The Ghent Light Strategy in the spotlights

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1. Draft of the Ghent Light Plan

Light for a city in motion

Thanks to its historic heritage, its rivers and splendid urban landscapes, Ghent boasts an ideal framework to plan the illumination of its public areas, based on a substantial foundation. More than ever, light is essential to city life. When directing the luminaires in a certain way or choosing a specific colour or intensity, the light designer creates warmth and cosiness. Moreover, social safety will increase.

Light attracts visitors to the city and its various districts. By using specific light accents, both the city centre and the suburbs will reveal a proper identity and atmosphere. In short, it is an essential part of urban revaluation.

Light also responds to a growing wish for sustainability. Where is light strictly necessary? Where and when can we make do with less light or even with no light whatsoever? How much energy savings can we obtain by using other lamps or a different lighting technology?

Planning, implementation and communication for the Light Plan are meticulously organized, in close consultation between the various partners. An efficient use of light is not an isolated matter. The vision on light is included into the integrated approach of public space in Ghent. Without insight in the structure and the coherence of the urban spaces, it is impossible to draft any light plan. Where are the main axes situated? What is the centre of a district or suburb? The City of Ghent possesses various policy documents in view of the design, the management and the implementation of this public space, using the Spatial Master Plan, the Integrated Plan Public Domain and a Greenery Master Plan. Illumination is also part of this integrated quality vision.

In Flanders, Ghent has earned a pioneering role by the comprehensive way it has reflected and is still reflecting about a global illumination strategy, a Light Plan for the entire city. This publication illustrates how light can enhance the quality of the city for its inhabitants and visitors, thus making Ghent a famous city internationally.

The Light Plan in three steps

The initial ideas for a light plan (the future Light Plan I) date from the mid-1990s, in the scope of the debates about mobility and public space. The ‘Mercurius programme’ of the Flemish authorities provided support to initiatives which ensued in stimulating the commercial life in urban centres. The Flemish authorities approved the Ghent Light Plan as a Mercurius project, and granted subventions to the City of Ghent.

The City took no chances. Residents, trade associations, private owners, Flemish and municipal services as well as the grid operator Eandis also had their say.

The Light Plan II was subsequently implemented, and included the entire city and the surrounding suburbs except the Port of Ghent. A third plan, Light Plan III was elaborated for the Canal Area and crosses the borders of Ghent.
Light Plan I

In December 1998, the City of Ghent commissioned a light study for the city centre to a team of light designers and urban development planners: the joint venture Atelier Roland Jéol from Lyon and the Intermunicipal Company of West Flanders (WVI) from Bruges. Their first step included analyzing the existing situation of Ghent lighting. How were monuments and parks illuminated? Which light related technical aspects, such as colours, kind of lamps and light intensity? Based on this analysis, the designers were able to determine the valuable elements that could be preserved, as well as the modifications that were required. This enabled the design team to draft a global concept, based on the various development plans of the City.

Global concept – Light Plan I

The first Light Plan for the Ghent City centre was initiated in 1999. The design was to increase the municipal vitality and fame of Ghent via an integrated vision on and application of light in the city.

To this effect, the designers of Light Plan I drafted a global concept. It is based on three pillars:

1. Sustainability
   The Light Plan opted for an austere and sustainable urban illumination, which respected the intimate character of the city. It avoids excessive energy consumption and limits the light pollution and possible light nuisance for the residents.
2. Enlighten the municipal structure

- The access gates of the city via railways, roads and waterways become genuine landmarks due to light interventions
- The Light Plan puts the ‘skyline’ of the city in the spotlights
- The commercial streets and squares will be equipped with a balanced illumination, which brightens the façades of these public areas.
- The Light Plan is considerate for city life. The light intensity in residential areas is limited to the necessary level, without jeopardizing safety.

