

Illuminating Boston: The Diamond Necklace Project

Phase One — A Plan for Lighting 25 Cultural and Historic Sites in Downtown Boston

Illuminating Boston: The Diamond Necklace Project



ILLUMINATING OUR CITY'S UNIQUE HISTORY AND CULTURE

LIGHT BOSTON, INC
87 MOUNT VERNON STREET, BOSTON, MA 02108

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Fall 2000

Dear Boston Lighting Enthusiast,

Light Boston is pleased to present Phase One of *Illuminating Boston: The Diamond Necklace Project*—recommendations for lighting Boston's Downtown. We believe that a comparison of the photographs of existing conditions with our lighting mock-ups and computer generated images will help you to understand the potential impact of lighting special architectural treasures—historic buildings and new ones, a square or a place, an avenue or a bridge.

We hope that you will share with us the experience and excitement of achieving a new, dramatically illuminated Boston. Looking to the future, we believe you will welcome our work establishing professional standards created for the nighttime lighting of Boston's neighborhoods.

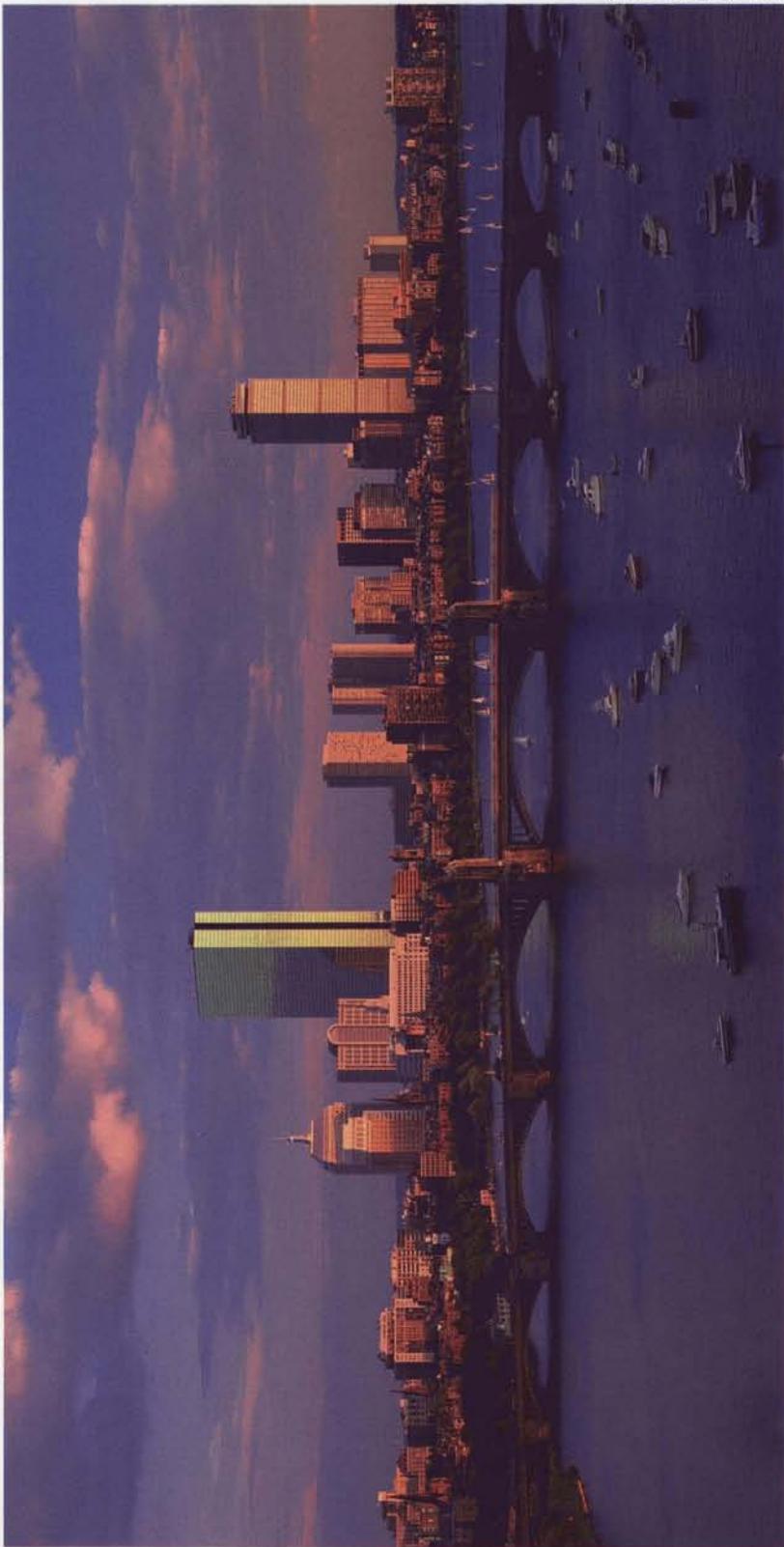
Light Boston is especially grateful to Mayor Thomas M. Menino for providing critical support for the production of our first phase study and for the printing of this document. We also appreciate the encouragement and financial help from The Boston Foundation, and the Boston Landmarks Commission from the Massachusetts Port Authority.

Sincerely,

Anne B. R. Witherby
President

Illuminating Boston: The Diamond Necklace Project

*Phase One — A Plan for Lighting 25 Cultural and Historic Sites
in Downtown Boston*



Manhattan Project



CITY OF BOSTON • MASSACHUSETTS

OFFICE OF THE MAYOR
THOMAS M. MENINO

Fall 2000

Dear Friends,

Boston proudly boasts some of America's most important landmarks, architecture and historic sites. Most of these American treasures, however, are not particularly visible during the evening hours. After dark, residents and visitors really don't have the opportunity to experience all that Boston has to offer.

Light Boston, Inc. and I share the same goal, light up the City! They have developed an ambitious plan to help private property owners and public agencies incorporate lighting into their operations. My first project for the new Millennium is to light the North Washington Street Bridge linking the North End to Charlestown.

By increasing lighting in Boston, we can extend our welcome to tourists and enhance the quality of life for all those who enjoy our walkable City. I hope you will support this important new initiative.

Sincerely,

Thomas M. Menino
Mayor of Boston





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A project of Light Boston, Inc.

Ripman Lighting Consultants and McGinley Hart & Associates

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The Boston Foundation

The Boston Landmarks Commission

The Massachusetts Port Authority

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Nathalie Beauvais, *Assistant Director of Planning and Zoning, Boston Redevelopment Authority*

We also thank the following:

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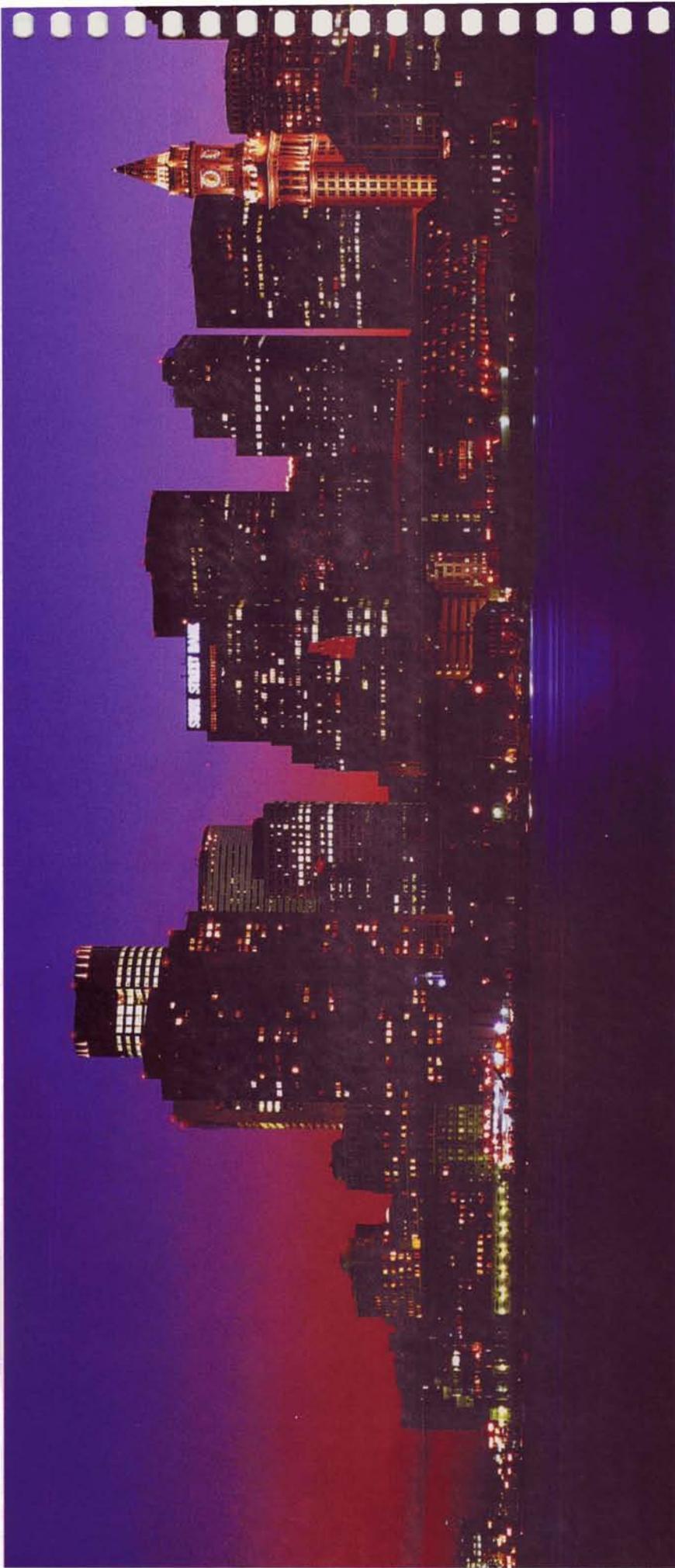


Photo © Richard Wood



The Diamond Necklace Project

Vision, Purpose, Intent

The purpose of this Plan is to create and implement a vision for downtown Boston at night. In the nineteenth century, the renowned landscape architect Frederick Law Olmsted envisioned a system of linked parks and open spaces for Boston, to create a splendid chain of green throughout the city. Olmsted called his vision the Emerald Necklace, and it has become one of Boston's most treasured features. We propose a Diamond Necklace to go with the Emerald, one made up of beautifully illuminated landmarks, structures, and public spaces.

By identifying a first group of important sites in the downtown area to illuminate or re-visit, and by making recommendations for how to do so, this Plan is intended to catalyze public and private support for the thoughtful, coordinated lighting of Boston's cultural and historic icons. Similar efforts elsewhere in this country and around the world have demonstrated that our initiative, supported by shared vision, funding, and partnership between public and private sectors, will have a significant positive impact on the economic and cultural vitality of Boston.

We envision a city that celebrates its most important landmarks, structures, and spaces with light. This scintillating city, reflected in the waters of the rivers and sea that surround it, will be a source of pride and inspiration to its citizens and to the millions of visitors who come to enjoy Boston's extraordinary cultural, historic, and architectural legacies. We invite your active participation and contribution in making this vision — a Diamond Necklace for Boston — a reality. Borrowing a phrase from Mayor Menino, this Plan outlines the first ambitious phase in an ongoing project to “light up the City!”

The Diamond Necklace Project is a major initiative of Light Boston, Inc., a nonprofit organization that seeks to encourage the thoughtful illumination of significant structures and sites throughout Boston, in order to foster pride in the heritage of Boston, to reinforce the safety of the city, and to encourage pedestrian activity after dark. We build upon a substantial and

unusually diverse body of excellent work carried out by the talented and dedicated cadre of lighting designers, who with their clients have already set remarkable standards for good lighting design in our city.

Funded through grants from the City of Boston, Massport, and the Boston Foundation, this Plan provides a conceptual framework and recommendations to guide lighting applications and regulatory review in both public and private sectors for significant structures and spaces in both the downtown (current phase) and surrounding neighborhoods. The Plan sets forth general guidelines for illumination of landmark sites and identifies the first 25 most significant sites in the downtown area for illumination.

Phase One: The First 25 “Jewels” of the Diamond Necklace

The 25 sites that form the first strand of Boston’s Diamond Necklace were selected according to the rigorous criteria and evaluation techniques set forth on pages 61 to 64 and in the Appendix.

On the following pages, each site is analyzed for its historic importance, existing lighting inventory, and lighting potential. Photographs portray existing conditions by day and by night. For each site, we recommend specific lighting strategies and provide conceptual installed costs, as estimated by Ripman Lighting Consultants. Computer generated images, supplemented by photographs of real lighting mock-ups, begin to demonstrate what can be achieved.

The selection of these 25 key initial sites does not imply that these are the only sites worthy of illumination initiatives within the Plan area. Upgrading the lighting of any of the 70 sites listed on page 63 would be very desirable, and other sites are worthy of consideration as well.

Note: Five Boston sites with high potential for illumination as public landmarks were not included because their lighting is already being upgraded through the activities of Light Boston. These sites are King’s Chapel, Tremont Temple Baptist Church, Park Street Church, Cathedral Church of St. Paul, and the Brewer Fountain on the Boston Common. All are located in the Tremont Street corridor, along Tremont Street between Government Center and Boylston Street.



1. Ames Building
1 Court Street



2. Boston Athenaeum
10 1/2 Beacon Street



3. Boston City Hall
City Hall Plaza



4. Boston Public Library
McKim Building, Copley Square



5. Boston Visitor's Center
Boston Common



6. Chinatown Gateway
Beach Street at Atlantic Avenue



8. East Cambridge Viaduct
MBTA Red Line spanning the Charles River



9. Filene's Department Store
426 Washington Street



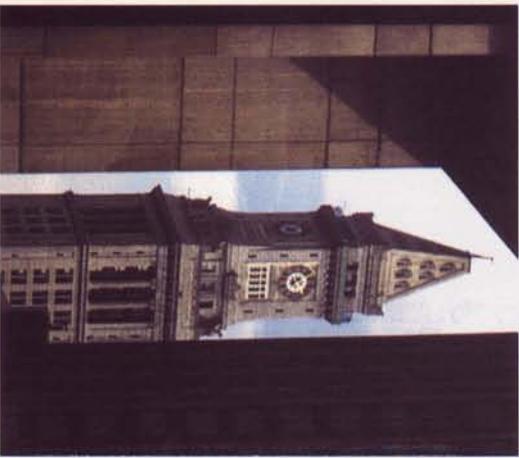
10. First Harrison Grey Otis House (left)
with 141 Cambridge Street (#21)



11. Flour and Grain Exchange
177 Milk Street



12. Fort Point Channel — Bridges and Seawalls
Summer Street, Congress Street,
Old Northern Avenue, New Northern Avenue



7. Custom House and Square
State Street at India Street



13. Granary Burying Ground and Gateway
Tremont Street



16. Longfellow Bridge
Cambridge Street spanning the Charles River

Photo @ Susan Cole Kelly



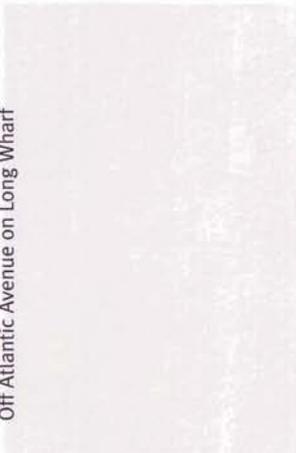
17. New Old South Church
645 Boylston Street



15. Long Wharf / Custom House Block
Off Atlantic Avenue on Long Wharf



18. Old South Building
294 Washington Street



14. Hancock House / Boston Stone
10 Marshall Street,
114 – 120 Blackstone Street



19. Old South Meeting House
Washington Street at Milk Street



20. Old State House
State Street at Congress Street



21. Old West Church (right)
with 131 Cambridge Street (#10)



22. Paramount Theater
549 Washington Street



23. Sears Crescent / Sears Block
City Hall Plaza



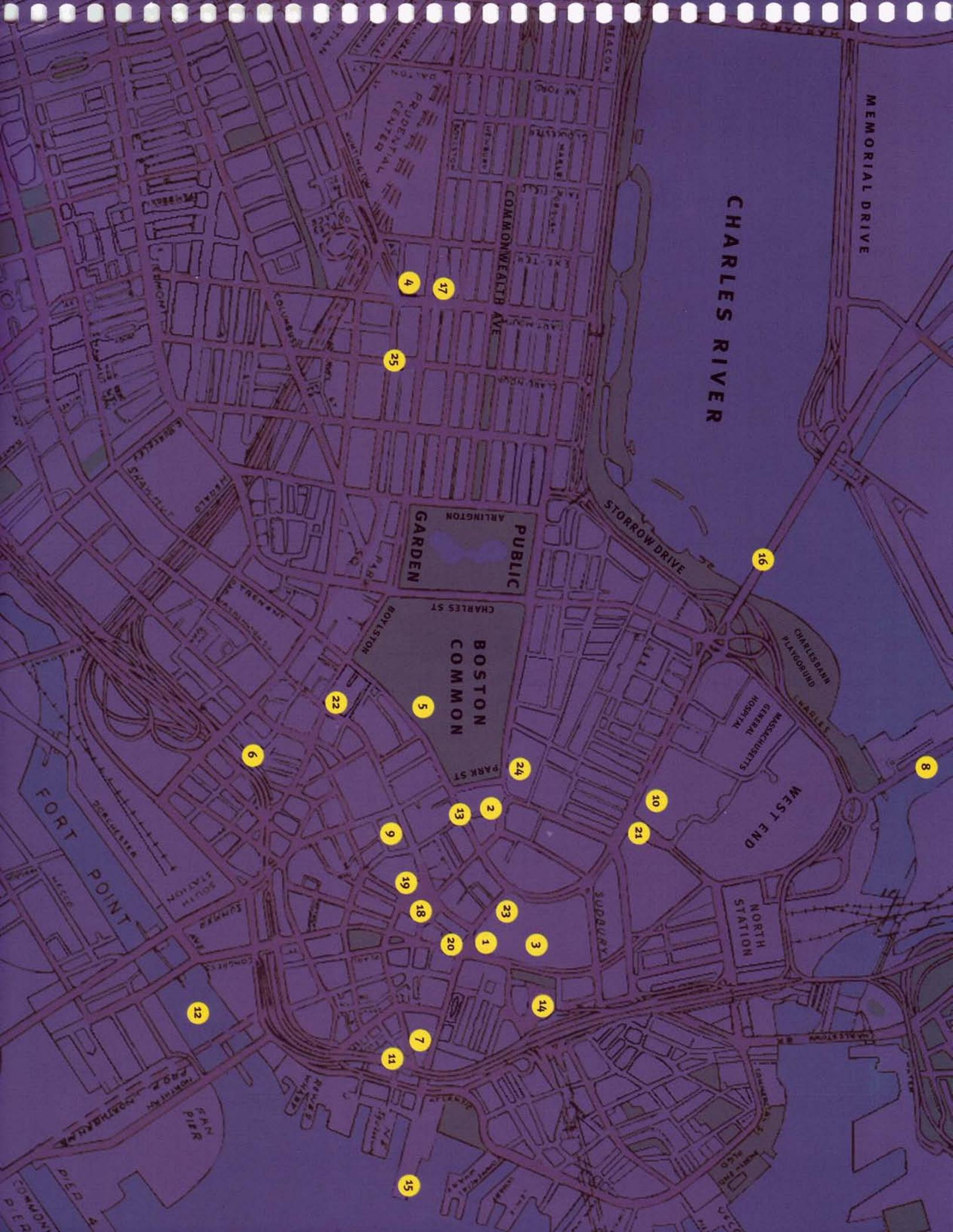
24. State House
Beacon Street



25. Trinity Church
Copley Square

Map of the 25 Phase One Sites

- 1 Ames Building, 1 Court Street
- 2 Boston Athenaeum, 10 1/2 Beacon Street
- 3 Boston City Hall, City Hall Plaza
- 4 Boston Public Library, McKim Building, Copley Square
- 5 Boston Visitor's Center, Boston Common
- 6 Chinatown Gateway, Beach Street at Atlantic Avenue
- 7 Custom House and Square, State Street at India Street
- 8 East Cambridge Viaduct, MBTA Red Line spanning the Charles River
- 9 Filene's Department Store, 426 Washington Street
- 10 First Harrison Gray Otis House, 141 Cambridge Street
- 11 Flour and Grain Exchange, 177 Milk Street
- 12 Fort Point Channel (Bridges and Seawalls)
- 13 Granary Burying Ground and Gateway, Tremont Street
- 14 Hancock House, 10 Marshall Street
Boston Stone, 114-120 Blackstone Street
- 15 Long Wharf/Custom House Block, off Atlantic Avenue on Long Wharf
- 16 Longfellow Bridge, Cambridge Street spanning the Charles River
- 17 New Old South Church, 645 Boylston Street at Copley Square
- 18 Old South Building, 294 Washington Street
- 19 Old South Meeting House, Washington Street at Milk Street
- 20 Old State House, State Street at Congress Street
- 21 Old West Church, 131 Cambridge Street
- 22 Paramount Theater, 549 Washington Street
- 23 Sears Crescent/Sears Block, City Hall Plaza
- 24 State House, Beacon Street
- 25 Trinity Church, Copley Square



MEMORIAL DRIVE

CHARLES RIVER

4

17

25

16

PUBLIC GARDEN
ARLINGTON

BOSTON COMMON
CHARLES ST

22

5

6

24

8

WEST END
NORTH STATION

10

21

13

2

9

19

18

23

1

3

20

14

7

11

12

15

FORT POINT

PAN PLAZA

NORTH STATION

CHARLES BARR PLAYGROUND

MASSACHUSETTS GENERAL HOSPITAL

STORROW DRIVE

COMMONWEALTH AVE

PRUDENTIAL CENTER

STATE STREET

Recommendations for Illuminating the First 25 Jewels of the Diamond Necklace

1

Ames Building

ARCHITECTURE AND HISTORY

The Ames Building at 1 Court Street was built in the massive Richardsonian Romanesque style in 1889 to the designs of Shepley, Rutan & Coolidge, successors to H. H. Richardson. The fourteen-story Ames Building is the second-tallest masonry-bearing wall building of its type in the world. Listed on the National Register of Historic Places, the building originally dominated the Boston skyline, until the construction of the Custom House Tower in 1911. With its monumental three-story granite Romanesque arches on the ground floor, middle four-story arches topped by rows of smaller Roman brick arches, and massive roof-level cornice, the building still dominates State Street on the northwest corner of its intersection with Washington Street, diagonally opposite the Old State House.

EXISTING EQUIPMENT

There is no existing lighting for the exterior of the Ames Building, other than streetlights (on Court Street and the Washington Street pedestrian mall).

LIGHTING POTENTIAL

The Ames Building has a commanding presence on Court Street, along the pedestrian route between the Washington Street pedestrian shopping district and City Hall Plaza. The Citizens Bank Plaza allows an unobstructed view of this handsome granite commercial structure. If well lighted, the Ames Building would form an impressive trio with the Custom House and the Old State House, defining the State Street Corridor — a rich architectural district and one of the principal approaches to City Hall Plaza.



Proposed Lighting



Existing Conditions



RECOMMENDED LIGHTING DESIGN STRATEGIES

- Uplight the base of the building from inground fixtures.
- Define the major arches with cantilevered uplight wallwashers.
- Uplight major cornices with shielded fluorescent sources on lower cornices.
- Floodlight the mass of the structure from pole-mounted fixtures along Court Street.
- Control lights on city poles and ingrade lighting with dusk-to-midnight photocell timers fed from city power. Lights mounted to the building will be on its control system and power, operated dusk to midnight.

ESTIMATED BUDGET TO UPGRADE LIGHTING: \$100,000 – \$125,000 INSTALLED

Action Site: Ames Building

Address: 1 Court Street

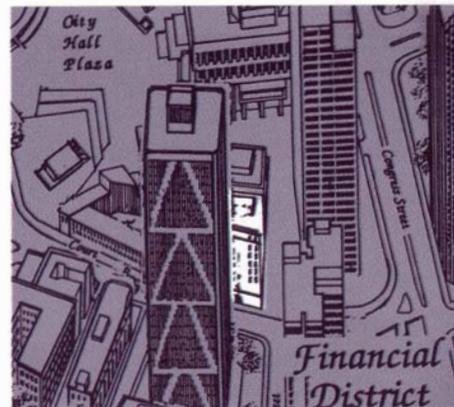
Architect: Shepley, Rutan & Coolidge, Architects

Date: 1889

National Register of Historic Places

Owner: Intercontinental Fund II One

1270 Soldiers Field Road, Brighton, Massachusetts 02135



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Boston Athenaeum

ARCHITECTURE AND HISTORY

The Boston Athenaeum at 10 1/2 Beacon Street near Park Street, overlooking the Granary Burying Ground at the rear, is a National Historic Landmark, built to the designs of Edward Clarke Cabot from 1847 to 1849. It was enlarged and rebuilt from 1913 to 1914 by Henry Forbes Bigelow. The design of the Athenaeum's main facade is based on Palladio's Palazzo da Porta Festa in Vicenza, Italy. This Renaissance Revival brown-sandstone facade features recessed arches, Corinthian pilasters, and window pediments. With its coffered and vaulted reading room and important collections including George Washington's personal library, the Athenaeum has remained a Boston icon since its completion. The building is undergoing a major interior renovation and restoration designed by Schwartz/Silver Architects.

EXISTING EQUIPMENT

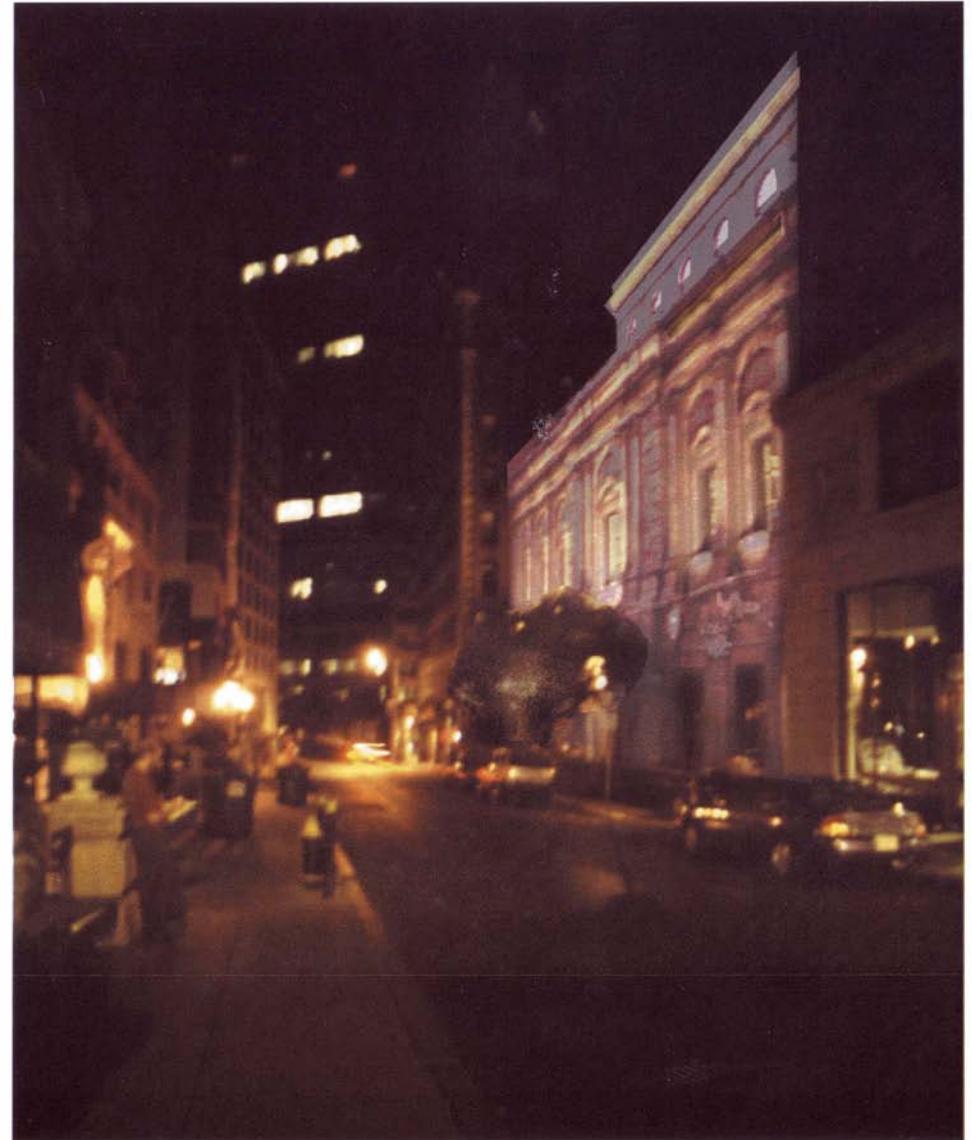
The major arches of the second floor of the Boston Athenaeum are currently uplit with high-pressure sodium floodlights mounted on the sills at the base of the arches. The fixtures are unobtrusive and appropriate in intensity. However, the concentration of light on the second-floor facade divides the building into an unlighted base, a lighted second floor, and an unlighted facade above where the roof terrace steps back.

