

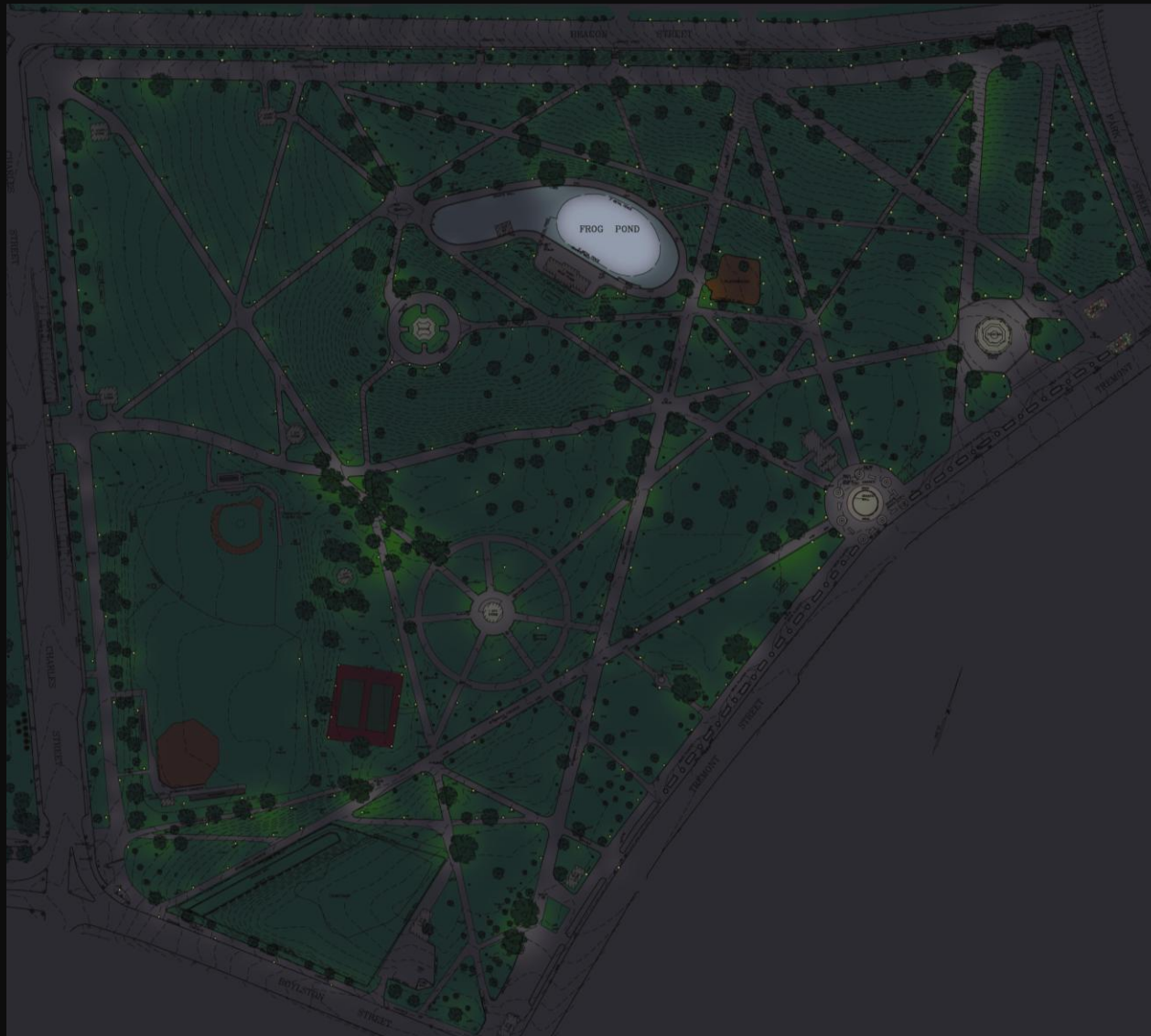
# Boston Common

## Holiday Lighting Conceptual Design

