BORN THRIVING
Policy and Practices to Mainstream Infant, Toddler, and Caregiver–Neighborhood Planning in Tirana

VOLUME 1
DESIGN GUIDELINES
Designing Play for Late Toddlerhood

INDICATORS 3.5-3.6

SITE FURNISHING

ITC Benches
Infant Toddler Caregiver Furniture at Play Areas
Street Furniture
Playful Furniture

INDICATOR 3.7

NATURAL MATERIALS AND SURFACES IN THE PARK

Sand
Water
Earth
Sound
Construction and Loose Parts
Varied Surfaces
Natural Enclosures

INDICATORS 3.8-3.9

PARK MAINTENANCE

General Guidance on Maintaining Green Spaces
Guidance on Establishing a Maintenance Network in the School Park
Vandalism-Prevention Measures

INDICATOR 4.1

PLANTING GUIDANCE

Selecting Plant Species for Neighborhood Streets and Parks
Local Species Cultivation and Increasing Supply Capacity
Grasses and Groundcovers
Understory
U95 Tree Species Selection Wheel
Canopy Size Considerations
Canopy Clearance Considerations
Canopy Clearance Considerations
Fruit Trees
Roots and Subsurface Treatment for Trees

INDICATORS 4.2-4.3

COOLING PUBLIC SPACES

Built Shelters
Natural Shading
Water Elements
Mitigating Ground Surface Heat

INDICATOR 4.4

STORMWATER MANAGEMENT

Drainage and Water Collection
Pervious, Permeable, and Porous Paving
Stormwater Runoff Facilities
Swales
Vegetated Gutter and Buffer Strips
Channels and Runnels
Soakage Trench
Rainwater Collection with Cisterns
Rain Garden

INDICATORS 4.5-4.9

REDUCING AIR POLLUTION FROM VEHICLES

Regulating Vehicle Emissions

INDICATOR 4.10

RENEWABLE ENERGY

Retrofitting Public Buildings
Decarbonizing Streets

INDICATORS 5.1-5.3

CLUSTERING SERVICES

Health Services
Childcare
School Design Principles
Building Entrances
Outside the School
Lighting Outdoor Space Near Schools

INDICATOR 5.4

PRESENCE OF INFORMAL PATHS AND TRAILS

Shortcuts

INDICATOR 5.5

PRESENCE OF ADEQUATELY Sized AND LOCATED GREEN SPACE

Utilizing Vacant Lots
Median Pocket Parks

INDICATOR 5.6

PARK TOILETS FOR FAMILIES

Public Toilets for ITCs
Maintenance for Public Toilets
Drinking Water
Baby-Feeding Areas

APPENDIX: LIST OF INDICATORS

GLOSSARY
New shade trees: Species selection Sub-ground guidelines

School gate concealed: School perimeter design

Large planters: Bollard guidelines Grasses and shrub species

Open plaza: Permeable paving

Slow traffic zone: Traffic calming Slow-speed signage
This book began in New Delhi in November 2018 during one of the worst smog events the city had ever seen. A Bernard van Leer Foundation team was there writing a policy framework and design guidelines for neighborhood planning to address needs of young children and caregivers. In a city with the world's worst air pollution, in a country with one of the fastest growing rates of car ownership, the guidance called for streets to be given back to people on foot.

Three months later Qendra Marrëdhënie began adapting and expanding a version for the Albanian context. In Tirana as in Delhi, auto dependence has taken root as the prevailing wisdom. Personal safety in mobility is thought to require a car, and the purpose of roads is to move cars. The road is also a contested space whose inviolability goes beyond personal comfort. It is thought of as economy, specifically one that exists to enable the rapid and free flow of commerce, and constrictions to it amount to a self-inflicted wound.

If we were to shift the conversation away from a concept of abstract growth and toward wellbeing and prosperity on a smaller scale, we would see a different conception of the use and purpose of streets emerge. More important than shifting the conversation is to shift the way cities budget. Cities must invest in community-scale infrastructure and services. The way to undo the car-preference cycle is not to blame or shame people's mobility choices, but rather to provide better options.

The Born Thriving design guidelines offer a shift in values for Albanian cities. Rather than measuring the success of a city by its economic growth, a city's success should be measured by its ability to provide wellbeing for its residents. In Tirana, a medium-sized city with adequate transit in place, providing people with better mobility has to start with walkable neighborhoods. In Tirana women still take on the majority of childcare duty, and far fewer women drive than men. Self-sufficient walkable neighborhoods offer the possibility of proximate services reachable on foot, which means that no matter who is walking, more or less vulnerable, their needs can be accessed.

Born Thriving is part of a long-term project of mainstreaming young children's and caregivers' needs into municipal decision-making, planning, implementation, and maintenance. It is authored with and intended for use by civil servants working in municipalities.

Beyond greater road safety, the goal of any neighborhood-planning strategy remains in devolving power to community groups, enabling the public to make more of its own decisions about their environments. To that end, this book will hopefully be read by the community organizer who wants to slow down traffic through an area, the new caregiver who wants to put in a slide at the school, or the local business owner wanting to provide an awning over the sidewalk. By providing technical information and context, we hope this book opens up our collective imagination about what our communities can be, and how we shape the future through the environments we create for our children.

Simon Battisti
ACKNOWLEDGEMENTS

Born Thriving leans heavily on the knowledge of our community. That community begins with our colleagues at the Bernard van Leer Foundation’s Urban95 program. Over the past two years we have learned from the wisdom of Patrin Watanatada, Cecilia Vaca Jones, Julien Vincelot, Rushda Majeed, Ankita Chachra, and Andrea Torres. That community also includes colleagues with whom countless conversations have buttressed the ideas here: Tim Gill, Hannah Wright, Selva Gürdoğan and Gregers Tang Thomsen, Hans Karssenberg, Skye Duncan, Anna Siprikova at National Assembly of City Transportation Officials’s Global Designing Cities Initiative. This project was conceived and stewarded at every turn both in content and process by Darell Hammond. Our colleagues in the city of Tirana form a community of committed and passionate civil servants from six departments: DPN1, DPN2, DPN3, APR, Urban Planning and Development, Transportation, and their respective directors Arlinda Binjaku, Erinda Fino, Feti Fanaj, Elton Kacidhja, Nevin Bilali, and Enton Punavija. Born Thriving would be nowhere without the vision of deputy mayor Anuela Ristani, who has always believed in its purpose and led it under her wing, and former general director of urban planning and development Joni Baboçi, who was our sounding board for ideas and direction for the better part of the two years of this project. Mayor Erion Veliaj has been a constant source of energy to support the Urban95 vision in Tirana. This project has benefited immensely from the contributions of twelve students from the Harvard Graduate School of Design who have worked with us each summer as design fellows, as well as professor Diane E. Davis who has watched over the project with us.

INTRODUCTION

Born Thriving is a three-volume action-oriented plan intended to mainstream infant-, toddler-, and caregiver-friendly neighborhood planning in Tirana, Albania. The plan consists of a Framework Document (vol. 1), which outlines the case for infant, toddler, and caregiver neighborhood (ITCN) planning in Tirana; ITCN Design Guidelines (vol. 2); and the ITCN Indicator Baseline (vol. 3).

Eighty-five percent of human brain development is complete by age three. By age five, the neural pathways that will be with us for the rest of our lives are almost totally set in place. During this time the foundations of emotional attachment are built—or not—and chronic diseases are set into motion.

It is also a vulnerable time because health hinges on protection and care from others. A caregiver’s inability to provide health to their child is not so much a matter of their personal choices as it is an outcome, at a systemic level, of the conditions of their environment.

Equity-minded public-health experts call attention to the fact that conditions like diabetes, obesity, and chronic respiratory disease are socially transmitted. “Life-long diseases” or “learn-to-live-with diseases” are increasingly prevalent around the world. They are systemic and globally consistent in spaces of poverty and disinvestment. Chronic health conditions develop early in life as the result of environmental injustice.
DESIGNING NEIGHBORHOODS FOR ITCS

The term “infants, toddlers, and caregivers” (ITCs) refers to a group of at least two people, the youngest of whom is under five years old. We tend to think of caregivers as mothers. In many cultures, and Albania is no exception, caregivers are usually women. But a caregiver can also be a grandfather riding a bike with a toddler in a child seat, or a group of older siblings. Moreover, ITC groups are made up of a frequently shifting cast of family members, friends, and neighbors who take on caregiving duties in the course of the day.

ITC DESIGN SERVES EVERYONE

ITC mainstreaming is about asking questions that are rarely considered: What unique challenges does a caregiver with a stroller face when navigating the city? What kinds of amenities does a caregiver require in order to be outside with a baby for several hours? Where are caregivers going on a day-to-day basis, and how do we design for mobility patterns that are more scattered than that of the typical working male?

There are concrete ways in which design can respond to these questions. Think curb cuts, raised intersections, or stroller rails for street navigation. And public bathrooms, drinking fountains, safe breastfeeding areas and ubiquitous shade for a welcoming outdoor experience. These are interventions that benefit all groups, especially the elderly and people with disabilities.

But these questions also raise concerns that can only be partially addressed by design, such as the social determinants of feeling safe in public, or the gendered burden of caregiving. Design cannot operate as if it exists in a vacuum, which is why Born Thriving works with residents and community associations to share knowledge, identify needs, and push for broader improvements in social policy.

Ultimately the concept of the child-friendly city challenges the conditions that made the design of our cities hostile to social reproduction—in other words, the daily work of caregiving that keeps our communities intact over time. While many of our cities today are designed for the male breadwinner, child-friendly cities can offer women caregivers a renewed access to public life. For children, they present a chance to reclaim freedoms that have been lost in the last decades of auto-centric planning: the joy of stress-free play outdoors, the ability to move independently, and the resources to pursue a curiosity for the natural world.

WHO IS THIS GUIDANCE INTENDED FOR?

This guidance has been written with and for the departments in the city of Tirana whose work physically affects the public realm.

→ Budgeting: directors, municipal cabinet-level decision-makers and departments of budgeting.
→ Planners and designers: the general directorate of urban planning and development and their sub-departments of urban design, and urban decor, parks and playground designers within APR, and the engineers who oversee street geometry in the department of transport.
→ Implementers: the department of public works and the sub-directorates who carry out small-scale construction work within DPN2.
→ Maintenance: The three key departments DPN1 (responsible for greening, watering, and cleaning of streets and street trees), DPN2 (responsible for repairing sidewalks, roadbed, and signage), and DPN3 (responsible for maintenance of schools and kindergartens).
→ National-level regulatory and planning actors: National Territorial Planning Agency overseeing masterplanning, and agencies in the Ministry of Infrastructure and Energy that prepare and distribute the Road Code and other legal documents governing the way street geometry is standardized.
→ Educators and care workers: professionals working in schools, kindergartens, and nurseries, as well as those providing care for
young children, the elderly, and other people and groups with different access needs.

→ Neighborhood and community groups: associations of residents who want to request changes to their streets or schools but might not yet speak the language of planning.

→ Private sector: property developers, architects and urban designers working for private clients, private education providers, and play-oriented businesses including cafés and restaurants.

HOW TO USE THIS GUIDANCE

Building the ITC-friendly neighborhood is everyone’s job.

A healthy street is the responsibility of policy makers who can act to restrict auto emissions, municipal repairs teams that level sidewalks, and residents who apply for temporary street closures or organize festivals and public art installations. This book is designed to be a tool for all stakeholders, offering a common language for street design that improves the wellbeing of infants, toddlers, and caregivers.

A key principle underscoring the recommendations made throughout this book is the need for an integrated approach to transportation, environmental, and land-use policies. The importance of strong policy cannot be stressed enough: while we can build wide sidewalks and advocate for tree cover on neighborhood streets, without policies that set high emissions standards or well-enforced speed limits on local roads, we will not have a holistic ITC-friendly environment.

The Evaluation and Monitoring Guide is a complementary document made up of forty indicators referenced throughout these design guidelines. It measures ITC wellbeing and includes a three-tier benchmark system. It enables city engineers, planners, workers, and citizens alike to measure the conditions of a neighborhood and to track its improvement over time. By mapping and monitoring the conditions of the built environment, these indicators serve as a tool for building an evidence-based neighborhood planning approach that can improve policy and implementation processes. They should be consulted alongside other evidence, projects, and programs relevant to health and wellbeing.

While the indicators and benchmarks list in clear terms what needs to exist for a neighborhood to be ITC friendly, the design guidelines respond with the how. This book provides a detailed guide to how design interventions should be made, offering proposals and suggestions that reflect global best practices in child-friendly urban design. Each section in the design guidelines corresponds to the indicators to provide an easy and streamlined how-to for specific projects such as street lighting or street furniture.
Policy
Prohibiting diesel vehicles over 10 years old to protect regional air quality.

Evaluation and Monitoring
Data collection to compare neighborhoods to each other for learning about effectiveness of interventions, and longer term successes and failures.

Maintenance
Protocols for maintaining the ITC neighborhood’s public facilities so that they perform to their best potential – dust reduction, watering schedules.

Programming
Engagement with the schools and the members of the community to own the “life” of the neighborhood. Can be educational: “how to save water in your garden.”

Physical urban design elements
Paving, signage, lighting, planting, seating, as well as public art create the immediate, material, experienced environment.
INFANT TODDLER CAREGIVER
NEIGHBORHOOD BENEFITS

The ITCN plan addresses the difficulties the public faces with limited green space, social services, and safe access to them. While the research focus of the book is on young children and caregivers, the elements presented herein positively affect everyone. Changing neighborhoods to achieve the five local-scale objectives in this guidance, create benefits at larger scales as well, in chains of effects stemming from a less-polluted and more health supporting environment.

Build a sense of comfort for pedestrians of many abilities
Walking in Tirana often entails navigating several obstructions, whether it be destroyed paving, a tree or a business encroaching on the pedestrian way, or other people who are also struggling to move past in the small space allowed to them. Public ways that can be smoothly wheeled through—whether by stroller or powered wheelchair—provides a foundational layer of access in the city that benefits everyone. Sidewalk widths function conceptually opposite to traffic lanes, the wider they are, the slower people can move.

Counteract decades of car-centric construction, reduces traffic congestion in the long term by facilitating mode shifts and localizing trips
On-street car parking is free in most Tirana neighborhoods, leading to congested neighborhoods without adequate room for footpaths. Often, ITCs are forced to walk on the same road as cars. This is especially dangerous when there are almost no traffic-calming elements on the street, and drivers are accustomed to moving at speeds much higher than 20 km/h with no consequences.

Expand and enhance green space
The World Health Organization (WHO) recommends that every city have a minimum of nine square meters of green space per capita, but Tirana has only two square meters, and the existing green space is poorly distributed. These design guidelines encourage the redesigning and repurposing of existing open spaces such as school yards for year-round public access.

Reduce maintenance costs in expanding facilities
Every new park, playground, and green space bears a construction cost, but long-term maintenance costs must also be factored in up front. When street lighting, playgrounds, parks, and public facilities are well designed with appropriate materials and consideration of elements like shade, shelter, trees, and benches, spaces become more inviting to ITCs year-round with less cost to the city. When the public welcomes a new project and assumes ownership over it, damages, replacement, and repair costs will be reduced.

Cool down
Navigating Tirana on foot can be difficult during hot summer days, because the city lacks street shade from large trees and awnings, and other cooling spaces such as swimming pools are not available to the public. Comfort in the public realm during the summer should not come at a cost. Cooler streets and parks allow people to spend more time outside, and even lend cooling to nearby buildings, all of which helps to reduce energy expenditure by both households and public buildings.

Reduce air and noise pollution
Air quality in Tirana has dropped far below WHO standards, and automobile emissions are the primary culprit. Meanwhile, the city has developed a reputation for noise pollution, the health effects of which are seriously underestimated. For infants and toddlers who spend most of their time in...
the city at the eye-level of exhaust pipes and engines, these stress-inducing elements of the urban environment are only amplified.

**Lower costs to the healthcare system**
Health-conscious planning reduces the burden on the public health system, especially with chronic, socially transmitted diseases like asthma.

**Improve learning outcomes for kids, benefitting all**
Safe routes to school are shown to improve learning outcomes by stimulating brain activity (connection to nature at an early age assists in brain development) and social connections outside the classroom. Overall, safe and supportive environments enable a sense of independence that benefits children and their caregivers.

**Improve democratic sense of control over neighborhood**
Neighborhood planning and investment is a deliberate process of empowering local decision-making that has significant implications for public trust in government. Investing in and giving voice to local institutions like community centers and other social services in annual cycles of participatory budgeting builds long-term community strength, especially when it is intentionally inclusive of children and caregiver voices.

**Help retain families**
Concern about living standards and the quality of education consistently rank highest among the reasons young people choose to emigrate. What can contribute to a sense of belonging and trust in the possibility of long-term investment in place is neighborhood planning that is focused on the quality of the public realm and the ways in which local institutions like schools are empowered to guide community decision-making.

**AN ANTI-DISPLACEMENT APPROACH**

Everyone should have access to health-supporting and playable cities. However, much of what this book proposes—walkable streets, ubiquitous green space, clustered services—are characteristics recognized as valuable neighborhood amenities, which in turn increase the value of nearby land and, correspondingly, rents. This has often led to the displacement of longtime residents and neighborhood businesses in favor of homogenizing upscale redevelopment.

The core commitment of these design guidelines is to improve wellbeing and reduce stress for children and caregivers. Housing insecurity is among the most stressful of experiences. This is why it is important that design interventions are implemented in combination with anti-displacement policies, so that neighborhoods remain affordable even as they improve. Several cities such as Nantes, France and Portland, Oregon have implemented such strategies.

For too long, planners and designers have approached street design as isolated from the larger problems of land use and transit planning. In doing so, they have failed to address how their work is implicated in processes of neighborhood gentrification. When urban design best practices...
are simply used as a pretext to gentrify neighborhoods, the core principle of child-friendly planning is undermined: everyone—and especially every child—deserves to live in a neighborhood that allows them to thrive.

POLICY SETTING

Multiple policy agendas have a bearing on ITC wellbeing. Below are some of the international, national, and municipal regulatory plans and standards that intersect with the goals of this book.

The United Nations (UN) passed the Convention on the Rights of the Child (1989) over thirty years ago, inspiring governments around the world to improve their laws and policies to protect children’s civil, economic, political, social, health, and cultural rights. This was a landmark international law that established children as persons requiring specific protection and support by society. Article 31 of the UN document recognized the right of children to relax and play, and to have equal opportunities to participate freely in cultural and recreational life.

