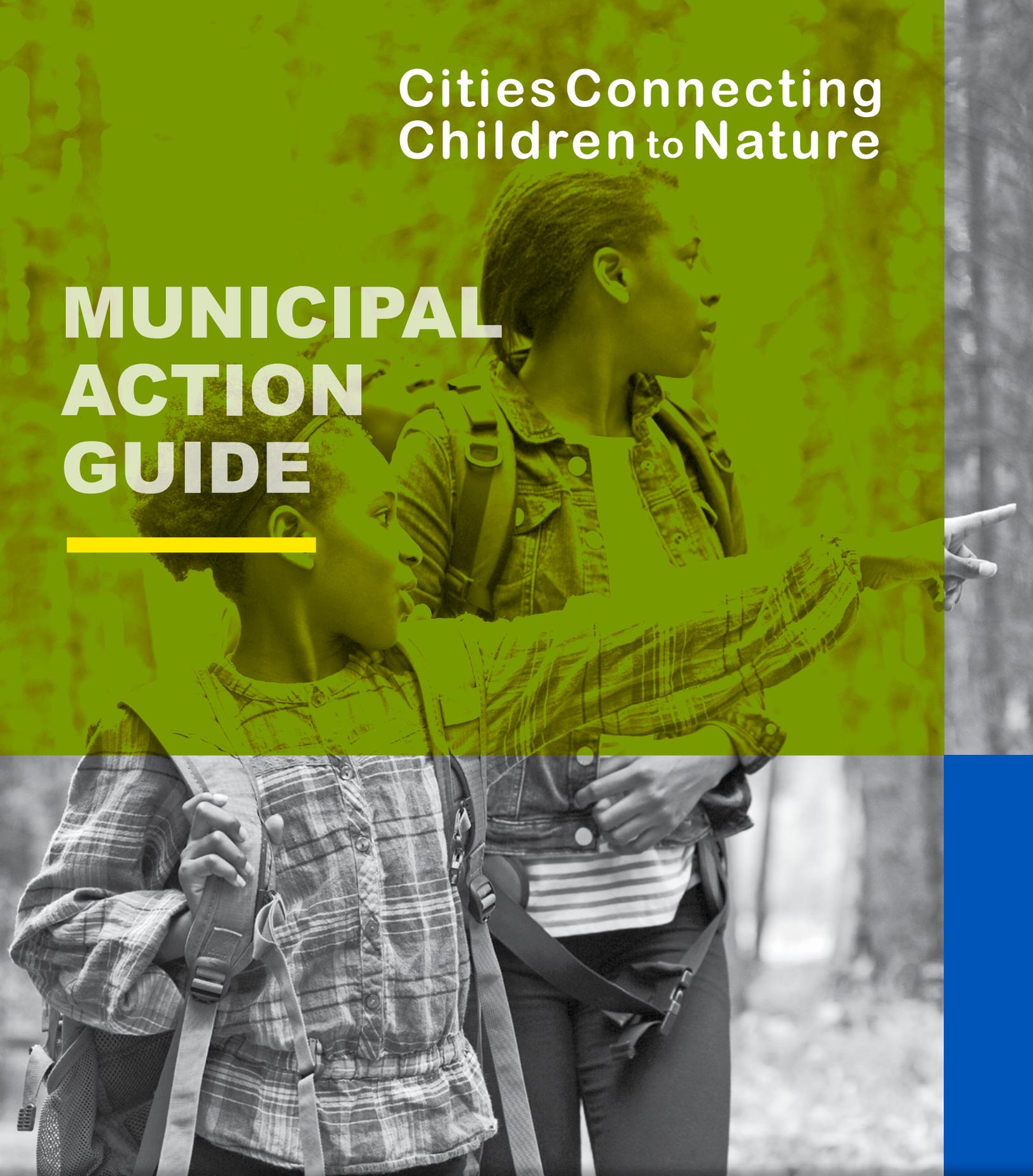


Cities Connecting Children to Nature

MUNICIPAL ACTION GUIDE



Cities Connecting Children to Nature

CCCN Initiative

The Cities Connecting Children to Nature (CCCN) initiative offers local officials guidance for establishing new connections between children and nature, through training on promising practices, access to national experts and peer learning opportunities. CCCN partners selected seven cities to form a pilot 2016-17 cohort, depicted on the map below, to receive intensive technical assistance to plan and implement citywide strategies to reduce disparities in access to nature. Tools and materials developed and tested in pilot cities appear in the CCCN Resource Hub described below. Generous support from The JPB Foundation underwrites the CCCN initiative, led by the National League of Cities Institute for Youth, Education, and Families (YEF Institute) and the Children & Nature Network (C&NN).

National League of Cities

The National League of Cities (NLC) is dedicated to helping city leaders build better communities. Working in partnership with the 49 state municipal leagues, NLC serves as a resource to and an advocate for the more than 19,000 cities, villages and towns it represents. NLC's Institute for Youth, Education, and Families helps municipal leaders take action on behalf of the children, youth, and families in their communities.

Children & Nature Network

The Children & Nature Network is leading a global movement to increase equitable access to nature so that children and natural places can thrive. C&NN powers this movement by investing in leadership and communities through sharing evidence-based resources, scaling innovative solutions and driving policy change.

CCCN Pilot Cities



MUNICIPAL ACTION GUIDE



THE CHALLENGE AND OPPORTUNITY

Across the ages and in every culture, childhood has included time playing in and exploring the outdoors. Yet over the last few generations, childhood has moved indoors, leaving kids disconnected from the natural world.

This trend has profound implications for children's healthy development. Some of the consequences include high rates of obesity, diabetes, stress and depression in children, all of which disproportionately affect low-income populations and children of color.

Confronting these trends, emerging research summarized on pp. 22-23 shows that regular access to nature can produce:

- Improved health outcomes
- Higher academic achievement
- Increased social and emotional learning
- Strong social connections
- Increased creativity, self-esteem, focus
- A greater sense of environmental stewardship

More than [80](#) percent of the U.S. population lives in urban areas, where development and transportation patterns often limit the quantity and accessibility of natural features. And whereas others come close, only one of the largest 100 U.S. cities currently ensures that all children and families can walk to a park in ten minutes or less.

Children and families across the board face fears, pressures and temptations that result in an imbalance between time outdoors and time spent with electronic media in the perceived safety of

the indoors. Children in low-income families grow up with even less access to nature than their peers, and may not develop an affinity for parks and natural areas. Without intervention, they face diminished access to the benefits of nature, and fewer chances to gain the experience and skills to work in green jobs.

Meanwhile, city leaders nationwide have already shown a readiness to commit city resources to a Healthy Eating, Active Living agenda, aimed at reducing health inequities for children and adults. Pursuing strategies that prioritize access to nature can complement and reinforce ongoing outdoor play and health initiatives, bring numerous benefits, and awaken lifelong interest in nature. With purposeful design, such strategies represent the leading edge of national efforts to promote equity in nature access for low-income children and children of color.