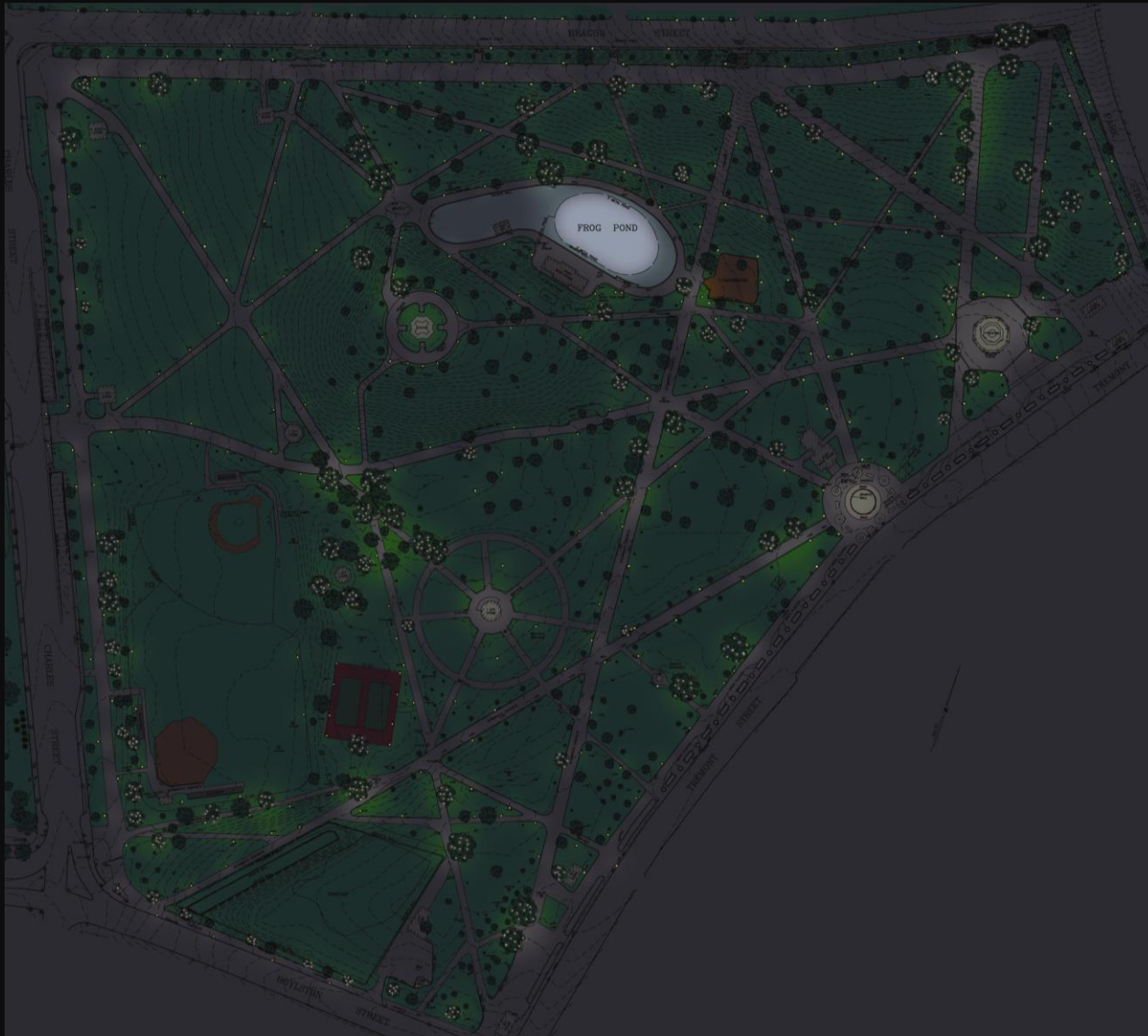
July 10, 2008

Presented by:  
Lux Lighting Design, Inc.

