

SIGNAL
STATION
NORTH

LIGHTING
GUIDEBOOK

Practical Tools, a Critical History, and Inspiration for Neighborhood Light Projects



the Neighborhood DesignCenter

Signal Station North Lighting Guidebook

A publication of the Neighborhood Design Center

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Baltimore, Maryland 21201

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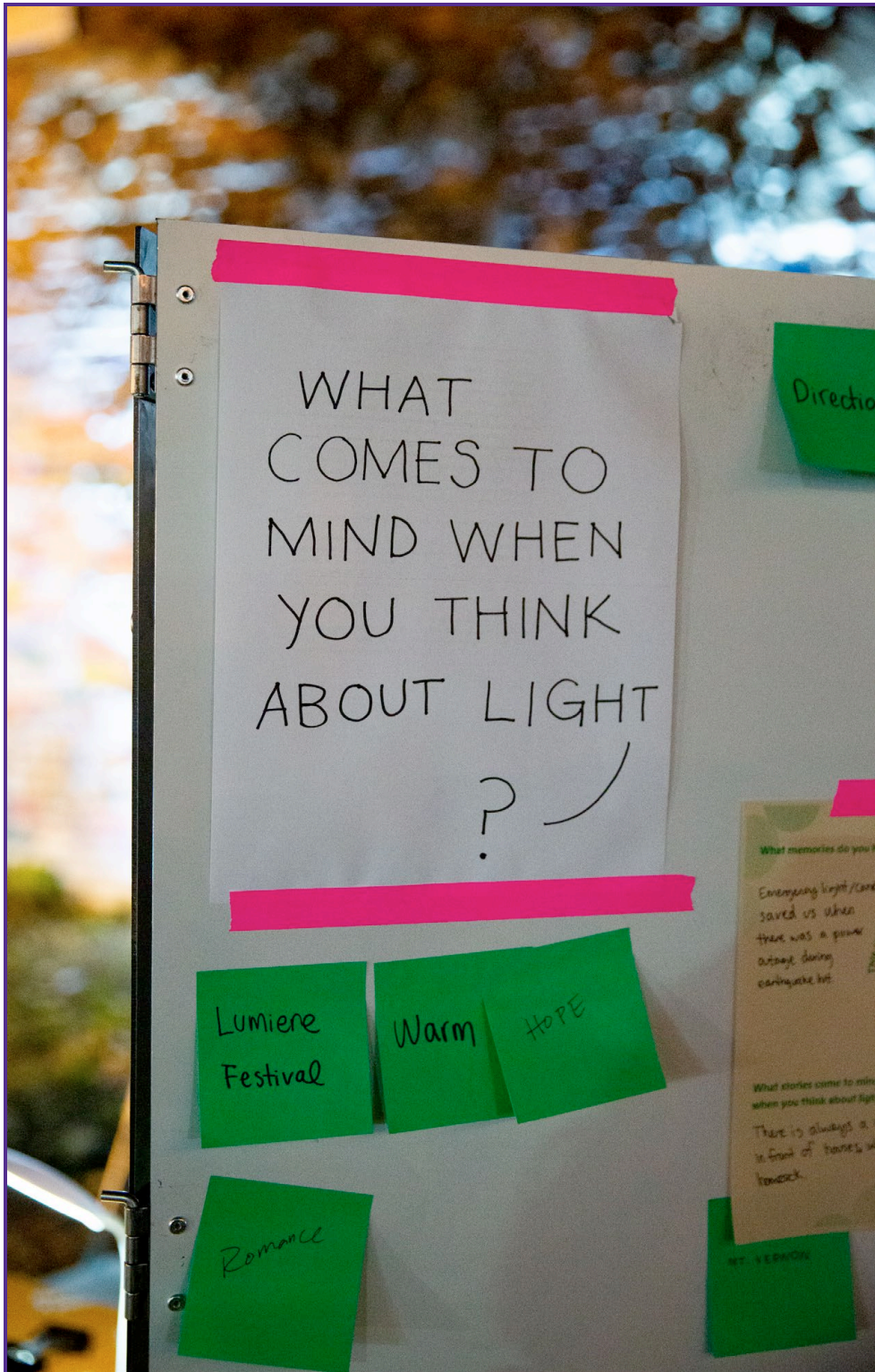
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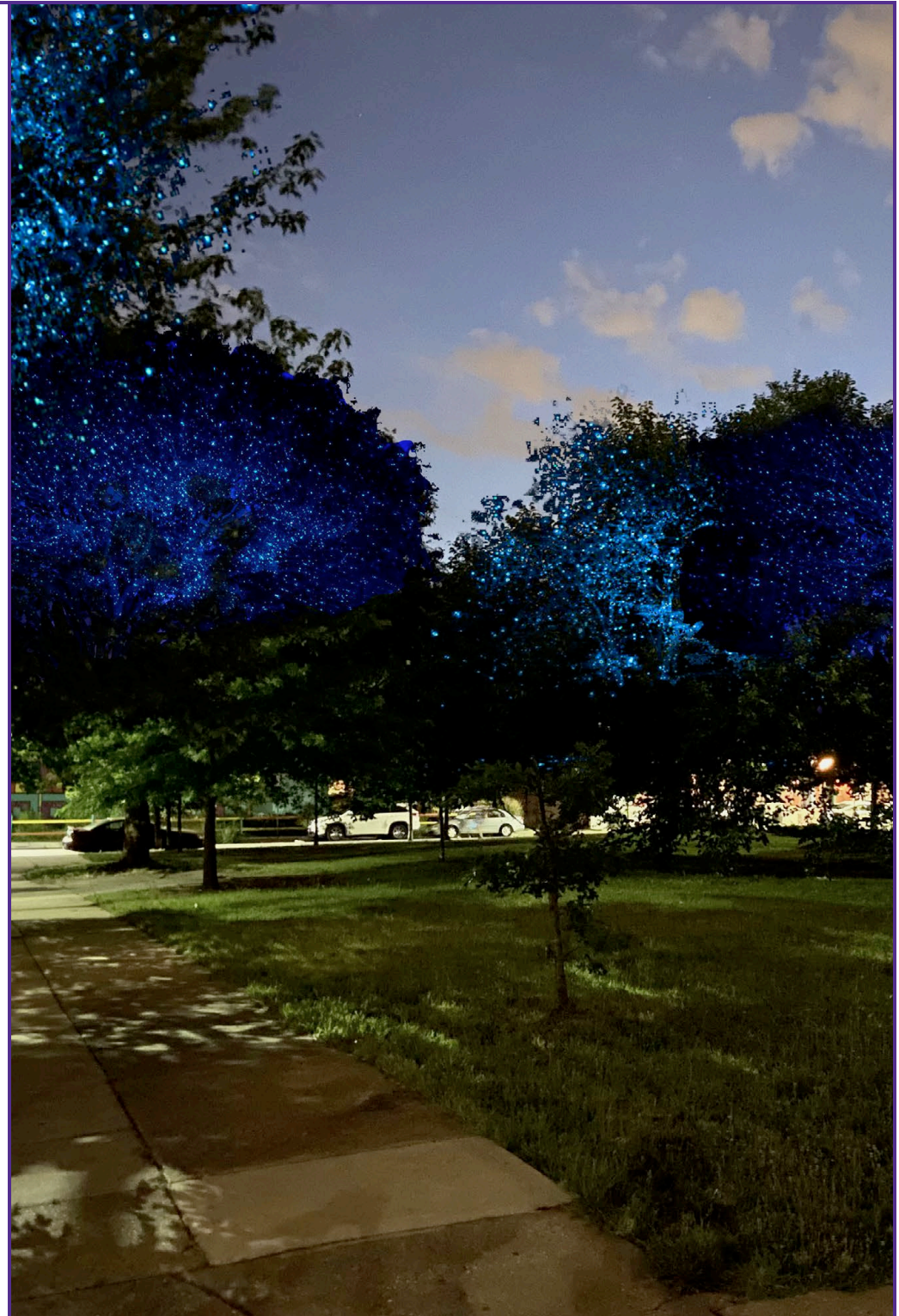


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Introduction

Signal Station North is an innovative district lighting plan and public space engagement initiative for Central Baltimore. Through a process of focused listening, research and urban analysis, **Signal Station North** has developed a conceptual and practical public space lighting plan, creative lighting installations, and practical community tools for the Station North Arts District. Supported by the National Endowment for the Arts, the Central Baltimore Partnership, BOPA, the France-Merrick Foundation and the Robert W. Deutsch Foundation, and led by the Neighborhood Design Center, Signal is a unique collaboration between local artists, designers and nonprofits.

The Signal Station North Lighting Guidebook is one of four publications to come out of the larger Signal planning and advocacy work. The first, the **Signal Lighting Plan**, is a formal district-wide plan designed for implementation at the municipal, neighborhood, and individual scale. The two **Signal zines**, distributed via newspaper boxes throughout the District, are designed to be picked up in passing and share at-a-glance information about noticing and navigating the City's lighting infrastructure. This Guidebook

THIS GUIDEBOOK IS INTENDED FOR USE BY BALTIMORE RESIDENTS, BOTH FOR EDUCATION AND ACTION.

is somewhere in the middle: it's intended for use by Baltimore residents, both for education and action.

How do we perceive light? What is the history of light in Baltimore? How does the City's lighting infrastructure work? This Guidebook seeks to answer these questions in order to offer everyday residents and visitors to the District the information and context necessary to advocate for better lighting on their streets and in their neighborhoods. From simple lessons on **how we perceive light**, adapted from Flux Studio, and a flow chart on **navigating basic BGE / DOT processes** to a **critical history of light** in the city by historian Mo Speller and **in-depth case studies** on different facets of our lighting system, the Guidebook offers a basic grounding on light in Baltimore.

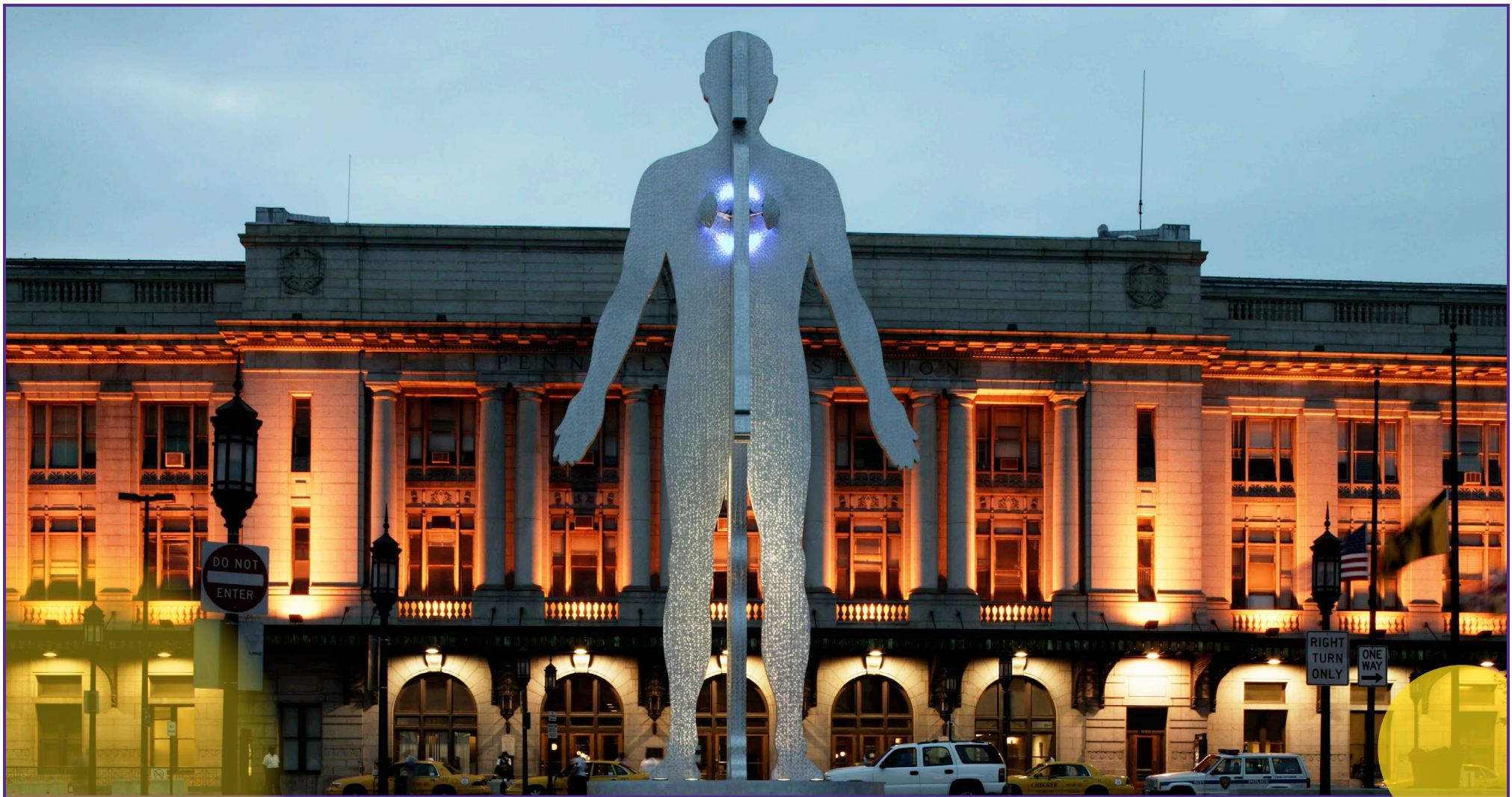
We hope you'll enjoy this book, use it, and share it with your neighbors.

To kick off the Signal project in the fall of 2019, we collaborated with Flux Studio to develop **Flash!**, an interactive neighborhood lighting event. 40 volunteers armed only with flashlights paraded around Station North, illuminating sites along the way.



HOW LIGHT WORKS

SIGNAL
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How Light Works

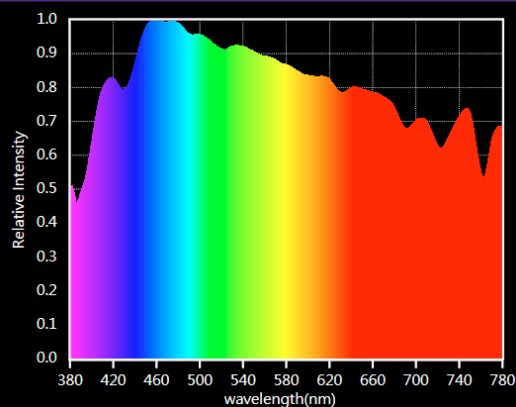
Did you know that brighter light can sometimes make it harder to see? Or that different qualities of light make colors appear differently? In the following pages, we'll cover basic lessons on how the human eye perceives light—and what that means for the types of light we might want in our cities.

How Do We Perceive Light?

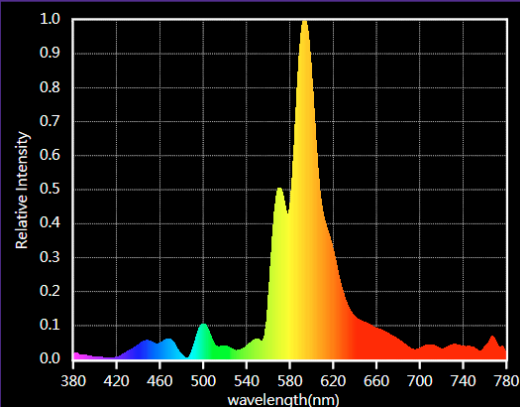
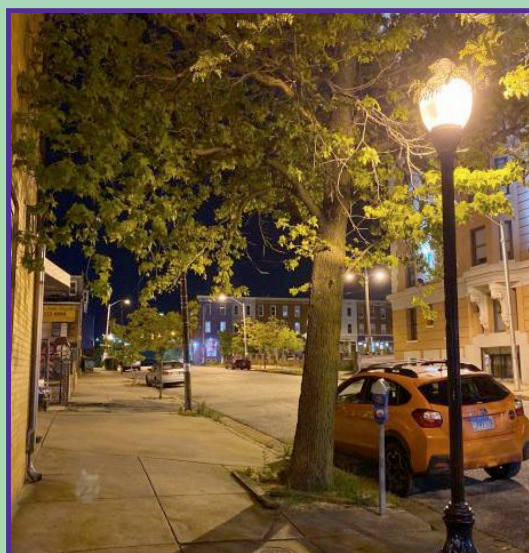
WHAT IS VISIBLE LIGHT?

All visible light falls between 380 and 750 nanometer wavelengths on the electromagnetic spectrum. What we think of as “white light” is actually composed of all the colors in the visible spectrum in varying amounts. You may recall seeing light pass through a prism, which separates white light into bands of its component colors. Or, maybe you’ve seen a rainbow after a rainstorm. That’s the same effect.

White light sources vary in their color composition: one might contain more red, while another has more blue. The color composition of a light source impacts how we perceive that source. We can visualize the relative color content of light by plotting wavelengths of light against relative intensity in what is known as a spectral power distribution (SPD) curve.



Cloudy daylight



High pressure sodium (HPS) light source

These SPD curves visualize the difference between the color content of daylight and a high pressure sodium (HPS) light source. The SPD curve for daylight shows high amounts of all wavelengths of visible light, with a bit of a trend toward blue tones. The SPD curve for the HPS source (common in Station North) shows a dramatic spike at yellow-orange and hardly any blue, green, or red.



Municipal Lighting

WHAT ARE THE SOURCES OF LIGHT?

Look up and around you as you walk through your neighborhood and you'll immediately notice the many sources of artificial light: street lamps, porch lights, light spilling out of homes and businesses, car headlights. Some are more common and consistent than others. Below, we identify the primary light fixtures that you'll see in the Station North Arts District. All fixtures occur in both Light Emitting Diode (LED) and High Pressure Sodium (HPS) models.

Baltimore City is in the process of replacing the older HPS lights with LEDs, so as you observe the nighttime environment, you'll notice a mix of fixtures and light color temperatures. For example, the LED versions of Station North's steel and aluminum pole lights are smaller than their HPS predecessors; they have higher light output and cooler temperatures. LED post top acorn fixtures look the same as their predecessors, but also have brighter light output and cooler color temperatures. We'll talk more about output and color temperatures in the following pages.



Aluminum roadway pole with HPS fixture (old)



Aluminum roadway pole with Bmore Bright LED fixture (new)



Aluminum roadway pole with LED fixture (new)



Pedestrian post with acorn top (LED or HPS)



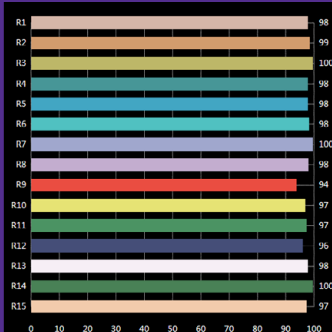
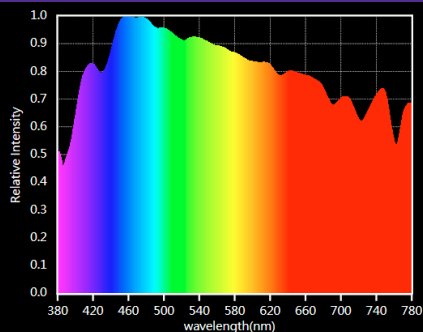
Steel roadway pole with LED fixture (new)



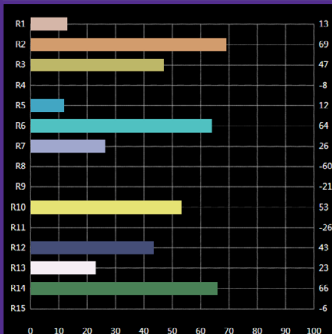
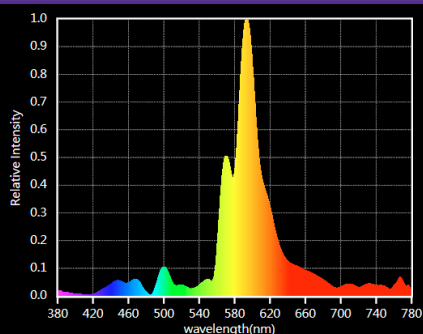
Steel roadway pole with HPS fixture (old)



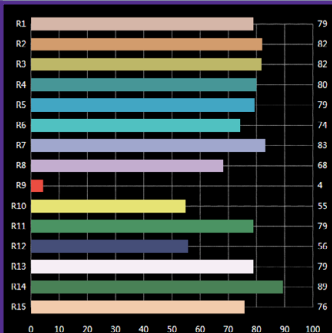
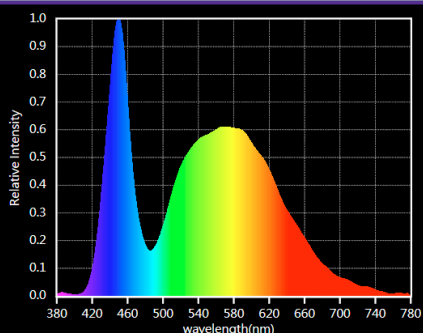
Partly-cloudy daylight



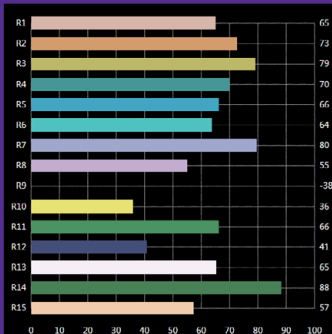
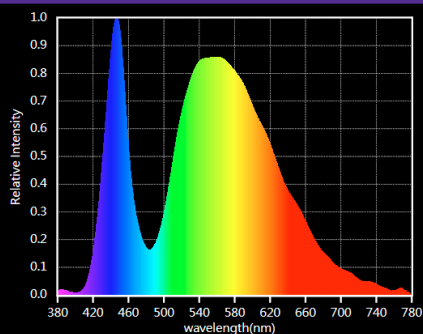
High pressure sodium acorn



Bmore Bright LED



Non-Bmore-Bright LED



Light Color

WHAT IS COLOR RENDERING?

Not all electric light sources allow us to see the same colors that we can see in daylight. A light source's ability to represent the color of an object depends on how much of that object's color is present in the light itself.