More than 80 percent of the U.S. population lives in urban areas, where development and transportation patterns often limit the quantity and accessibility of natural features.



“AS A CHILD, I SPENT MOST OF MY TIME OUTDOORS IN THE WOODS BEHIND MY HOUSE. ‘NEARBY NATURE’ EXPERIENCES LIKE THIS TAUGHT ME HOW TO BE CURIOUS, RESILIENT AND SELF-RELIANT.”

MAYOR CHRIS COLEMAN
SAINT PAUL, MINNESOTA

To provide the benefits of nature for all children, cities can launch strategies in several areas: opening up park resources to all residents, and accentuating natural features in parks; focusing on the venues where many children spend time, such as early childhood centers and afterschool time programs; actively cultivating a new generation of leaders through youth stewardship activities; and fulfilling the promise of shared use agreements by adding nature play and learning spaces to school grounds and vacant lots.

POLICY CONTEXT

On its own, the largely grassroots movement to connect children and nature has only just begun to affect policy development by cities and other levels of government. By comparison, potentially related areas of policy have received more public and governmental attention – for instance, promoting healthy eating through urban agriculture and improved food access. Along the same lines, true

alignment with public health and sustainability policies awaits further leadership action.

SCAN OF CITY PRACTICES AND POLICIES TO CONNECT CHILDREN TO NATURE

With assistance from the Yale School of Public Health, the YEF Institute and C&NN conducted a nationwide survey in 2015 to understand better how U.S. cities and community organizations currently promote children's access to nature, and to gauge opportunities to establish gains. The 112 responses came from 70 municipal government agencies and 42 community organizations. Overall, the scan highlighted significant city-level efforts in the areas of goal-setting and policy, program, and partnership development. However, efforts to date have not generated abundant access to nature for low-income children, pointing to a need for broadening and deepening programs and partnerships.

THE GOAL FOR CITIES

Greatly increase equitable access to nature, through children's easy, regular contact with outdoor places that feature a variety of living things.

NATIONWIDE SURVEY FINDINGS, 2015

OBJECTIVES



90% reported one or more goals for systematically connecting children to nature.

POLICY



72% use shared use agreements to increase green space access.



59% applied regulations or incentives.



46% changed zoning ordinances.

FUNDING



53% allocated capital funds for economically stressed communities to expand children's access to nature.

Early city policy examples include Children's Outdoor Bills of Rights, proclaimed publicly with support of the mayor in cities such as [Austin](#) and [San Francisco](#). These proclamations provide a policy platform and rallying point upon which to advance local initiatives. The City of Madison also added "nature access" as a consideration within the city's Comprehensive Plan in 2017.

STATE POLICY THAT SUPPORTS CITY ACTION

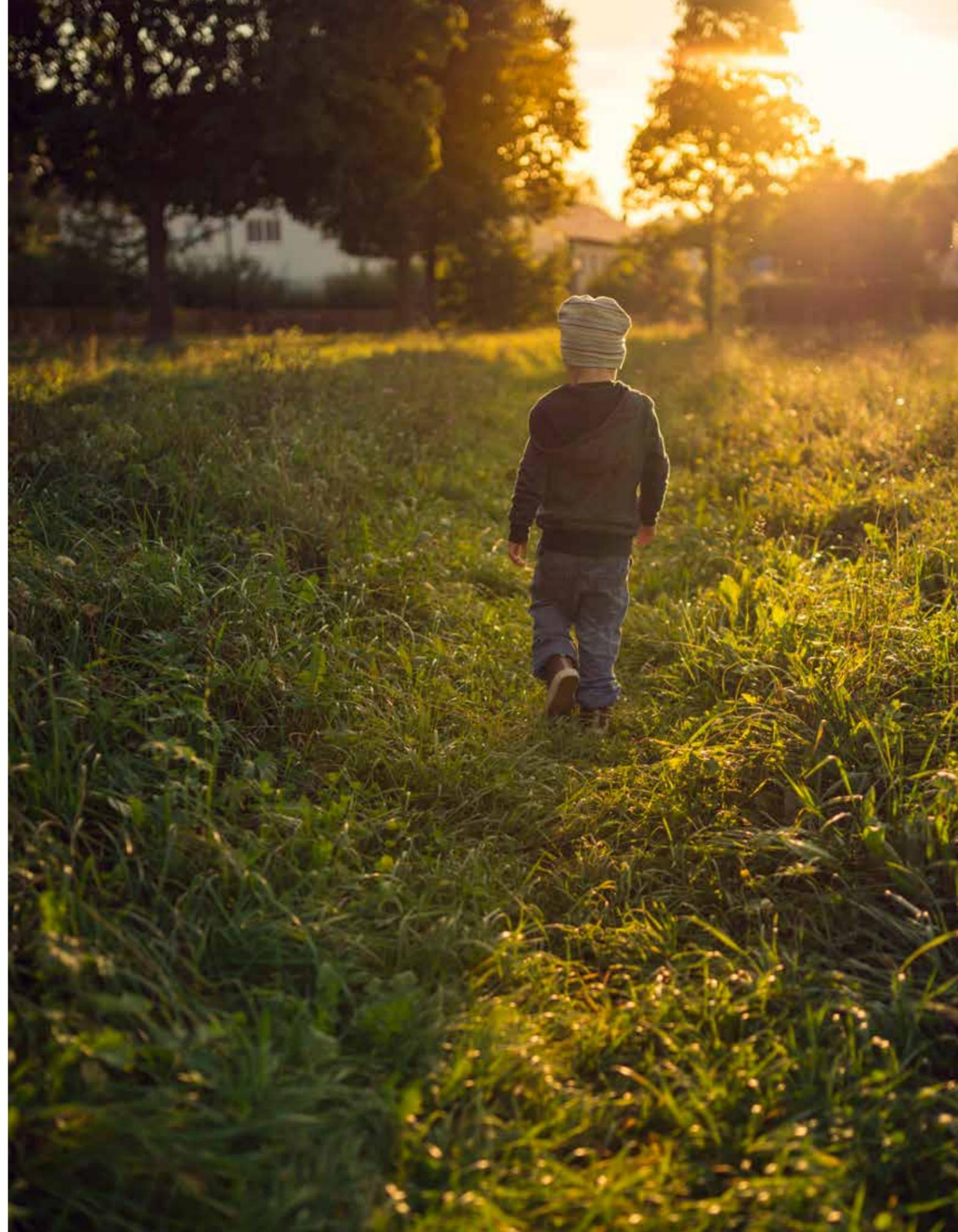
Children's Outdoor Bills of Rights in at least [15 states](#) declare the value and importance of childhood connection to nature. Regulations of the Texas Workforce Commission provide financial incentives to childcare centers to offer high quality natural outdoor play and learning environments.

THREE KEY QUESTIONS

With current practices, policies and early strategy development in mind, a city leader seeking to launch an initiative to connect children to nature should ask three guiding questions:

- 1** Does my city offer enough places for children to connect with nature?
- 2** What programs and partnerships can draw children and families to nature?
- 3** How can my city integrate access to nature with other city functions?