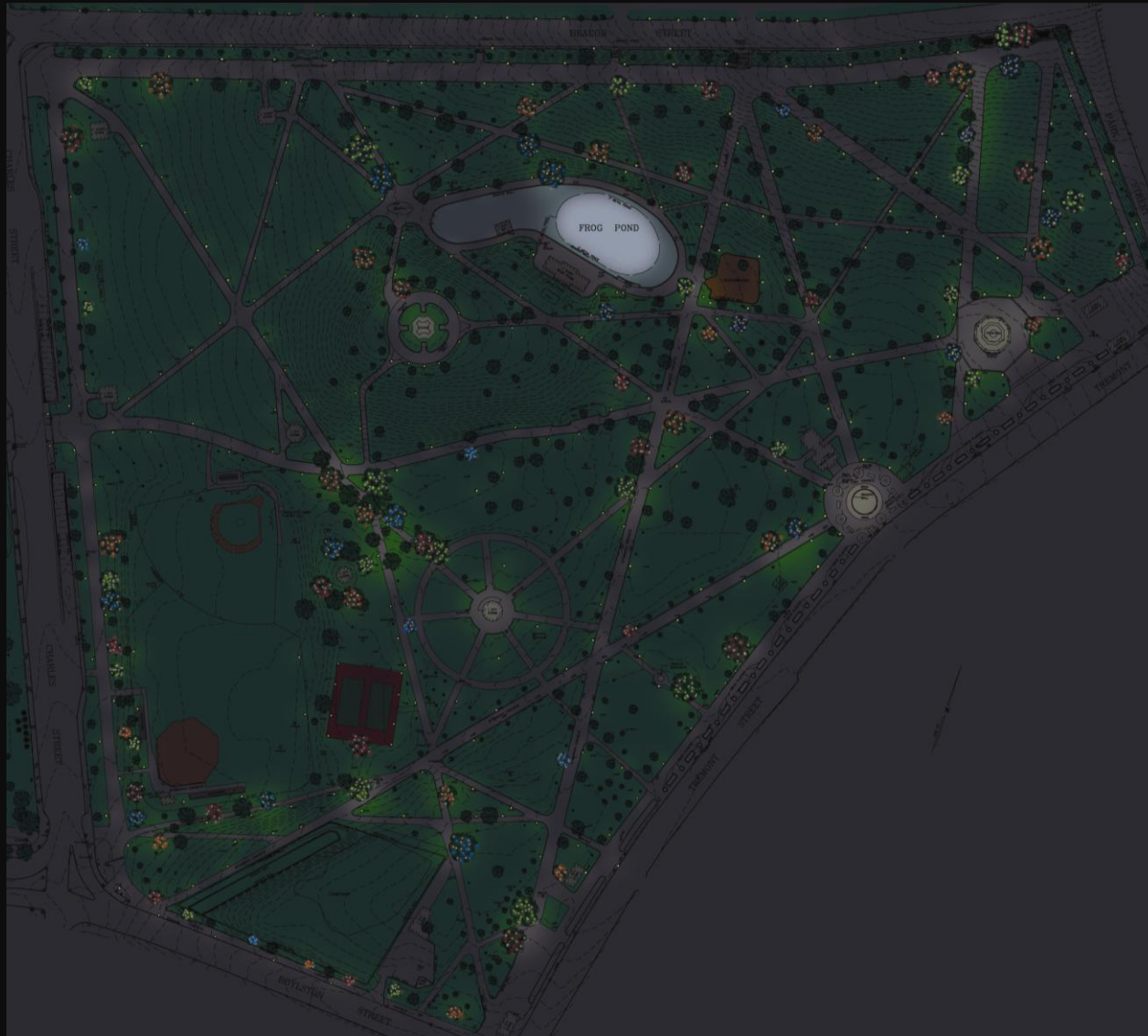
# Boston Common site plan- Current conditions



