Forming the SoBro Solar Electric Power Cooperative as a Neighborhood/municipal Utility Company

Providing Power to the People

"We are like tenant farmers chopping down the fence around our house for fuel when we should be using Nature's inexhaustible sources of energy-sun, wind and tide . . . I'd put my money on the sun and solar energy. What a source of power! I hope we don't have to wait until oil and coal run out before we tackle that."

—Thomas A. Edison (A conversation with Henry Ford and Harvey Firestone in 1931)

Introduction

The South of Broadway Neighborhood Association was formed during the pandemic by residents of the historic Thierman Building. On November 2, 2022, the Council of Co-owners of the Thierman Condominiums voted to study the feasibility of forming a neighborhood/municipal utility company as a not-for-profit organization, known as the SoBro Solar Electric Power Cooperative, an assumed name of the South of Broadway Neighborhood Association.

The courtyard of the Thierman Building. Photo credit Bill Clutter.

Built in 1913, designed by renowned architect James J. Gaffney, the Thierman Building represents the unique character of the history of SoBro's residential buildings that were built during the Progressive Era in America, and is a registered landmark on the National Register of Historic Places with the U.S. Department of Interior.

Each dining room of the 24-units features this identical stain glass window.

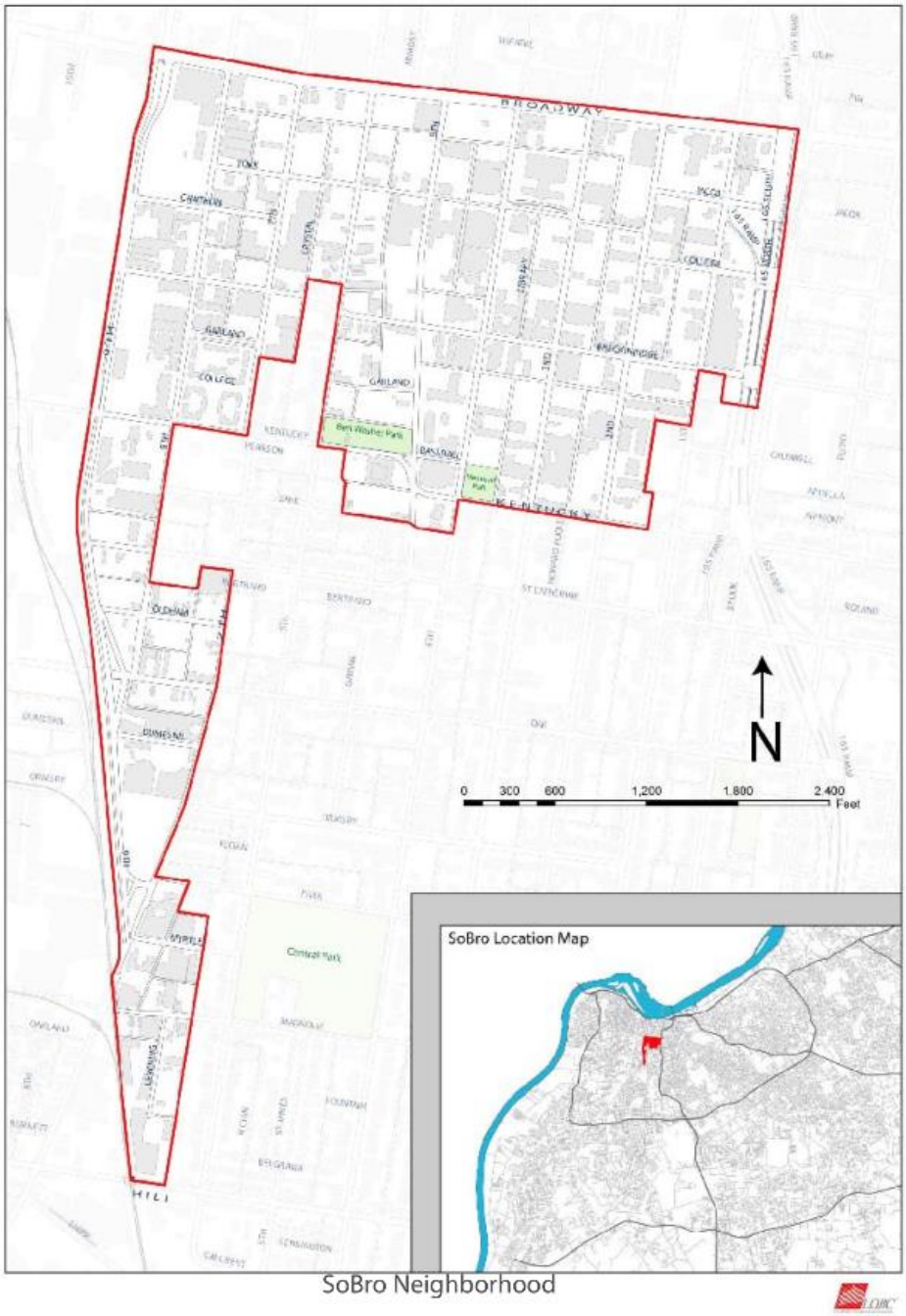
The Thierman community is racially diverse and is motivated to help improve our neighborhood with this proposal for building a green infrastructure in the SoBro District of Louisville.