LIGHTING POTENTIAL

Extending lighting of the Athenaeum facade would present the building as a coherent whole. Changing the color of illumination would more handsomely render the facade. The planted setback between the building and Beacon Street offers a platform for concealed facade lighting.

Inground uplights would illuminate the first-floor facade from unobtrusive sources. Wallwash floodlights located unobtrusively behind the upper-terrace balcony could bring that part of the facade into the presentation. The floods could be turned off when the terrace or the rooms behind are in use.

Uplighting the two specimen trees flanking the entrance would add a delicate counterpoint to the mass of this nationally significant building.



Proposed Lighting



Existing Conditions



RECOMMENDED LIGHTING DESIGN STRATEGIES

- Perform a mockup onsite to evaluate alternate colors of lighting for the facade, such as T6 metal halide.
- Install inground uplights in the planted area at grade to evenly wash the first-floor facade, in a way that does not create intrusive glare for the interiors of the first floor. Intensity of this lighting should be similar to that of the second-floor arcade.
- Consider changing the uplighting of the second-floor arcade to a different, more appropriate source.
- Install floods with the same source behind the rail of the upper-floor terrace to wash the wall behind.
- Install inground uplights in the planted area at grade to uplight the two specimen trees flanking the entry.
- Tie into and/or extend the existing building control system and power to operate the facade lighting from dusk to midnight.

BUDGET TO UPGRADE LIGHTING: \$35,000 – \$40,000 INSTALLED

Action Site: Boston Athenaeum

Address: 10 1/2 Beacon Street

Architect: Edward Clarke Cabot

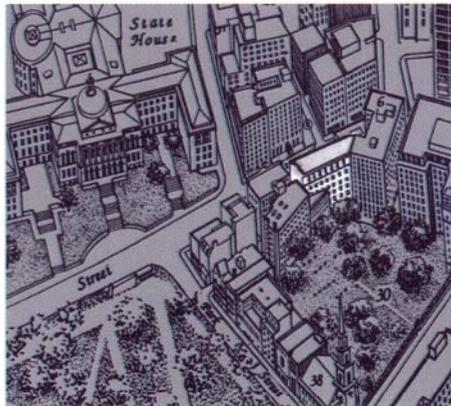
Date: 1847 (enlarged 1913)

National Register of Historic Places

National Historic Landmark

Owner: Boston Athenaeum

10 1/2 Beacon Street, Boston, Massachusetts 02108



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Boston City Hall

ARCHITECTURE AND HISTORY

Boston City Hall at 1 City Hall Plaza is a monumental focal point of the Government Center master plan implemented in the 1960s to the designs of I. M. Pei & Partners. The building itself, constructed of cast-in-place concrete with its plaza of “Boston City Hall Pavers” (a now-ubiquitous red brick type), was designed by Kallman, McKinnell and Knowles, winners of an international design competition in 1961, and completed in 1968 with Campbell, Aldrich and Nulty. The new City Hall’s dominant overhanging concrete cubicles were described by some as “the pigeonholes of city bureaucracy.” These features, along with the huge public spaces that merged exterior and interior, helped define a style of the period termed “Brutalist.” The controversial design earned its architects and the city national recognition. This building, with the State House and Boston Public Library, was one of the few Boston buildings featured alongside such national treasures as Monticello in a postage stamp series commemorating 200 years of American architecture.

EXISTING EQUIPMENT

The existing site lighting at Boston City Hall and on the surrounding City Hall Plaza fails to capture the potential of the space and the building for drama, civic pride, celebration, and nighttime vitality. There is no significant facade lighting for the building. Downlights in the soffits have long since deteriorated and are almost all extinguished (it takes a fire truck to relamp these, since the lowering mechanisms originally installed have failed). While functional, the bollard and pole lighting on the plaza offers little more than function and pedestrian safety and security.

A string of incandescent “sparkle globes” defines the roofline for seasonal events in an attractive way, but by itself is not adequate to the job of dramatizing and celebrating the building. A series of First Night lighting “interventions” by John Powell over the past few years has demonstrated dramatic possibilities.

Although the plaza is regularly used to present evening performances and concerts, there is no permanent infrastructure in place to support these activities, nor is there any effective system of “billboards” to announce upcoming and current events. These deficiencies have been addressed in on-going plaza redesign efforts.



Proposed Lighting

LIGHTING POTENTIAL

The potential for magnificent lighting on this site is enormous. Boston City Hall itself should be dramatically floodlit at night. Elements of the rich architectural expression of the facades (such as the massive corner columns) offer ideal locations for kinetic displays of changing color to announce and support nighttime performances.

Appropriate floodlighting of the “walls” of the plaza, including 1-2-3 Center Plaza and the Sears Crescent/Sears Block, would create a welcome enclosure and sense of place (the Sears Crescent is itself one of the 25 sites identified in this Plan).

The addition of animated graphic display elements was a repeated theme of the design competition held several years ago for ideas on how to enhance this potentially exciting focal point of the city at night.

RECOMMENDED LIGHTING DESIGN STRATEGIES

- Replace existing posttop “lollipop” lights with more energy-efficient and better shielded sources, more attractively presented. While most of these new lights should be shielded and directed toward the surface of the plaza, small, high-brightness elements should be included to create the sense of “sparkle” through refractive elements or fiber optics incorporated into the fixtures.



Existing Conditions



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- Retrofit existing bollards with sources capable of kinetic displays of changing color and intensity.
- Uplight corner columns of the building strongly. This lighting should change to a color or from one color to another to highlight performances and other events on City Hall Plaza or inside City Hall.
- Add event announcement elements with programmable LED signage and other instantly recognizable lighting at major entry points to the plaza.
- Highlight key architectural elements of City Hall such as the brick podium flanking the main entrance from the plaza dramatically.
- Incorporate a low level of overall facade floodlighting into the design. This will require fixtures in bunkers or, preferably, on low poles on the plaza. To light the northeast facade, similar fixtures should be mounted on the median of Congress Street.
- Refurbish and relamp existing “sparkle globes” at the roofline .
- Replace existing downlighting in the soffits with extremely long-lived sources such as Osram/Sylvania’s “Icetron” or Philips “QL” electrodeless compact fluorescent sources, with service life in the 60–100,000 hour range (15–25 years assuming dusk-dawn operation, longer if operated only dusk–midnight). Install ground-mounted uplighting under the building in appropriate, concealed locations would allow midnight-to-dawn security lighting using more easily relamped sources.
- Illuminate the Sears Crescent, Sears Block, and Center Plaza buildings to create “walls” for the plaza at night.
- Install infrastructure where the lack of permanent infrastructure (power drops, mounting points for lighting and sound equipment, etc.) hampers or makes significantly more expensive the presentation of performances and other events. The installation of a permanent lighting and control system for outdoor public events on the plaza is not recommended, since such events normally have unique requirements for such equipment.
- Provide a control system capable of event-based animation where appropriate. Use the existing building energy management system and/or photocell timers as required to shut off unnecessary lighting after midnight.

BUDGET TO UPGRADE LIGHTING: \$250,000 – \$300,000 INSTALLED

ELECTRONIC SIGNAGE: \$1,000,000 INSTALLED

Action Site: Boston City Hall

Address: 1 City Hall Square

Architect: Kallman, McKinnell and Knowles (completed by the firm that became Kallman, McKinnell and Wood)

Date: 1961

Owner: City of Boston

1 City Hall Square, Boston, Massachusetts 02201

Boston Public Library (McKim Building)

ARCHITECTURE AND HISTORY

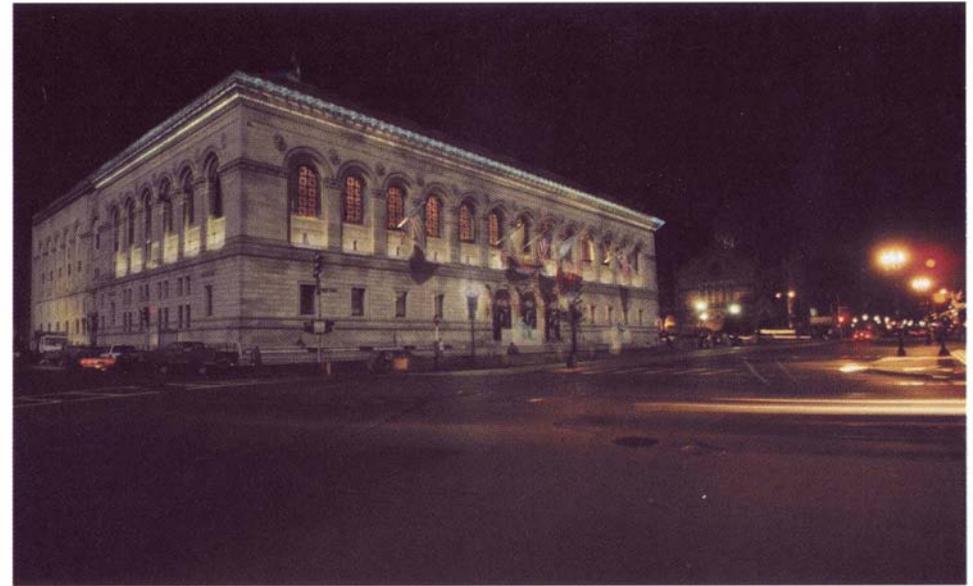
The Boston Public Library (McKim Building) fronting on Copley Square, with its secondary facade on Boylston Street, was designed by architects McKim, Mead and White in 1887 and completed in 1895. This National Historic Landmark is recognized as an architectural masterpiece and anchors the west side of Copley Square. It is known worldwide for its Italian Palazzo form based on Alberti's Palazzo San Francesco at Rimini, Italy, and on Labroust's Bibliothèque Saint Geneviève (1843 – 1850) in Paris. The principal facade on Copley Square inspired a generation of American libraries with its granite-based and monumental arcaded stonework, ornamental cast-bronze doors by Daniel Chester French, bas-relief overdoor facade panels by Augustus Saint Gaudens, flanking sculptures by Bela Pratt, and cloistered inner courtyard arcades with Roman brick walls above. The library interior, a monument to the fine arts, features a figured Sienna marble staircase, vaulted reading rooms, and beautifully integrated and renowned murals by John Singer Sargent, Puvis de Chavannes, Edwin Austin Abbey, John Elliott, and others. The 1971 addition by Philip Johnson echoes the massing of the original.

EXISTING EQUIPMENT

The McKim Building of the Boston Public Library was illuminated some years ago as part of a major renovation carried out by the city with lighting designed by William Lam Associates. That installation consisted of refurbishing the existing ornamental iron lanterns on the Dartmouth Street facade, installing fluorescent uplights in the major arches of the Dartmouth, Boylston, and Blagden Street facades, and adding quartz floodlights between the twin acorn fixtures along Dartmouth Street.

LIGHTING POTENTIAL

The existing lighting needs maintenance and relamping. However, the gradual increase in ambient brightness of the surrounding streets has sapped the impact of the facade lighting. Furthermore, the building is not just a single facade: the massing of the building and the articulation of the Boylston and Blagden Street facades, in addition to the Dartmouth

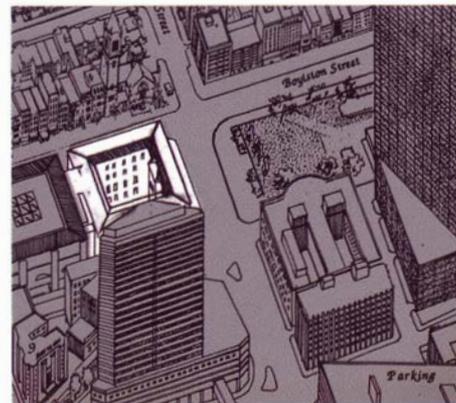


Proposed Lighting





Existing Conditions



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Street–Copley Square “front,” speaks of the architects’ wish to offer the City of Boston a building of substance and solidity. Additional and more powerful lighting is required to celebrate this building and reclaim its rightful place in the visual hierarchy of Copley Square at night. At the same time the distracting brightness of the acorn fixtures surrounding Copley Square should be reduced.

RECOMMENDED LIGHTING DESIGN STRATEGIES

- Refurbish existing fluorescent uplighting at the major arches on Dartmouth, Boylston, and Blagden Streets.
- Replace the existing quartz fixtures with more powerful high-intensity discharge equipment of appropriate (incandescent) color temperature. This will require the use of dual source fixtures.
- Extend similar lighting to the St. James and Boylston Street facades. This will require installation of new acorn fixtures on these streets.
- Control glare from acorn fixtures on all adjacent streets by replacing or retrofitting them with semi-cutoff refractive globes or internal refractors. Explore the impact of reducing the wattage of these fixtures.
- Add acorn-mounted spots for the two statues flanking the Dartmouth Street entrance.

BUDGET TO UPGRADE LIGHTING: \$30,000 – \$35,000 INSTALLED

Action Site: Boston Public Library (McKim Building)

Address: 700 Boylston Street

Architect: McKim, Mead and White

Date: 1887

National Register of Historic Places:

Owner: City of Boston/Boston Public Library

700 Boylston Street, Boston, Massachusetts 02116

Boston Visitor's Center

ARCHITECTURE AND HISTORY

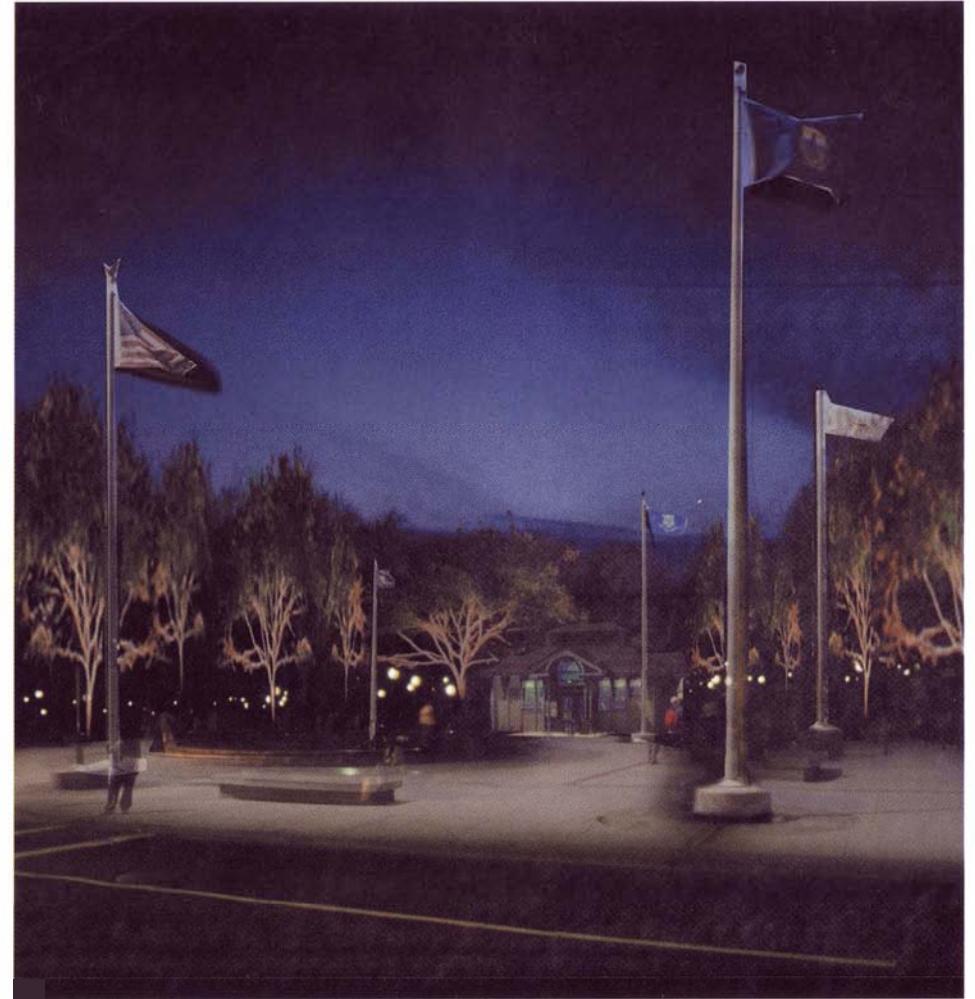
The Boston Visitor's Center on Boston Common faces the Tremont Street Mall. Although the full history of the building has not been determined, the hip-roofed stick-style structure has experienced a complex evolution. Originally designed as a Ladies' Pavilion or Comfort Station (thus the large ventilator on the roof ridge), the structure has been moved at least twice from its original location, used as a park rangers' station, and extensively rebuilt and enlarged, most recently by the MacPherson Partnership, Architects. Despite these later uses and transformations, the building retains much of its original appearance, with its arched gable pediments and diagonal stickwork. An 1866 view of the Public Garden shows a larger structure of similar form, with a hipped roof, monitor, and small windows high up under the eaves. That structure and similar ones like the visitor's center may have been designed by the Public Garden's original architect, George F. Meacham, and/or James Slade, city engineer, who modified and executed Meacham's plans. The visitor's center is a significant symbol of Boston park history.

EXISTING EQUIPMENT

There is no exterior lighting for this structure other than minimal security lighting, the metal halide acorn fixtures that light the paths of the Boston Common, and the street lighting along Tremont Street.

LIGHTING POTENTIAL

The Boston Visitor's Center is a recent arrival on the Common. Increased pedestrian activity at the center would benefit the adjacent businesses along Tremont Street. If it were well-lit and open at night, it could serve as a valuable point of orientation and information for those visiting the Hub during the evening. The Boston Visitor's Center could serve as the starting point for night tours of the Diamond Necklace and other lighted spaces and landmarks around the city.



Proposed Lighting



Existing Conditions



RECOMMENDED LIGHTING DESIGN STRATEGIES

- Illuminate the sculptures and flagpoles on the plaza between the building and Tremont Street.
- Illuminate the sign over the center's front door.
- Illuminate the mass of the building with "jelly jar" globes concealed in the eaves, and exposed at the gables on the north, east, and south facades.
- Provide general illumination for the plaza with a soft wash of cool-colored light from one or more fixtures concealed on the roof of one or more buildings across Tremont Street.
- Mount and control lights on city poles and flagpoles with dusk-to-midnight photocell timers fed from city power. Lights mounted to the building will be its control system and power, operated dusk to midnight. Lights mounted on buildings across Tremont Street will be on those buildings' control systems and power, operated dusk to midnight.

BUDGET TO UPGRADE LIGHTING: \$50,000 – \$75,000 INSTALLED

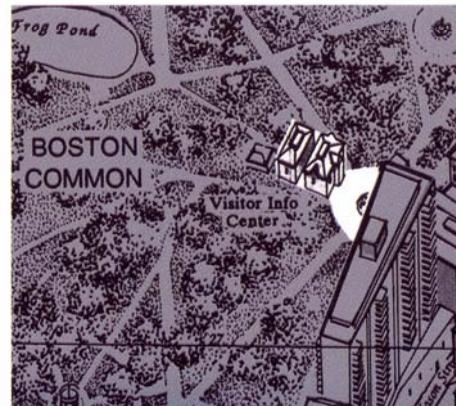
Action Site: Boston Visitor's Center

Address: Boston Common, Tremont Street

Architect: MacPherson Partnership, Architects (current form)

National Register of Historic Places, (The Boston Common is a National Historic Landmark)

Owner: City of Boston



Chinatown Gateway

ARCHITECTURE AND HISTORY

The Chinatown Gateway is at the southwest corner of Beach Street facing the Surface Artery (Atlantic Avenue). It is the formal entrance to Chinatown on the main pedestrian access route connecting with the Leather District. The gateway was built in 1982 under the supervision of Jung Brannen and Associates, with materials donated by the Republic of China to commemorate their friendship with the people of Boston for the Bicentennial in 1976. A landmark since its construction, it has two round columns and a lintel spanning Beach Street. The lintel is surmounted by pagoda-style hipped roofing on two levels with green-glazed ceramic tile, topped with ornamental scrollwork roof finials. The roofs frame four tablets inscribed with Chinese characters commemorating the virtues espoused by Chiang Kai-shek in 1930: manner/politeness, righteousness/heroism, freedom from corruption, and awareness of shame. The gateway is a prominent icon, visible from the Surface Artery to passing vehicles and pedestrians, as well as along the length of Chinatown's main street.

EXISTING EQUIPMENT

A few metal halide floodlights, semi-concealed in the eaves, wash the four tablets. There is no other existing illumination for the Chinatown Gateway, other than spill lighting from adjacent street lights and commercial signage. The internally illuminated sign of the Imperial restaurant immediately adjacent to the Gateway is overpowering in its glare.

LIGHTING POTENTIAL

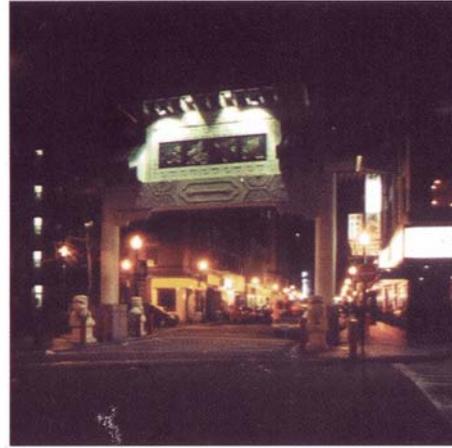
The Chinatown Gateway has just been restored and is in excellent condition. It is a strong symbolic expression of the cultural diversity of our city and the rich heritage of the Chinese community. Properly illuminated, it would provide a glorious celebratory portal to an area already bustling with nighttime activity.



Proposed Lighting



Existing Conditions



RECOMMENDED LIGHTING DESIGN STRATEGIES

- Install “sparkle globes” to outline the roof masses and provide apparent light sources (“symbolic candles”) for the other, concealed lighting.
- Conceal downlighting in the roof beams to wash the plaques, the lower roofs, and columns.
- Install inground uplights to feature the four lion-dogs that guard the portal. These fixtures will also provide underlighting for the lowest roof plane.
- Install shielded narrow spot fixtures on street light poles on Beach Street — both in the median of the Surface Artery to the east, and approximately 150 feet to the west of the Gateway on Beach Street — to illuminate softly the green tile of the roofs.
- Control lights on city poles and ingrade lighting with dusk-to-midnight photocell timers fed from city power.

BUDGET TO UPGRADE LIGHTING: \$135,000 – \$150,000 INSTALLED

Action Site: Chinatown Gateway

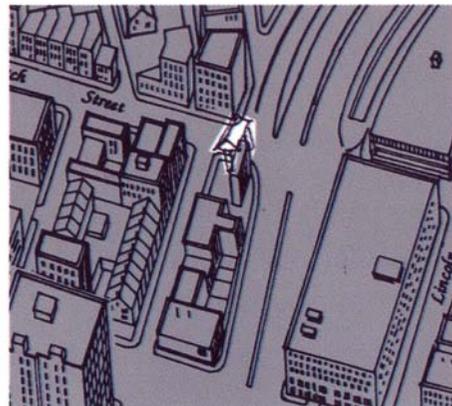
Address: Beach Street at Atlantic Avenue

Architect: Jung Brannen and Associates

Date: 1982

National Register of Historic Places

Owner: City of Boston



Custom House and Square

ARCHITECTURE AND HISTORY

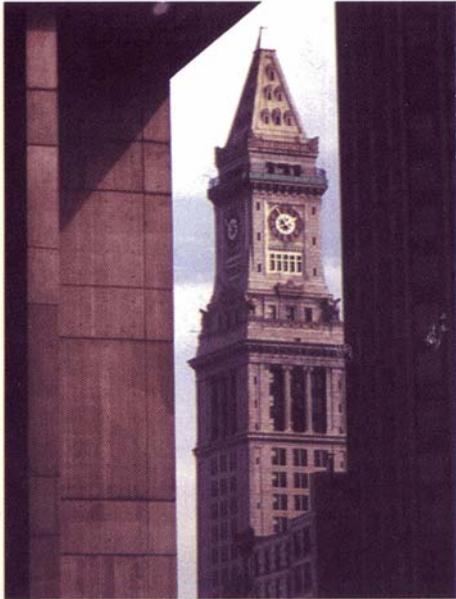
The Custom House on McKinley Square, at State and India Streets, is a Greek Revival cruciform building with four pediments supported by monumental, monolithic fluted Doric columns of Quincy granite. The building, originally crowned by the first stone dome erected in the U.S., was built from 1837 to 1847 to the designs of Ammi Burnham Young. The Greek characteristics of this landmark structure, along with those of Quincy Market, helped christen Boston the “Athens of America.” The sixteen-story Grecian tower designed by Peabody & Stearns was added from 1913 to 1915, making the Custom House Boston’s tallest building until the construction of contemporary office towers beginning in the 1960s. The Custom House was allowed to exceed Boston’s then 125-foot height restriction only because it was under federal jurisdiction. The tower clock is a landmark, visible for miles. Composing Custom House Square are, to the east of the Custom House, the State Street Block of 1858, an important granite warehouse with carved stone corbels and curved pediment designed by architect Gridley J. F. Bryant. To the west is Central Wharf, 1816, a significant early brick warehouse by Uriah Cotting. Also to the west of the Custom House is the ornate Board of Trade Building, 1901, by Winslow and Bigelow, an early high-rise structure of 11 stories. The Insurance Exchange Building, 1923, another 11-story building by Coolidge and Shattuck, faces onto the square from the southwest.

EXISTING EQUIPMENT

The Custom House received an excellent treatment of lighting for detail during the last quarter century. Lighting was designed by William Lam Associates, as a part of a project funded by Boston Edison to celebrate the City’s 350th anniversary in 1980. That remarkable effort included Trinity Church, the McKim building of the Boston Public Library, and the New Old South Church. But detail only is an incomplete presentation of this beloved landmark. The Custom House deserves lighting upgrades for two reasons: first, the existing lighting fails to capture and present the massing of the building, and second, the challenge of effectively illuminating the hands of the tower clock has never been solved in a satisfactory manner.



Proposed Lighting



Existing Conditions



LIGHTING POTENTIAL

As a landmark evoking Boston's civic, architectural, governmental, and commercial history, the Custom House is without peer in the city. Completion and augmentation of the illumination program begun in the last century would add greatly to the impact of the building.

RECOMMENDED LIGHTING DESIGN STRATEGIES

- Add powerful floodlighting to the projecting roofs of the base (and perhaps also to the roofs of adjacent properties) to uplift the mass of the tower above.
- Update and increase the power of existing cantilevered floodlights and spotlights at the levels of the spire, belfry, and clock.
- Successfully illuminate the clock hands at night.
- Increase the intensity of the colonnade lighting at the 18th, 19th, and 20th floors on all four facades.
- In view of strategies found in a mockup to be successful for the upper levels of the building, review the existing uplighting between the columns of the base facades for color consistency and intensity. Modify as required to complement the upper structure and bring this treatment down to grade.
- Add control for lights on city poles, if required, with dusk-to-midnight photocell timers fed from city power. Lights mounted to the building will be on its control system and power, operated (at a minimum) from dusk to midnight.