On the Rights and Protections of the Child (2017) Albania passed its own law on children’s rights in 2017, titled On the Rights and Protections of the Child. With this document, the Albanian state recognized children’s rights to play and leisure, and committed to creating the appropriate conditions for all children to have equal opportunities to engage in cultural and recreational activities. These include:
→ Ensuring safety in public space and access to sports facilities, playgrounds, and other recreational premises for all children
→ Establishing safety and accessibility standards for all recreational premises and playgrounds, including those in schools
→ Developing school curricula that provide children with adequate access to leisure, rest, and sport

United Nations Sustainable Development Goals 2030
The United Nations’ 2030 Agenda for Sustainable Development was adopted in 2015 by member states, serving as a universal commitment to end the crises of global poverty, economic inequality, and unmitigated climate change. The seventeen goals treat sustainability as not only an environmental issue, but a social and economic one as well. The design guidelines presented here help achieve many of the goals and targets outlined in the agenda, including:
→ Improving urban planning practice to establish more inclusive, safe, and sustainable cities
→ Expanding access to safe, affordable, and sustainable transportation systems to all
→ Improving road safety, especially for vulnerable groups such as women, children, and non-able-bodied people
→ Providing access to safe, inclusive, and accessible green and public spaces, for vulnerable groups in particular
→ Reducing the environmental impact of cities, paying special attention to air quality and municipal waste management

Tirana 2030 (TR030)—General Local Plan
Tirana 030 is a regulatory master plan authored by Stefano Boeri Architetti and approved by the City Council in 2017 that envisions the capital city as an environmentally sustainable “kaleidoscopic” metropolis. Focusing on urban greening, sustainable mobility, and a polycentric metropolitan design, the plan lays out clear goals and commitments for 2030, including:
→ Investing in active transport by expanding the network of cycling lanes and greening pathways
→ Improving public transit service and implementing priority bus lanes
→ Introducing congestion charges and alternative transportation modes such as car sharing
→ Building twenty new public schools that will act as neighborhood hubs with spaces and facilities for the community
→ Cultivating new urban squares that can host cultural activities and public services.

The Local Plan takes on a large-scale perspective, and its targets align well with ITC-friendly planning. Part of the function of the Born Thriving project is to go where the Local Plan does not—into the finer details of neighborhood street design for wellbeing.

Green City Action Plan of Tirana
The Green City Action Plan (GCAP) lays out a concrete roadmap for effectively transforming Tirana into a more environmentally friendly city. The strategic objectives of the plan include:
→ Tackling urban sprawl by densely afforesting a circular strip of land bounding the city’s entire edge

WHAT MAKES A CITY CHILD FRIENDLY?

The events and experiences of a child’s first thousand days deeply shape lifelong health: it is the time when human brains are most sensitive to external experiences and reactive to environmental changes. Healthy development during this period determines lifelong physical and cognitive capacities for language skills, learning capabilities, mobility, and emotional regulation.

Infants and toddlers need supportive relationships and environmental conditions to build strong “brain architecture” and resilience to stressful situations, and neighborhood planning has a huge role to play in ensuring every baby grows up in an environment that supports their lifelong wellness.

Unstructured Outdoor Play
Children have a need for unstructured outdoor play and daily contact with nature for their physical and psychological wellbeing. Countless studies have demonstrated the benefits of establishing a connection to nature early in life.

Stable Routines
Maintenance of stable and predictable
routines, such as a feeding schedule or bedtime, help young children establish healthy biological rhythms. Neural pathways become strongest when positive engagement is repeated at consistent intervals; unpredictability can lead to a weak immune system and stress response framework.

**Sensory Stimulation**

From the earliest moments of life, young children are constantly exploring the world around them through their senses, whether it’s touching and grabbing toys or smelling and tasting new foods. Their environments should inspire playful behavior and sensory exploration, allowing them to hone their motor skills as they learn to sit, stand, crawl, balance, and walk on their own.

**Clean Air**

Young children are especially vulnerable to environmental risks, and exposure to infectious diseases or poisonous chemicals from poor sanitation and pollution can weaken biological responses and lead to chronic illness. Newborns, infants, and toddlers need living environments that are free of toxic sources such as stagnant water or engine exhaust from buses or cars.

**Local Social Infrastructure**

Children learn best in the company of others. Their neighborhoods should offer them convenient access to social spaces, like local playgrounds or playgroups where they can be with other children close in age and build their social skills. But in order for children to play, caregivers need to have time and energy, which is why it is so important to have quality food markets, childcare, playgrounds, and health clinics near the family home, so caregivers can dedicate themselves to their children’s needs in less stressful and more substantial capacities.
FIVE OBJECTIVES OF THE ITC NEIGHBORHOOD

The Born Thriving project in Tirana is animated by five objectives for neighborhood design. The Evaluation and Monitoring Guide and the design guidelines provide the evidence and know-how for building neighborhoods that meet these objectives.

OBJECTIVE 1: Our neighborhood protects us from traffic

→ Motorized traffic is the greatest safety hazard to ITCs, both in terms of direct injury and death, and the long-term health consequences of air and noise pollution.

→ ITC street design is about prioritizing resident wellbeing over the easy and rapid passage of drivers, creating a public realm that is welcoming to young children and their caregivers.

OBJECTIVE 2: We are at ease outdoors in our neighborhood

→ ITCNs should be active with people so that ITCs feel secure in the presence and watchful eyes of trusted neighbors.

→ ITCs should be able to travel easily on sidewalks and stairs designed with strollers in mind.

→ Lighting makes a world of difference improving the safety and comfort of evening socializing for ITCs.

OBJECTIVE 3: We can play and rest in our neighborhood

→ In order to nurture healthy brain development in children, neighborhoods should be sensorially stimulating and socially enriching.

→ Schoolyards should be transformed into green, playful, and well-serviced public neighborhood gathering places.

OBJECTIVE 4: Our neighborhood protects us from harsh weather

→ Protection from harsh weather enables children to spend more time outside, meaning caregivers are encouraged to leave the house as well.

→ Clean air, proper drainage, and widespread access to shade are essential in any ITCN.

OBJECTIVE 5: We are well-served in our neighborhood

→ ITCs need access to public facilities such as washrooms, drinking fountains, and diaper-changing areas in order to feel welcome and well served in public space.

→ Access to daily needs such as nutritional food, education, childcare, recreation, and healthcare must be clustered close to home to offer maximum convenience and care.

→ Cities must budget for the high-quality maintenance of services and green spaces.
OBJECTIVE 1

Motorized traffic is the greatest safety hazard to ITCs, both in terms of direct injury and death, and the long-term health consequences of air and noise pollution.

ITC street design is about prioritizing resident wellbeing over the easy and rapid passage of drivers, creating a public realm that is welcoming to young children and their caregivers.

CALMING TRAFFIC

→ Shared Street
→ Lane Widths
→ Curb Extensions and Bulb-Outs
→ The Use and Implementation of Chicanes
→ Curb-Corner Radii
→ Curb Extensions and Bulb-Outs
→ Mini Roundabouts
→ Bollards: Implementing and Using Vertical Barriers
→ Getting Creative with Planters

NEIGHBORHOOD STREET CLOSURES

→ Temporary Street Openings

CROSSING

→ Marked Crosswalks
→ Midblock Crossing
→ Raised Intersection
→ Medians and Islands
→ Safe and Comfortable Paving
→ Crosswalk Paving
→ Paving for Furnishing Zones, Pocket Parks, and Other Spaces
CALMING TRAFFIC

According to the World Health Organization (WHO), over 1.35 million people die from road-traffic accidents each year. Accidents are the leading cause of death for children, and as much as 93 percent of these fatalities take place in low- and middle-income countries with few traffic regulations. In Albania, where the rate of road-traffic fatalities is among the highest in Europe, driving is the country’s largest public-health threat.

Traffic-calming measures can be the difference between life and death, especially for infants and toddlers. Research has shown that about 90 percent of pedestrian crash victims would survive with the vehicle traveling at thirty kilometers per hour. At forty-five kilometers per hour, the chance of survival declines to only about 50 percent. As soon as speeds rise above thirty kilometers per hour, the chance of fatality or serious injury drastically increases.

In recent decades, road-traffic hazards have severely constrained children’s mobility. Across Europe, unsafe road conditions and car-centric planning have led to fewer children walking themselves to school, parks, or other everyday places. This is an early childhood development (ECD) issue: research has repeatedly shown positive correlations between children’s academic achievements and their freedom to travel and play without adult supervision. For children, walking and cycling alone can provide a way to exercise and reduce stress.

The nine countries with the highest levels of independent mobility for children all have national policies to promote walking or cycling. Spending time outside is crucial for the health of infants, toddlers, and their caregivers (ITCs), and in order for them to feel safe in their neighborhoods, cities must reduce the crowding of motor vehicles in streets, better regulate traffic so that it is slow moving and controlled, and ensure that streets are walkable, with daily destinations a short distance away. When traffic feels predictable and nonthreatening, children and their caregivers can experience greater freedom on the street.

KEY PRINCIPLES

→ Neighborhood streets must prioritize walking and cycling over the movement of motor vehicles.

→ Traffic calming is a strategy distinct from lowering speed limits. Traffic calming introduces physical obstacles into the streetscape that make speeding infeasible.

→ Traffic calming increases the cognitive load of driving on neighborhood streets, forcing drivers to pay extra attention and thus instinctively slow down.

→ TCs should be able to spend as much time outside as possible, but since it is not convenient to travel far distances, walkable streets in neighborhoods are crucial to their health.

→ In most places, traffic calming can be done quickly without policy change or legal processes.
SHARED STREET

“A woonerf,” meaning “shared street,” is a Dutch term for a residential street that has been transformed from a channel for cars to a social space where it is safe and appropriate for pedestrians to be stationary. It is a narrow street without curbs or sidewalks: cars, cyclists, and pedestrians share the same street surface, which forces drivers to be hyperalert and to drive slowly. Natural obstacles such as planted pockets, planters, green pockets, and chicanes may be employed to serve as natural obstacles for moving vehicles.

The goals of woonerfs are to encourage a greater diversity of activities and uses of the street by residents; to foster a sense of community and reduce social isolation, particularly among older people; and to increase opportunities for active and creative children’s play. They are especially valuable for neighborhoods with limited public open space.

Traffic volume

Before making a street one-way and designating it a shared street, survey traffic volumes at different hours and carefully consider potential changes to the neighborhood street network. A good candidate for a residential shared street should have fewer than one hundred cars per hour of traffic.

Transition elements

Mark the entrances to shared streets with transition elements. These can be raised crosswalks or curb extension “gates.” Introduce texture by using a paving material different from that of the larger adjacent street.

Vehicle access

Ensure shared streets can accommodate low volumes of select “local access” vehicles at slow speeds, so that they can access driveways and entryways to buildings. Local-access vehicles can include vehicles for residents, delivery, businesses, school transportation, and emergency access.

Locating parking

Stagger designated parking along the shared street so there is no continuous parking lane. Ensure parking is visible and clearly marked.

Design permeable ground surface

When possible, use permeable paving materials and include planting areas with gravel or open soil on shared streets. Absorptive surfaces signal pedestrian priority, reduce pressure on storm sewers, and keep streets cool in summer heat. Permeable pavers are appropriate in the long-term due to limited vehicular use.

A woonerf street allows some limited car parking, while interactions flourish.

A street in Tirana functions as an outdoor market, people, cars, and micro-mobility all mix.
LANE WIDTHS

Reducing the width of a lane is a highly effective way to reduce vehicle speeds and communicate pedestrian priority. Narrow driving lanes increase the cognitive load of drivers, which forces them to stay alert and drive slowly. Lanes on residential streets can be narrowed easily for short spans by the implementation of simple bollards, such as planter pots or even traffic cones or tires. This in turn gives more space to pedestrians.

Narrowing a lane width from a standard 4 meters to 2.8 meters, for example, allows for a generously scaled one-way cycle lane. Constructing longer stretches of narrow lanes can be done simply by re-striping the ground. A safer version with curbs and level change is a cost-intensive process, but should also be considered as a standard component in any road-grading or underground-infrastructure upgrade project.

**Neighborhood Street Lane Widths**

On class F and E streets (local and collector, respectively), lanes should be no wider than 2.8 meters, and may be reduced to 2.6 meters (5.2 meters total) on two-way streets.

**Speed Limits On Narrow Lanes**

Lanes with a 2.8 meter width should have a speed limit no higher than twenty kilometers per hour.

**Combining Tactics**

Narrowing lane width is even more effective in calming traffic when combined with other vertical features, such as speed tables. Speed tables, like speed bumps, inflict damage to vehicles traveling too fast.

**Narrowing Lanes Block By Block**

Small neighborhood street lanes with a posted speed limit of twenty to thirty kilometers per hour or lower can be narrowed block by block without having to wait for larger-scale street-upgrade projects.

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Road types in the Albanian road code and their speed limits

<table>
<thead>
<tr>
<th>Type</th>
<th>Speed Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type A: Highways</td>
<td>110km/hr</td>
</tr>
<tr>
<td>Type B: Main interurban roads</td>
<td>90km/hr</td>
</tr>
<tr>
<td>C. Secondary interurban roads</td>
<td>80km/hr</td>
</tr>
<tr>
<td>D. Local interurban roads</td>
<td>80km/hr</td>
</tr>
<tr>
<td>E. Local Roads in inhabited centres</td>
<td>40km/hr</td>
</tr>
<tr>
<td>F. Local roads</td>
<td>40km/hr</td>
</tr>
</tbody>
</table>

A street type F can be wide and undefined like this one. Making sure that lanes are a maximum of 2.8m wide helps to reduce drivers ability to exceed posted legal limits.

Diagram showing street section with 2.8m lane widths
Curb extensions narrow the roadway at the street corner, reclaiming additional walk space for pedestrians.

Curb extensions are traffic-calming protrusions of the sidewalk into the parking lane. Curb extensions narrow the roadway at the street corner, reclaiming additional walk space for pedestrians. They can be landscaped with permeable surfaces, engineered for stormwater collection, and fitted with street furniture for rest, gathering, and play.

Bulb-outs can be used at intersections as well as in the middle of blocks. They shorten the distance a pedestrian needs to cross the street and force vehicles to turn at slower speeds by physically narrowing the roadway. Bulb-outs expand protected space for pedestrians while eliminating road space for illegal parking near corner crosswalks and bus stops.

**Deep bulb-outs and head-in parking**

Use deep bulb-outs (four-and-a-half to five meters long) in cases of head-in parking in order to define areas for street parking, protected by tree plantings.

**Bulb-outs as public spaces**

To maximize space for street furniture and greenery, extend bulb-outs into parking lanes. Bulb-outs turn sidewalks into valuable space for social gathering and communal use. When they extend into the parking lane, they carve out space for street furniture and greenery.

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A “bulb-out” in the city of Durres, Albania.

Curb extensions on four corners of an intersection reduce the walking distance for pedestrians.
CHICANES

A chicane is designed to calm traffic by placing alternating curb extensions in the carriageway, which leads vehicles to follow an S-shaped path. The feature is typically added to straight roads where drivers would otherwise be comfortable moving at high speeds. Chicanes are most appropriate on residential streets with moderate levels of through traffic. By expanding pedestrian space, chicanes create the opportunity for planting and for street furniture that can provide an occasion for rest and play.

**Dimensions**

The size and tapering of a chicane depend on the dimensions and volume of the street it’s being installed in. Ensure that enough space is left on the roadway for vehicles to follow a smooth S-shaped path.

**Managing stormwater**

Add stormwater equipment to the space between the footpath and the chicane. Where a curb extension could impact drainage, use an edge island with a thirty- to sixty-centimeter gap between the curb.

**Temporary installation**

Chicanes can be tested out on a street by using low-cost and temporary materials such as paint and planters. Observe how the chicanes impact local traffic, the movement of vehicles, and pedestrian interaction on the street before beginning permanent implementation.

**Emergency vehicles**

Chicanes must maintain required clearances for emergency vehicle access: 4.3 meters on a one-way street and 6 meters on a two-way street.
When a corner radius is small, a turning driver moves at a slower speed and is oriented more directly to the crosswalk they pass through.

**Corner dimensions**

At intersections, a curb radius should measure four meters on F class (local) and E class (collector) roads, and maximum nine meters on D class (sub-arterial) and C class (arterial) roads. Intersection curb radii should not be less than four meters, though certain rare circumstances (e.g., limitations to the right-of-way) may necessitate a smaller radius.

**Placement**

Install bulb-outs on new streets whenever possible. This is easier to implement than retroactive installation. Bulb-outs are most effective on streets that are dangerous for pedestrian crossing. Opportune streets for bulb-outs are characterized by wide crossings, multiple lanes, high speeds, and large traffic volumes.

**Other factors**

A small curb radius should be implemented at intersections where cars both have no incentive to slow down and must turn into a nearest receiving lane that is not directly adjacent to the curb. When calculating the dimensions of curb radii, it is important to consider turning speeds, vehicle types, road width, and the larger “effective turning radius” that takes into account the width of bike lanes and parking lanes.

Street corners with a large radius allow drivers to turn at high speeds, leaving pedestrians in danger of not being properly visible to a driver making a wide swooping turn. Considering caregivers who use strollers and may already be distracted, large corner radii can be disastrous. When a corner radius is small, a turning driver is moving at a slower speed and is oriented more directly to the crosswalk they pass through. Furthermore, the smaller the radius of a corner, the shorter the crosswalk, and thus the shorter the crossing time. This is especially significant for children ages two to five, whose walking pace is slow.

At 30km/hr., there is only a 10% risk of death for a pedestrian in a collision with a car. At 50km/hr., that risk jumps to 80%.

A “sneckdown” shows where curbs could be extended based on slow-moving vehicle markings during snow event.
MINI ROUNDBOUTS

Mini roundabouts are appropriate for either unsignalized intersections on smaller streets, or for low-volume streets that have large corner radii and a maximum of two lane widths. They increase pedestrian safety by reducing the speed of vehicles, channeling traffic, and minimizing points of conflict. If a mini roundabout is flush with the carriageway, simple markings can be used to delineate the border, but raised islands are preferred.

**Planting on roundabouts**

When possible, plant native species and prioritize grass and understory vegetation. Trees must be trimmed regularly to maintain a clearance of four meters for transit and freight vehicles.

**Carriageway clearance**

Always provide a carriageway clearance of six meters on busy streets. On roads with high pedestrian use, a carriageway clearance of four to six meters is possible only if there are mountable curbs on the border of the roundabout.

**Marked crossings for pedestrians**

Mark crossings on all sides of the intersection to signal pedestrian priority.

A mini-roundabout is a relatively easy intervention to lower vehicle speeds between blocks.

Mini-roundabout installations should include well-marked crosswalks, and can accommodate planting medium-sized trees.
Bollards separate pedestrian and vehicular routes without using curbs.