Nearly two decades ago, former Mayor Jerry Abramson proposed buying the investor-owned utility company Louisville, Gas & Electric (LG&E), with the vision of operating a municipal utility company. Rather than buy an outdated and inefficient overhead electric distribution system, our proposal envisions building a solar electric cooperative from the ground up, starting with the Thierman Building, and developing an underground electric distribution system within the SoBro District that interconnects other members of the cooperative, brining power to the people.

We invite Mayor Craig Greenberg and the Louisville Metro Council to dedicate municipal resources to assist the SoBro Neighborhood Association in implementing the recommendations of this proposal.

Recommendation #1	**Allocate federal funds to build an array of solar panels on the roof of the Thierman Building, with the 24-unit owners as founding members of the SoBro Solar Electric Power Cooperative, as a pilot program;**
Recommendation #2	**Using its authority to issue tax-exempt municipal bonds, create a Municipal Solar Loan Program targeting the SoBro District;**
Recommendation #3	**Replace SoBro's broken sidewalks with a demonstration project of solar sidewalks that will provide electric power for EV charging meters;**
Recommendation #4	**Build LED lighted crosswalks at each intersection of 4th Street within the SoBro District, utilizing the artwork of the SoBro Artworks crosswalk design contest from the summer of 2014;**
Recommendation #5	Fo**rm a *Task Force to Study the Feasibility of creating the SoBro Solar Electric Power Cooperative* as a neighborhood/municipal utility company.**

SoBro Neighborhood Plan: "Making SoBro Greener"



The boundaries of the SoBro District. Ninth Street forms the western boundary and extends just beyond I-65 to the east, with Broadway and Kentucky Street forming the north/south boundaries. A panhandle shaped industrial corridor extends along 9th Street between Broadway and Hill Street. Source: SoBro Neighborhood Plan 2007.

Sustainable energy as policy initiative for the SoBro District was first approved by the Metro Council on October 26, 2007, when it adopted the SoBro Neighborhood Plan. The

recommendations of that Plan were developed by the SoBro Planning Task Force, which was appointed by former Mayor Jerry Abramson.

A major section of the SoBro Neighborhood Plan, adopted more than 16 years ago, included a section called "***Making Sobro Greener***":

> The primary goals of this initiative are to enact policies and programs at all levels of government to address such issues as the reduction of greenhouse gas emissions, the restoration of urban forestry projects, the reduction of urban sprawl and the development of public information campaigns concerning all issues dealing with sustainable climate protection. Louisville's SoBro neighborhood offers a unique opportunity for Louisville Metro to position itself among the progressive leading cities in the United States . . . The economic incentives for "greener" development are simple. Cities save money through reduced energy usage…The designation of SoBro as a green development zone can potentially transform this neighborhood, with its neglected streets and excess of empty surface parking lots, into one of the most vibrant and sought-after mixed-use areas of the city. (SoBro Neighborhood Plan, 2007, pp. 43-44).

Creating a SoBro Solar Electric Power Cooperative will fulfil the Plan's recommendation for the enactment of policies and programs to reduce carbon emissions.

A Pilot Program to Establish the SoBro Solar Electric Power Cooperative among the 24-unit owners of the Thierman Building

The 26-unit owners of the Thierman Building are founding members of the SoBro Solar Electric Power Cooperative. A concept proposal for generating solar electric power.

We invite Mayor Greenberg and the Louisville Metro Council to partner with the SoBro Neighborhood Association by allocating federal funds to construct a solar electric generating station on the roof of the Thierman Building, as a pilot program that will establish the SoBro Solar Electric Power Cooperative, with the 24-unit owners as founding members.

In exchange for this municipal partnership, the Cooperative will share excess generating capacity to power municipal electric needs within the SoBro District. This power-sharing plan can be the model for expanding the electric cooperative throughout the entire SoBro District, which can significantly reduce the amount of money Louisville Metro currently pays to LG&E for electric service.

We are requesting Mayor Greenberg and our Metro Council representatives to identify federal funding opportunities that have been created by the Biden Administration for the development of community solar programs. According to its website, "The U.S. Department of Energy defines community solar as any solar project or purchasing program, within a geographic area, in which the benefits of a solar project flow to multiple customers such as individuals, businesses, nonprofits, and other groups." It is now the policy of the U.S. Department of Energy to promote "community ownership" of solar energy. The SoBro Neighborhood Association is requesting a partnership with our municipal government to make a grant application with the U.S.

Department of Energy to fund this demonstration project to create the SoBro Solar Electric Power Cooperative, beginning with the funding to install solar panels on the Thierman Building.

As part of this plan, we are asking Mayor Greenberg to exercise his executive powers to apply for a grant with the U.S. Department of Transportation that will fund a demonstration project of solar sidewalks within the SoBro District that will provide electric power for a new generation of parking meters with EV charging stations, energy efficient LED lighting to illuminate our streets and sidewalks, along with LED traffic control devices that will sync with smart cars as the future path of building a modern transportation network of electric powered vehicles. This demonstration project on Breckinridge Street between the intersections of 2nd and 5th Streets can serve as a model for expanding this concept throughout the SoBro District.