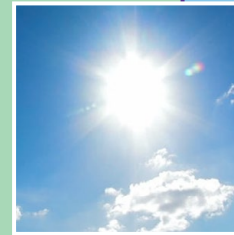
Since daylight contains all the colors in the visible spectrum, it allows us to see objects in their "true colors." Light sources that are missing certain wavelengths of color—the HPS lights have very little blue, green, or red, for instance—will make some objects appear dull or grey compared to how they look in daylight.

Light Color

WHAT IS COLOR TEMPERATURE?

White light comes in a range of colors, from the warm orange glow of candlelight to the cool, blue-tinged light of a snowy day. We use a metric called “correlated color temperature” (or CCT) to describe the color of a white light source. CCT is measured in Kelvin.

The color temperature of the light in an environment affects how that space feels. Warm white sources, like candles, are associated with relaxed, intimate settings. Cooler colors have more institutional connotations, like an office or hospital. Can you think of spaces with different light color temperatures? How do they feel?



Daylight
(5800K+)

Cool White
(4800–5500K)



Neutral White
(3600–4500K)



Warm White
(up to 3500K)



Candlelight (1500K)



Light bulbs and fixtures are often available in a range of color temperatures. When choosing a lamp (lightbulb) for your home or project, look for the temperature description (typically in Kelvin) on the product description.

- > **Warm white** (often 2700 or 3000K) will have a more yellow glow.
- > **Bright white** (often 3500K or 4000K) will feel more neutral.
- > **Daylight temperature** (5000K or higher) will appear cool and blue-ish.

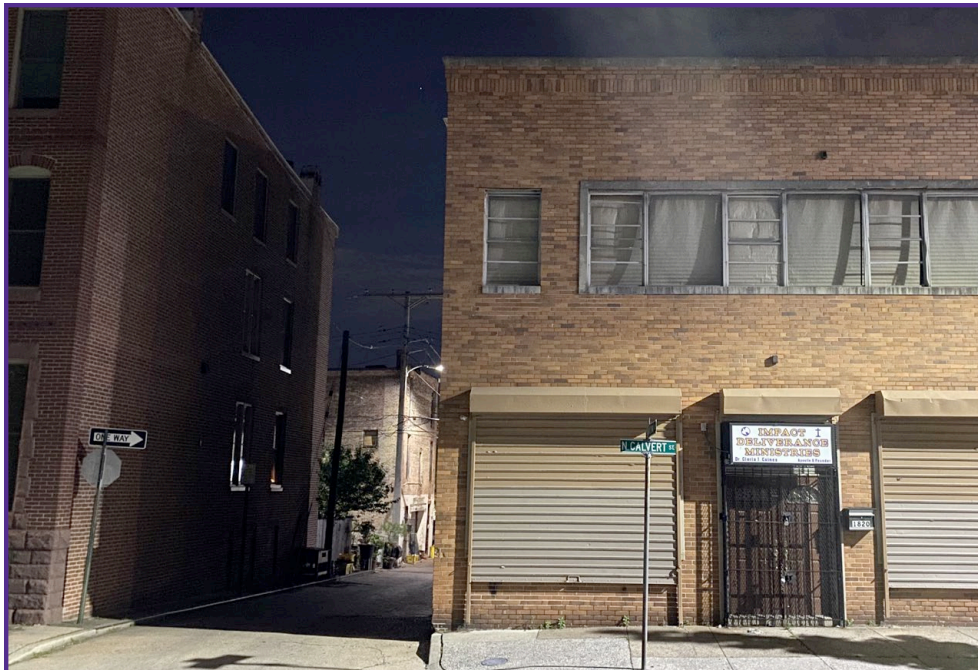
More light is not always better. Low-contrast street lighting makes this block of Latrobe Street feel comfortable, even though it is darker than other parts of the district.



Light & Shadow

CONTRAST AND LIGHT LEVELS

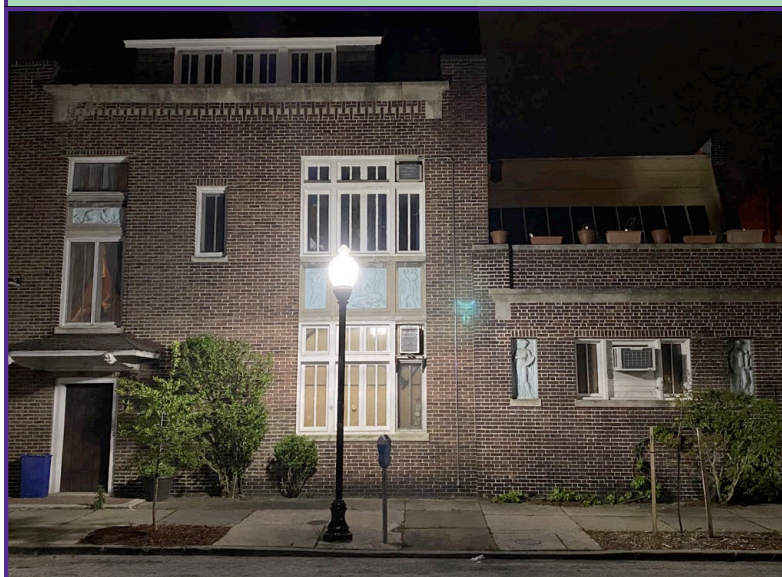
Contrast occurs when street illuminance levels are higher than what is generally recommended. Excessive light on a primary street (Greenmount Avenue, for instance) can cause adjacent side street (think Baltimore alleyways) to feel dark—even if the measured light levels are within the recommended range.



Excessive street light levels can make adjacent spaces such as this alley feel darker than they actually are.



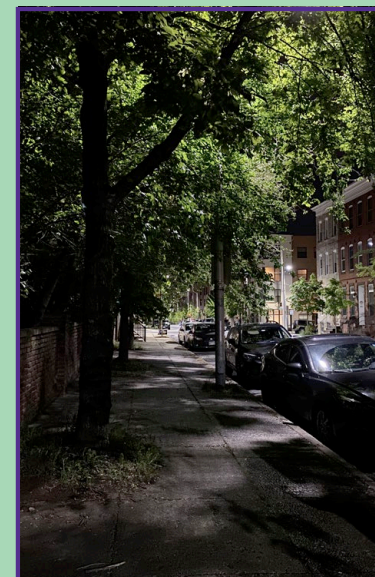
Too much light on the roadway makes this park appear dark. Adding light to the vertical surfaces in the park (sign, mural, trees) and softening or reducing the brightness of nearby street lights would improve these conditions.



Excessively bright LED lights can be uncomfortable to look at and spill into the windows of nearby residences.



Light spilling into first-floor residential windows from an overly bright street light.



Overgrown trees can obstruct lights.

Glare

WHAT IS GLARE?

Glare is an experience of extreme brightness caused by overly bright light sources in your visual field. In the field of lighting design, there are two types of glare: discomfort glare and disability glare. Discomfort glare may feel unsettling, but it doesn't necessarily impair vision. Disability glare, on the other hand, can make it difficult or impossible to see.

Because it is so subjective, glare is notoriously difficult to quantify. Conditions that some people experience as intolerably bright might not bother others. And it's impossible to avoid glare entirely—there will always be some vantage point from which a view of a light source disrupts our vision. Still, limiting glare is an important consideration when designing light for urban spaces.




Bright, unshielded light sources such as these high-output Bmore Bright LED street lights and these wall-mounted fixtures on the side of an apartment building in Station North make the lights uncomfortable to look at, creating a less welcoming environment.

Shielding direct view of bright light sources improves vision in the surrounding area

Photo: International Dark Sky Association





COMMUNITY LIGHTING GUIDE

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How to Get Creative Neighborhood Lighting Done

The [Signal Station North Lighting Plan](#) presents a number of Practical and Conceptual Recommendations to illuminate and animate the public spaces of the Arts District and Baltimore City. We hope that these recommendations and demonstration projects (some of which are highlighted in this Guidebook) will allow people to take neighborhood lighting into their own hands, whether they want to work with an artist to create a light art installation or just add string lights on their block.

While each intervention, no matter the scale, will bring its own complexities, the following pages outline some key questions to ask and steps to take for anyone looking to light up a space in their neighborhood.



Gathering Support

WHAT ARE PEOPLE'S CONCERNS AND DESIRES AROUND ACTIVATION OF THE SPACE WITH LIGHT?

No matter where you want to add light in your neighborhood or what intervention you plan to use, talking to your neighbors to understand their concerns and desires is key to a successful project. Buy in from your neighbors will help you get the project done and make sure that it's maintained and enjoyed for the long term.



Present your project at a community association meeting. This is a great way to gather input and share your work with a large number of people.



Go door to door. Door knocking is a good way to reach people in proximity to a particular site, and people who may not attend community meetings.



Post about your project on social media. Sites like Facebook and Nextdoor are good platforms to reach neighbors.



Host a site visit or community walk. Allowing people to observe a space in real time and talk about it is one of the best ways to understand concerns and needs.



Who's missing? Make sure to question who you've included in the process and who may have been left out. Are there ways to engage people who might not be at community meetings or online? How would a given project impact the most vulnerable members of your community? Keep asking these questions throughout the process.

Lighting Conditions

WHAT ARE THE CURRENT LIGHTING CONDITIONS?

Depending on the space you want to illuminate, and the current lighting conditions, certain lighting interventions may make more sense than others.



Is the area you want to illuminate a site (building, park) or a pathway (sidewalk, series of greenspaces)?

If it's a site, you'll want an intervention that is unique to that space, that emphasizes its particular character; if it's a pathway, you'll want an intervention with repeated elements that invite walking along a route.



Is the area too dim? Too bright? Already sufficiently lit?

Depending on the existing light at your site, you may want an intervention that tempers existing light (like a shield to reduce glare), adds functional light (to a mural that can't be seen at night, or to a dark open space), or that emphasizes that place's character without adding a lot of extra light (creative lighting, tree lights, etc).



How do you want people to use the space at night? Is it a gathering space, a focal point, a pathway?

Think about lighting interventions that support both existing and intended uses. Think about the intention of your proposed lighting idea and who might benefit from it.

Ownership

WHO OWNS THE SITE?

Unless you're planning to do a project on your own building or property, understanding who owns the site is critical.



HOW TO CONNECT WITH THE SITE OWNER



Private owner: Reach out to the owner and collaborate with them to make the project happen. You can identify the owner on SDAT, then reach them by calling, sending a letter, or door-knocking. Establish a written memorandum of understanding (MOU).



City-owned: If the site is city-owned (i.e. Rec and Parks, DHCD, or another entity) you will need to connect with them directly. Depending on the entity, you will need to apply to the City for Right of Entry and establish an MOU.



Community-managed / adopted lot: Collaborate with the group that maintains the site—it might be a community association, garden committee, or Baltimore Green Space, for example. Establish a written memorandum of understanding (MOU).

4

Access to power

Unless you're working with an unlimited budget, understanding the availability of power at sites you're considering is critical when planning your project. Working with the site owner and BGE is a great way to understand what's possible at your proposed location.

?

Is the power privately owned? If the owner of your site, or a neighboring site, is willing to provide power for your project, this is a simple, straightforward way to power an intervention. Establish an understanding in writing.

?

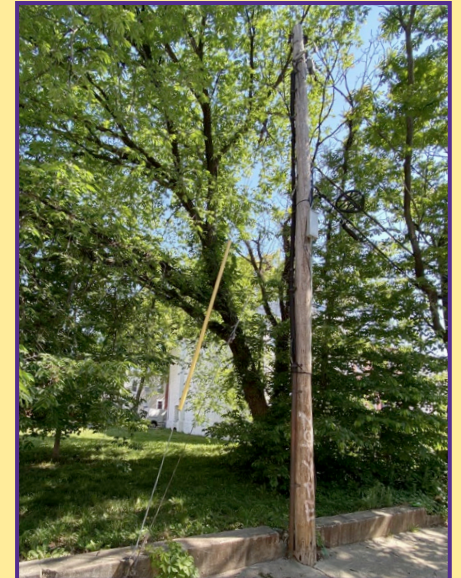
Is it existing BGE/DOT power (above ground)? Look around your site. If you can identify an existing transformer (large, grey cylinder attached to a wooden pole and power lines), it is possible to bring power from this transformer to your site at a low cost (a few hundred dollars).

?

Is it existing BGE/DOT power (below ground)? If you don't see a nearby transformer, you may only have access to below-ground conduit. This means BGE will likely have to dig up sidewalk in order to bring power to your site. This will add significant cost (in the tens of thousands) and time (several months) to your project.



Electric panel and meters on commercial building exterior



Existing above-ground BGE utility pole



Electrical conduit on the exterior of a private residence



Wireless infrastructure attached to DOT pole with below-ground conduit

Maintenance

IS THERE SOMEONE TO MAINTAIN A LIGHTING INTERVENTION AND COVER THE COST OF ELECTRICITY?

Without a maintenance plan, any public intervention—especially one powered by electricity—can quickly go from amenity to eyesore. Make sure to establish a plan for maintaining your installation for the long-term.

Key questions to ask:

- > **Who will pay to repair or replace broken or damaged elements of the installation?**
- > **Who owns liability for the installation?**
- > **Who will pay for the cost of powering the installation?**

PUT IT IN WRITING

Once you've answered these questions, identify these roles in an MOU (memorandum of understanding) signed by all parties. The MOU should cover the intended life-span of the project—at least 5 years for a permanent project.

Funding

IS THERE FUNDING TO SUPPORT AN INTERVENTION?

Some projects with existing power that use affordable off-the-shelf fixtures may be relatively inexpensive to install. Larger, custom projects, and those that require additional power can frequently run into the thousands and tens-of-thousands of dollars.

- > **Many existing programs and grants exist to help support the cost of upgrading lighting or installing a new lighting project in your neighborhood.**
- > **See Lighting Grants on page 28 for a list of some funding resources.**



7

Installation

WHO WILL INSTALL THE PROJECT?

Lighting projects can be relatively simple—installing string lights—or infinitely complex. Consider the difficulty of the work you’re doing and the support you might need to get it done.



KEY QUESTIONS TO ASK

?

Are you plugging into an existing power supply?

If yes, you can probably navigate installation without the involvement of BGE, the City, or an electrical engineer.

?

Do you need to add a new power source? If yes, you’ll have to request a permit from the city, have the work inspected, and collaborate with BGE. Hiring an electrical engineer who can manage these processes is advised.

?

Do you need to add a new power source that involves accessing underground conduit? This will ensure a complex process requiring special permits. Working with an electrical engineer is strongly advised.

Is there a streetlight out in your neighborhood?

In Baltimore City, street lights are owned and maintained by two entities: the city's Department of Transportation and the utility company, Baltimore Gas and Electric. The majority of lights are maintained by BGE, but some are maintained by DOT.

At first glance it's not easy to tell who maintains a light. The **flowchart on the following page** is designed to help you navigate getting a streetlight repaired or altered.



KEEP IN MIND

If you make a request for several outed streetlights on a block or in a neighborhood, it will typically take priority over the repair of a single outed light.

Though it's not always the case, lights on metal poles tend to be owned by DOT and maintained by BGE. Lights on wooden poles (often found in alleys) are owned and maintained by BGE.

It's common for older halogen bulbs (recognizable by their softer, more yellow light color) to burn out. Typically, these bulbs need to be replaced every four to five years.

INFOGRAPHIC KEY

BGE	Baltimore Gas and Electric Company
DOT	City's Department of Transportation
IES	Illuminating Engineering Society

steps
you take

steps
taken by
DOT / BGE

outcome

A streetlight is out

On BGE's site, locate the Outage tab and select Report a Streetlight Outage to open a map of the city's streetlights.

Refer to the color code to determine whether the light is maintained by BGE or DOT.

Report the outage

Work order ticket is written

BGE's process for repairing a cable can take longer because repairs require a design team.

The time it takes for BGE to acquire the permits necessary to remove and replace cables can also slow the process down.

Visit bge.com

If DOT maintains the light

If BGE maintains the light

Inspector conducts on-site visit

Bulbs are typically replaced within 48 hours.

Panels are typically replaced within a week.

Cables can take at least a month to replace.

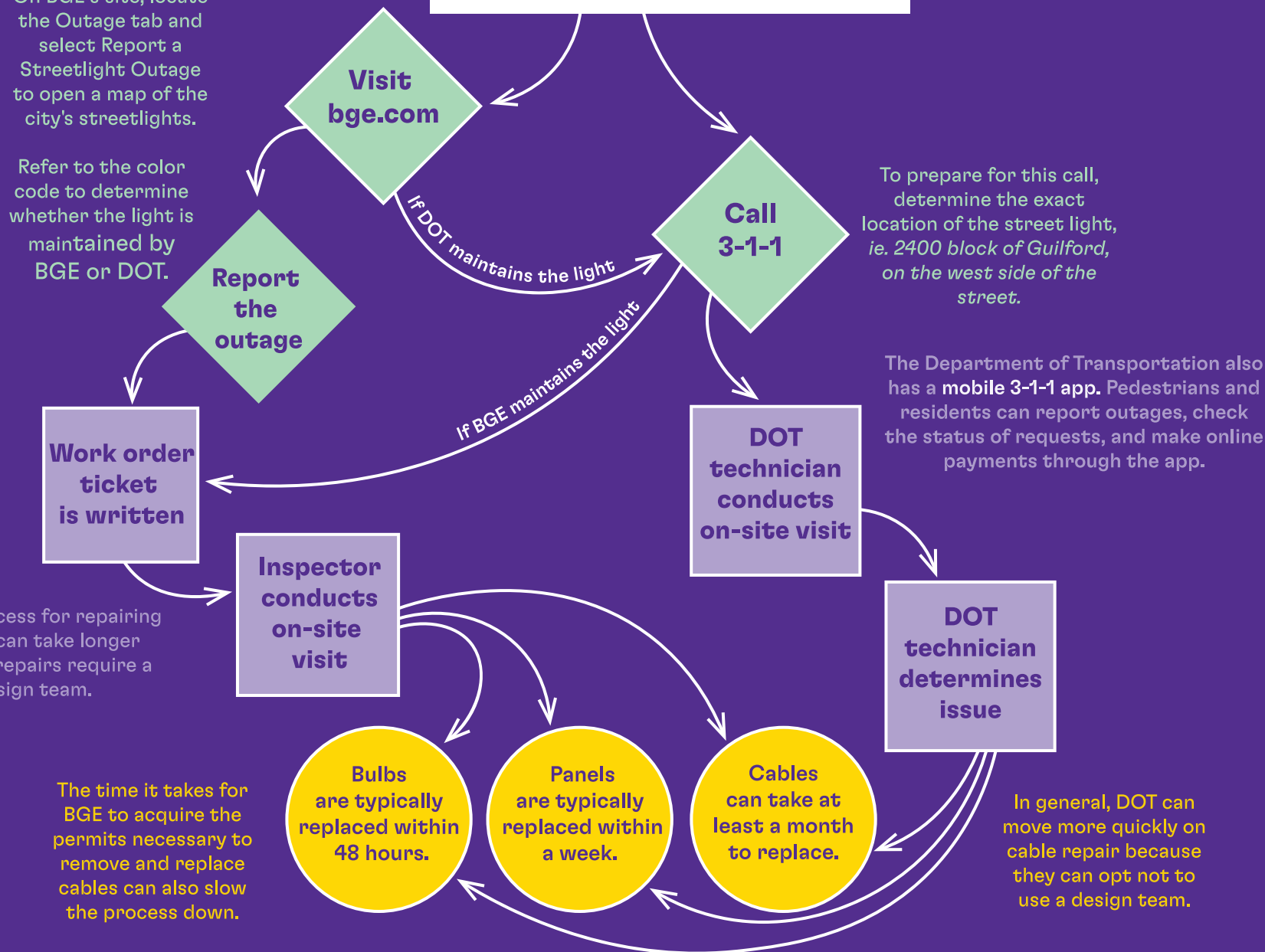
DOT technician conducts on-site visit

The Department of Transportation also has a **mobile 3-1-1 app**. Pedestrians and residents can report outages, check the status of requests, and make online payments through the app.

DOT technician determines issue

In general, DOT can move more quickly on cable repair because they can opt not to use a design team.

To prepare for this call, determine the exact location of the street light, *ie. 2400 block of Guilford, on the west side of the street.*



Is there not enough light on your block? Or are the streetlights too bright?

Even if the lights on your block and in your neighborhood are working, they might not be meeting your needs. It's common for people to feel that the light in their area is insufficient, too bright, or intended more for cars than pedestrians.

Though it's not always easy, you can advocate to have the lighting in your neighborhood changed.

