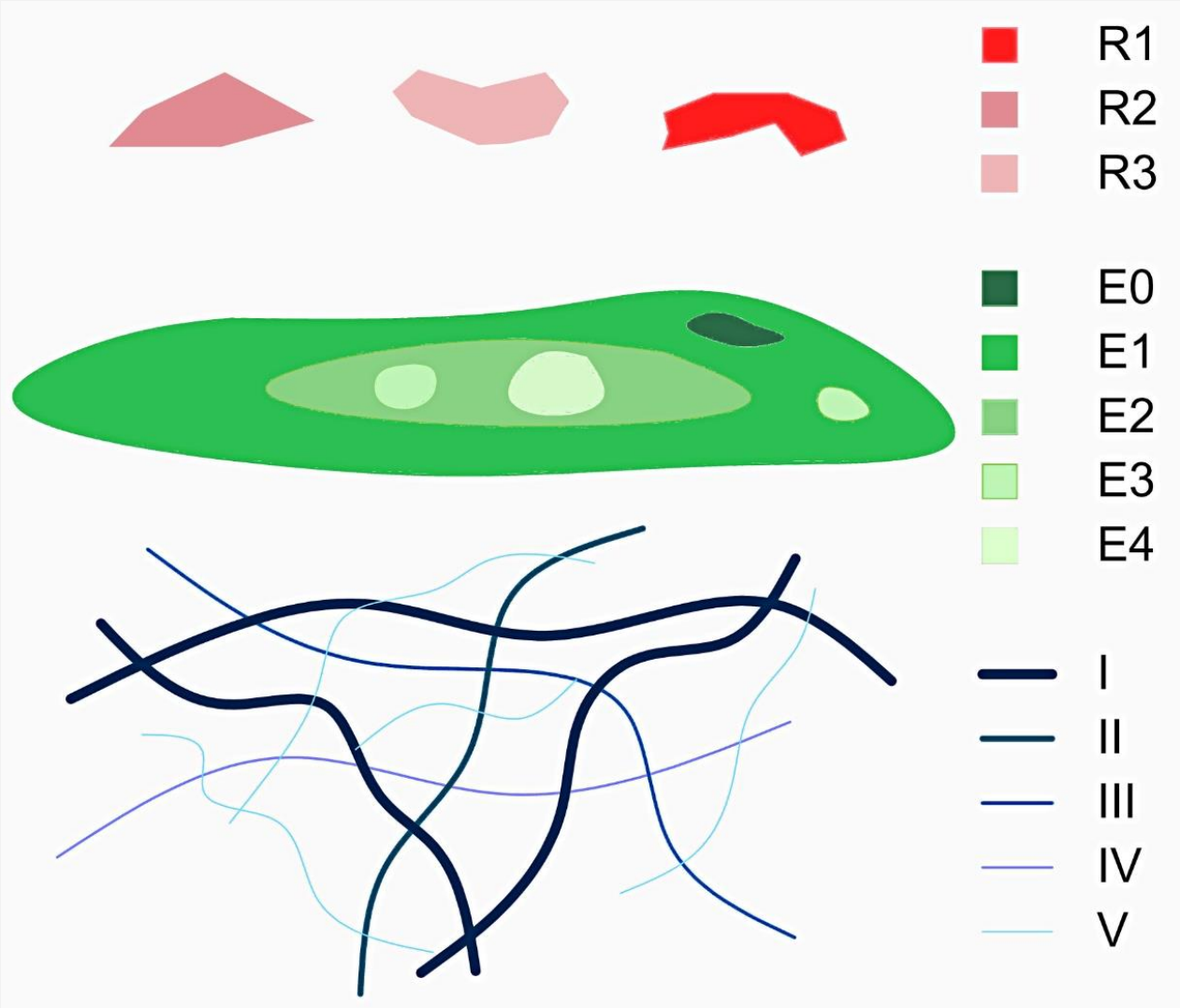
# V. Design part

Structure of layers and attributes

**Representation**

**Ecology**

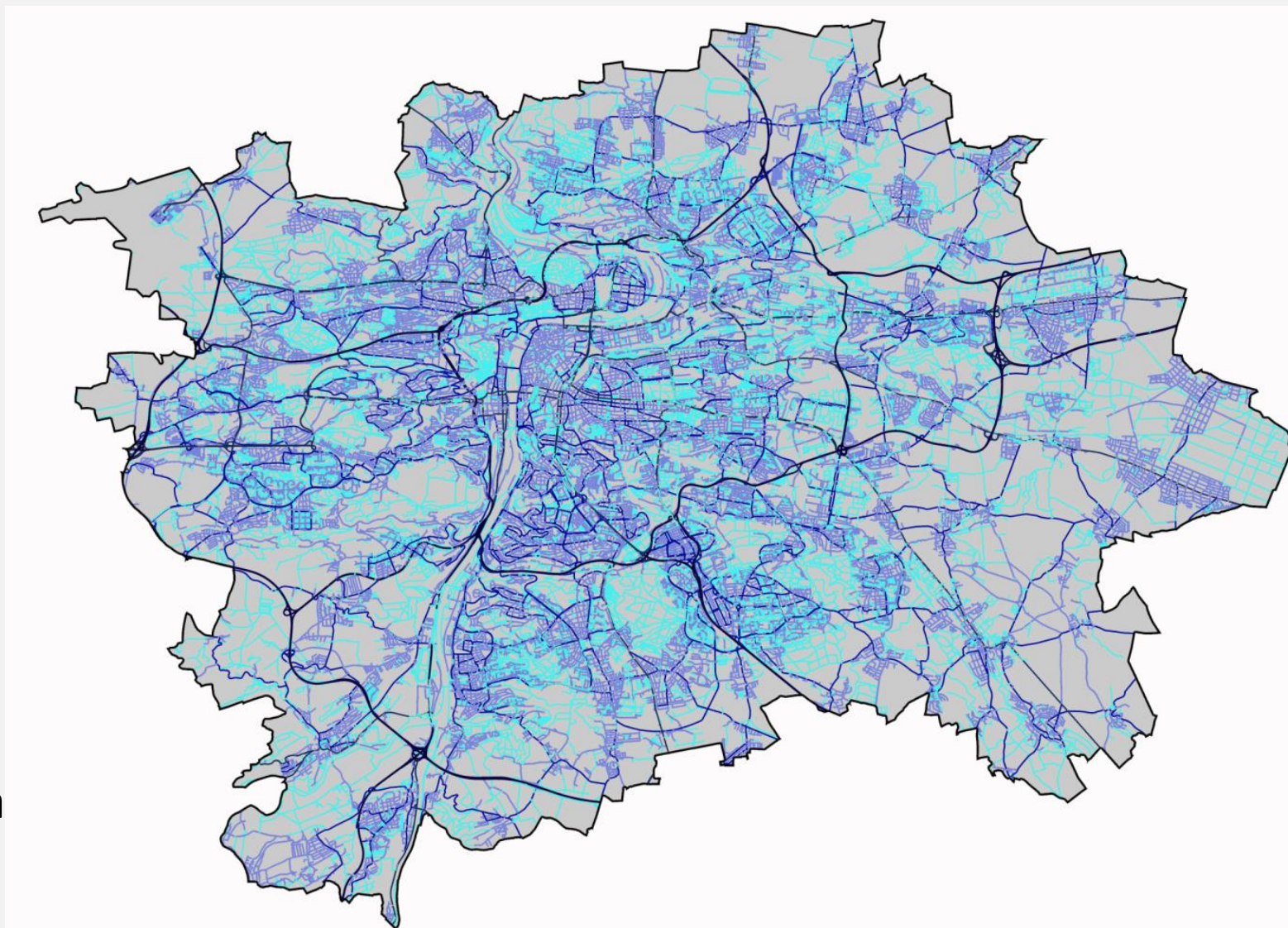