By reducing the consumption of electricity generated from fossil fuels, the savings gained among the 24-unit owners of the Thierman Building, as members of the Cooperative, will be invested back into the Thierman Building to preserve the unique historical architecture of this important structure within the SoBro District.

Creation of a Municipal Solar Loan Program

Rising interest rates on borrowing recently enacted by the Federal Reserve Board to curb inflation threatens to slow investment in green energy development. As a new policy initiative for sustainable energy, Louisville can create a Municipal Solar Loan Program to provide direct funding to property owners as an inducement for developing a green energy infrastructure within the SoBro District. This policy initiative can be integrated with the city's current Solar Over Louisville program.

Seed money for the loan program can be funded through Community Development Block Grants to jump-start the program. A more comprehensive loan program can be funded by issuing tax-exempt municipal bonds. If federal funds can be used to repay interest on the bonds, the city can offer no-interest loans to property owners as an inducement for making this investment in clean energy.

Green energy is now cheaper to produce than fossil fuels. Loans amortized over a 10-year payback can be repaid from the savings consumers currently pay to LG&E for electricity. Repayment on the loans will replenish a revolving loan account dedicated for the Municipal Solar Loan Program, so that new loans can be made.

As a condition for receiving a no-interest municipal loan, property owners will sign an agreement to share excess generating capacity free of charge to the municipal government to power electric vehicle charging stations, as well as street and traffic control lights. When integrated with solar sidewalks and wind turbines, the City can expand its capacity to generate clean electric power, thus reducing its annual payment to LG&E.

A large-scale investment in the installation of solar panels will energize residential and commercial development within the SoBro District. This public policy initiative will result in rapid development of solar electric generation within the SoBro District.

After solar energy is developed for the SoBro District, new bonds can be issued to expand the Municipal Solar Loan Program to include other neighborhoods, like Smoketown, Shelby Park, Old Louisville and the Russell Neighborhood. The Municipal Solar Loan Program will target the oldest sections of the city and low-income neighborhoods.

If the City proceeds with the idea of creating a neighborhood municipal utility company, beginning with the SoBro District, federal funds are available to build an underground smart electric grid that can distribute electric power among the members of the Cooperative.[1] As a strategic member of the Cooperative, the Louisville Metro government can significantly save in what it currently pays for electricity. In Fiscal Year 2022, Louisville Metro paid more than 28 million dollars to LG&E.[2]

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[1] Understanding and Accessing Federal Funds Available to Public Power Utilities, www.publicpower.org

[2] Over the last five fiscal years Louisville Metro paid LG&E $28,571,074.28 FY22; $24,682,577.73 FY21; $17,644,215.91 FY20; $17,297.04 FY19; $17,286,847.96 FY18, according to an Open Records with Louisville Metro.

Solar Sidewalks and Electric Vehicle Charging Stations: Creating an Underground Electric and Utility Distribution System

In 2013, George Washington University installed the first solar sidewalk demonstration project in the world, with a peak capacity of producing 400 watts of power for 450 LED lights inside non-slip solar panels for pedestrian walkways at its Virginia Science and Technology Campus.[3]

After Hurricane Irma devastated Florida's electric grid in 2017, Tampa came up with the idea of installing solar sidewalks as a way of keeping the lights on during storm events. In 2020, the city initiated a pilot program, installing 84 solar sidewalk panels at a downtown intersection to generate electricity for municipal traffic control lights. The solar sidewalk demonstration project in Tampa generated 75% of the energy needed to power traffic lights at that one intersection. The city plans to expand the program to build more solar sidewalks.[4]

This prototype of a solar powered sidewalk paver is an emerging technology that will revolutionize urban planning. Photo credit: *Paving the Sidewalks With Solar*, April 30, 2018.

In early March of 2023, the SoBro District experienced a power outage that lasted two days due to high winds that brought down power lines from falling trees and limbs. Power was again interrupted a few weeks later, after another storm knocked out power lines. In the oldest neighborhoods of Louisville, electricity is still distributed through an antiquated system devised in the late 1800s, using overhead wires mounted on wooden utility poles. Using federal funds,

[3] The Future of Green: Solar Sidewalks, Green Cities, Oct. 25, 2013, www.earthday.org.
[4] Sue Carlton, "Hurricanes knock out traffic lights. Could a Tampa solar sidewalk change that.?" Tampa Bay Times, Nov. 18, 2022.

Louisville Metro could construct an underground utility corridor beneath solar sidewalks for developing a modern underground electric utility distribution system that would not suffer power outages that typically occur to overhead electric lines during severe ice and windstorms.

The SoBro Neighborhood Association is asking the Metro Government to make a targeted investment in the SoBro District, utilizing federal funds that are available under President Biden's Bipartisan Infrastructure Deal, to replace broken sidewalks with an integrated network of solar sidewalks that will power a new generation of street lights and EV charging stations.

Solar sidewalks can facilitate the transformation of the SoBro District into a green energy zone, with the construction of an underground electric distribution system built below the panels, which can be designed to provide ease of access for maintenance and the installation of an integrated utility system that can be expanded to include high speed internet. This design can be a model for rebuilding older sectors of the city.