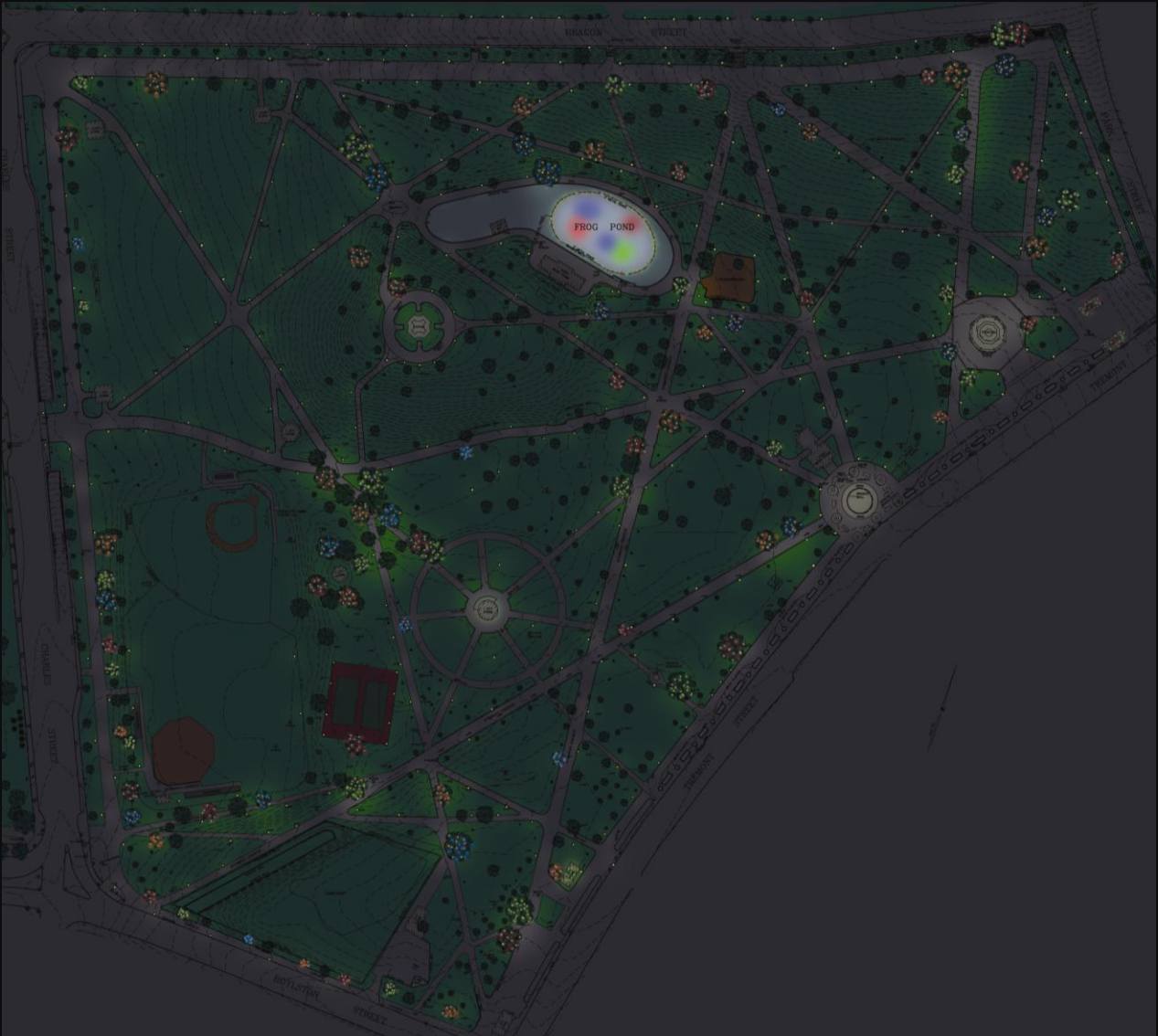
# Boston Common site plan- White Lights in trees



# Boston Common site plan- Colored Lights in trees



# Boston Common site plan -Full scope proposed lighting scheme



Boston Common current  
Holiday Lighting conditions



# BOSTON COMMON CURRENT LIGHTING CONDITIONS

-Current lights use old technology.

-10 trees are white and the rest of the 80 trees are a subtle combination of red, green, and white.