3. Global and integrated approach of illumination

The illumination of a monument, square or bridge is not chosen at random, but is integrated into a global vision, a nocturnal scenography. Individual interventions are customized so as to reinforce other installations. The implementation of the Light Plan fits into the general policy plans of the City of Ghent. It matches the urban vision of the municipality in the Spatial Master Plan Ghent.
Detailed concepts

Not all buildings and landmarks can be lit in the same way. Street illumination is adjusted to fit the function of each space. Other materials, a different environment, an alternate light intensity, tonality, height... create a different effect.

Consequently, the Ghent Light Plan did not only include a global concept, but also detailed concepts. Specific guidelines were drafted in the Light Plan, in view of various identity defining elements:
- Gates and approach roads
- Squares and parks
- Commercial streets
- Architectural heritage
- Picturesque areas
- Residential streets

In the meantime, various squares, parks, monuments and streets are already illuminated, thus highlighting the surplus value of the Light Plan.
Global concept

A global concept was also elaborated for the Light Plan II. The philosophy of Light Plan I was continued for the entire Ghent territory, except for the Port of Ghent area. Light Plan II was geared with the principles of Light Plan I on a broader scale and the larger distribution of the architectural inheritance. The distinct character of each district, each suburb and the rural areas was taken into account.
The guiding principles of Light Plan II are:
1. Consistent illumination: the appropriate amount of light on the appropriate place
2. Enhance the identity of districts and suburbs
3. Rational use of energy (RUE)
4. Limit intrusive lighting and light pollution

**Partial light plans**

A partial light plan was elaborated for each of the 24 districts or urban quarters of the City of Ghent. These partial light plans were intended to give a proper identity or to strengthen the existing identity of districts and suburbs. Simultaneously, they reflect and specify the global light concept of the City. Light also supports the link of districts and suburbs with the city centre, via greenery structures and soft traffic axes.

Pierkespark, a secondary residential core situated in the Brugse Poort district
CHURCH AND BEGUINAGE SLEEPSTRAAT
SLUIZEKEN - TOLHUIS - HAM

- Installed capacity = 2.9 kW
- Cost of the works = between 23,000 and 25,000 euro
- Electricity consumption cost = 530 euro
- Material maintenance cost = 120 euro
- Operating cost = 650 euro
Light Plan III

The illumination of the port of Ghent is the third phase of the Light Plan. The draft was approved in October 2011. Light Plan III determines the rational use of light and illumination on the public road and on the private port and industrial premises in the Canal Area. The Light Plan crosses the borders of Ghent to include the towns of Zelzate and Evergem.

The study was initiated in February 2012, and the Ghent City Council approved the final report including the global concept in November 2012. In that same year, the other partners also approved the global concept.

In view of the Ghent Light Plan III, a separate global concept was traced out. It fits into a series of initiatives aimed at the development of the Ghent Canal Area which were already taken prior to the draft of the Ghent Light Plan. The Flemish authorities, the Province of East Flanders, the City of Ghent, the towns of Evergem and Zelzate, the Association of Port-bound Enterprises (VEGHO) and the Ghent Port Authorities already committed themselves in a joint venture.

Coordinated by the project office Ghent Canal Area, the partners have elaborated a Spatial Planning and Environment project as well as a strategic plan, intended to give a quality impulse to the complex area of the Ghent Canal Area. Illumination is also included in this plan.
The guiding principles of Light Plan III are:

1. The illumination of the public area and company premises is adapted to the specific needs and the use
2. Enhance the identity of the port
3. Strengthen the liveability of the towns in the Canal area
4. Avoid light pollution and stimulate rational energy use

The partial light plans for the Ghent Canal Area included in the Light Plan III were meant to give a proper identity or to strengthen the existing identity of the districts and suburbs. Simultaneously, they reflect and specify the global light concept for the Canal Area. In close consultation with the partners, they will be elaborated in detail and will only be implemented subsequently.
2. Surplus value of the Light Plan

Strengthen identity

Lighting learns us to understand the character of a certain place in a better or different way. Light provides additional connections and allows us to experience the city in a totally different way. City lighting creates atmosphere, gives an identity to squares and streets. It stimulates the curiosity of the stroller. Most probably, the nightly stroller who paradies along the Ghent streets and squares is not aware that it is precisely the Light Plan that enhances the experience.