The construction of solar sidewalks within the SoBro District can facilitate an underground utility network using the latest generation of electric transmission technology, interconnected with a series of batteries to store power for nighttime use, which will be owned and maintained by the Metro government.

Once the demonstration project proposed for Breckinridge Street (between 2nd and 5th Street) proves it is viable to generate solar electricity using solar sidewalks, Louisville Metro can seek additional funding through the U.S. Department of Energy and the U.S. Department of Transportation to fund a comprehensive capital investment of new solar sidewalks for the entire SoBro District.

This underground electric transmission network can facilitate the distribution of excess power for use by the municipality to provide free electricity to the Downtown Public Library, by expanding solar sidewalks and electric grid all along 4th Street (between Broadway and Kentucky Street). Louisville Metro can greatly reduce its electric expense for this major municipal facility located within the SoBro District through a power-sharing agreement with property owners who receive Municipal Solar Loans.

This plan for replacing broken concrete sidewalks with solar sidewalks will bring the original 2007 SoBro Plan to fruition by creating a sustainable source of energy.

Design Transportation Walking

SoBro's colorful crosswalks could be the first sign of real change in the neighborhood

By **Branden Klayko** - Sep 16, 2014 3218 2

Volunteers paint colorful crosswalks along Fourth Street in SoBro. (Elijah McKenzie / Broken Sidewalk)

[Update: *One of the crosswalks was destroyed today due to utility construction work. Read about it here.*]

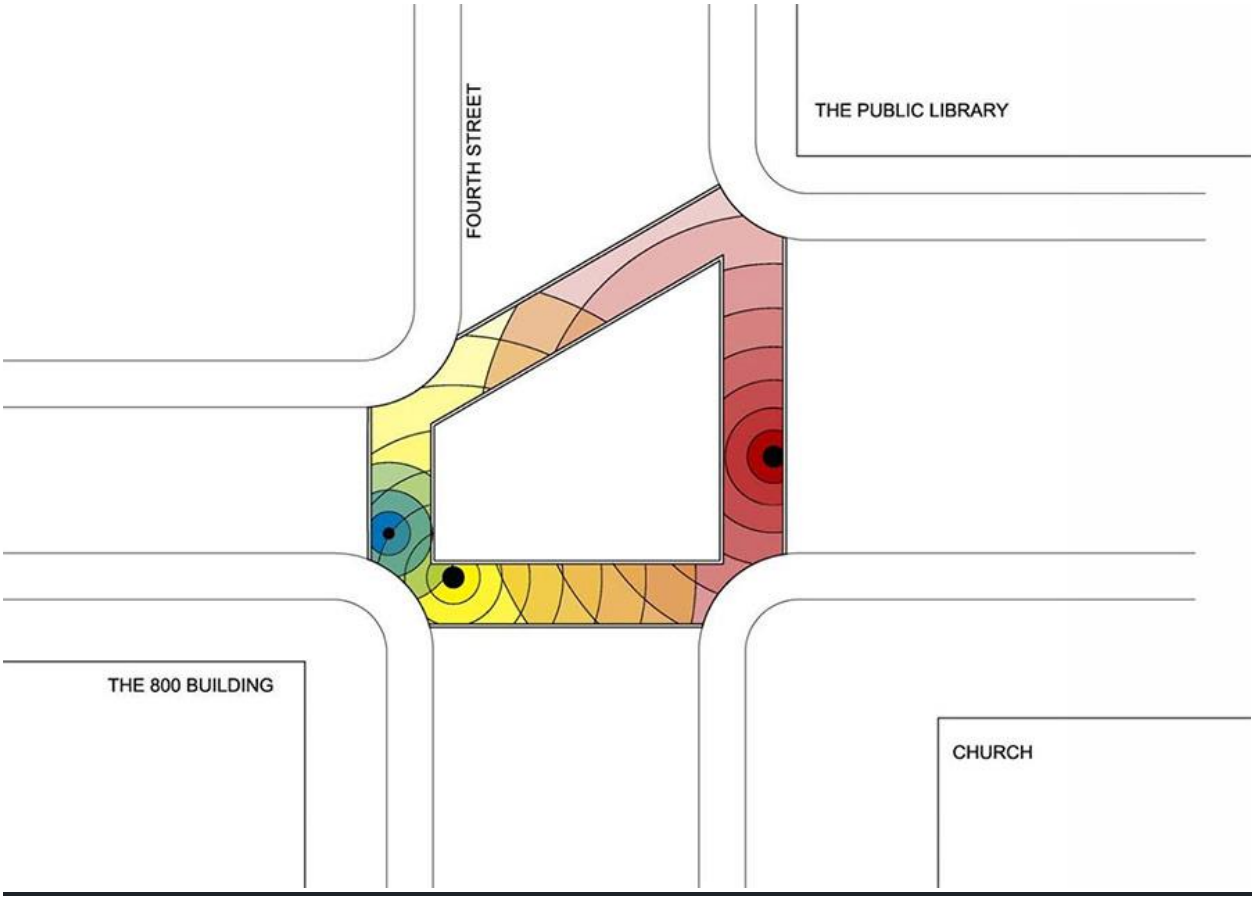
This article, written by Brandon Klayko, was originally published on Sept. 16, 2014 on-line on Broken Sidewalks. Klayko, an urban architect and former senior web editor at *The Architect's Newspaper,* moved to SoBro from New York City. Sadly, his energetic efforts to rebuild SoBro ended with his death at 33 in 2017, a victim of cancer. To read his story, click on the link below.