BUDGET TO UPGRADE LIGHTING: \$150,000 – \$200,000 INSTALLED

Action Site: Custom House and Square

Address: 3 McKinley Square

Architect: Ammi Burnham Young, Peabody & Stearns

Date: 1837, 1915

National Register of Historic Places

Owner: E. L. V. Corporation

70 Long Wharf, Boston, Massachusetts 02210



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East Cambridge Viaduct

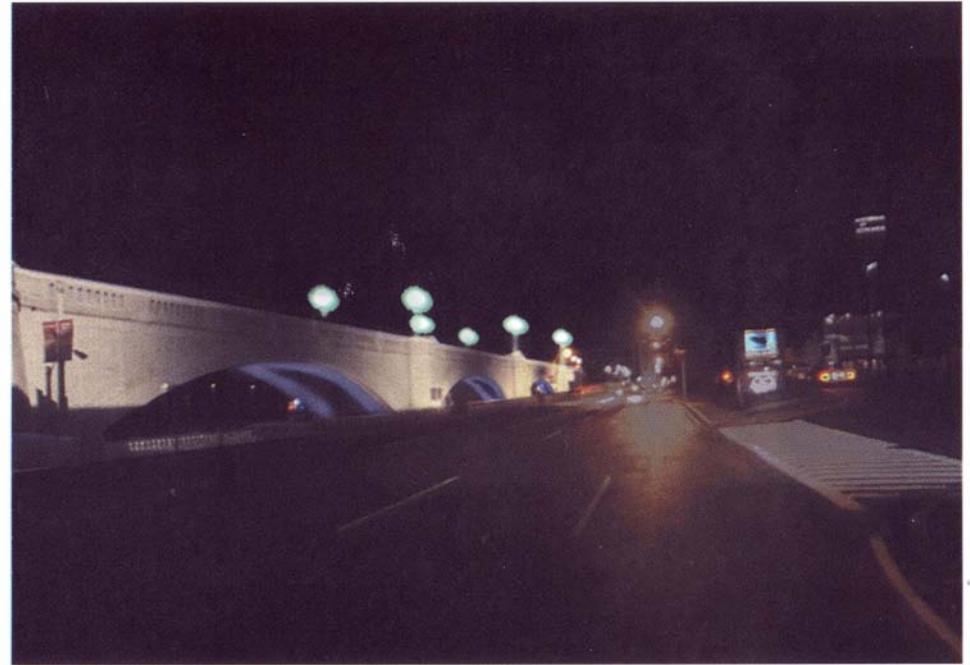
ARCHITECTURE AND HISTORY

The East Cambridge Viaduct, 1910, carries the MBTA Green Line over the Charles River. It was designed by the noted Boston architecture firm of Peabody & Stearns, working with Boston Elevated Railway and Metropolitan District Commission engineers. This early reinforced concrete, arcaded structure tops the Charles River Dam and was intended to provide a screen to terminate the Charles River Basin. The basin in 1910 connected with Frederick Law Olmsted's Back Bay Fens and Riverway to create the Emerald Necklace. In 1931 the Esplanade was laid out with the generous donation of James J. Storrow. It was only in 1951 that the four-lane Storrow Drive usurped part of the parkland along with its benefactor's name.

EXISTING EQUIPMENT

Existing lighting on the viaduct consists of three ornamental iron lanterns that cap the towers flanking the drawbridge over the entrance to the locks, plus unobtrusive service lighting for the MBTA tracks. The ornamental lanterns were recently retrofitted with Philips "QL" lamps — an electrodeless, compact fluorescent source of unusually long life (rated 60,000 to 100,000 hours).

While the East Cambridge Viaduct once defined the lower end of the Charles River Basin it is now largely concealed from the west by the structures of Science Park. The viaduct remains in clear view from Boston Harbor and from the new bridges crossing the Charles River as part of the Central Artery project, as well as from the Tobin Bridge. Strong illumination of this structure would dramatically reinforce one of the major approaches to Boston from Cambridge and re-establish an edge for the Charles River Basin from the direction of the harbor while enhancing Science Park — which already has substantial evening activity. Nighttime illumination of the East Cambridge Viaduct would complement the illumination of the Longfellow and Fort Point Channel Bridges recommended elsewhere in this Plan.



Proposed Lighting

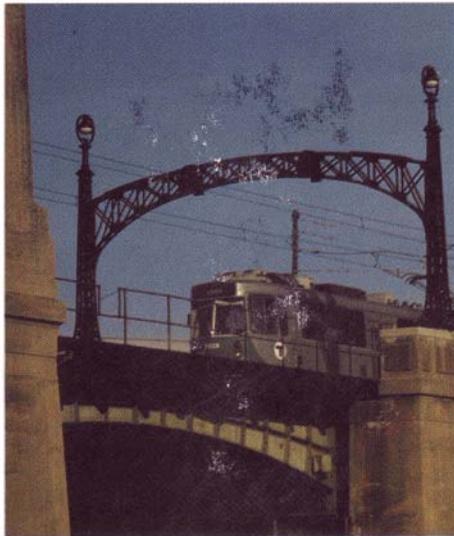


RECOMMENDED LIGHTING DESIGN STRATEGIES

- Cantilever floodlights aimed down to wash the towers from the MBTA's overhead catenary support poles, which are ideally located, centered on each of the towers on both sides of the viaduct.
- Install bi-directional lighting on alternating piers underneath the viaduct to underlight the structure (possibly with color).
- Control the accent lights on MBTA poles and lighting mounted to the viaduct structure with dusk-to-midnight photocell timers fed from MBTA power.

BUDGET TO UPGRADE LIGHTING: \$95,000 – \$120,000 INSTALLED

Action Site: East Cambridge Viaduct
Address: Msgr. O'Brien Highway
Architect: Peabody & Stearns
Date: 1910
 National Register of Historic Places
Owner: MBTA
 10 Park Plaza, Boston, Massachusetts 02116



Existing Conditions



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Filene's Department Store

ARCHITECTURE AND HISTORY

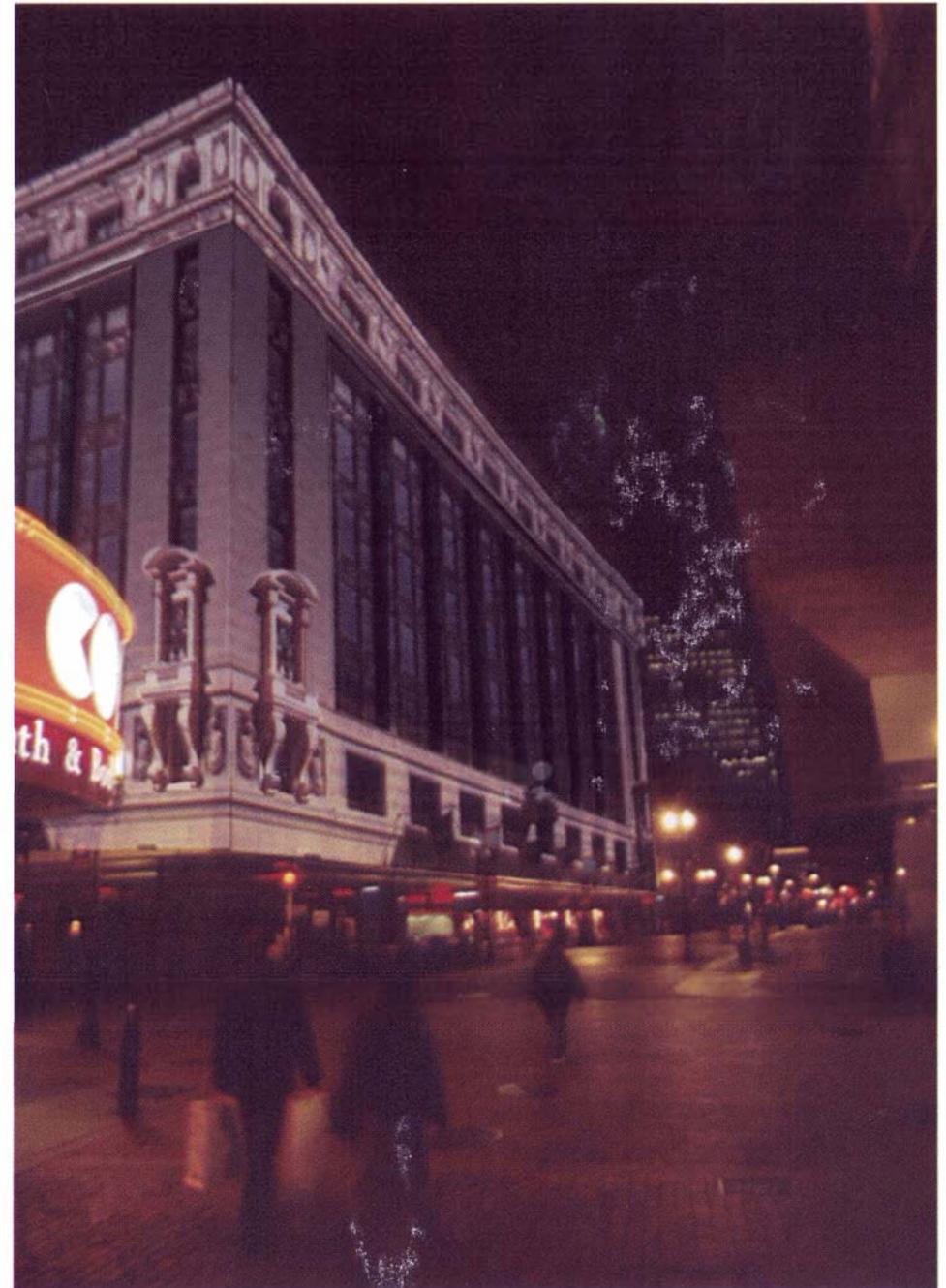
Filene's Department Store at 426 Washington Street, designed by Daniel Burnham and Company in 1912, was the last major building by the prominent midwestern planner and architect whose firm designed the Marshall Fields stores and the Monadnock Building in Chicago. The Filene's exterior is representative of the Chicago School of architectural design. Its steel frame and eight-story commercial palace facade is comprised of gray-and-green terracotta ornamentation. Masonry trim frames the first-floor show windows and mezzanine while also anchoring the corner stair towers and attic story. Extensive glass areas originally allowed upper windows (some later blocked) to bring light into store display spaces. The building is a well-integrated, functional design that enhances the streetscape at Boston's commercial centerpiece, Downtown Crossing.

EXISTING EQUIPMENT

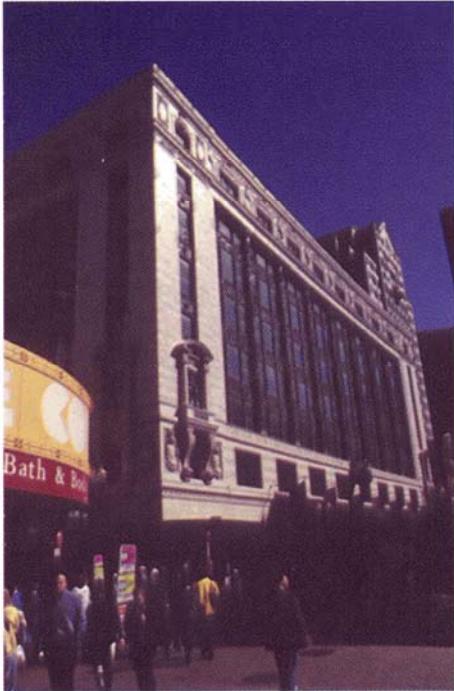
The illuminated displays in Filene's store windows at street level create vibrant vignettes along the sidewalk, but the upper portions of the handsome structure are illuminated only by spill light from the bright acorn fixtures along Washington Street. Since the acorns are themselves far brighter than the building, they serve mostly to draw the eye of the beholder away from the building, not toward it.

LIGHTING POTENTIAL

Situated at the heart of Downtown Crossing and highly visible, Filene's offers an opportunity to celebrate the grand commercial architecture of Washington Street. In combination with the Paramount Theater, Old South Meeting House, Old South Building, and Ames Building along Washington Street, Filene's can serve as part of a downtown architectural tour by night similar to the Freedom Trail. This tour would commence at the Boston Visitor's Center on Boston Common and return via Old City Hall, King's Chapel, Tremont Temple Baptist Church, Granary Burying Ground, Park Street Church, Cathedral Church of St Paul, and Brewer Fountain. Illumination upgrades are already in the works for five of the latter sites, through initiatives of Light Boston in partnership with the churches and with the city for the fountain, with major support from the Henderson Foundation and the Friends of the Public Garden.



Proposed Lighting



Existing Conditions



RECOMMENDED LIGHTING DESIGN STRATEGIES

- Uplight the massive colonnades of the Filene's store's south and west facades from sources concealed between the bases of the columns.
- Uplight the flagpoles on the same facades, from fixtures concealed on top of the canopy that surrounds the building on the south and west facades.
- Uplight the four highly ornamented balconies that frame the colonnades, from fixtures concealed on top of the canopy.
- Place all fixtures mounted on the building on the owner's power and control systems, to be operated from dusk to at least midnight.

BUDGET TO UPGRADE LIGHTING: \$115,000 – \$125,000 INSTALLED

Action Site: Filene's Department Store

Address: 426 Washington Street

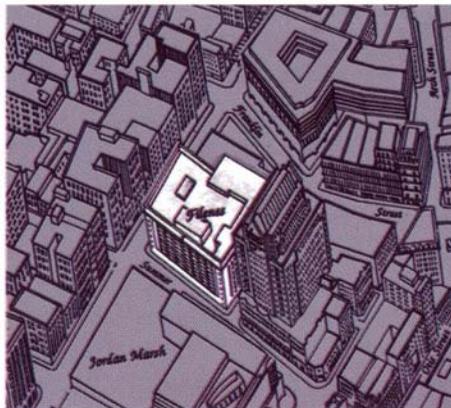
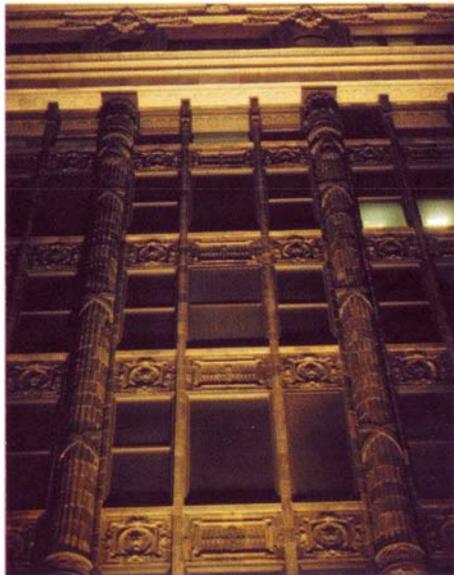
Architect: Daniel Burnham and Company

Date: 1912

National Register of Historic Places

Owner: Adcor Realty Corporation

611 Olive Street, St. Louis, Missouri 63101



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First Harrison Gray Otis House and Old West Church

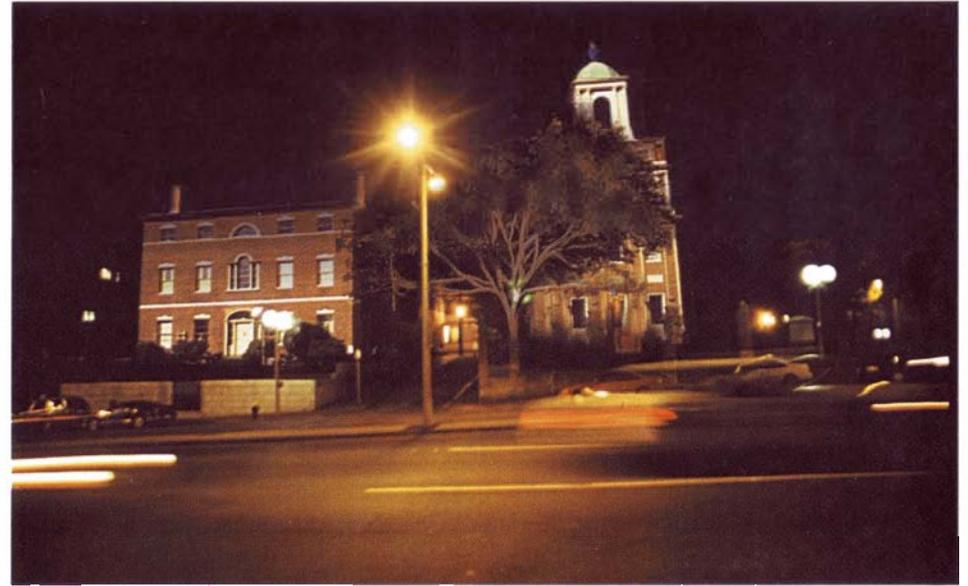
ARCHITECTURE AND HISTORY

These two sites are treated together not only because they are directly next to each other, but also because they share an harmonious architectural vocabulary. The First Harrison Gray Otis House at 141 Cambridge Street was built in 1795–1796, the first of three houses designed by Charles Bulfinch for Harrison Gray Otis. This structure exemplifies the proportions and delicate detail of the Federal Style. Otis, who served as a representative in Congress and later as Mayor of Boston, made a significant part of his fortune developing nearby Beacon Hill. Twentieth-century restoration has recaptured the elegance of one of the premier residences among the eighteenth-century freestanding town houses remaining in Boston. The First Harrison Gray Otis House is now home to the Society for the Preservation of New England Antiquities, known as SPNEA, an organization that conserves about 50 historic properties along with their collections.

The Old West Church at 131 Cambridge Street is the immediate neighbor to the east of the First Harrison Gray Otis House. The church, a National Historic Landmark, was built in 1806 on the site of a previous structure erected in 1737. After its original steeple was torn down by the British during the Revolution, components of the 1737 church were re-used to build the nearby African Meeting House on Joy Street in 1806. The present Old West Church of 1806 is the design of Asher Benjamin, whose Adam Style details, illustrated in design pattern books from 1797 to 1843, set the standard for New England buildings built during the Federal and Greek Revival periods in the first half of the nineteenth century. In fact the Old West Church design is a feature of the 1806 edition of Benjamin's *American Builder's Companion*. The bell/clocktower of the brick neo-classical church is a prominent landmark in the old Bowdoin Square area, and the ensemble is known throughout New England for its connection to noted architects and historical figures.

EXISTING EQUIPMENT

The First Harrison Gray Otis House is at present unlit, other than by spill light from high-pressure sodium "cobrahead fixtures" in the median of Cambridge Street. Existing equipment at the Old West Church consists of two badly deteriorated and currently dysfunctional HID spotlights mounted on two trees along Cambridge Street, two handsome ornamental



Proposed Lighting (First Harrison Gray House on the left, Old West Church on the right)

iron lanterns flanking the main steps to the church, and two glare-producing "dusk-to-dawn" refractor security lights on the east flank of the church facing Staniford Street.

LIGHTING POTENTIAL

Because of their pairing, the properties have the potential — if properly illuminated — to serve as a gateway to a rich architectural zone of illuminated historic buildings and structure's while being defined as nighttime landmarks in their own right.

The absence of strongly lit competing background elements, unusual in this part of downtown, increases the potential impact of a lighting upgrade for the Old West Church and First Harrison Gray Otis House. Both properties include landscaped areas within which new illumination can be concealed. The possibility exists for a partnership with the Public Works Department, which owns a pole on the island in Staniford Street on which a spotlight could be mounted to illuminate the copper roof and clock of the church from the southeast. A fixture mounted on the roof of the First Harrison Gray Otis House could effectively illuminate the other face of the church tower and its clock, which would not be possible if one were restricted to mounting lighting equipment on the site of the Old West Church itself.



Existing Conditions



RECOMMENDED LIGHTING DESIGN STRATEGIES

- Install spotlight to north chimney of the Otis house to light the church’s tower and clock of from the northeast.
- Install spotlight on PWD pole on Staniford Street island to light the church’s tower and clock from the southeast.
- Replace existing tree-mounted spotlights on front of the church.
- Install inground uplights to light the lower portions of the tower and the south facade of the church.
- Install a spotlight on the church’s east chimney to light the tower from the east.
- Install twin HID floods behind each of the two brick piers flanking the entry to the site of the church from Cambridge Street to illuminate the main facade from the west.
- Repair existing incandescent lanterns flanking the main stairs leading to the church.
- Remove two existing “dusk-to-dawn” security fixtures from the church.
- Install ground-mounted uplight floods for the north and west facades of the Otis house.
- Install a new incandescent acorn fixture and antique pole in the alley between the church and the house, with uplight floods similar to those lighting the other Otis house facades.
- Locate an appropriate “candle” in the windows of the Otis House.

BUDGET TO UPGRADE LIGHTING (First Harrison Gray Otis House): \$20,000 – \$25,000 INSTALLED

Action Site: First Harrison Gray Otis House
Address: 141 Cambridge Street
Architect: Charles Bulfinch
Date: 1795
 National Register of Historic Places
 National Historic Landmark
Owner: Society for the Preservation of New England Antiquities
 141 Cambridge Street, Boston, Massachusetts 02114

BUDGET TO UPGRADE LIGHTING (Old West Church): \$28,000 – \$35,000 INSTALLED

Action Site: Old West Church United Methodist
Address: 131 Cambridge Street
Architect: Asher Benjamin
Date: 1806
 National Register of Historic Places
Owner: Trustees of Old West Church United Methodist
 131 Cambridge Street, Boston, Massachusetts 02114



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Flour and Grain Exchange

ARCHITECTURE AND HISTORY

The Flour and Grain Exchange on Milk Street was built to the design of Shepley, Rutan & Coolidge from 1891 to 1893. These successors to Henry Hobson Richardson used many of the Romanesque Revival ideas found in his 1882 store for F. L. Ames at Kingston and Bedford Streets. The monumental three-story arches with their typical twin windows surmounted by an occi round sash are encompassed by massive carved-stone architraves. The curved end is capped by a conical roof flanked by five gables that literally crown the corner. The massive Milford granite building with its high pyramidal slate roof is a prominent landmark as seen both from the elevated Central Artery and the surrounding streets including India Street and McKinley Square. It will become still more prominent upon the removal of the elevated Central Artery within the next few years.

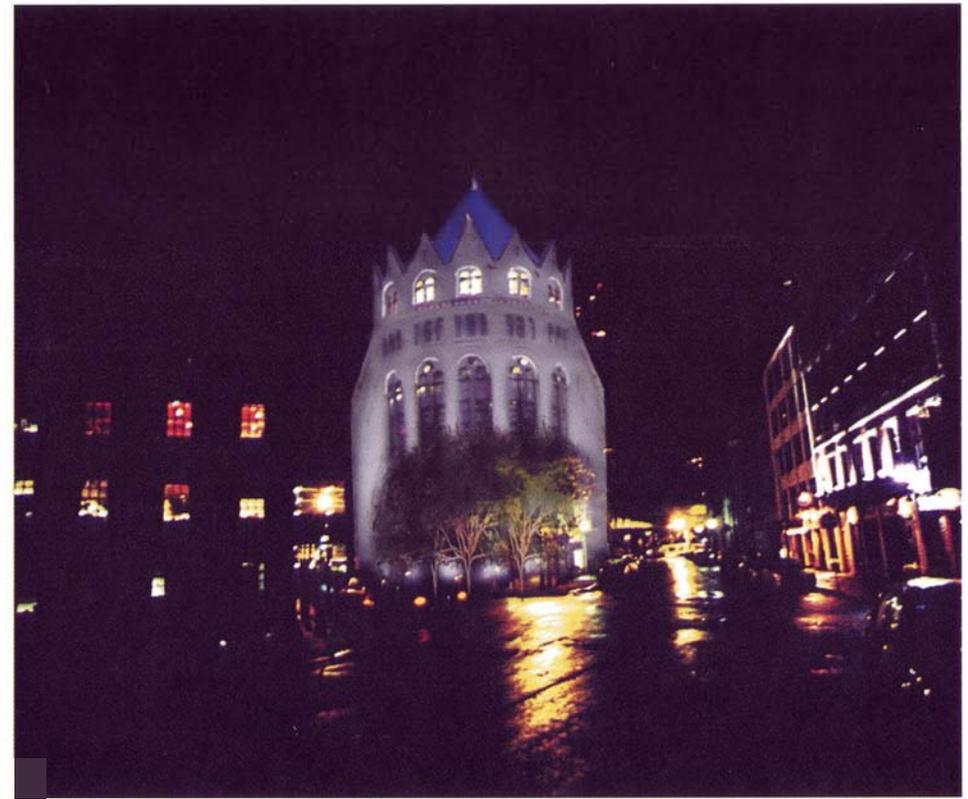
EXISTING EQUIPMENT

Existing lighting for the Flour and Grain Exchange consists of adjacent street lights, augmented with pairs of metal halide and high-pressure sodium floodlights mounted to the Central Artery. Designed by Ripman Lighting Consultants, this is an example of the use of long-lived and efficient sources in combination to produce a wash of light over a facade. The lighting appears to be incandescent in color, handsomely rendering the cool color of the granite without the significant color distortion characteristic of these sources when used alone.

With the removal of the elevated artery, new lighting will be required for this landmark structure.

LIGHTING POTENTIAL

One of Boston's preeminent commercial landmarks, the Flour and Grain Exchange could, if well illuminated, become an entry to the financial district from the waterfront and the planned open space that will replace the Central Artery as part of the Big Dig project.



Proposed Lighting



Existing Conditions



RECOMMENDED LIGHTING DESIGN STRATEGIES

- Install metal halide or clear mercury vapor spotlights on the roof, in the valleys, and between the dormers, to uplight the massive conical roof and pinnacle weathervane.
- Install internal illumination to backlight the dormer windows at night.
- Install cantilevered uplights to feature the dormers.
- Install six new city poles with mixed metal halide and high-pressure sodium floodlights to light the three main facades.
- Control lights on city poles with dusk-to-midnight photocell timers fed from city power. Lights mounted to the building or in the triangular plaza to the south will be on the building's control system and power, operated dusk to midnight.

BUDGET TO UPGRADE LIGHTING: \$50,000 – \$75,000 INSTALLED

Action Site: Flour and Grain Exchange

Address: 177 Milk Street

Architect: Shepley, Rutan & Coolidge

Date: 1891

National Register of Historic Places

Owner: The Beal Companies

177 Milk Street, Boston, Massachusetts 02110



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Fort Point Channel

ARCHITECTURE AND HISTORY

With its striking seawalls and the old Northern Avenue, Congress, and Summer Street Bridges, the Fort Point Channel is a significant historical and geographical feature of Boston's topography. Its name recalls the earliest English fortification in New England on Fort Hill, begun in 1633 by Governor John Leverett. Its South Battery, which stood near Rowe's Wharf, was famous as the site of the bloodless revolution in 1689 when the colonists captured and expelled Governor Andros, who had tried to revoke the Massachusetts Bay Colony's charter. The battery remained through the American Revolution, after which it was replaced by a whale oil works. Fort Point Channel itself was the original outlet of the Roxbury Creek and later canal. The granite walls generally date from the late nineteenth century, with those on the east side the result of the filling of tidal flats by the Boston Wharf Company. The bridges comprise a "museum" of different structural types representative of the robust engineering creativity of the period: The Summer Street Bridge, 1899, is a retractile drawbridge; the Old Northern Avenue Bridge, 1906–1908, a swing bridge; and the Congress Street Bridge, 1926, a bascule counterweight drawbridge. The 1998 Moakley Bridge (New Northern Avenue Bridge) is a simple fixed-span concrete girder roadway bridge built to contemporary Federal standards.

EXISTING EQUIPMENT

While there is an abundance of lighting on streets, buildings, and bridges in the Fort Point Channel area, there is no overall plan to coordinate and supplement this haphazard lighting in order to create a distinctive and coherent identity for the district. Much of the symbolic and powerful original ornamental lighting of the older bridges has been destroyed.

LIGHTING POTENTIAL

Fort Point Channel links the downtown with the Fan Pier area, known as the South Boston Waterfront, which is the next major development site in downtown Boston. The Fort Point Channel district includes the Children's Museum, an array of bustling restaurants, and the Boston Tea Party Ship. The industrial wharf buildings of the wool district that form its backdrop when viewed from downtown reflect the city's industrial past, rich in commerce and

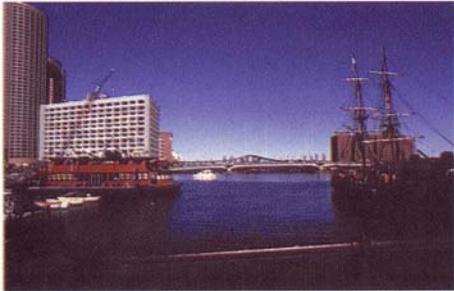


Proposed Lighting

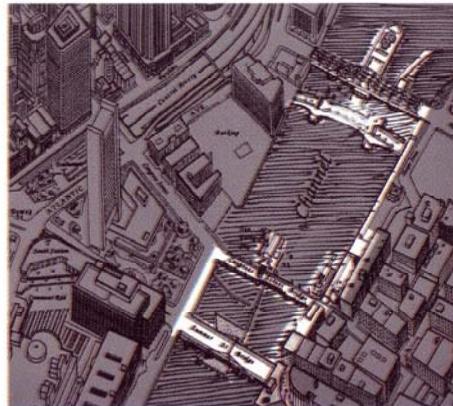
shipping. In addition, the Fort Point Channel is a gallery of bridge technologies, with four bridges of substantially different design located in close proximity.

Lighting the bridges of Boston would be one of the most powerful strategies available to create a strong nighttime identity for the downtown area. It is no accident that three of the 25 sites selected for inclusion in this Plan include bridges as iconic elements. The bridges across the Fort Point Channel, the old and new bridges across the Charles River, and the Tobin Bridge range from the delicate and historic to the daring and modern. If one has any question about the potential impact of lighting Boston's bridges, one has only to examine the immense success (and publicity) afforded Cleveland by its commitment to celebrating its bridges with a dramatic program of animated floodlighting.

Preliminary lighting designs for the Fort Point Channel bridges have been developed by John Powell — Light, Time, Space.