The following sections describe some of the ways cities have begun to answer these questions.



DOES MY CITY OFFER ENOUGH PLACES FOR CHILDREN TO CONNECT WITH NATURE?

One barrier connecting low-income children to nature more systematically is a sheer lack of easily accessible natural features or green space.

Knowing whether the city offers enough places for children to connect with nature requires analyzing physical assets and resident demographics. If disparities emerge – especially in built-out cities with little room to add new natural parks – the city needs to respond with creative measures. This involves making the most of opportunities such as adding natural features to landscaped parks, changing vacant lots and streetscapes, opening up community gardens to children, and establishing safe corridors that foster connections with existing natural areas. Additional creative options already in development by cities include converting schoolyards to green spaces, and providing nature play options for children in early childhood centers.

STRATEGY: CREATE GREEN SCHOOLYARDS

City governments and school district partners have begun to spread [green schoolyards](#) as a key strategy to connect more children to nature, just outside the schoolhouse door. Already prevalent in other countries and in a few cities in the U.S., green schoolyards replace asphalt or lawns with nature-filled places for students, teachers, parents and community members to play, learn, explore, and grow. Elements may include outdoor classrooms, native gardens, stormwater capture, traditional play equipment, nature play features, vegetable gardens, trails, and trees. Outside of school hours, these schoolyards remain open for community use, adding to the overall inventory of nature in a city.

Successful city- or school district-wide green schoolyard initiatives require policy supports such as shared use agreements, sustainable funding, and strategic partnerships. With these supports in place, green schoolyard programs typically rely on school systems for campus and district leadership, teacher development and curriculum, and ongoing maintenance. Community partners often provide support for environmental education and after-school programming, and city parks departments can share in the responsibility for delivering programs and maintaining these community spaces.

Adding natural elements to school grounds offers a rich opportunity for residents to contribute to design and become the stewards of new neighborhood assets. For example, to engage the broader school community, Austin, Texas developed the Barrington Green School Park design by drawing comments from 274 enrolled children and 135 community members on photo surveys displaying potential schoolyard features.

Beyond the design stage, ensuring the full and active use of green schoolyards occurs through four essential steps:

- Providing out-of-school time programming on site,
- Ensuring use during school hours through teachers and school staff,

Austin, Texas Green School Parks

In 2016, Austin used map overlays for the first time to devise Nature Equity Scores for city neighborhoods. Low scores informed decisions about where to launch a Green School Parks initiative to provide close-to-home access to nature. The initiative launched in 2017 on the first of three pilot Austin Independent School District (AISD) elementary school campuses, all in neighborhoods with disproportionately low amounts of green space. To provide adequate policy support for the initiative, AISD and

the city's Parks and Recreation Department needed to recraft an outdated shared use agreement. To fund initial costs of the Green School Parks pilot sites, the city tapped several sources already in hand. Building upon that momentum, the city and school district will also realign capital budget priorities to provide sustaining support for the initiative. Additional policy-level opportunities also emerged, such as aligning the initiative with CodeNEXT planning and zoning code revision and with Mayor Steve Adler's Spirit of East Austin equity initiative.

- Providing opportunities for informal community recreational use, and
- Continuing to involve neighborhood residents in management and stewardship.

STRATEGY: CREATE EARLY CHILDHOOD NATURE PLAY SPACES

Similar to green schoolyards, early childhood nature play spaces ensure access to nature where kids already spend their time, in this case in child care facilities. A variety of early care and education providers – family, friend and neighbor, as well as public, private, licensed and unlicensed sites – require specific consideration. Pilot cities pursuing expansion of early childhood nature play spaces, such as Madison and San Francisco, started out by surveying providers to learn about

greening opportunities and to consider current use of nearby nature sites. Over time, Madison plans to add nature play as a city childcare accreditation standard. Key partners for cities pursuing this strategy include local or regional accreditation agencies and zoning authorities, site directors, school districts, Head Start, and parks or public health agencies. In addition, park agencies may alter or naturalize existing parks and playgrounds – and ensure safe access routes – to foster use by child care centers and families with young children.

In one intensive early childhood model, cities such as [Seattle](#) and [Austin](#) operate nature preschools through partnerships between early childhood education providers and city parks departments.

The Children & Nature Network hosts a Green Schoolyards Resource Hub that provides resources for all of the steps involved in transforming school grounds throughout a city.

Go to www.childrenandnature.org/initiatives/schoolyards/

WHAT PROGRAMS AND PARTNERSHIPS CAN DRAW CHILDREN AND FAMILIES TO NATURE?

Alongside efforts to increase places where children can connect with nature, cities may not offer enough opportunities to *experience* nature.

Understanding whether children—and which children—can and do readily have structured and unstructured, meaningful nature experiences requires a close analysis of park use and program participation data. Deeper understanding may require new data collection to get at potential disparities by race, ethnicity, and income.

Fortunately, tools have begun to emerge to support this data collection and analysis (see Measuring Baselines, Progress, and Results section, below). To raise the rate at which children experience nature, cities have begun to experiment with strategies such as making parks more inviting and accessible to all, and infusing nature into afterschool programming.

STRATEGY: MAKE PARKS INVITING FOR ALL

Some cities may already enjoy an abundance of natural features in city and regional parks, yet longstanding use patterns, discriminatory practices and transportation barriers (as well as neighborhood park deficits) may prevent [some users](#) from regular contact with those features. To invite the full range of children and families into parks, cities have developed the following techniques:

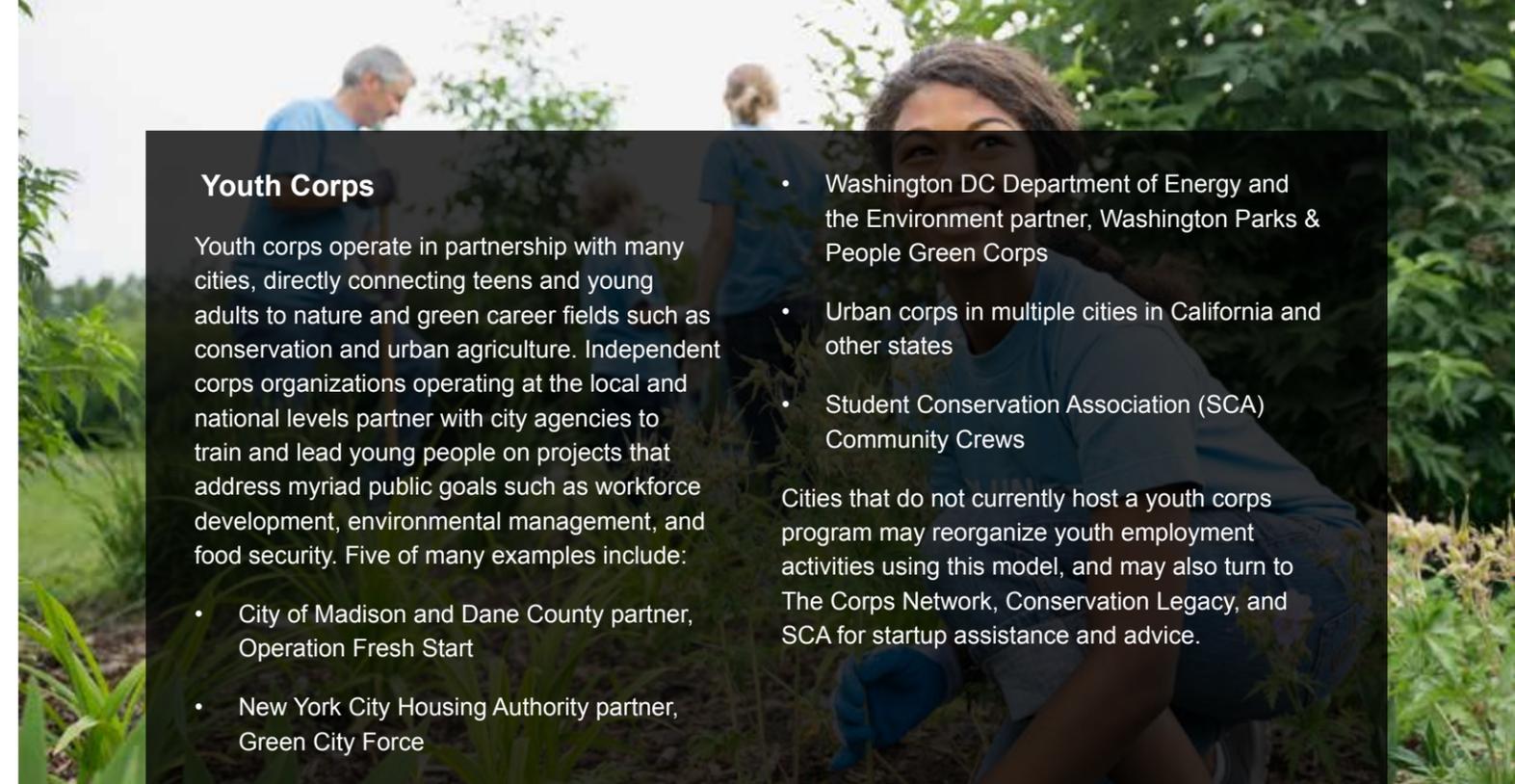
Train and enlist youth stewards: Building on the base provided by park friends groups can give cities new ways to connect teens to nature and invest a younger generation of users in environmental stewardship. For instance,

in Providence, the parks department, youth development organizations, and four local high schools partnered to establish new “Young Friends of Parks” groups. These organizations engage a very diverse cohort of students in park stewardship activities after school hours and on weekends.

Retrain and reorient park staff and operations:

In many cities, strained park resources or other factors have tilted the balance of staff attention toward facility management instead of children and families’ experience. In this case, it becomes necessary to reorient priorities, retrain and devise new ways of supporting staff, and adopt new operational procedures. One opportunity involves providing training and support for public-facing park staff to offer more culturally relevant programming and communications to families of color. For instance, Saint Paul undertook ongoing revisions of park communication and outreach efforts to encourage park visitation by families and children of color, previously underrepresented among park users.

Add nature programming in parks: Stepping up the availability of nature-based programming connects underrepresented groups of children with park features and amenities. In 2017, Louisville launched a green career pathways exploration within the citywide summer youth employment program. A pilot group of six young people with an interest in green careers received training after school hours in the springtime, and spent



Youth Corps

Youth corps operate in partnership with many cities, directly connecting teens and young adults to nature and green career fields such as conservation and urban agriculture. Independent corps organizations operating at the local and national levels partner with city agencies to train and lead young people on projects that address myriad public goals such as workforce development, environmental management, and food security. Five of many examples include:

- City of Madison and Dane County partner, Operation Fresh Start
- New York City Housing Authority partner, Green City Force

- Washington DC Department of Energy and the Environment partner, Washington Parks & People Green Corps
- Urban corps in multiple cities in California and other states
- Student Conservation Association (SCA) Community Crews

Cities that do not currently host a youth corps program may reorganize youth employment activities using this model, and may also turn to The Corps Network, Conservation Legacy, and SCA for startup assistance and advice.

the summer leading nature activities for younger children based out of three city recreation centers. Based on the success of the pilot, Louisville has begun looking into opportunities to expand the program’s scope.

STRATEGY: INFUSE NATURE CONNECTIONS IN AFTERSCHOOL AND SUMMER ACTIVITIES

The formal or informal network of afterschool program providers in a city provides a way to scale connections to nature, by increasing the familiarity of afterschool and summer program staff with nature-based activities. These staff have the potential to infuse more nature experiences into programming for many children during the afterschool, weekend, and summer hours. This builds upon substantial efforts in many cities in recent decades to establish and strengthen citywide afterschool systems. In newly developing examples, cities partner with afterschool networks to pursue the following methods:

Recruit participants and add programming: Saint Paul Parks & Recreation joined YMCA Twin Cities to launch a new week-long summer nature camp, for children with little prior nature exposure

drawn from the city’s [Sprockets](#) network of afterschool programs.

Train and educate afterschool providers:

Providing professional development and training for afterschool program staff can instill a sense of confidence in leading more activities outdoors, and equip staff with tools and strategies on how to use nature as part of core programming.

Track time in nature: Especially in cities using a common data collection system across the afterschool network, cities can assist providers by adding one or more data elements to measure “dosage” or the time children spend connecting to nature. This offers one of the surest paths to understanding who benefits from increased nature access, by race, ethnicity, and neighborhood. On a related note, Grand Rapids’ Expanded Learning Opportunities (ELO) Network now lists “Nature” as a program type in its provider directory, allowing families and schools to identify and locate opportunities for connecting to nature more easily.



HOW CAN CITIES INTEGRATE ACCESS TO NATURE WITH OTHER CITY FUNCTIONS?

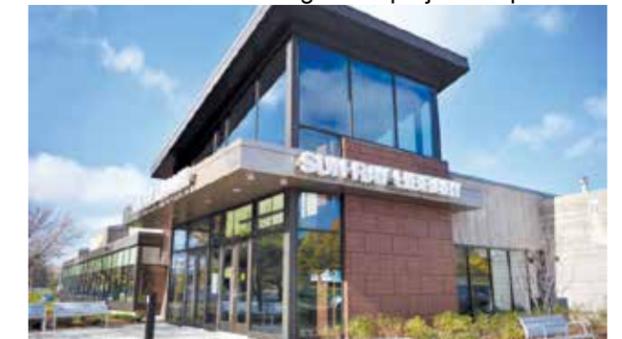
In addition to expanding natural places, increasing programming and leveraging partnerships, it will take concerted effort by municipal leaders to draw upon the full strength and scope of city government to increase access to nature.