**Bollards and proximity to buildings**

Bollards should be installed at least a half meter from the edge of a building.

**Spacing between bollards**

Approach bollard spacing as contextual and flexible with existing street conditions. Standard bollard spacing is approximately three meters from center to center, but can be more frequent where there is greater need to define space. Space bollards to sync with the rhythm of other streetscape elements such as lighting fixtures, trees, and landscaping.

**Size and shape**

Bollard diameter can range from ten to twenty-five centimeters. However, decorative bollards may vary in size and form. Bollards on small streets can be used as temporary-storage tabletops for caregivers on the move. If air quality and traffic volume should allow for it, bollards can also be used as seating.

**Bollard material**

Bollards can be made of nearly anything as long as they can be made stationary, either through their own weight or by being anchored. Permanent bollards are commonly made of concrete or steel, or a combination of the two. They can also be large, heavy stones, or planter pots full of soil.

**Bollard color**

Paint bollards bright colors so drivers and pedestrians can easily spot them. This is especially important for the visually impaired. Color also adds aesthetic warmth and playfulness to the streetscape.

Bollards can be used as filters to limit access to streets at the same time as in the linear direction of the street, to protect walking and cycling areas.

Mixing bollard types makes for a varied streetscape protecting from vehicle traffic.
**Temporary-use bollards**

Employ removable bollards for temporary use, such as street closures or flexible parking-space delineation. Temporary bollards are lightweight and screwed into the ground instead of cast in concrete. They do not prevent the entry of a vehicle but act merely as a visual delineation, as a bike-lane marking, for example.

**Temporary installation**

Design removable bollards to look permanent despite their being movable. These will have long, sturdy pipe projections from the bottom that fit into a hole in the ground. This ensures they appear permanent and sturdy when held in place.

**Permanent installation**

Use mechanically retractable bollards for streets that are permanently closed. These can be lowered into the roadway to selectively allow vehicles to pass in the case of emergencies.

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An inexpensive mass-produced bollard is usually rubber and comes in a variety of colors.

Industrial reinforced concrete pipe sections are inexpensive solutions for planter bollards and come in all shapes and sizes.

Bollards with flexible-joint base can withstand more impact than those without the joint.

A commercial high street in Istanbul uses colorful spheres.

Large planters prevent large motor vehicles from entering an area.

Large, rough-quarried stones are used as bollards in Skanderbeg Square, in Tirana.

Smooth cast-concrete ovals that invite seating are used as bollards in the Poublenou Superilla in Barcelona, Spain.
Planters can be designed for rest and play, act as bollards, in addition to providing green and shade.

**Linear placement of planters**
Place landscape planters at regular intervals in streets where sidewalks are narrow, where tree planting is limited because of conflicts with utilities or driveways, or when the roadway needs to be narrowed visually.

**Pop-up forest**
In open space, densely arrange large planters containing trees to simulate the effect of a shaded forest space, providing a cool, protected, and intimate atmosphere.

**Planter sizing**
Ensure planters on streets are large enough to prevent vehicles from crossing into the pedestrian way: they should be at least 1 meter in diameter and at least 0.3 meters high.

**Sparking curiosity**
Planters and greenery function to engage exploring toddlers and children during a walk. To give toddlers the opportunity to study the soil and roots, position planters near nursery or kindergarten entrances, or on larger street corners where people spend time waiting. Avoid planters that are higher than fifty centimeters, so that toddlers can see and reach into them.

**Species selection for shade**
Where shade is desired, select tree species for planters that require less water, and that are mature enough to have a developed crown that will provide shade.

**Parking-lane planters**
At least thirty centimeters should separate planters from sidewalk curbs beside parking lanes. Cover the gap with a metal or trench drain, and create a maintenance plan for gutter areas that street sweepers cannot reach.

**INDICATORS 1.1–1.4**

Tirana neighborhoods can have wide streets bound by buildings on both sides, leaving little space for exposed soil for free-standing planting. In these instances, use large-scale planters as bollards to provide a deep buffer from the road. This both makes walking safer and introduces into the streetscape green elements that might otherwise be absent. These objects can be designed for rest and sitting, facilitating use by pedestrians while buffering the sidewalk.

Lower planters allow toddlers to interact with much more curiosity than taller planters. Taller planters offer greater protection from vehicles. It is recommended to mix sizes.

A pop-up or mobile forest can be created by a large number of trees still in their store-bought plastic pots, arranged in close proximity.
NEIGHBORHOOD STREET OPENINGS

Temporary street openings help to reactivate street life. Street openings demonstrate in real time the prioritization of ITC wellbeing, mobility, and play. Streets commonly restrict motor vehicle traffic to facilitate safe and comfortable journeys to school during drop-off and pickup. Play streets and temporary street openings extend play into the public realm, allowing ITCs to connect with the uniquely public character of streets without the threats to safety caused by cars. Community members, business owners, and teachers can also take part in this renewed sense of activity. Moving play into the street can foster creativity, adventure, and social interaction.

KEY PRINCIPLES

→ Complement street closures with ITC play and rest elements.

→ Coordinate with the neighborhood, local businesses, and schools to make full use of the street closure.

→ Give sufficient notice to neighbors, schools, and businesses for necessary preparations.
Minimize the presence of police at street closures to ensure a relaxed atmosphere. Traffic police may be required to assist with setting and maintaining barriers at street entries.

A temporary street closure at a school in Tirana, Albania.
Open streets send a visible message to the community about the presence of children and the importance of their needs.

Viability assessment
Assess which street is the most viable for temporary closure on a regular basis according to street directionality, emergency routes, parking access and driveways. It is best to do a specific traffic count, as traffic volume may differ from what is available through official documents at municipal departments of transport.

Notify neighbors of opening using multiple methods
Notify neighbors about street closures in advance in order to ensure that no cars are parked on the street before the closure. Place leaflets and stationary signage showing impacted parking lanes. Online channels should be used as well, especially social media. When possible, building administrators and local leaders can be recruited to disseminate messages to the neighborhood through word of mouth.

Implementation process
“School streets” can be implemented through simple and cost-effective traffic cones and signage. Any time traffic patterns are changed, it is critical to give advance warning to the public through messaging and signage. Ensure signage is consistent and predictable.

Drop-off and pickup
Enforce street opening for drop-off and pickup for at least forty-five minutes at the beginning and end of the school day, amounting to almost three hours of total street closure time in Tirana’s two-shift system.

Limiting police presence
Do not rely on police for the enforcement of cordons, as their presence can detract from a welcoming and community-coordinated atmosphere. Instead, recruit and employ volunteers from the immediate area to assist in the closure and cleanup afterward. Ample posted warning, coordination, signage, and bollards blocking off the street should be enough to ensure a safe and smooth closure.

Improvised play equipment
Prepare play equipment so that kids can play in the street. When possible, bring play workers to the street closure to assist with activities (for more on play workers, refer to section 3.4).

TEMPORARY STREET OPENINGS

Temporary street openings can be implemented for daily pickup and drop-off at school, neighborhood block parties, festivals, or any occasion for children to play freely in the street. In addition to protecting ITCs from motor-vehicle traffic, they also send a visible message to the community about the presence of children and the importance of their needs. Even if a street opening only lasts a few hours, it is in these short periods that citizens witness the sudden collective use of open space, which can be a powerful rallying point toward building longer-term changes.

Notify neighbors of opening using multiple methods
Notify neighbors about street closures in advance in order to ensure that no cars are parked on the street before the closure. Place leaflets and stationary signage showing impacted parking lanes. Online channels should be used as well, especially social media. When possible, building administrators and local leaders can be recruited to disseminate messages to the neighborhood through word of mouth.

When streets are closed to traffic kids will easily find ways to entertain themselves.

“Loose parts” toys at a temporary street closure add to an atmosphere of improvisation.

Streets with low traffic volumes are easier to close on a regular basis.
CROSSING

This section covers street crossing at intersections as well as midblock. For children to be independently mobile, there must be safe and walkable streets that allow them to navigate, acclimate to, and adapt to public space from an early age. In order to encourage ITCs to feel safe in the public realm, streets need to proactively project safe conditions.

Not everyone takes the same amount of time to cross the street, and crossing signals that are not well timed for all abilities put groups like ITCs and the elderly at risk. To reduce the rate of accidents and create a less stressful experience for ITCs, pedestrian crossings should have countdown signals that offer adequate time for crossing safely, and that are calibrated to buffer pedestrians with extra crossing time after the countdown is over.

Neighborhood streets must also include elements such as clear vertical signage on signposts at corners, as well as horizontal signage painted on the road surface, bike lanes, and even sidewalks, with an emphasis on visually highlighting crossings themselves. When streets are legible, caregivers can spend less time concerned with possible risks and more time interacting with their children.

Crosswalk markings should be as wide as possible.

Road marking paint is most durable when applied to a fresh layer of asphalt.
MARKED CROSSWALKS

Marked crosswalks alert drivers to expect pedestrians in the roadway and direct pedestrians to safe crossing locations. While many uncontrolled intersections in Tirana (usually small streets with low traffic volumes) remain without crossing signage, Albanian road regulations require them to be present at all intersections—whether marked or unmarked—unless pedestrian crossing is specifically prohibited.

Crosswalk width

Measure crosswalks to be at least as wide as the sidewalk. When appropriate, crosswalks may be wider in locations with high pedestrian demand or narrow sidewalks. They should never be less than three meters wide.

Crosswalk visibility

Use specially designed, extra-large, and highly visible crosswalk markings to establish a coherent visual language of safety and pedestrian priority in ITC neighborhoods (ITCNs). This is especially important near schools. Crosswalks can be painted and decorated to be as visually striking as possible.

Crosswalk accessibility

It is crucial to provide a surface that doesn’t cause discomfort due to excessive vibration to those using wheelchairs and other assistive-mobility devices; materials should be stable, durable, and slip resistant.

Paving treatment

Use paving that differs from the asphalt used in the roadway to announce the crossing as an extension of the pedestrian way. Paving with stone and concrete paver block can introduce color, texture, and pattern into an otherwise monotonous streetscape. Pavers on their own should not be seen as a safety measure; additional high-visibility crosswalk markings are still necessary. Crosswalks can make use of materials such as colored and stamped asphalt, poured concrete, brick, and stone or concrete pavers.

Crosswalk placement should prioritize the convenience of pedestrians. Locate the markings as close to the street corner as possible.
Midblock crossings are convenient for pedestrians and should be installed where pedestrian desire lines are obvious.

Site-specific analysis
Site-specific analyses should be conducted to determine whether a potential crossing would lead to service obstacles or delays for transit vehicles.

Frequency of crossings
Midblock crossings on major roads should occur at least every sixty meters.

Size and shape
Painted crossing bars should be one-half meter wide, with a half meter of spacing.

Tabletop crossing
In addition to bulb-outs, installing a raised midblock crossing to match the height of the sidewalk makes stroller use even more comfortable and safe for caregivers.

Curb cuts
Curbs should be ramped down (with a slope of one to ten) to the level of the carriageway (in cases of a tabletop crossing, the curb would stay on the same level).

Stop lines
Stop lines should be drawn three to four-and-a-half meters before crossings. Without properly distanced stop lines, drivers of large vehicles (such as trucks or SUVs) can stop too close to the light and not be able to see children crossing. Stop lines this far also provide space for bikes to queue.

Safe crossing signage
Use overhead signage and illuminate the crossings for safe nighttime use.

MID–BLOCK CROSSING

Tirana’s larger roads have infrequent intersections and are designed to move as many vehicles as possible. There are very few opportunities to cross them on foot. Regardless, pedestrians often must cross them, and often do so from the most convenient point rather than from the crosswalk, which may be far away. In these instances, caregivers risk being struck by moving vehicles, especially in low-visibility situations like rain or low light. Midblock crossings should be installed where pedestrian desire lines are obvious. For the convenience and safety of ITCs, these crossings should occur as frequently as possible on streets larger than one lane.

Mid-block crossing with bulb-out. Locate mid-block crossings where there are obvious concentrations of people already crossing.

A tabletop mid-block crossing can be appropriate on lower-volume roads that aren’t essential for emergency vehicles.
Midblock crossing paving material

Midblock crossings can be marked with a textured material like rough stone pavers to alert drivers before and after the crossing itself. While the crossing space itself should be asphalt or concrete, it can be painted for the comfort of those using a stroller or wheelchair. Common materials like cobblestone or concrete can be used to create texture for drivers.

Adding bulb-outs

Midblock crossings can be further augmented for pedestrian safety by adding to both sides of the street bulb-outs that encroach on the parking lane and reduce crossing distance.

Median safety islands

On larger roads of four or more lanes, tabletop crossings are usually not possible because of higher speed limits. Caregivers with young children and people who move more slowly often can’t make it across the entire road width on one signal phase, and require median safety islands to have a safe place to wait for a second signal.
RAISED INTERSECTION

With a raised intersection, the entire carriageway is built flush with the level of the sidewalk, creating a giant shared surface in the intersection. Raised intersections force drivers to slow by introducing a large speed bump transition, at which point drivers enter a shared street scenario where pedestrians have the right of way. Raised intersections are useful for caregivers with strollers, because they don’t force a change in elevation and the accompanying choppy transition in material.

Detectable warnings

Raised intersections should provide ample vertical warning signage to drivers that they are approaching a level change and a shared surface with pedestrians. Horizontal signage in the form of road paint, as well as texture change during the approach, should be used to alert drivers to the raised intersection. Where street lighting doesn’t provide sufficient illumination, consider road-surface lights.

Intersection paving material

Raised intersections should be surfaced with a permeable paver for texture, as well as for the drainage needs of not having curbs with drains.

Bollards

Install bollards along corners to ensure that vehicles do not accidentally drive onto the pedestrian way in the raised intersection.

Sonnneplatz, in Graz, Austria, is a complex intersection built as a very large shared surface.

Tabletop surfaces at intersections force drivers to navigate slowly, because no mode is demarcated.
MEDIANS AND ISLANDS

A median is the segment of the roadway that separates either opposing directions, or local lanes from through-travel lanes. A median “pedestrian refuge island” provides a safe place for ITCs to stand in the middle of a road that they can’t cross in the time given by one stoplight sequence.

ITCN routes will never occur along streets larger than class F (local road), though ITCs may need to cross a large road. Medians may be combined with other traffic-calming interventions such as parking-lane planters, chicanes, and bulb-outs.

Pedestrian refuge islands provide a safe place to stand in the middle of a road that can’t be crossed in the time given by one stoplight sequence.

**Width of medians**

Medians should be at least two meters wide. A width of three meters is preferable, however, in order to create a comfortable amount of space to wait for the light to change, particularly for people on wheelchairs or with strollers. A wide median also provides space for planting, which can offer shade to pedestrians.

**Railings and high curbs**

A median should never be obstructed by railings or high curbs.

**Medians on large Roads**

If the street has four or more lanes and traffic volume over one hundred vehicles per hour, there should be continuous medians having a width of 1.8 meters.

**Stormwater management**

Medians more than one meter wide, including curbs, should be landscaped and used for stormwater management.

**Tree-planting requirements**

Trees should only be planted in medians two meters or more in width. Larger species can only grow where sufficient space is provided for healthy root growth (see section 4.1 on street trees). Tree species should be drought tolerant and upright; low-branching species can affect driver visibility.

**Shrubs**

Planting shrubs on medians can reduce visibility across a road while also not offering a substantial cooling benefit. This should be avoided.

**Crossings**

At crossings, the ends of medians should be flush with the edge of the crosswalk and should not be significantly rounded (refer to the rationale provided in “Calming Traffic,” section 1.1–1.4).
Young children and caregivers’ walking patterns and needs are addressed through paver type.

Porous pavers

In cases where porous pavers are used, conduct percolation tests or soil-science reports. Where infiltration is not feasible, use an underdrain.

Low costs for greater scaling

Keep paving costs low in neighborhood implementation so they can be scaled to as much of the city as possible.

Maintenance requirements

Choose paving materials with low maintenance requirements and high durability. Prioritize slip resistance and compressive strength.

Materials

Use environmentally friendly materials. Petroleum-based paving surfaces, sealants, coatings, in asphalt for example, as well as some paint types are harmful to the natural environment. Some of these are natural materials derived from destructive quarrying and processing methods. Use sealants and/or asphalt bases that are free of polycyclic aromatic hydrocarbons (PAHs).

SAFE AND COMFORTABLE PAVING

Paving material communicates the priorities and functions of routes. Stone pavers are designed for the safety and comfort of pedestrians over vehicles—for play and leisure over transport—while smooth asphalt accommodates rapid movement. Several considerations must be taken into account when determining paving in the ITCN.

Concrete pavers are the least expensive option in up-front costs, in maintenance costs for sidewalks, and they absorb rain water well. They also provide a smooth enough surface for comfortable rolling.

Color variation to produce simple patterning.

Cast leaves into smaller poured concrete areas.

Small concrete pavers negotiate curb cuts, ramps and other changes in elevation very well.
Crosswalk paving must communicate that the crosswalk is pedestrian space, not an encroachment by pedestrians into the roadway. This paving can work in conjunction with standard- or high-visibility retro-reflective crosswalk markings to maximize pedestrian safety.

Paving for transit stops

Use paving to clearly define the waiting zones near transit stations, and to clarify connections to transit.

Wear and tear maintenance

Consider long-term wear and tear when applying special paving in crosswalks. Account for long-term use when calculating maintenance costs.

Parking-lane paving

Use special paving to differentiate parking lanes from traffic lanes. In the case of flexible-use programs, use special paving to demarcate the lanes, clarifying the vehicular lane from the furnishing zone and throughway zone.

Small glass beads thrown on street marking paint create a reflective effect.

Crosswalk marking created from a combination of pavers and road-marking paint.

Thermo plastic paint being applied to a 3-D crosswalk design, in Tirana, Albania.
PAVING FOR FURNISHING ZONES, POCKET PARKS, AND OTHER SPACES

Porous pavers, grass, and other ground cover are best for areas that are protected enough to safely support a rest and recreation function.

Furnishing zones
Use special paving to visually separate “furnishing zones”—areas with urban furniture—from the rest of the sidewalk. To allow for stormwater infiltration, use permeable paving such as pavers set on a clean aggregate gravel subbase.

Driveway paving
It is necessary to visually emphasize driveways that are outside the path of travel and distinguishable from the sidewalk and street. Use interlocking pavers, pervious concrete, and other porous materials to add visual variety to the streetscape and allow water permeability where appropriate. Where driveways cross sidewalks, they should be designed with similar grading and elevation as sidewalks.

Pavers set with extra wide gaps allow groundcover to grow through them.

brick is a good material for rain absorption and smooth enough for a stroller.

Wood chips, with larger material including leaves makes a good soil cover.