The Ghent Light Plan stresses the ‘skyline’ of the city. A sophisticated basic lighting, in combination with special details, accentuates the historic panorama and the cultural heritage. The Castle of the Counts, Saint Bavo’s and Saint Peter’s Abbey, the ancient harbor installations, the 19th century industrial heritage, the historic towers and the university site with the ‘Book Tower’ have all got their own light accents. Furthermore, the municipal lighting draws the attention to other components from the architectural heritage, the buildings and monuments.

Reinforce nocturnal economy and tourism

Light provides a positive contribution to the nocturnal economy in Ghent. Light attracts visitors and tourists to the city centre, and to less evident tourist sites such as the Art District. Attractive atmospheric lightened streets and squares invite us to an evening walk following a delicious dinner. An appropriate and low-energy lighting of shop-windows and commercial façades makes shopping streets more attractive.

The Lighting Policy does not only intend to strengthen the nocturnal economy in the city centre. The Light Plan for the Canal Area (Light Plan III) is aimed at enhancing the positive image of the Ghent Sea Port and the entire Canal Area.

Increase safety

Light provides a positive contribution to the nocturnal economy in Ghent. Light attracts visitors and tourists to the city centre, and to less evident tourist sites such as the Art District. Attractive atmospheric lightened streets and squares invite us to an evening walk following a delicious dinner. An appropriate and low-energy lighting of shop-windows and commercial façades makes shopping streets more attractive.

The Ghent Light Plan in the city does not only provide an agreeable experience, but it also strengthens the feeling of safety. Better and more pleasant lighting gives visitors, retailers, commuters and visitors the opportunity to abide safely in the city at darkness or to reach a certain destiny. More people in the streets at night generate a greater social control.

Light enhances not only the liveability, but also the image and the sense of identity of residents as regards their district and the sentiments of employees with respect to their workplace.

A correct way of lighting also enhances road safety. Indeed, light strengthens the readability of the urban structure. A key traffic route should possess an adequate lighting level. The objective is to find a delicate equilibrium between traffic safety on the one hand and maximum visibility with a lowered light capacity on the other.
Rational Use of Energy (RUE)

Next to adequate lighting, the City of Ghent also strives for a decline in energy use. Through a series of carefully considered choices of (non) lighting principles and by means of applying contemporary lighting material, the Light Plan saves energy in the entire public lighting (public space and monument) in Ghent.

Light Plan I establishes the general principles for Rational Energy Use (RUE). Light Plan II elaborated these principles into specific objectives for energy reduction, by means of RUE action plans in the existing municipal tissue, but also in new urban developments.

In the existing districts and public space, the objective is to achieve energy savings of 20% by 2020, an annual average of 1.6%. New urban developments (additional allotments and company premises, new large-scale projects such as ‘The Loop’ and ‘Oude Dokken’ (Old Docks)) will inevitably increase the light energy consumption. For such projects, the RUE objective is to reduce energy by 20% as compared to the average use of public light energy consumption in the reference year 2008 (baseline measurement).

In concordance with the guidelines of the Light Plan II, the City of Ghent implemented a substantial RUE operation. The electric potential of all street lamps was lowered with one level for the entire territory, for instance from 250 watt to 150 watt. Whenever possible, the electronic control gear was also replaced by an electronic version and if necessary the entire lighting system.

Due to this additional 2010-2012 RUE action, the City of Ghent reached its goal of 20% less energy consumption much earlier than 2020. The investments yielded immediate energy savings, with a return in investment of approximately 5 years. The RUE actions also ensued in a darker city, however without jeopardizing (traffic) safety.