Whereas local leadership for children and nature initiatives may initially stem from parks and recreation departments, a blossoming effort involves many more agencies. Pioneering cities have begun to show the way. For instance, the mayor's office and job training agency in Madison and Louisville, respectively, enlisted summer youth employment program participants to advance new children and nature initiatives. Water and sewer agencies joined with school districts in Chicago and Philadelphia to respond to EPA stormwater management [consent decrees](#) with broad commitments to install green schoolyards. Developments so far suggest a simultaneous policy opportunity and challenge for the emerging children and nature field: enlisting the strengths of multiple agencies for collective impact, and the urgent need to step up coordination among agencies.

STRATEGY: NATURE IN PARKS & LIBRARIES

Cities can readily promote access to nature through two operating departments commonly found within the city structure: public libraries and parks. Libraries, for instance, provide a venue to offer nature access to children and families at neighborhood locations through resources that inspire and educate. City parks offer prime venues for experiencing nature. As one example of an effort to complement existing turf, paved surfaces, and

conventional equipment, the City of Providence parks department added a landscape architect to its staff, with the charge to design and implement new nature play areas. Building upon the examples provided by the [Great Urban Parks Campaign](#) of the National Recreation and Parks Association and [PowerCorpsPHL](#) in Philadelphia, cities can also situate stormwater management projects in parks



In 2017 the City of Saint Paul library and parks departments expanded the NatureSmart Library model, first launched at Sun Ray Library in 2013, to three additional library sites. The transformations include installation of pollinator prairies and outdoor reading gardens, accompanied by activities to promote literacy and environmental education through experiential learning. Patrons can check out Nature Backpacks and use the contents, such as binoculars and field guides, to engage in nature activities in the library gardens and adjacent park land.

DEVELOPING A PLAN THAT “PUTS NATURE ON THE MAP”

Preparations for improving equitable access to nature in a city involve steps such as harnessing leadership, assessing the landscape, updating key partnerships, and ultimately informing a unified, comprehensive implementation plan focused on results. To use a familiar phrase appropriate to this new field, it becomes essential to “put nature on the map.”

Action Step: Harness mayoral leadership to set a policy platform and align city agencies around goals.

Mayors have uniquely strong abilities to provide leadership for connecting children to nature, through actions such as proclaiming a vision, setting goals, and assembling resources. To bring about more nature access for more children, mayors can also foster collaboration across city agencies that uplift existing city priorities, such as public health, safety, and active living.

Action Step: Conduct a community asset and gap assessment.

A number of local factors contribute to how much and how deeply a particular child might connect with nature. These include family circumstances, immediate neighborhood surroundings and safety (real or perceived), transportation corridors, and cultural traditions. Conducting a robust citywide asset and gap assessment results in capturing information to inform strategies, and activates community members and trusted neighborhood-level leaders to engage. Key elements include:

- A policy and landscape scan of institutional guidelines as well as physical, geographic features;

- An inventory of relevant city partners and children and nature programs, ideally noting scale, quality, and reach in terms of income, racial, and ethnic groups in the city; and
- Demographic indicators and other qualitative data to inform an equity analysis and prioritize subsequent solutions.



Madison, Wisconsin

The City of Madison, through the combined effort of the parks and public health departments, conducted a two-phase community asset and gap assessment. Analyses of health data identified health disparities between racial groups beginning before children reach school age. In the next phase, the city-county team conducted assessments of seven sites using the Preschool Outdoor Environment Measurement Scale (POEMS) tool. This determined the baseline quality of outdoor play spaces at early childhood sites in the neighborhoods where most children of color live, and fed into strategy development with early childhood providers.

Action Step: Convene and build relationships with key institutions and external partners.

City governments and leaders rarely have their “hands on all the levers” that can connect more children with nature – cities need partners. Institutional partners to consider enlisting include independent water and sewer authorities, housing authorities, and county public health agencies. Through listing current and potential partners, school districts also emerge, whether through their interest in heightened student learning or fulfilling their roles as community anchors. For example, a close working partnership between Grand Rapids Mayor Rosalynn Bliss and the Superintendent of Grand Rapids Public Schools resulted in a mutual commitment to increase opportunities for students. The leaders set out to update the city and school district shared use policy and to embrace green schoolyards as part of the green infrastructure of the city along with parks. In San Francisco, a joint city-schools-nonprofit team lined up support for expanding nature play opportunities at early childhood sites, some of those managed by the school district.

Action Step: Get youth involved.

With an eye to the present and the future, city leaders can seize the opportunity to involve young people in planning and providing more access to nature, in several ways. In the near term, engaging a diverse group of youth helps increase the relevance of city plans and actions for otherwise underrepresented populations. For the longer term, the experience that youth gain cultivates a new crop of leaders with affinity for nature. As examples: In addition to techniques such as the [KidSpeak](#) forum in Grand Rapids, Madison engaged its summer interns to conduct schoolyard site assessments, interview peers and other residents about their experiences in nature, and eventually to build natural play features at early childhood sites; the City of Providence enlisted children’s view of parks and nature through drawings.



Grand Rapids, Michigan

The City of Grand Rapids sought to expand children’s access to nature at a time when a major update of the Parks Master Plan had already begun. The Master Plan process used mapping overlays to reveal severe gaps in park and nature access in several densely-developed parts of the city, and incorporated youth perspectives on nature through one of an unfolding series of KidSpeak events. The new plan highlights opportunities to expand a network of nature-rich corridors to link neighborhoods to key assets such as parks and the Grand River. In addition, the plan for the first time proposes creating green schoolyards as a means of expanding “nearby nature.”

Action Step: Build relationships with residents, and “co-produce” plans.

Early experience from cities underscores that equity-minded city leaders use a “co-production” process to generate assessments and plans, and to establish feedback loops post-implementation. Successful co-production builds upon a foundation of demonstrated support for local neighborhood concerns, understanding of local strengths and assets, commitment to residents’ well-being, and willingness to meet them where they are – geographically and in terms of priorities. A well-managed co-production process deepens trust, honors the perspective of future community partners in defining “nature connection,” cultivates local leadership, and promotes longevity of city strategies. For example, the City of Saint Paul hired community member liaisons to engage African-American, Latino, and Hmong residents of the city during a community assessment.



TOWARD LASTING IMPACT

The nation needs many more examples of institutionalized policy commitments to connect children to nature more equitably.

using designs that also increase natural features.

These examples will take the form of actual budget items that result in more nature-focused personnel, programming, and infrastructure. Future steps will also include formal adoption of nature and equity language in guidance documents such as comprehensive plans, zoning codes, and capital budgets, in addition to park and open space plans.

