BRIGHT CITIES: Columbia, SC

How Columbia’s Three-Part Sustainability Strategy Protects Babies’ Brain Development

For a version of this document with clickable links, visit www.hbbf.org/bright-cities
How Columbia’s Three-Part Sustainability Strategy Protects Babies’ Brain Development

City Staff planted trees, addressed lead pollution, and demonstrated fresh and non-toxic cooking to make Columbia safer for babies.

It’s true: people are more likely to get involved in climate action when it has a direct impact on their health or a loved one’s health. That’s why Columbia’s Sustainability Facilitator, Mary Pat Baldauf, found an opportunity to tie babies’ health and climate together after learning about a Bright Cities grant opportunity to reduce exposures that harm babies’ brain development.

The collaboration began with a meeting between staff from Columbia and Bright Cities to determine actions that would increase sustainability and protect babies’ brain development.

“Initially there was concern that if we talked about existing problems, it would seem like the city wasn’t doing enough,” Baldauf acknowledged. “To overcome that challenge, we had to get to know one another and build trust. Our trust provided seeds for future actions.”

Columbia prioritized four actions that better protect people and the environment from toxic chemicals and contribute to climate change mitigation: tree planting, testing water in public drinking fountains for lead, education about lead-safe soils for gardening and producing food locally, and sharing of high-quality food, including cooking demonstrations.

The Bright Cities program gives grants up to $35,000 to city governments and community-based partners to equitably reduce their community’s exposures to neurotoxic chemicals that interfere with all babies’ brain development.

Why? 1 in 6 children in America have a neurological disability including autism, IQ loss, learning or behavioral problems, attention deficit/hyperactivity disorder and speech or cognitive delays. While toxic chemicals are not the sole cause for lifelong learning and developmental deficits, they are among the most preventable.

Bright Cities works with mayors and city leaders to design the most effective strategies for a city. Benefits to being a Bright City extend beyond reducing neurotoxic exposures. Being a Bright City elicits positive responses from city residents. It provides an opportunity to leverage national funding and set the stage for sustainable equitable change. And it provides a fresh opportunity for cities to ensure that all babies have equitable, just and healthy environments.
Tree Planting Reduces PAHs and Removes Carbon Dioxide From the Air

Columbia’s Forestry and Beautification Department planted 10 southern live oak trees in the historic Heathwood neighborhood. The new trees were planted to help mitigate vehicular related air pollution after the local high school built tennis courts and a new athletic field in the area.

In a systematic review of over 32 million births in the United States, scientists found significant associations with preterm birth – associated with attention and learning deficits – as well as low birth weight babies and stillbirth in women exposed to the air pollutants and extreme heat waves that are becoming more common with climate change.2

Air pollution (especially ozone exposures) present a specific challenge for women and children who are more sensitive to the negative impacts of these pollutants. Polyaromatic hydrocarbons (PAHS) are among the many pollutants released in motor vehicle emissions, and are known to cause harm to the developing brain. Particles from car exhaust can be reduced up to 60% on streets lined with trees.3 The tree planting in Columbia played a critical role in creating a shared and healthier path forward for residents.

Testing Water & Soil for Lead Reduces Toxic Exposures and Promotes Local Food Production

Although lead isn’t present in Columbia Water’s water supply, lead can get into water as it moves through lead-containing plumbing and/or service lines owned by customers. Columbia Water staff developed and implemented a proactive plan to take two first-draw samples from 50 water fountains located in 30 of Columbia’s parks. According to the Centers for Disease Control, there is no safe amount of lead in children’s blood. Even 1 microgram per deciliter of blood of this harmful neurotoxin is enough to lower IQ by several points.

Trace amounts of lead were detected in water from a few park fountains. City parks are closed due to the COVID-19 pandemic (May 2020), but when parks reopen, Columbia Water will resample fountains using a 3-sample flush test. If results are confirmed, measures will be taken to eliminate lead exposures like putting filters on fountains, putting signs on fountains directing residents to “flush” or run water before drinking, or taking fountains out of service.

To help educate residents, Columbia Water also mailed 120,000 inserts about how to have lead-safe soil in customers’ utility bills. Lead is higher in garden soil in urban areas, near roads, and by older homes (50+ years) that have lead paint. It can harm a child’s developing brain and increases lifetime cancer risk. The insert provided healthy gardening tips for lead-safe and local harvests.
Preparing Organically Grown Local Food Ensures Non-Toxic Eating and Fewer Transportation Emissions

US Environmental Protection Agency data shows that food accounts for over 50% of a child’s or adult’s total risk from organophosphate pesticide exposures.