The public lighting in Ghent consists of functional street lighting, monument and atmospheric illumination. The functional street lighting is constantly switched on from sunset to sunrise, whereas the atmospheric and monument illumination are switched off at midnight. The Ghent row of towers are the only monuments for which the lights are continually switched on a night. Also owing to the 2010-2012 RUE operation, the energy consumption for public lighting has already decreased by more than 20% since the start of the Light Plan in 1998 (see chart).

The share of monuments and atmospheric lighting only represents 6% of the overall energy use for public lighting (see histogram).

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**Energy saving measures from the 2010-2012 RUE action plan**

- Replacement of all mercury discharge lamps (EU obligation)
- Replacement of all traditional traffic lights by LED lights
- Lowering of the average capacity of the lamps by at least 1 level
- The preservation of all luminaires and masts, and the replacement of the optical part by a new generation of lamps with electronic control gear.
- No need for installing additional masts, which would require the underground cable network to be adapted.
- Achieved energy savings between 2010 and 2012: 3,598,332 kWh by adapting/replacing 20,325 luminaires and lamps
- Ecological result: reduction of CO2 emissions comparable to CO2 emissions of 1,098 households/year
- Financial result: a saving on the municipal energy invoice of 525,253 euro/year (calculated on the basis of energy costs in 2010)
- Return investment of the investment within 4.5 years
Energy use of monument lighting versus the public atmospheric lighting between 1998 and 2012
Avoid intrusive lighting and light pollution

Next to opportunities, the increasing 24 hour economy also provokes new difficulties. An inextricable side effect is light pollution, during which the nocturnal environment is heavily lit owing to an excessive use of artificial light. Light nuisance is the inconvenience that people and animals are experiencing. Since the Light Plan pledges for lighting at the appropriate place (no disturbing illuminated advertisements), for the appropriate activities, at the right time and using the suitable technology, the overall lighting level of the entire city has diminished.

Lighting in public spaces also takes account of children, senior citizens and disabled persons. Thus, built-in projectors may never overheat. The use of warm white light (approximately 3000 degrees kelvin) increases the visibility for senior citizens and the visually impaired. Lights with flat glass instead of lights with deep bowl glass can prevent glare. Indirect park lighting does no longer illuminate the tree tops and results in a night’s rest for fauna and flora.

Light Plan III for the Canal Area strongly emphasizes neutralizing intrusive lighting. The nocturnal activities are determinative. Few or no activity means less or even no light at all. Is it really necessary to keep the lights switched on during the entire night at company premises and parking lots in front of office buildings? Do the nocturnal traffic lighting have to maintain the same intensity? And what about lighting at railroad precincts? The Light Plan III provides a series of concrete solutions. Thus, companies are advised about the optimum result for traffic light installations and about the European lighting standards that have to be observed.

Brightly lit signboards or blinding façade spots, blazing shop-window lighting, wrongly installed lighting... may cause inconvenience and disturb the nocturnal street image. Sometimes, the solution consists in expert advice and a range of simple interventions, such as readjusting luminaires in a different direction or using other lamps. To fight light nuisance, the City of Ghent pursues a double track policy: information and awareness (communication) and standardization and preservation (lighting standards, permits, regulations...).
Light and art

For a city hosting the contemporary art museum SMAK and which creates room for contemporary art, the expertise of lighting is also a key theme. Thus, artificial light also becomes light art. An example of light art is to be found at Sint-Veerleplein. March 2011, the Ghent Municipality acquired the work of art ‘Ai Nati Oggi’ (to those who are born today) of Italian artist Alberto Garutti, created at the occasion of the 2000 SMAK outdoor exhibition ‘Over the Edges’.

The lanterns at Sint-Veerleplein are linked to all maternity hospitals in the City of Ghent. Each time a baby is born in one of the Ghent hospitals, the lanterns on Sint-Veerleplein are slowly lighting up. The work of art integrates the light in the public space in an original way, while simultaneously involving the Ghent residents. They are ‘making’ the work of art.