Varied paving offers visual cues to different intended uses.

Pavers near narrow benches on a median pocket park.
ENDNOTES


9 Ibid.

10 For further guidance on bollards, see: San Francisco Planning Department, “San Francisco Better Streets Plan: Policies and Guidelines for the Pedestrian Realm,” (City of San Francisco, 2010).

Barcelona, Poblenou superblock
ACTIVE AND SAFE STREET
→ Ground Level Active Facades (Plinths)
→ Kiosks and Street Vendors

PUBLIC TRANSPORTATION AND TRANSIT STOPS
→ Transit Stops
→ Transit Shelter Dimensions
→ Transit Stop Amenities

SIDEWALK ZONES
→ Sidewalk Zones
→ Curb Height
→ Ramps and Stroller Rails
→ Horizontal Wayfinding on Streets
→ Driveways

CYCLING
→ Effective Bike Lanes
→ Bike Lane Typology Table
→ Protected Bike Lanes
→ Bicycle Storage

LIGHTING THE STREET
→ Lighting fixtures
→ Light Distribution
→ Light Color and Efficiency

SOUNDSCAPE
→ Noise-Pollution Measures
→ Green Buffers for Noise Mitigation

ART IN PUBLIC SPACE
→ Pop-Up Play
→ Sidewalk Games
→ Murals
→ Managing Art in Public Spaces
→ Small-Scale Murals

THE COMFORTS AND CONVENIENCES: LIGHTING, STORAGE, THE SOUNDSCAPE, PUBLIC ART

OBJECTIVE 2

→ ITCNs should be active with people so that ITCs feel secure in the presence and watchful eyes of trusted neighbors.
→ ITCs should be able to travel easily on sidewalks and stairs designed with strollers in mind.
→ Lighting makes a world of difference improving the safety and comfort of evening socializing for ITCs.
What makes a street feel unsafe? Usually it is a combination of built-environment factors (heavy traffic, poor lighting, opaque facades, frequent obstructions) and social ones (catcalling, harassment, physical aggression). Though street crime in Tirana is rare, intimidation and harassment can be regular occurrences for young women. While data on women’s perceptions of safety in public in Tirana is lacking, significant anecdotal evidence suggests that this may be one reason why Tirana neighborhoods can have low foot traffic in the evenings despite having an outdoor-oriented culture. Women caregivers can feel threatened outside, such that they are reluctant to remain stationary somewhere while their child plays. They might also avoid taking certain routes or refrain from going outside in the evenings altogether.

When caregivers feel they can comfortably and safely navigate public space, they and their children spend more time outside playing, socializing, and honing healthy mobility habits. Not worrying about safety allows caregivers to focus on quality interactions with their infant. Streets feel safer for everyone when they are occupied by people diverse in age and gender. Jane Jacobs coined the concept “eyes on the street” to describe this very sense of safety and security that emanates from a lively neighborhood environment.

How does a city get people out on a street? Design changes. Wider sidewalks, inviting building facades, and attractive public green spaces encourage more people to spend time outside and for longer periods, creating the conditions for a healthier and more active public life.

The following section provides guidance on how ground-level frontages can improve impressions of safety on the street.

**KEY PRINCIPLES**

- Building facades should be open and inviting at street level.
- Safety and security should be maintained through community-based design rather than remote surveillance technologies.
- Vendors and kiosks contribute to the vitality of the street and should be welcomed where space permits.

- Limit horizontal barriers like concrete walls and opaque fences in front of buildings including schools that reduce visibility.
- Limit horizontal barriers like concrete walls and opaque fences in front of buildings including schools that reduce visibility.
Facades with large windows, planting, and furniture make the pedestrian experience sensorially rich and public life more dynamic.

Ground-level building facades are the pedestrian’s main point of encounter with the street. They are an interface between public and private space that determine how safe a neighborhood is perceived to be and how pleasurable it is to walk in. When facades are closed or uninviting, pedestrians—and particularly caregivers—are likely to avoid walking along them. Open and welcoming facades with large windows, planting, and furniture make the pedestrian experience sensorially rich and public life more dynamic.

Keeping facades and storefronts active late into the evening will bring more people to the street, making it feel safer. At the same time, local businesses will do better as foot traffic increases: pedestrians are much more likely than drivers to stop by a shop. This doesn’t just improve the local economy, it also contributes to community building: when patronage is distinctly local, businesses and other private spaces can become community hubs by opening up their space for cultural events and other gatherings.2

Collaborating with local businesses

The city can work with business owners in neighborhoods with many infants, toddlers and their caregivers (ITCs) to install larger windows, bring tables and chairs into the street during certain hours of the day, and install lighting on facades.

Sidewalk clearance

Businesses should not encroach on sidewalks in ways that inconvenience and endanger people travelling with strollers or other mobility-assistance vehicles.

Site lines around schoolyards

School parks, neighborhood parks, and small green spaces should be designed to be visible from the street, with no visual barriers such as concrete walls or fences. A strong visual connection to the street will increase the sense of security for people in the parks.

Limiting surveillance cameras

Do not install surveillance cameras in public spaces. Cameras often communicate that a place is already unsafe and drive away citizens who do not want to be recorded.

“Eyes on the street” is a much better and safer view of the neighborhood.

Illustration of the “plinth”—the active facade at the ground level.
Kiosks and street vendors can increase access to fresh produce, supporting healthy dietary habits that are crucial for children to establish early.

**Limit occupying area**

To make sure people can comfortably move between and around them, vendors and kiosks should not occupy an area of public space larger than four square meters.

**Maintain distance from building entries**

Ensure kiosks and other street vendors are at least three meters away from a facility entrance or parking spot for persons with disabilities.

**Sidewalk clearance**

Ensure that kiosks and street-vending sites leave unobstructed at least two meters of the sidewalk.

**Assist with awnings**

Add awnings to kiosks. This provides both shade, inviting people to linger in the midday sun, and shelter, allowing people to wait out a downpour.

A permanently installed food truck with seating is convenient in an area without many options to take a break.

A vendor on a market street in Tirana keeps small items at the edge and doesn’t obstruct the flow of the street.

Small vendors add vibrancy to the street.
PUBLIC TRANSPORTATION AND TRANSIT STOPS

Streets make up 80 percent of the public space in a city, and they are mostly taken up by cars. Even if private cars were operating at full capacity (which they rarely do), this would amount to a highly inefficient use of space for the purpose of mobility when compared to public transportation, cycling, and walking. The ubiquity of cars is a cause for concern for environmental reasons as well as equity ones: in neighborhoods without supportive infrastructure for non-motorized and public transportation, convenient mobility becomes a luxury available only to those who can afford private vehicles. This hurts ITCs especially. Road space must be redesigned to better support non-motorized and public transportation. This includes, among other things, making sidewalks wider, building well-protected bike lanes, and constructing well-equipped transit shelters.

KEY PRINCIPLES

→ Where possible, transit stops should be sheltered and provide seating.

→ Three-panel transit shelters require either extra-wide sidewalk space or curb extensions.

→ Transit stops located near social services, care facilities, and employment hubs should be well equipped with amenities such as lighting, bike racks, hooks, and play elements.
An accessible and efficient public transit system not only reduces air pollution, but also makes it faster and cheaper for caregivers to access key services. Bus-transport planning in Tirana should be aware of the mobility chains of caregivers, who make frequent stops at schools, markets, clinics, relatives’ homes, and places of work throughout the day. Transit stops should thus be well connected to the local network of sidewalks, pedestrian routes, and other transit stops.

**Stop Placement**
In order to minimize travel time for commuting caregivers, place transit stops as near as possible to childcare centers and preschools.

**Signalized Intersection Stop**
Place transit stops at the far side of signalized intersections. This allows for the crossing to be located behind the bus, which heightens pedestrian safety.

**Weather Considerations**
If a zone is designed for more than one bus, ensure a wheelchair loading zone is provided for each vehicle. This is especially important in Tirana, where transit stops often serve two more bus lines.

**Schedule Display**
Ensure transit stops display real-time scheduling information about arrival times, travel times, and route changes. City oversight should hold transit companies accountable to their posted schedules and, in the event of temporary service changes, require them to give thorough and adequate notice as well as alternate routes.
Avoiding Overlap With Bike Lanes

Bus passengers should never load and unload onto the bike lane, nor should the bus ever be forced to stop inside of a bike lane. Route bike lanes behind the bus stop when the sidewalk is wide enough to the road.

Mid-Block Transit Stop

Place sidewalk transit stations on a curb extension, creating a “bus bulb.” These can be implemented in long blocks or wherever there is an important destination nearby.

Multiple Bus-Loading Zones

If a zone is designed for more than one bus, ensure a wheelchair loading zone is provided for each vehicle. This is especially important in Tirana, where transit stops often serve two more bus lines.

1.6 m

At mid-block, maintain a 1.6m distance for a waiting area insulated from the bike lane.

A bus stop island can create a comfortable space for a bus shelter, while allowing a bike lane to pass continuously through to the intersection.

At busier bus stops be sure to extend the waiting area to accommodate multiple buses simultaneously.
Transit shelters greatly impact dimensions of sidewalks and bike lanes.

**Dimensions with sidewalk**

Transit shelters should not be installed unless they allow for at least a meter and a half of sidewalk clearance for pedestrians with strollers and wheelchairs to pass comfortably.

**Bus shelter dimensions**

The dimensions of a bus shelter vary according to available sidewalk space. Suspended canopies and post shelters take up very little to no width, while three-sided shelters can range from 0.9 to 2.1 meters in width and 2.6 to 5 meters in length.

**Seating in the bus shelter**

When there is enough space, include seating space in transit shelters. Seating can fold up in narrow sidewalk areas.

**Shelters at narrow sidewalks**

In places where a shelter would not leave at least two meters of clear sidewalk, consider a suspended awning hung from the facade of a building. This provides shade for those waiting, but does not obstruct the path of pedestrians.

**Shelters at medium-sized sidewalks**

If at least two meters of sidewalk clearance can be afforded, the vertical elements of the shelter should still be as unobstructive as possible so that pedestrians do not feel confined between the building facade and a shelter panel. This can mean installing a post shelter or transparent panels.

**Shelters at wide sidewalks**

Use three-sided shelters when there is abundant sidewalk space. The extra walls provide greater protection from the elements as well as opportunity for games, toddler seating, and other amenities.

**Accessibility in three-sided shelters**

The shelter must contain an area of at least 1 by 1.3 meters for wheelchair users and caregivers with strollers. This space must be accessible from the sidewalk and the loading area. This requires that the loading area perpendicular to the curb be at least 1.6 meters by 2.4 meters.

**Elevated loading platform**

If sidewalk width allows (roughly three meters), install elevated loading platforms to allow flat loading with buses. Flat loading is especially important for passengers with mobility impairments and caregivers with strollers to board buses that would otherwise require a very high step. Ramps to the platform should have a slope no greater than 2 percent.

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TRANSIT STOP AMENITIES

Trees and planters
Trees and planters may be used to add shade to transit stops. Trim trees near transit stops regularly to not obstruct buses stopping close to the curb. For more on tree clearance, see section 4.1, “Canopy Clearance Considerations.”

Stormwater facilities
Stormwater facilities may be located within transit areas; however, they should not impede the accessibility of transit shelters or boarding areas.

Hooks
Ensure transit shelters include ample hooks throughout. Passengers should not have to put their backpack or purse on the ground if the benches are full, especially caregivers who are often carrying several bags.

Lighting
Illuminate the stop area, particularly the front of the stop and under the transit shelter. This element will make transit stops feel safe during nighttime. When modifying sidewalks at existing or new transit stops, evaluate adding illumination systems.

Pavement marking
Distinguish the transit stop area from the adjacent sidewalk with special paving like brick or heavy road paint.

External seating
In addition to seating inside the transit shelter, additional seating—either formal (benches, seats with armrests) or informal (bollards, low seat walls, leaning bars)—may be placed outside of the shelter as long as it does not block transit functionality. Consider implementing child-size seating as well.

A green roof on a bus stop in Tirana.

All BVG stops in Berlin feature a large and detailed map of the city.

A green roof on a bus stop.

With enough space, transit stops could integrate play elements.
Incorporating play

There are many ways to incorporate playful elements into a transit shelter: murals or materials to make art on the walls, bookshelves for kids to peruse, and games drawn on the pavement are just a few examples.

Trash cans

Ensure trash cans are available nearby, but not connected to or inside the transit shelter.

Bulletin board

Consider including a bulletin board at the bus stop, for locals to advertise business offerings and transit companies to post notices.

Bus stop sign

Place bus stop signs near the front of the stop to show where passengers should wait to board. They should include information about the stop name and route.

Bike rack

Bike racks should be placed outside of but adjacent to the transit stop, ideally near the back.

Maps and signage

Transit shelters are an interface with the city. They should include an abundance of technical, easy-to-read, and useful information such as maps and directional signage, which improve the city’s legibility.

Plenty of bike storage behind a bus stop gives passengers safe storage and the greater comfort to change their mode of transport.

A leaning bench is a useful option in cases where there is limited ground space at a bus stop.

A green roof on a bus stop

Larger trash cans are better
SIDEWALK ZONES

One of the main impediments to a walkable neighborhood is the physical state of the sidewalk. In Tirana, sidewalks can be broken and discontinuous, narrow, and obstructed. While these are inconveniences for most walkers, they can be dangerous for ITCs and impossible for those with strollers. For ITCs, walking is full of other obstacles most people don’t think about: a lack of connecting ramps between even small level changes can make a short trip a frustrating and demoralizing experience. Building walkability in the ITC neighborhood (ITCN) requires design interventions that think beyond the needs of an able-bodied adult pedestrian.

When designed with everyone’s mobility experience in mind, sidewalks can alter the way people carry out their day. With adequate sidewalks, infants and toddlers, who begin to walk as early as nine months old, can spend much more time during this critical developmental stage exploring the outside world rather than the rooms of their home. Walkable neighborhoods offer health and economic benefits that boost the entire community: more walking means more exercise, more patrons for local businesses, and more quality time spent socializing.

KEY PRINCIPLES

→ Changes in elevation on the street larger than two steps, or thirty centimeters, should be retrofit with a ramp or anchored rail.  
→ Ideal paving materials are low cost, low maintenance, sustainable, and porous.  
→ Choose the right paving to communicate pedestrian priority.  
→ Implement trail routes throughout the neighborhood that are away from traffic.
When sufficiently wide sidewalks can contain at least three distinct spaces.

**SIDEWALK ZONES**

In Tirana, it is common to see building additions, kiosks, and vendors occupying too much sidewalk space, which can force caregivers with strollers to move onto the road or find other ways to move through the obstructions.

An easy way to think about sidewalk design is in “zones.” Most main street sidewalks, when sufficiently wide, consist of at least three distinct spaces: the frontage zone, the pedestrian way, and the buffer/seating zone.

**Pedestrian-way zone**

The pedestrian-way zone is in the middle of the sidewalk, between the frontage and buffer zones. It provides a clear, unobstructed path of at least one-and-a-half meters in width for pedestrians. On large main streets, the pedestrian way should be a minimum of two meters wide. When reallocating street space, providing a pedestrian path of at least one meter and a half should be a priority. If a street is too small to accommodate both a pedestrian path of at least this size and vehicle lanes, consider converting it into a shared street by installing traffic-calming measures. For more information see chapter 1.1–1.4, “Calming Traffic.”

**Buffer zone**

The buffer zone, or curbside, is on the edge of the sidewalk, adjacent to vehicle lanes. This zone can be the busiest of the three, with loading, pickup and drop-off, transit stops, people waiting to cross, as well as amenities like bike racks. It is the zone for street trees, which provide some protection from noise and air pollution. When wide enough, it can also feature amenities like seating and deep planted stormwater elements.

**Frontage zone**

The frontage zone consists of ground-level facades and the area immediately in front of them on the sidewalk. It can also include kiosks and vendors. The frontage zone is the slowest zone, where people feel comfortable standing or sitting still. This zone typically features planting, seating, or display elements, as well as people moving perpendicularly in and out of buildings. The frontage zone has perhaps the greatest impact on the enjoyment and social life of the street.
CURB HEIGHT

Low curbs make for more pedestrian-friendly experience of the walking.

Curb height

Curb height must never exceed ten centimeters above the street surface. When curbs are higher than this, they can cause pedestrians to fall and encourage drivers to speed.

Curb cuts

Curb cuts must be provided at all crossings, including driveways. Where marked crossing is present, the curb cut should be the same width.

Curb-cut placement

Curb cutouts must be present at all intersections and midblock crossings. Two curb cuts must be installed at each corner of a four-way intersection in order to provide access for all directions. Ensure that these curb cuts are close enough to the beg button so that a wheelchair-bound person can access it.

Placement of drainage inlets

On new streets, place storm-drainage inlets on the uphill side of curb cuts to prevent standing water at curb-cut landings.

Avoid obstacles

Protect curb cuts and crosswalks from obstacles. No new poles, utilities, or other impediments should be placed in the curb ramp return areas.

A curb cut that doesn’t reach all the way down to the street remains an impediment.

A 5cm curb height is an ideal grade-separation on city streets.

A 15cm curb is a substantial impediment to strollers. It is much worse for wheelchairs or people using walkers.

A self-made curb-cut in Tirana made by cutting the curb edge, removing pavers, and pouring a new ramp.
RAMPS AND STROLLER RAILS

Streets and school campuses that can be open to the community need to consider that ITCs have limited mobility. Narrow entrances, large changes in ground level, and steps are all obstacles for small children and caregivers with strollers. To help relieve the burden of these obstacles, streets in the ITCN and other areas (including but not limited to ITC facilities, parks, and playgrounds) should have ramps at entrances and stroller rails on stairs.

Stroller rails are an inexpensive retrofit solution for public stairways that drastically improve access.

**General ramp incline**
A ramp’s slope should be as shallow as possible to ensure that it is comfortable to walk on. A ramp’s incline should not exceed one to ten, with a level landing every two meters.

**Entrance-ramp width**
The width of a ramp should be adequate for a caretaker with a stroller and their child to walk side by side, as well as for delivery vehicles to be able to move through. About two-and-a-half meters.

**Handrail addition**
Any ramp higher than a half meter must include a handrail to ensure greater user comfort.

**Curb cuts**
Install curb cuts at all designated entrances to the school park.

**Public plaza entry**
When the space is available, create a public plaza space outside the school by recessing the fence.

**Stroller-rail retroactive installation**
Steel stroller rails must be retroactively installed on all existing inaccessible stairs in the ITCN. New construction projects should incorporate a ramp into the original design whenever possible.

**Clear walking space**
Stroller rails must leave at least one meter of clear space for walking.

A caregiver struggles down stairs in a Tirana neighborhood. Stairs at public and private buildings should have stroller rails added. A stroller rail constructed in stone.