→ **The flowchart on the following page can help.**



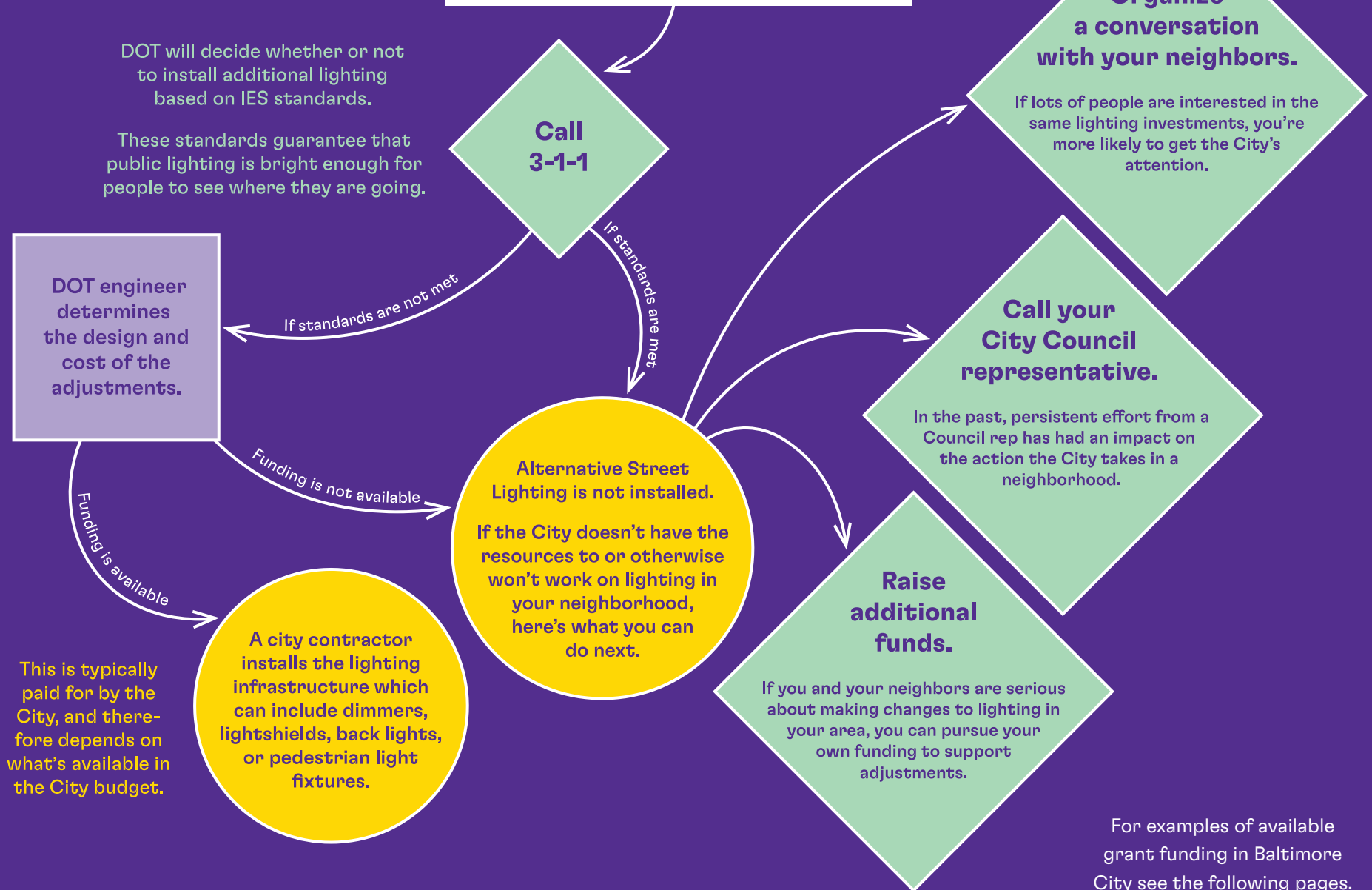
*Have you seen these tower lights in your neighborhood?
How do you feel about them?*

TOWER LIGHTS

In Baltimore, tower lights are sometimes used as a temporary solution to lack of lighting in a neighborhood or on a specific street. Typically, these lights are installed by DOT at the request of the Baltimore Police Department. These tower lights are convenient for the city because they are easily moved from place to place.

However, these lights are not standardized and are not a viable long term solution to lighting issues. In addition to the intense, harsh light they emit, the towers often block the pedestrian right of way and are fueled by diesel engines that produce loud sound and fumes.

Light is too bright, or not enough light



Lighting Grants & Funding Resources

RESOURCES TO HELP FUND A LIGHT PROJECT IN YOUR NEIGHBORHOOD!

FEDERAL GOVERNMENT

Fannie Mae Green Financing - Loan Program

- > Multifamily residential
- > Loan program

<https://programs.dsireusa.org/system/program/detail/5780/fannie-mae-green-financing-loan-program>

MARYLAND STATE GOVERNMENT

Maryland Energy Administration

- > Low-to-Moderate Income Energy Efficiency Grant
- > Local government, nonprofit, low income residential grant program

<https://energy.maryland.gov/govt/Pages/CleanEnergyLMI.aspx>

Maryland Department of Housing and Community Development

- > Multifamily Energy Efficiency and Housing Affordability Program

<https://dhcd.maryland.gov/HousingDevelopment/Pages/meeha/meehaempower.aspx>

- > BeSMART Energy Efficiency Loan for Homeowners

<https://dhcd.maryland.gov/Residents/Pages/besmart/default.aspx>

BALTIMORE CITY GOVERNMENT

Office of Sustainability

- > Baltimore Energy Initiative
 - > Low-interest loans to make buildings more efficient
 - > Community Action Centers to assist customers
- > Baltimore Energy Challenge
- > Baltimore Municipal Energy

<https://www.baltimoresustainability.org/projects/energy-landing-page/baltimore-energy-initiative/>

Department of Housing and Community Development

- > Energy savings loan program

<https://dhcd.baltimorecity.gov/hho/rehabilitation-and-repairs>

Baltimore City Energy Office

- > Commercial, nonprofit
- > Loan program

<https://www.reinvestment.com/BEILoans/>

BGE

Baltimore Gas & Electric Company (Electric) - Residential Energy Efficiency Rebate Program

- > Commercial, residential, multifamily residential
- > Rebate program

<https://programs.dsireusa.org/system/program/detail/3286/baltimore-gas-electric-company-electric-residential-energy-efficiency-rebate-program>

Baltimore Gas & Electric Company (Gas) - Residential Energy Efficiency Rebate Program

- > Residential, low income residential
- > Rebate program

<https://programs.dsireusa.org/system/program/detail/4749/baltimore-gas-electric-company-gas-residential-energy-efficiency-rebate-program>

Baltimore Gas & Electric Company (Electric) - Commercial Energy Efficiency Program

- > Commercial, industrial, local government, nonprofit, state government, federal government, installers/contractors
- > Rebate program

<https://programs.dsireusa.org/system/program/detail/3385/>

[baltimore-gas-electric-company-electric-commercial-energy-efficiency-program](https://www.baltimoregasandelectric.com/energy-efficiency-program)

BALTIMORE NONPROFITS

Southeast Development Community Corporation

- > Neighborhood Spruce-Up Grants (one example is pedestrian lighting)
- > Only neighborhoods in SECDC catchment area

<http://www.southeastcdc.org/spruceup/>

Strong City Baltimore

- > Grants include porch lighting
- > In Greater Homewood

<https://www.strongcitybaltimore.org/initiatives/neighborhood-programs/>

The Abell Foundation

- > Community development (including lighting) and environment are both areas of interest that could include upgraded lighting

<https://abell.org/areas-interest>

Light City

- > Grants as a part of Light City - neighborhood lighting projects
- > Last updated in 2019

<https://brilliantbaltimore.com/light-city/about-light-city/>

Southwest Partnership

- > Capital projects that could include neighborhood lighting

<https://southwestpartnershipbaltimore.org/portfolio/small-neighborhood-grants-available/>

France-Merrick Foundation

- > One focus area is Community & Economic Development, which includes infrastructure improvements
- > Another focus area is Environment, which includes reducing carbon footprint

<https://france-merrickfdn.org/sample-grants>





LIGHT INSPIRATION

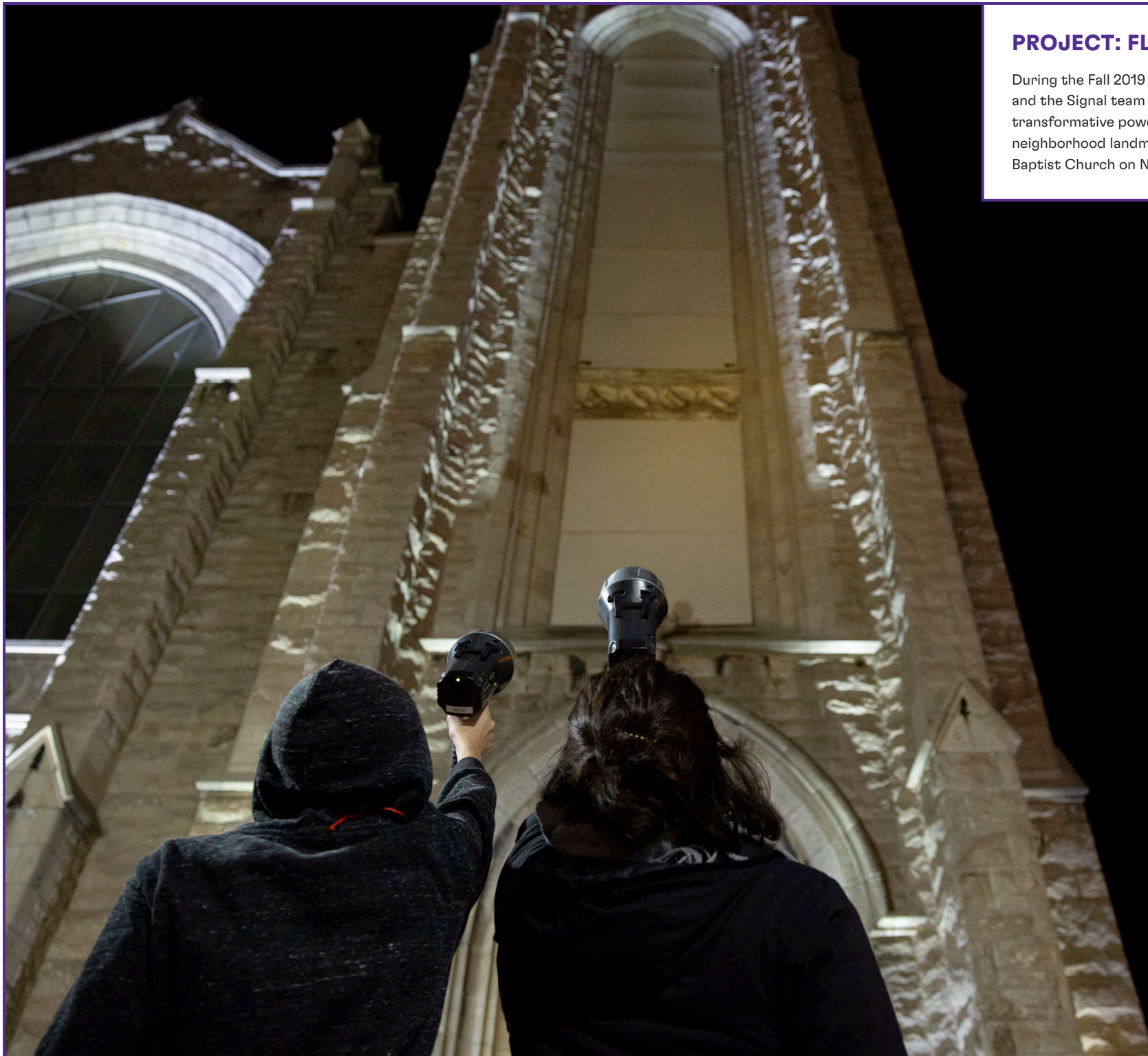
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STATION
NORTH

A concept rendering of Modular Light Fixtures (Flux Studio)



Signal Station North Demonstration Projects

Designers at Flux Studio, Public Mechanics, and PI.KL Studio responded to analysis of current lighting conditions and feedback from months of community engagement to develop several creative concepts that might bring dynamic, functional light and art to the District's nighttime environment. Let these ideas inspire you, and keep an eye out for Signal Light Gallery, Modular Light Fixtures, and Field of Dreams, which will be installed by the Signal Project Team in the coming months.



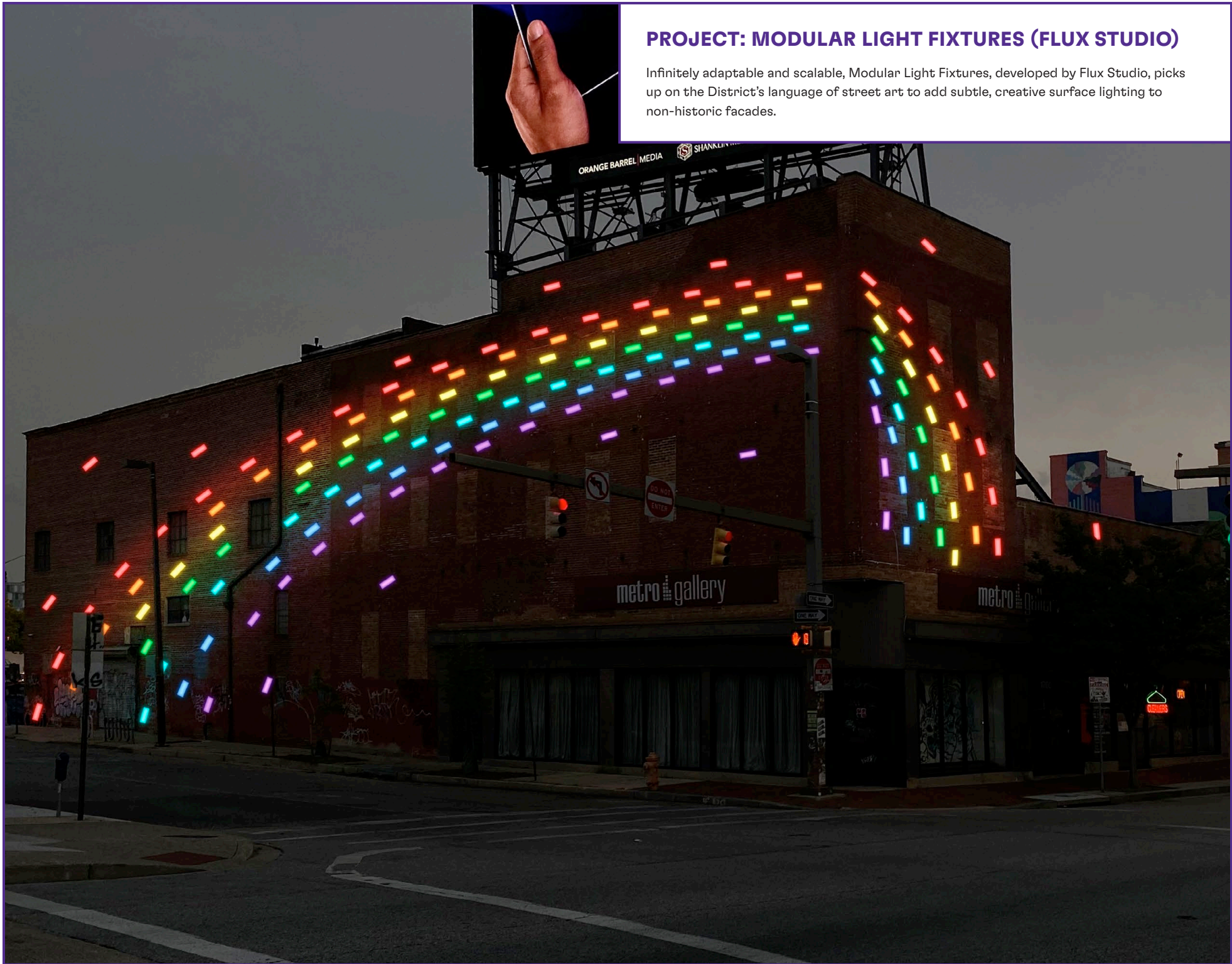
PROJECT: FLASH!

During the Fall 2019 Flash! event, volunteers and the Signal team demonstrated the transformative power of light by illuminating neighborhood landmarks like the Seventh Baptist Church on North Avenue.



PROJECT: SIGNAL LIGHT GALLERY (PUBLIC MECHANICS)

Carrying forward the District's history of public murals, Signal Light Gallery, a concept developed by Public Mechanics, brings the luminous work of artists to neighborhood walls through a rotating "gallery" of curated outdoor projections.



PROJECT: MODULAR LIGHT FIXTURES (FLUX STUDIO)

Infinitely adaptable and scalable, Modular Light Fixtures, developed by Flux Studio, picks up on the District’s language of street art to add subtle, creative surface lighting to non-historic facades.

PROJECT: FIELD OF DREAMS (PI.KL STUDIO)

The Signal Lighting Plan recommends “singular light art” to illuminate neighborhood spaces—individual light interventions that respond directly to their site. For the Wonder-ground, a much-loved, community managed space in Greenmount West, PI.KL Studio developed a playful, interactive intervention that supports access to the park after dark.





PROJECT: COMMUNITY LIGHT WALKS

During the summer of 2021, the Signal team led a series of Community Light Walks through the Station North Arts District. Along the way, we guided participants through a series of observations around light in the neighborhood and asked people to consider how urban lighting makes them feel: safe, alert, welcome, surveilled, cautious? We considered the many sources of light and shared short lessons on key concepts: contrast, glare, color rendering.

PROJECT: LANTERN MAKING WORKSHOP

In January 2021, we collaborated with Futuremakers and the Greenmount West Community Center to host a lantern-making workshop with neighborhood youth and seniors. Participants built and decorated their own LED lanterns to display at home.





PROJECT: ZINES (RUBY WALDO)

The Signal team collaborated with artist Ruby Waldo to create two zines: *A Guide to Noticing Light in the Neighborhood* and *A Guide to Navigating Lighting at Night*. Distributed at three free newspaper boxes in the District, the zines invite readers to observe the light in their environment and offer at-a-glance tips on how to engage with Baltimore's lighting infrastructure.

CONCEPT: GHOST STOOPS (PUBLIC MECHANICS)

This public art installation proposal recalls demolished Baltimore rowhouses. Marble stoops and the glowing outlines of front doors illuminate spaces once occupied by rowhouses and generations of Baltimoreans. This poetic installation is meant to activate empty lots across the District and provide opportunities for seating and gathering.





CONCEPT: LIGHT SHIELDS (FLUX STUDIO)

These decorative attachments are conceived to fit onto LED street lights to reduce light spill onto building façades, while creating a dappled effect that brings to mind light filtered through a tree canopy.

CONCEPT: BIG MOON (PI.KL STUDIO)

Sculptural lighting such as this large, glowing orb could be used to activate the many pocket parks across the District, while providing unique illumination that accentuates the character of the area.



This rendering by PI.KL Studio visualizes an inviting nighttime environment that includes many of the lighting elements, light art installations, and recommendations from the Signal Station North Lighting Plan.



Signal Station North Lighting Plan

→ View the full plan at signalstationnorth.com

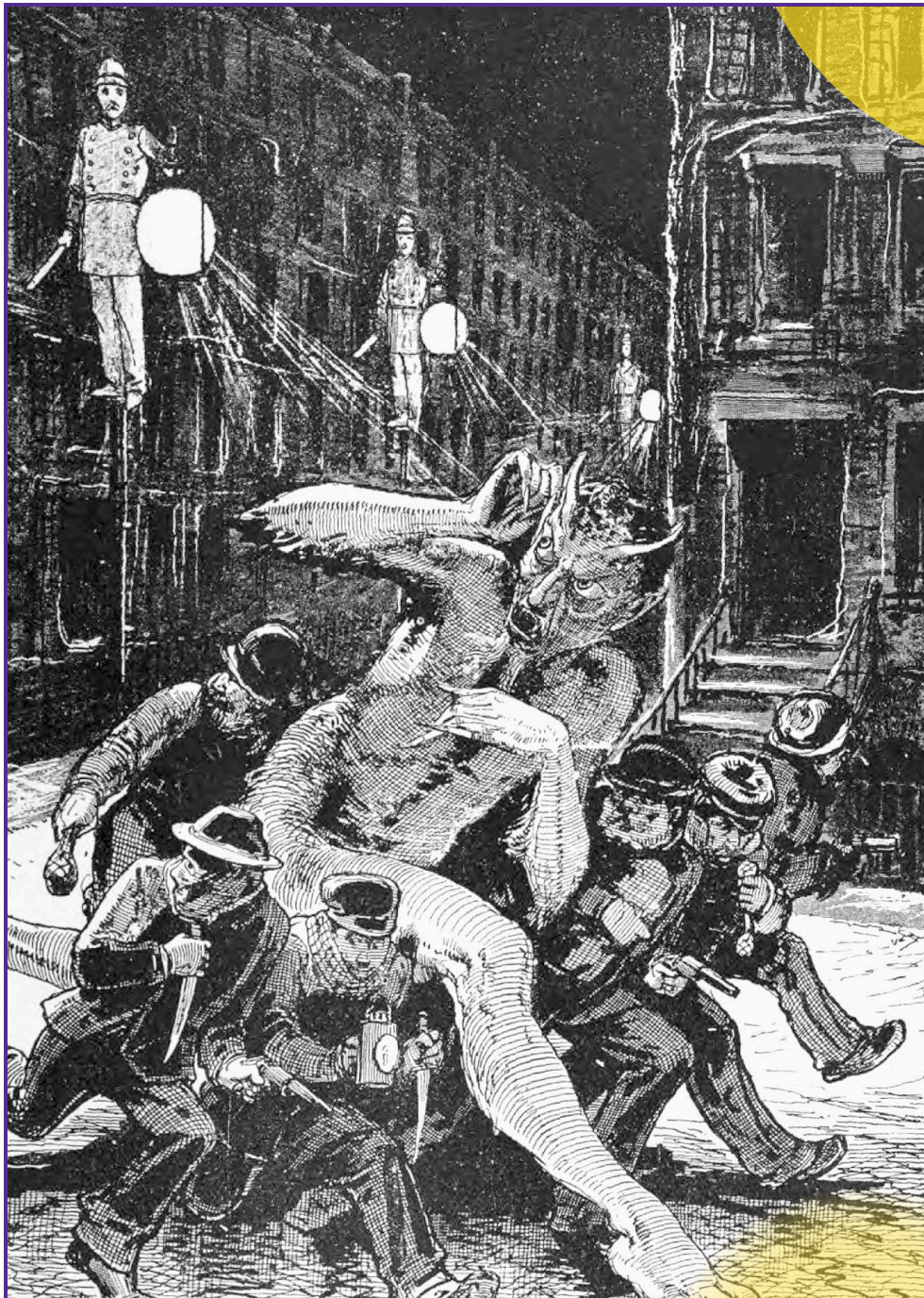
The Signal Station North Lighting Plan is a formal district-wide plan designed for implementation of lighting improvements at a municipal, neighborhood, and individual scale.

The plan envisions a nighttime environment with uniform street lighting, gentle light spill from storefronts and residences, and a warmer color temperature punctuated by inventive, colorful lighting installations. Together, these lighting elements invite the presence of pedestrians, public transportation riders, and cyclists, open access to neighborhood spaces at night, and emphasize the artistic character of Station North.

While the plan is specific to the Station North Arts District, many of its projects and design recommendations can apply to any neighborhood in Baltimore, and beyond.

LIGHT READINGS

SIGNAL
STATION
NORTH



“The Powers of Evil are Fleeing before the Light of Civilization” from John A. Jakle’s *City Lights: Illuminating the American Night*, originally published in the *Electrical Review* in 1885, shared by Mo Speller.