Existing Conditions



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The preservation of the Old Northern Avenue Bridge is essential to the strength of the ensemble, as is sensitive maintenance and restoration of the Congress Street Bridge, which is badly in need of repair. The Moakley Bridge, which is the newest, suffers from an overabundance of glaring fixtures. These reduce the impact of the internally illuminated glass-block towers atop its piers, which attempt to echo the piertop lanterns of its neighbor, the Congress Street Bridge.

RECOMMENDED LIGHTING DESIGN STRATEGIES

- Illuminate granite headwalls on the east (South Boston) side of the channel with cool-colored floodlights concealed beneath the Summer Street and Congress Street Bridges.
- Conceal lighting under the walkways of the Summer Street Bridge to illuminate the steel structure and piers below. Neon could be used in combination with metal halide or mercury vapor for this purpose. The recreated tracks on which the moving portion of the bridge used to travel could also be outlined in neon. The delicate overhead structure with its cutout date could be lit from concealed sources below.
- Remove and restore the major lanterns that crown the piers of the Congress Street Bridge. The piers themselves should be lit with cantilevered fixtures, and the massive counterweight strongly uplit.
- Strongly light the Boston Tea Party Ship at night. A sound-and-light program for the ship would enliven this area at night and support patronage of adjacent restaurants.
- Strengthen lighting within the glass-block columns of the Moakley Bridge (the New Northern Avenue Bridge). Retrofit the lantern fixtures with internal cutoff optics. There are too many lantern fixtures on this bridge, and they are not sufficiently shielded. Explore reduction of wattage, better shielding, and/or reduction of the number of these fixtures. Fixtures removed could be used elsewhere in the South Boston Waterfront.
- The Old Northern Avenue Bridge is the most complex structure of the four. Internal uplighting of the trussed columns is recommended, plus the installation of “sparkle globes” along the undersides of the top chords of the four main trusses of the bridge. Floodlight the two secondary piers and the main turntable from sources concealed under the bridge itself.
- Control lights on city poles and bridges with dusk-to-midnight photocell timers fed from city power. Lights mounted to the Boston Tea Party Ship, which is privately owned, will be on the ship’s control system and power, operated dusk to midnight.

BUDGET TO UPGRADE LIGHTING: \$350,000 – \$500,000 INSTALLED

Action Site: Fort Point Channel

Address: Summer Street, Congress Street, Old Northern Avenue, New Northern Avenue

Date: 1899–1998

National Register of Historic Places-eligible

Owner: City of Boston, Public Works Department

Granary Burying Ground and Gateway

ARCHITECTURE AND HISTORY

The Granary Burying Ground and Gateway on Tremont Street, designed by Solomon Willard in 1840, is a landmark on the Freedom Trail, widely visited by American travelers and international tourists. The granary for which the burial ground is named once stood on the site of the 1809 Park Street Church. This cemetery is the resting place of many noted American patriots including Paul Revere, Samuel Adams, John Hancock, Benjamin Franklin's family, and various other notables including Governor Increase Sumner, Robert Treat Paine, the victims of the Boston Massacre, and Mother Goose. The imposing granite Gateway is one of the few remaining examples of the Egyptian style popular for only a short time in the mid-nineteenth century, but frequently used in the burgeoning cemetery movement of the time. A prominent designer and engineer, Willard is most noted for his opening of the Quincy granite quarries from which source much of Boston's best architecture was fashioned, and for construction of the Bunker Hill Monument and other granite landmarks in Boston.

EXISTING EQUIPMENT

There is no existing lighting for the interior of the Granary Burying Ground. The Gateway receives some spill lighting from the street lights along Tremont Street, but not enough to feature it.

A traffic signal immediately in front of the Gateway detracts from its visual impact. As part of the proposed major reconstruction of Tremont Street, this signal and its associated crosswalk should be moved to the south, leaving the Gateway unobstructed. New street lighting along Tremont Street should be carefully reviewed to be sure it complements rather than obscures the Gateway.

LIGHTING POTENTIAL

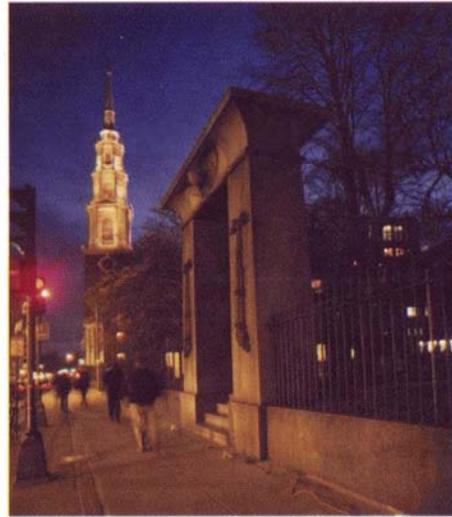
This important historic site disappears in the dark. Dramatic lighting of the Gateway would call attention to it for the many drivers and pedestrians who traverse the Tremont Street corridor at night. The addition of properly shielded, low-intensity "moonlight" floods on short



Proposed Lighting



Existing Conditions



poles behind major trees would make the headstones and monuments visible at night, without adding intrusive visual clutter during the day. Uplighting the centrally located Franklin monument would handsomely anchor the center of the composition.

RECOMMENDED LIGHTING DESIGN STRATEGIES

- Install inground uplighting, such as ceramic metal halide, in the sidewalk in front of the Gateway. A cool color is called for, to contrast with the orange high-pressure sodium of the street lighting and to bring out the natural color of the granite.
- Conduct a mockup to determine optimal locations from which to create a soft, even wash of cool-colored light over the headstones. Conceal fixtures on 12- to 18-foot poles behind major trees, as viewed from the street. Coordinate with the Boston Parks Department to be sure that installation of these poles does not damage tree roots.
- Install inground uplights using the same source as those lighting the Gateway to uplight the Franklin monument in the center of the burying ground.
- Control all lights with dusk-to-midnight photocell timers fed from city power.

BUDGET TO UPGRADE LIGHTING: \$25,000 – \$35,000 INSTALLED

Action Site: Granary Burying Ground and Gateway

Address: 83–115 Tremont Street

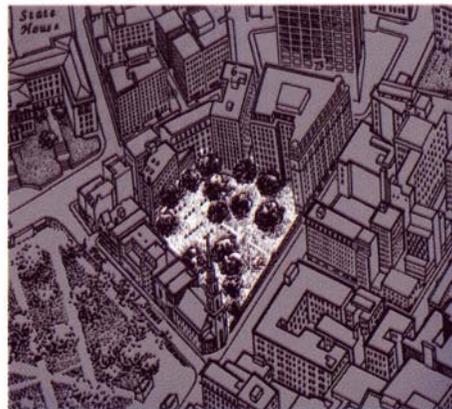
Architect: Solomon Willard

Date: 1840

National Register of Historic Places

Owner: City of Boston Parks and Recreation Department

1010 Mass Avenue, Boston, Massachusetts 02118



© 2000 Olden South Publishing

Hancock House / Boston Stone

ARCHITECTURE AND HISTORY

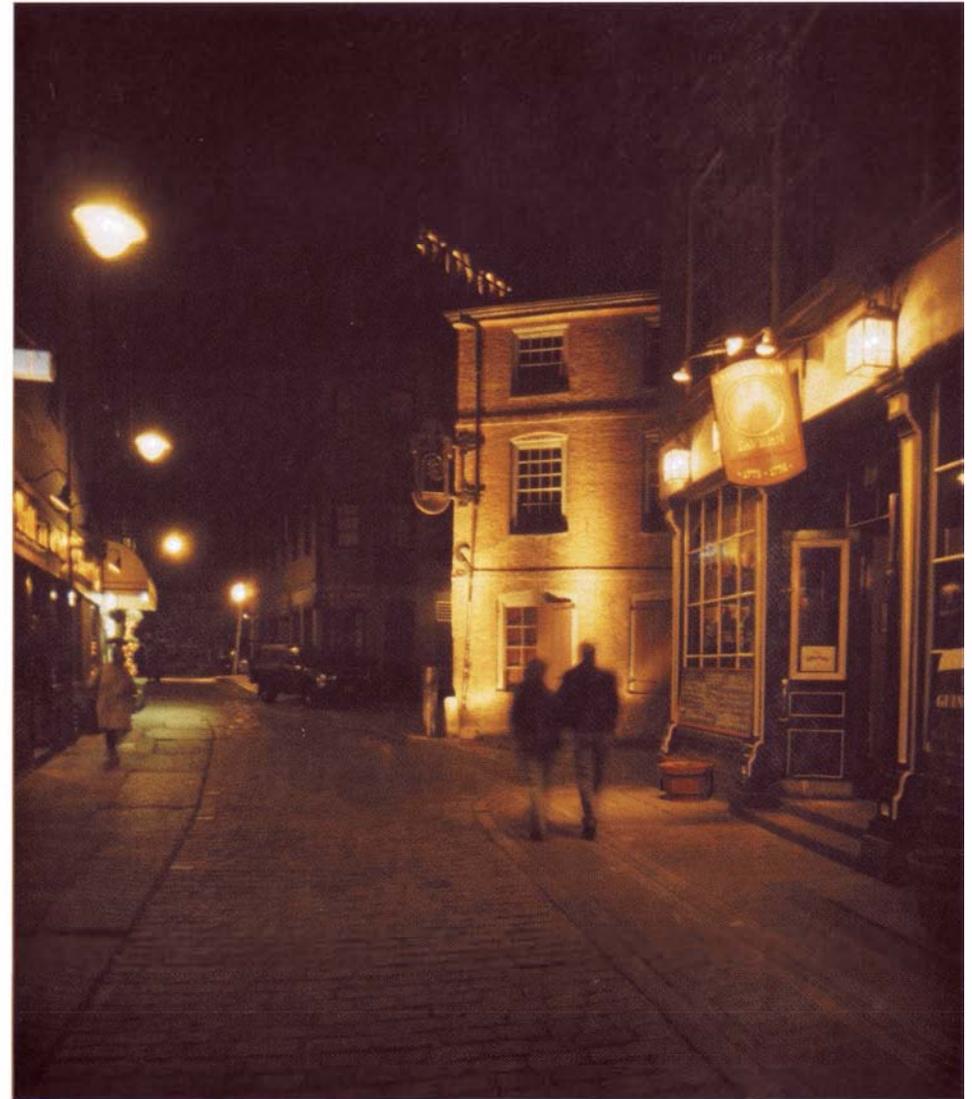
The Hancock House and the Boston Stone building on Marshall Street in the Blackstone Block represent “ground zero” in Boston both historically and geographically. The ensemble of the Blackstone Block represents the oldest grouping of historical buildings and urban streetscape still existing in North America. The Boston Stone is a remnant of Boston’s earliest industries. It is a paint mill dating from c. 1700, when Thomas Child used it to grind pigments. (Child’s “Painter’s Arms,” a carved wood sign that formerly occupied a now-bricked-up niche on the other side of the building, is on display at the Old State House today.) The round stone was set into the wall of the building (with its former trough as a pedestal) in 1737, where it has remained since. A legend, recently debunked, was that the stone was a milepost marker in measuring distances from Boston. The brick Hancock House opposite the stone, built in 1767, was owned by John Hancock and occupied by his brother Ebenezer. From here the silver coin loaned by the French in the Revolution was distributed to the American soldiers by Hancock, who was paymaster. The probable builder of the Hancock House was Ebenezer, himself a bricklayer, listed in the 1789 Boston Directory as “Mason, near the Boston Stone.”

EXISTING EQUIPMENT

There is no existing lighting for this landmark structure other than spill light from the street lighting — wall-bracketed, high-pressure-sodium pendant acorn refractor fixtures.

LIGHTING POTENTIAL

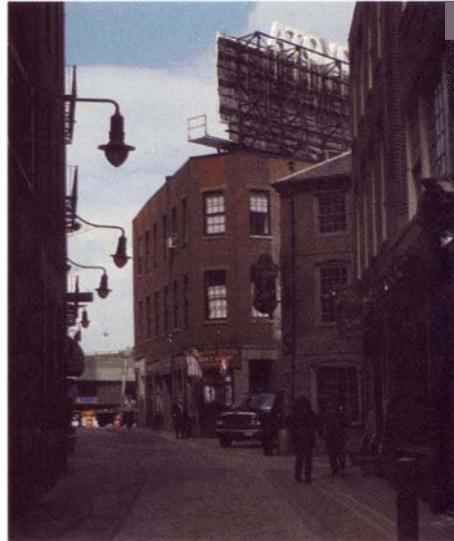
Illumination of this key historic structure would provide a visual terminus to the north end of Marshall Street as approached from restaurants to the south such as the Union Oyster House. Once the Central Artery has been depressed, the Hancock House could form part of a nighttime trail linking City Hall Plaza to the North End.



Proposed Lighting (Hancock House)



Existing Conditions (Hancock House)



Existing Conditions (Boston Stone Building)



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RECOMMENDED LIGHTING DESIGN STRATEGIES

- Install inground uplights to wash the Marshall Street facade as well as the facade facing Creek Square.
- Control ingrade lighting with dusk-to-midnight photocell timers fed from city power.

BUDGET TO UPGRADE LIGHTING: \$20,000 – \$30,000 INSTALLED

Action Site: Hancock House

Address: 10 Marshall Street

Date: circa 1700

National Register of Historic Places

Owner: Edward M. Swartz Trust

10 Marshall Street, Boston, MA 02108

Action Site: Boston Stone

Address: 114–120 Blackstone Street

Date: circa 1700

National Register of Historic Places

Owner: A I Trust

7 Marshall Street, Boston, Massachusetts

Long Wharf / Custom House Block

ARCHITECTURE AND HISTORY

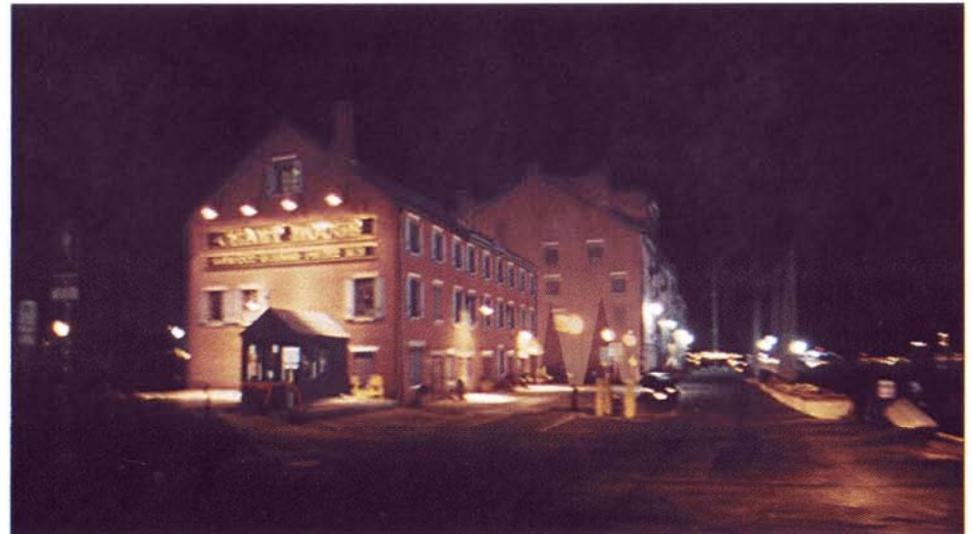
Long Wharf, a National Historic Landmark, and the Custom House Block are structures prominent in Boston for their significant history and for their visibility from both the land and the harbor. Built in 1710 and originally extending fifteen hundred feet into the harbor, the development gradually encroached over the Selectmen's "Circular Line," an ordinance designed to protect the harbor from over-zealous land development. From this wharf the British loaded and unloaded their troops during the Revolution (as seen in Paul Revere's famous 1768 view). Now only half of the old wharf remains. The Custom House Block, a granite and brick building built from 1845 to 1847 to the designs of Isaiah Rogers, is a prominent waterfront landmark where Nathaniel Hawthorne once served as Customs Inspector. The building was renovated by Anderson, Notter Associates in 1973 along with the nearby brick Gardner Building, c. 1800, now the Chart House restaurant.

EXISTING EQUIPMENT

Aside from the Waterfront Park fixtures on the wharf, existing lighting consists of cantilevered RLM reflectors with incandescent sources on the south and east facades of the Gardner Building currently occupied by the Chart House, three gaslights on the plaza in front of the Chart House, plus one contemporary wall bracket over the entry to the granite Custom House Block beyond. The rear of both structures facing Commercial Wharf and framing Waterfront Park is utilitarian, with projecting fire stairs and balconies, and is not illuminated.

LIGHTING POTENTIAL

Illumination of these two landmark structures would enhance the city's extensive Harbor Walk at night and offer a good view of the structures to passing boats in the harbor, extending the lighting of bridges and other waterfront structures proposed elsewhere in this Plan.



Proposed Lighting



Existing Conditions



RECOMMENDED LIGHTING DESIGN STRATEGIES

- Install inground uplights along the south facade of the Gardner Building, along the east facades of both structures, and along the brick north facade of the Custom House Block.
- Control ingrade lighting with dusk-to-midnight photocell timers fed from city power. Lights mounted to the building will remain its control system and power, operated dusk to midnight.

BUDGET TO UPGRADE LIGHTING: \$140,000 – \$160,000 INSTALLED

Action Site: Long Wharf/Custom House Block

Address: 62–70 Long Wharf

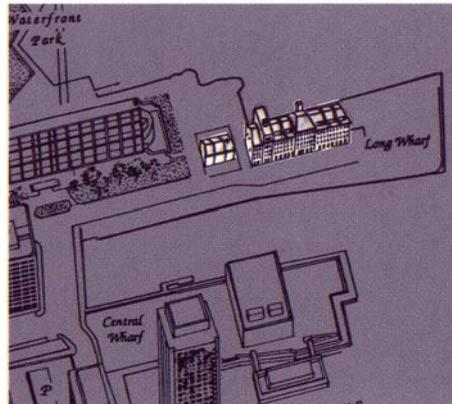
Architect: Isaiah Rogers

Date: 1845

National Register of Historic Places

Owner: E. L. V. Corporation

70 Long Wharf, Boston, Massachusetts



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Longfellow Bridge

ARCHITECTURE AND HISTORY

Spanning the Charles River at Cambridge Street, the Longfellow Bridge has been a regional landmark since its construction to the 1907 design of Edmund March Wheelwright. Wheelwright, who served as Boston City Architect (1891–1895), designed numerous Boston landmarks including the Massachusetts Historical Society, Horticultural Hall, the New England Conservatory, and the Opera House. One of the region’s favorites is his rather droll Harvard Lampoon Building in Cambridge. The Longfellow Bridge is known as the “Pepperpot Bridge” for its four sets of twin granite towers reminiscent of Victorian pairs of salt and pepper shakers. Wheelwright’s details (most notably the “Rostral Columns” of the towers with projecting Viking ship prows based upon a Roman tradition) were influenced by the columns he had seen in St. Petersburg, Russia, in front of the Bourse (now Naval Museum) on the spit of Basil Island near the Palace Bridge. The picturesque, arcaded Longfellow Bridge, visible from the Charles River Basin, provides some of the best views of the river to the riders of the MBTA Red Line trains that cross over it.

EXISTING EQUIPMENT

Existing lighting on the Longfellow Bridge consists of pendant acorn fixtures on street light poles, whose light falls almost exclusively on the roadway of the bridge and the MBTA right-of-way between the automobile travel lanes, and whose pattern has nothing whatsoever to do with the rhythm of piers and towers that give the bridge its gradual architectural crescendo and diminuendo.

LIGHTING POTENTIAL

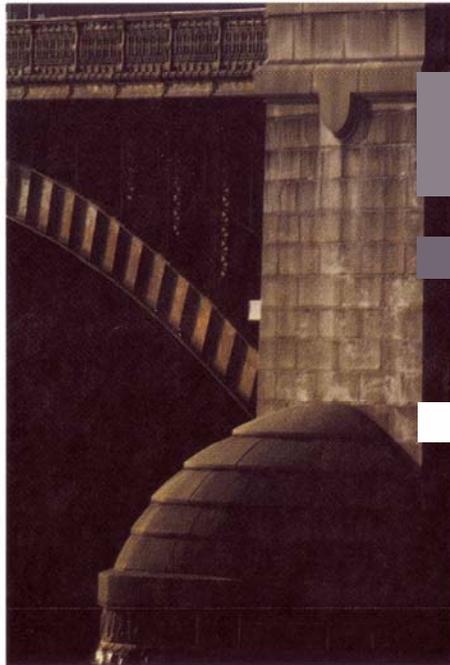
Though sorely in need of significant structural repair and a major renovation, the Longfellow Bridge stretches silently across the Charles River, waiting for its chance to bask in a long-deserved limelight, with its nighttime reflection shimmering beautifully in the mirror-like waters of the Charles. No other structure in Boston has the potential visual impact of this bridge, seen by thousands of abutters and commuters who daily traverse Memorial Drive,



Proposed Lighting



Photo by Susan Cole Kelly



© 2000 Old South Publishing

Existing Conditions

Storrow Drive, and the Esplanade. An illuminated Longfellow Bridge would become a premier backdrop to the Hatch Shell, where summer concerts on the Esplanade and Fourth of July fireworks are broadcast around the world, as well as a gateway to Boston and Cambridge.

RECOMMENDED LIGHTING DESIGN STRATEGIES

- Replace existing street lighting poles with paired poles aligned with the bridge's piers.
- Recreate the massive ornamental lanterns that originally graced the towers (one on each of the end towers, four each on the central salt-and-pepper-shaker towers that give the bridge its nickname).
- Install crosslighting for the heroic sculptures that ride the prows of the four central piers.
- Install ornamental lanterns on the round medallions at the face of each pier, above the rounded bases of the piers, to illuminate the faces of the piers and the rounded mass of the bases.
- Install powerful floodlights on the sides of the piers to uplight the iron arches supporting the spans of the bridge.
- Time street lights to run dusk to dawn. Control accent lights on city poles and lighting mounted to the structure of the bridge with dusk-to-midnight photocell timers fed from city power (Boston or Cambridge) or MDC power, as appropriate.

BUDGET TO UPGRADE LIGHTING: \$200,000 – \$300,000 INSTALLED

Action Site: Longfellow Bridge

Address: Charles River Basin

Architect: Edmund March Wheelwright

Date: 1907

National Register of Historic Places

Owner: Metropolitan District Commission

20 Somerset Street, Boston, Massachusetts

New Old South Church

ARCHITECTURE AND HISTORY

The New Old South Church, a National Historic Landmark, is on Boylston Street facing Copley Square. This highly ornamented feature of the square was designed and built in 1874–1875 to the design of Cummings and Sears, architects. Its unusual name is the result of being the successor to the Old South Meeting House of 1729, located downtown at Washington and Milk Streets. Northern Italian Gothic designs are the source of New Old South's multicolored stone inlays and alternating light-and-dark sandstone pointed-arch voussoir stones. Its picturesque campanile and Venetian lantern can be seen from many locations in the Back Bay neighborhood. The tower, originally 246 feet high, began to lean and was taken down in 1931 and rebuilt, somewhat shorter, in 1940. The building's attractive massing, with its projecting arcaded and many-gabled entry porch, is a focal point of this corner of Copley Square.

EXISTING EQUIPMENT

Like its neighbors Trinity Church and the McKim Building of the Boston Public Library, the New Old South Church was outfitted by William Lam Associates for Boston's 350th anniversary celebration with a sensitive program of low-powered facade lighting that focused on the detail of the building designed. The church is extremely difficult to light using fixtures mounted solely to the structure itself. Many of the existing fixture locations are almost inaccessible for relamping. As noted in earlier examples, the almost delicate lighting has been overwhelmed by recent additions to the streetscape.

LIGHTING POTENTIAL

If newly lighted with sufficient intensity and conviction to stand out clearly on its own above the visual noise and hubbub of Boylston Street, the New Old South Church offers an extraordinary example of the architecture of its time. The illumination of both the church's Boylston Street facade and the facing facade of the McKim Building are recommended in this Plan, as a "gate pair" heralding entry by car or on foot into Copley Square. Lighting upgrades for the New Old South Church should be coordinated with that of Trinity Church, the Copley Plaza Hotel, and the McKim Building to create a new, coordinated lighting strategy for Copley Square as a whole.



Proposed Lighting



Existing Conditions



RECOMMENDED LIGHTING DESIGN STRATEGIES

- Illuminate the Boylston Street facades and tower from fixtures mounted to new city street light poles along the north side of Boylston Street. The streetlights are to be equipped with internal cutoff optics to reduce their glare.
- Illuminate the Dartmouth Street facade from fixtures mounted to the city street light poles.
- Backlight from the church interior the two major rose windows facing Boylston and Dartmouth Streets.
- Illuminate the tower and the mass of the copper roofs from fixtures mounted on city poles and concealed on the roofs of adjacent properties. The lighting of sculptures along the Commonwealth Avenue Mall illustrates the effectiveness of this sort of collaborative venture.

Control lights on city poles and ingrade lighting with dusk-to-midnight photocell timers fed from city power. Lights mounted to the church will be on its control system and power, operated dusk to midnight.

BUDGET TO UPGRADE LIGHTING: \$35,000 – \$60,000 INSTALLED

Action Site: New Old South Church

Address: 645 Boylston Street

Architect: Cummings and Sears

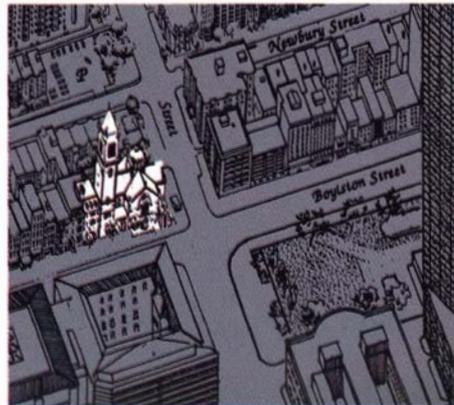
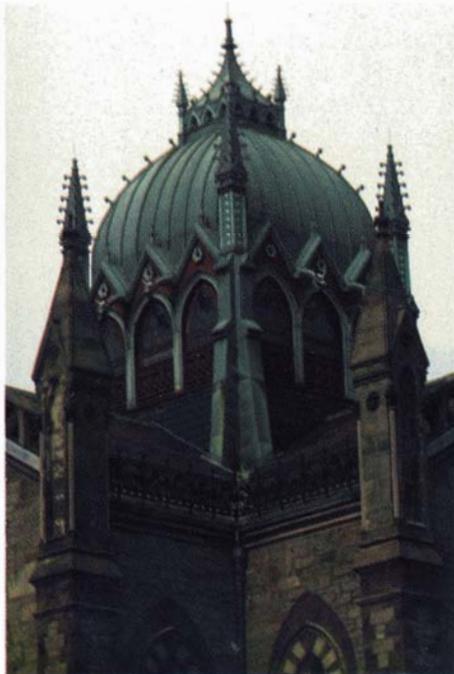
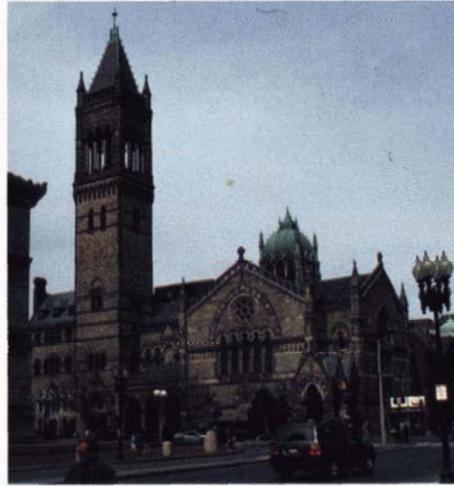
Date: 1874

National Register of Historic Places

National Historic Landmark

Owner: Old South Church in Boston

645 Boylston Street, Boston, Massachusetts 02116



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Old South Building

ARCHITECTURE AND HISTORY

The Old South Building, at 294 Washington Street between Water and Milk Streets, is adjacent to the Old South Meeting House of 1729. The history of the Old South Building is closely related to that of the church. In 1770, Col. Thomas Dawes designed a three bay, two-story Palladian-form commercial structure for this site that was intended to help subsidize the congregation. Built in 1800 in an expanded version of five stories, the former South Row's commercial success, along with the congregation's other investments, made Old South Meeting House one of the richest churches in the country. The present Old South Building, designed by Arthur Bowditch in 1902, replaced the 1800 structure. The large scale of Bowditch's Old South Building with its ornate masonry facade, interior shop arcades, decorative show windows, and offices above made it a commercial showcase. The positioning of the major facade on axis with School Street gives it high visibility.