Organophosphate pesticides were found in the bodies of over 75% of people tested, but are present at significantly lower levels in people who eat organic fruits and vegetables.4

Columbia’s Mayor’s Food Policy Committee and its Sustainability Office hosted two cooking demonstrations to teach parents how to cook nutritious, affordable, and non-toxic meals.

At the first event, 35 families learned from an expert panel, participated in a cooking demonstration, shared a healthy meal, and took home a box of locally-grown, organic produce. At the second event, more than 230 families received fresh produce boxes, essential grocery store staples, and nutrition education about cooking healthy.

To teach families about avoiding pesticides and toxic heavy metals in baby food, staff shared the Environmental Working Group’s “Clean 15” and “Dirty Dozen” lists and Healthy Babies Bright Futures parent guide to reducing heavy metals in baby food (available in English and Spanish).

“The link between health and sustainability is at the very core of Bright Cities. With one outstanding program, we were able to positively impact two of our City’s priorities — the health of our babies and a clean environment.”

Mayor Steve Benjamin

Five recommendations focused on improving access to healthier foods for families were adopted by Columbia’s City Council in 2019. This was a win on multiple levels, including allowing for more collaboration between staff on the Food Policy Committee, Climate Protection Action Committee and in the Sustainability Office.
Playbook for Bolstering Sustainability While Protecting Babies’ Brain Development

1. Gather diverse staff for a roundtable discussion.

Columbia staff wanted to reduce exposures to at least one of the nine developmental neurotoxins linked to IQ loss and other intellectual and behavioral problems while helping the city reach its climate and sustainability goals.

Staff initially reviewed actions taken by other Bright Cities like chemical-free turf management, environmentally preferable purchasing, sleeping mat exchanges in childcare centers, and others. If your city doesn’t have staff or a community-based organization knowledgeable about toxics reduction, contact HBBF and check out the Center for Children’s Environmental Health’s detailed materials.

2. Allow collaborative discussion to set project priorities.

Cities identify and complete at least one, but often, more actions. Typically a community partner with relevant expertise collaboratively develops and implements the project.

Columbia staff started by reviewing its Climate Protection Action Campaign. They wanted to bolster the health component of the climate plan to set the stage for a longer-term win and consider residents’ concerns. Project partners, including Bright Cities staff, collaboratively decided to address air pollution, lead in water and soil, and lack of access to fresh and healthy foods.

The Bright Cities funding provided an opportunity to launch actions that supported existing municipal priorities.

3. Implement action by designating a point person and leveraging partners.

Since Columbia decided to pursue three action areas, one person was charged with implementation of each action area; Columbia’s Sustainability Facilitator acted as the overall project manager and coordinated with Bright Cities.

Columbia relied on many partners to help complete its work. Bright Cities staff shared public education materials customized to Columbia’s needs, provided technical assistance, and helped publicize the project’s successes on social media and via national channels.

Ashley Page, Chair of the Mayor’s Food Policy Committee, helped organize public cooking demonstrations. And, Columbia’s Mayor Benjamin continually elevated the work by sharing how these efforts are helping to create a more vibrant and stronger world for our children.


To encourage other cities to protect some of their most vulnerable residents, Columbia promoted their story. The Southeast Sustainability Directors Network featured their work as part of their correspondence with members. Bright Cities featured Columbia on their national blog and shared the work with other cities in the program.

And, though COVID-19 changed the 2020 Earth Day celebration plans — including highlighting the Bright Cities actions — this project helped city staff do their work more effectively, ultimately benefiting Columbia’s residents.
Have questions about Columbia’s actions?
Contact Mary Pat Baldauf, Sustainability Facilitator in Columbia, SC, at Mary.Baldauf@columbiasc.gov

Curious about funding and/or informational resources?
Contact Kyra Naumoff Shields, Bright Cities Program Director, at knaumoff@hbbf.org

The Bright Cities program provides grant funding for US cities and community based partner organizations to reduce exposures — in pregnant women and children under 2 years — to the nine neurotoxins with the strongest associations to developmental delay. These neurotoxins are arsenic, flame retardants, lead, mercury, combustion byproducts called PAHs, banned industrial chemicals PCBs, organophosphate pesticides, a rocket fuel component and fertilizer contaminant called perchlorate, and plastic additives called phthalates.

ENDNOTES
5 arsenic, flame retardants (specifically PBDEs), lead, mercury, organophosphate pesticides, combustion by-products called PAHs, the banned industrial chemical PCBs, a class of plasticizers called phthalates, and a rocket fuel and fertilizer contaminant called perchlorate.