

POLITECNICO DI TORINO
SECOND SCHOOL OF ARCHITECTURE
Master of Science in Architecture (Environment and Land)
Honors theses

Lighting master plane.

A case study: Mondovì

by Valentina Raviolo

Tutor: Chiara Aghemo

The thesis's objective is realizing an hypothesis of lighting master plane for the city of Mondovì, in order to optimize the lighting system and improve it from a practical point of view, aiming, at the same time, at energy conservation and economical saving.

The work develops through the analysis of the following points:

- Objectives to be achieved;
- Some lighting master plane already realized;
- Technical National and International regulations
- The present municipal situation

Mondovì has already had a few improvements in the lighting system and other interventions are developing or will be carried out.

From the analysis, it is possible to find a lot of interventions to be done, since old devices and sources are really numerous and it would be necessary to replace them with other technological and more effective systems, both in working order and in the control of the emission of light upwards .

This hypothesis could be the right solution to plan in the best way the interventions the municipality is going to carry out and above all to determine the rules the new systems will have to respect.

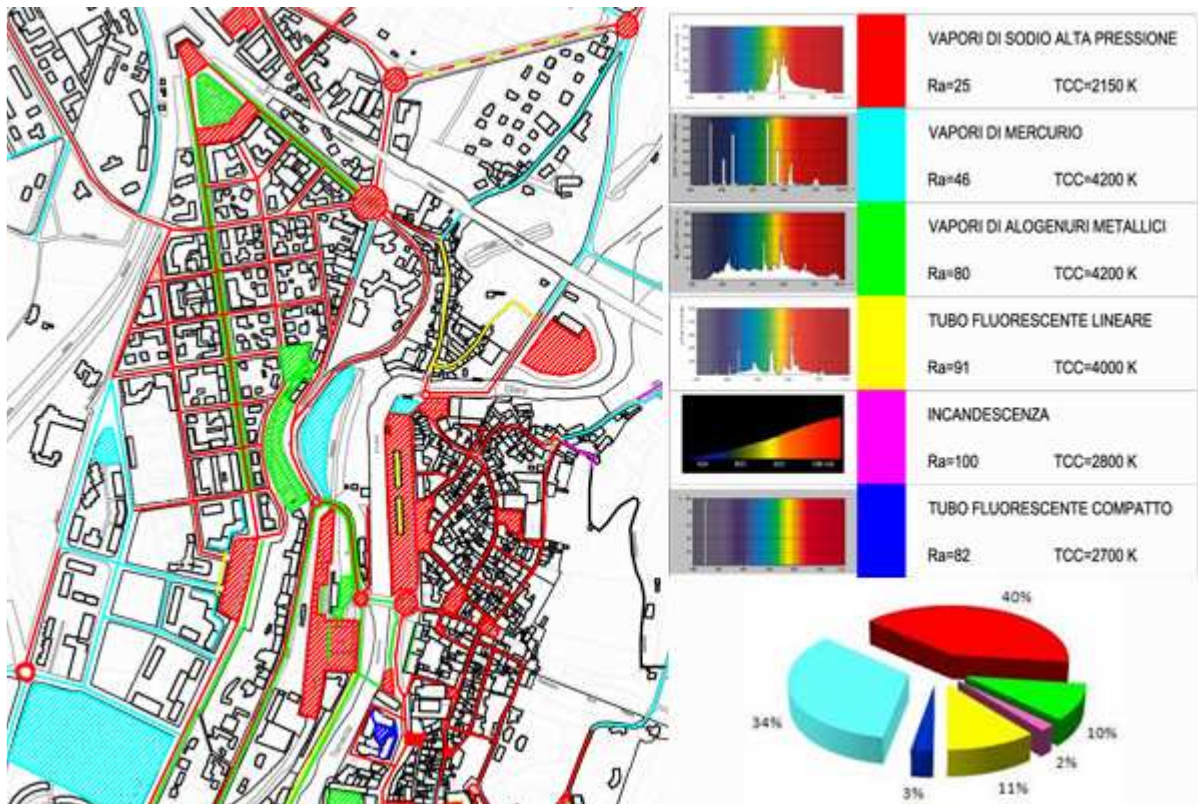
The work can be divided into two main phases:

1. **A phase of analysis** of the following issues:

- Needs and requisites in the public lighting system and relevant technical regulations
- Lighting technologies
- Definition of lighting master plane, its regulation framework and examples of lighting master plane already realized in some Italian cities.

2. **A light master plane proposal for Mondovì** through:

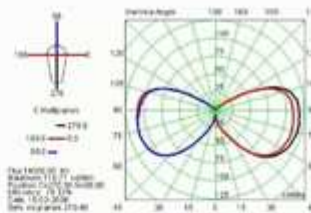
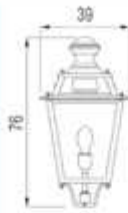
- Analysis of the present state:
 - Division of the area into homogeneous zones
 - Definition of different types of roads and relevant technical lighting classification
 - Light sources survey
 - Light apparatus survey
 - Support survey
 - Analysis of the dispersion of light upwards
 - Problems occurred



Table_03: light sources classification

APPARECCHIO NERI PQ800A

SCHEDA_01



Tipologia di apparecchio:

lanterna storica

Descrizione:

apparecchio utilizzato per l'illuminazione del centro storico

Tipologia di sostegno:

per la maggior parte delle installazioni è posizionata a muro, alcune eccezioni su palo

Flusso luminoso emesso verso l'alto:

Rn = 32 %

Classe di protezione da acqua e polveri:

IP43

Classe di protezione elettrica:

II

Sorgente luminosa:

vapori di sodio ad alta pressione

Stato di manutenzione:

dall'analisi effettuata questo tipo di apparecchio risulta essere in buono stato di manutenzione ma, a causa della sua emissione verso l'alto andrebbe sostituito con l'apparecchio simile (PQ801A) che, avendo la sorgente installata nella parte superiore ha Rn=3%.



Classification table of the lighting system

- Plan proposals:
 - Road classification and relevant technical description
 - Light colour (Ra e TCC)
 - Light source types
 - Apparatus types
 - Lighting of architecture and monuments



A plan hypothesis for a decorative lighting

For further information, e-mail:
Valentina Raviolo: valentina.raviolo@gmail.com

Maintained by:
CISDA - HypArc, e-mail: hyperc@polito.it