



# LIGHTING IMPROVEMENT FOR THE GRAND CANAL, HANGZHOU



# PROJECT STATEMENT

The 2500-years-flowing Grand Canal was first built in 486BC. With a length of 1,800 kilometers, it's one of the oldest canals in the world. The Hangzhou section is its starting point. The old neighborhoods along the waterway, featuring traditional houses with white-washed walls and grey-tile roofs and crisscrossing alleys, offer a glimpse into the authentic historical texture of Hangzhou.

The one-year-along lighting improvement project, themed "The Poetic Charm of Jiangnan", was a meticulous effort. Based on the principle of micro renewal, the design team conducted site investigations multiple times to develop an effective solution that catered to the site conditions. The lighting design illuminates trees along the banks with light and shadow interplaying like ink splashes on paper, softly lighting up parks, squares, ports, docks, and footpaths along the banks and creating comfortable spaces for walking. It also creates a safe, comfortable and delightful night-time atmosphere on the old streets and alleys near the canal.

In addition, traditional light sources are replaced to reduce 46% of energy consumption.

At night, residents living nearby enjoy an improved quality of life thanks to the lighting renewal. The millennia-old-canal comes to a new life, showcasing its beauty and charm in the light.

# PROJECT NARRATIVE AND CONTENTS

The 2500-years-flowing Jing-Hang Grand Canal, a cultural heritage for the world, was first built in 486BC. With a length of around 1,800 kilometers, it is one of the oldest canals in the world. The Hangzhou section, the starting point of the canal, runs for over 20 kilometers from Shixiang Road to the estuary of Qiantang River.

The Hangzhou section is characterized by residential houses with grey-tiled rooftops that stretch along the canal. Among the communities situated near the Beijing-Hangzhou Grand Canal, it boasts the most well-preserved residential buildings and is considered the ideal place to learn about the history of industrial development in Hangzhou. This riverside streets and lanes serve as a vivid representation of traditional Chinese houses, providing insight into how the canal and urban culture have long nurtured each other. These blocks are authentic recordings of history, which unveil the complete cultural landscape of the city and showcase a lifestyle that has sustained for a long time. The canal culture is also carefully preserved within these riverside streets and lanes and in the daily life of the residents.

The canal is flanked by varied trees including camphor trees, dawn redwoods and willows. Under the canopies visitors can relax along meandering paths or at various platforms. They can also walk on a river port or dock to get close to the river and feel the peace of flowing water.

Among the dozen bridges on the Grand Canal, visitors can find the grand and towering Gongchen Bridge, Hangzhou's largest stone arch bridge first built in 1631, or Qingyuan Bridge, one of the modern steel-structured footbridges that were built in the early 20th century and have captured the hearts of the city's residents. These bridges not only provide passage, but also become unique sceneries on the canal.

The Grand Canal and the local citizens have enjoyed a long-standing symbiotic relationship. The lighting design aims to enhance the nighttime experience along the canal for Hangzhou's residents, allowing them to fully appreciate the mutually beneficial relationship.

To avoid causing harm to the trees along the canal, the designers opted to renovate the existing light poles instead of adding new ones. The team conducted field research multiple times to study the spatial relationship between the light poles and the tree canopies. After more than 10 on-site experiments, they eventually determined the ideal installation position and lighting perspective, which guarantees an even light effect on the trees and a warm riverside night view.

Meanwhile, the team studied more than 10 bridges along the canal to take down broken or flashy lamps and create for these bridges simple, elegant white light with a sense of layering. For smaller bridges along some branches of the canal, they installed misting nozzles and tunable light as proper embellishment. The lighting design also breathes a new life to public spaces where people hang around to enjoy leisure time. One of the examples is an under-bridge space where nearby residents often hang out together to talk, sing operas or dance. The space is one of the focuses of the lighting renovation project. In addition to providing basic lighting, the design team also created a small-scale night-time landscape, attracting many pedestrians to linger and take photos. In public squares and community parks nestled among the alleyways, the design team installed lighting fixtures that brought to the community a poetic and romantic ambiance.

The lighting design in the residential areas, themed "The Poetic Jiangnan", serves both the functional lighting needs of residents and creates a commercial atmosphere. Functional lighting has been installed in small alleys off the main streets, providing a secure environment for residents at night. Each traditional building in the block is illuminated with a unique design that accentuates its architectural features. Lanterns featuring the unique traditional pattern, creating a distinctive atmosphere. Basic lighting has also been added to riverside platforms and docks, allowing visitors and tourists to get closer to the river. River lanterns near some ports have been fixed with a special structure, enabling them to float above the water, reviving an ancient tradition on the Grand Canal.

Moreover, the team solved multiple challenges to arrange and conceal the pipelines amidst the buildings and landscapes in the alleys, and presented a simple yet sophisticated streets outlook.

Moreover, a high-efficiency solar-powered energy system is carefully adopted here. The design team selected areas with adequate sunlight and limited tree canopies or shaded stairways to install solar-powered lamps.

The existing blue and green lights installed years ago are favored by the local citizens and tourists. But its traditional light source are energy-wasting. The team also conducted spectrum

analysis and experiments for multiple times to determine the wavelengths of the existing blue and green lights, so that the traditional lamps were seamlessly replaced with energy-efficient LED lights, reducing energy consumption by over 40%.

The lighting improvement project, themed "The Poetic Charm of Jiangnan", was a meticulous effort that took almost a year to complete. Based on the principle of micro renewal, the design team conducted site investigations multiple times to develop an effective solution that catered to the site conditions. The lighting design illuminates trees along the banks with light and shadow interplaying like ink splashes on paper, softly lighting up parks, squares, ports, docks, and footpaths along the banks and creating comfortable spaces for walking. It also creates a safe, comfortable and delightful night-time atmosphere on the old streets and alleys near the canal.

The banks of the Grand Canal resemble a breathtaking scene from an ancient painting, with idyllic river and garden views. The various lighting designs add a unique ambiance to the statues, cultural stone tablets, and other cultural heritage sites, lending them a sense of history and narrative. Strolling along the riverside greenways, exploring historical blocks, visiting commercial plazas, and taking water buses from the ports offer visitors an entirely new experience.

At night, residents living near the canal enjoy an improved quality of life thanks to the lighting installations. Moreover, the millennia-old canal comes to life in a new way, showcasing its beauty and charm in the light.



**THE ANCIENT  
CANAL IS  
ILLUMINATED  
THROUGH  
MICRO RENEWAL  
INTERVENTION**





# THE POETIC CHARM OF JIANGNAN



△ West Bridge Street Historic Block



△ Gongchen Bridge



△ Gongchen Bridge Pier



# NEW LOW-CARBON LAMPS REFRESH THE OLD HOUSES



△ Gongchen Bridge



△ West Bridge Street Historic Block



# LIGHTS HIGHLIGHT THE ANCIENT STRUCTURES TO TELL THE MEMORY OF THE CITY



△ Dadou Road Historic Block



△ Dadou Road Historic Block



# PATHWAY WITH SERENE LIGHT SHADOWS, STONE BRIDGE SUITABLE FOR A NIGHT TOUR



△ Zhe Yao Park



△ Xiaohe Street Historic Block



# NEAT ROAD LAMPS LIGHT UP THE CANAL AND THE CITY



△ The Grand Canal Channel



△ The Grand Canal Channel



△ Qingyuan Bridge