**Safety**



# V. Design part

## Layer: Safety

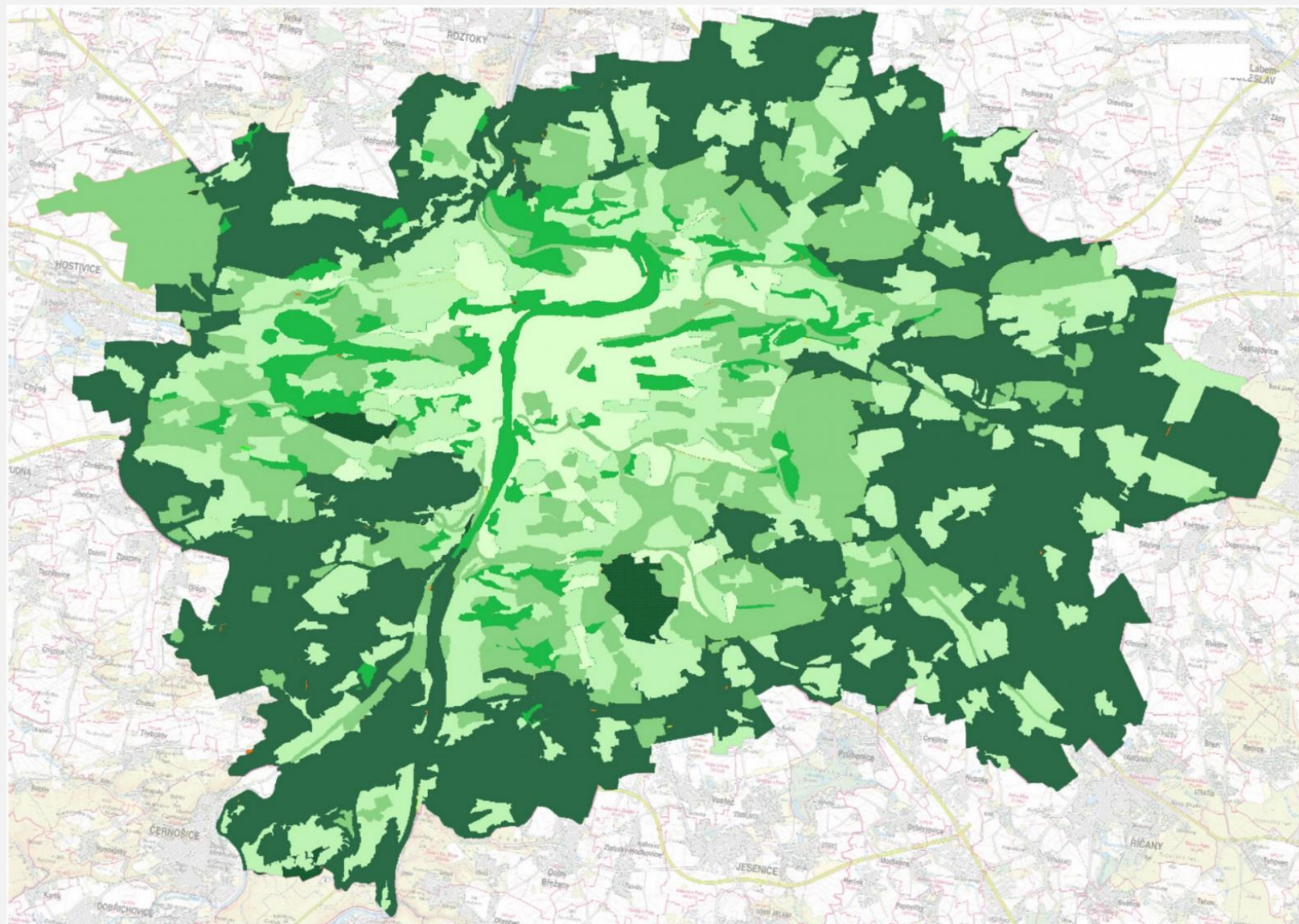
- line GIS layer (existing);
- road length - 7 438 km;
- 5 types of roads (function):
  - I. transit backbone road;
  - II. urban backbone road;
  - III. main traffic road;
  - IV. minor traffic road;
  - V. non-motorized road;
- road with non-standard characteristic or in conflict area – correctionn of requirement