https://brokensidewalk.com/2014/sobros-colorful-crosswalks-could-be-the-first-sign-of-real-change-in-the-neighborhood/

A decade ago, employees of the architectural firm Luckett & Farley, located at 737 So 3rd Street, formed a not-for-profit organization aimed at improving the quality of life for its neighbors, calling themselves SoBro Louisville, Inc. However, after seven years, SoBro Louisville dissolved as an organization.

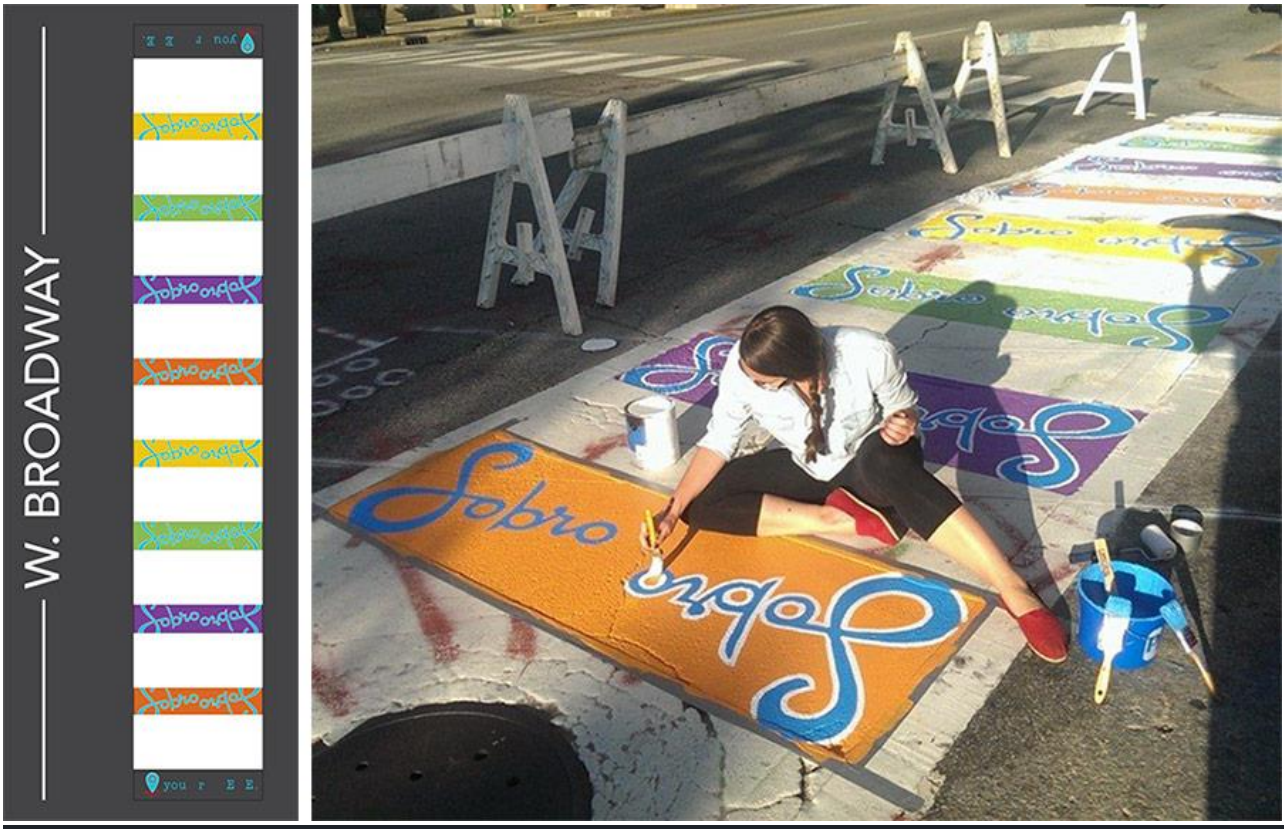
In the beginning, SoBro Louisville succeeded in raising public awareness and giving identity to the SoBro District. Working in collaboration with Women in Design and Vision Louisville, artists were invited to compete in the SoBro Artworks crosswalk design contest in the summer of 2014. This event brought the community together with a renewed spirit of transforming the SoBro neighborhood into a vibrant and progressive community.

SoBro Louisville's creative vision of chalk art painted by volunteers in 2014, can become permanent works of art as an LED light display powered by solar sidewalks.