CASE STUDY 1

Light as Law Enforcement

In Baltimore, many types of lighting have been associated with policing. These include helicopter lights, blue lights, and light towers. The assumption that light decreases crime has become widely accepted in law enforcement, and this idea originated in Baltimore.¹ In fact, there was an act passed in Baltimore that simultaneously erected the first street lights and created the night watch, a precursor to the police.² The police were in charge of the early street lights in Baltimore. A cartoon, “The Powers of Evil are Fleeing before the Light of Civilization,” from the late 1800s illustrates this connection, where criminals and a devil-like creature are running away from stoic policemen holding light.³ However, a study in the UK showed that reduced street lighting did not lead to an increase in crime,⁴ and research is divided on this topic.

When police helicopters were brought to Baltimore in 1970, Baltimore was only the second police department on the East Coast to use the new technology.⁵ Helicopters contain spotlights, which are bright lights that can shine down on specific locations. They can support ground units in tracking suspects, illuminate areas where crime has occurred, help with search and rescue, and more.⁶ In the early 2000s, the helicopters in Baltimore had lights that were 200,000 times brighter than a household light bulb.⁷

Blue lights were once a staple of Baltimore streets, but they had been largely removed by the 2010s.⁸ These blue lights were attached to police cameras called “poddies,” but they have since been replaced with closed-circuit cameras.⁹ The lights were a source of disagreement: some Baltimoreans supported them as crime deterrents, others felt the blue lights were an invasion of privacy and ineffective.¹⁰ Critics said that blue light cameras were one way in which policing was different in different neighborhoods, with a disproportionate psychological toll on certain neighborhoods, while supporters said that the cameras were all over the city.¹¹ In an interview in 2013, then Councilmember Brandon Scott advocated for more cameras in the business corridor of his district, as his constituents said that the cameras were a signal to business owners that the area was valued.¹²

Tower lights, sometimes called light towers, are diesel-powered, mobile lights. Research by Dr. Mo Speller has revealed many instances where these lights were used to supplement insufficient street lighting, replace broken street lights, or light up an area after a crime has occurred. For more information, see Dr. Speller’s essay on page 54. Tower lighting is installed by DOT at the request of BPD or City Council. It is used because it is mobile, so it is very quick to deploy. It is an unofficial solution to when there is an urgent need for more light.¹³

A recent experiment in New York City utilized tower lights. Tower lights were placed in public housing where residents had requested increased lighting in a \$5 million, 6 month experiment.¹⁴ While the study found that crime decreased by 59%, these numbers have been disputed.¹⁵ The intensely bright light and noise from the light towers disrupted the sleep patterns of many residents.¹⁶

CASE STUDY 2

LED & Energy Efficiency: A more efficient lighting infrastructure

Baltimore’s switch to Light Emitting Diode (LED) street lights is part of a broader global initiative. LED lighting uses less energy than the lighting that came before it, high pressure sodium lights. This results in multiple benefits, including savings for the city and fewer carbon emissions that contribute to climate change. LEDs also last longer, allowing the city to save on maintenance costs.¹⁷ With the addition of dimmers, which attach to the street light and allow the lighting level to be changed, the energy consumption could be even less.¹⁸ LED lights also help with light pollution, because light is directed toward only the ground instead of in all directions.¹⁹

According to the Climate Group, a global nonprofit focused on climate change, lighting accounts for 5% of global carbon dioxide emissions, and a global switch to LEDs could save 1,400 million tons of carbon dioxide.²⁰ By switching to LEDs, Baltimore City is saving roughly 50% in energy consumption, and saved \$1.34 million as of 2019.²¹

LED lights come in multiple temperatures, which describe the color of the light. Instead of temperature being measured in Fahrenheit, lighting uses the temperature scale “Kelvin,” with a symbol of “K.” Generally, higher temperatures are associated with more blue light and lower temperatures are associated with more yellow light. The terminology can be confusing, because “higher” temperatures have a “cooler” color. ([For more on light color, see page 11](#))

1500K 2500K 3500K 4500K 5500K 6500K

Candlelight Warm White Neutral White Cool White Daylight

Light temperatures and color. Light temperature is measured on the Kelvin (K) scale. From left to right, as the temperature increases the color gets more blue.²²

Higher color temperatures, which have more blue light, have sparked some health concerns. The American Medical Association recommends LED lights with a temperature under 3,000 K because higher temperatures could have adverse health effects. Some of these effects are: discomfort from glare, “reduced sleep times, dissatisfaction with sleep quality, excessive sleepiness, impaired daytime functioning and obesity.”²³ However, other entities, such as the Illuminating Engineering Society, dispute the results of the American Medical Association research.²⁴ Others say that higher temperature LEDs are safe when taking other considerations into account, such as the lighting design.²⁵

Currently, Baltimore uses lights with a temperature of slightly hotter than the American Medical Association guidance. City lights are 4,000 K, which is the same temperature standard used by BGE and Maryland State. When Baltimore first started installing LEDs in 2011, the Department of Energy advocated for temperatures in the 5,000–6,000 K level, because these were the most energy efficient. At that time, 3,000 K lights were not energy efficient, so Baltimore went with 4,000 K lights.²⁶ The 4,000 K lights, while having a hotter temperature than recommended, are an improvement over 5,000–6,000 K lights. However, the technology has since improved, and 3,000 K lights are now energy efficient. In the future, the city is open to installing energy efficient lights with lower temperatures.²⁷

CASE STUDY 3

The Relationship Between DOT and BGE: Who owns the lights?

The city Department of Transportation (DOT) works with a private utility company, Baltimore Gas and Electric (BGE), to run the street light infrastructure. DOT and BGE have an agreement that determines how they share responsibility for the street lights. This agreement is called a “tariff,” and it is common for government agencies and utility companies to have one.²⁸

Many lights in Baltimore are owned by DOT but operated by BGE, and DOT pays BGE for this service. Instead of paying for how much energy the street lights are using by kilowatt-hour, DOT pays one flat rate from dusk until dawn. This flat rate is determined in the tariff, and is the same no matter how much energy DOT uses.²⁹

Many municipalities and utilities across the region are working toward implementing LED lights.³⁰ LED technology reduces the amount of energy each light uses, and these savings could be shared between the government and the utility.³¹ However, because the current tariff says that the cost per light is the same no matter the energy output, there is no financial incentive for DOT to use more energy efficient street lights.³²

CASE STUDY 4

IES Standards: How bright should the lights be?

One goal of street lighting is to ensure pedestrians and drivers can see where they are going. How does the city decide how bright the lights need to be for this?

The DOT uses standards created by experts that say how bright the lights need to be.³³ These standards come from the Illuminating Engineering Society (IES), an organization that specializes in lighting, and whose members include lighting professionals such as engineers, contractors, and utility personnel.³⁴ The IES is accredited to make standards that cities can adopt.³⁵ Anyone who designs lighting infrastructure within the city must follow them.³⁶

The following paragraph provides one example of the type of information these standards provide. One important place to have lighting is any place where a pedestrian is at risk of being hit by a car, for example, on a crosswalk. These are called “pedestrian conflict areas.”

Some roads are busier than others, so the standards describe four roads, listed in order from the most vehicles to the least: expressway, arterial, collector, and local. They can come into contact with different amounts of pedestrians: high, medium, and low. For



Light levels at “pedestrian conflict areas” (i.e. crosswalks) must often meet minimum brightness standards. These standards can contribute to the overlighting of intersections and exacerbate glare and shadows along adjacent sidewalks. [See pages 13–15](#) for more information about light, shadow, and glare.

each of these four types of roads and three types of “pedestrian conflict areas,” there is a minimum value of light needed.³⁷ Places with more pedestrians and more vehicles need brighter light. Designers and planners must meet these minimums in their designs.

The decision to use these standards comes from DOT. DOT is the only agency that enforces them,³⁸ and they do not always follow the standards. To determine if the lighting is following the standards, a person would have to use a light meter, measuring the amount of light in a location. If this amount of measured light is below the value listed in the IES standard, then the lighting is inadequate.

CASE STUDY 5

Bmore Bright: A brighter Baltimore

The Bmore Bright initiative aims to reduce crime by implementing new lighting technology.³⁹ This initiative was driven by Mayor Pugh, who promised constituents that she would put in more lights in Baltimore if elected. She also had a good working relationship with the CEO of BGE at the time, Calvin Butler.⁴⁰

The project involves changing out older lightbulbs to install new LED lighting. The city has upgraded 10,000 lights to LEDs through the program, bringing the total number of street lights with LEDs to two-thirds of the almost 80,000 street lights in the city.⁴¹ The project also begins the installation of infrastructure needed for Baltimore to become a “Smart City,” which would utilize street lights to host new technology, such as public Wi-Fi.

There are no additional costs to individual residents or businesses with new lights on their blocks,⁴² but the City has paid BGE at least \$3.5 million for Bmore Bright.⁴³ While the first phase of the project was completed, the second phase is on hold.



Baltimore's LED lighting appears more bright and white. Washington D.C. (left) and Baltimore (right) as seen from the International Space Station. *Photo: NASA / International Space Station Expedition 63 Crew*

The switch to LED lights marked a change in the color of street lights in Baltimore, from yellow to blue, due to the 4000 K temperature of the lights. The color difference can now be seen from space — Baltimore looks like a completely different color from Washington D.C., as shown in the picture above, taken by NASA.

Some neighborhoods fought this change in color. In Guilford, one of the wealthiest neighborhoods of Baltimore, residents successfully lobbied for the city to install lights with a yellow color instead.⁴⁴ While Bmore Bright is currently on hold, if the program were to be resumed, DOT would be open to using a lower light temperature across the city.⁴⁵

CASE STUDY 6

Smart City

In the future, street lighting will be used for more than just illuminating streets—many cities, including Baltimore, are aiming to become “Smart Cities,” which use technology to help the city run. Street lights, as they are spread out across cities, are going to be the locations of many of these new technologies. For example, a city may attach an air quality sensor to a street light.

Some example technologies that Baltimore is considering are:⁴⁷

- > Wi-Fi
- > Cameras
- > Environmental sensors
- > Digital signage
- > Gunshot detectors

Much of this technology is still in the beginnings of being implemented. An example of a city that has already implemented some of these sensors is Los Angeles⁴⁸. The table on the right shows some examples of smart city technology that LA is currently using, providing the name of the technology, what it does, and how LA is using it. LA is at the forefront of this technology, so they provide a great example. However, these technologies may not necessarily be implemented in Baltimore. There are many more than what is mentioned in this list.

SMART TECH	WHAT DOES IT DO?	HOW IS L.A. USING IT? ⁴⁹
Air Quality Monitoring Sensor	The sensors collect data on air quality for scientific research.	The city is placing them in neighborhoods that have historically had the worst air quality to support data collection and research.
Multi-Use Counter	The aim of this technology is to count pedestrians, cyclists, and vehicles. It uses an algorithm to recognize the shapes of these categories, without recording images.	The city will adjust lighting levels based on how many pedestrians, cyclists, or vehicles are in a location. The data will inform other technology, including TLZs, which are described below.
Safety Cameras	These are cameras attached to street lights.	LA is using them to deter illegal trash dumping and the stealing of copper wire.
Smart Nodes	These directly affect the level of LED lighting, allowing for the utility company to control brightness without changing the light itself. Furthermore, if the light goes out, the utility would automatically be notified, so the customer would no longer have to call 311.	LA will continue to deploy these, hoping to have all of their lights connected to the network.
Smart Poles	The poles could include Wi-Fi, USB ports, speakers, and more.	LA is using them to bring public Wi-Fi to underserved areas.
Transitional Lighting Zones (TLZ)	These zones are places where there can be many pedestrians, such as next to a stadium after a football game. The street lighting would normally match the rest of the city, but after the football game, be temporarily brighter.	LA will designate multiple types of TLZs across the city.

A partial list of some of the smart city technology being used in Los Angeles

These smart technologies have received both support and criticism. Some of these technologies, such as Wi-Fi and air quality sensors, are popular. However, others have received pushback. For example, in San Diego, there was an outcry after police started using footage from safety cameras installed on street lights. The cameras were turned off until the city could create an ordinance regulating the data.⁵⁰

In Baltimore, these cameras might provoke a response similar to the one caused by the Blue Lights. Because these technologies are new, their implementation may bring about unintended benefits and consequences. In the future, cities may be able to profit off of street lights, with ad revenue from digital banners and selling data they collect from street lights.⁵¹ The implementation of these technologies may outpace regulation.

Baltimore has already implemented gunshot detectors from ShotSpotter, attaching them on buildings instead of street lights. When a gunshot occurs, this sensor detects it and relays the information to police, instead of having to rely on someone calling 911.

At a meeting on April 19, 2018, community leaders in West Baltimore responded positively to the technology.⁵² However, there are privacy concerns. In Philadelphia, a microphone on a ShotSpotter device captured a suspect's conversation, and this recording was used against him as evidence. However, the company said these microphones would not be installed in Baltimore.⁵³

ShotSpotter has also come under criticism in the wake of protests against police brutality. Gunshot detection alerts from ShotSpotter played a role in the police shooting of Adam Toledo in Chicago, and the system may lead to an increase in the number of police encounters in areas where ShotSpotter is installed.⁵⁴



There are other examples of Baltimore beginning to implement smart technology, such as the street light pictured above. Small cell attachments, which wireless networks use to improve their connectivity are already being installed throughout the city. They are important for implementing 5G networks.⁵⁵

NOTES: CASE STUDIES

- 1 <https://baltimorepolicemuseum.com/en/bpd-history/street-lamps.html>
- 2 <http://aomol.msa.maryland.gov/megafile/msa/speccol/sc2900/sc2908/000001/000141/html/am141--1597.html> shared by Dr. Mo Speller
- 3 From John A. Jakle's *City Lights: Illuminating the American Night*, originally published in the Electrical Review in 1885, shared by Dr. Mo Speller
- 4 <https://jech.bmj.com/content/69/11/1118>
- 5 <https://baltimorepolicemuseum.com/en/bpd-units/aviation-unit.html>
- 6 <https://baltimorepolicemuseum.com/en/bpd-units/aviation-unit.html>
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- 8 <https://www.baltimoresun.com/news/bs-xpm-2008-05-16-0805160191-story.html>
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- 10 <https://www.baltimoresun.com/news/bs-xpm-2008-05-16-0805160191-story.html>
- 11 <http://www.linesbetweenus.org/our-stories/episode-26-blue-light-special.html#>
- 12 <http://www.linesbetweenus.org/our-stories/episode-26-blue-light-special.html#>
- 13 Interview with Cary Blake
- 14 <https://www.washingtonpost.com/business/2019/05/14/economists-conducted-million-experiment-literally-shed-light-crime/>
- 15 <https://www.vice.com/en/article/z48j83/police-floodlights-are-unlikely-to-reduce-crime-but-could-harm-your-health>
- 16 <https://www.vice.com/en/article/z48j83/police-floodlights-are-unlikely-to-reduce-crime-but-could-harm-your-health>
- 17 <https://transportation.baltimorecity.gov/bmorebright>
- 18 Interview with Cary
- 19 <https://spectrum.ieee.org/green-tech/conservation/led-streetlights-are-giving-neighborhoods-the-blues>
- 20 <https://www.theclimategroup.org/led>
- 21 <https://news.maryland.gov/mea/wp-content/uploads/sites/15/2020/10/FINAL-LED-Streetlights-in-Maryland-20200929.pdf>
- 22 <https://www.superbrightleds.com/blog/warm-white-led-streetlights-theyre-better-environment/4378/>
- 23 <https://www.ama-assn.org/press-center/press-releases/ama-adopts-guidance-reduce-harm-high-intensity-street-lights>
- 24 https://www.architectmagazine.com/technology/lighting/status-report-ama-blue-light-controversy_o
- 25 <https://www.portlandoregon.gov/transportation/article/678781>
- 26 Interview with Cary
- 27 Interview with Cary
- 28 Interview with Cary Blake
- 29 Interview with Cary Blake
- 30 <https://news.maryland.gov/mea/wp-content/uploads/sites/15/2020/10/FINAL-LED-Streetlights-in-Maryland-20200929.pdf>
- 31 <https://news.maryland.gov/mea/wp-content/uploads/sites/15/2020/10/FINAL-LED-Streetlights-in-Maryland-20200929.pdf>
- 32 Interview with Cary Blake
- 33 <https://transportation.baltimorecity.gov/sites/default/files/upload/01-city-state-and-fed-design-standards-lighting-design-guide.pdf>
- 34 <https://www.ies.org/>
- 35 <https://www.ies.org/about/>
- 36 <https://transportation.baltimorecity.gov/sites/default/files/upload/01-city-state-and-fed-design-standards-lighting-design-guide.pdf>
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- 39 <https://transportation.baltimorecity.gov/bmorebright>
- 40 Interview with Cary
- 41 <https://transportation.baltimorecity.gov/news/press-releases/2019-11-07-mayor-bernard-c-%E2%80%9Cjack%E2%80%9D-young-and-department-transportation-director>
- 42 <https://transportation.baltimorecity.gov/bmorebright>
- 43 <https://baltimorefishbowl.com/stories/baltimore-to-pay-bge-3-5-million-to-install-new-6000-lights-across-the-city-upgrade-existing-ones/>
- 44 Interview with MPC
- 45 Interview with Cary
- 46 <https://ggwash.org/view/79030/why-washington-and-baltimore-are-different-colors-from-space>
- 47 <https://transportation.baltimorecity.gov/bmorebright>
- 48 http://bsl.lacity.org/downloads/strategic_plan.pdf
- 49 http://bsl.lacity.org/downloads/strategic_plan.pdf
- 50 <https://www.techwire.net/news/city-pulls-plug-on-streetlight-cameras-pending-surveillance-ordinance>
- 51 <https://www.axios.com/smart-cities-street-lights-859992a6-6931-48e5-81ba-7f0a0b8058d9.html>
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- 53 <https://baltimorefishbowl.com/stories/shotspotter-audio-sensors-deployed-in-east-west-baltimore-to-help-bpd-detect-gunfire/>
- 54 <https://theintercept.com/2021/04/13/chicago-police-killing-boy-adam-toledo-shotspotter/> Shared by Dr. Mo Speller
- 55 <https://www.telit.com/blog/5g-networks-guide-to-small-cell-technology/>

Light & Equity Reading List

BLOG POSTS

City Lights and Politics

Klaus Philipsen, FAIA

<https://communityarchitectdaily.blogspot.com/2017/02/city-lights-and-politics.html>

Light as an Equity Issue

Klaus Philipsen, FAIA

<https://communityarchitectdaily.blogspot.com/2018/04/light-as-equity-issue.html>

PODCASTS

Blue Light Special

The Lines Between Us

<http://www.linesbetweenus.org/our-stories/episode-26-blue-light-special.html>

The Night Sky

Pop-Up Magazine

<https://www.popupmagazine.com/fieldguide-night-sky/>

Surveillance & Local Police: How Technology is Evolving Faster than Regulation

NPR

<https://n.pr/3AISWDK>

ACADEMIC REPORTS

Inclusion of Equity in an LED Citywide Street Lighting Replacement Program

Peter Koonce, P.E.

<https://bit.ly/3kfz4fW>

Tackling Social Inequalities in Public Lighting

London School of Economics and Political Science

<http://eprints.lse.ac.uk/66626/>

ARTICLES

Are You Afraid of the Dark? On the politics of public lighting

Lauren Collee, *Real Life*

<https://reallifemag.com/are-you-afraid-of-the-dark/>

Police Floodlights are Unlikely to Reduce Crime, but Could Harm Your Health

Ethan Chiel, *VICE*

<https://bit.ly/2XpZGCE>

Chicago Awaits Video of Police Killing of 13-Year-Old Boy

Jamie Kalven, *The Intercept*

<https://bit.ly/3CiQXkf> — Note: large section on ShotSpotter, a technology that may be attached to street lights in the future

VIDEO

Omnipresence

Nadia Hallgren's film *Omnipresence* tells the story of a Bronx housing project's floodlights, which some residents find oppressive. (via *The New Yorker*)

<https://www.newyorker.com/video/watch/omnipresence-film>



Take a walk around your own neighborhood and observe how different types of light make you feel. How do various light colors, municipal lighting strategies, and types of lights change the mood and perception of a space?





A History of Urban Inequality and Street Lighting in Baltimore

MO SPELLER

In 1817, Baltimore became the first city in America to install gas street lights.¹ As one local historian explained in 1928, Baltimore had “the reputation of being a city of first things,” and often adopted new technologies earlier and on a larger scale than other cities.²

However, even as new forms of public lighting were adopted, Baltimore continued to use older lighting technologies in many of its streets. Instead of replacing older lighting systems such as gas lamps with the newest form of electric street lamps, many cities played with the aesthetics of different lights to produce public lighting that could be subtle or bright, diffused or focused, or have a blue or yellow cast.³

This undated photograph shows **Baltimore's War Memorial Plaza**, located near City Hall, decorated in strings of light and American flags. Patriotic light displays were especially popular during and just after WWI, when other forms of illumination focused on commerce or entertainment were frowned upon as a frivolous waste of fuel. *From original glass negative, Hughes Company Glass Negatives.*

City planners and leaders would need all the lighting effects they could muster, because American cities from the 1890s onward were also being swept by new ideas about the importance of infrastructure to civic identity. During this period, often known as the “Progressive Era,” reformers worked to reorganize cities according to scientific principles and took on monumental public works projects to demonstrate their modernity and technological achievement.⁴ More than ever, street lighting came to be seen as a way for a neighborhood, commercial district, or city to distinguish itself.

But the new interest in public infrastructure projects that overtook cities like Baltimore during the Progressive Era would not apply equally to all members of the public. As city leaders became interested in improving and reorganizing urban spaces, they also became invested in new strategies for sorting urban populations according to race and class. As ever a “city of first things,” Baltimore was, unfortunately, also an innovator in developing new tools for segregating its citizens by race.⁵

Perhaps the most ambitious lighting project taken on in Baltimore during this period was Baltimore’s “Great White Way,” a series of bright street lamps arranged along downtown roadways including Baltimore, Charles, and Calvert Streets. “White way” lamps were so called because of the high intensity light which appeared white, but the focus on white way lighting during this period was also closely tied to ideas about race, urban space, and social hierarchy.

Throughout the twentieth century, business leaders, mayors and planners in Baltimore have often proposed new innovations in public lighting that could make Baltimore stand out amongst other cities, reduce crime, or attract new residents. Although Baltimore has been eager to invest in new lighting technologies, the benefits of its street lighting infrastructure have not been shared equally across the city.