EXISTING EQUIPMENT

There is no existing facade lighting for this excellent example of ornamental masonry and steel-frame commercial construction — a condition shared by many of the “Commercial Palace” district's finest commercial and business structures.

LIGHTING POTENTIAL

The building sits squarely on axis with School Street, which although only one block long is one of the major streets in the central business district. It is adjacent to and historically connected with the Old South Meeting House, which is also a Diamond Necklace site. Old Boston City Hall, which is very successfully lit at night, by Roger Webb, architect and William Lam, lighting designer, is nearby on School Street. The four churches along Tremont Street that are currently in the process of installing or upgrading their lighting as a result of Light Boston's initiatives are within a block or two, as is the Granary Burying Ground, also one of these 25 priority sites. The Old South Building forms one of the “walls” of the park at the intersection of School and Washington Streets, rich with a remarkably diverse collection of important Boston buildings from different periods, including the former Boston Five Cents Savings Bank of 1972, now a Borders book store, by Kallman McKinnell and Wood (architects of nearby City Hall), and the historic Globe Corner Bookstore.



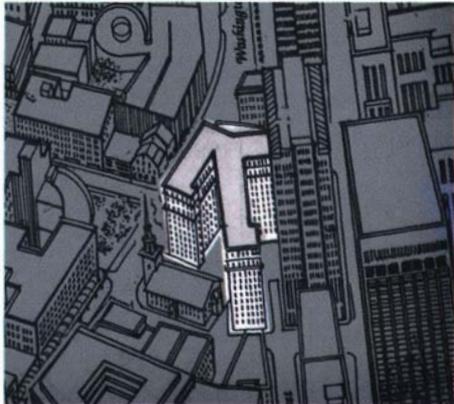
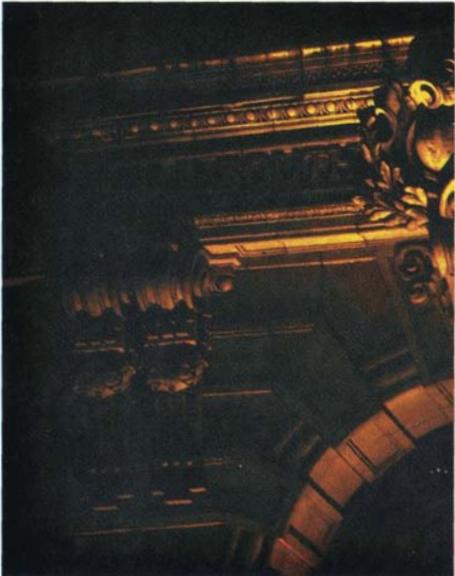
Proposed Lighting



Existing Conditions



Proposed Lighting



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RECOMMENDED LIGHTING DESIGN STRATEGIES

- Install inground uplights along the Washington and Milk Street facades.
- Use floodlights mounted on city-owned poles across Washington Street to light the upper portions of the Washington Street facade.
- Install cornice-mounted fluorescent lighting to accent the “capital” of the building.
- Install pole-mounted floods and install floods on the roof of the adjacent MBTA headhouse to light the interiors visible from Washington Street.
- Install major decorative lanterns appropriate in character at the Washington and Milk Street entrances to the building.
- Control lights on city poles and ingrade lighting with dusk-to-midnight photocell timers fed from city power. Lights mounted to the building will be on its control system and power, operated dusk to midnight.

BUDGET TO UPGRADE LIGHTING: \$175,000 – \$200,000 INSTALLED

Action Site: Old South Building

Address: 294 Washington Street

Architect: Arthur Bowditch

Date: 1902

National Register Historic of Places

Owner: RAK Old South Associates, LLP

6 Beacon Street, Boston, Massachusetts 02108

Old South Meeting House

ARCHITECTURE AND HISTORY

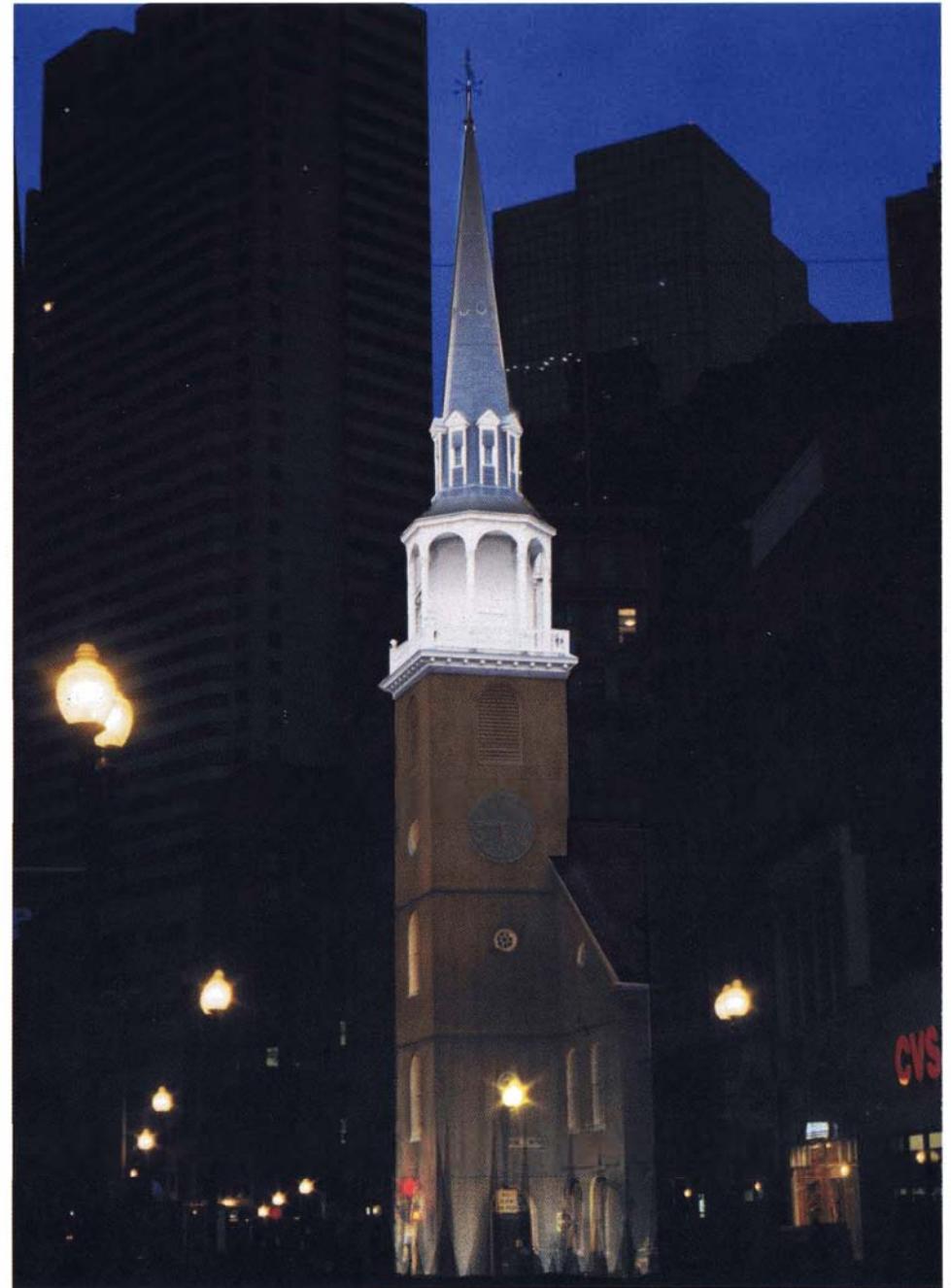
Old South Meeting House, at the corner of 310 Washington Street and Milk Street, is a National Historic Landmark that has been a significant feature of the Boston scene since its construction in 1729. Masons Joshua Blanchard and Nathaniel Emmes built the meeting house under the direction of Judge Samuel Sewall, all of whose initials are carved into the foundation along with the date. The former church retains its largely original timber spire and clocktower with its 1770 clock still keeping Bostonians on time. The brick tower and entry fronting on Washington Street are prominently visible diagonally across the corner from the base of School Street. This vista opened up in 1972 with the construction of the Boston Five Cents Savings Bank at 10 School Street (designed by Kallman McKinnell and Wood). Old South, where the Boston Tea Party was planned, is one of Boston's foremost historical icons.

EXISTING EQUIPMENT

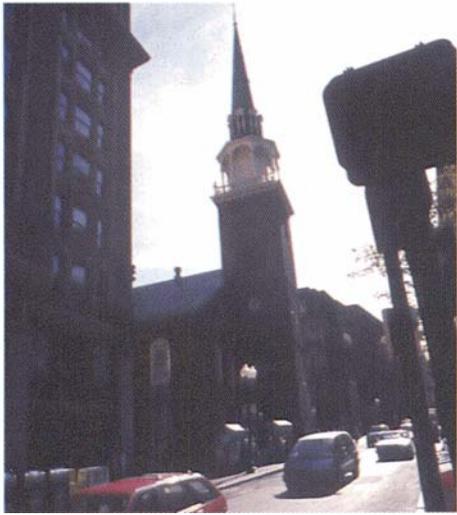
There is evidence of a facade lighting program at the Old South Meeting House, but it is deteriorated and a number of fixtures are either in need of repair or burned out. The high-pressure sodium acorn fixtures along Washington Street provide a wash of warm light across the facades and the tower, but the orange color of this light is not attractive and distorts the white trim of the building in an unpleasant manner. Two high-pressure sodium floods mounted on a concrete pole on the opposite side of Washington Street throw additional light on the tower. Original lanterns (including one exquisite cantilevered iron lantern at the south corner of the body of the church) could use refurbishing but are adequate to serve as "symbolic candles" for a more comprehensive lighting program.

LIGHTING POTENTIAL

The Old South Meeting House acts as a visual terminus at the western end of the Washington Street commercial district. Other structures along Washington Street recommended for lighting in this Plan are Filene's Department Store and the Paramount Theater. The Meeting House is adjacent to the Old South Building, also recommended for nighttime



Proposed Lighting



Existing Conditions



lighting treatment. Properly lit, along with the Old South Building (and possibly also the Old Globe Corner Bookstore nearby), this magnificent and historic church would form part of a synergistic nighttime experience around the plaza at the corner of School and Washington Streets, contributing greatly to the nighttime sense of place.

RECOMMENDED LIGHTING DESIGN STRATEGIES

- Restore and relamp existing exterior lighting.
- Add inground lighting to light the flanks of the church and the base of the tower, along the Washington and Milk Street facades.
- Increase coverage, consistency, and “punch” of lighting for the tower and spire. This may involve mounting fixtures on city-owned acorn poles across the street on Milk and Washington and, possibly, the installation of new poles.
- Control lights on city poles and ingrade lighting with dusk-to-midnight photocell timers fed from city power. Place lights mounted to the building on the building’s control system and power, operated dusk to midnight.

BUDGET TO UPGRADE LIGHTING: \$35,000 – \$50,000 INSTALLED

Action Site: Old South Meeting House

Address: 310 Washington Street

Date: 1729

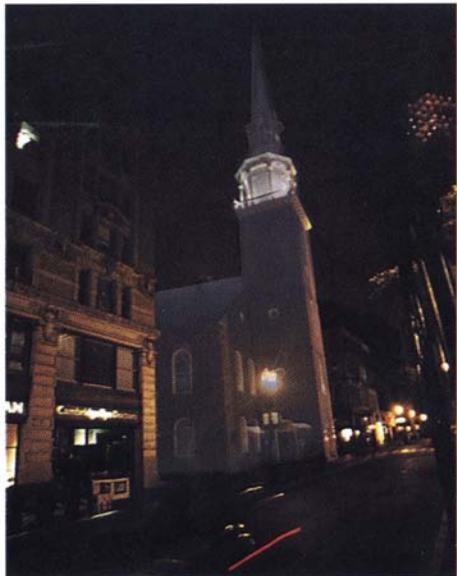
National Register of Historic Places

National Historic Landmark

Owner: Old South Association

310 Washington Street, Boston, Massachusetts 02108

Proposed Lighting



© 2000 Olde South Publishing

Old State House

ARCHITECTURE AND HISTORY

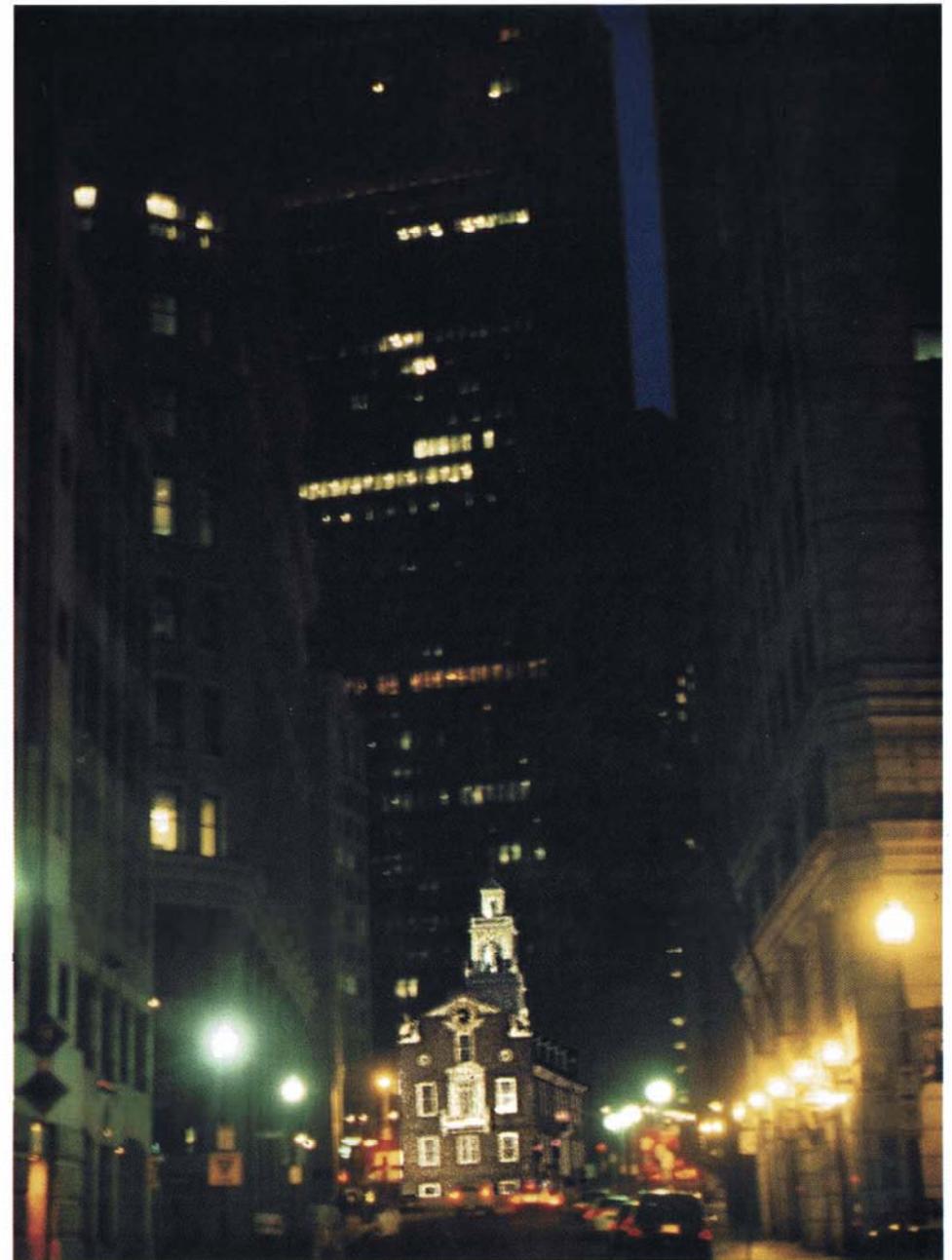
The Old State House at the head of State Street at Congress Street retains the brick walls of the 1712 building constructed by William Payne on the site of an earlier 1657 timber “Town House.” The Old State House was rebuilt in its present form after a fire in 1748. Its cupola lantern is based upon that of the old London Exchange. The merchants met on the ground floor, politicians met in the council, with representatives and court chambers located above, while wine merchants stored their wares in the cellar. During the Revolution, the Boston Massacre took place in front of the building and the Declaration of Independence was read from its balcony. After the construction of the new State House on Beacon Hill in 1798, the building became Boston’s Town House with stores occupying the first floor. In 1882, a restoration by architect George Clough removed commercial additions including a mansard roof and porticos added by Isaiah Rogers in 1830. Recently, the fine Willard clock in the east gable was restored by the Bostonian Society whose museum now occupies the premises. The Old State House’s Flemish stepped gables and restored carved lion and unicorn, symbols of the monarchy destroyed in the Revolution, make this an internationally known Boston icon.

EXISTING EQUIPMENT

The Old State House was dramatically lighted in 1986, at the same time as Faneuil Hall, by Alan Symonds of Ripman Lighting Consultants during the reconstruction of both structures under the architectural direction of Goody Clancy & Associates. This installation needs careful refurbishing and relamping. Opportunities exist to extend the scheme.

LIGHTING POTENTIAL

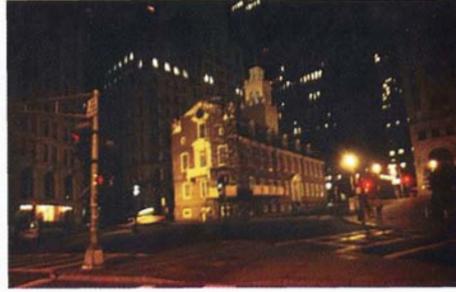
The Old State House is one of the prime historic sites between Downtown Crossing and City Hall Plaza. It stands at the juncture of State Street and Washington Street, each of which offers a rich architectural heritage, including a number of sites in this Plan. The Old State House should be an important stop on a nighttime walking tour of the Diamond Necklace.



Proposed Lighting



Existing Conditions



RECOMMENDED LIGHTING DESIGN STRATEGIES

- Restore and re-aim the original floodlighting installations, which consist of paired high-pressure sodium and metal halide fixtures on city poles to the north and east of the building.
- Install similar lighting to the west of the building to make it visible from Cambridge Street.
- Add uplighting to highlight the eagle on the west facade. A mockup should be conducted to determine the optimum location for this fixture, but the logical choice is one or more inground fixtures in the brick plaza between the building and Washington Street.
- Place lights mounted to the building on the building's power and control, operated dusk to midnight. Operate inground fixtures and fixtures mounted on city poles on city power, run by photocells from dusk to dawn.

BUDGET TO UPGRADE LIGHTING: \$15,000 – \$20,000 INSTALLED

Action Site: Old State House

Address: 206 Washington Street

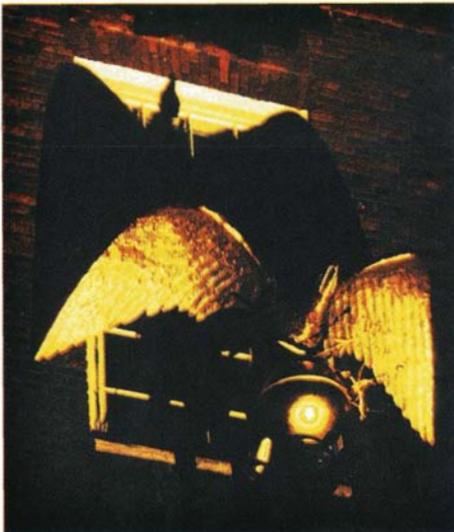
Date: 1712 – 1713; rebuilt 1748

National Register of Historic Places

National Historic Landmark

Owner: City of Boston

206 Washington Street, Boston, Massachusetts 02109



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Paramount Theater

ARCHITECTURE AND HISTORY

The Paramount Theater at 549 Washington Street was built to the design of architect Arthur Bowditch from 1930 to 1932. A rare survivor of Hollywood's golden era of the 1930s, the Art Deco facade of the theater with its projecting "Moderne" sign demonstrate that some industries, especially films, thrived despite the Depression. One of the few survivors of Boston's movie palaces, the Paramount has been described as Boston's best Art Deco theater. The upright "Paramount" sign and its marquee are said by Douglass Shand-Tucci in his book *Built in Boston* to be "magnificent multicolored electrical extravaganzas whose thousands upon thousands of dancing light bulbs endowed Boston's theater district with a kind of incandescent splendor that typified 'downtown.'" The interior is also notable for Oriental walnut and African ebony woodwork inlaid with geometric aluminum and gold ornament. The decoration of this Boston theater served as a prototype for Paramount theaters nationwide.

EXISTING EQUIPMENT

The facade of the Paramount Theater is in sad condition, as are the remains of the two impressive marquee signs. None of the original neon or incandescent lighting is functional. A substantial effort has been underway for the past decade to restore the Paramount to an operational theater, but so far without success.

LIGHTING POTENTIAL

Restoration and reanimation of this facade would create a major landmark within the Theater District, which is undergoing a process of re-definition at this time. Illuminating the Paramount facade would also create a dramatic presence on Washington Street, honoring the past of this major commercial thoroughfare and contributing to its renaissance. With the revitalization of Lafayette Place and the large-scale new construction of Millennium Place, as well as other initiatives, this part of lower Washington Street is well on its way to again becoming a vibrant entertainment and commercial district.



Proposed Lighting



Existing Conditions



RECOMMENDED LIGHTING DESIGN STRATEGIES

- Restore and reanimate the two marquee signs.
- Mount dual-source HID uplights on top of the canopy to wash the facade above. Install two powerful, programmable fixtures capable of strong, changing washes of color—such as Irideon— at the bases of the two major pilasters that grace the upper facade.
- Place lights mounted to the building on the building's control system and power, operated dusk to midnight, unless funded by and operated for the benefit of another body, such as the city or the theaters in the district.

BUDGET TO UPGRADE LIGHTING: \$175,000 – \$200,000 INSTALLED (INCLUDING SIGNS)

Action Site: Paramount Theatre

Address: 549–563 Washington Street

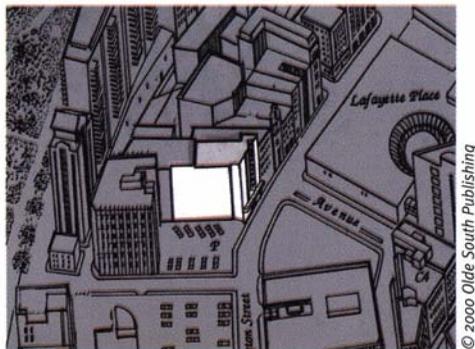
Architect: Arthur Bowditch

Date: 1930

National Register of Historic Places

Owner: Millenium Partners MDA

Address: 75 Arlington Street, Boston, Massachusetts



Sears Crescent / Sears Block

ARCHITECTURE AND HISTORY

The Sears Crescent and Sears Block, on City Hall Plaza at Court and Cambridge Streets, form the south side of the principal approach to Boston City Hall and the promenade leading to Faneuil Hall Marketplace. The curved brick facade of the Sears Crescent, built in 1816, recalls Charles Bulfinch's earlier Tontine Crescent of 1794, which stood on the curve of Franklin Street. The Sears Crescent's five-story central pavilion (originally crowned by a pediment) and flanking four-story wings are now topped by a one-story mansard addition. Renovated by Don Stull Associates in 1969 after the construction of City Hall Plaza and Government Center on the site of old Scollay Square, the Sears Crescent and neighboring trabeated-granite Sears Block of 1848 recall the scale and form of late-eighteenth-century Boston commercial buildings. The contour of the Sears Crescent follows the lines of old Cornhill (formerly Market Street). These buildings along with Faneuil Hall and Quincy Market buildings, the Old State House, and the Blackstone blocks are the last vestiges of the historic old street blocks in the Government Center area. The curved form of the Sears Crescent inspired the later Center Plaza Building by Welton Beckett and Associates (1966 – 1969). These two buildings are the principal features forming the south side of Government Center plaza and tangible reminders of the commercial roots of the area.

EXISTING EQUIPMENT

The only existing lighting for the Sears Crescent and Sears Block is spill light from the "lollipop" mercury vapor globes on City Hall Plaza.

LIGHTING POTENTIAL

With the nearby Ames Building and the Custom House, these handsome structures represent the commercial heritage of historic Boston. The Sears Crescent and Sears Block along with City Hall and the 1-2-3 Center Plaza building form the "walls" of City Hall Plaza, which suffers badly at night from the lack of well-defined edges and central focus. Illumination of the Sears Crescent and Sears Block should concentrate on defining the massing of these buildings and their solidity rather than on their less substantial features.



Proposed Lighting



Existing Conditions



RECOMMENDED LIGHTING DESIGN STRATEGIES

- Illuminate the facades and slate roofs facing City Hall Plaza from inground uplights as well as pole-mounted floodlights.
- Replace the existing “lollipop” posttop fixtures with more contemporary luminaires that have better optical control and emit less glare.
- Softly uplight the dormer windows that punctuate the roofline of the Sears Crescent.
- Control lights on city poles and ingrade lighting with dusk-to-midnight photocell timers fed from city power. Place lights mounted to the buildings on the individual building’s control systems and power, operated dusk to midnight.

BUDGET TO UPGRADE LIGHTING: \$35,000 – \$50,000 INSTALLED

Action Site: Sears Crescent / Sears Block

Address: 100 City Hall Square

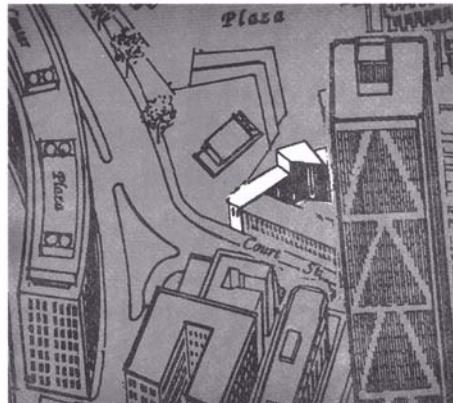
Architect: Unknown

Date: 1816

National Register of Historic Places

Owner: Copley Realty Advisors, Inc.

100 City Hall Plaza, Boston, Massachusetts



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State House

ARCHITECTURE AND HISTORY

The State House is one of the architectural masterpieces of Charles Bulfinch, who prepared his first plan in 1787 at the age of 34, directly upon his return from a grand tour of Europe, during which he had admired the new English architecture in the neoclassical style. Located on the site of one of the houses of John Hancock, the building has been extended several times from Bulfinch's original design. It has a commanding presence from Beacon Street and throughout the Boston Common. The dome of the State House, originally of white-washed wood shingles, is one of the widely recognized architectural icons of the city and of Beacon Hill in particular, but was not gilded until 1861.

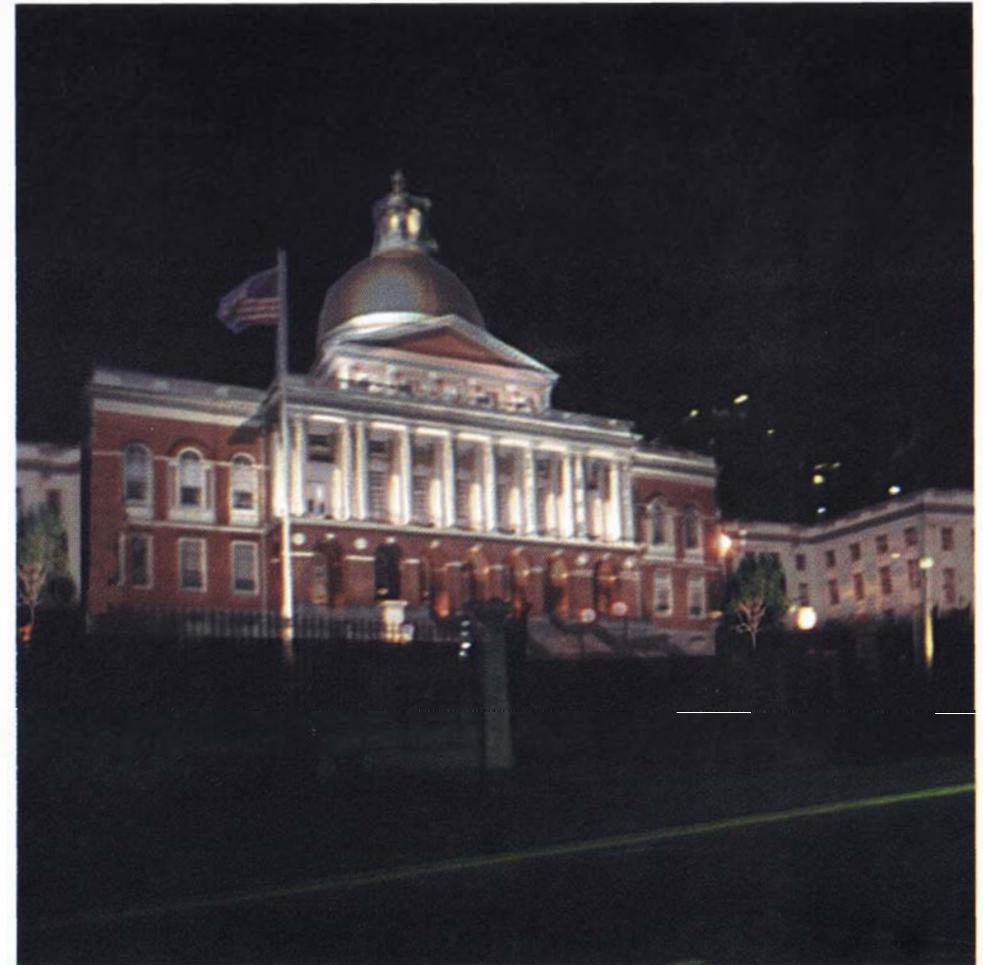
EXISTING EQUIPMENT

The State House is already illuminated but significant potential exists for enhancement. Existing equipment shows considerable deterioration. We are advised that the current \$33,000,000 renovation of the State House will include only a modest exterior lighting upgrade to be designed by Lam Partners — far smaller than what is proposed here.