One of the objectives of the Light Plan is to provide the districts with more identity by means of light. But not every district possesses icons and landmarks. Light art is a possible solution. An example is ‘De Porre’ (see image). A former cooling tower in the new district park is transformed into a light work of art. This is achieved by installing a glass cylinder on the chimney, that automatically becomes a beacon. The former gas holders in the new residential district Tondeliers can also fulfill this role in the future.
Light Festival

During the 2011 and 2012 Light Festival editions, light became an event itself. Light artists from all corners of the world transformed the city centre into one single work of art, with the Ghent façades in a leading role. The festivals attracted hundreds of thousands visitors in only a few nights. The next edition is planned in 2015.

Next to the promotional aspect, the Light Festival also enhances the social cohesion. The combined experience during the darkest period of the year also reinforces the community feeling and the municipal pride of Ghent citizens and visitors. Simultaneously, the event emphasizes the significance of sustainability and fighting light pollution. The innovative and creative character of the Ghent Light plan puts our city in the international spotlights.

International fame

Thanks to its Light Plan, Ghent plays a pioneering role in Flanders and constitutes a source of inspiration for other European cities. This was demonstrated by the numerous national and international awards that were bestowed on the Ghent Light Plan.

Various Belgian and international cities paid a working visit to Ghent to take a close look at the lighting policy: Aalst, Antwerp, Breda, Bruges, Brussels, Cologne, Gdansk, Hasselt, Izhevsk, Kanazawa, Kortrijk (Courtrai), Lopburi, Mons, Nijmegen, Riga, Rotterdam, Sint-Truiden, Strasbourg, Utrecht, Volgograd... and the member cities of the European Liveable City project (Norwich and Lincoln, Trondheim, Odense and Emden).

Various lighting organizations and universities have paid a visit to Ghent as a source of inspiration: Les Ateliers Projet Urbain (France), the Association Française d’Eclairage (AFE), the Dutch Foundation for Lighting Discipline (NSVV), the European project BLISS (Better Lighting in Sustainable Streets), the Institution Nationale des Sciences Appliquées (INSA) from Lyon,... Furthermore, the City of Ghent delivered various lectures during national and international conferences.

Moreover, Ghent is a member of the world-wide network of light cities LUCI (www.luciassociation.org). Cities and lighting professionals intend to optimise the use of light, taking into account the environmental aspects and sustainability development. The City of Ghent was vice-president during two years and acted as LUCI president from November 2012 to November 2014. In 2010, Ghent, Eandis and LUCI jointly organized the international conference ‘City under the Microscope’. Ghent also signed the ‘LUCI Charter on urban lighting’. With their signature, the LUCI members confirmed their common belief that lighting can play a decisive role in the sustainable development of cities.
AWARDS FOR THE GHENT LIGHT PLAN

- 2004  3 stars in the Michelin travel guide (‘if only for its lighting’)
- 2004  City People Light Award
- 2005  The cosiest city of Flanders
- 2008  3rd most authentic destination (National Geographic Traveler magazine)
- 2009  European Climate Star Award (Climate Alliance)
- 2010  Auroralia Award: honourable mention
- 2011  7th in the list of ‘recommended destinations’, ‘Ghent is Europe’s best kept secret’ (Lonely Planet travel guide)
- 2012  Aurora

GHENT

Nijmegen copies Ghent light plan

The Dutch municipality of Nijmegen is considering to implement a light plan. This plan is intended to achieve a cohesion between public and atmospheric lighting, produce energy savings and enhance the feeling of safety. For Ghent residents, these objectives do sound very familiar indeed. Nijmegen is gladly willing to admit this similarity. ‘We must confess that we have copied the idea of a light plan from Ghent’.