For example, when in 1957 Baltimore ended its use of gas lamps, many neighborhoods still were lit by oil lamps, a technology associated with the eighteenth century.⁶ In some instances, such as with the romanticization of gas light, aesthetics were part of why new light technologies were adopted more quickly in some neighborhoods than others.⁷

More often, the uneven adoption of new lighting technologies, particularly those which required underground infrastructure such as gas lines or electrical conduit, has also mapped out a geography of social inequality in the city. Lighting in majority Black and lower-income neighborhoods was, and often still is, more likely to include “off-the-grid” technologies— from lamps that needed to be refilled with oil or kerosene in the nineteenth and twentieth centuries to the diesel-generator powered flood tower lights we encounter in Baltimore today.⁸ While lighting is associated broadly with concerns of public safety, particularly harsh lighting has often been used in lower-income neighborhoods in part because of a belief that both darkness and poverty breed criminality.

**PARTICULARLY HARSH LIGHTING HAS
OFTEN BEEN USED IN LOWER-INCOME
NEIGHBORHOODS IN PART BECAUSE OF
A BELIEF THAT BOTH DARKNESS AND
POVERTY BREED CRIMINALITY.**

EARLY BALTIMORE LIGHTING

The first public lighting in the United States consisted of oil lamps or candles which produced only a dim light. Baltimore began erecting oil lamps in 1784, joining other cities like New York, Boston, and Philadelphia which installed lamps fueled by various oils as early as the 1700s.⁹

In the eighteenth century, many Americans saw night as a dangerous time to be out in public. Those who considered themselves respectable members of society often stayed indoors after dusk, viewing night itself as a time that carried diseases or inspired criminal impulses.¹⁰ For those who considered night to be a time of great danger and moral peril, the faint light provided by oil lamps did little to allay their fears. Early lighting was also labor intensive—oil and candle lamps required manual lighting, regular refueling, cleaning, and other maintenance.

To maintain both lamps and the social order during the night, Baltimore, like many cities in early America, established a “night watch.”¹¹ The night watch was a precursor to the police force we might recognize today. (Baltimore’s night watch became a centralized police force decades later, in the 1850s).¹² In a time when street lamps did not provide sufficient light, one essential function of a night watchman was to be himself a kind of public lighting service—carrying a portable light he could inspect various dark corners within his patrol area during regular rounds.¹³

The night watch and public lighting were so intertwined that they were part of the same legislation, “AN ACT for the Establishment and Regulation of a Night Watch, and the Erection of Lamps, in Baltimore Town.”¹⁴ As the Preamble to the Act explained, both

a night watch and “enlightening the streets, lanes and alleys...is of very great importance for the preservation of persons and properties...”¹⁵

Night watchmen were similar to police in that they had established patrol areas that they guarded. Most night watchmen had limited powers to do much beyond shouting to “alarm each other, and the inhabitants on their respective rounds” in the event they witnessed a fire or some other calamity in the night.¹⁶ If watchmen found a door or window left open at night, their job was to warn the owner of the property.¹⁷ Although the supervisory rank of watchmen,



OLD WATCHMAN.

The Old Watchman. From de Francias Folson, *Our Police: A History of the Baltimore Force from the First Watchman to the Latest Appointee*.

known as constables, did have the power to “arrest and apprehend” suspected criminals;¹⁸ the night watch’s main weapon to prevent “fires, burglaries, and other outrages and disorders...” was light itself.¹⁹

For many early Americans, those who failed to observe the difference between night and day by being active outdoors at night, might also prove to be a threat to the social order. Many American cities had laws prohibiting specific groups of people, especially women, Black and indigenous people, and people who were enslaved, from being in the streets after dark.²⁰

For example, in 1828 Baltimore’s mayor reminded the night watch that it was the “duty of the Watchman to disperse all unlawful assemblages of negroes, wherever they may be collected within the limits of the city” and set a curfew of ten o’clock limiting when Black residents could legally occupy streets or sidewalks.²¹ This vague criminalization of night-time activities is also evident in the founding mission of the Baltimore’s night watch as laid out in the 1784 Act, which commanded the night watch to “arrest and apprehend all night-walkers, malefactors, and other suspected persona, who shall be found wandering and misbehaving themselves.”²²

IN 1828, BALTIMORE’S MAYOR SET A CURFEW OF TEN O’CLOCK LIMITING WHEN BLACK RESIDENTS COULD LEGALLY OCCUPY STREETS OR SIDEWALKS.

The idea that people might be outdoors at night without a clear purpose, could itself be considered a kind of criminal intent. In medieval and early modern England, the term “nightwalking” was used to condemn anyone walking outside without a specific purpose, particularly if that person was perceived as poor. Overtime, “night-walker” became a label specifically for women who were out at night and therefore suspected of “prostitution” or sex work.²³

THE IDEA THAT PEOPLE MIGHT BE OUTDOORS AT NIGHT WITHOUT A CLEAR PURPOSE, COULD ITSELF BE CONSIDERED A KIND OF CRIMINAL INTENT.

By 1797, Baltimore had at least 305 oil lamps, but the city’s streets were still quite dark.²⁴ As historian Peter Baldwin explains, the dim candle and oil lamps of the eighteenth century, “were not intended to illuminate the street but to serve as navigation beacons, guiding travelers through the city much as today’s runway lights guide airplane pilots.”²⁵ Between these points of light, travelers had to rely on their own lamps or on the lamps of patrolling nightwatchmen.²⁶ Not until the introduction of gas lights would the city become truly navigable at night.²⁷

GAS LIGHTS AND THE FIRST URBAN NETWORKS

Baltimore's "First Gas Street Lamp" is memorialized today with a replica lamp located at the intersection of N. Holliday and E. Baltimore Streets.²⁸ Installed in 1817, it was the first gas powered street light in America.

Gas lamps were significantly brighter than earlier oil and candle lamps—ten times brighter by some estimations—and they marked a major shift in how people perceived the night, opening new opportunities for leisure after dark.²⁹ The improved visibility provided by gas street lamps was also perceived as a more powerful antidote to crime and immorality, but many still believed it needed to be accompanied by increasing law enforcement.³⁰ Just as the first oil lamps were established alongside night watch patrols, the introduction of gas lighting in many cities was also followed by the creation of modern police forces.³¹

Gas lighting also had a significant impact on life in cities because it established the first urban networks: underground pipes that pumped gas.³² Many of the earliest adopters of gas in Baltimore and other U.S. cities were centers of commerce and entertainment such as theaters, museums, and stores catering to wealthier customers who once shunned the nighttime. As a result gas pipelines were primarily in elite commercial districts and wealthy White neighborhoods, while leaving lower income and Black neighborhoods poorly lit and subject to criminalization.³³

The close relationship between entertainment and gas lighting is reflected in the origins of public gas lamps in Baltimore began as a publicity stunt by the Peale Museum. Located in Downtown Baltimore near City Hall on what is today known as Holliday Street,

the Peale Museum was operated by Rembrandt and Rubens Peale, two members of a wealthy local family.

The Peale brothers first encountered gas lighting in their travels to England. The Peales became interested in gas lighting not only as a novel technology, but also as a means of drawing new customers to their museum.³⁴ The gas fixtures shed light on their collection of paintings, but the Peales also advertised gas illumination as an attraction in its own right. The Peales placed a notice in a local paper that joked that gas lights needed no advertisement since "those who have seen the ring beset with gems of light are sufficiently disposed to spread their reputation." The notice went on to promise that "the Museum will be illuminated every evening until the public curiosity be gratified."³⁵

The Peales' exhibition of gas lights not only successfully attracted visitors to their museum, but it soon attracted the attention of several other wealthy and influential Baltimoreans who saw that gas lighting in the city might be a profitable enterprise. Together, they formed the Gas Light Company of Baltimore and received the first city contract to begin laying pipes in Baltimore's streets.³⁶

JUST AS THE FIRST OIL LAMPS WERE ESTABLISHED ALONGSIDE NIGHT WATCH PATROLS, THE INTRODUCTION OF GAS LIGHTING IN MANY CITIES WAS ALSO FOLLOWED BY THE CREATION OF MODERN POLICE FORCES.

Initially, the Gas Light Company of Baltimore installed pipelines only in areas where they expected that private customers would pay for gas. As a result, they prioritized gas lines where large businesses, theaters, or wealthy customers were located.

Baltimore City officials tried to encourage the Gas Light Company to extend their pipelines into more parts of the city, but the gas company refused to expand its service area, explaining that income from municipal contracts was insufficient to justify the expense of installing pipes. After nearly two decades in business, the Gas Light Company had failed to provide any gas east of Jones Falls or west of Eutaw Street, or even to expand service far beyond the blocks immediately surrounding the Peale Museum. In 1836, most city streets were not lit by gas.³⁷

The Gas Light Company of Baltimore held a monopoly on gas in the City until 1871, when growing competition between utility companies began to increase access to gas. Between the 1870s and 1900s a handful of other gas companies were founded in Baltimore, each expanding gas service.³⁸ For example, the second gas company established in Baltimore installed pipes west of Eutaw Street, where the Gas Light Company of Baltimore had long neglected to establish gas service.³⁹ The arrival of competing street light technology—the first electrified lights—also helped to lower the cost of gas, thereby expanding access to some customers who previously could not afford it.⁴⁰

Like gas, electric street lighting required a larger infrastructure—one relying on wires rather than pipes—to power street lights. As with gas, utilities were most likely to install electric grids in wealthier areas, where private customers made expanding service profitable.⁴¹ The first form of electrified street light was known as an arc light.⁴² Arc lamps were first introduced in the 1880s, but they were expensive, easily costing three times as much per lamp than

gas.⁴³ Despite the high cost per individual lamp, arc lights were competitive with gas lamps because the light they produced was so much brighter. Arc lights produced an intense blue-white light and were usually put on taller lamp posts which allowed them to cast light considerably farther than gas lamps.

LIKE GAS, ELECTRIC STREET LIGHTING REQUIRED A LARGER INFRASTRUCTURE — ONE RELYING ON WIRES RATHER THAN PIPES — TO POWER STREET LIGHTS.

According to the estimate of one Baltimore superintendent of lighting, one arc light in 1901 could be used to light the same area as would require four or more of the best quality gas lamps.⁴⁴ Soon after, incandescent lights were also adopted in street lights, this form of electric lighting was brighter than gas but considered by many to be more pleasant than arc lights.⁴⁵

But gas companies put up a strong resistance to the introduction of electric street lighting. Gas companies had just finished installing extensive pipeline networks, but electrified lighting would require cities to establish a whole new system of grids and generators.⁴⁶ Gas companies also held contracts with city governments, offering them some protections for competing utilities. As a result, cities across the U.S. continued to primarily light their streets with gas rather than electric street lights.⁴⁷

To avoid being replaced by electric lighting systems, gas companies in Baltimore and other cities worked to improve gas street lighting technology and make the price of gas more competitive.⁴⁸

The most significant innovation in gas lighting was the “Welsbach gas mantle” invented by the Welsbach gas lighting company in the 1890s.⁴⁹ The Welsbach mantle relied on a combination of metal oxides that, when heated with the gas, would cast a whiter light that was six times brighter than early gas lighting technology. According to one historian, the adoption of the Welsbach mantle “prolonged gas systems into the twentieth century.”⁵⁰

TO AVOID BEING REPLACED BY ELECTRIC LIGHTING SYSTEMS, GAS COMPANIES IN BALTIMORE AND OTHER CITIES WORKED TO IMPROVE GAS STREET LIGHTING TECHNOLOGY AND MAKE THE PRICE OF GAS MORE COMPETITIVE.

By the end of the nineteenth century, gas lighting was also increasingly automated, relying on an electric sparking system to turn on instead of using lamplighters.⁵¹ By the early 1900s, there were six gas companies in Baltimore which merged with competing electric utilities in 1906 to create the Consolidated Gas, Electric Light and Power Company of Baltimore. They eventually became the utility company we know today, Baltimore Gas and Electric.⁵²

“BALTIMORE IS BECOMING BRIGHTER AND BRIGHTER”⁵³

Between the 1890s and 1910s, many different street lighting technologies were in widespread use: from lamps lit with gas, to arc lights and incandescent bulbs.

This same period is also central to understanding inequalities in Baltimore lighting today because it was such an ambitious moment of expansion both for the city and for its infrastructure. Lighting design in this period was also influenced by a new movement dedicated on the beauty of public spaces, known as the City Beautiful movement.

Adherents of the City Beautiful movement believed that artful design of urban spaces could inspire civic pride and even improve the quality of a city’s population.⁵⁴ City leaders became more focused on reorganizing the neighborhoods of the city according to their functions, and the aesthetics of lighting played an important role in defining the purpose of each redesigned neighborhood. It was also a period of intense competition between cities across the U.S., all of whom vied to demonstrate their mastery over artificial lighting.

In the Progressive Era, there were many reasons that public infrastructure became a priority for Baltimore. As cities across the U.S. were competing for size and influence, Baltimore worked to expand its municipal boundaries in order to grow its population.⁵⁵ The provision of better infrastructure and municipal services was one of the enticements city leaders presented to surrounding subdivisions that the city successfully annexed through two expansions, first in 1888 and then again in 1918.⁵⁶ Along with the land and populations in these annexed areas, Baltimore City began to take on a wide-range of public lighting systems.



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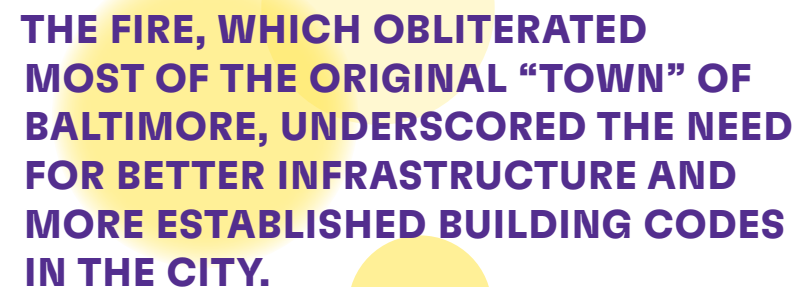
In some of the newly annexed parts of Baltimore city, the existing infrastructure was in poor condition, with many areas lacking paved roads. In these areas, public street lights, if they existed at all, were “antiquated” lamps akin to the oil lamps of the eighteenth century, although usually fueled by newer forms of liquid fuels such as gasoline or naphtha.⁵⁷

However, some of the subdivisions annexed by the city included “first class suburbs” such as Guilford and Roland Park, where infrastructure was state of the art.⁵⁸ Elite subdivisions like Guilford and Roland Park were carefully planned, and racially restricted, with streets that were not only paved but also artistically arranged by landscape architects. These planned subdivisions also had elaborate water, gas, and electrical systems and, at least prior to 1904, a more developed sewer system than any part of Baltimore City.⁵⁹

As Baltimore’s borders expanded, a disaster that struck in the heart of Baltimore also spurred new attention to public infrastructure. In 1904, a fire burned much of downtown Baltimore to the ground. Prior to the fire, Baltimore had been slow to invest in many infrastructure projects. For example it was the largest city in American to lack a municipal sewer system.⁶⁰ The fire, which obliterated most of the original “town” of Baltimore, underscored the need for better infrastructure and more established building codes in the city.⁶¹ The scale of destruction in Baltimore’s downtown was also seen as a

kind of opportunity by local officials and business leaders to remake the city according to Progressive Era ideals. As one article published in The Baltimore Sun in 1909 explained, “The hand of change is quick in all growing cities, but in Baltimore, as a result of the peculiar hustle the great fire gave to all local doings, it has been especially a lightning artist.”⁶² The author imagined that this “peculiar hustle” would quickly transform Baltimore into a “city of smooth pavements, with ornamental iron lampposts at every corner to support the weary and unwary wanderer home.”⁶³

The desire for smooth pavements can be understood as a direct response to the Great Fire, because many believed that Baltimore’s cobblestone roads had hindered firefighting efforts, leading the city to ban cobblestone in the reconstructed city.⁶⁴ Similarly, when the author imagined a city with “no wires overhead to obstruct the view of the heavens or make perilous the feats of firemen,” he suggested that by replacing electrical poles with underground electrical conduit, Baltimore would rise from the ashes of the fire both safer and more beautiful.⁶⁵ Another commentator at the time envisioned these improvements as making Baltimore more competitive on the world stage, noting that in “downtown the old gaunt poles have been displaced by ornamental iron erections that would do no discredit to Paris or Berlin.”⁶⁶



THE FIRE, WHICH OBLITERATED MOST OF THE ORIGINAL “TOWN” OF BALTIMORE, UNDERScoreD THE NEED FOR BETTER INFRASTRUCTURE AND MORE ESTABLISHED BUILDING CODES IN THE CITY.

Alongside the physical growth of the city, Baltimore developed new political powers which increased the City's ability to take on major infrastructure projects. In 1898 Baltimore established a "New Charter" that laid out the departments and functions of a vastly expanded city government.⁶⁷ In the spirit of Progressive Era reform, the New Charter put "expert" executives—engineers and architects—in charge of a new body overseeing the city's infrastructure known as the "Board of Public Improvements."⁶⁸ The New Charter also centralized Baltimore's street lighting projects, by grouping a series of smaller positions related to street lighting that had been scattered across different branches of city government and consolidating them under one "Superintendent of Lamps and Lighting."⁶⁹

One influential Superintendent of Lamps and Lighting in the early years of the position was Robert J. McCuen. Articles in The Baltimore Sun celebrated Superintendent McCuen as both an artist and a professional. They described him as embodying the ideal of progressive government, "In Mr. McCuen's department...the word progress is spelled with an especially larger capital letter."⁷⁰

Admirers of McCuen's work praised him for bringing order to Baltimore's formerly chaotic lighting system. One article explained that before McCuen came into public service, "the lamps of the city were scattered about in a haphazard sort of fashion, and the majority of them were of antique and unsightly pattern." But after a decade, McCuen had replanned the street lights in the city so that "they are distributed with some approach to scientific precision and nearly all of them are of artistic design."⁷¹ Another article praised McCuen for his careful choice of ornamental lamp posts which he "plants so artistically and considerately about."⁷²

According to the principles of the City Beautiful movement and Progressive Era reformers, if the goal of public infrastructure was to bring order and improvement to urban life, it needed to reflect

both scientific expertise and artistic vision, something McCuen epitomizes in these accounts.⁷³

Fans of McCuen's work applauded his ability to play with the different colors produced by different styles of street lights, which allowed him to achieve "effects of great softness and beauty."⁷⁴ For example, one article published in 1909 praised McCuen for working to replace the "blinding steel-blue" light provided by arc lamps in residential areas and city squares with the softer "yellowish light" provided by incandescent street lamps.⁷⁵ Similar aesthetic concerns were also used to extend the use of gas lighting in many residential areas and parks.⁷⁶

A LIGHTING COMMITTEE FROM CINCINNATI [...] PRAISED BALTIMORE'S GAS LIT MOUNT VERNON PLACE AS "UNDOUBTEDLY THE BEST-LIGHTED THOROUGHFARE [...] IN ANY OF THE CITIES VISITED."

In 1901, when a lighting committee from Cincinnati visited Baltimore as part of a tour of lighting in twelve U.S. cities, they praised Baltimore's gas lit Mount Vernon Place as "undoubtedly the best-lighted thoroughfare your committee has seen in any of the cities visited, either East or West."⁷⁷ Mount Vernon, like many of Baltimore's parks and squares, was illuminated with gas lamps with Welsbach mantles. Welsbach lamps offered a clear but gentle light that many viewed as romantic by the early twentieth century.⁷⁸ Despite their utility in a park setting, however, McCuen and others argued that gas lamps

with Welsbach mantles were not bright enough for the business districts of the city, where only electric lighting such as arc lamps were used.⁷⁹

McCuen's ability to match the aesthetics of lighting to the uses of different neighborhoods, reflected another significant innovation in cities during this era: what would come to be known as zoning. Through zoning, city neighborhoods could be sorted into different functional categories such as industrial, commercial, and residential areas. Many Progressive Era cities took zoning into account when choosing and locating street lights. Cities focused the highest lumen, most cutting edge, and expensive street lighting in central commercial districts, where bright lights enabled nighttime entertainment and attracted customers and tourists. In wealthier residential areas, subtler lighting that produced fewer lumens would be used.⁸⁰

However, as historians have shown, functional or use-based zoning has a longer history founded in ideas about social hierarchy, and especially racial segregation.⁸¹ Baltimore was the first city to pass a racial zoning ordinance in 1910, which banned Black residents from moving into majority White neighborhoods.⁸² In 1917, the U.S. Supreme Court found racial zoning laws to be unconstitutional, but as historians have also shown, the application of legal use-based zoning laws has continued to be used as a proxy for racial zoning.

In other words, the most restricted use zones, such as single-family residential districts, have been used as a proxy for White neighborhoods, while largely Black residential neighborhoods are often labeled as "industrial."⁸³ Even when race was not officially invoked by city planners and officials, municipal decisions about lighting according to used-based zoning often had racial impacts. As cities across the U.S. worked to brighten their commercial districts, they

often neglected to install even the most basic lighting infrastructure in low-income, Black, or immigrant neighborhoods.⁸⁴



EVEN WHEN RACE WAS NOT OFFICIALLY INVOKED BY CITY PLANNERS AND OFFICIALS, MUNICIPAL DECISIONS ABOUT LIGHTING ACCORDING TO USED-BASED ZONING OFTEN HAD RACIAL IMPACTS.

Assumptions about zoning, race, and class, were also evident in the decisions that Lighting Superintendent McCuen made about how to illuminate Baltimore's alley streets. In Baltimore, alley streets have historically been where many Black, immigrant, and working class families have made their homes.⁸⁵ Residents of alley streets had struggled to get gas and electric companies to expand service to their blocks, meaning their street lamps were "off-the-grid" and relied on a reservoir of liquid fuel—most commonly gasoline, kerosene, or naphtha.⁸⁶ Street lights that relied on liquid fuel were not only considered out-of-date, they required high maintenance and therefore experienced frequent outages.⁸⁷

McCuen made the lighting of alley ways a greater priority during his administration, but rather than applying the same soft lighting effects he used in elite residential areas like Mount Vernon, McCuen argued that ultra-bright arc lamps would be most appropriate in alley streets. Although residents of alley streets likely welcomed McCuen introducing more modern forms of street lighting to their

underlit blocks, residents of Baltimore often complained that arc lighting was too harsh and glaring to be placed close to homes.⁸⁸ By the twentieth century the “blinding steel blue light” produced by arc lamps was beginning to be associated with industrial and commercial purposes, such as the lighting of business districts, railroad yards, and highways.⁸⁹ While it was important that light be soft and pleasing in neighborhoods like Mount Vernon, McCuen believed that high intensity light was more important in Black and lower income areas where his greater priority was to deter crime and reinforce social order.⁹⁰

MCCUEN BELIEVED THAT HIGH INTENSITY LIGHT WAS MORE IMPORTANT IN BLACK AND LOWER INCOME AREAS WHERE HIS GREATER PRIORITY WAS TO DETER CRIME AND REINFORCE SOCIAL ORDER.