A very long stroller rail is not preferable, but still provides the option to roll if desired. Stroller rails do reduce the area for walking, which should remain at least 1.5m wide.
Driveways must be well marked, with unobstructed sight lines so that drivers and pedestrians have full view of each other.

Reducing number of driveways

Require shared entrances, alleys, or secondary streets to divert vehicle entrances as much as possible. For single-family homes, encourage shared driveways where possible.

Underground parking garages

Driveways that provide access to a parking garage must provide sufficient off-street storage areas for vehicles waiting to enter and exit. They should be designed to avoid vehicles reversing into and idling on the street.

Curb radius for driveways and alleys

The maximum curb radius for a driveway is two meters. For an alley, it is three meters.

Driveways and bike lanes

Prohibit parking six meters from the edge of driveway on high-speed and -volume roads. Use delineator posts or curb extensions to keep this area clear, while encouraging drivers to slow down before turning into a driveway. In order to separate bike lanes from driveway entrances, pavement markings and “yield to cyclists” signs should be utilized. Prohibit landscaping or visual obstruction within five meters of the driveway edge.

Driveway width

For driveways into single parking spaces such as those in single-family residential homes, the driveway width should be at least two meters. Driveways for more than one parking space should be at least three meters wide for one-way, and six meters wide for a two-way circulation. No driveway should exceed a width of seven meters.

Location of driveways

Whether for commercial or residential uses, place driveways at least six meters from an intersection, and at least seven meters between an adjacent driveway or alley.

Streetscape of driveway

If there is a driveway wider than 7 meters, ensure a 1.8-meter wide pedestrian island, paved to match the sidewalk, that includes a 1-meter curb radius preventing cars from crossing over it. Construct driveways perpendicular to the curb line of the street, particularly when outside of residential areas.
Horizontal wayfinding is the signaling of a safe place or path for children, and can incorporate playable elements. Wayfinding markers are especially important in school zones to mark the threshold of a slow-traffic area where pedestrians and playing children have priority. Paint is an inexpensive material to use, but other possible materials are graphic tiles set in the ground or patterns made with stones.

**Encouraging physical activity**
Combine wayfinding with physical games of jumping, skipping, and chasing in order to give toddlers a means of physical exertion near places of waiting, such as cafés or transit stops.

**Incorporating symbolic games**
Wayfinding can incorporate games that help young children learn while being actively engaged. For example, a set of paws can lead to an image or an outline of the animal that has them.

**Integrating public art**
Integrate wayfinding with public art. Consider commissioning local artists for a project, or inviting children from the neighborhood to contribute permanent or semi-permanent sidewalk and frontage art.

Horizontal wayfinding makes walking playable. Wayfinding should also evolve into larger games where space allows.
Street paint standards made playable in London. Horizontal wayfinding is an inexpensive way to supplement other neighborhood amenities for young children and caregivers.
CYCLING

Tirana has all the ingredients to become a successful cycling city. Its mild climate, compact urban form, and flat topography make it a perfect place for getting around by bike. The average cycling speed of a child or a caregiver riding with a child is three to four kilometers per twenty minutes, making almost every likely destination a short bicycle ride away. Cycling can be freeing for ITCs, and children will get physical and social benefits from growing up in a cycling-friendly city.

The most important step in increasing ridership is to make cycling safe. Countless case studies in other cities have shown that when it comes to cycling, cities cannot wait for residents to express demand while roads are still prohibitively dangerous, but must proactively invest in the safe and reliable cycling infrastructure that will encourage even the most unlikely of residents to hop on their bikes. When Tirana acted fast to build protected pop-up bike lanes in response to changed mobility needs during the COVID-19 pandemic, ridership increased dramatically.

There is also an economic incentive for investing in cycling. Studies have shown that the expenses incurred from implementing cycling infrastructure are often paid back in the form of reduced costs of healthcare, eased congestion, and economic activity generated for local businesses, which have repeatedly been shown to benefit from pedestrian and cyclist-friendly street designs.

This section offers guidance on how and where cycling lanes should be implemented in Tirana’s varying street typologies and road networks.

KEY PRINCIPLES

→ All cycling lanes should be protected and separated from other modes.

→ Cycling lanes must be sufficiently wide to avoid collisions, especially at high speeds.

→ Movement should progress across lanes from slowest to fastest, from the building edge to the street centerline.

→ On local and low-volume streets, cycling lanes may not be necessary. A shared-street layout may be more appropriate.
EFFECTIVE BIKE LANES

Bike lanes should be assessed by safety, comfort, and connectivity.

SAFETY

All bike lanes should be physically protected and separated from motor-vehicle traffic. Traffic safety is improved when lanes are organized from slowest to fastest, starting from the sidewalk. To make room for overtaking, lanes should be two meters wide for one-way movement and at least three meters for two-way.

CONNECTIVITY

Bike lanes should be comprehensive and provide direct connection to every part of the city, including peripheral and typically underserviced areas. Bike lanes should never suddenly end and force cyclists to enter motor-vehicle traffic. The more comprehensive and intuitive a bike lane network is, the greater its usability.

COMFORT

All bike lanes should have a smooth and flat paving surface (asphalt is preferable over pavers) and well-implemented and maintained drainage. When a bike lane’s surface is inconsistent or full of potholes, it will get used much less, as people will intuitively choose other routes—even unmarked ones—undermining the initial investment in the lane. Tree cover provides protection from the sun, and in combination with other green landscaping makes for a much more pleasant experience for riders.
Studies have shown that bike lanes designed without physical protection can actually be more dangerous than no bike lane at all because of how they influence driver behavior. Three common types of unprotected lanes and their disadvantages are detailed below.

**Painted pavement**

Bike lanes defined by blocks of paint are more visually distinguishable from other traffic lanes, but they are still ineffective at preventing violations such as cars driving too close to cyclists or parking in the bike lane.

**Sharrows**

A sharrow is a lane that is shared between bikes and motor vehicles. Due to their limited visibility and protection, sharrows have been shown to increase the risk of collision, and are much less effective in increasing ridership than separated bike lanes.

**Marked bike lane**

A marked bike lane demarcates a lane specifically for bikes, though it has no built-in mechanisms to enforce this division. This often leads to cars entering the lane or parking in it. Drivers are likely to not see or intentionally ignore the lane, failing to look for cyclists before turning or opening their doors.

Tirana has many low-speed, low-volume, winding neighborhood streets that may be better off without biking infrastructure as long as drivers, cyclists, and pedestrians are able to safely share the space. On high-volume streets, however, bike lanes are a necessary part of protective infrastructure.

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**UNPROTECTED BIKE LANES**

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**Bike Lane Typology Table**

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<th>Indicator 2.4</th>
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Sharrows alert drivers to the presence of cyclists but don’t provide any physical protection.

Painted bike lanes at street grade provide horizontal separation, but no vertical—or “grade”—separation. They are preferable to sharrows but still don’t provide the sense of protection cyclists need, especially with young children.
PROTECTED BIKE LANES

Protected bike lanes are the standard for safety and accessibility. Protection from the street and sidewalk, bus boarding, and street parking ensures safety for cyclists and makes the street safer. These lanes don’t need to impede on sidewalk space, and should be prioritized over parking space on the street. Protected lanes ensure the street is inviting to cyclists of all levels.

Flexible bollards

Flexible bollards are often installed as a quick and inexpensive option for providing protection on a painted bike lane. They are an excellent means to pilot a bike route on a busy road, but not ideal for the long term, since they are often flimsy and quickly destroyed during use, leading to high monitoring and replacement costs. Flex bollards lack visual harmony with the rest of the streetscape, appearing temporary, which communicates that a bike lane is an encroachment on a road that exists for cars, rather than a prioritized mode of transport with its own built-in infrastructure.

Parking-lane protection

Cyclists can be protected from motor vehicles if there is a parking lane separating the bike lane from road traffic. A parking-lane buffer offers physical protection, but it is not a best practice. Parked cars impede drivers’ vision, which can lead to collisions at turns. Cyclists also face the risk of being doored. To minimize these risks, ensure a buffer of at least one meter between the parking and the cycle lane. At least two parking spaces should be removed near intersections to improve sightlines. Parking-protected cycling lanes are often political compromises that provide free or underpriced space for cars at the expense of more efficient modes of transportation.

“Copenhagen-style” grade separation

Grade-separated bike lanes, often referred to as the “Copenhagen style,” consist of bike lanes placed at the same level as the sidewalk or at an intermediate grade between the sidewalk and road, delineating a clear path for bikes separated from other modes. They allow for clear sightlines while also affording physical protection. This lane can be separated from the pedestrian path using planters or street furniture. Aesthetically, grade-separated lanes are elegant and harmonious with the rest of the streetscape, and communicate that cycling is a prioritized mode of transport.

Concrete buffer lanes

Concrete buffer lanes separate bike lanes from motor-vehicle traffic using a concrete median. They provide great protection and can be elegantly designed to suit the rest of the streetscape, though they should be reserved for roads wider than two lanes and with abundant space. Since the lane physically prevents cyclists from veering into the road, it must be wide enough for overtaking: 1.8 meters for one-way movement and 3 meters for two-way. Depending on the width of these medians, they can include green landscaping, planters, or bike parking.
The certainty that there will be a sturdy bike rack everywhere a caregiver needs to park for errands gives them a sense of security to daily tasks.

**BICYCLE STORAGE**

A safe and convenient place to store bicycles should be available frequently along streets where space allows, as well as in all parks, playgrounds, and plazas. The certainty that there will be a sturdy bike rack everywhere a caregiver needs to park for errands gives them a sense of security to daily tasks.

Caregivers who cycle with young children tend to need to carry more with them. Child seats can make a bike top-heavy, and cargo pouches and other storage can add bulk that require a long and sturdy bike rack.

**Bike-rack placement**

Locate generous bike parking at neighborhood shopping streets and near public-service facilities such as health centers, transit stops, and school parks.

**Keeping the sidewalk clear**

Bike racks should not be added to sections of the sidewalk that are not wide enough to have a remaining two meters of clear path. When located on a sidewalk, a bike rack should leave 0.3 meters clear space from the curb to allow vehicle doors to open freely. A sidewalk should have a width of 4.5 meters at a given point to accommodate a bike rack.

**Equipment that can stack bikes significantly cuts down on the ground space needed. Bike storage like this is best placed near transit hubs.**

**Bike-rack dimensions**

A bike rack should be anchored to the ground at two locations to provide more than one point of contact for the bike to lean against, with a minimum of a 0.6-meter gap. The height should be 0.8 to 1.2 meters. Rack spacing should be no less than 1 meter.

**Bike-rack accessibility**

Bike racks should never require the cyclist to lift their bicycle onto the rack.

**A large area of ground level bike storage.**
Adequate street lighting is essential to making the public realm safe for ITCs. Rather than having to worry about racing before sunset to avoid an unsafe trip home, lighting gives caregivers peace of mind and extends their daily window of play by three to four hours in the winter months, from 5:00 p.m. to 8:00 or 9:00 p.m. Considering many caregivers work into the early evenings and aren’t able to take their children out until later, extending the day through safe lighting can mean the difference between a toddler playing outside only on weekends and playing every day.

Light-fixture design must reflect day and nighttime use. By day, a fixture is a streetscape element that contributes to the character of the neighborhood; by night, it defines the visual environment by determining what is and is not made visible.

Lighting doesn’t just keep ITCs feeling safe from other people, but also from oncoming vehicles. Street lights have been shown to reduce pedestrian collisions by approximately 50 percent. They also reduce glare from vehicle headlights. Several street-lighting installation principles follow that ensure safety and visibility.

**KEY PRINCIPLES**

→ Lighting extends the play time of the early evening and is especially important in the winter months.

→ Lighting must ensure mutual visibility between drivers and pedestrians.

→ Lighting should be attached to already existing vertical surfaces when possible to avoid adding vertical elements to the streetscape.

→ Lighting installations must consider and limit light trespass into nearby buildings as well as obstruction by tree canopies.

→ Whiter light sources yield more color differentiation at night.
Using fireflies for lighting audit

Fireflies are useful as study subjects for long- and short-term consequences of lighting-induced ecological degradation, because artificial lights have serious consequences on them. In areas that will be developed, observe the effects of artificial lighting on the fireflies species.

Cable lamps

Illuminate plazas and public spaces in the street with lamps suspended on overhead cables spanning the space. Cables limit the vertical obstruction of poles, leaving spaces feeling more open.

Low-level lighting

Add low-level lighting to places where paving is uneven.

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Consistent spacing

Place street lighting for walkways every twenty to thirty meters, and much more frequently if the light source is dim or low to the ground. Ensure spacing is consistent with regard to trees and other street poles.

Placement

Place street-light poles in the furnishing zone, on the sidewalk close to the curb.

Vertical surface lighting

In the ITCN, attach lighting to buildings and other preexisting vertical surfaces such as traffic poles to minimize the number of vertical elements in the streetscape.

Cable lamps

Illuminate plazas and public spaces in the street with lamps suspended on overhead cables spanning the space. Cables limit the vertical obstruction of poles, leaving spaces feeling more open.

Low-level lighting

Add low-level lighting to places where paving is uneven.

Using fireflies for lighting audit

Fireflies are useful as study subjects for long- and short-term consequences of lighting-induced ecological degradation, because artificial lights have serious consequences on them. In areas that will be developed, observe the effects of artificial lighting on the fireflies species.

Wide streets

On wide streets, light fixtures should be located on both sides of the street. Depending upon light level and uniformity considerations, they can be either staggered or parallel.

Tree canopy

When planting trees next to light fixtures, consider that they may eventually block some light when matured to full size. Avoid removing trees: if blocked light cannot be resolved, another light fixture should be added.

Lighting for the safety of young children and caregivers must ensure mutual visibility between drivers and pedestrians.

Along streets, lighting fixtures need to be placed evenly; consistency is the safest way for pedestrians to remain visible to drivers.

Lighting needs to negotiate the existing and foreseen tree canopy.

Cable lamps illuminate the street where light is most needed, keeping it away from building windows.
Tree pruning

Maintain uniform light levels on the street through regular tree pruning. The tree type and lighting-fixture type and height determine the clearance between tree foliage and the lighting fixture.

Light-pole height

New light poles on neighborhoods streets and in parks should be four meters high. The lower height creates an intimate scale, but is high enough to avoid easy vandalism.

Attaching signage

Light fixtures are not only decorative, but also functional. To minimize the number of vertical elements on the street, attach signage to fixtures when possible.

Maintenance

Light levels will decrease as lamps get old and lighting fixtures get dirty. Light-level calculations should be performed frequently.

Light fixtures at 4m height provide an intimate level of evening lighting, and are high enough to avoid vandalism.

On small stretches of pedestrian areas install low-slung central lighting to bring a sense of warmth and occasion to a street scene.

A single street lamp on a small residential street in Tirana provides a sense of safety for caregivers.

In public plaza and park spaces, diverse heights and bulb types provide comfortable light levels, and encourage caregivers to spend time into the evening.
“Sky glow” causes sleep deprivation and disbalance in humans, and disrupts to migratory birds and wildlife whose health depends on dark night skies.

Amber light is sky-friendly light

Though it renders color poorly compared to “whiter” lights, orange or amber-colored light from high- or low-pressure sodium luminaries produces the least light pollution in urban areas, allowing more visibility of stars and the details of the night sky.

Light trespass

Mitigate light trespass by not placing lighting fixtures close to or aimed at windows. If necessary, use shields on fixtures to minimize light trespass.

Minimize sky glow

Sky glow should be mitigated by turning off lights when not needed, and selecting dark sky-friendly lighting fixtures that direct most of the light downward, which eliminates excessive light level. New and replacement light fixtures should comply to semi-cutoff light levels (95 percent less light above a ninety-degree angle from the fixture), with a target of full-cutoff (zero light emitted above the fixture or shield level).

Prevent glare

Limit glare by selecting lower lamp wattages and adhering to the standard of 4-meter pole heights.

Appropriate luminance

Light levels that exceed 5.4 lux are not recommended anywhere within the ITCN street network. As long as the light is even, it is acceptable to be in the 3.3 to 4.3 lux range.

Amber lighting, with downward facing luminaire produces the least light pollution, preserving the night sky. (Image courtesy Arizona Dark Sky Association)
Light color in public space must create a sense of welcoming and safety.

**Cool white lights**

Color contrast is important for pedestrians and drivers to perceive details in low light. Lighting in crosswalks should provide a color contrast from the standard roadway lighting.

**Color contrast**

Color contrast is important for pedestrians and drivers to perceive details in low light. Lighting in crosswalks should provide a color contrast from the standard roadway lighting.

**Retrofitting**

Ensure that new or replacement pedestrian and street lighting are at least 50 percent more energy efficient than standard HPS fixtures. Outputs should have an efficiency of 70 to 115 lumens per watt, the efficiency level of current HPS lights.

**Efficient light output**

Optimize light output with fixtures that direct light downward toward the street rather than up.

**Turning lights off**

Pedestrian lighting may be turned off when pedestrian activity decreases late at night.

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**LIGHT COLOR AND EFFICIENCY**

Light sources determine the color of the nighttime environment. LED (light-emitting diode), metal halide, induction, and fluorescent lamps create a moderately white light compared to the warm yellow light of high-pressure sodium (HPS) lamps.

**Color temperature chart.** HPS lamps are 1,900K–2,000K, while metal halide are generally 3,200K–5,200K, approaching the color temperature of midday sun.

<table>
<thead>
<tr>
<th>TYPE OF LIGHT</th>
<th>COLOR TEMPERATURE IN KELVIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear blue sky (10,000 K)</td>
<td>10,000 K</td>
</tr>
<tr>
<td>Outdoor shade (7,000 K)</td>
<td>9,000 K</td>
</tr>
<tr>
<td>Cloudy sky (6,500 K)</td>
<td>8,000 K</td>
</tr>
<tr>
<td>Midday sun, Flash (5,500 K)</td>
<td>7,000 K</td>
</tr>
<tr>
<td>Moonlight (4,000 K)</td>
<td>6,000 K</td>
</tr>
<tr>
<td>Morning/evening sun (3,500 K)</td>
<td>5,000 K</td>
</tr>
<tr>
<td>Tungsten (3,000 K)</td>
<td>4,000 K</td>
</tr>
<tr>
<td>Sunrise/sunset (2,500 K)</td>
<td>3,000 K</td>
</tr>
<tr>
<td>Candle flame (1,800 K)</td>
<td>2,000 K</td>
</tr>
<tr>
<td>Tungsten (3,000 K)</td>
<td>1,000 K</td>
</tr>
</tbody>
</table>

The color rendering difference between HPS fixture and LED. (photo courtesy)
SOUNDSCAPE

Why does noise matter? While the adverse health effects of air pollution are now well known, the consequences of exposure to noise pollution are still overlooked. Noise pollution is not only a nuisance, but a public health issue as well. It has been linked to sleep disturbance, ischemic heart disease, cognitive impairment of children, and tinnitus, amounting to the loss of healthy life and billions of dollars in health care costs per year. As is often the case, babies and young children are most vulnerable to these health risks.