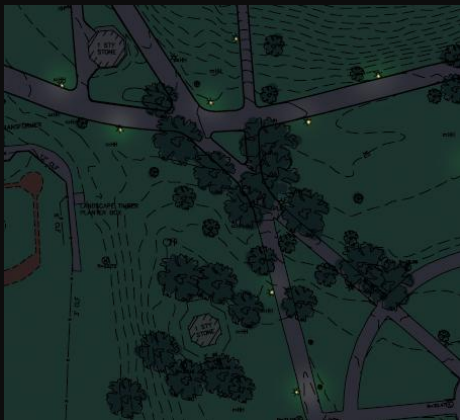
-There are currently 11 trees surrounding The Frog Pond which are all white light.

-A random lighting effect is created by the haphazard draping of the strings of lights. This makes the lighting look inconsistent and messy.

-The color is not evident throughout the Common.

-Each tree uses approximately 3,500w watts based on 7 watt C9 lamps.

# Boston Common without Tree Lighting



## Boston Common with White Tree Lighting

- This lighting will have a presence and create an ethereal star-like effect that will accentuate the trees.
- A more elegant lighting effect will be created for year round use.
- This will create an ambiance that will attract visitors during every season.
- Using the white lighting throughout the year will result in Boston Common having a fresh attractive appeal for all.
- Each tree will use approximately 37.5 watts with 75 lights (approximately 87% savings). The average lamp life of the LED is 50,000 hours.





## Boston Common with White Light and Solid Colored Holiday Tree Lighting: Option 1

- With the year round White Light concept, the Holiday Lighting will only be installed on certain trees every year.
- Using this product with the spacing we recommend, the installation of the tree lighting will not appear to be messy or haphazard.
- Lighting cable installed within (not along perimeter) the tree structure enables tree pruning and protection from weather and wind.





Boston Common  
with Mixed (white  
and colored)  
Holiday Tree  
Lighting: Option 2

- This option would require installation of color lights on all designated trees (each tree will have two strands of lights).

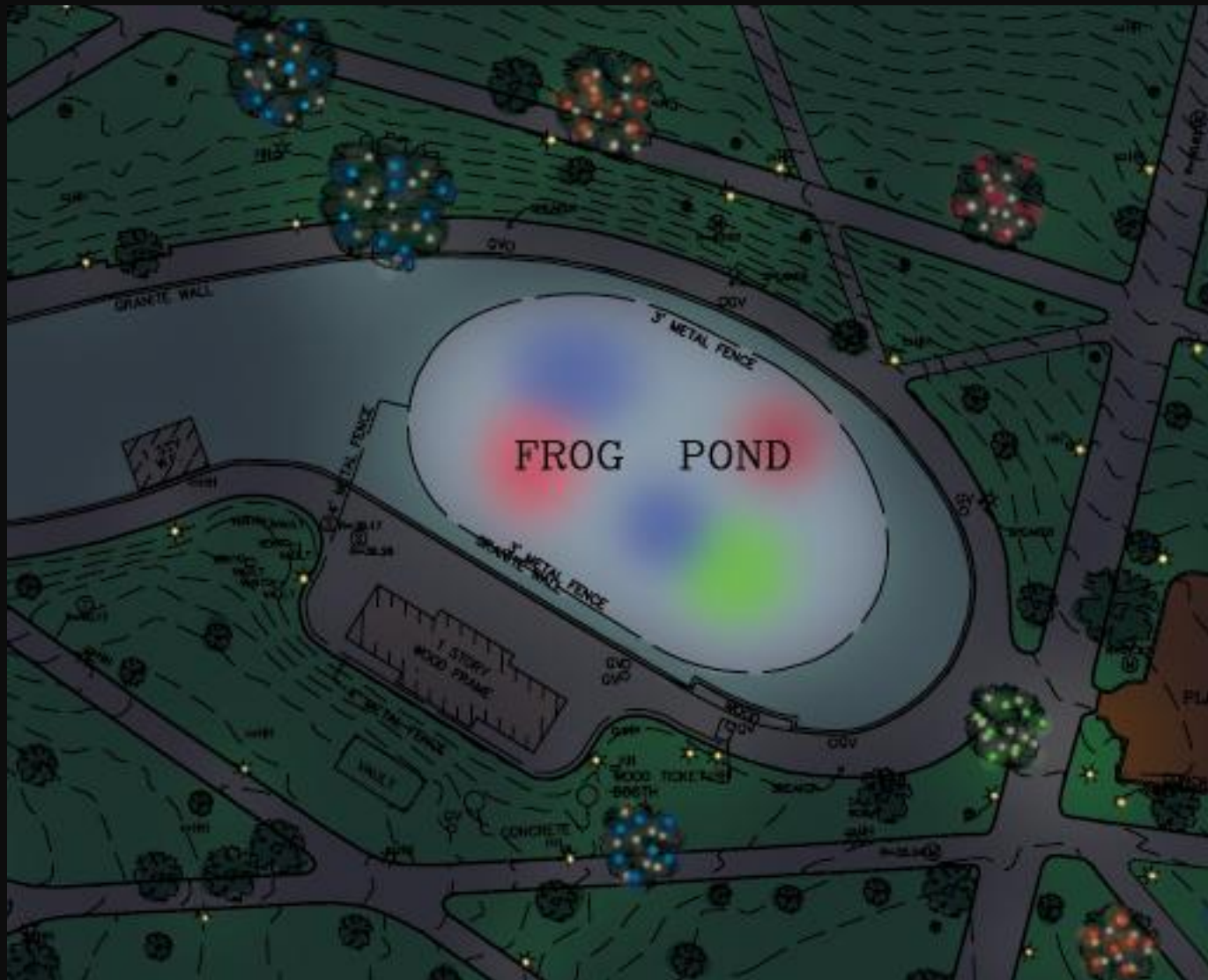
- Based on the available switching this may provide the option of merely “unplugging” color strands during the rest of the year.