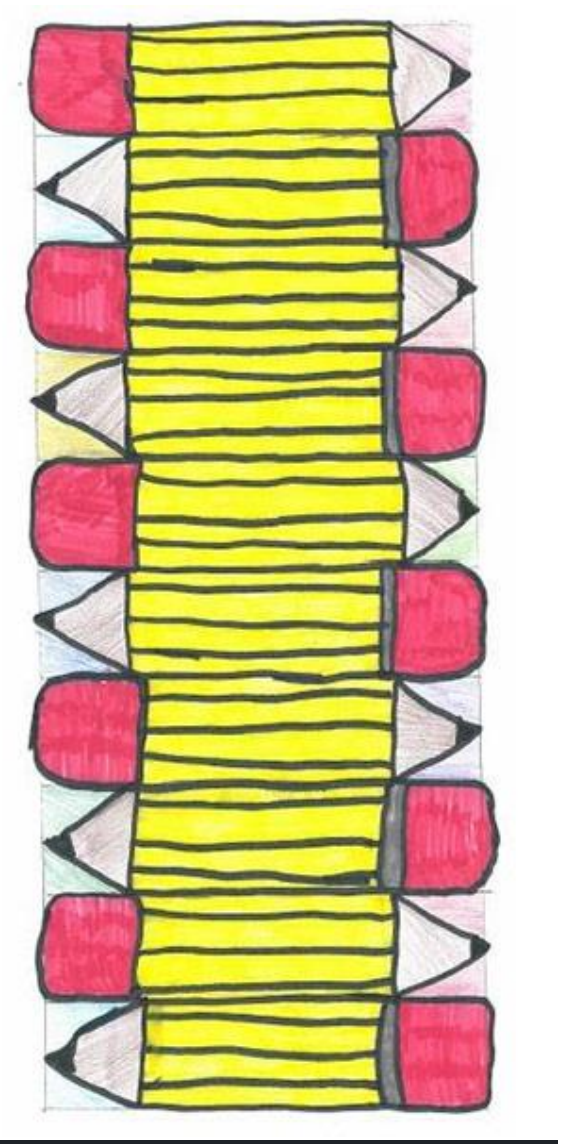
This design was proposed for 4th and York Street.
Courtesy of SoBro Louisville, Inc.

Working with Louisville Metro, the SoBro Neighborhood Association would like to design an urban plan for the SoBro District that incorporates new design plans for street and pedestrian lighting. New ornamental streetlights, designed to resemble late 18th Century style gas lamps, can be part of the design plan, utilizing energy efficient LED low voltage street lights.

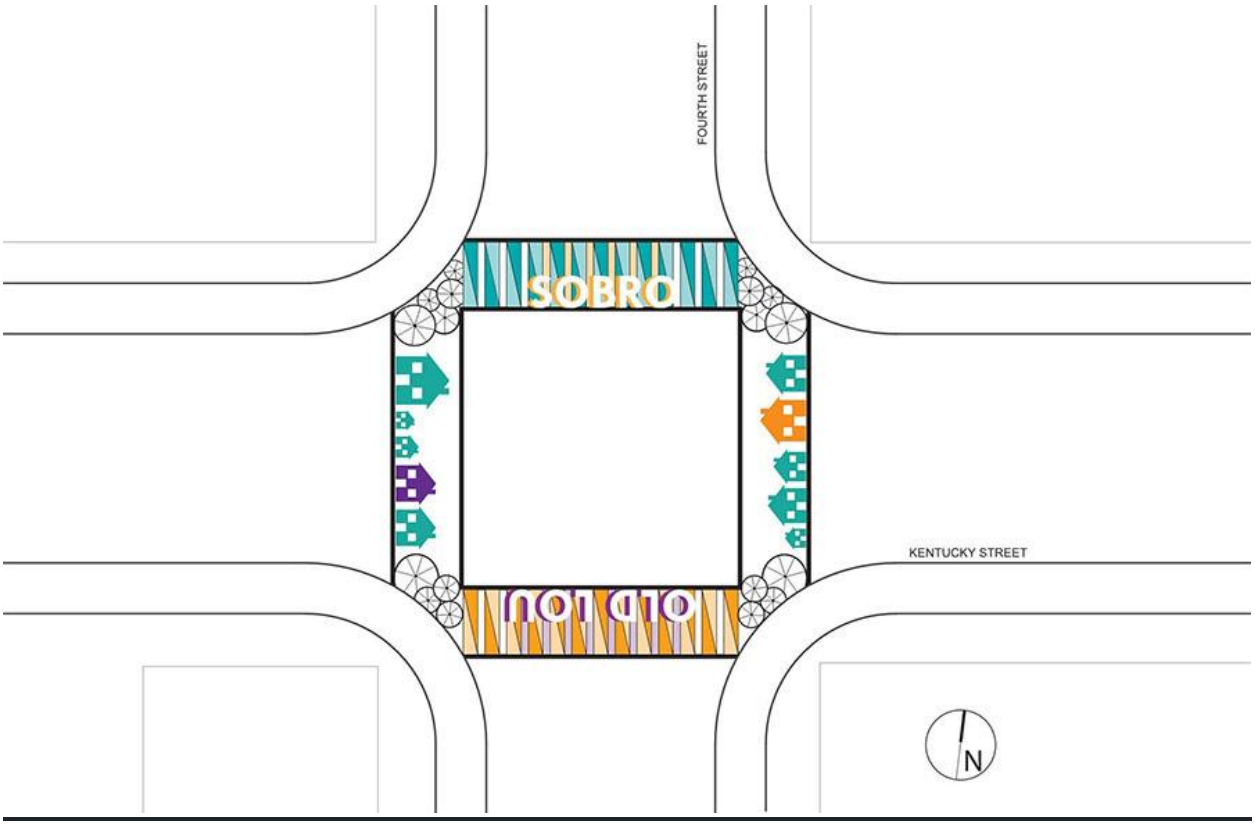


This design at the intersection of 4th and Broadway, diving the Downtown District and SoBro. Courtesy of SoBro Louisville.