# V. Design part - ecology

## Layer: Ecology

- layer in accordance with Metropolitan Plan (build up/non build up);
- 5 environmental zones (CIE 150/2017);



## environmental zones


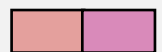
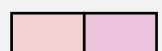
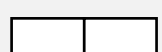
-  E0 - natural greenery protected;
-  E1 - basic natural greenery;
-  E2 - peripheral parts of the city;
-  E3 - residential zones, local centers;
-  E4 - historical center;

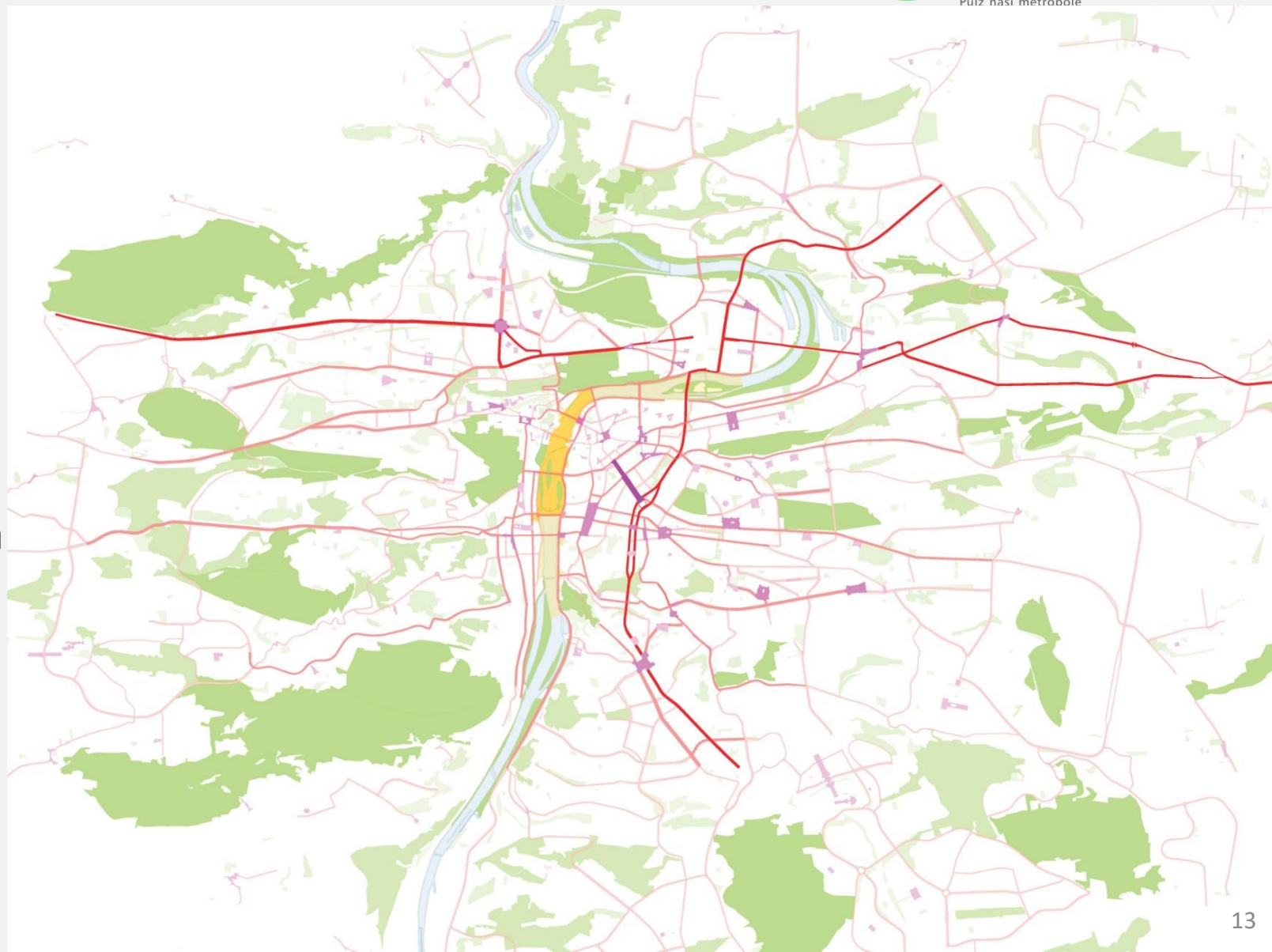
# V. Design part – representation

## Layer: Representation

Effect of public lighting of the appearance of public space

- „hierarchy“ layer (Metropolitan Plan);
- 2 entities (street/square)
- Effect of architectural lighting on the appearance of public space

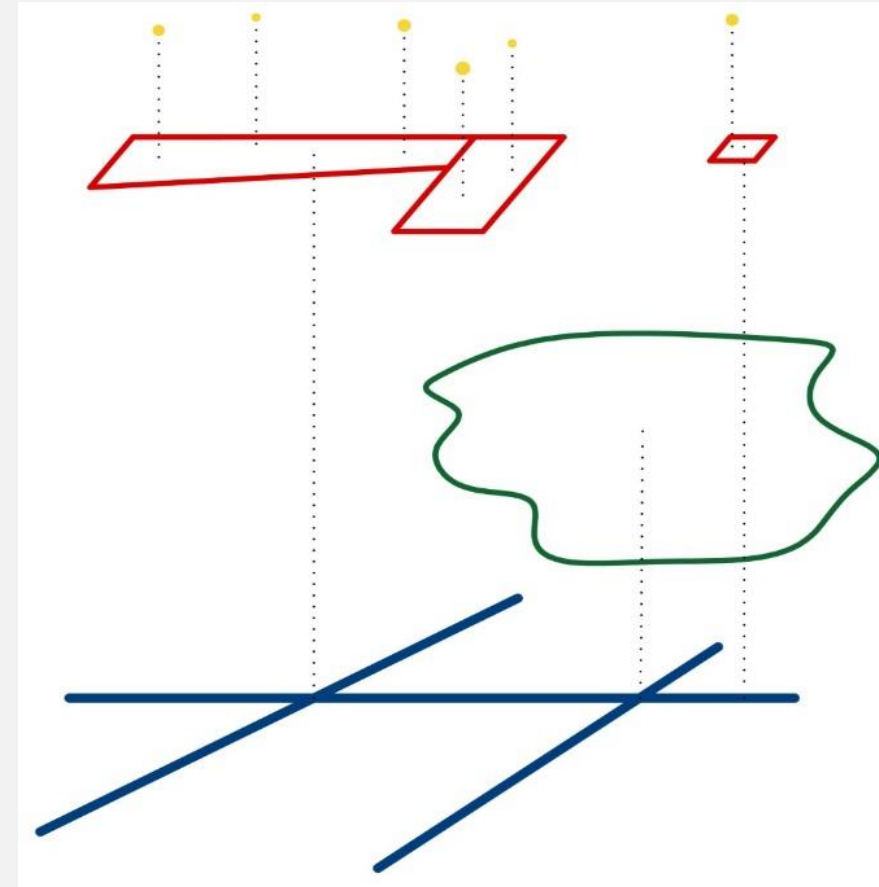
	R1 - metropolitan street / square;
	R2 - district street / square;
	R3 – territorial street / square;
	R4 – local street / square;