Superintendent McCuen, like many other lighting engineers of the Progressive Era, believed that high intensity arc lights could deter crime more successfully than any earlier lighting technology. As McCuen suggested to his visitors from the Cincinnati Lighting Committee, the city should light “dark alleys with high candle-power lamps, and preferably arc lamps” because “well-lighted alleys are worth several policemen.”⁹¹ The bright light of arc lamps was sometimes compared to daylight, and in some ways the belief that arc lamps deterred crime was akin to the eighteenth century idea that darkness itself had the power to inspire criminal behavior.⁹²

Under McCuen’s administration, Baltimore installed a number of tall “swan-necked” arc lamps that, as one commentator explained, were designed in such a way that “all of the light is thrown down upon the street and there is no heavy shadow at the base of the pole where crooks or highwaymen may be lurking.”⁹³ Ideas that criminals could only survive in the shadows was shared by commentators in other cities, too.

As one writer in 1887 Boston explained, “Known criminals shrink from a glaring light” and “criminals of all classes are kept in restraint by an illumination which makes their movements so clearly seen.”⁹⁴ In a time when many city officials suggested that low-income and Black Baltimoreans were naturally more prone to criminal behavior, it is possible that McCuen even believed that arc lights in alley streets could even achieve personal reform amongst neighborhood residents.⁹⁵ As one St. Louis official suggested in 1908, bright street lights could “improve the moral tone of even the most vicious neighborhoods.”⁹⁶

FROM BALTIMORE'S "GREAT WHITE WAY" TO THE "WHITE L"

Perhaps the most significant use of highly luminous arc lamps was in the lighting of Baltimore's commercial districts. Baltimore was only one of many cities to be swept up in the fad for "Great White Ways" in the beginning of the twentieth century.

These were rows of ultra-bright lamps that were installed along commercial streets. The original "Great White Way" was New York's Broadway, but cities across the U.S. were engaged in installing the newest and brightest lights in ever more expansive commercial roadways.⁹⁷

Baltimore's white way lamps were praised for being bright while avoiding the problems of older-style arc lamps which, as one city official explained in 1926, were "too glaring...too old fashioned and annoy people sitting on the steps of their houses."⁹⁸ Local merchants and business leaders often invested in white way projects which they believed would attract more customers. White ways were focused on more than helping people see more clearly at night, the lights were a spectacle in themselves.⁹⁹

In many ways, the street lights that made up Baltimore's "Great White Way" or that were woven into the major urban developments of Progressive Era Baltimore set the pattern for the racialized pattern of inequality we continue to see today. Our present-day Baltimore, as researcher Lawrence Brown explains, is segregated into two shapes: a disproportionate share of the city's resources goes to a central "White L" where most residents are White, while the majority Black East and West sides of Baltimore make up the wings of a "Black Butterfly" where residents experience structural

disadvantages, criminalization, and neglect.¹⁰⁰ Beginning with the "Great White Way" and through the twentieth century, Baltimore has frequently focused its major lighting improvement in the "White L," rather than the "Black Butterfly."

At the beginning of the twentieth century, as Baltimore sought to define itself through its spectacular light displays, it was also taking on several other urban development projects designed to remake



This undated image of **Fallsway and Madison St.**, with its two dense rows of high-intensity lighting, is an example of the kind of "white way" lighting applied to streets intended for automotive traffic in the 1910s and 1920s. Hughes Company Glass Negatives, The Photography Collections, University of Maryland.

the image of the city as a whole. Particularly under the administration of Mayor James H. Preston, which took place between 1911 and 1918, the project of remaking the city was also an overtly racial one. Mayor Preston had ambitious goals for expanding the boundaries of Baltimore and increasing its political power.¹⁰¹

BEGINNING WITH THE “GREAT WHITE WAY” AND THROUGH THE TWENTIETH CENTURY, BALTIMORE HAS FREQUENTLY FOCUSED ITS MAJOR LIGHTING IMPROVEMENT IN THE “WHITE L,” RATHER THAN THE “BLACK BUTTERFLY.”

As Mayor Preston pushed for the creation of new civic spaces, infrastructure improvements, and urban reforms, he often invoked the public benefits such projects would provide. However, Preston’s efforts at improving infrastructure were concentrated on the needs of newly annexed White subdivisions in the north such as Guilford and Roland Park and rebuilding downtown Baltimore as a space for White leisure and civic identity. As a result, as Baltimore expanded its corridor of white way lighting, it was also mapping out the areas of the city that Preston hoped would be reserved for its White citizens.¹⁰²

In the 1900s, many commentators dreamed that white way lamps would transform how people saw the city from a distance. For example, one writer in 1909 dreamed that Baltimore’s Great White Way might continue to expand east-to-west across Baltimore

Street until “the stray balloonist passing over Baltimore at night will find the city bisected by a dazzling strip of light.”¹⁰³ White way lamps were also directly connected to projects to draw people into Baltimore from surrounding areas. Beyond these dazzling displays, the system of white ways also required the city to construct more extensive underground electric grids, or conduit, in many parts of the city. These conduits could also be used to power other new innovations in public infrastructure, such as electric traffic lights.¹⁰⁴

The first major expansion of white way lighting beyond Baltimore Street began in 1912 and focused on an area just north of City Hall. Since the end of the Civil War, this neighborhood was home to prominent Black lawyers, doctors, churches, and other institutions. Shortly after his election in 1911, Preston had targeted this area for redevelopment. One of the goals of the project was to widen St. Paul Street, to improve the flow of traffic between downtown and the White suburbs adjacent to the city—a move that Preston hoped would increase Baltimore City’s influence over its suburbs.

But Preston also saw the Black residents of the neighborhood as a kind of contagion that could tarnish the image of Baltimore’s City Hall or invade the fashionable shopping areas on nearby Charles and Eutaw Streets.¹⁰⁵ His solution, was to condemn the entire area in what one historian calls “Baltimore’s first government-sponsored Negro removal project.”¹⁰⁶

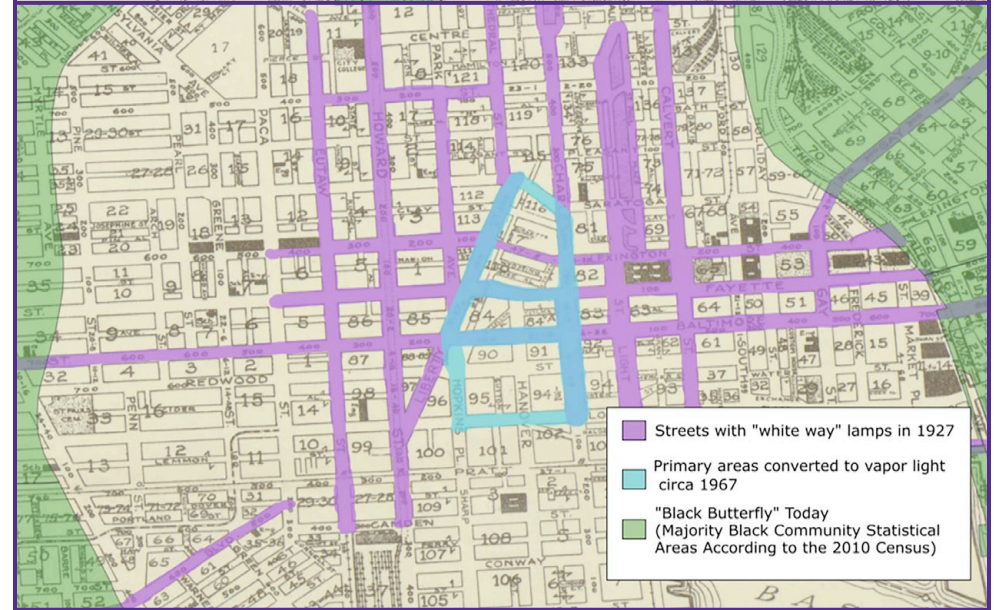
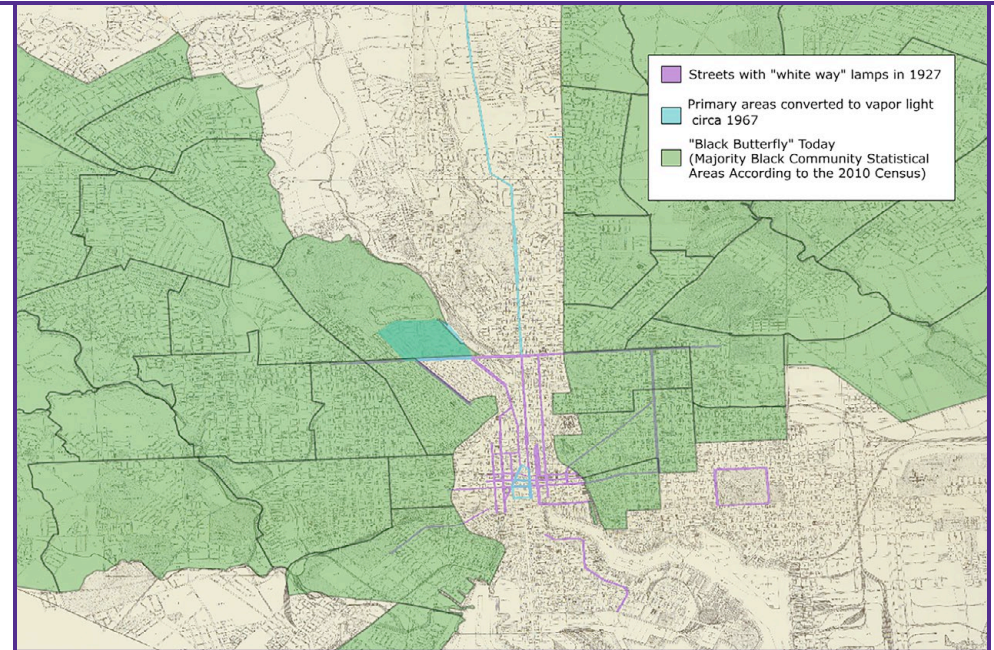
Alongside these developments, 304 white way lamps were installed on nearby Lexington, Howard, Charles, and Eutaw Streets, many of them the same shopping districts that Preston worried might be threatened by Black residents.¹⁰⁷ After clearing the area Mayor Preston called for the creation of a park, still present today near the campus of Mercy Hospital, and named it “Preston Gardens.”¹⁰⁸ Like the streets that surrounded it, shortly after its completion in 1919, Preston Gardens, too, was decorated with white way lamps.¹⁰⁹

By 1927, Baltimore had expanded its collection of white way lamps to number more than 1,300, and *The Sun* bragged that Baltimore was “One of the Best Lighted [Cities] in the Country.”¹¹⁰ By that time, the white way’s expansion began to look startlingly like the segregation patterns we see in Baltimore today. Miniature versions of white way lamps had been installed along Mount Royal Avenue and Eutaw Place, in a district where segregationist White neighborhood associations waged some of the fiercest battles against Black prospective homeowners in early twentieth century Baltimore.¹¹¹

THE WHITE WAY’S EXPANSION BEGAN TO LOOK STARTLINGLY LIKE THE SEGREGATION PATTERNS WE SEE IN BALTIMORE TODAY.

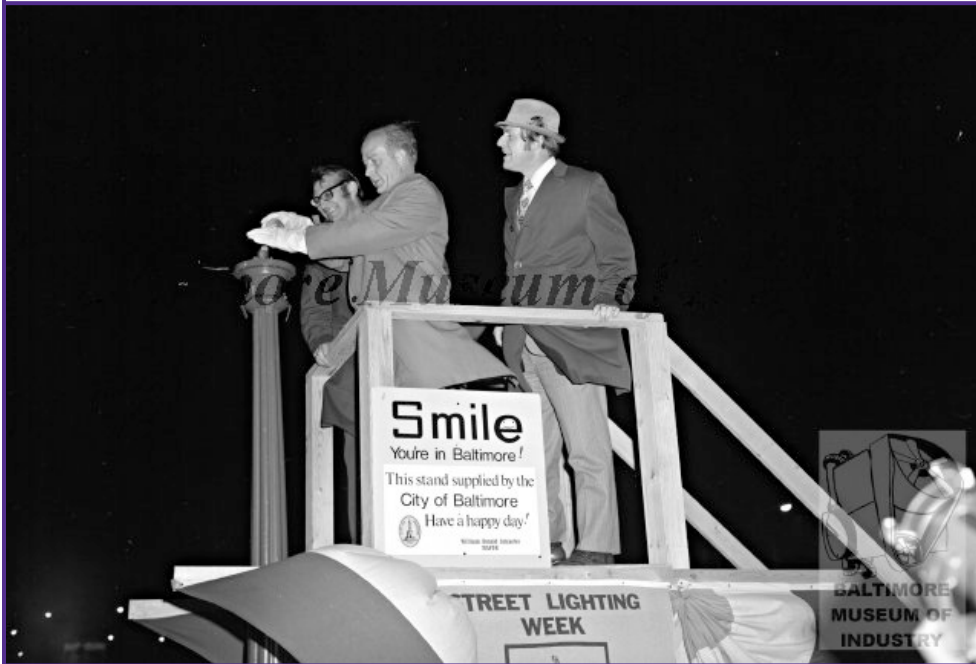
As the use of white way lamps along Baltimore’s streets expanded, the city became more focused on the need to light the way for those traveling from whiter and more suburban areas into downtown Baltimore. In some instances, city officials explained the brighter thoroughfares were installed in response to the local Automobile Club and the requests of other drivers.¹¹²

At the end of the 1920s, the highest concentrations of white way lamps were located at the waterfront, downtown, and “the main lines of travel north and south” through Baltimore.¹¹³ These are roughly the same areas that research scholar Lawrence T. Brown points out form a “White L” through the city of Baltimore today.¹¹⁴



Map of Baltimore showing areas prioritized for white way lighting (1926-1927) and areas that received priority for mercury vapor lighting (1966-1967). The areas shaded in green represent majority Black Community Statistical Areas (CSAs) according to data from the 2010 Census. Map created by the author using historical articles in *The Baltimore Sun* and census information compiled by the Baltimore Neighborhood Indicators Alliance: Jacob France Institute.

In the second half of the twentieth century, several Baltimore Mayors ran campaigns promising not only ever more spectacular lighting for commercial areas, but also improvements to street lighting in neglected neighborhoods and the elimination of dated lighting technologies. In the 1950s, for example, Mayor D'Alesandro, Jr., undertook a massive project of converting the city's remaining 11,000 gas lamps to run on electricity. D'Alesandro's campaign to end the city's use of gas lamps took five years and cost millions of dollars, expenditures that were justified as necessary crime prevention.¹¹⁵



Mayor Schaefer ceremoniously removes the “last” incandescent light at Russell Street near the Camden Industrial Park, 1972. In reality, incandescent street lights remained in use for a few more years. *BG&E Print and Negative Collection, Baltimore Museum of Industry.*

VAPOR LAMPS WERE SAID TO PREVENT AUTOMOBILE ACCIDENTS AND DETER CRIME BETTER THAN BALTIMORE'S EXISTING ELECTRIC LIGHTING, WHICH AT THIS POINT MOSTLY RELIED ON INCANDESCENT BULBS.

In the mid-1960s, an even more luminous form of lighting became the new national standard for urban illumination, known as the mercury vapor light. As with the technologies before it, vapor lamps were said to prevent automobile accidents and deter crime better than Baltimore's existing electric lighting, which at this point mostly relied on incandescent bulbs.¹¹⁶ The campaign to convert Baltimore's incandescent street lights to vapor lighting would span three different mayoral administrations, ending with Mayor Donald Schaefer's administration in the 1970s.¹¹⁷

Mayoral campaigns to end outmoded lighting were the source of great publicity and civic celebration. In 1957, Mayor D'Alesandro, Jr., held a ceremony in which he snuffed out the “last gas street light,” which was located at Fawn Street and Slemmers Alley, in Baltimore's Little Italy neighborhood.¹¹⁸ Likewise, Mayor Donald Schaefer held a ceremony in 1972 in which he turned off the “Last Incandescent Street Light.”¹¹⁹

However, at least in the case of Schaefer's campaign, the excitement generated by “Street Lighting Week” was insufficient to guarantee the elimination of incandescent street lighting. Rather than ending in 1972, as Schaefer's publicity stunt suggested, the city had several bond issues throughout the 1970s to try and fund conversion and

replacement of incandescent street lights, suggesting they were still found around the city for a few years.¹²⁰

There were many reasons to hope that the conversion to mercury-vapor lighting in the 1960s and 1970s would not continue Baltimore's pattern of uneven investment in urban street lighting. By the 1960s, Baltimore City officials were finding that they needed to be more accountable to the demands of residents of majority Black and lower-income neighborhoods than they had been during the Progressive Era. The federal highway and urban renewal projects of the mid-twentieth century, and the social movements of the civil rights era had inspired new neighborhood coalitions in Baltimore who voiced new demands from City Hall.¹²¹

Moreover, leaders like Mayor McKeldin had promoted the move from incandescent to mercury-vapor lighting as a benefit primarily for residential neighborhoods.¹²² In the mid-1960s, many residential neighborhoods called for better street lighting in hopes of deterring crime, and city officials offered vapor lighting in response.¹²³

In 1965, the city selected Charter Oak Avenue, a street near the intersections of York Road and Cold Spring Lane in North Baltimore, and installed mercury-vapor lighting as a demonstration of the impacts of the new lighting on crime on a residential street.¹²⁴ Another, larger lighting installation was promised for northwest Baltimore in 1967, after a biracial neighborhood group requested more lighting and help to fight crime in the area now known as Reservoir Hill.¹²⁵

Many Baltimore residents were eager to convert their street lights to mercury vapor, and contacted the city's division of street lighting to request the new technology by name.¹²⁶ For example, in 1969, a resident of Gist Avenue in northwest Baltimore complained that

their alley relied on "one dim antiquated light" and could "surely use a nice vapor light" instead.¹²⁷ Mercury-vapor promised to be a benefit for residential neighborhoods, not the commercial and tourist centers of the city that had been the focus in the days when Baltimore created its "Great White Way."

But two years into Baltimore's new lighting plan, rather than improving residential lighting as promised, about 75% of funds for lighting conversion had been spent installing mercury-vapor lighting along the northern sections of North Charles Street.¹²⁸ Even worse, the City seemed to be prioritizing lighting in some of the most elite parts of north Baltimore, for example, giving special attention to the aesthetics of street-light designs for the portions of Charles Street that adjoined the Johns Hopkins University's Homewood campus.¹²⁹

RATHER THAN IMPROVING RESIDENTIAL LIGHTING AS PROMISED, ABOUT 75% OF FUNDS FOR LIGHTING CONVERSION HAD BEEN SPENT INSTALLING MERCURY-VAPOR LIGHTING ALONG THE NORTHERN SECTIONS OF NORTH CHARLES STREET.

Another major installation of mercury-vapor lights took place along portions of St. Paul Street adjoining Guilford.¹³⁰ At the time, many city residents complained that North Charles Street was already considerably better lit than many of their neighborhoods, which were dealing with higher rates of crime.¹³¹ However, the City

explained that the slow pace of lighting improvements in residential areas came from differences in the availability of funding for street light projects. These sections of Charles and St. Paul Streets were classified as “arterial” roads, which meant that funding from the state’s gasoline tax could be put toward lighting improvements because they were seen as an issue of traffic safety.¹³² New lighting for residential streets, in contrast, was more limited because it often came from city budgets or special bond issues.¹³³

The transition to mercury-vapor lighting in the 1960s reintroduced debates about the aesthetics of street lighting that echo earlier disparities in the lighting of lower-income and majority Black residential areas. Similar to earlier arc lighting, mercury-vapor street lights produced a bright blue light, which one Baltimore journalist writing in 1967 described as “unflattering to nearly everything but trees.”¹³⁴ In the late-1960s the city experimented with a few styles of color-correcting mercury vapor lights. As in the “Great White Way” era, public officials worked with private businesses to ensure that downtown Baltimore would have the most attractive lighting in the city.

In the 1960s the new centerpiece of downtown was a Modernist urban renewal project known as Charles Center, which featured a pink-hued variety of mercury-vapor light known as “lucalux” lighting.¹³⁵ Completed in the late 1960s, Charles Center promised to “revitalize” downtown Baltimore through a redevelopment plan that featured new parks, upscale retailers, a theater, and white-collar office buildings.¹³⁶

At midcentury, the proper lighting of Charles Center was once again seen as a way to improve how tourists, shopper, and potential businesses thought about Baltimore City as a whole. In contrast, city officials were less concerned about the proper “color” of lighting when the goal of installing new street lights was on

controlling social behavior or deterring crime in residential areas. For example, at the same time as the city chose lucalux street lights for Charles Center, they also decided to use the standard “unflattering” blue mercury-vapor lights in the Reservoir Hill neighborhood, where residents had hoped increased lighting would deter crime.¹³⁷

SOME RESIDENTS BEGAN TO TURN AWAY FROM THE IDEA THAT NEWER AND BRIGHTER STREET LIGHTING WAS ALWAYS BETTER.