Louisville Metro currently pays LG&E over a million dollars a year, according to city officials, for the service of renting streetlights to the city. Many of the street lights owned by LG&E utilizes outdated mercury vapor style lights, the oldest type of High-Intensity Discharge (HID) lights in use today. Mercury vapor bulbs require high voltage and emit toxic ultra-violet (UV) radiation which is hazardous to human health when shattered. The USEPA recommends phasing out the use of mercury vapor bulbs when they burn out. This plan would systematically eliminate that inefficient system of street lighting with new low-voltage LED HID street lights. Under this proposal, new streetlights installed within the SoBro District will be owned and maintained by the Department of Public Works, eliminating the expense of renting LG&E owned street lights.



The intersection of 4th and Breckinridge at Spalding University and Presentation Academy. Courtesy of SoBro Louisville.



The intersection of 4th Street and Kentucky Street. Courtesy of SoBro Louisville.

Building a Municipal Solar Electric Power Cooperative from the ground up

There are over 2,000 municipal power companies operating in the United States. According to the American Public Power Association, which describes itself as "the voice of not-for-profit, community—owned utilities." This national association advocates for laws and regulations in Washington D.C., to promote the interest of public power. According to APPA, the Infrastructure Investment Act signed into law by President Biden on November 15, 2021, "includes several potential funding opportunities for public power."[5] Those funding opportunities can help build the SoBro Solar Electric Power Cooperative as a neighborhood municipal utility company.

While the Kentucky Power Commission regulates privately owned utility monopolies, like LG&E, municipal utilities are exempt. The City of Paducah operates the largest municipal utility company in Kentucky and is a member of the American Municipal Power, Inc., a regional not-for-profit association whose members generate and share electric power among their members. The City Cleveland, Ohio, is the largest municipality among AMP's membership.[6] On cloudy days, if solar electric generation falls short of demand, the Cooperative will have the ability to purchase electricity from other municipal utility companies who are members of American Municipal Power, or, on the open market.

Both organizations AMP, and APPA, are resources available to help guide Louisville Metro in the planning of a municipal utility company for the SoBro District. As a municipal power company, the SoBro Electric Power Cooperative, can build a network of solar panels, integrated together, to power the needs of the city and its citizens within the SoBro District, which can become the nucleus for expanding an integrated electric generation and distribution system throughout the entire city, over time, concentrating resources in the oldest parts of the city most in need of infrastructure repair.

Solar panels, batteries, and equipment can be purchased in bulk by the Cooperative through the municipal bidding process, resulting in a substantial cost savings to the consumer. Installation contracts can be awarded to the lowest bid of qualified installers, using this same process.

One option to consider, is for municipal utility company to build and own a network of batteries for storing excess power, connected to an underground electric distribution system. Property owners will retain ownership of solar panels and wind generators purchased through the Municipal Solar Loan Program. The Cooperative can derive revenue by selling kilowatt power to its members during nighttime use. Once loans to purchase solar panels is paid-in full, the consumer will enjoy free electricity during the day, and will only pay the Cooperative for nighttime energy use, along with a monthly maintenance fee based on kilowatt usage to maintain and repair the system.

[5] American Public Power Association website www.publicpower.org

[6] The American Municipal Power, Inc. website is found at https://www.amppartners.org/

Special rate assessments can be paid, upon a vote of a majority of its members, to fund capital improvements, as needed. The neighborhood/municipal utility company will have the democracy of its shareholders, the customer, deciding the growth and future of the Cooperative.

Once the municipal utility is established, the Cooperative can employ members of the International Brotherhood of Electrical Workers (IBEW) as full-time employees of the Public Works Department to maintain the system. These municipal employees can be hired utilizing federal funds. The Infrastructure Investment Act states that its mission is to create solar energy careers in underserved communities. After this funding runs out, the work force necessary to expand and maintain the system can be funded by maintenance service fees paid by members of the Cooperative. This municipal workforce can be expanded to include installation teams, specially trained to build solar and wind generating stations throughout the city as the municipal utility company expands its service territory.

Solar Carports

One of the strengths identified by the SoBro Neighborhood Plan is the large number of vacant lots and parking lots within the SoBro District. This makes our neighborhood ideal for the construction of solar panel carport structures over existing parking lot surfaces. The Municipal Solar Loan Program could fund the construction of solar carports on private property, like the parking lot of the Thierman Building.

The Metro government could apply federal funds to construct solar carports on vacant lots owned by the city within the SoBro District. A targeted effort to construct a large-scale development of solar carports can dramatically increase electric production and reduce the temperature of the core of the city, which is unnaturally heated by asphalt surfaces, like parking lots.