Existing equipment includes concealed metal halide floodlights in the second-level portico, as well as 100-watt metal halide ground-mounted floods for the main facade, which are concealed behind the bases of two statues as well as pedestal-mounted in the lawns. Metal halide spotlighting for the dome and the main facade is concealed behind landscape elements and piers along the street perimeter of the site. Incandescent lanterns at various key points around the site serve as “symbolic candles” that “explain” the concealed lighting. Deeply patinated bronze statues are uplighted with 100-watt quartz bullets, which do not have enough “punch” to create a real focus on the statues at night.

Inground fixtures uplight the cherry trees in the patios on either side of the main block of the building. These fixtures were adapted to serve as wiring compartments for 100-watt quartz bullet uplights during the most recent lighting upgrade. Similar fixtures uplight two flagpoles in front of the main block.

The lighting of the dome is uneven (domes are difficult to light if adequate remote locations do not exist). The cupola is visually separated from the dome that supports it.



Proposed Lighting

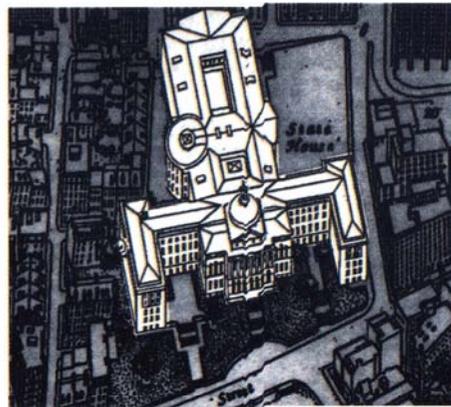
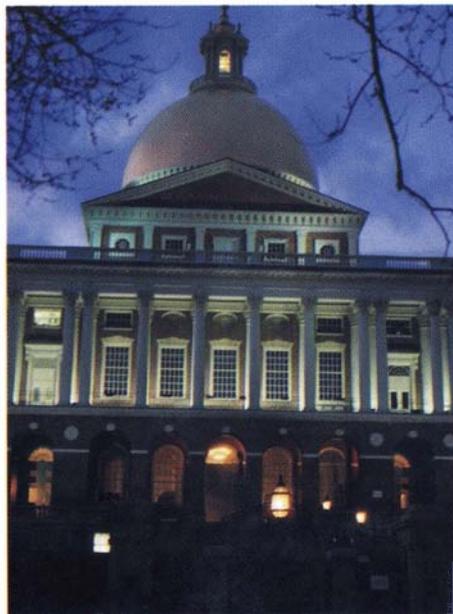
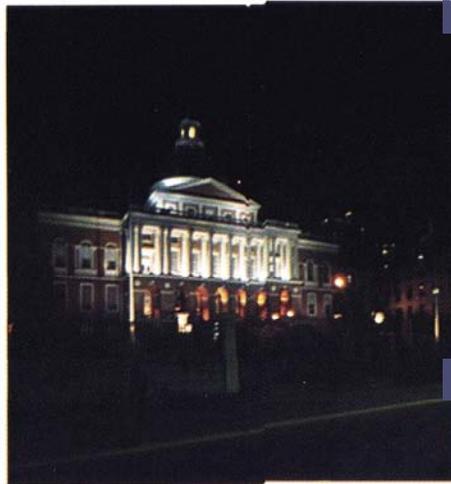
LIGHTING POTENTIAL

Overall illumination levels should be increased 30–50% on the Bulfinch portion of the structure. The additions, being less distinguished, can be somewhat muted.

There is potential to enhance existing lighting by extending illumination to the east and west wings, and to capture the full mass of the architectural composition by increasing illumination of the dome and by increasing illumination of the lower brick arcade under the main portico to bring the lighting “down to grade.”



Existing Conditions



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For the east and west wings, additional ground-mounted metal halide uplighting would complement the grey stone and set these later elements off from the brick of Bulfinch's original structure. Uplighting of the loggias at the upper floors of these wings with their handsome columns and capitals would create a desirable feature to complement the overall floodlighting of the wings.

Existing landscape uplighting on specimen cherry trees and the major trees at the west entry to the site from Beacon Street should be replaced with modern equipment, as should the uplighting for the statues of Henry Cabot Lodge, Anne Marbury Hutchinson, Horace Mann, Daniel Webster, and Mary Dyer. Intensity on these statues should be increased to 250% of the current level. Lighting should be added for the equestrian statue of General Hooker and the statue of John Fitzgerald Kennedy, which are currently unlighted. Effective lighting for each could be concealed in adjacent trees.

In addition, moving the existing cobrahead light fixture east of the site on the north side of Beacon Street to the other side of the street would eliminate a glare source and simultaneously enhance the ambient lighting of the Robert Gould Shaw Memorial opposite.

RECOMMENDED LIGHTING DESIGN STRATEGIES

- Repair and refurbish existing incandescent lantern fixtures on the south lawn and perimeter fence along Beacon Street.
- Install new floodlighting for Bulfinch building, increasing strength to 150% of that currently illuminating the center mass of the building.
- Install additional uplighting for the dome.
- Install new uplighting for the east and west wings.
- Install new uplighting in the upper loggias of the east and west wings.
- Install new, stronger interior lighting for the lower portico (replace existing lighting).
- Replace existing statue uplighting with more powerful inground equipment (250% of existing candlepower).
- Add tree-mounted lighting for the Hooker and JFK statues.
- Replace existing tree uplighting with modern inground equipment.
- Move one cobrahead light fixture immediately to the east of the site on Beacon Street to the opposite side of street, next to the Shaw Memorial.

BUDGET TO UPGRADE LIGHTING: \$150,000 – \$190,000 INSTALLED

Action Site: State House

Address: Beacon Street

Architect: Charles Bulfinch

Date: 1795

National Register of Historic Places

National Historic Landmark

Owner: Commonwealth of Massachusetts

TRINITY CHURCH

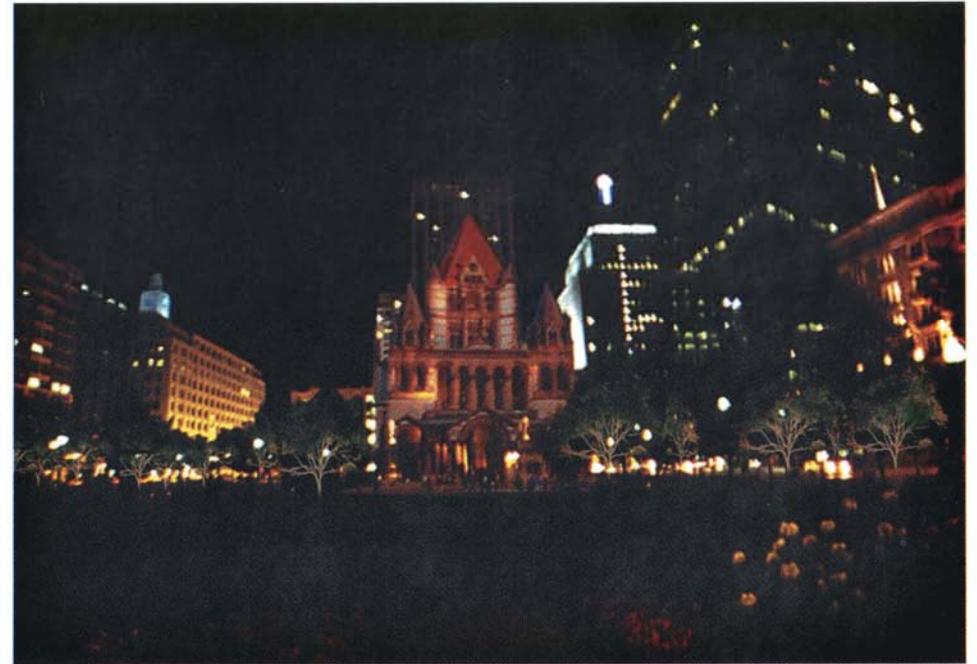
ARCHITECTURE AND HISTORY

Trinity Church in Copley Square, designed by the eminent architect Henry Hobson Richardson in his renowned Richardsonian Romanesque Style, was built between 1872 and 1877.

Described by the *A.I.A. Guide to Boston* (Southworth and Southworth, 1984, 1992, Boston Society of Architects, Globe Pequot Press, Chester, CT) as “one of the great monuments of American architecture,” the building was featured in a U.S. government architectural commemorative stamp series. It rivals Richardson’s other masterpieces, the Allegheny Courthouse in Pittsburgh and the Marshall Field Wholesale Store in Chicago. Trinity Church’s richly colored Longmeadow sandstone and granite facade has all the hallmarks of Richardson’s style in the Romanesque arches of the main gabled doorways, checkerboard-patterned stonework, and ornamental foliate capitals carved in high relief. The church’s twin flanking octagonal and gabled turrets and its huge pyramidal central tower with their red tile roofs dominate the east side of Copley Square. The projecting porticoes were added later to the building at the urging of Richardson, and completed after his death. On the Boylston Street side is the noted Parish House with its cascading stairway, stepped window openings, and connecting cloister. The Church Rectory of 1879, also designed by Richardson, is nearby at 233 Clarendon Street.

EXISTING EQUIPMENT

Trinity Church, perhaps Henry Hobson Richardson’s masterpiece, is located at the heart of Copley Square and the Back Bay, along with the McKim Building of the Boston Public Library. The structure was illuminated some years ago, with great restraint and delicacy by William Lam Associates, at the same time as New Old South Church. The installation consisted of refurbishing existing fixtures and adding new, low-powered incandescent sources to highlight key elements of the architectural detail and massing.



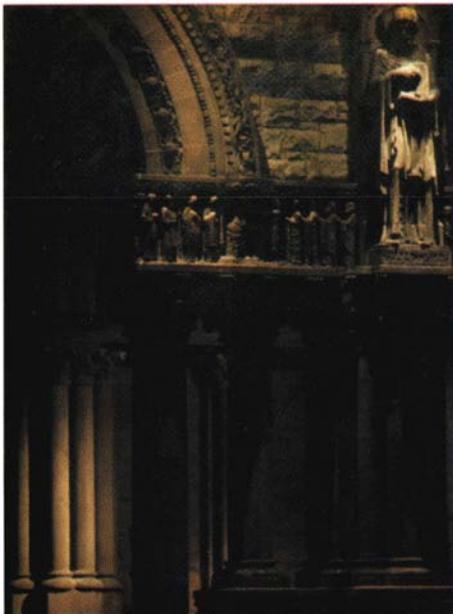
Proposed Lighting



Existing Conditions



Existing Lighting



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LIGHTING POTENTIAL

The existing lighting needs maintenance and relamping. However, the gradual increase in ambient brightness of the surrounding street lighting, particularly that along Boylston Street with its unrestrained commercial lighting, plus the dramatic floodlighting of nearby buildings such as the Copley Plaza Hotel and the old John Hancock Tower on Berkeley Street have robbed the original facade lighting of its impact. Additional, more powerful lighting is required to celebrate this building if it is to assume the preeminence it deserves in the visual hierarchy of Copley Square at night. This lighting should be considered in the context of and coordinated with the lighting upgrades of the New Old South Church and the McKim Building, and with the public lighting of Copley Square.

RECOMMENDED LIGHTING DESIGN STRATEGIES

- Refurbish, relamp, and extend where appropriate the existing exterior lighting, which focuses on the detail of the building.
- Explore replacing existing quartz fixtures with more powerful high-intensity discharge equipment of appropriate (incandescent) color temperature. This will almost certainly require the use of dual source fixtures. If doing so compromises the consistency of color of illumination, new sources should be incandescent or quartz. The architectural integrity of the church and its materials absolutely demands coherence and consistency in the lighting treatment.
- Add discrete new poles and inground uplights, with dual sources if required, to light the mass of the building, tower, and roof, and to anchor the building firmly to the plaza.
- Extend facade illumination to the adjacent Rectory.
- Control glare from acorn fixtures on all adjacent streets by replacing or retrofitting with semi-cutoff refractive globes or internal refractors. Explore reducing the wattage of these acorns.
- Control lights on city poles and ingrade lighting with dusk-to-midnight photocell timers fed from city power. Place lights mounted to the building on the building's control system and power, operated dusk to midnight.

BUDGET TO UPGRADE LIGHTING: \$150,000 – \$195,000 INSTALLED

Action Site: Trinity Church

Address: 233 Clarendon Street

Architect: H. H. Richardson

Date: 1872

National Register of Historic Places

National Historic Landmark

Owner: Trinity Church in Boston

233 Clarendon Street, Boston, Massachusetts 02116

Designing the Necklace: Models, Process, Consensus

Shining Success Stories In and Around Boston

Some years ago, the revolutionary urban planner Kevin Lynch suggested that we conceptualize and find our way around in cities by developing an awareness of their structure in terms of five distinctions: landmarks, districts, paths, edges, and nodes.

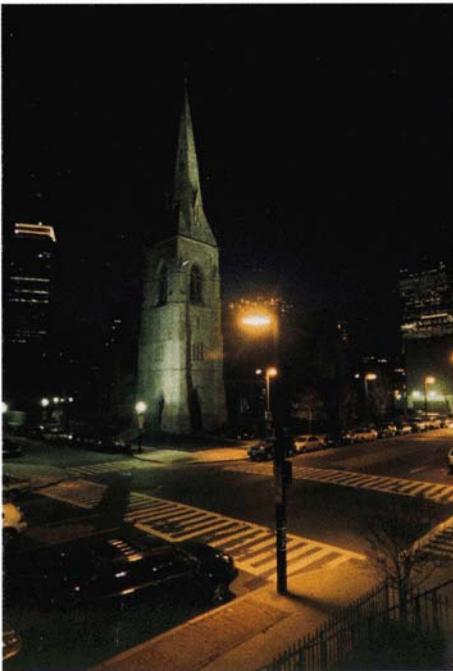
Landmarks are iconic points of reference, such as the State House or the John Hancock tower. *Districts* are areas of the city that share some common characteristic(s), such as historic period or predominant ethnicity of occupancy, as in Beacon Hill or the North End. *Paths* are primary routes that link us to our destinations; Commonwealth Avenue and the Freedom Trail come to mind in Boston. *Edges* are places where the character of the city changes, such as along a river or at the edge of an historic district. The shoreline of downtown Boston is its primary edge, punctuated by the paths (and landmarks) that are its bridges to Cambridge, East Boston, Charlestown, and South Boston. *Nodes* are places where important paths come together, such as City Hall Plaza.

The following lighting success stories from the Boston area are intended to be illustrative and exemplary rather than exhaustive. They represent real-life models of the potential benefits and beauty to be realized in the first 25-jewel strand in the Diamond Necklace.

ILLUMINATED LANDMARKS

The Steeples Project of Historic Boston Incorporated

For the last several years, by providing matching grants (as well as its considerable expertise in the matter of conservation and restoration), Historic Boston, with lighting designer Alan P. Symonds, has been working with the city and the owners of nonprofit religious organizations to illuminate the steeples of churches throughout Boston. The underlying intent of promoting community pride and enhancing the sense of place in various neighborhoods has been quite successful. The result: nine church steeples illuminated to date, with three more in the planning and design stages.



Union United Methodist Church illuminated through the Steeples Project of Historic Boston, Inc. with the cooperation of the City of Boston Public Works Department.

The Emerson Majestic Theatre

Subsequent to its acquisition by Emerson College, the Majestic Theatre was refurbished and its facade given a truly outstanding lighting treatment designed by Lance Olsen. When there is no show playing, banners for the college are uplit and a major LED animated sign provides dramatic announcements of upcoming events. On evenings when there is a performance, sparkling incandescent lamps outline the marquee as well as the arches of the facade and the poster boards along the sidewalk. (An estimated eight hours per week of professional programming is required to keep the display current and sparkling with colorful moving images and graphics.)

The Museum of Fine Arts, Boston

In the spring of 1997, the Museum of Fine Arts (1907, Guy Lowell, architect) celebrated the recent re-opening of its Huntington Avenue entrance with exterior lighting designed by John Kennedy. Recently illuminated with the collaboration of GE Lighting, the Museum of Fine Arts now presents a dramatic facade to Huntington Avenue at night.

The Landmark Building (the former United Shoe Machinery Building, 160 Federal Street)

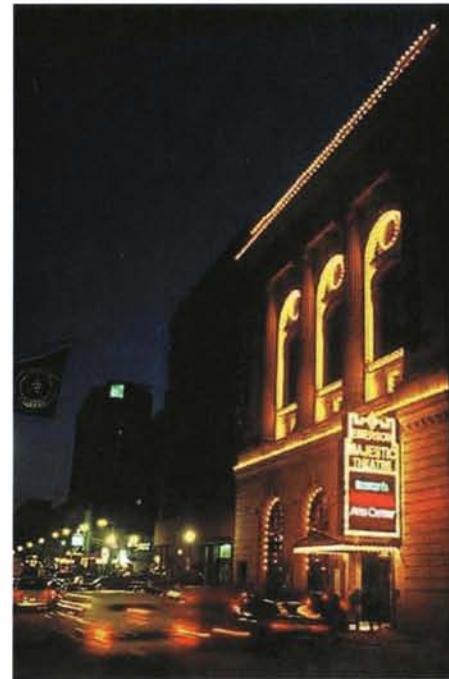
When they renovated the building in the 1980s, the owners of the Landmark Building (1928–1930, Parker, Tomas and Rice, architects) not only restored period fixtures in the ornate Art Deco Lobby but also reinstalled and upgraded the floodlighting scheme from the 1930s. This facade lighting program, designed by Ripman Lighting Consultants with Jung Brannen Architects, combines high-pressure sodium lighting for the green tile roof that crowns the structure and mercury vapor floodlighting for the upper tiers of the “wedding cake,” with powerful metal halide units mounted on the lower roofs above the entry to bring the composition down to grade. The massive American flag flying from the highest roof is lit with metal halide and high-pressure sodium floodlights, which together closely mimic incandescent light (while using sources with five times the efficiency and ten times the life of incandescent).

101 Federal Street

The 101 Federal Street building, (Kohn, Pedersen & Fox, 1988) emphasizes its synergy with the earlier 75 Federal Street building (Thomas M. James, 1929), through dramatic facade lighting and playful cornice ornament, designed by Jerry Kugler Associates, New York. The rooftop solution is a decided contribution to the increasingly interesting nighttime skyline of “signature” buildings.

The John Hancock Building (Berkeley Street tower)

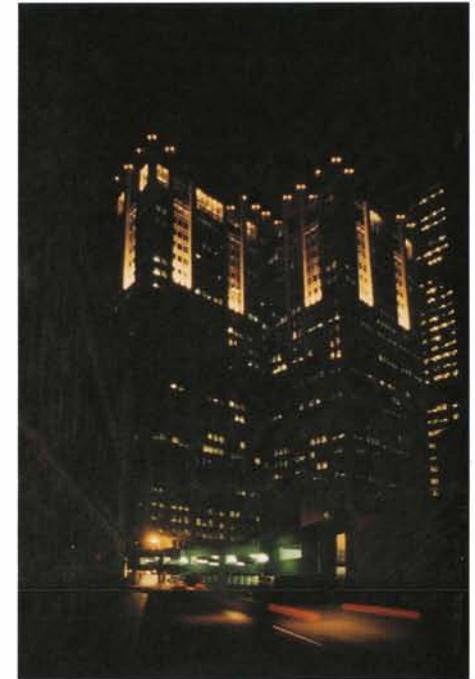
Crowned by its colorful animated weather beacon (“steady blue, clear view,” etc.), the Berkeley Street tower of the John Hancock (“the old John Hancock Building,” 175 Berkeley Street, Cram & Ferguson, 1947) emerged from the shadows in the 1980s with a well-crafted scheme of metal halide floodlighting, which handsomely complements the cool limestone of the facade. However, the design fails to link the lower floodlit masonry mass of the building with the beacon floating above. The omission of lighting for the stepped “ziggurat” of the roof separates the beacon from the base of the structure. We recommend new lighting to rejoin the base to the beacon.



The Emerson Majestic Theatre



The Museum of Fine Arts, Boston



101 Federal Street



The Landmark Building

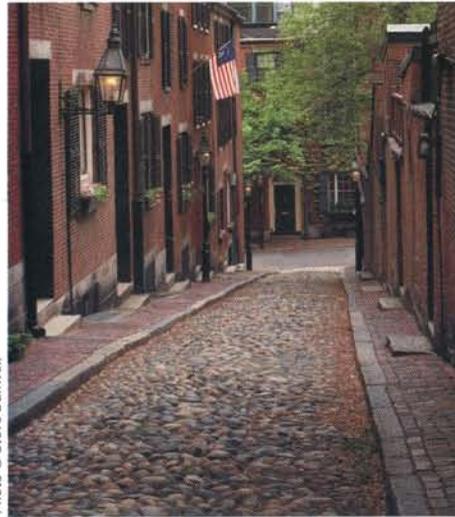


The John Hancock Building

Photo by Lance Olsen courtesy of Emerson College



The Dorchester Heights Monument, South Boston



Acorn Street, Beacon Hill



The Parkman Bandstand, Boston Common



The Dorchester Heights Monument (South Boston)

The park and monument on Dorchester Heights in South Boston project a commanding presence from the south and east. The monument commemorates a key moment in American history: the occupation of the Heights by Revolutionary War soldiers, which forced the British to evacuate Boston Harbor. Reconstructed in 1997 (Ann Beha Associates, architects with Child Associates, landscape architects, and Ripman Lighting Consultants), the park received new site lighting consisting of traditional-styled metal halide refractor post-tops, crowned by dramatic floodlighting for the monument itself. Visible for miles from the south, the Dorchester Heights monument demonstrates how strong lighting can bring a landmark to life on the city skyline at night.

DISTINCTIVELY LIT DISTRICTS

The Beacon Hill Historic District

Beacon Hill's period gas street lights complement its striking architectural character and give it scale and distinctive nighttime ambiance, unquestionably contributing to "the Hill's" desirability as a place to live as well as being a perennial tourist attraction.

The Boston Public Garden and the Boston Common

The consistent use of cool-color sources in acorn globes throughout the Public Garden and the Common, which contrast nicely with the high-pressure sodium fixtures of the surrounding streets, helps to create strong identity and character for these two parks. The mercury vapor and metal halide lamps in these fixtures pleasantly highlight the cool greens of the foliage overhead and the grass beneath. The additional highlighting of key features, such as the Parkman Bandstand, recently renovated (McGinley Hart Associates, Architects), enhances the park, increases safety, and discourages vandalism.

CLEARLY DEFINED PATHS

Marlborough Street

The only street within the Back Bay to be lighted with gas, Marlborough Street has a unique character that is clearly perceivable at night. User preference surveys administered by William Lam Associates in the 1970s showed that pedestrians had a clear preference for the gas lighting of Marlborough Street over that of its parallel neighbors, even though light levels were substantially lower on Marlborough Street.

Commonwealth Avenue (Mall and Statue Lighting Program)

When it was relighted with period lanterns with clustered incandescent sources during the 1970s, to a design by William Lam Associates Commonwealth Avenue stood out at night as the grand pedestrian and vehicular mall that it is during the day. The spine of the Back Bay district shimmered attractively at night, its statues lit (Ripman Lighting Consultants) with shielded pinspot sources concealed on the roofs of buildings on each side of the mall (a result of the efforts of the neighborhood group spearheaded by Stella Trafford and others). The recent conversion of the lanterns to high-pressure sodium is most unfortunate and detracts badly from the character of Commonwealth Avenue at night. Either the incandescent lighting should be restored with state-of-the-art technology for voltage reduction to

Photo © Steve Dunwell

extend lamp life, or the high-pressure sodium sources should be filtered to improve the color and the refractors should be modified to create the impression of four or eight individual point sources in each fixture.

The Freedom Trail

Though unlighted at night, the Freedom Trail is a textbook example of a successfully defined path during the day. A remarkable byproduct of the implementation of this Plan would be the creation of inviting nighttime paths — linking Copley Square with the Theater District along Tremont Street, for instance, or linking the Washington Street shopping mall to Government Center and the North End with distinctive lighting.

WELL-DEFINED EDGES

The Harbor Walk

The boundary between land and sea is one of the most notable urban edges. The Boston Harbor Walk, implemented and pursued over time by the City, has begun the work of celebrating this edge with marine-style lighting fixtures by day and distinctive lighting sources and colors at night.

NODES WITH DISTINCTIVE LIGHTING

Government Center

Much as one may lament the dullness and dated design of the “lollipop” postlights that illuminate Government Center, they are effective in marking it as a major urban space with its own personality. Should the lollipops be replaced, ideally any new fixtures chosen will have a similarly distinctive — but more attractive — character.

Copley Square

Copley Square is a remarkable success during daytime, but is not well distinguished by its lighting at night. Perhaps in an attempt to avoid competing with surrounding landmark structures such as Trinity Church and the McKim Building of the Boston Public Library, the mercury vapor globes that light the middle of Copley Square are undersized and underpowered, as well as undershielded. Along with increasing the lighting of the landmark structures forming the “walls” of Copley Square, we recommend that the lighting of the Square itself be reconsidered to assure that it not only provides adequately for pedestrian safety and security, but also supports the lighting of the surrounding landmarks through glare control and appropriate choice of contrasting color of illumination.

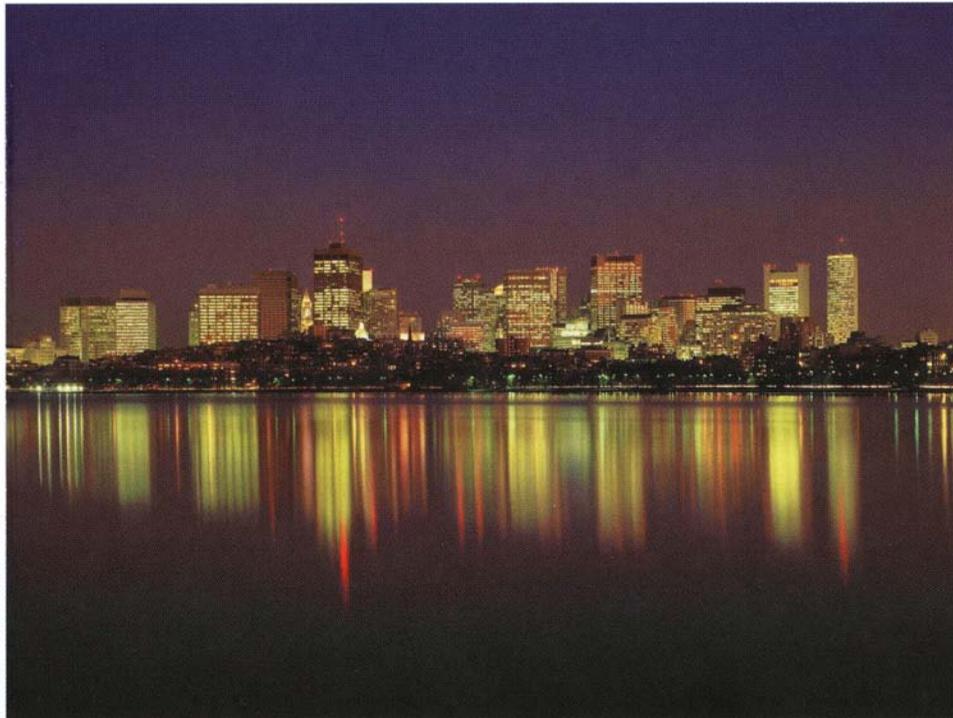


Photo © Steve Dunwell

The Site-Selection Process

To create a demonstration plan for illuminating Boston at night, Light Boston started by selecting for its Phase One a manageable study area — the downtown as defined by the Boston Redevelopment Authority. This area is bounded by Massachusetts Avenue to the west, Huntington Avenue to the south, and by the Charles River Basin, Boston Harbor, and Fort Point Channel to the north and east. Light Boston then issued a Request for Proposals to the professional lighting design and planning communities of Boston, providing a scope-of-work statement to interested firms. Each firm was required to include on its team individuals with expertise in planning, historic preservation, and lighting design.