Current Frog Pond  
conditions



# Concept for Frog Pond



## Concept for Frog Pond

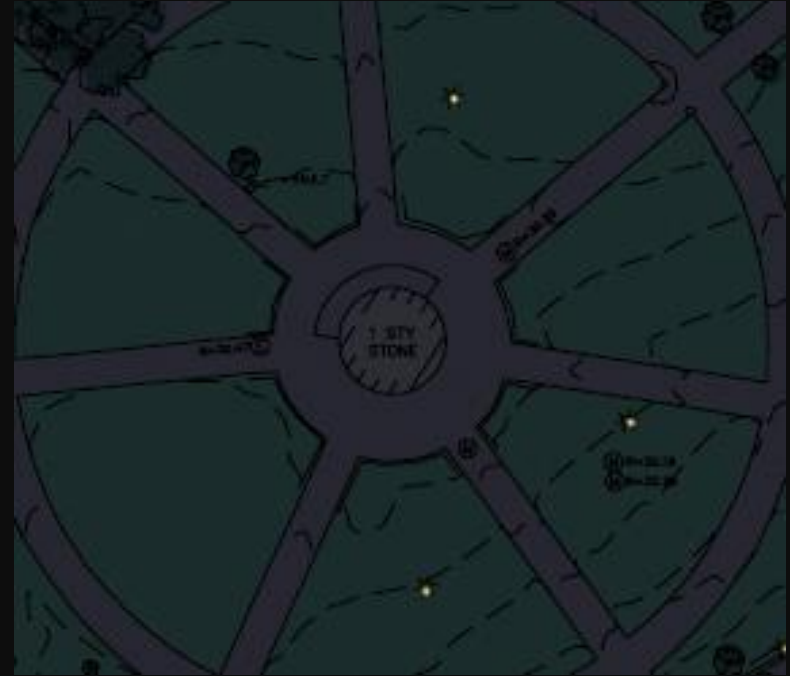


- The Frog Pond will be surrounded with newly lighted trees.

- Exterior colored flood lights will create pools of light on the ice for added enjoyment. These will be mounted on vertical stands (similar to existing Frog Pond flood light mounting).