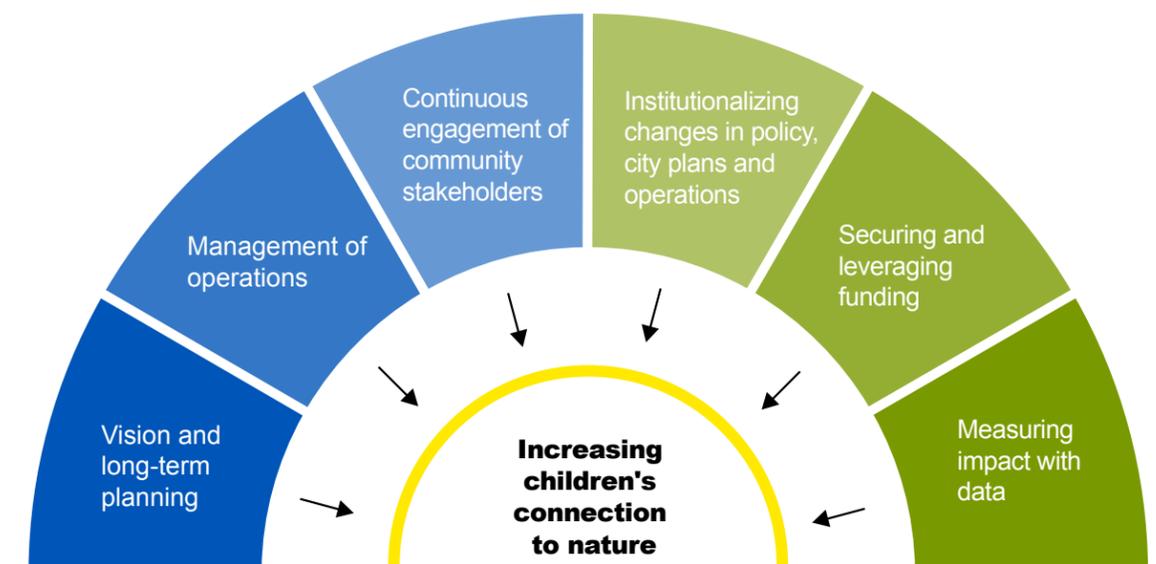
SUSTAINABILITY & SCALE

As these examples emerge, it's important to rely upon strategies that cities and their partners can

readily sustain. To ensure the continuation of systems, policies and practices that allow children to connect to nature equitably, cities must address the following six elements of sustainability:

The [CCCN Project Sustainability Framework](#) offers actionable checklists and suggested activities for ensuring momentum in each of the six categories. Examples have also begun to emerge for how to mount a children's nature connection initiative of long standing. Two cities developed subcommittees and working groups to attend to sustainability issues, and another drew upon the framework to design a staff position to manage its children and nature initiative.

SIX ELEMENTS TO SUSTAIN A CHILDREN & NATURE INITIATIVE



Measuring Baselines, Progress, and Results

High quality, city- or neighborhood-level data that describe children's connection to nature proves critical to understand baseline inequities and strengths, as well as subsequent improvements resulting from strategies. Most cities will need to add data elements beyond those they currently collect to paint the picture of which children connect to nature, how often, and how meaningfully.

The CCCN initiative recommends that cities focus initially on at least one indicator from each of the three categories of **policy, infrastructure, and programs and experience**. The CCCN Metrics Toolkit provides cities a bank of suggested

measures in all three categories, as well as tools for collecting baseline data and telling impact stories. Policy and infrastructure indicators, such as the amount of the city's operating budget dedicated to children and nature, or the quality and availability of nature play spaces in parks, address conditions that fall directly within the city's purview. Programming indicators such as the numbers and characteristics of youth engaged with nature depict progress and challenges that may involve city partners as well.

As one example of new data collection using the Toolkit: the City of Madison assessed the baseline quality of outdoor play spaces at early childcare sites, and will measure again for quality improvements after implementing new physical features.

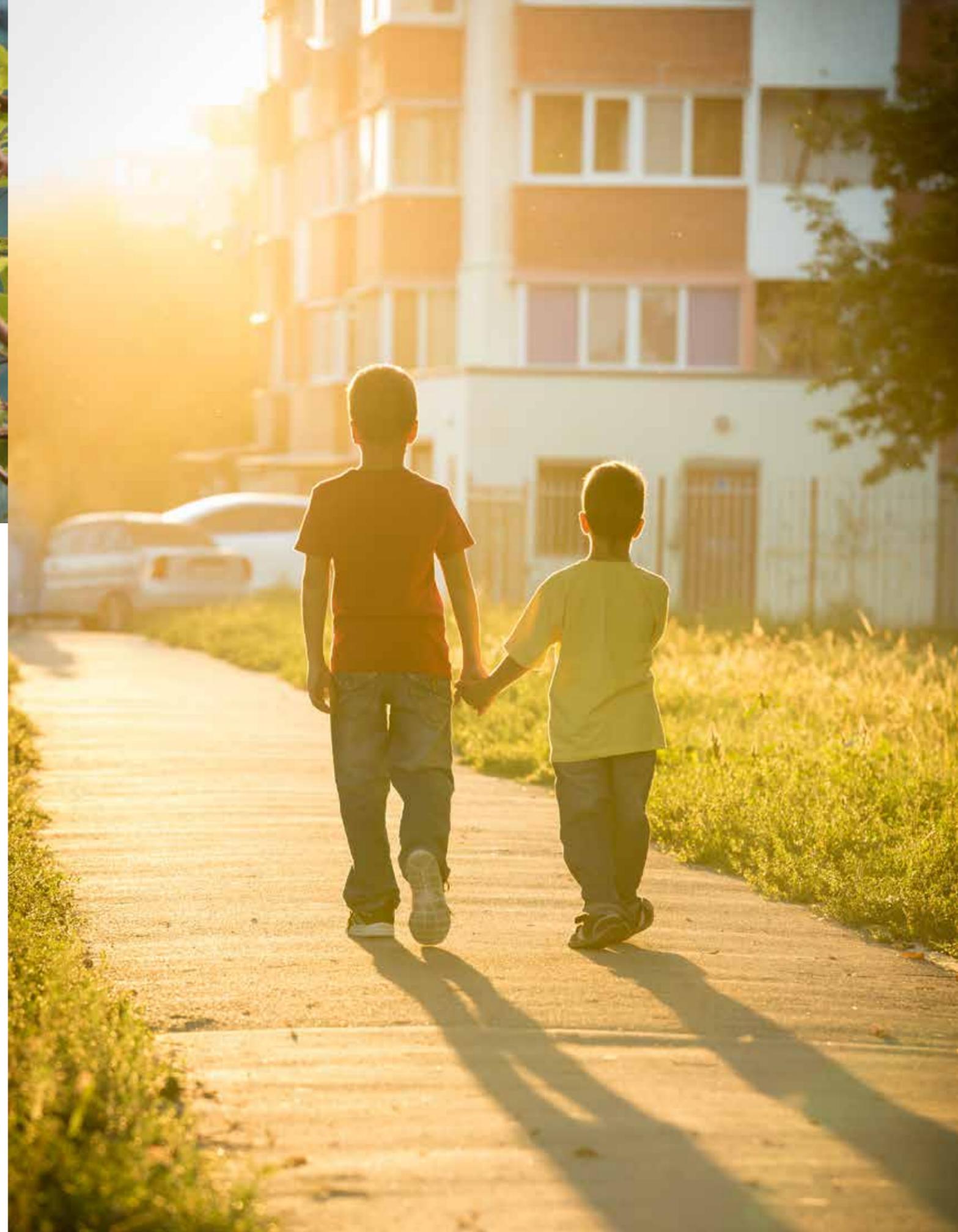
FRONTIERS TO EXPLORE

Cities active in the new children and nature field have pioneered the important strategies outlined above. Three examples of categories for further strategy development include:

Social determinants of health: Cities can further increase access to nature as they also give attention to the structural conditions in which children grow up, known as the "social determinants of health." Food systems including community gardens; public housing as well as efforts to ensure green and healthy homes; the local health care system; and economic stability and employment initiatives all provide further grounds for action. Design and green-focused activity within neighborhoods and the physical environment – extending to items such as "green streets," walkability, playgrounds, and safety – represents a particularly rich area for exploration as well.

Sustainability and resilience: The potential to leverage prominent city attention to environmental sustainability and resilience with connecting children with nature remains largely untapped, yet holds great promise on at least two fronts. Environmental restoration and monitoring projects offer hands-on venues for children to connect with nature from a relatively young age. In addition, exposing children to city sustainability and resilience measures increases appreciation of ecosystem health and environmental threats, thus likely stimulating the development of future stewardship-minded citizens.

Partnerships with nature organizations: Other programmatic partners that run or support culturally specific outing clubs, such as [Latino Outdoors](#), [Outdoor Afro](#), [GirlTrek](#), and [Family Nature Clubs](#), bring families to nature within supportive and comfortable peer groups. Also, national organizations such as [Trust for Public Land](#) and [The Nature Conservancy](#) maintain state and local offices that can assist cities. And the Wilderness Inquiry [Canoemobile](#) travels the nation to help those in cities "get into the same boat."





CONCLUSION

Time in nature provides children the chance to develop social-emotional skills and healthy behaviors critical to thrive.

City leaders can play active roles to ensure that nearby nature spaces exist and that children and families who otherwise have less access feel comfortable using those spaces. Coordinated efforts between municipal agencies and partners such as school districts and community-based organizations maximize benefits to young people. Such partnerships also readily align with city priorities to address public health, academic, economic, environmental and equity outcomes. As awareness and evidence of the benefits of nature grow, cities will doubtless illuminate and establish many more pathways to nature connection.

RESOURCES

FROM CCCN

Resource Hub

The [CCCN Resource Hub](#) provides resources and tools for cities and their partners seeking to connect more children to nature, more equitably: This publication provides links to several items in the Resource Hub, and those items serve as appendices to this publication. <http://www.childrenandnature.org/initiatives/cities/hub/>

Metrics Toolkit

The [CCCN Metrics Toolkit](#) compiles three resources developed for use by initiative pilot cities and partners to set goals, choose indicators, and assess their impact in connecting children to nature. The Toolkit may prove most useful for a city team that has completed a community asset and gap analysis and stands ready to set informed goals.

Partners

The [National League of Cities](#) and [Children & Nature Network](#) co-lead Cities Connecting Children to Nature. Generous support from [The JPB Foundation](#) underwrites the CCCN initiative.

FROM OTHERS

Richard Louv

Richard Louv's publications, including [Last Child in the Woods](#) launched an international movement to connect children to nature. Along with several more recent publications, Louv provides an eloquent call to action and offers guidance and inspiration for grassroots actors and local leaders.

Natural Learning Initiative

The Natural Learning Initiative based at the NC State College of Design offers a variety of nature play resources, including the [Nature Play and Learning Places National Guidelines](#).

Outdoors Alliance for Kids

The Outdoors Alliance for Kids (OAK) operates as a national strategic partnership whose members share a common interest in connecting children, youth and families with the outdoors. In addition to serving as a leading source of information and organizing on relevant federal policy, OAK offers the [Every Child Healthy Outdoors \(ECHO\) Across America Toolkit](#), which contains tools to enlist leaders at the state and city levels, assess current policies, set policy goals, and launch campaigns.

Rand Corporation / City Parks Alliance / Trust for Public Land

The [First National Study of Neighborhood Parks research](#) of Dr. Debra Cohen and colleagues, conducted in partnership with City Parks Alliance and Trust for Public Land, examines baseline neighborhood park usage and can inform park investment and management practices to improve public health.

Salzburg Global Seminar / International Union for Conservation of Nature

Salzburg Global Seminar and the International Union for the Conservation of Nature joined together in 2017 to issue a call to city leaders to ensure all children have the opportunity to enjoy safe, free play in nature-filled spaces. The [Salzburg Statement on the Child in the City: Health, Parks and Play](#) represents international consensus among thought leaders on actions that can transform cities for children.

Trust for Public Land

The Trust for Public Land's [Center for City Park Excellence](#) offers a database and publications on how parks produce social, economic, and ecological value to residents, including yearly updates on city park facts and figures.

NATURE CAN IMPROVE ACADEMIC OUTCOMES

Spending time in nature enhances educational outcomes by improving children's academic performance, focus, behavior and love of learning.

BETTER ACADEMIC PERFORMANCE

Learning in natural environments can:

BOOST PERFORMANCE
in reading, writing, math, science and social studies
1, 2, 3, 4, 5

ENHANCE
creativity, critical thinking and problem solving⁹

Seeing nature from school buildings can foster academic success^{6, 7, 8}

ENHANCED ATTENTION

Spending time in nature can help children focus their attention:



FOCUS AND ATTENTION
10, 11, 12, 13



ADHD SYMPTOMS
14, 15

The greener the setting, the better the focus^{14, 15}

NATURE CAN IMPROVE HEALTH AND WELLBEING

Spending time in nature provides children with a wide range of health benefits.