After reviewing the proposals, Light Boston hired the firms of Ripman Lighting Consultants, of Belmont, Massachusetts, and McGinley Hart & Associates, architects and planners with an extensive track record in working with historic properties and their owners in Boston.

During the first phase of the project, the consultants met with Light Boston to develop a methodology for selecting 25 initial sites — those buildings, spaces, and structures judged to have the highest potential impact on the community if dramatically lighted.

As a first step, the Diamond Necklace Project team inventoried available resources and began the task of selecting the most important sites from a database of key buildings, spaces, and structures originally prepared by the Boston Society of Architects, which included over 700 architecturally noteworthy historic sites in the Plan area. The consultants also drew on the National Register of Historic Places, the Massachusetts State Register, the landmarks designated by the City of Boston Landmarks Commission, and the “Report on Permanent Lighting for Boston’s Historic Landmarks Preliminary Study” by MGIA Architects with Ripman Lighting Consultants, prepared for the city in 1986.

From these resources, which together included over 800 properties in or near the study area, the team identified a total of 160 sites as a “first cut” list of potential candidates for further study, based on historic significance. To reduce this list further, the consultants were guided by the following urban planning, architectural, and historic criteria:

HISTORICAL OR CULTURAL IMPORTANCE

Is the site historically significant? Is the site related to a pivotal moment in American history? Is the location culturally significant (on the Freedom Trail, for example)?

VISIBILITY / PIVOTAL LOCATION / URBAN IMPORTANCE

Is the site highly visible to the public? Is it a well-known landmark? A significant district? A primary path? An important edge or node?

UNIQUENESS

Is the structure itself architecturally unique in the study area, or a truly notable example of its type?

ARCHITECTURAL IMPORTANCE

Is the structure architecturally interesting? Is it a first-of-its-kind? Is it representative of a particular school or movement in architecture? Is it an important example of the work of a well-known architect?

ICONIC STATUS

Is the site a landmark? Does the site have instant recognition in the mind of the public? Does it help define one's perception of Boston? Is it the "heart" of an area?

The team also considered diversity of geographical location within the planning area and diversity of purpose; that is, inclusion of all types of sites including commercial buildings, historic residences, monuments, bridges, and open spaces as well as historic public buildings and churches. Principal districts, squares, and streets, characteristic of the City of Boston, were also taken into account, as were buildings not on any of these lists but known to the client team or the consultants to be of particular interest. (No consideration was given to the currently existing lighting of the sites at this stage of the selection process.)

At this stage, the first cut of 160 sites was narrowed to a new working list of 70 outstanding sites in Boston. (An alphabetical listing follows.) The list includes three bridges, three theatres, eight churches or religious buildings, thirty-eight other individual buildings, one broad category of structures, fourteen areas or districts, and three wharves. Of the 70 sites, all but six are of significant historical interest.

THE WORKING LIST—70 OUTSTANDING SITES

Lighting upgrades for any of these key sites would make a significant contribution to the creation of the Diamond Necklace of dramatically illuminated landmarks in and around downtown Boston.

Ames Building	King's Chapel
Appleton (Samuels) Building	Leather District
Arlington Street Church	Liberty Tree Block
Beacon Hill	Long Wharf/Custom House Block
Blackstone Block	Longfellow Bridge
Boston Athenaeum	Marlborough Street
Boston City Hall	New Old South Church
Boston Common	Northern Avenue Bridge
Old Boston City Hall	Old Corner Bookstore
Boston Public Library	Old John Hancock Building
Boston Visitor's Center	Old North (Christ) Church/Paul Revere Mall
Boston Young Men's Christian Union	Old South Building
Boylston Building	Old South Meeting House
Bulfinch Pavillion, Massachusetts General Hospital	Old State House
Cathedral Church of St. Paul	Paine Furniture Building
Chinatown Gateway	Paramount Theater
Church Steeples	Park Street Church
Commercial Wharf	Parker House Hotel
Commonwealth Avenue	Parkman Bandstand (Boston Common)
Copley Square	Paul Revere House/North Square
Custom House and Square	Public Garden
East Cambridge Viaduct	Rowes Wharf
Exchange Place	Saxon Theater (Emerson Majestic)
Faneuil Hall Marketplace	Sears Crescent/Sears Block
Federal Reserve Bank (old)	Shaw Memorial (Boston Common)
Fenway Park/Kenmore Square	South Station/Dewey Square
Filene's Department Store	State House
First Corps of Cadets Armory	Suffolk County Courthouse (old)
First Harrison Gray Otis House	Theater District
Flour and Grain Exchange	Tremont Temple Baptist Church
Fort Point Channel	Trinity Church
Granary Burying Ground and Gateway	Union Oyster House
Hancock House/Boston Stone	United Shoe Machinery Building
Hayden Building	Wilbur Theater
Jacob Wirth's Restaurant	
Jewellers Building	

IDENTIFYING THE FIRST 25 SITES

The resultant 70 sites were then evaluated for existing lighting and for their lighting potential — i.e., for the impact that new or upgraded lighting would have on the visibility of each site. Finally, a composite rating score was assigned to each site and the top 25 were identified for inclusion in this Plan. The scoring system can be found in the Appendix.

PRELIMINARY LIST — 800 significant historic sites

Screen for historic, cultural, and architectural significance



FIRST CUT — 160 sites

Screen for more refined urban planning, architectural, and historic criteria



WORKING LIST — 70 sites

Evaluate and rate each site's existing lighting

Evaluate and rate merit based on urban planning, architectural, and historic criteria as well as lighting potential



THE FIRST 25 JEWELS OF BOSTON'S DIAMOND NECKLACE

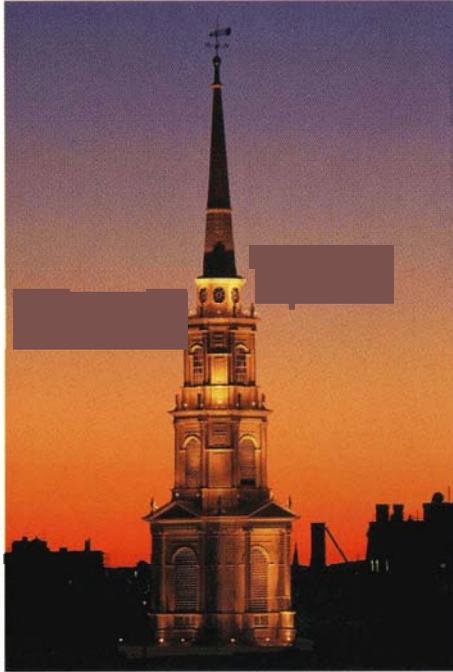


Photo © Steve Dunwell

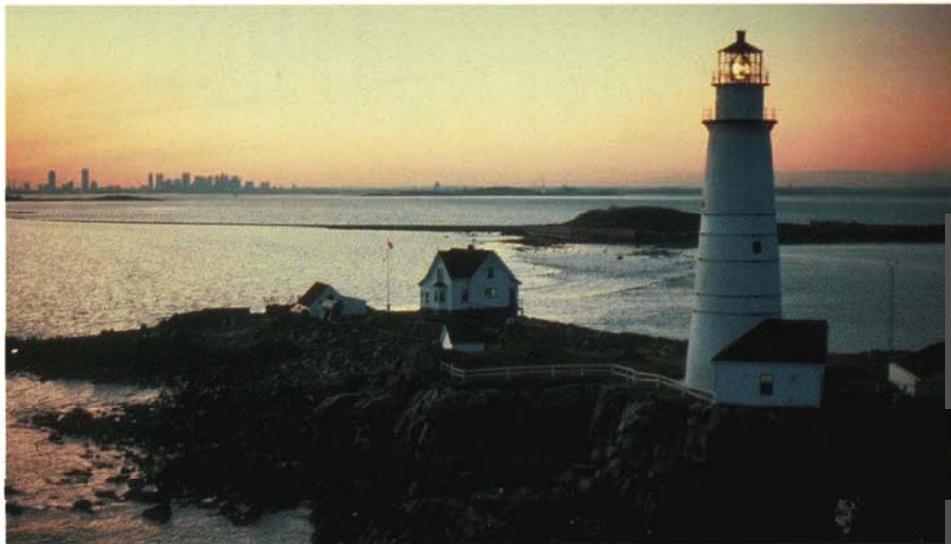


Photo © Steve Dunwell

Implementing the Diamond Necklace: Partnerships, Maintenance, Review and Regulation

OPPORTUNITIES FOR CREATIVE PUBLIC / PRIVATE PARTNERSHIPS

For the 25 sites proposed in Phase One, the first strand in Boston's Diamond Necklace, ownership ranges from nonprofit to private-for-profit to city, Commonwealth, and federal government. The ability and current willingness of these owners to pay for implementation of the recommendations in this Plan vary widely.

Through a public workshop on the Diamond Necklace Plan held at City Hall in April 2000, Light Boston began the process of bringing together all those concerned with the illumination of landmarks in Boston, to facilitate collaborative initiatives to fund and implement the illumination of the initial 25 Diamond Necklace sites. Those invited included owners of many of the sites; representatives of government at all levels; representatives of philanthropic organizations such as the Friends of the Public Garden and the Browne Fund; the lighting design community of greater Boston (designers, representatives, and manufacturers); members of the architectural and historic preservation communities such as Historic Boston and the Society for the Preservation of New England Antiquities. The dialogue is ongoing.

Light Boston will continue to serve as an information clearinghouse and proactive resource for those with an interest in contributing to the creation and maintenance of Boston's Diamond Necklace.

THE BOSTON LIGHTHOUSE KEEPER FUND

Despite all the advances in lighting technology in the last century, light bulbs still burn out. Lighting equipment deteriorates and gets damaged by weather, carelessness, and vandalism. We will need a modern form of lighthouse keeper to maintain our Diamond Necklace, whose individual gems will act as beacons to attract and orient, in the manner of historic coastal New England lighthouses.

A key component of this Plan is the idea of establishing a permanent Boston Lighthouse Keeper Fund. There is strong and sustainable philanthropic precedent in the city for this. As stewards of the public realm, the Edward Ingersoll Browne Fund, the Henderson Foundation, the Friends of the Public Garden, Historic Boston, the Boston Foundation, the Preservation Alliance, and other *pro bono publico* entities already actively advocate for, fund, and work to preserve the heritage of greater Boston.

"DARK SKY" ISSUES

Light Boston believes that the Diamond Necklace Project can be implemented without generating unacceptable spill light and glare, and that the benefits significantly outweigh the drawbacks. Indeed, criteria and guidelines for the lighting of landmark buildings may, by

generating consensus and raising the consciousness of building owners and regulatory bodies, lead to a reduction in the rate of lighting non-landmark structures. This would further reduce overall light pollution in Boston's downtown area.

The Light Boston mission includes providing a healthier urban environment and working partnership with the city to further goals in urban redevelopment and cultural improvement. For example, Light Boston has worked with Representative James Marzilli to support the passage of Dark Sky legislation, a bill to reduce energy consumption, improve public safety through appropriate lighting, and maintain the Commonwealth's viability as a university-based astronomical center. The provisions of the bill define light pollution as a category of pollution and prohibit state funds from being used to pay for energy inefficient, high-glare outdoor lighting. In addition, Light Boston and Representative Marzilli have been working with the City of Boston on joint lighting goals. We have been informed by Peter Scarpignato of the Public Works Department that all new, replacement, and upgraded public lighting in the city is subject to a new standard that promotes energy conservation and enhances environmental quality of life.

Through increased use of cutoff fixtures and the installation of internal reflector systems in acorn fixtures, the PWD is in the process of cutting the spill light and glare from over 40,000 street lights of Boston to less than 10% of current levels. Light Boston applauds the city's effort in this matter.

REVIEW AND REGULATION

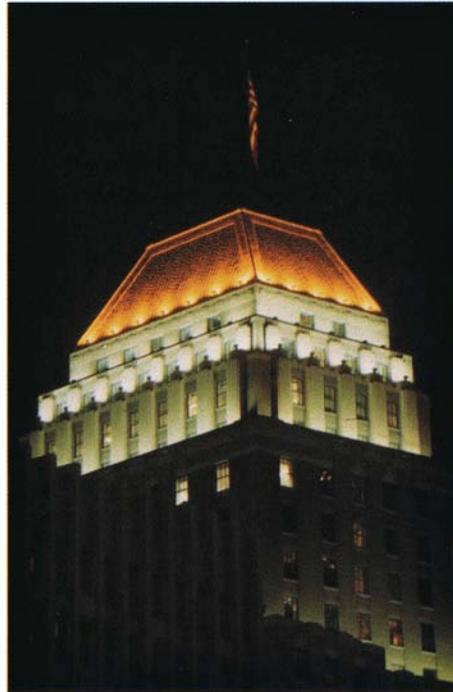
We began this Phase One Plan with a vision for downtown Boston: the Diamond Necklace, a linked set of beautifully illuminated sites that would enhance civic pride, foster community and economic activity, and improve safety.

Because we build cities and design lighting “from the bottom up,” incrementally, building by building and site by site, it is important to have a “top down” vision of a successful urban environment, within which illumination projects can be evaluated as they come on line.

All regulatory efforts — building codes, project reviews by the Landmarks Commission and the Boston Redevelopment Authority, neighborhoods reviews by organizations such as the Back Bay Historic Commission — are intended to work synergistically to create a superior urban environment for the people of Boston.

In putting forth this Phase One Plan for the Diamond Necklace Project, Light Boston’s goal is to generate discussion and consensus regarding such a “top down” vision for the lighting of public landmarks and sites throughout the downtown area. We trust the Plan will provide inspiration for the owners of the sites targeted for action by this Plan and a framework for evaluation and regulation of lighting initiatives by those who are charged with this function throughout city government.

We welcome and encourage your participation and involvement.



Landmark Building



Photo © Steve Dumwell

Lighting Guidelines and Resources

“Good” Lighting Defined

The proposal for a magnificent Diamond Necklace for Boston begins with a basic understanding of what constitutes “good” lighting. Good lighting is very simple to define: it makes visible the things we want or need to see, and nothing else.

Lighting design is the science and art of creating effective and appropriate visual contrast. Good lighting design starts with the task of identifying the desired focuses of attention for the beholder, the “signals” to be optimized on the visual channel of perception.

Once we have identified what we want to see, we need to create contrast between these focuses and their backgrounds. The human eye adapts to the general level of illumination in the visual field. It then takes in signals and forwards them to the brain, where objects are recognized in the context of their visual background. Like the human ear, the eye perceives impressions over an extraordinarily wide range of signal strength — over a million to one, from strong sunlight to moonlight. To create a focus, therefore, the lighting designer must create sufficient contrast to make the target object emerge from its background. Contrast can be achieved in a number of ways. By directing enough light onto a building, one can make it appear brighter than its background. Even a black object can be made to appear white at night if sufficient light is directed onto it compared with its background. Other techniques such as differential color of light can also be used.

Decreasing the brightness of the background is as effective in creating a focus as increasing illumination on the object itself, since the perception of contrast depends on the ratio of brightness between target object and background rather than the absolute illumination level of the target object.

Glare causes the iris of the eye to constrict, reducing the amount of light allowed into the eye as well as degrading the clarity of the image within the eye itself. Anything that creates “visual noise” — glare sources such as unshielded light fixtures, distractingly visible lighting hardware, and inappropriately bright commercial signage, for example — should be controlled or eliminated.

In designing lighting, the daytime view is also an important consideration. Both lighting hardware and conduits, if they cannot be fully concealed, should be made as unobtrusive as possible. Lighting hardware can be buried in the ground, concealed behind architectural elements, shielded, or located offsite.

Illuminating Landmarks: Iconic Buildings, Spaces, and Structures

The following guidelines for lighting landmarks will be applied to Light Boston's work on the Diamond Necklace to ensure that the various projects offer maximum visual impact yet are cost-effective to install and maintain.

THE DESIGN PROCESS

The process of designing lighting for a major landmark is as critical to the success of the project as any of the actual technical recommendations.

First, it is important to generate consensus on the importance and impact of the proposed lighting. Pages 61 to 64 and the Appendix of this Plan document the evaluation process to which proposed Boston sites were subjected, which involved separate historic, cultural, and lighting criteria.

Second, it is important to involve as many key players as possible early in the process: the owner of the property, immediate neighbors, funding sources, regulatory agencies, etc. Anyone who has a potential interest should be made aware that the project has been launched. Indeed, if kept abreast of developments, any player may turn out to be a key contributor to the process.

Third, a professional lighting designer — lighting consultant, architect, or electrical engineer with the proper credentials — should be involved in the project from its inception.

Fourth, at the appropriate stage of the design process, an onsite mockup of representative lighting effects and options for light sources and hardware should be conducted to explore options at low cost and confirm initial design directions before significant funds are expended in the documentation or implementation of the lighting design.

TECHNICAL RECOMMENDATIONS

It is important when lighting landmark buildings and sites to present the entire target building or site in a manner consistent with its appearance in the light of day. The lighting should present the form, massing, detail, and materials of the site in a clearly comprehensible and undistorted manner. The lighting should not isolate a few elements of a structure or divide it arbitrarily into separate elements at night, thereby destroying the integrity of its composition or form. The entourage — trees surrounding a monument, for instance — may also need to be lit to give the composition mass and the target object an appropriate background at night.

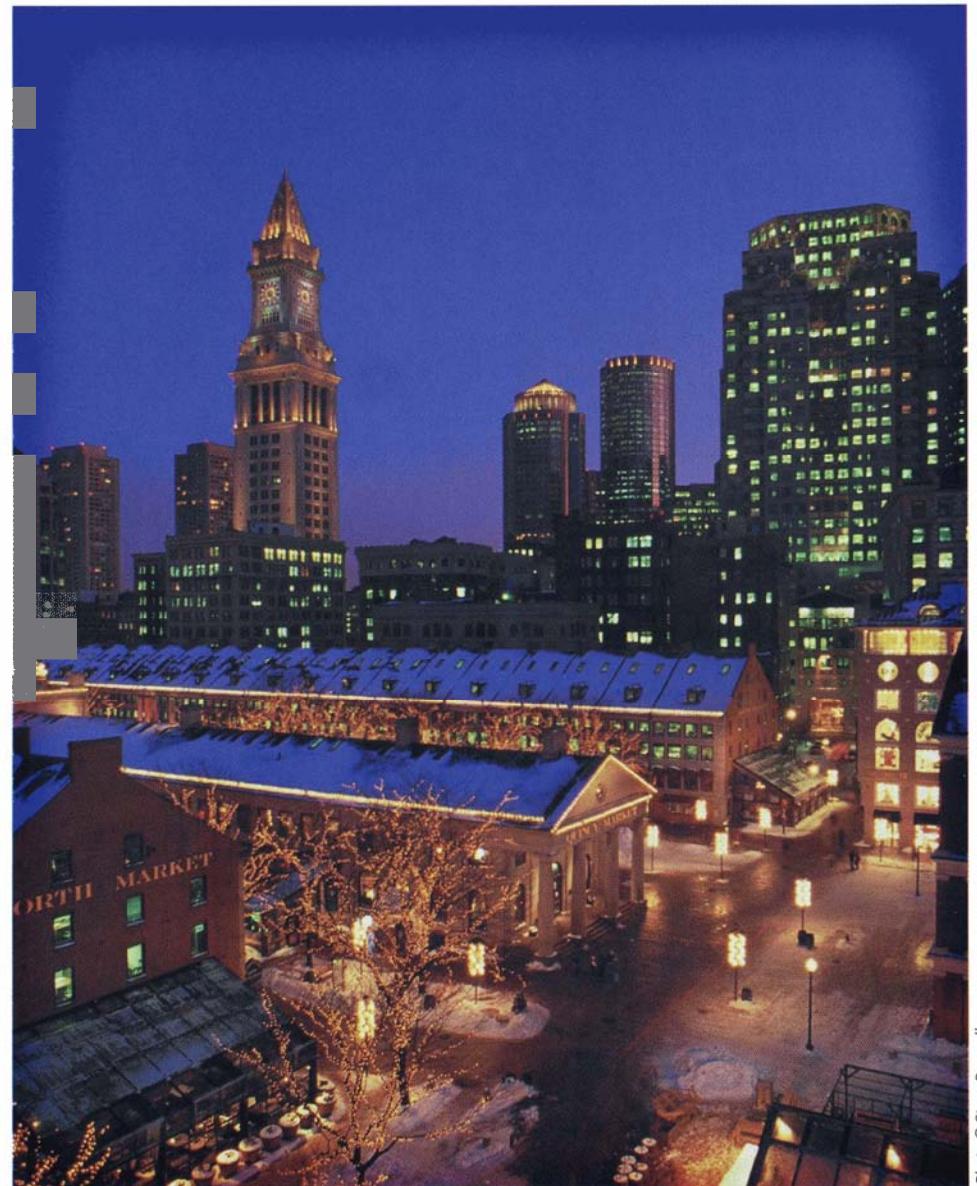


Photo © Steve Dunwell

The design should use only the minimum equipment and illumination required to achieve the desired degree of focus. Additional lighting and equipment will only confuse the presentation and increase the budget. Like hearing, visual perception operates on a logarithmic rather than a linear scale. This means that a doubling or halving of the signal strength, as measured by a luminance meter in footlamberts, will create only a "just noticeable difference" in the eye of the beholder. Generally speaking, this means that if one is to highlight something and have it "read" as a focal object, the brightness of the target object should be increased to between five and ten times the brightness of its background.

Illumination with a distinctive color can also be used to create contrast and bring an object out of its background. Care must be taken when using colored light not to distort unacceptably the normal daytime colors of the natural materials of the structure, assuming that the goal is perceptual continuity between daytime and nighttime image for the structure.

Research has shown that when comparing two scenes that are otherwise identical, the inclusion of small, bright-point light sources in one scene will lead the beholder to judge that the scene with these sources has a higher overall level of illumination than the one without. Where stylistically appropriate, therefore, the inclusion of such sources, called "symbolic candles," is recommended for important landmark sites. Postlights, wall brackets, lanterns, and even interior chandeliers visible through exterior windows can be used to add "sparkle" elements to a design. In the absence of a visible light source, the eye seeks concealed sources in order to explain the lighted environment as it is perceived. The inclusion of sparkle elements such as incandescent lamps give the mind's eye an explanation for the rest of the lighting in a scene — even when the sparkle sources could not actually have produced the lighting in question. This helps to keep concealed sources (such as floodlights or inground uplights) below the threshold of consciousness for the beholder.

When adding lighting equipment to landmark sites, the visible equipment (light fixtures) should either be as correct as possible in terms of style, period, craftsmanship, and materials, or should be clearly modern in detail, construction, and finish, so that it will not be confused with the original elements of the design.

When selecting lighting equipment for a site, the designer should strive for simplicity and clarity. Using as few fixture types as required will make the design and its maintenance simpler. Using as few light sources as possible reduces the number of lamp types to be inventoried while the advantages of using only one lamp type are obvious. It is helpful if each lamp type fits in only one fixture type, to avoid confusion during relamping.

Except for decorative fixtures of an appropriate historic period, lighting hardware should be made as invisible as possible. Conduits, brackets, and fixtures should be designed and located to minimize the visual clutter that they create at the landmark site. Whenever possible, fixtures and conduits should be concealed behind architectural elements, buried underground, or located offsite. Where conduits must be run exposed on the surface of landmark structures, they should be run neatly, without sweep bends. Visible fixtures, boxes, and conduits should be properly prepared and painted to match the surfaces against which they will be seen.

No unnecessary fasteners should be used, since they damage the historic fabric of the structure. Nevertheless, where the aiming or focus of a fixture is critical to the design, every effort should be made to secure the equipment well so that it does not get knocked out of focus by the weather or during relamping, maintenance, window washing, etc. Equipment should be chosen for durability, ease of relamping, and the ability to maintain a focus.

Vandalism is a chronic problem in maintaining lighting equipment at landmark sites, and lighting installations should be designed to minimize it. The best deterrent is to locate fixtures where they cannot be seen or where they cannot be vandalized. Failing that (which sometimes makes the fixtures unreasonably difficult to relamp), lighting equipment should be made as unobtrusive as possible.

Permanent lighting installations should be set up for automatic operation, through photocells or timers, rather than relying on staff to turn the lighting on and off.

Care should also be taken to minimize spill light from the installation and to control glare from the sources used. Spill light pollution is just as unacceptable from a landmark next door as it is from a gas station next door.

Light Sources, Fixtures, and Controls

This section briefly presents the basic tools of the lighting trade — the light sources, fixtures, and control hardware commonly used in lighting landmarks and city streets — that are referred to in the recommendations set forth in this Plan. A glossary of lighting terminology appears on page 84.

LIGHT SOURCES

The light sources most commonly used for the illumination of landmark structures are high-pressure sodium, metal halide, and quartz incandescent because their small source size allows for control of beams of light through reasonably small reflectors. High-pressure sodium has a dreary orange cast and distorts most colors unpleasantly, but has the longest lamp life and the highest efficiency rate in terms of converting electrical energy into light. Metal halide, which has better color-rendering abilities, has a shorter life and somewhat lower efficiency. Quartz incandescent is a long-lived, high-efficiency incandescent source.

Research in recent years has revealed that the human eye sees more effectively under metal halide than high-pressure sodium at low light levels. There is also mounting evidence of public preference for a cool-colored source with better color rendering, such as metal halide for street lighting. By mixing metal halide and high-pressure sodium, one can achieve a color of light similar to incandescent, but with ten times the lamp life and five times the efficiency of incandescent sources. Glass color filters can also be used to shift the color temperature of metal halide sources to a warmer range.

Mercury vapor, once used extensively for street lighting, is being phased out as a source for the lighting of streets and landmarks because it has poorer color and a larger source size than metal halide, making it more difficult to control.

A new development in light sources is the electrodeless induction lamp. By eliminating the electrodes that penetrate the glass of the bulb wall and create a weak point often related to lamp failures, the manufacturers of electrodeless lamps are now able to offer lamps with as much as five times the lamp life of conventional sources — 100,000 hours, or over 25 years in service, they claim. The Boston PWD is investigating these lamps, but currently the price of these new systems is still too high to justify their widespread deployment.

Other sources include gas (currently used only in the Beacon Hill historic district), incandescent (which still has the best color-rendering ability and a very positive association with historic structures), low-voltage incandescent (which offers very small sources to project concentrated beams of light, and can be concealed in very small coves as an uplight), linear fluorescent (long life and good color are now available), and compact fluorescent (small lamps with similar characteristics to linear fluorescent).

COMPARISON OF LIGHT SOURCES

<i>Source</i>	<i>Efficiency</i>	<i>Color</i>	<i>Typical Life</i>
Incandescent	Low	Best	2–8,000 hrs
Fluorescent	Medium	Good	10–20,000 hrs
Mercury Vapor	Medium	Poor	24,000 hrs
Metal Halide	High	Good	10–20,000 hrs
High-Pressure Sodium	High	Poor	24,000 hrs
Induction	Medium	Good	60–100,000 hrs

RECOMMENDED USES FOR DIFFERENT LIGHT SOURCES

Incandescent	Color accenting, sparkle
Fluorescent	Cool-color masonry, slate
Mercury Vapor	Tree uplighting, blue-slate roofs
Metal Halide	Cool-color masonry, plantings
High-Pressure Sodium	Brick facades
Induction	Virtually inaccessible locations

LIGHT FIXTURES

Lighting fixtures typically used for the illumination of major buildings and sites include the following types.

Pinspots are used to cast a very narrow beam of light long distances, usually to accent a building feature from a remote location (such as lighting the clock of the Custom House from the end of Long Wharf, almost a half mile away).

Spots are similar to pinspots but provide a slightly wider distribution of light.

Floodlights light large areas of a facade from some distance away.

Special floodlights have a reflector that produces a “sheet” of light for facade lighting from ledges, parapets, or from ground-mounts on constricted sites.

Linear fixtures such as fluorescent, fiber optic, low-voltage incandescent, or neon are used to outline and wash features such as cornices. (Weatherproof low-voltage linear sources have recently been installed with great success at the Louvre and other French landmarks.)

Glitter strings outline architectural elements or even an entire building (used with great success in cities such as Vancouver, British Columbia, to outline historic government buildings, and at the Tivoli Gardens, Copenhagen).

Decorative fixtures, typically with exposed “glittery” sources, add ornament or accents to a site or building, and help provide orientation to primary entrances, etc.