The level of noise in urban centers tends to be high: traffic, construction, and the hustle and bustle of crowds are often unavoidable. But on the scale of the neighborhood, these noises should not figure so prominently in daily life. Urban design has a major role to play in protecting ITCs from the harms of noise pollution: vegetated buffers, traffic calming, and lively social spaces can all serve to mask and diffuse the sound of traffic and construction.

This section provides guidance on creating a pleasant and stress-free neighborhood soundscape.

Sectional diagram showing a vertical structure support for a vine-climber noise buffer between a street and a school.
NOISE-POLLUTION MEASURES

There are a few inexpensive ways to design to protect from unwanted noise in public space: absorption (trees, shrubs, hedges, certain sculptures), masking (masking irritating sounds by introducing less intrusive ones), and diffusion (introducing varied surfaces that will break soundwaves apart and reduce their impact on our ears).

Not all noise is bad; it is a common misconception that people prefer silence most of the time. ITC design aims for variation (a lot of different sounds), complexity (no monotonous, repetitive sounds), and functional acoustic balance (a space should not sound bigger than it is). Below are some suggestions for how urban design can create shields from unwanted noises and make a more pleasant soundscape.

Social spaces

Hospitable gathering spaces and play areas will attract people to spend time in them, and will fill the neighborhood with the sounds of residents and children socializing and laughing. The presence of these sounds makes the neighborhood community more palpably felt by all residents.

Time limits for construction

Limit the time frame and operation hours of major construction projects near residential areas. Unlike a passing unpleasant noise, the noise from these projects happens regularly over a long period. Residents should be protected from the detrimental effects of this noise pollution.

High-traffic areas

Insulate play areas from high-traffic streets as much as possible by providing high and thick barriers at the street edge. This can be especially important for toddlers, who will be able to focus better with more insulation.

Green buffers limit dust

One of the most important functions of a green buffer is to limit the lateral movement of dust from big streets into parks, playgrounds, and residential buildings.

Green buffers

Fences and green buffers are important protective elements that have been shown to reduce noise and air pollution by establishing an edge between the street and a park or other public space. At depths of one meter or more, hedges can reduce traffic noise that carries onto a site. They also limit dust. Green buffers are an important enclosing element that contribute to a quieter and safer play space, all the while engaging ITCs in energetic exercises.

No-honking zones

Honking is a major source of irritating noise in cities. Prohibit honking in ITCNs, particularly around schools. “No Honking” signage can be creative and communicated positively, so as to elicit cooperation from drivers.

Pedestrian-only street may have the same decibal level as a street with vehicular traffic and be much more tolerable to the ear.

The nighttime soundscape differs from that of the day.

Vertical barriers limit the passage of noise as well as dusty air coming from streets.
ART IN PUBLIC SPACE

Most of the visual stimuli offered by the city—facades, advertisements, sightlines, kiosks—are designed for the eye level of an adult. They are typically poorly designed for perception by an infant or toddler who experiences the street at a lower eye level.

Early sensory experiences impact people for the rest of their lives. In addition to open, green, and protected areas, art in public space can play an important role in providing children with enriching and challenging experiences.

In Tirana, a long-term project of facade painting by both the city and private residents has been praised for transforming the city’s appearance. While art in public space can beautify our environments, it can also provoke conversations, make us reflect, and add to the identity of neighborhoods.

Visual and tactile engagement should not be limited to building facades: some of the best art in public spaces is climbable, sittable, and interactive in other ways. For children especially, interventions that invite touch and movement make memorable experiences that foster a strong and longstanding orientation to place.

KEY PRINCIPLES

→ Art in public space contributes to the development of young children’s mental maps of their environment.
→ Encourage street play through playful furniture, paving, and street closures.
→ Art in public spaces is a pedestrian amenity and should be located in both high-traffic and local areas.
→ Part of the municipal budget should be dedicated to the creation and maintenance of art in public space.
→ The commissioning process should be transparent and engaging with the community.
Temporary playable structures and surfaces into a streetscape offering public play close to home.

POP-UP PLAY

Pop-up play introduces temporary playable structures and surfaces into a streetscape (or other public or semi-private open spaces), offering small children the opportunity to play outside close to home. Unlike play streets, pop-up play does not necessitate a road closure, though closures are always ideal.

Props

Bring temporary play objects for small children to use. Pop-up play can even be mobile: toys can be placed in a cart that can be towed around the neighborhood.

Programming

Prioritize cooking- and eating-related activities, open-air dance classes, craft tables, and other kinds of creative activities.

Toddler areas

Fence off small areas of pavement with temporary structures like tents or even large boxes. These can be used for small gatherings of toddlers, like puppet shows or story time.
SIDEWALK GAMES

Sidewalk games are gratifying to a child who plays a game they made themselves.

Self-made chalk games

Provide a smooth, flat area of pavement where children can draw their own figures using colorful chalk.

Patterned paving

Introduce patterned pavement over a small portion of the sidewalk to encourage children to come up with their own games. For example, high-contrast pavers that are about thirty by thirty centimeters can easily enable collaborative games that involve jumping and skipping from one to the next.

Painted games

Painting onto the pavement simple lines, squares, shapes, or game beginnings can also encourage creative sidewalk games and drawing.

Patterned pavement creates a more permanent game.

Hopping games can be created from printed paper discs laid out on the ground.

Hand-drawn hopscotch with a rock.

Chalk stencils allow for spelling games on the ground.
MURALS

The City of Tirana is committed to renovating existing parks, intending to integrate art in public space as part of its larger urban-design strategy. Murals address the history, character, and features of a neighborhood, creating place-specific narrative meaning, particularly for younger children. They are also a source of collective community expression, offering an opportunity to engage artists of varying backgrounds and levels of professional experience.

Locating murals

Ensure murals are located as a pedestrian amenity, low to the ground to engage young children. Whether they appear in busy and highly visible centers or smaller passes, design murals so that their lower portions have details that are legible at a close distance.

Accessibility

Public art should not create obstacles for passage, particularly for those with disabilities.

Visual harmony

Public art should be integrated with other streetscape elements as much as possible.

Surface variation

Murals can easily be incorporated into existing street elements such as light poles, benches, garbage bins, or even playground facilities.

Information

Murals can incorporate different kinds of visual and written information: maps, signage, or short histories of the city, for example.

Learning opportunities

When located in playgrounds or children areas, murals can include educational information on issues such as taking care of the environment, giving caregivers a chance to engage their children in thinking about the world around them.

A mural commissioned by an artist by Aldo Van eyck for a playground in Amsterdam.

Colorful murals contribute to a sense of place and welcome to caregivers and children. They can alert people to the presence of other play, or simply add life to an otherwise non-descript place.
MANAGING ART IN PUBLIC SPACES

Art in public spaces is often marred by a lack of cross-collaboration or communication between involved parties. A lack of guidelines for the implementation process or low funding can lead to public art interventions that are done with little purpose, artistic vision, or expression.

Temporary public art

Public art made from chalk or non-durable paints that are expected to wash away in a matter of days or weeks creates a continuous dialogue between the community and the public space. Temporary murals or other installations are especially impactful on street and sidewalk surfaces.

Programming

Promote “Arti i Qytetit” programs—school-based or otherwise—as a way to encourage children to engage with urban space in new ways.

Commissioning

Commission public art works from local artists, and encourage other spontaneous artistic expression on the street.

Management

Manage the maintenance and collection of temporary public art. The municipality should be engaged in the continuous supervision and monitoring of public-art collections.

Public outreach

Engage the public in a dialogue about the importance and utility of art in public spaces. The resulting insights can inform guidelines on public-art implementation.

Budgeting

Have a budget for the commissioning of works, as well as the labor they require to install and maintain. This can be funded by small taxes on developments or state-funded construction.

Public-art office

Create a municipal office dedicated to the management and implementation of public-art projects.

Engaging stakeholders around installation sites

Facilitate art-work implementation with all the stakeholders of a given site, including students and staff of nearby schools, representatives of nearby religious institutions, businesses, and local leaders. Working with other partners will encourage the development of projects that are relevant and timely for a city investing in public cultural expression.

Implementation

Departments working on projects for art in public space should be well coordinated so as to minimize inefficiencies such as the duplication of works, projects, or events.

Public art from established artists

Promote high-quality works for private architectural projects that have a large impact on the streetscape. The municipality can use various funding mechanisms to ensure that private developers contribute to permanent public art interventions.

Art in public spaces should adhere to some basic guidelines to ensure diversity and quality.

- Small-scale walls in public places make perfect places for the public to create murals.
- Conceal utility boxes with elements suitable to the street type, such as sidewalk planters, vines, low seating walls or other elements.
ENDNOTES


2 For further guidance on active facades, see Hans Karssenberg et al. ed., The City at Eye Level (Amsterdam: Stipo, 2016); for further guidance on Tirana facade and street vending regulations, see TKTK from Bashkia Tirana department of urban planning.


THE PLAYABLE NEIGHBORHOOD

OBJECTIVE 3

→ In order to nurture healthy brain development in children, neighborhoods should be sensorially stimulating and socially enriching.
→ Schoolyards should be transformed into green, playful, and well-serviced public neighborhood gathering places.

SCHOOL PARKS

→ Space Planning on Existing Primary-School Area
→ Guidance on Space Planning for the School Park
→ General Tree Cover for Schools
→ The “School Tree”
→ Activity Programs for Joint-Use Parks
→ Food Garden Space
→ Park Gate
→ Fencing and Edges
→ Outdoor School-Function Spaces
→ Schoolyard Surface Material Guidelines
→ Schoolyard Adaptations for Stormwater Management

PLAYSCAPE DESIGN BY AGE

→ Designing Play for Infants and Toddlers
→ Designing Play for Children Zero to Eighteen Months
→ Designing Play for Late Toddlerhood
→ Designing Play for Children Eighteen Months to Three Years

SITE FURNISHING

→ ITC Bench
→ ITC Furniture at Play Areas
→ Street Furniture
→ Playful Furniture

NATURAL MATERIALS AND SURFACES IN THE PARK

→ Sand
→ Water
→ Earth
→ Sound
→ Natural Construction
→ Varied Surfaces
→ Natural Enclosures

PARK MAINTENANCE

→ General Guidance on Maintaining Green Spaces
→ Guidance on Establishing a Maintenance Network in the School Park
→ Vandalism-Prevention Measures
“Joint use” refers to a space—in this case an educational facility—that has been converted to serve as a public recreation space during off hours. Schoolyards constitute some of the largest remaining open space in the city, and they are all owned by the municipality. If all sixty-three nine-year school campuses were converted into parks, the city would almost double its total park space, without having to acquire any new land. Schools are evenly distributed public facilities in Tirana. Embedded in neighborhoods, close to housing, they tend to be walkable and relatively protected from traffic, making them good candidates to offer safe and comfortable play and open space to ITCs.

This section focuses on how to structure play and care experiences on the school campus for ITCs specifically, though the school park would be open to all.

**KEY PRINCIPLES**

- Parks must be designed to be playable and comfortable year-round, all day long. Design should account for protection from rain and harsh heat. The school park should be open as much as possible in order to serve as a community gathering space.

- Joint-use parks must be fully accessible to caregivers with strollers.

- Joint-use parks should create opportunities for community programming that does not exist in many neighborhoods, such as sports, weekend events, neighborhood meetings, and outdoor teaching.

- Each park should feature a “school tree” that will symbolically and functionally mark the school as the community center of the neighborhood.
SPACE PLANNING ON EXISTING PRIMARY SCHOOL AREA

The joint-use schoolyard park proposes additional programming to the current requirements of the “School Projecting Standard” ("Standartet e Projektimitin per Shkollat") document. This standard applies to all new schools constructed in the country. The existing spatial-use requirements for the outdoor area of nine-year schools are below.

Outdoor space requirement

Outdoor recreational areas—or sport areas—are required at every newly constructed or retrofitted school. The size and type of the sport field is determined according to the educational program of the school. Specified sport spaces are reserved for football, basketball, volleyball, tennis, and gymnastics. Please see table below on the type and size of the sport fields. Outdoor recreational space must be at least one square meter per pupil.

School-building parameters

The land-plot parameters for a new school should allocate no less than five square meters per pupil. The ratio between the total surface of the school plot and the construction plot should be three to one; the coefficient of land use, therefore, should not be more than 33 percent.

Break area (shesh pushimi)

There should be about three-hundred square meters of paved space in front of the school entrance that will serve as a shesh pushimi (break area), where classes assemble in lines before entering the school.

Green space reservation

About 30 percent of outdoor space should be reserved for green space and decorative planting.

Allowable variation

Variations of this area distribution of ±10 percent are allowed.

At 30km/hr., there is only a 10% risk of death for a pedestrian in a collision with a car. At 50km/hr., that risk jumps to 80%.
GUIDANCE ON SPACE PLANNING FOR THE SCHOOL PARK

The average nine-year school campus area is two thousand square meters, and many of them measure over four thousand square meters. This document provides guidance on how to ensure that each campus is as welcoming and beneficial as possible to the well-being of ITCs, while not sacrificing the desirability of the space for any other group.

**Infant playground**
At least forty square meters of playground space should be devoted to infant-specific play (see section 3.4, “Playscape Design by Age”), along with nearby seating for caregivers.

**Toddler playground**
At least sixty square meters of playground space should be devoted to toddler-specific play (see section 3.4, “Playscape Design by Age”), and include nearby seating for caregivers.

**Garden space**
School parks should feature a garden space that is at least forty square meters and has raised beds.

**Open space**
About 40 percent of open space should have grass or semi-pervious paving, painted or programmed ground surface, or edge seating.

**Forest space**
About 30 percent of the school park should be planted forest space with stone-paver pathways and a clear understory.

**Sports Facilities**
The remaining 30 percent of space should be dedicated to sports facilities, including bleacher-style stepped seating when possible so that the area can double as a theater or stage.

**Verandas**
The schoolyard should feature verandas or covered shade enclosures to allow students and teachers to comfortably spend time outside during warmer months.

**Student involvement**
When designing play spaces, consider involving children in the design process, particularly in the layout of games. As its most frequent users, they have an intuitive understanding of how the spaces should be designed.
GENERAL TREE COVER FOR SCHOOLS

With more space for their roots and canopies to expand, trees in schoolyards can grow much larger than on neighborhood streets, which should be taken advantage of. Exposed asphalt can reach temperatures above 70 degrees Celsius. Planting dense tree canopies on schoolyards keeps ground temperatures low, which makes the space below usable for ITCs all day long, even in during the hottest summer months. The tree canopy casts shade on buildings during summer months too, helping to keep classroom temperatures bearable without mechanical cooling. Designing the schoolyard tree canopy should always be done in consultation with an arborist to make careful choices about species’ impact on neighborhood biodiversity.

Large-crown species
School parks should feature large-crown tree species as much as possible. Plane trees, chestnuts, oaks, and other species provide extensive shaded space on the ground in the warmer months of the year. When selecting trees to plant on the schoolyard make sure to include some mature trees, so that some shade is already present on the project’s opening day.

Distance from school buildings
Shade-giving trees should be planted close enough to the school building to offer temperature protection, but not so close that it threatens its foundation with root expansion. This will vary by species, so distance should be determined in consultation with an arborist. Consider tree debris that will be deposited on the building roof.

Plant for biodiversity
Select a diverse mixture of evergreen and perennial trees so that there is a rich palette of green year-round. Select species that provide homes and food for birds and insects.

Fruit-bearing species
Schoolyards should contain a variety of fruit-bearing species for their colorful visual character, their educational value, and even their nutritional qualities. Plant these trees in areas away from pathways and pavements that would require extra cleaning maintenance due to large amounts of staining material being tracked inside the school.

A typical school yard in Tirana has tree-cover only at the edges.
Where space allows, mature trees should be planted to shade more of the schoolyard surface.
Trees can be planted in the ground or in larger planters with seating.
THE “SCHOOL TREE”

The school tree is intended to act as a symbolic marker for the school campus, establishing it as a new central gathering point of a neighborhood.

For centuries, villages in the Albanian region have been marked by a rrapi (plane tree)—a large deciduous tree indigenous to the Balkan region—at the central point, where the community would gather to socialize, deliberate, and celebrate. The selection of the rrapi species as the school tree would recast the school campus as the symbolic and functional central meeting place of a neighborhood, giving weight to the notion of “school as community center.”

The rrapi is a tall tree with a broad base and branches. It can take up to one hundred years to fully mature, at which point it can have a height and diameter of ten meters, and take up an area of eighty square meters. During Tirana’s sweltering summers, the shade cover provided by these trees is a necessary neighborhood resource. Given its size, there are several design considerations that should be considered before planting.

**Vehicle access**

Large trees create “rooms” on the ground—their own cloistered spaces underneath—and should be designed with that in mind. The school tree should be placed in an area that is adequately large to accommodate its growth over a long time as well. The school tree should occupy a central place on the school yard that does not disrupt an otherwise valuable open space. Ideally the tree can establish a prominent waypoint between the primary open space and the entry. The rrapi can also be planted on a raised bed that is encircled by a bench, which will allow residents to comfortably socialize under the shade while children play in the tree pit.

**Soil-quality needs**

Ensure that the soil is adequate to support a tree in the long-term. It should have a high organic content and be well aerated. Leaf fall from nearby smaller trees will help to keep soil enriched without synthetic fertilizers.

**Planting ceremony**

Consider planting the rrapi in a ceremony involving students, teachers, and the neighborhood community. Planting the rrapi in this way will symbolically inaugurate the school campus as the new community center of the neighborhood.
ACTIVITY PROGRAMS FOR JOINT-USE PARKS

To maximize the potential of the school park, activities should be programmed to take place there during and after school hours. Many of these activities can be part of the curriculum itself: the school park offers the space and resources to teach about plant life, physics concepts, and dramatic arts.

Outdoor classes

The school park, when well-maintained, offers teachers a good place to hold lessons. Encourage school principals and teachers to make use of the outdoor space for classes, and to further alter the spaces to their needs by adding structures, such as tents. Classrooms’ presence outdoors will add a welcome sense of activity to quiet neighborhoods during the day.

Events and street closures

Programming at the park should coincide with weekend street closures.