# VII. Conclusion

## Lighting masterplan

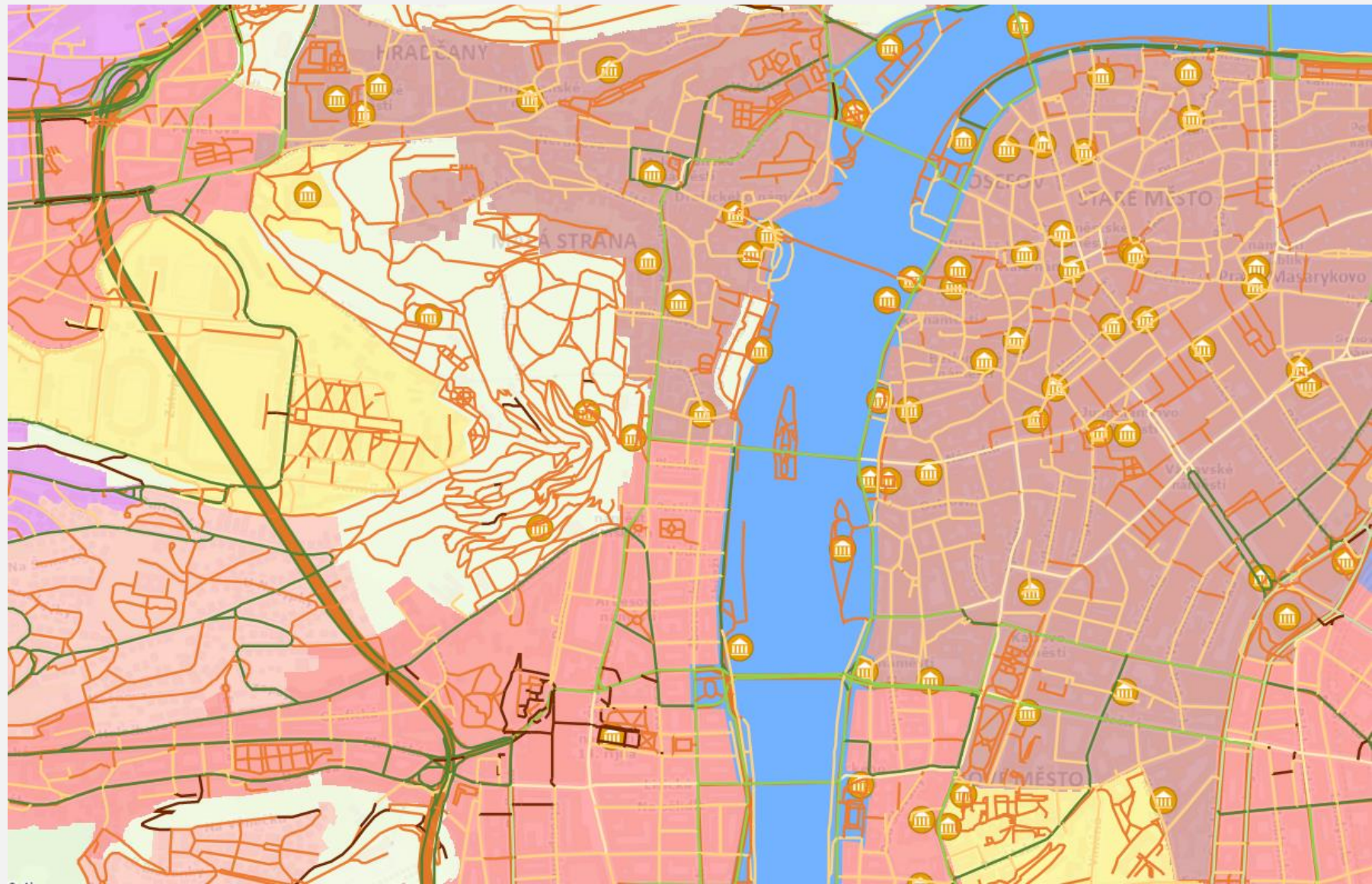
- simple and clear data model;
- updatable;
- compatible with spatial planning data;
- possibilities to add new attributes;
- possibility to add new layers;
- aspect: safety, environment and appearance;



# VII. Conslusion

## Digital Lighting masterplan

- complex data model
- implemented in GIS



# VII. Conclusion

THANK YOU FOR YOUR ATTENTION

Discussion & questions