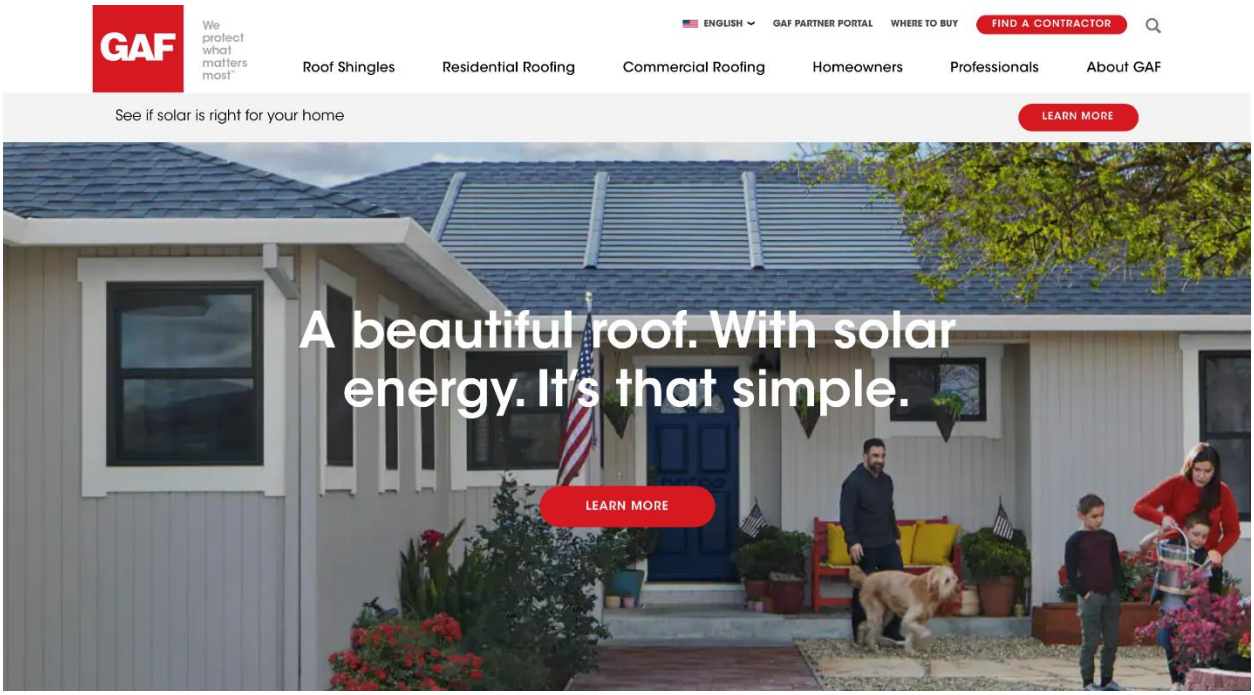
An example of solar carports.

An inventory of vacant lots owned by the city within the SoBro District should be compiled by the Metro Planning Department, and land use planning can determine the best use for each property for sustainable living, like community gardens, solar panels and solar carports on city owned property.

Solar Shingles

The Louisville Solar Loan Program can also fund new technologies, like solar singles that can replace asphalt shingles.

Tesla pioneered solar roof shingles, made of glass rather than asphalt.



Other major roofing companies, like GAF, are now entering and competing in this growing segment of the market.

The Metro Planning Commission could revise the zoning and building ordinances for the SoBro District to require the installation of solar roofs for new construction and for roof replacements, as part of its building permit process.

Creating a Task Force

We invite Mayor Greenberg to form a Task Force to study the feasibility of creating the SoBro Solar Electric Power Cooperative as neighborhood/municipal utility company in partnership with the SoBro Neighborhood Association.

Such a Task Force can also work on developing the SoBro Neighborhood Association as a recognized neighborhood association in Louisville's SoBro District, having its members appointed from the SoBro District. The Task Force can hold public hearings and invite community input as it studies the feasibility of forming the SoBro Solar Electric Power Cooperative as a not-for-profit neighborhood/municipal utility company beyond the Thierman Building. The recommendations of the Task Force will be submitted to Mayor and Metro Council in final report.

This report was prepared by Bill Clutter,[7] president of the Thierman Building Council of Co-owners and organizer of the SoBro Neighborhood Association.

[7] Bill Clutter, author of this proposal, served as Utility Chairman of City, Water, Light and Power (CWLP), the largest municipally owned utility company in Illinois, during his tenure as the first Ward One alderman in Springfield, Illinois (1987-91). During the pandemic, he started the SoBro Neighborhood Association with his neighbors in the Thierman Building. A private investigator, over two decades ago, he started the Illinois Innocence Project at the University of Illinois at Springfield and was credited by the Chicago Tribune, among others, in 2011, when Illinois abolished the death penalty. His investigation of a rare childhood cancer epidemic of neuroblastoma three decades ago, changed environmental policy in Illinois in the case of *Donaldson et. al. v. Central Illinois Public Service Company (CIPS)*, that became a landmark Illinois supreme court precedent. He moved to Louisville in 2013.
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