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3. The light plan in practice

Implementation and management

From the onset, a counselling committee was created to help draw up and steer the Light Plan. The committee also monitors the implementation and quality of the Light Plan, both of the global concepts as well as the partial lighting plans. The committee is composed of various municipal services, the competent Deputy Mayor, partners such as Eandis, hands-on experts (residents) and external experts.

The Municipal Council Committee Public Works is actively involved into the planning process. In the future, the counselling committee will be transformed into the Quality Panel for Light.

The Light Plan is the guideline for the implementation in the field. Lighting is already included in the planning phase of urban projects.

We distinguish four kinds of projects:

• Projects at urban level
• Architectural projects at landmarks and bridges
• (Re)development of public domain (streets, squares, parks)
• Light projects at buildings

For each type of space or structure-defining element, the Light Plan includes a detailed technical index card with the desired light structure. It contains a series of parameters, such as capacity, light point position, type of light source and colour rendering index. These parameters constitute a manual during the implementation.

The study and implementation of street lighting occurs by grid operator Eandis, at the demand of the City of Ghent.

The lighting of buildings and monuments is part of the tasks of a light designer. For private buildings and properties adjoining to the public space, the Light Plan can be a source of inspiration. For privately owned monuments included into the Light Plan, there is a specific public-private partnership model, implemented and managed by Eandis.

Furthermore, the Light Plan contains guidelines for dealing with private lighting, such as advertising and signboards. The following rule of thumbs: austerity, no glare and low energy consumption.
Light of the future: new technologies

The opportunities and future perspectives of new lighting technologies in public lighting are promising and challenging. Thus, LED technology has a longer life span and includes dimming facilities. But LED technology above all means energy savings, which provides new perspectives in the current economic context. LED luminaires have become less expensive and are exempt from growing pains.

Yet, this lighting technology bears some disadvantages. LED lamps can discolour with usage and age. They are expensive in maintenance and repairs. Moreover, most LED luminaires have not been approved as Synergrid 005 standard.

It is important to use LED technology at the appropriate time and proper location. This will optimize the return on investment.

Furthermore, ‘intelligent lighting’ provides a wide range of dimming and remote sensing opportunities. As regards remote sensing, the lighting is gradually lit when cyclists or pedestrians are passing and is switched off afterwards.
Communication and participation

The Light Plan enjoys a broad basis and is supported by all Ghent citizens. From the onset, inhabitants and visitors were involved in the analysis. How do pedestrians, cyclists, public transport users and motorists experience the atmosphere and the feeling of safety created by lighting? The staff members of the Urban Renewal and Community-based Planning service (who are working around communication with and participation by the inhabitants) were closely involved in the elaboration of district light plans and determining the identity-defining hubs of various districts and suburbs.

A broad communication about the Ghent Light Plan is readily available:

- Website www.gent.be/gentverlicht
- Book, posters and post cards
- Promotion clip: on the website
- Short film on Youtube: Ghent, city of lights
- Folders with walks in 5 languages: in the municipal shop or download on the website
- Guided tours via the city guides association
- Geo maps on the website: look for the illumination in every street or address and the accompanying lighting instructions (www.extragis.gent.be/geoloklichtplan)
Would you like to receive additional information?

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‘But amidst this dark, bleak winter period, the light festival was heartwarming.…. During our city tour (…), we noticed something completely different: the Ghent city centre is also heartwarming and well-considered on normal days. A pleasure to be walking amidst of it. Even only for this aspect, we will certainly come back.’
(Rudy Collier, Gazet van Antwerpen newspaper, January 31st, 2012)

‘Ghent deserves the voyage, be it merely for its illumination’
(Michelin traveler guide)

‘We are impressed by the resolve and commitment displayed by the City of Ghent. In addition to the environmental impact, the jury particularly appreciated the city’s commitment to achieving its high targets in reducing energy consumption and CO2 emissions with strict financial management.’
(Jury of Auroralia Award, December 2012)