Adult use

Enthusiastic neighbors, parents, businesses, and community groups need to be encouraged to use the joint-use park as a social space. Administrative unit directors should budget to provide small funds to support nighttime events, social gatherings, small festivals, and concerts, especially in the beginning of the life of the park.

Ecological education

Make use of the greenery in the schoolyard to teach students from the school and young members of the community about environmental stewardship, plant species, and ecosystem dynamics.

Play workers

Play workers, paid or volunteer specialists in developmental and safe play, should be present at infant and toddler play spaces for as much time as is possible. They tend to playgrounds especially with young children, and allow caregivers to have a break while their children play. They should be considered in the budget.

Large-scale atural play features like climbing boulders allow both free-play and guided play that open up many possibilities for programming, such as climbing lessons. Play workers provide a sense of safety for caregivers and improve the experience of kids on a playground.
FOOD GARDEN SPACE

Vegetable gardens are always valuable additions to the schoolyard. They offer a fun and engaging way to learn about how food is grown, and can also be used to teach curricular subjects such as math, science, and literature. Food gardens can be maintained by classrooms, integrated into the curriculum, or used in after-school club activities. They can also be tended to by members of the neighborhood, especially in denser urban contexts where people are less likely to have private gardens. Food gardens do not always have to be actively engaged with. They can be left dormant for a season or two and picked back up at a later date. Their presence is a constant opportunity and should never be considered an inefficient use of space.

Raised beds

It is important to grow edible plants in clean soil if they are to be consumed. Raised beds are the best way to guarantee toxin-free soil. The walls of raised beds should be sixty centimeters high. Young gardeners can reach into the bed half a meter. Take reach into account when determining the beds overall dimension so that everything that grows inside can be reached without walking inside the bed. Larger beds can be built if they accommodate small walking and kneeling paths.

Choosing plant varieties

When choosing species for the vegetable garden, it is important to keep in mind the goal of creating a culturally relevant experience that involves the community. Choose local varieties that connect to local cuisine and cultural heritage. Include plants that change character in different periods of the year, which children might also use to learn.

Selling food or flowers

Student organizations from the school (such as student government or other clubs) may choose to grow vegetables or flowers that they can sell to the general public for fundraising.

Food gardens don’t have to always be in use. It is ok for them to be empty for months at a time. When a parent or teacher is motivated to use them they can easily be revived and bring life to a schoolyard.

Food gardens create opportunities for science education, as well as the possibility of fund-raising by classes; for example selling their produce to the neighborhood on weekends.
SCHOOL GATE

A joint-use park should have an open transition between the street and the schoolyard. If a gate is determined to be needed at the school perimeter by the school leadership, it should be sufficiently wide to allow the safe and comfortable passage of crowds, and designed so that it can be left open for events. For example spring-hinges would be inappropriate. School leadership will be more comfortable retrofitting their schools with wide gates if the adjoining streets are safe walking areas with limited or no traffic. A wide gate opens the schoolyard to the street which makes the area feel safer.

### Design for cross visibility
Gates should not be opaque. Design gates for maximum visibility from both outside and inside.

### Vertical elements
The spacing between horizontal elements of the gate should range from nine to twenty-five millimeters, so that fingers and hands do not get stuck.

### Gate materials
Avoid toxic materials such as compressed wood. Use materials made of metal, recycled plastic, or wood that is resistant to weathering.

### Child-friendly paint
Never use lead-based paints, and always use water-based outdoor paints with minimal off-gas.

### Deter stray animals
The entrances to the schoolyard should consider ways to restrict the passage of stray animals.

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A decorative school gate in Tirana with good visibility.

A long rolling school gate at Shkolla Kosovska in Tirana provides a sense of openness, connection, and trust between the school and the street.
FENCING AND EDGES

The edges of the joint-use park should be well defined, yet inviting enough to allow the campus to function as an extension of any adjoining public space. The schoolyard’s degree of openness should be determined according to its distance from traffic. The extent of fencing around a schoolyard should take into account the sound and noise pollution exposure.

**Fencing near traffic**

In cases where a part of a school is within 30 meters of a road larger than F class, the edge of the school closest to the street should be designed as a barrier: either a dense shrub planting of at least 1 meter wide and 2.4 to 4 meters high or, for full sound protection, a masonry barrier of at least 3 meters high.

**Fencing away from traffic**

In cases where the school is located at least thirty meters away from a street above F class, the fence should be as porous as possible, with simple slats to keep maximum visibility. The fence should be 1.8 meters high or, alternatively, a shorter hedge.

**Non-street facing**

The sides of the school lot that do not face a large street shall be kept as open as possible.
OUTDOOR SCHOOL-FUNCTION SPACES

A student assembly space, or shesh pushimi, is a large open space adjacent to the building entrance, where students are dropped off and picked up by caregivers, and assemble before entering into classrooms. These spaces automatically function as gathering areas for parents and community members, and should be designed to be comfortable during off-hours. They should be considered as a primary social and gathering space, and thus made well lit and shaded.

<table>
<thead>
<tr>
<th>Surface area</th>
<th>Topography</th>
</tr>
</thead>
<tbody>
<tr>
<td>This area should be at least three hundred square meters or one square meter per student (per shift)—whichever is smaller.</td>
<td>The shesh pushimi can occur on slopes or on stairs, though a flat and even surface is preferable.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Paving</th>
<th>Illumination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use permeable paving where possible to reduce overheating and allow vertical infiltration of water.</td>
<td>This space should be illuminated so that people can sit and speak comfortably into the evening.</td>
</tr>
</tbody>
</table>

Children assembling before class in the “shesh pushimi” at Shkolla Kole Jakove in Tirana.

The gravel ground surface in a public plaza in Munich, Germany absorbs rainfall and its trees provide ample shade in summer.
SCHOOLYARD SURFACE MATERIAL GUIDELINES

The ground surface of the schoolyard should be diverse in material, nontoxic, inexpensive, and easy to maintain. It should also be as permeable as possible. Like sponges, schoolyards should be designed so that rainfall is absorbed downward directly into the ground, and not across the surface into the under-street drainage system. This keeps grounds green longer into the summer and surface temperatures lower. Materials provide different textures and can contribute to a positive sense of surprise. However, material use should be balanced with risks associated with different materials and accessibility needs.

Gravel
Gravel is an inexpensive surfacing material, and when installed correctly can rapidly absorb large amounts of rainfall. Use gravel for surfacing larger shaded open spaces, for example where dense tree stands are planted and at edges that are protected from wind. Gravel can create a lot of dust, especially in hot weather when not shaded, and kids in strollers will be forced to breathe it. Rushed-stone gravel of a smaller aggregate dimension is preferable to pea gravel, which does not meet ADA (Americans with Disability Act) standards for use in play spaces.

Sand
Use sand in playgrounds, but no less than twenty centimeters deep. Sand drains well and does not form puddles in the rain when provided with adequate subsurfacings. While sand is cost-effective and versatile, it should be complemented with other surfaces in play areas, as is not universally suitable for children with different ability needs.

Wood chips
Wood chips provide a soft surface but should be used sparingly, as they limit the accessibility of strollers and wheelchairs, need to be replaced yearly, and can rot in wet conditions with low sun exposure. Use rubber surfacing instead of wood chips for large play spaces. Use wood chips to provide ground cover at edges, within planted areas, and in areas where a wilder environment is desired, like adventure or construction play areas.

Limit asphalt ground surface to sports fields
Limit asphalt ground surface in the schoolyard as much as possible, except to where it is necessary for sports fields. The rest of the schoolyard surface should be permeable.

Paint
Painting the ground can be a fun and lasting activity for families in the neighborhood, or for students as part of their curriculum.

Exposed soil
Exposed soil must be tested before use: lead and other contaminants are often found in urban soil. High-grade soil can be used as a replacement.
Grass

Grass is one of the best surfaces to play on, but it is a high-maintenance material. It should be installed where there is enough space to build a substantial play field that the whole community will benefit from. Grass can also work well in berm shapes that add topography to otherwise flat areas. Only install a grass lawn where there is either adequate subsurface drainage installed or a deep sandy subsurface to prevent puddling.

Artificial turf

Artificial turf and rubberized surfaces should be applied sparingly, as their compounds have been shown to be unhealthy for the kind of close contact that babies and toddlers tend to have with materials.

Poured-in-place rubber

Poured-in-place (PIP) rubber is a useful material for play structures because it does not need constant maintenance, can follow contours on mounds and hills, and is ADA compliant. PIP rubber does release volatile organic compounds (VOCs), which can negatively impact children’s health and the environment. Use rubberized track when possible for increased comfort on running or walking routes through the schoolyard, as these are areas that babies and toddlers will use less often.
SCHOOLYARD ADAPTATIONS FOR STORMWATER MANAGEMENT

Maximizing green and porous surfaces within the school park can contribute to the dual objectives of increasing ITCN access to green space and alleviating stress on the city’s sewage- and stormwater-treatment systems. Depending on the school community’s needs and capacity, various stormwater features can be integrated into the school park. This can be something for the city, residents, parents, the school, and other community actors to partner on. See section 4.4 for more details on stormwater-management facilities.

Rain-harvesting barrels and cisterns

A barrel or cistern that collects stormwater runoff from roofs can be used to irrigate gardens. This has a mostly temporary stormwater holding capacity, since it needs to be emptied between storm events. In the case of schools, this would require active maintenance.2

Integrating water play using rain water

In addition to being directed downward to water plants and trees, drainage from school roofs should be usable for child’s play. For more on water play, see section 3.7 “Natural Materials and Surfaces for Play.”

Hand pump

Hand pumps can be connected to cisterns, or attached to bore wells in areas with a high water table. In the latter instance, the water should be screened to make sure it does not contain heavy metals so that it is safe for playing.

Swales and rain gardens

Swales can be used to capture and manage runoff from paved surfaces of the schoolyard; the water then flows through a shallow channel with vegetation to help trap and filter stormwater. Rain gardens—typically lower than the surrounding level and filled with stone at the bottom layer—temporarily hold, filter, and infiltrate runoff. Rain gardens at schools can also gather rainwater from downspout draining rooftops.3

Runnels and channels

Runnels and channels are common drainage elements that move water across the ground surface. Channels are deeper, intended to move higher water volumes, and usually would need a grate cover to allow strollers to cross. Runnels, on the other hand, can be very shallow, as an open V-shape in section. Channels and runnels can connect multiple tree pits to feed with rainwater. Channels and runnels can also make drainage across the ground surface playable. Small gates can be added into the system that allows kids to modify the flow of water.

Asphalt removal, followed by simple planting can be inexpensive and fast.

Image showing a large rainwater infiltration system installed on a schoolyard in Boston, Massachusetts.

Children playing in a rainwater infiltration area. During heavy rains this area will pool, and slowly filter downward into the water table.
Porous ground surfaces

Porous ground surfaces are vital for proper stormwater management. For an in-depth consideration of these materials, see sections 3.3 (“Schoolyard Surface Material Guidelines”) and 4.4 (“Pervious, Permeable, and Porous Paving”).

Education programming

As with other elements in the school park, understanding the flow of water through the site can be incorporated into students’ educational curricula and serve as a space for lessons and activities.

A diagram section of a typical school area shows a concave site, able to move rainwater toward central points where it can infiltrate slowly and deeply into the ground. The objective of the schoolyard is to lose zero water off the site into the sewerage system.
PLAYSCAPE DESIGN BY AGE

The school park is a center of social life and play for all community members. In order to ensure it is ITC friendly, designers of the school park must integrate the specific needs of babies and toddlers, who are not always considered in traditional school playgrounds. The processes of infant and toddler development serve as a guide for considering innovative play areas dedicated to children aged zero to five. ITC-friendly playgrounds should emphasize a sensory and flexible experience for each child, allowing them to further develop both their fine and gross motor skills.

KEY PRINCIPLES

→ A section of the school park, and all playscapes, should be dedicated to infant and toddler play.

→ The elements of a playground should account for the physical, emotional, and cognitive development of babies and toddlers.

→ Playscape design should balance risk, mess, and experimentation in order to stimulate the creativity and development of toddlers.

→ Some materials make for more accessible play spaces.
DESIGNING PLAY FOR INFANTS AND TODDLERS

The design of baby and toddler playground spaces should be informed by the specific developmental capacities of children at various ages, as well as children’s need to challenge themselves physically and mentally. Infants and toddlers are always practicing their rapidly developing motor skills; this is their primary mode of learning. Playground design should encourage them by offering adventurous and sensory play. Some of the developmental milestones of the first eighteen months are detailed below.

<table>
<thead>
<tr>
<th>Physical</th>
<th>Emotional/Expressive</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–5 months</td>
<td>0–5 months</td>
</tr>
<tr>
<td>Finger movement</td>
<td>Improved voice recognition</td>
</tr>
<tr>
<td>Object grasping</td>
<td>Sound imitation</td>
</tr>
<tr>
<td>Pushing up own body</td>
<td>Smiling</td>
</tr>
<tr>
<td>Rolling over</td>
<td>Clinging</td>
</tr>
<tr>
<td>Lifting head</td>
<td>Communicative crying</td>
</tr>
<tr>
<td>6–12 months</td>
<td>6–12 months</td>
</tr>
<tr>
<td>Unassisted sitting</td>
<td>Understanding simple language</td>
</tr>
<tr>
<td>Improved balance/coordination</td>
<td>Improved emotional awareness</td>
</tr>
<tr>
<td>Crawling</td>
<td>Intentional action</td>
</tr>
<tr>
<td>Standing/walking with support</td>
<td>Goal-oriented play</td>
</tr>
<tr>
<td>12–18 months</td>
<td>12–18 months</td>
</tr>
<tr>
<td>Walking with arms spread</td>
<td>Improved language; one-word sentences</td>
</tr>
<tr>
<td>Grabbing objects</td>
<td>Increased independence</td>
</tr>
<tr>
<td>Standing from seated position</td>
<td>Growing empathy for others</td>
</tr>
<tr>
<td>Walking and climbing stairs</td>
<td>Understanding rules and limitations</td>
</tr>
<tr>
<td>Limited running</td>
<td>Testing boundaries</td>
</tr>
</tbody>
</table>

Communicative play with 9-12 month-olds.  24-month old crawling.
DESIGNING PLAY FOR CHILDREN ZERO TO EIGHTEEN MONTHS

As children enter toddlerhood they need to be given more and more independence, especially in play. The guiding design principle for playgrounds is to enable their sense of independence, providing caregivers the confidence to allow them to do so, while ensuring the comfort of both to spend a lot of time there. Toddlers love to experiment and should be left to test out their curiosity independently and in each other’s company.

The best play sometimes involves getting messy! The design of playgrounds should make caregivers feel comfortable going out to play in the rain, dirt, and mud and become acquainted with the sensations created.

Below are some suggestions for playground components that can accommodate and nurture the physical and emotional capacities of babies up to eighteen months.

---

### Tummy time

In order to train their motor and sensory skills, babies need to have things to reach out to, kick, and hold on to. Play design for young infants should set apart some space for caregivers to lay out a blanket and have supervised tummy time with their baby.5

### Physical support structures

Schoolyard parks should have sections devoted to play equipment that helps infants with their crawling, rolling, and standing skills. Consider tunnel structures, or structures made to lean on or hold on to.

### “Open-ended” play

At the end of their first year, toddlers can better explore their imagination, and so begin playing with “open-ended” objects such as balls or wooden blocks.6 They don’t need to be as closely supervised during play.

### Stepping stones

Creating a path with stepping stones can make for a fun activity for children learning to walk, and is also a positive addition to the natural landscaping of the playground. The stones can be at different elevations and distances to make the activity more challenging.

### Music games and elements

Incorporating musical elements such as chimes or drums into the playground helps nurture children’s interest in music and auditory learning. For babies and toddlers that are becoming rapidly more attuned to the sounds of the world around them, there are few things more exciting than getting to produce and experiment with sounds.7 Play workers or caregivers can initiate song games that call on toddlers to explore the sounds they can make by clapping, stomping, and doing other gestures.
DESIGNING PLAY FOR LATE TODDLERHOOD

Around eighteen months, most toddlers have developed the motor skills to perform a range of activities on the playground, such as kicking a ball, running, or jumping. Emotionally, they've developed a level of awareness that lets them play alongside other children—also called “parallel play”\(^8\)—but not yet with them, as this more communicative form of interaction is still developing.

By the time they reach three years old, children are after adventure and have all the courage to pursue it. They rapidly develop the motor skills that allow them to run forward and backward, throw a ball, use a tricycle, jump forward half a meter, and climb all sorts of structures.

Toddlers also begin to explore pretend play, where objects are symbolically turned into something very different from what they are. Playscape design should be attuned to this and offer play spaces that are “transformable,” allowing for children to manipulate them into different scenarios and give them different meanings.\(^9\) Playscape design should include a range of surfaces for them to climb or maneuver through, practicing their risk management and problem-solving skills.\(^10\)

### Physical

8 months–2/3 years
- Confident walking
- Combined movements (walking/holding object)
- Kicking a ball
- Running
- Jumping

3 years
- Running forward and backward
- Throw a ball
- Using a tricycle
- Jumping forward half a meter
- Climbing structures

### Emotional/expressive

8 months–2/3 years
- Asking “why” questions
- Parallel play
- Growing collaborative skills

3 years
- Newfound courage and adventurousness
- Risk management
- Problem solving
- Symbolic play

---

Slides and climbing structures embedded in the ground.  
(image via Firstcry Parenting)  
(image via thechirpingmoms)
Loose parts

Toddlers should have access to open-ended play equipment that allows them to train their developing motor skills. Play using loose parts and elements, such as sand and water, is a great way to encourage creativity, while also helping children develop their social skills as they play around others.

Balance beams

Walking on a balance beam is a fun way for children to practice their balancing skills. The beam’s material can vary between steel, laminated wood, or sawn lumber. It should not be higher than thirty centimeters from the ground, and the ground material around it should be able to absorb the impact of a fall (rubberized surface, wood chips, grass, or compacted soil). In the autumn months, encourage collecting and piling leaves beneath play elements where children can feel comfortable falling intentionally.

Outdoor trampolines

Small outdoor trampolines are very fun playground elements for toddlers that are just learning to jump. To minimize the risk of a child falling on hard ground, care should be taken to ensure that the springs do not propel children too high and that the surface area of the trampoline is proportionate to the strength of the springs.

Enclosures

Small spaces that feature an element of enclosure—whether it is a play house or a winding path through the trees—trigger imaginative play in children, and should be incorporated into any ideal playscape.

Ground-level games

Small spaces that feature an element Games such as hopscotch or illustrated pavers that direct children to jump like different animals can also be a fun and educational addition to a playscape.