In the second part of the twentieth century, some residents began to turn away from the idea that newer and brighter street lighting was always better. Throughout the 1960s and 1970s, many residents complaint to city officials about mercury vapor light fixtures that shined into their bedroom windows, disturbing their sleep even when they tried to use thick black-out curtains.¹³⁸

Of course, even with earlier incandescent lighting, residents were sometimes annoyed by the placement or glare from street lamps, but usually the city lighting division responded to such concerns through adjustments to the fixture, such as by adding shades to the globe of the street lamp.¹³⁹ In contrast, mercury vapor light fixtures, were designed so that lighting would be directed downward, hopefully avoiding glare, but any further shading of the fixtures was impossible, even when mercury vapor lights proved bothersome to residents.¹⁴⁰

Others were reluctant to embrace new vapor lights because of a renewed nostalgia for gas light that swept Baltimore in the late 1960 and 1970s. Some historic preservationists in Baltimore dismissed the new mercury vapor lights as “frightful” and advocated instead for lamps in the style of the City Beautiful Era.¹⁴¹ Local preservationists worked with city officials on a new street light design which they called the “boulevard” style. The design combined a new mercury-vapor light with a globe and ornate lamp post based on antique gas lamps.¹⁴² According to one account, the boulevard-style lamps could also “simulate yesteryear’s soft gas glow.”¹⁴³

The boulevard lamps were primarily used in the Whiter and more middle-class neighborhood of Bolton Hill which received federal urban renewal funding in the 1960s and 1970s.¹⁴⁴ Some smaller neighborhood associations held fundraisers to purchase boulevard lamps using their own private finances.¹⁴⁵

At the end of the twentieth century, some Baltimoreans became increasingly concerned about excessive illumination, even as Baltimore’s mayor continued to promote ever brighter lights.

AT THE END OF THE TWENTIETH CENTURY, SOME BALTIMOREANS BECAME INCREASINGLY CONCERNED ABOUT EXCESSIVE ILLUMINATION, EVEN AS BALTIMORE’S MAYOR CONTINUED TO PROMOTE EVER BRIGHTER LIGHTS.

In the 1990s, Baltimore’s first Black Mayor, Kurt Schmoke, promoted a lighting campaign called “Brighten Baltimore.”¹⁴⁶ Like earlier efforts, Brighten Baltimore emphasized spectacular lighting displays downtown, but this project focused less on lighting the streets and more on uplighting buildings to highlight key architectural features that redefined the outline of Baltimore’s skyline.¹⁴⁷ Advocates for the project also suggested that an ever-brighter Baltimore could help fight crime. However, unlike previous mayoral administrations, Mayor Schmoke had to contend with a growing number of citizens concerned about the impacts of light pollution.

Among those opposed were Baltimore’s “Street Corner Astronomer,” Herman Heyn, who worried a brightened Baltimore would make it impossible for residents, especially children, to be able to see stars in the night sky. Inverting common ideas about criminality and lighting, the president of the Baltimore Astronomical Society, Michael Hall, accused the lighting plan of “grand larceny.” He claimed the light pollution from the proposed xenon beam lamps would obscure the stars in the night sky and as a result “steal stars from every man, woman and child” within a ten-mile radius.¹⁴⁸ One headline called the beams of light pointed into the night sky “Daggers of light” that opponents called “slayers of night.” A biologist quoted would have seemed to agree with levying charges of murder against Brighten Baltimore, which he argued was “a death trap for migrating song birds.”¹⁴⁹

Despite rising concerns about the environmental impacts of bright lighting (as Kayla Ostrow points out [on page 48](#) of this *Lighting Guidebook*), high intensity lighting continues to be a feature of mayoral lighting campaigns and proposals for fighting crime. More recent high-lumen technologies such as blue LED lighting and portable floodlights known as light towers, have been concentrated in lower-income neighborhoods and shunned in wealthier enclaves like Guilford.¹⁵⁰ Twenty-first century debates around these newer

forms of high intensity street lights echo the battles over the uses of arc lighting in wealthy versus low-income residential areas from nearly a century earlier.

The light towers used in parts of East and West Baltimore in the 2000s share many attributes with earlier approaches to street lighting in Black and low-income areas of Baltimore.¹⁵¹ In some instances light towers have been used as temporary emergency lighting in other areas, such as in 2011 when light towers enabled the Friends of Wyman Park to hold their annual winter solstice party in the Dell even after copper wire thieves had darkened the park's permanent lighting.¹⁵²

Relying on portable generators, tower lights are an off-grid form of lighting, like the kerosene lighting used in Baltimore's alley streets in the first part of the twentieth century. Also, like earlier kerosene and oil lamps, the generators that power tower lights need to be refueled regularly with diesel, making them higher maintenance than permanently wired street lights.¹⁵³

In the 2000s, tower lights were used heavily in response to crime, especially drug crime, where, as with earlier arc lighting, their intense light was seen as a potent weapon. Often, tower lights were installed after crimes had taken place, for example after former city councilman Kenneth Harris Sr. was robbed and shot in the Northwood area of northeast Baltimore, police placed tower lights at the scene of the crime.¹⁵⁴ In 2008, Seton Hill residents requested better lighting at the intersection of Orchard Street and Pennsylvania Avenue with the hope of deterring drug dealers who frequented the location. The city gave them a portable floodlight, but when it turned out that the lighting was unable to curtail drug dealing, they felt abandoned by the city.

Soon after Seton Hill received the portable floodlight, as one journalist explained, "The dealers who prefer to ply their trade in

the dark broke the light by cutting wires and bending the frame." After the light was broken and repaired by the city at least three times, the Seton Hill residents were told by police that the light would not be replaced since it had been too frequently targeted for vandalism by drug dealers.¹⁵⁵

Like arc lighting, too, some commentators saw the harsh police floodlights as a further blight on already disadvantaged neighborhoods, such as in one journalist's grim description of a block of Oswego where "towering police floodlights and flashing blue lights on police cameras mar the landscape."¹⁵⁶

In over two-hundred years of street lighting, the technologies used to illuminate Baltimore's streets have undergone tremendous change. Yet, larger patterns of inequality in lighting have remained surprisingly persistent. The newest technologies have been focused in the "White L," Baltimore's downtown, harbor, and central corridor, where metaphors about bright lights promise a brighter future for the city as a whole.

Meanwhile, many parts of Baltimore's "Black Butterfly" neighborhoods in the East and West of the city, have continued to deal with lighting infrastructure that is dated or in disrepair. When the city has turned its attention to the need for lighting in the Black Butterfly, they have continued to employ high intensity lighting as a policing strategy, rather than considering the wider array of aesthetic concerns applied to the neighborhoods of the White L.

NOTES: HISTORY OF URBAN INEQUALITY AND STREET LIGHTING IN BALTIMORE

- 1 George Beadenkopf, "The Centenary of the Introduction of Gas in Baltimore," *The Baltimore Gas and Electric News* 5, no. 6, The American Gas Centenary (1916): 243–62; Peter C. Baldwin, *In the Watches of the Night: Life in the Nocturnal City, 1820–1930*, Historical Studies of Urban America (Chicago; London: University of Chicago Press, 2012), 16–17. Some suggest gas was the first true street lighting since it was the first form of public lighting capable of illuminating the street. See for example John A. Jakle, *City Lights: Illuminating the American Night, Landscapes of the Night* (Baltimore: Johns Hopkins University Press, 2001), 30; Baldwin, *In the Watches of the Night*, 10; and David E. Nye, *American Illuminations: Urban Lighting, 1800–1920* (Cambridge, Massachusetts: The MIT Press, 2018), 41, 46.
- 2 Edward Stoops Thompson, *The History of Illuminating Gas in Baltimore, 1828*, http://archive.org/details/TheHistoryOfIlluminatingGasInBaltimoreByEdwardStoopsThompson_/25. Writing in 1916, George Beadenkopf, also called Baltimore "a city of first things." Beadenkopf, "The Centenary of the Introduction of Gas in Baltimore," 251.
- 3 The Committee on Light of the Board of Legislation of Cincinnati, referred to these different colors of light as different "illuminating effects" on p. 423 of their "Report on Street Lighting in St. Louis, Chicago, Milwaukee, Pittsburgh, Allegheny, Edgewood Borough, Baltimore, Washington City, Philadelphia, New York, Hartford, Boston," in *Proceedings of the Convention of the National Electric Light Association*, by National Electric Light Association (New York: National Electric Light Association, 1901), 421–51, <https://hdl.handle.net/2027/uva.x002211201?urlappend=%3Bseq=449>. This range of colors is also discussed in "Baltimore's Great White Way," *The Baltimore Sun*, October 12, 1909.
- 4 For more on the Progressive Era, infrastructure, and urban reform broadly, see Howard P. Chudacoff and Judith E. Smith, *The Evolution of American Urban Society*, 6th ed (Upper Saddle River, NJ: Pearson/Prentice Hall, 2005), 176–202; Paul S. Boyer, *Urban Masses and Moral Order in America, 1820–1920* (Cambridge, Mass.: Harvard University Press, 1978); Robert H. Wiebe, *The Search for Order: 1877–1920*, 1st ed. (New York: Hill and Wang, 1967); and Carl S. Smith, *Urban Disorder and the Shape of Belief: The Great Chicago Fire, the Haymarket Bomb, and the Model Town of Pullman*, 2nd ed (Chicago: The University of Chicago Press, 2007). On how Progressive Era specifically shaped lighting, see Nye, *Urban Illuminations*, 161–183.
- 5 As I will discuss later in this article, Baltimore created the first racial zoning law. See also Antero Pietila, *Not in My Neighborhood: How Bigotry Shaped a Great American City* (Chicago: Ivan R. Dee, 2010), 22–24. As historian Paige Glotzer has shown, private developers in Baltimore were also prolific inventors and disseminators of new practices of racial exclusion. Perhaps the most well-known of these tools of exclusion is the racially restrictive covenant. Paige Glotzer, *How the Suburbs Were Segregated: Developers and the Business of Exclusionary Housing, 1890–1960* (New York: Columbia University Press, 2020). See especially, page 85.
- 6 William Stump, "End of A Baltimore Street-Light Era: That Will Come Soon When the Last

Gas Lamp Goes--It Was in 1817 That Our City Got the First in America," *The Baltimore Sun*, August 4, 1957.

- 7 Jakle, *City Lights*, 35. One great reminiscence about gas light is "Ode to the Ancient Gas Lamp," *The Baltimore Sun*, December 26, 1941. This letter to the editor was reprinted in the 1970s when Baltimore was hit by another wave of nostalgia for gas light, Thomas Hasler, "Demand Exceeds Supply of Old Boulevard Lamps," *The Baltimore Evening Sun*, February 25, 1971.
- 8 See for example, Stump, "End of A Baltimore Street-Light Era;" Peter Hermann, "Seton Hill's Frustration Shines a Light on Drug Wars," *The Baltimore Sun*, December 18, 2008; and Peter Hermann, "Two Sides of the Same Street, One Problem Bedeviling Both," *The Baltimore Sun*, January 25, 2009.
- 9 Baldwin, *In the Watches of the Night*, 9–10; Jakle, *City Lights*, 21–26; Clement Dorsey, ed., "AN ACT for the Establishment and Regulation of a Night Watch, and the Erection of Lamps, in Baltimore Town, in Baltimore County,," in *The General Public Statutory Law and Public Local Law of the State of Maryland: From the Year 1692 to 1839 Inclusive, with Annotations Thereto, and a Copious Index.*, vol. 141 (Baltimore: J.D. Troy, 1840), 1597–1600, <http://aomol.msa.maryland.gov/megafile/msa/speccol/sc2900/sc2908/000001/000141/html/am141--1597.html>. David P. Erlick, "The Peales and Gas Lights in Baltimore," *Maryland Historical Magazine* 80, no. 1 (Spring 1985): 9–18. See p. 9.
- 10 Baldwin, *In the Watches of the Night*, 6–7.
- 11 Dorsey, "AN ACT for the Establishment and Regulation of a Night Watch, and the Erection of Lamps;" Baldwin, *In the Watches of the Night*, 11–13; and Nye, *American Illuminations*, 15–16.
- 12 de Francias Folsom, *Our Police: A History of the Baltimore Force from the First Watchman to the Latest Appointee* (Baltimore, MD: J.D. Ehlers & Co. and Guggeinheimer, Weil & Co., 1888), http://mdhistory.msa.maryland.gov/msa_sh248/msa_sh248_1/msa_sh248_1_2.pdf, 24
- 13 Dorsey, "AN ACT for the Establishment and Regulation of a Night Watch, and the Erection of Lamps;" Baldwin, *In the Watches of the Night*, 11–13; and Nye, *American Illuminations*, 15–16.
- 14 Dorsey, "AN ACT for the Establishment and Regulation of a Night Watch, and the Erection of Lamps."
- 15 Dorsey, "AN ACT for the Establishment and Regulation of a Night Watch, and the Erection of Lamps," 1597.
- 16 Dorsey, "AN ACT for the Establishment and Regulation of a Night Watch, and the Erection of Lamps," 1599; Baldwin, *In the Watches of the Night*, 11. As Matthew Crenson explains, in the early years of the night watch even constables had no power to enforce municipal laws, only those determined by the state legislature. As late as 1908, when the city finally did have a police force, it was both smaller and less powerful than comparable cities in the U.S. Matthew A. Crenson, *Baltimore: A Political History* (Baltimore: Johns Hopkins University Press, 2017), 55, 62, 143–145, 336.
- 17 Crenson, *Baltimore*, 145.
- 18 Dorsey, "AN ACT for the Establishment and Regulation of a Night Watch, and the Erection of Lamps," 1598.
- 19 Dorsey, "AN ACT for the Establishment and Regulation of a Night Watch, and the Erection of Lamps," 1597. Later, nightwatchmen in the 1830s did sometimes carry other weapons, including pistols or wooden batons known in Baltimore as "espantoons." They also carried

- large wooden rattles which could make a noise both “far reaching and terrific” and aid the nightwatchman in getting the attention of other members of the watch or passers-by. Clinton McCabe, *History of the Baltimore Police Department, 1774-1907* (Baltimore, MD: Fleet-McGinley, Co., 1907), http://mdhistory.msa.maryland.gov/msa_sh248/msa_sh248_1/msa_sh248_1_1.pdf, 21. On “espantoons” see Peter Hermann, “The Espantoons,” *The Baltimore Sun*, October 31, 2008, <https://www.baltimoresun.com/bs-mtblog-2008-10-the-espantoon-story.html>.
- 20 Baldwin, *In the Watches of the Night*, 11; Nye, *American Illuminations*, 14-16; and Jakle, *City Lights*, 5-7.
- 21 Mayor Smalls as quoted in Crenson, Baltimore, 145.
- 22 Dorsey, “AN ACT for the Establishment and Regulation of a Night Watch, and the Erection of Lamps,” 1598-1599.
- 23 Paul Griffiths, “Meanings of Nightwalking in Early Modern England,” *The Seventeenth Century* 13, no. 2 (September 1998): 212-38, <https://doi.org/10.1080/0268117X.1998.10555448>; Matthew Beaumont and Will Self, *Nightwalking: A Nocturnal History of London: Chaucer to Dickens*, Paperback edition (London New York: Verso, 2016), see especially the introduction; and Baldwin, *In the Watches of the Night*, 11.
- 24 Ordinances of the Corporation of the City of Baltimore, with the Act of Incorporation and Supplement Thereto Prefixed. (Baltimore: Warner and Hanna, 1801), <https://hdl.handle.net/2027/hvd.hxh5uf> Public, 51-53; Erlick, “The Peales and Gas Lights in Baltimore,” 9.
- 25 Baldwin, *In the Watches of the Night*, 10.
- 26 “City Spends Over Million Each Year to Get Lit Up,” *The Baltimore Sun*, July 31, 1927. Jakle, *City Lights*, 19-20, 23. Baldwin, *In the Watches of the Night*, 9-12.
- 27 My conception of gas light as enabling navigability borrows from Nye, *American Illuminations*, 41, 46. He draws the distinction between gas which made the city “recognizable and navigable” versus electricity which “made possible a wide range of nocturnal behavior once only possible during the day.” (*American Illuminations*, 46.)
- 28 Some say the pole the lamp sits on may be original, but the fixture itself was replaced in the 1990s Sarah Buehler, “The First Gas Street Lamp in America. Baltimore Celebrates!,” <https://americangaslamp.com>, accessed January 21, 2021, <https://americangaslamp.com/blog/recognizing-first-gas-street-lamp-america/>; Natalie Sherman, “Baltimore and BGE Mark 200th Anniversary of First Gas Street Lamp,” *The Baltimore Sun*, February 8, 1817, sec. Business, <https://www.baltimoresun.com/business/bs-bz-bge-gas-lamp-20170207-story.html>.
- 29 Jakle, *City Lights*, 30.
- 30 Baldwin, *In the Watches of the Night*, 14-15
- 31 As Baldwin explains, “The creation of modern police forces in American cities, from the 1840s through the 1870s, typically began shortly after the introduction of gas lighting.” See *In the Watches of the Night*, 15. Baltimore began making its nightwatch into something closer to a police force in the 1820s, a reform precipitated in part by the fact that Baltimore’s Mayor at the time noticed that nightwatchmen spent so much time maintaining the city’s street lights that it gave them little time to patrol. Crenson, Baltimore, 143-144.
- 32 Nye, *American Illuminations*, 41
- 33 Jakle, *City Lights* 31, 37; Baldwin, *In the Watches of the Night*, 15-20; and Nye, *American Illuminations*, 41, 43. On theaters as early adopters of gas lighting, see Thompson, *The History of Illuminating Gas in Baltimore*, 14. Thompson also quotes a long-time employee of the Baltimore gas company who explains that in 1836, gas lights were only used in “stores, public places and churches—and in very few churches” (20).
- 34 Erlick, “The Peales and Gas Lights in Baltimore,” 9-12.
- 35 As quoted in Erlick, “The Peales and Gas Lights in Baltimore,” 13.
- 36 The founders were William Gwynn, a local newspaper editor; William Lorman and James Mosher, both bank executives, and Robert Cary Long, an architect. See Erlick, “The Peales and Gas Lights in Baltimore,” 13, 14. See also “Original Charter of the Gas Light Company, of Baltimore, 1816,” as printed in *The Baltimore Gas and Electric News* 5, no. 6, *The American Gas Centenary* (1916): 353-56.
- 37 Baldwin, *In the Watches of the Night*, 15-16, 17. Edward Stoops Thompson called gas in 1836, “still a great luxury” (*The History of Illuminating Gas in Baltimore*, 14-15). American cities, in general, have funded public infrastructure projects such as gas and water utilities, through public-private partnerships or by charging a tax to adjoining property owners, known as a special assessment. Special assessment is often criticized for exacerbating inequality in infrastructure, because lower-income homeowners are less likely to be able to afford the costs needed to improve roads or install utilities, and therefore are more likely to lack these municipal services. Moreover, special assessments mean that tenants, who do not own their property, have little influence over the infrastructure projects of their own blocks. Instead, their landlords might discourage infrastructure improvements or pass along the costs of special assessments to their tenants without their input. On special assessments in infrastructure, see Robin L. Einhorn, *Property Rules: Political Economy in Chicago, 1833-1872*. (Chicago: University of Chicago Press, 1991) and Carl Smith, *City Water, City Life Water and the Infrastructure of Ideas in Urbanizing Philadelphia, Boston, and Chicago* (Chicago: University of Chicago Press, 2013), 94-106.
- 38 Thompson, *The History of Illuminating Gas in Baltimore*, 25.
- 39 Thompson, *The History of Illuminating Gas in Baltimore*, 24-25.
- 40 Nye, *American Illuminations*, 49.
- 41 Baldwin, *In the Watches of the Night*, 160.
- 42 Nye, *American Illuminations*, 44.
- 43 Nye, *American Illuminations*, 46, 49.
- 44 Cincinnati Committee on Light, “Report on Street Lighting,” 438. Nye 44-59; Jakle, *City Lights*, 43-52. Some cities tried to do away with street-level lighting altogether, instead relying on clusters of arc lights placed atop of giant towers. Sometimes called “moonlight towers” because of their similarity to the light of a full moon, a single tower might be used to light an entire neighborhood. On moonlight towers see Jakle, *City Lights*, 47-52 and Nye, *American Illuminations*, 86-107.
- 45 Nye, *American Illuminations*, 48-52.
- 46 Established gas lines were also seen as a hazard when installing electrical conduit. As one Baltimore Sun article explained in 1909, gas leaking from underground pipes often caused explosions, and crews installing new electrical conduit could be especially at risk. “How the Face of Old Baltimore Is Being Transformed,” *The Baltimore Sun*, October 10, 1909.
- 47 Nye, *American Illuminations*, 49-50.

48 Nye, *American Illuminations*, 49.

49 Nye, *American Illuminations*, 49-50.

50 Nye, *American Illuminations*, 49-50.

51 Nye, *American Illuminations*, 51; Crenson, Baltimore, 303.

52 Thompson, *The History of Illuminating Gas in Baltimore*, 28.

53 Title taken from the article "Baltimore Is Becoming Brighter and Brighter: Art of The Electrician Transforms The Business Streets Of The Town At Night," *The Baltimore Sun*, September 17, 1911.

54 Nye, *Urban Illuminations*, 161-183.

55 Glotzer, *How the Suburbs Were Segregated*, 105.

56 Glotzer, *How the Suburbs Were Segregated*, 41-42, 98-101, 105-109; Joseph L. Arnold, "Suburban Growth and Municipal Annexation in Baltimore, 1745-1918," *Maryland Historical Magazine* 73, no. 2 (June 1978): 109-28.

57 "How the Face of Old Baltimore Is Being Transformed," *The Baltimore Sun*, October 10, 1909. "This Is Annexation Day," *The Baltimore Sun*, June 1, 1888. Further discussion of naphtha and kerosene lamps can be found in Cincinnati Committee on Light, "Report on Street Lighting," 423,433,438,441. See also Joel A. Tarr, "Illuminating the Streets, Alleys, Parks and Suburbs of the American City: Non-Networked Technologies, 1870-1920," *History and Technology* 36, no. 1 (January 2, 2020): 105-28, <https://doi.org/10.1080/07341512.2020.1739816>.

58 As quoted in Glotzer, *How the Suburbs were Segregated*, 107.

59 Glotzer, *How the Suburbs were Segregated*, 54-60, 72, 98. See also Arnold, "Suburban Growth and Annexation," 118-119. "Bouton Alters Stand; Favors Tax Rate Bill: Asserts System in Old Annex Is 'Discriminatory And Unfair,'" *The Baltimore Sun*, March 8, 1927.

60 Glotzer, *How the Suburbs were Segregated*, 72. Christopher G. Boone, "Obstacles to Infrastructure Provision: The Struggle to Build Comprehensive Sewer Works in Baltimore," *Historical Geography* 31 (November 10, 2003): 151-68.