MOUNTING OPTIONS

Mounting options for lighting fixtures include inground, surface ground, pole, building, and offsite (mounted on another property or building). Inground fixtures and fixtures mounted offsite offer obvious advantages by removing the hardware from view.

LIGHTING CONTROLS

Control options for facade and site lighting include manual (switch or breaker); photocell (dusk-to-dawn or timed); timeclock (basic or astronomic); building energy management system (via relays); and radio, line carrier signal, and DMX (a digital dimming and control system). The selection of control technology is usually dictated by conditions on an existing structure. It is possible to retrofit more sophisticated control systems to existing installations, but often at considerable cost.

Ultimately, people see the lighting, not the control system. If more money can be directed into the lighting sources and fixtures by choosing a simple control system (such as photocell control of individual circuits) rather than a central system, this is usually a good choice. On the other hand, where the existing electrical infrastructure includes a building energy management system with computer-controlled relays, this system can often be extended at relatively low cost to allow central control of site and facade lighting, as well as the creation of animated lighting effects that — if not overdone — can renew and refresh a lighting design.



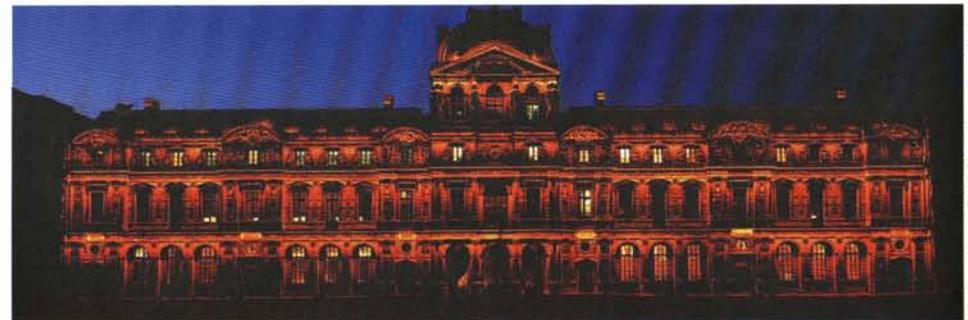
Compact metal halide facade flood



Inground metal halide wallwasher



Twin ornamental City of Boston standard acorn fixtures (fitted with twin facade spot fixtures above).



The Louvre, Paris, recently lit with linear low-voltage sources.



Boston's Public Street Lighting

Along with private lighting and signage, the 42,000 public street lights of Boston create the luminous background — the context — for the sites we seek to illuminate. This section reviews the public street lighting system of downtown Boston and its significance for the Diamond Necklace Project.

CREATING THE CONTEXT FOR ILLUMINATED SITES

Public street lighting falls under the auspices of the Street Lighting Division of Boston's Public Works Department. PWD's mission is to provide for the citizens of Boston a street lighting system that addresses the objectives of safety, security, orientation, and enjoyment. The lighting of landmark sites can contribute to achieving all of these objectives.

Providing for safety requires illumination of appropriate intensity and quality to assure that citizens can use the streets at night without suffering physical injury because of failure to perceive hazards such as curbs, changes in road alignment, on-coming vehicles, and pedestrians in the street.

Research has shown that one's sense of psychological security is much more positively affected by the elimination of shadowed areas, which are perceived as threatening, than by simply increasing light levels. This advocates, for instance, for the deployment of a greater number of lower-powered and low-mounted street light sources rather than a few powerful and high-mounted ones.

Orientation is important for drivers and pedestrians alike. Good orientation enables people to reach destinations efficiently, without getting lost. It makes the city easy to navigate. The illumination of landmarks, nodes, paths, districts, and urban edges in distinctive ways contributes to the sense of orientation at night.

Enjoyment is hard to quantify, and so is often omitted in evaluating the merits of possible lighting strategies and initiatives. But enjoyment is, after all, one of the prime movers for human beings. We are naturally drawn to things we enjoy. Dramatic illumination of the landmarks of Boston will contribute to the vitality of the Phase One downtown area and to the satisfaction and civic pride experienced by citizens and visitors alike.

The PWD is addressing all these issues by applying consistently distinctive patterns of light fixtures and sources to generically different situations such as historic districts, significant paths, key landmarks, important nodes, and urban edges.

BUILDING PUBLIC / PRIVATE PARTNERSHIP ON STREET LIGHTING

Under the direction of Mayor Menino and PWD Commissioner Cassazza, the PWD has recently joined in a number of ventures involving partnership between public and private sectors, in which the PWD provides electricity and allows the mounting of non-standard lighting equipment on PWD poles for the illumination of legitimate landmark structures,

even if not publicly owned. Owners of such structures are required to maintain inventory of non-standard lamps (which can only be installed, however, by PWD personnel — a requirement of the city's insurance program). Owners must also assume responsibility for the repair or replacement of non-standard lighting equipment damaged by weather, routine maintenance, or vandalism (relieving the PWD of the responsibility of maintaining a potentially extensive inventory of non-standard fixtures and spare parts).

The City of Boston's willingness to allow use of its infrastructure for the lighting of landmark buildings listed on the National Register of Historic Places or designated as landmarks by the Boston Landmarks Commission will be invaluable in implementing the recommendations made in this Plan.

The Steeples Project of Historic Boston, Inc., which advocates for the illumination of church steeples throughout the city, deserves credit for creating the path to partnership on lighting between the city and nonprofit owners of landmark structures.

CURRENT PWD LIGHTING INVENTORY

The PWD uses high-intensity discharge (HID) lamps almost exclusively for street lighting. Mercury vapor, with a cool color temperature and relatively poor color rendering, remains a significant light source throughout the city because of its extremely long lamp life. High-pressure sodium and metal halide lamps offer long life in service and, because of the small size of the actual light-emitting arc tube, the possibility of excellent optical control through reflector and refractor systems. Recent research has shown that metal halide, which produces a cool color of light, is more effective in enabling night vision than high-pressure sodium, which produces light with a strong orange cast. A lower wattage of metal halide than of high-pressure sodium will produce a given degree of target visibility, conserving energy and operating cost. Unfortunately, metal halide lamps typically have a somewhat lower lamp life than high-pressure sodium lamps, and to date they are in limited use in the Boston public street lighting system.

For the past few years, the PWD has been working to reduce the diversity of fixture types in its inventory and to reduce the spill light pollution that results from unshielded light fixtures such as acorns without internal glare control and the widely used "cobraheads."

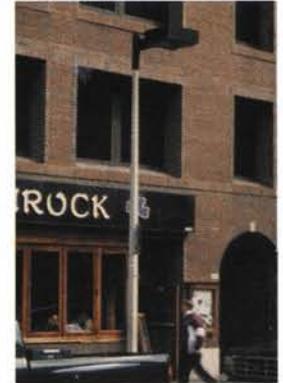
The PWD currently employs three standard fixtures, with varying light sources and wattage, for most of Boston's streets: the cutoff fixture, the acorn, and the pendant refractor. As street lights are replaced during routine maintenance, as well as in new capital projects, attention is being paid to consistent application of improved hardware in generically different situations (for example, central business district versus a residential neighborhood). This provides orientation and enhances lighting as measured at the ground. The PWD also uses special fixture types to identify special districts. These include the Beacon Hill gas light (also used on Marlborough Street) and the Commonwealth Avenue lantern, as well as distinctive fixtures for Chinatown (a modified cutoff), Waterfront Park, and the Seaport district.



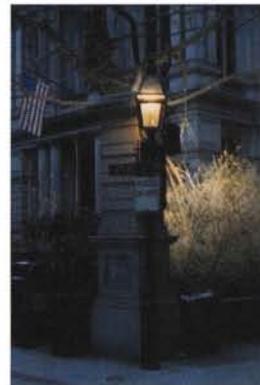
Double acorns – with facade flood mounted between



Pendant refractor – high pressure sodium



Cutoff – high pressure sodium



Beacon Hill – gas lantern



Commonwealth Avenue lantern – high pressure sodium



Seaport district special design – metal halide



Newbury Street lantern – mercury vapor



Government Center "cobra-head" and "lollipop" street lights – mercury vapor



"Ice Cube" – mercury vapor



Acorn fitted with internal glare-control reflector system



Multi-source incandescent lanterns on Commonwealth Avenue



Old Boston City Hall

The PWD is phasing out other special fixtures – the “ice cube” fixture in the vicinity of Symphony Hall and the “lollipop” of the Government Center area. These fixtures are inherently difficult to retrofit to control spill light and are widely considered unattractive. The PWD is phasing out the “cobrahead” fixture for the same reasons.

GLARE CONTROL

In recent years the PWD has launched initiatives to standardize use of lighting hardware that incorporates state-of-the-art refractor and reflector technologies to control spill light pollution and high-angle glare. This laudable effort will not only reduce the cost of providing and maintaining the street lighting inventory of downtown Boston, but will also result in a 90% reduction in light pollution.

In addition, partially in response to Light Boston initiatives, the PWD is aggressively retrofitting its existing inventory of acorn fixtures with state-of-the-art internal refractor and reflector systems to minimize light pollution and reduce glare from the existing inventory.

These PWD initiatives are vitally important because the amount of illumination required to highlight the 25 Diamond Necklace sites targeted in this Plan is directly affected by the amount of competing light and glare in the background. As an example, Trinity Church is currently lighted in a sensitive manner, but at a very low level. If Trinity Church were in the middle of a cornfield in Iowa, it would appear brightly lit. But in Copley Square, surrounded by glare-producing street lights, commercial signage, and floodlit buildings such as the John Hancock tower, Trinity Church appears almost unlit. If one takes a photograph of Copley Square at night now, the church reads as a dark shadow against a bright background — hardly a fitting fate for one of H. H. Richardson’s greatest works of architecture.

Lighting Techniques

HOW MUCH LIGHT DOES IT TAKE TO ILLUMINATE A LANDMARK?

The answer is, of course, “It depends.” It depends in particular on the reflectance of the surface materials one is trying to light and the brightness of the background — the context within which the landmark will be seen at night. This can include commercial signage, other illuminated buildings, the public street lighting system, and other light sources mounted on (or within the windows of) adjacent properties.

Ideally, there will not be an escalating “cold war” of lighting between a landmark and its neighbors. Ideally, the landmark will be sensitively and effectively illuminated and the neighbors informed in advance and enrolled in helping to create a successful and supportive context. This is one of the purposes of this Plan and a key Light Boston strategy. Where this fails, however, an initially successful lighting program for a landmark may gradually be overpowered by the background. This has happened not infrequently in Boston, notably in Copley Square and in the Faneuil Hall Marketplace area.

RECOMMENDED LIGHT LEVELS

The Illuminating Engineering Society of North America recommends the following general target levels of illumination for successful facade lighting:

	IN BRIGHT SURROUNDINGS	IN DARK SURROUNDINGS
<i>Light surfaces:</i>	15 footcandles	5 footcandles
<i>Medium-light surfaces:</i>	20 footcandles	10 footcandles
<i>Medium-dark surfaces:</i>	30 footcandles	15 footcandles
<i>Dark surfaces:</i>	50 footcandles	20 footcandles

Note that the recommended levels change dramatically according to changes in the brightness of the visual background against which the illuminated object will be seen.

BUILDING FEATURES

Good lighting is not just a matter of distributing a certain amount of light across a facade. Lighting should be designed to communicate and actively complement the nature of the site or structure to be illuminated. The lighting designer has the option of communicating any, many, or all of the following dimensions of a structure or site:

Silhouette: the outline of the structure against the sky or other background

Mass: solidity, volume, massing, transparency

Modeling: three-dimensional form

Materials: color, texture, surface character (matte or glossy, opaque or transparent)

Detail: articulation and ornament

Relation to the ground and surrounding site



The Shaw Memorial on Boston Common lit with raking quartz light.



*Back Bay
Note the “symbolic candle” lantern over the gate which seems to be the source for quartz floodlighting concealed behind the piers.*

LANDMARK LIGHTING TECHNIQUES

The following distinctly different lighting techniques are used to enhance particular characteristics of landmark structures and sites. The lighting designer identifies the technique(s) which will be most effective, given the nature of the target, then uses as few as possible, and only as much light as necessary, to produce the desired effect.

Floodlighting: illumination of the mass or planes of the structure.

Spotlighting: highlighting of key areas of the structure with fixtures of restricted light distribution.

Wallwashing: illumination of the walls of a structure.

Silhouetting: backlighting, outlining with linear or point sources, or differentially illuminating the background against which a structure is seen, to communicate the structure’s silhouette.

Backlighting: throwing light on a structure, usually from above or the sides, to define its silhouette or, in the case of a translucent element such as stained glass, to display its texture or contents.

Outline lighting: using linear or strings of point sources to highlight the silhouette or key elements of a structure.

Colored lighting: using contrasting colors of light on the structure and on its background to differentiate the two.

Animated effects: using animated displays, changing color, or shifting focus of lighting to call attention to part or all of a structure or site.

“Symbolic candles”: using small, high-mounted brightness elements, such as exposed incandescent lamps, to increase the perceived brightness of a scene or to explain the illumination from other, concealed sources.

Control of competing glare sources: reducing or eliminating competing glare sources to make other elements in the visual field appear brighter, such as an illuminated historic structure (without adding any illumination to the structure itself).

Reduction of background brightness: increasing the apparent brightness of a target structure or site by reducing the brightness of the background against which it is seen.

Appendix

Site-Selection Scoring System

EVALUATION OF EXISTING LIGHTING

To select the top 25 illumination sites from a group of 70 in Phase One of the Diamond Necklace Project, the team of consultants conducted an on-site evaluation of existing lighting for each site on the working list. Care was taken to evaluate both the lighting of the building or site itself and also its context — the lit surroundings and any other lighting that impacts the viewer's perception of the site. If evidence was found of inactive existing lighting equipment, this was noted. The consultants conducted all evaluations after dark, during early evening hours when all available and functional lighting equipment would normally be turned on.

The consultants scrutinized each site from relevant vantage points, took photographs, and completed a site-specific worksheet, on which they rated each site on the basis of the following criteria.

Presentation of detail (15 points)

Does the existing lighting present the architectural detail or characteristic features well?

Presentation of the entire structure (15 points)

Does the existing lighting present the entire structure as a coherent, comprehensible whole?

Presentation of symbolic candles (10 points)

Does the existing lighting incorporate attractive, appropriate, high-brightness elements that "explain" the concealed lighting to the mind's eye of the viewer, and create sparkle?

Maximization of visual impact (20 points)

Does the existing lighting bring out all of the site's potential?

Appropriateness in neighborhood context (10 points)

Does the existing lighting seem appropriate to the character of the surrounding environment?

Overall signal strength (30 points)

(As determined by background light level, presence of glare sources, brightness of existing illumination, inherent color contrast of materials developed by lighting, and effective use of source color, equally weighted.)

In addition to the numerical score, each site was given an overall visual rating, and placed into one of the following four classes:

1. Good
2. Satisfactory
3. Opportunity for Improvement
4. Unlit

EVALUATION OF MERIT

The list of sites was subsequently reduced to those most deserving of lighting upgrades, drawn from categories (3) and (4) above. This selection was made by evaluating the sites according to two sets of criteria: urban planning, historical, and architectural value, and lighting potential. Each site was assigned an "Urban Planning/Architectural/Historic" score and a "Lighting Potential" score using the two sets of criteria. When added, these scores were used to identify the 25 most promising sites for Phase One lighting initiatives in downtown Boston.

URBAN PLANNING / ARCHITECTURAL / HISTORIC CRITERIA

These criteria, all weighted equally, are:

Historical or Cultural Importance (20 points)

Is the site historically significant? Is the site related to a pivotal moment in American history? Is the location culturally significant (on the Freedom Trail, for example)?

Visibility / Pivotal Location / Urban Importance (20 points)

Is the site highly visible to the general public? Is it a well-known landmark? A significant district? A primary path? An important edge or node? (Sites were classified as "terminus of a major axis," "major public space or district," "secondary street," or "side street.")

Uniqueness (20 points)

Is the structure itself architecturally unique in the study area, or a truly notable example of its type?

Architectural Importance (20 points)

Is the structure architecturally interesting? Is it a first-of-its-kind? Is it representative of a particular school or movement in architecture? Is it an important example of the work of a well-known architect?

Iconic Status (20 points)

Is the site a landmark? Does the site have instant recognition in the mind of the public? Does it help define one's perception of Boston? Is it the "heart" of an area?

LIGHTING POTENTIAL CRITERIA

The consultants evaluated and scored each site for lighting potential, based on addition or modification of the existing lighting. That is, a building that is presently unlit scored higher than a similar building that already has a reasonably effective lighting treatment, since there is greater potential for improvement with the unlit building. This method gives a higher score to the sites that will benefit most from a lighting treatment.

The criteria for evaluation of lighting potential by adding or modifying lighting, and their relative weighting values, are:

AESTHETIC CRITERIA

Potential to enhance presentation of detail by adding lighting (20 points)

Potential for enhancing presentation of the entire structure (20 points)

Potential for addition of symbolic candles (10 points)

TECHNICAL CRITERIA

Absence of background "noise" light (5 points)

(Much glare, high levels of background lighting, scores low)

Availability of mounting locations for new equipment (15 points)

Facade reflectance/other (5 points)

(High reflectance scores higher)

SECONDARY BENEFITS

Benefits from upgrading existing equipment (25 points)

(Opportunity to improve color rendering of sources used — 4 points

Opportunity to upgrade energy efficiency of existing equipment — 1 point

Condition of existing equipment — what point in life cycle? — 4 points

Maintainability of existing equipment — location — 4 points

Suitability of the neighborhood for improved lighting — 4 points

Economic/cultural impact on neighborhood — 4 points

Need for additional pedestrian safety and security lighting — 4 points)



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16 ADDITIONAL SITES — WORKING LIST FOR UPGRADE

In addition to the list of the 25 most important sites for lighting initiatives, the consultants produced a second list of sites that, though lighted at present, could be significantly enhanced in their impact or presentation by minor modifications or additions to the existing lighting. These were filtered out of the working list of 70 sites by the methodology described above. Listed below, these sites would be good candidates for a significant improvement in lighting at relatively low cost.

- Arlington Street Church
- Commercial Wharf
- Commonwealth Avenue
- Copley Square
- Federal Reserve Bank (old)
- Fenway Park
- First Corps of Cadets Armory
- Jacob Wirth's Restaurant
- Old John Hancock Building
- Old North Church/Paul Revere Mall
- Parker House Hotel
- Rowes Wharf
- South Station/Dewey Square
- Suffolk County Courthouse (old)
- Union Oyster House
- Wilbur Theater

SELECTION OF THE FIRST 25 SITES

To apply the scores from the two sets of criteria to the task of selecting the most promising 25 initial sites for the Diamond Necklace, the working list was sorted according to overall rating of the existing lighting. Only those sites classified as “Opportunity for Improvement” or “Unlit” were considered for the list of 25. Next, for each site, the urban planning/architectural/historic score was added to the lighting potential score to produce a total combined score. This method gives the Urban Planning/Architectural/Historic and Lighting Potential criteria equal weight in determining the composition of the final list. The sites were then ranked according to this total combined score, and the resulting rankings were used to select the 25 sites or structures for Phase One lighting initiatives in downtown Boston.

The final selection of the first 25 sites are shown on pages 2 to 5 of this Plan.

Glossary of Lighting Terminology

Ballast: the electrical gear, usually a transformer of some type, which provides the special electrical characteristics of current and voltage required to start and operate fluorescent and high-intensity discharge lamps.

Brightness: the perceived brightness of a source or surface (as opposed to luminance, which is the measured brightness).

Candlepower: a measurement of the intensity of light in a given direction.

Color Rendering Index (CRI): a scoring system from 0 to 100 that rates different light sources according to how well they render color compared with incandescent light.

Compact Fluorescent: a compact source consisting of small-diameter glass tubing with a fluorescent fill, typically under 50 watts and less than 24 inches long.

Correlated Color Temperature (CCT): the color of light given off by a heated block of platinum at a given temperature — used to describe (by correlation) the characteristic color from “warm” to “cool” of a given light source.

Diode: an electrical device that, by blocking the flow of current during half of the sine wave of alternating current, dims an incandescent or low-voltage lamp, shifts its color temperature warmer, and substantially extends its lamp life.

Direct Glare: undesirable light from an unshielded source, which enters the eye and interferes with vision.

Footcandle: a measurement of light intensity falling on a plane or surface (one footcandle is the intensity of light given by a candle one foot away from the plane of reference, and is equal to one lumen of light energy per square foot).

Footlambert: a measurement of the brightness of a surface (one footlambert equals an intensity of light emitted from or reflected by a surface of one footcandle, or one lumen per square foot).

Fluorescent: a light source in which the passage of electrical energy through a gas, typically with trace amounts of ionized mercury in suspension, caused the gas to emit ultraviolet light, which excites a phosphor coating on the bulb wall, causing it to emit visible light. Fluorescent lighting typically has an efficacy of four to five times that of incandescent in terms of converting electrical energy into light, as well as a lamp life typically seven to ten times that of incandescent.

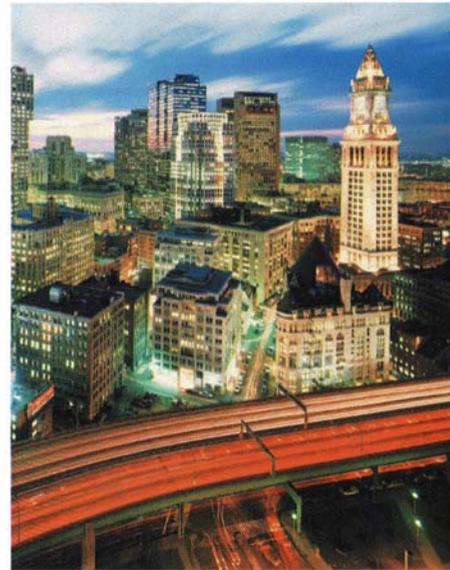


Photo © Steve Dunwell

Glare: undesirable light that enters the eye, detracting from the ability to see.

High-Pressure Sodium: a high-intensity discharge source with an unpleasant orange color (acceptable on brick, however), an efficacy up to seven times that of incandescent, and a lamp life up to twelve times that of incandescent.

Igniter: the electrical component of a high-intensity discharge lighting system that delivers (typically) an unusually high voltage to the lamp to start it.

Incandescent: a light source with excellent color rendering and relatively short lamp life that uses a heated wire filament to generate light.

IES Type (Distribution): a convention used to describe the beam shape of a roadway luminaire.

Illuminating Engineering Society (IES): the professional technical association in the United States that is the recognized source of illumination standards and recommendations.

Induction Lamp: typically, a fluorescent source of extremely long life (60–100,000 hours claimed), achieved by exciting the gas with an external high-frequency generator, as opposed to the conventional method that involves penetrating the glass bulb wall with electrodes.

Lamp: the correct technical term for a source of light.

Low-Voltage Incandescent: an incandescent lamp that operates typically on 12 or 24 volts rather than the conventional 120. Because they are operated at lower voltage, it is possible to wind the coils of the filaments of low-voltage lamps more tightly than those of higher voltage lamps, which in turn permits the generation of a more intense and tighter beam of light for a given reflector size.

Lumen: the amount of light energy cast by a candle on one square foot of the inside surface of a spherical plane of reference one foot in radius, with the candle at its center.

Luminaire: the correct technical term for a light fixture.

Luminance: the measured brightness of a surface, in lumens per square foot.

Lux: a measurement of incident illumination in the metric system, approximately one tenth of a footcandle.

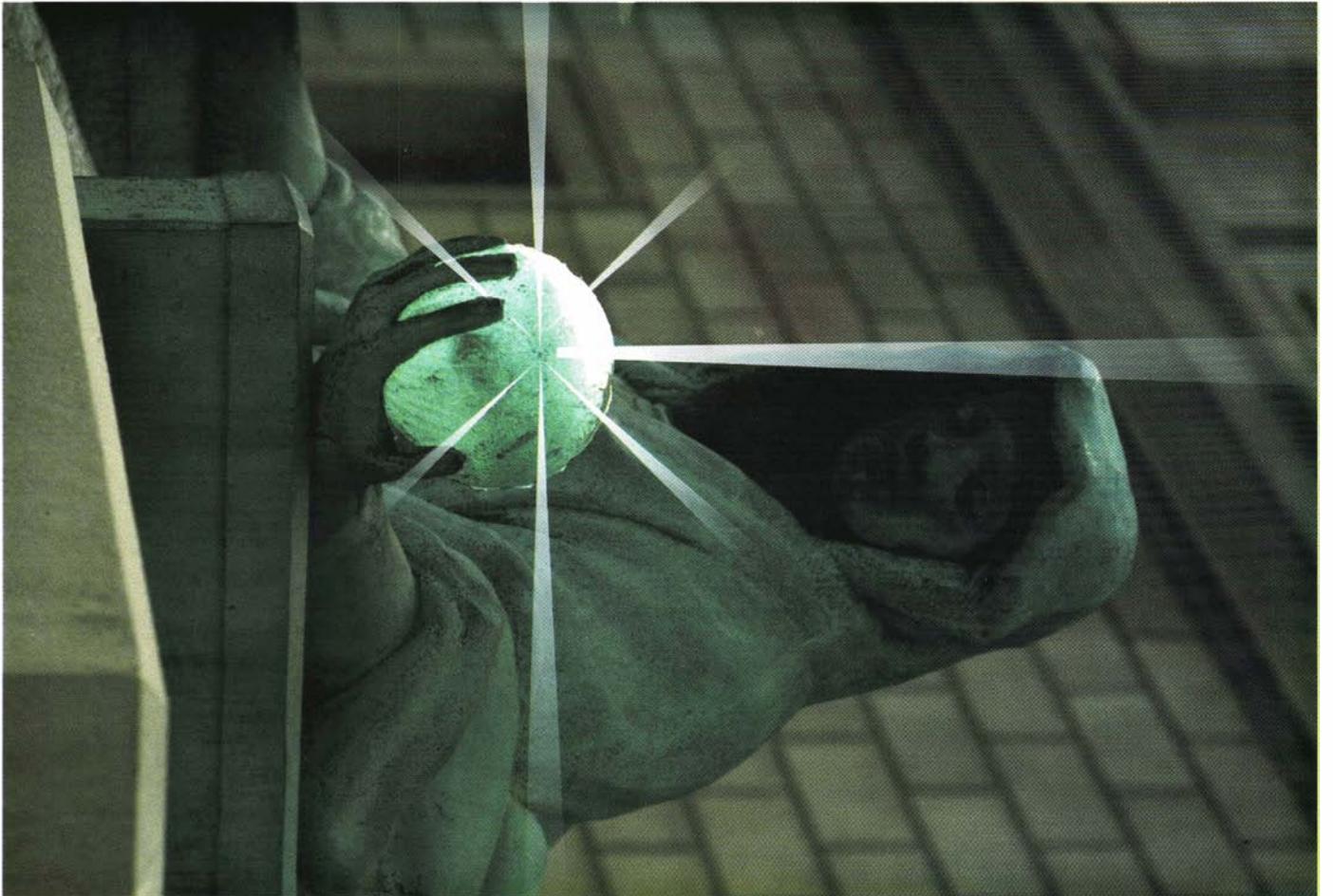
Mercury Vapor: a high-intensity discharge lamp of relatively low efficacy (still three times that of incandescent), a cool greenish color, and an extremely long lamp life (twelve times that of incandescent). Prior to the introduction of high-pressure sodium, mercury vapor was used extensively for street lighting. Like fluorescent lamps, mercury vapor lamps require a phosphor coating on the inside of the outer wall of the lamp, which converts ultraviolet energy into visible light.

Metal Halide: the highest efficacy cool-color temperature high-intensity discharge lamp, with an efficacy of five times that of incandescent and a lamp life of five to eight times that of incandescent. Because the light is emitted by a small arc tube and does not require a phosphor coating on the outer bulb wall, metal halide lamps are excellent for applications like floodlighting, which require a small light source to take maximum advantage of a given reflector size.

Spectral Distribution: the distribution of the light energy emitted by a source across the color spectrum of differing wavelengths of light.

Starter: the electrical component of a fluorescent system that causes the lamp to start.

Veiling Glare: undesirable light reflected from a surface, which makes it difficult to perceive information on or about the surface itself.



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LIGHT BOSTON MISSION STATEMENT

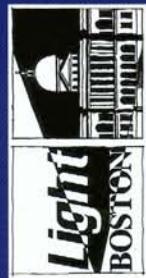
The mission of Light Boston is to promote creative and innovative lighting of Boston's historic and cultural features. By advocating for illumination as a vital component of urban design, Light Boston seeks to encourage interest, understanding, and appreciation of our city's unique historic and cultural heritage. Our purpose is to accentuate through illumination the architectural and human story of Boston in order to inspire all who pass through our city and thus to contribute to its economic vitality.

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