## Current Parkman Bandstand conditions



Parkman Bandstand concept



## Parkman Bandstand with Holiday Colored Light



- Using 1" diameter Color Changing LED light strings, the bandstand columns will be accented with a Holiday Lighting scheme.

- Each column would be using approximately 150 watts.





## Parkman Bandstand with Holiday Colored Light and White Accents

- Small LED white accent lights along the top of the structure can be used year round.
- This lighting effect will also provide a marker for locating the bandstand easily.
- Each of these white light fixtures uses 1.5 watts.



## Current condition of Head Houses



## Concept for Head Houses



- Using 1" diameter Color Changing LED light strings, the Head Houses will be accented with a Holiday Lighting scheme.

- Throughout the year these lights could provide a constant color for easy recognition .

- For special events the lights could change to a significant color, such as green for the Celtics win.



## Current condition of the Visitor Center



## Concept for Visitor Center



- Using 1" diameter Color Changing LED light strings, the Visitor Center will be accented with a Holiday Lighting scheme.

- For special events the lights could change to a significant color, such as red for the Red Sox win.



# Boston Common without Path Lighting



## Boston Common- Tree Lighting (white) and Path Lighting

- Tree mounted LED light fixtures provide a soft path lighting effect. These can be switched with the white tree lights or separately.

- This is the preferred year round lighting scheme for beauty and functionality.

- Each tree mounted light is a 10 watt LED light source.



Boston Common- Tree Lighting (solid color and white) and Path Lighting:  
Option 1



Boston Common- Tree Lighting (mixed color and white) and Path Lighting:  
Option 2



# Lighting Cost Synopsis

Energy Dollars Saved Over the Life of the Replacement Bulb- For Tree Lighting

Present Wattage per Tree-	<b>3500 watts</b>
Subtract	
Replacement Wattage per Tree-	<b>37.5 watts</b>
<b>Equals Wattage Saved per Tree</b>	
Multiplied	
By Replacement Bulb Life-	<b>50,000 hours life</b>
<b>Equals Energy Saved over the life</b>	
<b>of the Replacement Bulb</b>	<b>173,125,000 watt-hours</b>
To Convert to Kilowatt Hours Divide by 1000	
	<b>173,125 kilowatt-hours</b>
Multiplied	
By Your KwH Rate-	<b>\$0.12</b>
<b>Equals Energy Dollars Saved per Tree</b>	
<b>Over the Life of the Replacement Bulb-</b>	<b>\$20,775 per Tree!</b>
	<b>Over the Life of the</b>
	<b>Replacement Bulbs</b>

# Photovoltaics

Based on 90 lighted trees with this proposed lighting concept an estimate of quantity 18-20, 5'x 2'solar panels will be required for solar energy use. These can be mounted on either existing buildings throughout the park or on strategically placed tall poles. For the entire lighting scope presented here, the approximate cost for these panels would be \$40,000.

## Benefits:

- Using solar panels will cut costs for long term use in energy and maintenance.
- Drastically reduces the City's environmental footprint by using a renewable energy source.
- Up-to-date "green" technology.
- Federal Tax Credit of 30% with no cap.
- On-grid installation provides the opportunity for surplus energy to be sold back to the utility company for retail rates. (Additional panels may provide opportunity for more available surplus energy.)

# Lighting Design Concept Summary

## Current:

-Maintenance involves purchasing, installing, setting up power, and removing over 250' of lighting cable per tree every year.

-Due to the maintenance involved, lighting strands are haphazardly installed on trees leaving a poor visual lighting effect.

-Uses inefficient energy-wasteful technology while creating an abundance of landfill waste.

# Lighting Design Concept Summary

Proposed:

-Low maintenance design requires one purchase; one major installation of lighting cable and solar panels.

-Design intent with lighting cable installed within (not along perimeter) the tree structure enables tree pruning and protection from weather and wind.

-Use of current LED technology provides astonishing increase of energy savings and lamp life.

-A more aesthetically pleasing lighting scheme for year round use, holiday , and special events is the result.

-Boston Common Lighting could be a visitor attraction year round.



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