61 Sherry H. Olson, *Baltimore: The Building of an American City* (Baltimore: Johns Hopkins University Press, 1997), <https://catalog.hathitrust.org/Record/003947424>, 246-254; Boone, "Obstacles to Infrastructure Provision."

62 "How the Face of Old Baltimore Is Being Transformed,"

63 "How the Face of Old Baltimore Is Being Transformed,"

64 Crenson, *Baltimore*, 333.

65 "How the Face of Old Baltimore is Being Transformed."

66 "Baltimore's Great White Way," October 12, 1909.

67 S.S. Field, "Our City Government," in *Some Things You Should Know about Your City Government. Series of Practical Talks on Baltimore* (Baltimore, MD: Women's Civic League of Baltimore, 1913), 5-14, <http://hdl.handle.net/2027/osu.32435009971508.7>.

68 City Council of Baltimore City, *New Charter of Baltimore City*, p.iv; and Crenson, Baltimore, 327.

69 The position of Superintendent of Lamps and Lighting would be appointed by the mayor. City Council of Baltimore City, *New Charter of Baltimore City*. (Baltimore, MD: City Council of Baltimore City, 1898), <http://hdl.handle.net/2027/uiug.30112066943637>. See p.115, article 204. See also "New Charter: First Official And Comprehensive Synopsis Of Baltimore's Prospective Up-To-Date Organic Law," *The Baltimore Sun*, February 11, 1898.

70 "How the Face of Old Baltimore Is Being Transformed."

71 "Baltimore's Great White Way," October 12, 1909.

72 "How the Face of Old Baltimore Is Being Transformed."

73 On lighting and the City Beautiful, see, Nye, *Urban Illuminations*, 161-183, especially 164.

74 "Baltimore's Great White Way," October 12, 1909.

75 "Baltimore's Great White Way," October 12, 1909.

76 Some of the clearest discussion of the benefits of gas lamps for residential and park areas comes from when McCuen sought alternatives to gas to reduce costs. See for example, "May Cut off Gas Lamps," *The Baltimore Sun*, September 17, 1900. Because arc lights were deemed unsuitable for parks, the City also experimented with naphtha lighting, especially in the western part of the City. "Naphtha Lamps in Squares: Experiments with Them as Substitutes for Arc Lights," *The Baltimore Sun*, April 28, 1905.

77 Cincinnati Committee on Light, "Report on Street Lighting," 437. In addition to Baltimore, the committee visited St. Louis, Chicago, Milwaukee, Pittsburg, Allegheny, Edgewood Borough, Baltimore, Washington D.C., Philadelphia, New York, Hartford, and Boston.

78 Cincinnati Committee on Light, "Report on Street Lighting," 437-438. For romantic views of gas light more broadly see Jakle, *City Lights*, 35.

79 Cincinnati Committee on Light, "Report on Street Lighting," 438. "BALTIMORE'S GREAT WHITE WAY," *The Sun* (1837-1995), October 12, 1909, 537800926, ProQuest Historical Newspapers: *The Baltimore Sun*.

80 Nye, 107, 212, 214-216. Baldwin, *In the Watches of the Night*, 161.

81 Christopher Silver, "The Racial Origins of Zoning: Southern Cities from 1910-40," *Planning Perspectives* 6, no. 2 (May 1, 1991): 189-205, <https://doi.org/10.1080/02665439108725726>; David M. P. Freund, *Colored Property: State Policy and White Racial Politics in Suburban America*, Historical Studies of Urban America (Chicago: University of Chicago Press, 2007), 45-72; Barbara Jane Flint, "Zoning and Residential Segregation: A Social and Physical History, 1910-40" (Chicago, University of Chicago, 1977), see especially 366-427. Richard Rothstein, *The Color of Law: A Forgotten History of How Our Government Segregated America*, First edition (New York; London: Liveright Publishing Corporation, a division of W. W. Norton & Company, 2017), 39-57.

82 Pietila, *Not in My Neighborhood*, 22-24.

83 Silver, "The Racial Origins of Zoning"; Freund, *Colored Property*, 45-72; Flint, "Zoning and Residential Segregation," 366-427; Rothstein, *The Color of Law*, 39-57.

84 Nye 107, 214-216; Baldwin, *In the Watches of the Night*, 161.

85 Crenson, Baltimore, 341, 343-345. Mary Ellen Hayward, *Baltimore's Alley Houses: Homes for Working People since the 1780s*, Creating the North American Landscape (Baltimore: Johns Hopkins University Press, 2008).

86 Stump, "End of A Baltimore Street-Light Era."

87 Stump, "End of A Baltimore Street-Light Era." See also Joel A. Tarr, "Illuminating the Streets, Alleys, Parks and Suburbs of the American City: Non-Networked Technologies, 1870-1920," *History and Technology* 36, no. 1 (January 2, 2020): 105-28, <https://doi.org/10.1080/07341512.2020.1739816>; and Jakle, *City Lights*, 23-23.

88 Cincinnati Committee on Light, "Report on Street Lighting," 439. "BALTIMORE'S GREAT WHITE WAY;"

89 "BALTIMORE'S GREAT WHITE WAY;"

90 McCuen as paraphrased in Cincinnati Committee on Light, "Report on Street Lighting," 438. "Baltimore's Great White Way;"

91 McCuen as paraphrased in Cincinnati Committee on Light, "Report on Street Lighting," 438. "Baltimore's Great White Way;"

92 Baldwin, *In the Watches of the Night*, 6-9, 160. On arc lamps comparisons with daylight or sunlight, see Jakle, *City Lights*, 48, 52, 54 and Nye, *American Illuminations*, 85-87.

93 "How the Face of Old Baltimore Is Being Transformed," *The Sun* (1837-1995), October 10, 1909. Mayor Preston also emphasized that these lamps did not cast a shadow when he promoted them in 1912, see "Streets to Be Ablaze," *The Baltimore Sun*, February 18, 1912, <https://www.newspapers.com/image/372303487>.

94 Boston Evening Transcript as quoted in Baldwin, *In the Watches of the Night*, 160.

95 On progressive era assumptions of Black criminality, see Khalil Gibran Muhammad, *The Condemnation of Blackness: Race, Crime, and the Making of Modern Urban America* (Cambridge, Mass: Harvard University Press, 2010).

96 St. Louis official as quoted in Baldwin, *In the Watches of the Night*, 161.

97 Baldwin, *In the Watches of the Night*, 159. The common use of the term "white way" in competing business districts across the U.S. sometimes makes it seem like "white way" refers to one specific lighting technology. Baldwin suggests that "white way" could be used for whatever seemed to be the newest and brightest lamp for the moment, whether powered by arc lamp or incandescent bulbs fitted with incandescent filaments (159). Nye suggests that white ways were distinguished by how they tended to be rolled out as a complete system of lighting that was "not only brighter but more artistic too" (*American Illuminations*, 168). See also Nye, *American Illuminations*, 168-171. In Baltimore in 1912, city leaders used the term "white way" to refer to an extra luminous form of arc lamp that employed a special globe "from which there is not shadow, and a great diffusion of light." "Streets to Be Ablaze," *The Baltimore Sun*, February 18, 1912, <https://www.newspapers.com/image/372303487>. See also "City Spends Over Million Each Year to Get Lit Up." Jakle explains that an improved form of arc lamp known as the magnetite arc lamp was also known as the "luminous arc lamp." See *City Lights*, 54.

98 "Mt. Royal Avenue to Have New Lamps," *The Baltimore Sun*, August 25, 1926.

99 Baldwin, *In the Watches of the Night*, 155, 159; Nye, *American Illuminations*, 168-171. "Baltimore's Great White Way," *The Baltimore Sun*, October 12, 1909.

100 Lawrence T. Brown, *The Black Butterfly: The Harmful Politics of Race and Space in America* (Baltimore: Johns Hopkins University Press, 2021). See definitions pp. 8-14.

101 Crenson, Baltimore, 371-373; Glotzer, *How the Suburbs Were Segregated*, 105-109; Arnold, "Suburban Growth and Municipal Annexation in Baltimore, 1745-1918."

102 Glotzer, *How the Suburbs Were Segregated*, 105-109; Pietila, *Not in My Neighborhood*, 49-51.

103 "Baltimore's Great White Way," *The Baltimore Sun*, October 12, 1909. See also "White Way to Expand: Baltimore Street Will Be Brightened To Gilmore Street," *The Baltimore Sun*, October 11, 1909; and Baltimore's "Great White Way," *The Baltimore Sun*, April 6, 1911.

104 "Mt. Royal Avenue to Have New Lamps," *The Baltimore Sun*, August 25, 1926.

105 Pietila, *Not in My Neighborhood*, 51.

106 Pietila, *Not in My Neighborhood*, 50, 51. In fact, it was the first time such a condemnation law was used in Baltimore, like the Peales introducing the first gas lamps, condemnation was an idea Preston had imported to Baltimore after a visit to London. As Pietila explains, urban renewal of this kind is more associated with the period after World War II.

107 "Streets to Be Ablaze," *The Baltimore Sun*, February 18, 1912, <https://www.newspapers.com/image/372303487>.

108 Pietila, *Not in My Neighborhood*, 49-51.

109 "City Spends Over Million Each Year to Get Lit Up;" "New Terrace Dedicated," *The Baltimore Sun*, May 16, 1919.

110 "City Spends Over Million Each Year to Get Lit Up."

111 "City Spends Over Million Each Year to Get Lit Up;" "Mt. Royal Avenue to Have New Lamps," *The Baltimore Sun*, August 25, 1926; and Pietila, *Not in My Neighborhood*, 5-21.

112 "New Lights Shatter Cathedral St. Gloom: Modern Illumination of Motorists' Much Used Thoroughfare Begins at Mulberry St.," *The Baltimore Sun*, January 12, 1921.

113 "City Spends Over Million Each Year to Get Lit Up" and "New Lights Shatter Cathedral St. Gloom."

114 Brown, *The Black Butterfly*, 14.

115 "City Spurs Street Lighting for Fight on Crime" and Stump, "End of A Baltimore Street-Light Era."

116 The first vapor lighting installed in Baltimore relied on mercury vapor but the city soon moved to sodium vapor lighting. According to Jakle, sodium vapor and mercury vapor lamps actually used some of the same technology as earlier arc lamps, though they required less maintenance, and the quality of light was seen as improved. Vapor lights technology began to be adopted generally after 1930. See *City Lights*, 57. The Baltimore City Criminal Justice Commission officially endorsed increasing mercury vapor lighting as a crime deterring strategy, see for example the letter by Managing Director of the Criminal Justice Commission, Ralph G. Murdy, "Brighter Street Lights," *The Baltimore Sun*, October 25, 1965, Letters to Editor and letter by Murdy's successor as Managing Director, Richard G. Sullivan, "Crime Deterent," *The Baltimore Sun*, October 5, 1967, sec. Letters to Editor. See also "New Lighting Plan Is Backed," *The Baltimore Sun*, April 10, 1964; "Street Lighting Conversion Slow," *The Baltimore Sun*, September 17, 1967; John E. Woodruff, "Street Light Conversion to Be Pushed," *The Baltimore Sun*, January 14, 1968.

117 These three administrations were Mayor Theodore McKeldin (1963-1967), Mayor Thomas D'Alesandro III (1967-1971) and Mayor Donald Schaefer (1971-1987). McKeldin promised in 1966 that all street lights would be converted to mercury vapor lighting by 1971. The project of converting from incandescent to newer, brighter, vapor lighting was initiated in 1964 by then City Council President Thomas D'Alesandro III, the son of Mayor D'Alesandro, Jr, who had pushed to end gas lighting in the city. In 1968, D'Alesandro, III, changed this promise to 1972. Frank P. L. Somerville, "North Charles Due New Lights," *The Baltimore Sun*, October 15, 1966. John E. Woodruff, "Street Light Conversion to Be Pushed," *The Baltimore Sun*, January 14, 1968. On Schaefer see Lou Panos, "Throwing Greater Light on City Matters," *The Baltimore Evening Sun*, November 27, 1972 and "Last Light Lost," *The Baltimore Evening Sun*, December 7, 1972. Dates for mayoral administrations come from Edward C. Papenfuss et al, "Baltimore City Mayors," in *Archives of Maryland, Historical List*, vol. 1, New Series

- (Annapolis, MD: Maryland State Archives, 1990), as reproduced at <https://msa.maryland.gov/msa/speccol/sc2600/sc2685/html/bcmayors.html>.
- 118 Stump, "End of A Baltimore Street-Light Era."
 - 119 View of Mayor Schaefer Turning off Baltimore's Last Incandescent Street Light near Russell Street in the Camden Industrial Park. - 12/06/1972," 1972, <https://baltmusindustry.pastperfectonline.com/photo/88123872-F791-4D83-994F-823589265609>; Lou Panos, "Throwing Greater Light on City Matters," *The Baltimore Evening Sun*, November 27, 1972; "Last Light Lost," *The Baltimore Evening Sun*, December 7, 1972.
 - 120 (See for example "Baltimore City Street Lighting Bond Issue," Pub. L. No. Senate Bill 655, § Chapter 348, 716 Laws of Maryland 2159 (1975), <https://msa.maryland.gov/megafile/msa/speccol/sc2900/sc2908/000001/000716/html/am716--2159.html>.)
 - 121 Thomas B. Edsall, "Civil Rights Movement Becomes a Force of Major Magnitude, Focuses on Power," *The Baltimore Sun*, December 23, 1969; Thomas Hasler, "Mount Vernon, Bolton Hill: Urban Renewal Projects Help Give Neighborhoods New Lease on Life," *The Baltimore Evening Sun*, July 21, 1971. See also Shannon Darrow, "The People's Side of the Road': Movement against Destruction and Organizing across Lines of Race, Class, and Neighborhood," in *Baltimore Revisited: Stories of Inequality and Resistance in a U.S. City*, ed. P. Nicole King, Kate S. Drabinski, and Joshua Clark Davis (New Brunswick: Rutgers University Press, 2019), 103–17.
 - 122 "City's Residential Streets to Get Mercury Lamps," *The Baltimore Sun*, 17 September 1965; and "New Lighting Plan Is Backed," *The Baltimore Sun*, April 10, 1964.
 - 123 "City's Residential Streets to Get Mercury Lamps," *The Baltimore Sun*, 17 September 1965. See also "Direct Line" column in *The Baltimore Evening Sun*, from February 19, 1968; March 1, 1968; March 22, 1968; March 28, 1968; July 18, 1968; March 29, 1969; June 22, 1970; November 2, 1970; May 7, 1971; November 12, 1971; October 30, 1972; February 7, 1974; and February 2, 1976.
 - 124 "City's Residential Streets to Get Mercury Lamps."
 - 125 The neighborhood group was known as Neighborhood Action Group (NAG) and at the time their area was known as the Mount Royal District. It was partly because of the work of NAG that the group later was named Reservoir Hill. Peter Marudas, "Mercury Lights Due in Section High in Crime," *The Baltimore Sun*, January 25, 1967; Frank P. L. Somerville, "Vapor Lights Get Yes, No," *The Baltimore Sun*, January 26, 1967; and Earl Arnett, "Reservoir Hill: New Tag for an Old Neighborhood," *The Baltimore Sun*, August 15, 1979.
 - 126 See for example "Direct Line," *The Baltimore Evening Sun*, March 14, 1968; January 12, 1971; March 22, 1968.
 - 127 "Direct Line," *The Baltimore Evening Sun*, January 8, 1969.
 - 128 "Street Lighting Conversion Slow," *The Baltimore Sun*, September 17, 1967; Frank P. L. Somerville, "North Charles Due New Lights," *The Baltimore Sun*, October 15, 1966.
 - 129 "Street Lighting Conversion Slow" and Somerville, "North Charles Due New Lights."
 - 130 "Street Lighting Conversion Slow."
 - 131 "Street Lighting Conversion Slow." September 17, 1967. Many residents specifically requested "mercury vapor lights" be added to their streets or alleys after seeing them installed on other streets. See for example "Direct Line," *The Baltimore Evening Sun*, March 14, 1968; January 12, 1971; March 22, 1968.
 - 132 "Street Lighting Conversion Slow."
 - 133 "Street Lighting Conversion Slow."
 - 134 Somerville, "Vapor Lights Get Yes, No."
 - 135 Somerville, "Vapor Lights Get Yes, No;" and "Street Lighting Conversion Slow."
 - 136 Colin MacLachlan, "Downtown Center Plan Bared," *The Baltimore Evening Sun*, March 27, 1958; Colin MacLachlan, "The Men Behind the Charles Center," *The Baltimore Sun*, March 30, 1958; Sheldon Smith, "Charles Center Picking Up Momentum; One Building Started, Four Others to Follow In Next Year," *The Baltimore Evening Sun*, December 1, 1961; John Dorsey, "Charles Center--'It Couldn't Have Been Done without Jeff'," *The Baltimore Sun*, October 18, 1964; and David Harvey, "A View from Federal Hill," in *Baltimore Book: New Views of Local History*, ed. Elizabeth Fee, Linda Shopes, and Linda Zeidman (Philadelphia: Temple University Press, 1994), 226–47.
 - 137 Somerville, "Vapor Lights Get Yes, No." Part of this disparate treatment may also have come from funding concerns, because Charles Center was funded through a combination of public funds and private development money, the expense of "lucalux" mercury-vapor street lights was more attainable than in residential areas relying on city funds alone. Although proponents of the project at the time stressed that the Charles Center project's use of private development money minimized its costs to city tax payers, (see for example MacLachlan, "Downtown Center Plan Bared" and "The Men Behind Charles Center") later critics such as David Harvey argued that "Charles Center was so heavily subsidized [by the City of Baltimore] that it was a drain on, rather than a benefit to, the city's tax base." ("A View from Federal Hill," 233). It should be noted, also, that Reservoir Hill had more resources available to improve street lighting because it was an urban renewal area at the time, and therefore had access to certain federal funds. Paul D Samuel, "Model Cities Chief Asks More White Involvement," *The Baltimore Evening Sun*, July 6, 1970; "Neighborhood Action Group Nags Officials On Renewal," *The Baltimore Sun*, October 23, 1966, <http://www.newspapers.com/image/376940481/?terms=%22neighborhood%20action%20group%22&match=1>.
 - 138 The citations in this paragraph come from a complaint column run in *the Baltimore Evening Sun* during the 1960s and 1970s. Called, "Direct Line," the column would aid complainants in locating the appropriate city department address their concerns and print their official responses. In 1971, "Direct Line" tabulated complaints they received between 1967 and 1971. They found that 40 percent of complaints came from the "elderly" (an age range they did not define). They noted that concerns about street lighting were one of the top ten concerns of elders in Baltimore. Direct Line summarized most complains as about street and alley lighting that were "either too bright or too dim" or about lights that were burned out or shut off. See "Direct Line," *The Baltimore Evening Sun*, August 12, 1971. <https://www.newspapers.com/image/371670134/?terms=%22direct%20line%22%20street%20light&match=1> For examples of complaints specifically about vapor lights, see for example "Direct Line" columns from *The Baltimore Evening Sun*, June, 11, 1970; July, 15, 1975; and July 27, 1972.
 - 139 See for example, "Direct Line" columns from *The Baltimore Evening Sun*, November, 20, 1975; June 11, 1970., July 20, 1970; August 15, 1972; and May 2, 1973.,
 - 140 See for example "Direct Line" columns from *The Baltimore Evening Sun*, June, 11, 1970; July, 15, 1975; and July 27, 1972.

- 141 Frank P. L. Somerville, "City in Dark Yet On Street Lights," *The Baltimore Sun*, January 19, 1966.
- 142 Accounts in the 1970s claimed that the "boulevard" style was invented in Baltimore in the 1890s, but my research suggests this style may have come to Baltimore later, in the 1900s, when the city purchased thousands of lamps from a Cleveland-based company. "Lindeman, 79, Is Shining Light of Lamplighter's Ball Tonight," *The Baltimore Sun*, September 29, 1978; Hasler, "Demand Exceeds Supply of Old Boulevard Lamps;" "Bolton Hill Lights Delayed," November 18, 1968. On original boulevard lamps, see "New Boulevard Street Lamp," *The Baltimore Sun*, November 26, 1908.
- 143 "Lindeman, 79, Is Shining Light of Lamplighter's Ball Tonight."
- 144 Hasler, "Mount Vernon, Bolton Hill;" and "Bolton Hill Lights Delayed."
- 145 "Lindeman, 79, Is Shining Light of Lamplighter's Ball Tonight."
- 146 The campaign was also a collaboration with former mayor Donald Schaefer, who had by that point become the Governor of Maryland, as well as Baltimore Gas and Electric. "Daggers of Light Called Slayers of Night: Stars and Birds vs. Tower's Beams," *The Baltimore Sun*, November 10, 1994; "Leaving the Lights On: With Buildings Awash in Illumination City Skyline Would Jump out of the Dark," *The Baltimore Sun*, December 31, 1994.
- 147 "Leaving the Lights On" and "Daggers of Light"
- 148 Michael A Hall as quoted in "Daggers of Light" 1b. See also 6b.
- 149 Chandler S. Robbins as quoted in Daggers of Light, 6b.
- 150 Cite Ostrow.
- 151 See for example Julie Bykowicz, "'Pawns' in the Drug Game," *The Baltimore Sun*, December 3, 2006; Peter Hermann, "City Forum Conveys Warning on Risk of Closing Rec Centers," *The Baltimore Sun*, April 12, 2009.
- 152 Larry Perl, "Wire Thefts Keep Wyman Park Dell in the Dark," *The Baltimore Sun*, January 18, 2011.
- 153 Van Dam, "Economists Conducted a \$5 Million Experiment to (Literally) Shed Light on Crime," Washington Post, May 14, 2019, <https://www.washingtonpost.com/business/2019/05/14/economists-conducted-million-experiment-literally-shed-light-crime/>.
- 154 Justin Fenton, Melissa Harris, and Gus G. Sentementes, "Two Men Held in Harris Death," *The Baltimore Sun*, November 15, 2008.
- 155 Peter Hermann, "Seton Hill's Frustration Shines a Light on Drug Wars," *The Baltimore Sun*, December 18, 2008; Peter Hermann, "Two Sides of the Same Street, One Problem Bedeviling Both," *The Baltimore Sun*, January 25, 2009.
- 156 Bykowicz, "'Pawns' in the Drug Game," 18A.



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