HEALTHY BABIES

Nature exposure for mothers can promote:



BETTER FETAL GROWTH³



HEALTHIER BIRTH WEIGHTS^{1, 2, 3}

NATURE CONTACT IS
especially beneficial for mothers of lower education and socio-economic levels^{2, 3, 4}

HEALTHY EYES AND VITAMIN D LEVELS

Time spent in bright sunlight can:



INCREASED ENGAGEMENT & ENTHUSIASM

Exploration and discovery through outdoor experiences can promote motivation to learn:



INCREASED ENTHUSIASM FOR LEARNING
1, 16



GREATER ENGAGEMENT WITH LEARNING¹⁷

IMPROVED BEHAVIOR

Nature-based learning is associated with reduced aggression and fewer discipline problems:^{18, 19}



MORE IMPULSE CONTROL¹⁰



LESS DISRUPTIVE BEHAVIOR
20

INCREASED PHYSICAL ACTIVITY

Access to parks and greenspace can foster:

INCREASED PHYSICAL ACTIVITY^{11, 12}

REDUCED RISK OF OBESITY¹³

OUTDOOR PLAY
increases the likelihood that girls will remain active into adolescence⁹

Children are better able to cope with stress when they live near trees and other greenery.^{15, 16}

SOCIAL-EMOTIONAL WELLBEING

Learning in nature can support:



IMPROVED RELATIONSHIP SKILLS^{17, 20}



REDUCED STRESS¹⁷ ANGER^{18, 19} AND AGGRESSION^{18, 19}



ADDITIONAL RESEARCH ON THE BENEFITS OF NATURE AVAILABLE AT childrenandnature.org/research

SUPPORTING RESEARCH

Lieberman & Hoody (1998). Closing the achievement gap: Using the environment as an integrating context for learning. Results of a Nationwide Study. *San Diego: SEER*.¹ Chawla (2015). Benefits of nature contact for children. *J Plan Lit*, 30(4), 433-452.² Berezowitz et al. (2015). School gardens enhance academic performance and dietary outcomes in children. *J School Health*, 85(8), 508-518.³ Williams & Dixon (2012). Impact of garden-based learning on academic outcomes in schools: Synthesis of research between 1990 and 2010. *Rev Educ Res*, 83(2), 211-235.⁴ Wells et al. (2015). The effects of school gardens on children's science knowledge: A randomized controlled trial of low-income elementary schools. *Int J Sci Edu*, 37(17), 2858-2878.⁵ Li & Sullivan (2016). Impact of views to school landscapes on recovery from stress and mental fatigue. *Landscape Urban Plan*, 148, 149-158.⁶ Wu et al. (2014). Linking student performance in Massachusetts elementary schools with the "greenness" of school surroundings using remote sensing. *PLoS ONE* 9(10): e108548.⁷ Matsuoka, R. H. 2010. Student performance and high school landscapes. *Landscape and Urban Planning* 97 (4), 273-282.⁸ Moore & Wong (1997). Natural Learning: Rediscovering Nature's Way of Teaching. Berkeley, CA: MIG Communications.⁹ Faber Taylor et al. (2002). Views of nature and self-discipline: Evidence from inner-city children. *J Environ Psy*, 22, 49-63.¹⁰ Mårtensson et al. (2009). Outdoor environmental assessment of attention promoting settings for preschool children. *Health Place*, 15(4), 1149-1157.¹¹ Wells (2000). At home with nature effects of "greenness" on children's cognitive functioning. *Environ Behav*, 32(6), 775-795.¹² Berto et al. (2015). How does psychological restoration work in children? An exploratory study. *J Child Adolesc Behav* 3(3).¹³ Faber Taylor et al. (2001). Coping with ADD: The surprising connection to green play settings. *Environ Behav*, 33(1), 54-77.¹⁴ Amoly et al. (2014). Green and blue spaces and behavioral development in Barcelona schoolchildren: The BREATHE Project. *Environ Health Perspect*, 122, 1351-1358.¹⁵ Blair (2009) The child in the garden: An evaluative review of the benefits of school gardening. *J Environ Educ*, 40(2), 15-38.¹⁶ Rios & Brewer (2014). Outdoor education and science achievement. *Appl Environ Educ Commun*, 13(4), 234-240.¹⁷ Bell & Dymont (2008). Grounds for health: The intersection of green school grounds and health-promoting schools. *Environ Educ Res*, 14(1), 77-90.¹⁸ Nedovic & Morrissey (2013). Calm, active and focused: Children's responses to an organic outdoor learning environment. *Learn Environ Res*, 16(2), 281-295.¹⁹ Ruiz-Gallardo & Valdés (2013). Garden-based learning: An experience with "at risk" secondary education students. *J Environ Educ*, 44(4), 252-270.

C&NN recognizes that not all studies support causal statements.

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SUPPORTING RESEARCH

Dzhambov et al. (2014). Association between residential greenness and birth weight: Systematic review and meta-analysis. *Urban For Urban Gree*, 13(4), 621-629.¹ Markevych et al. (2014). Surrounding greenness and birth weight: Results from the GINIplus and LISAPLUS birth cohorts in Munich. *Health Place*, 26, 39-46.² Davvand et al. (2014). Inequality, green spaces, and pregnant women: Roles of ethnicity and individual and neighbourhood socioeconomic status. *Environ Inter*, 71, 101-108.³ Agay-Shay et al. (2014). Green spaces and adverse pregnancy outcomes. *Occup Environ Med*, 71(8), 562-9.⁴ French et al. (2013). Time outdoors and the prevention of myopia. *Exp Eye Res*, 114, 58-68.⁵ He et al. (2015). Effect of time spent outdoors at school on the development of myopia among children in China. *JAMA*, 314(11), 1142-1148.⁶ Dolgin (2015). The myopia boom: Short-sightedness is reaching epidemic proportions. Some scientists think they have found a reason why. *Nature*, 519, 276 - 278.⁷ McCurdy et al. (2010). Using nature and outdoor activity to improve children's health. *Curr Prob Pediatr Adolesc Health Care*, 40(5), 102-117.⁸ Pagels et al. (2014). A repeated measurement study investigating the impact of school outdoor environment upon physical activity across ages and seasons in Swedish second, fifth and eighth graders. *BMC Public Health*, 14(1), 803.⁹ Almanza et al. (2012). A study of community design, greenness, and physical activity in children using satellite, GPS and accelerometer data. *Health Place*, 18(1), 46-54.¹⁰ Hartig et al. (2014). Nature and health. *Annual Rev Publ Health*, 35, 207-28.¹¹ Christian et al. (2015). The influence of the neighborhood physical environment on early child health and development: A review and call for research. *Health Place*, 33, 25-36.¹² Wolch et al. (2011). Childhood obesity and proximity to urban parks and recreational resources: A longitudinal cohort study. *Health Place*, 17(1), 207-214.¹³ Duncan et al. (2014). The effect of green exercise on blood pressure, heart rate and mood state in primary school children. *Int J Environ Res Public Health*, 11(4), 3678-3688.¹⁴ Wells & Evans (2003). Nearby nature: A buffer of life stress among rural children. *Environ Behav*, 35(3), 311-330.¹⁵ Corraliza et al. (2012). Nature as a moderator of stress in urban children. *Procedia - Soc Behav Sci*, 38, 253-263.¹⁶ Chawla et al. (2014). Green schoolyards as havens from stress and resources for resilience in childhood and adolescence. *Health Place*, 28, 1-13.¹⁷ Roe & Aspinall (2011). The restorative outcomes of forest school and conventional school in young people with good and poor behavior. *Urban For Urban Gree*, 10, 205-212.¹⁸ Younan et al. (2016). Environmental determinants of aggression in adolescents: Role of neighborhood green space. *J Am Acad Child Adolesc Psychiatry*, 55(7), 591-601.¹⁹ Chawla (2015). Benefits of nature contact for children. *J Plan Lit*, 30(4), 433-452.

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