Toddler cycling area

As well as learning to balance, biking will help children learn coordination, spatial awareness, and motor skills. Include a small but flat, paved area where toddlers can use push bikes. A push bike has no pedals, chain, or crank. When a child sits on it, their feet are flat on the ground. The child uses their feet to propel themselves along, quickly learning the skills to confidently glide, scoot, start, and stop. This is an ideal first bike for a child as young as eighteen months.

Slides

The best slides are built on the grade of a natural or man-made slope; free-standing slides or those that are part of a composite structure are more expensive to produce and do not invite as much creativity. Bare metals for slides should be avoided, because, in the sun, they can reach temperatures high enough to cause serious burns to children. Use a coated metal instead. Install handholds at the top of the slide to improve safety and ensure the slide exit has enough clearance from other structures.

Enclosures

Small spaces that feature an element—whether it is a play house or a winding path through the trees—trigger imaginative play in children, and should be incorporated into any ideal playscape.

Ground-level games

Small spaces that feature an element—Games such as hopscotch or illustrated pavers that direct children to jump like different animals can also be a fun and educational addition to a playscape.

Boulders

Boulders are challenging and flexible natural features in playgrounds and, depending on their size and assembly, will be popular with children of a wide range of ages. Larger rock structures can be fun to climb for preschool-age children, whereas smaller and more sparse boulders can be fun to jump between and walk on.
SITE FURNISHING

Site furnishings often are not given the same attention in public expenditure as other necessary elements of the street, but they make the public realm more functional, habitable, and welcoming for a wide variety of groups. Something as simple as a raised flat surface deep enough to sit on can allow a caregiver to feed or change their child, sit down for a conversation, check their phone, or relax while their child plays close by. This opportunity for a caregiver to stop and rest can make the difference between spending several leisurely hours outdoors versus rushing home to lie down. Case studies have shown that the enhanced street vitality from site furniture improves caregivers’ physical and mental health, their impressions of safety and comfort on the street, and increases the activity of local businesses.

Site furnishings include elements such as benches and seating, bicycle racks, flower stands, kiosks, news racks, public art, sidewalk restrooms, streetscape signage, traffic and parking signs, and trash receptacles, all of which can be used and interacted with in different ways.

The following section provides guidance on types of site furnishings that benefits ITCs.

KEY PRINCIPLES

→ Caregivers use benches as work surfaces to change diapers, feed, reorganize bags, and so on, in addition to being a place to rest.

→ The usefulness of furniture in parks is multiplied when in concert with comfort elements like shade and lighting, and in proximity to places where children are playing.

→ Benches and ledges on streets should be protected from vehicle traffic as much as possible.

→ Vibrant, green, and furnished pocket parks should be created on empty lots and other “urban leftover.”
A bench for caregivers in play areas with a surface that allows them to remain in one place for an extended amount of time.

ITC BENCHES

An ideal bench for a caregiver in play areas provides a surface that allows them to remain in one place for an extended amount of time. An ITC bench needs to be large so that many friends and family members can comfortably congregate around one space and share caregiving duties. They need to be flat and stable to function as work surfaces, where belongings can be spread out or diapers be changed as easily as a snack can be arranged and served. When possible, backrests will encourage people, especially older people, to stay longer. In lieu of backrests, a seating strategy in parks can be to provide chairs that can be easily moved and sidled up to an ITC bench.

**Dimensions**

Build ITC benches low to the ground (twenty to forty centimeters high) so that toddlers can crawl onto them and not risk falling. The larger the surface the better, but bench width should be at least one meter square so that caregivers have room to set down their baby carriers and other gear and equipment.

**Backrests**

In parks and public spaces where caregivers would feel comfortable spending a long time, ensure that at least a few benches have backrests for those who prefer them. Backrests are less necessary on benches along streets, as people will likely stay for less time.

**Bench materials**

The materials used should be durable and easy to clean. Consider the comparative lifespans of wood, concrete, stone, and metal. Wood surfaces do not get as cold to the touch, making them preferable through the winter.

**Large spacing between slats**

Add wooden slats to benches for an added degree of comfort in more extreme cold or hot weather. Make sure that slats are widely enough spaced (between two and four centimeters) so that keys and other small objects are easily retrievable.

**Features**

Furnish caregiver seating areas with tables or table-height surfaces that can support a beverage or a book.

**INDICATORS 3.5-3.6**

A low, flat, and broad surface allows the most possibilities of ways to gather and interact.

The affordances of a large multi-directional bench versus those of a traditional park bench.
Seating at play areas for 0-3 year olds provides caregivers with a close and unobstructed view of the entire area.

School parks must have seating at 0–3 play areas that provides caregivers with a close and unobstructed view of the entire area. These play areas should have no vertical obstructions, gentle topography, and relatively little equipment, making them easy to watch. The placement of seating should also facilitate adult socializing, so as to make the park an enjoyable and comfortable place for caregivers as well as children to spend time.

**Seating placement**

Place seating with a one-to-two-meter buffer from the edge of the play area where caregivers can oversee infants and toddlers playing.

**Tables**

Provide square or round tables with chairs so that caregivers can comfortably socialize while watching their children.

**Include hooks**

Add hooks to tables so caregivers can hang their coats and belongings instead of having them strewn all over benches.

**Vending**

Permit vendors to sell snacks to park users. This links the school park to flexible microbusinesses. It also adds an important convenience for caregivers, who can depend on buying snacks at a park and not have to worry about packing everything into a bag or stroller when they leave the home, or making an extra stop on the way.
Seating options must be made available by the city in the public realm.

Street furniture should be inviting to all groups to stop and rest along a route. While businesses often offer seating in the public realm, seating options must be made available by the city as well, so that being comfortable and at ease in public space does not have to cost money.

Placement on the street
When placing seating within the street corridor, employ barriers and distancing to protect from traffic and other threats of noise and air pollution. A bench at a noisy or chaotic place is better than no bench at all, but these places will not invite caregivers to stay for long. Ensure that benches are at least half a meter away from the edge of a curb or a driveway entrance. Benches should also never obstruct access to wheelchair ramps: a distance of a meter and a half from the ramp landing grants a wheelchair user comfortable access.

Dimensions
Dimensions of street furniture can vary more than furniture in parks, so that they can squeeze into much smaller amount of space. Fold-down benches and tables and even ledges can be useful and inviting at depths as narrow as twenty centimeters. Street furniture should never impede the clear walking space of one-and-a-half meters on a sidewalk, but can be added anywhere where there is a surplus beyond that.

Parallel seating
If seating furniture is situated parallel to the curb, ensure it faces toward buildings when located in the furnishing area or away from buildings when located in the frontage area.

Shade
Whenever possible, place seating under trees or other built elements overhead. Whether installed by a business owner or the municipality, encourage the additional installation of sun and rain shelter.

Perpendicular seating
If there is enough sidewalk space, place seating in the furnishing zone to be perpendicular to the curb.

Curb extensions
Curb extensions can be good spaces to extend capacity for seating if there is not enough room on the sidewalk.

Informal seating
Informal seating such as a fold-down bench on a wall may also be used, combined with other elements in the site furnishings zone, such as planter edges.

Seating walls
Integrate concrete seating walls around amenities such as fountains or gardens.

Leaning benches like this take up very little space but enable a rest for a caregiver along a route.
Urban furniture can become play elements for toddlers and infants. Children can be stimulated to use their imagination to transform simple and everyday objects into a playscape. Urban furniture along the streets and school campuses, if well chosen and placed, can become play elements for toddlers and infants. Several kinds of outdoor furniture can be enticing for young children’s play.

**Benches**
Add low benches and platforms with flat tops to allow children to climb on and invent games with them.

**Coloring seating**
Colorful street furniture is more stimulating for children.

**Planter edging**
Design or select low planters with perimeters wider than ten centimeters to allow them to be circumnavigated by small feet.

**Tree pits**
Tree pits with ledges over fifteen centimeters wide become comfortable places to sit. Consider adding extruded stone benches twenty-five centimeters up from the surface of the pavement (the height of a child chair).

**Ledges**
Low ledges on buildings created by windows or other parts of the structure can be a place for caregivers to sit and children to play. Ledges in the ITCN should not be allowed to have bird spikes or other kinds of physical deterrents.

A swing can be hung from street trees, creating a fun pit-stop along a route for young children. Objects like this large, oblong shape suggest seating as well as climbing and sliding.
NATURAL MATERIALS AND SURFACES IN THE PARK

Traditional playgrounds typically feature mass-produced plastic play equipment placed on an asphalt ground surface. Their materials can contain toxic compounds that evaporate into the air and leech into the ground, especially as they reach the end of their lifecycle, at which point they are rarely recyclable and add to permanent waste.\(^1\)

Every sector and department of the city is trying to get better at reducing waste and cleaning up sourcing. Play is no exception, and should be considered a low-hanging fruit for parks departments. All new playgrounds should have an ethos of environmental friendliness and commit to nontoxic and non-petroleum-based products, especially on schoolyards.

Natural play elements are cheaper up front, have longer life spans, and require fewer repairs. If selected and maintained well, materials like wood, sand, stone can have long life spans. Most of these elements are easy to find, ecofriendly, and cheap. Natural materials and play elements are also better for early-childhood development and cognition. Open-ended or unstructured play—which has been shown to have the highest developmental benefits of any form of play—requires just a dynamic landscape, with simple objects like a log or a boulder to climb on. In contrast to traditional playground equipment built for a predetermined function, this kind of play invites children to experiment and explore their creativity while learning to work with others.\(^12\)

KEY PRINCIPLES

→ Playscape design should always consider the motor skills of infants and toddlers.

→ Playscapes should avoid over-standardization, and offer a wide range of surfaces to explore.

→ Playscapes should be composed of natural materials and landscapes.

→ Schoolchildren should be encouraged to play in the rain and mud, and schools should provide them with the appropriate dress to do so (e.g. raincoats and boots).

→ Playscape design requires a balance between providing safety and still allowing for challenging and adventurous play. Liability concerns should not lead to unexciting playground that quickly fall out of favor with children.
SAND

Children can be stimulated to use their imagination to transform simple and everyday objects into a playscape. Urban furniture along the streets and school campuses, if well chosen and placed, can become play elements for toddlers and infants. Several kinds of outdoor furniture can be enticing for young children’s play.13

Sand play enclosures

Enclose sand play areas with logs, rocks, an upturned concrete ledge, or a planted buffer.

Sand play placement

Place sand play areas away from wind and heavy sun exposure, and far from more active play spaces in the playground.

Sand play area maintenance

Relatively small sand play areas can accommodate a net or other cover that is drawn over the area to keep out stray animals at night. For more on the maintenance of sand areas, see section 3.9 below, “Maintaining sand pits.”

Water integration with hand pumps

Sand and water are an especially wondrous combination of materials for small children. If possible, provide access to water inside the sand play area via a hand pump. The pump should be placed near the sand and be no more than sixty-five centimeters high so that children can access it easily.

Sand play with water

The net prevents animals to contaminate the sand

Sandpit with slide, rocks, and benches

Sandpit with wood curbs

Sandpit with hand pump and balance beams

Sandpit with wood seatings and tables
TESTING SAND QUALITY

Not all sand is appropriate for play: quality play sand must be uniform in grain size, moldable, and not dusty—similar to cane sugar. It is particularly important that play sand not be dusty so that children do not breathe it in or get it on their clothes as they play. A good and equipment-free way of testing this—the nuisance dust test—is to pour several kilograms of sand out onto the ground and observe how much dust it produces on its way down. If a dust cloud forms, the sand is of low quality. A good, clean sand should fall heavy and straight on the ground, producing almost no dust.14

Modality Test

Sand must be moldable in order for infants and toddlers to use it to build. Sand that contains small pebbles and variously sized grains does not clump and stick together. Think of sand as being made up of tiny grains of polished stones. The uniformity of those grains is what makes it stick together when it is damp. The best sand castle sand is made up of very fine, very uniform grains. Beach sand of lower play quality has particles of many different sizes, including organic material like shell particles. Though this sand is safe to play with it doesn’t hold together well.

Dust risk from crushed rock

Crushed rock as used in construction cannot be used in play areas as a substitute for sand. To the naked eye the two products look similar but they are not interchangeable. Crushed rock has particles of many different sizes, including the most miniscule, which are easily carried by wind. That dust that can easily be inhaled and is extremely harmful to lungs.
Water play attracts children of all ages because it is open-ended and fosters learning in all developmental areas. Through pouring, scrubbing, stirring, squeezing, and floating different objects on water, children learn about math and science concepts (fullness, emptiness, volume, motion), and are introduced to a range of new textures. Playing with water is also a tranquil experience often done in a group, encouraging social skills such as sharing and cooperation. Wherever possible, there should be at least one playable water source in the park. In section 3.1–3.3, see “Schoolyard Adaptations for Stormwater Management” for a consideration of rainwater and play.

### Water basins

Incorporating water play can be as simple as introducing to a playground a water basin for children to gather around.

### Hand pumps

The piston pump handle should be long enough to allow many children to play together. A rotor pump accommodates more children and is appropriate for a large playground.

### Cooling and cleaning functions

Water can also function as a cooling and cleaning feature and should be integrated with the maintenance infrastructure of the park, used to cool children on hot days and wash after messy play.

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A water and mist play area is both fun as well as cooling to the area around it.

Water turns sand into another kind of toy, allowing it to hold shape. Water and sand are fun on their own but even better in combination.
Mud and dirt play engages all of a child’s senses and activates their brain, giving them an outlet to build their creativity and experiment with newly learned concepts.

**Temporary mud pit**
If having a permanent mud pit costs too much to maintain, consider temporary mud pits or frequent “mud play days.”

**Providing equipment**
Schools should provide students with raincoats and boots in order to encourage playing outside in all the elements.

**Cleanup area**
Ensure that there is a water station nearby where children can clean up after playing with mud and dirt.

Young children have an intuitive desire to play with mud and dirt, and experimenting with these natural elements should be encouraged: earth play offers innumerable psychological, physical, and emotional benefits to children. Exposure to friendly soil bacteria has been found to increase serotonin and reduce a child’s susceptibility to depression and anxiety, as well as strengthen their immune system and lower their chances of developing allergies and asthma. Mud and dirt play engages all of a child’s senses and activates their brain, giving them an outlet to build their creativity and experiment with newly learned concepts.

Mud painting is a comfortable way for kids to experiment with the sensory interest of mud without intensive cleanup. (image via handsonaswegrow.com)

The level of muddiness will depend on caregivers comfort level. The benefits of mud play are most substantial when kids are allowed to be messy.

A “muddy trucks and carwash game” also gives kids the chance to get dirty with less intensive clean-up.

A muddy trucks and carwash game also gives kids the chance to get dirty with less intensive clean-up.

A mud play area in a park created when after a rain.
SOUND

Infants and toddlers’ auditory skills should be strengthened by exposure to rich (rather than stressful and noisy) auditory environments.

Natural sounds
The sounds of nature—such as a stream or a birdsong—can be very calming for children, and should be fostered in a play space.

Musical instruments
Various objects and natural elements in a playground can be used as musical “instruments” to encourage children’s auditory learning, for example: tree stumps or containers as drums; cups filled with sand as maracas; and silverware to recreate the sound of chimes.

Play workers
Play workers can also lead various sound games with kids, such as imitating the howling and growling of animals.

Metal tubes create a kind of xylophone in a playground.

Pipes embedded in the ground allow kids to speak to each other across a planted basin.

An outdoor playable organ at Seattle Children’s PlayGarden.

Singing time led by a play worker. (Image courtesy Tirana News)
CONSTRUCTION AND LOOSE PARTS

Unstructured play with natural materials benefits children’s cognitive development as well as their sense of connection to the natural world. These materials are inexpensive and oftentimes even free: children have the imaginative capacity to have fun with almost anything, from cardboard boxes to tree branches.

The ideal playground should offer a variety of “loose parts” for children to use. Loose parts can include sand and sandbox play materials, balls, everyday objects, or building blocks. Whenever possible, they should consist of organic materials: tree branches and trunk parts, bamboo, large leaves, and willow whips, among other options. Natural materials offer richer experiences because they have more affordances: a wooden stick is not just a stick, but something that can be used for digging, for building a structure, for floating, for making noise. And it is not just an object, but a part of a greater ecosystem that a child is just discovering.

When children play with loose parts, they build stories and structures by manipulating objects without predetermined rules. They learn how to work with others, and experience a sense of freedom they don’t have access to in other facets of life. Having a chance to shape and manipulate their own environment is especially important for children that are given little agency in their home environment or other spaces they spend time in.

Lockable tool storage

Construction tools should be stored in a low-cost rack and kept in a corner of the playground to avoid parts becoming scattered. Tools will have to be kept somewhere lockable overnight.

Play workers

Play workers can be present to manage the construction area and facilitate unstructured play, though they should not be directing it.

Dramatic play

Props such as animal ears, tails, and masks can add to the dramatic play children are engaging in as they build stories with loose parts.

Props and toys need ample storage where they don’t get other things dirty.

Playworkers provide rich imagination play.

Dramatic play: children operating a hair-cutting business.
Natural surfaces

The knobby surfaces of natural elements such as rocks and logs are much more interesting to interact with than flat, smooth, prefabricated materials. Natural surfacing also enables valuable nature play, helping children learn about and interact with the insect world. Floor covering should be soft or elastic, such as artificial rubber, sand, or cork.

Berms

Berms are barriers created by soil mounds or banks of earth. They can serve as effective traffic and noise buffers. Generally a berm should be four to five times as long as it is high, gradually trailing or spreading out into the lawn. Berms blend naturally with the landscape and can be incorporated into play space to spark visual interest, engage orientation skills, and encourage crawling, rolling, and climbing.

Material selection

Material selection should be considered based on initial cost and maintenance cost, as well durability and fall impact.

VARIED SURFACES

Ground-level surfacing means a lot to the crawling, rolling, climbing infant or toddler. Monocultures of mowed grass and uniform hard surfaces quickly become boring. There are many ways to utilize topography and material to make surfaces more dynamic and gently introduce gravity-related risks.

A large berm creates views and sight lines in a park.

Small, playable berms in Tirana’s Grand Lake Park.

A large hollowed log for climbing and crawling.

Berms built with paver stones at El Born in Barcelona. (image courtesy Vora Architects)
Enclosures set up the potential of “in and out” games for four to five years olds, where children intuitively play out social scenarios using their imaginations.

**Pliable tree species**

Maple, common hazel, and willow are a few species known for their pliability, though the branches of almost all species (including olive) are pliable when young. If a tree has thick branches, soaking them in water overnight will make them easier to work with.

**Living willow dens**

In the winter, plant willow saplings in two rows, one and a half meters apart, near a seating area. In two seasons they will be ready to pull together to create a roof enclosure. Plan for seating on cut logs or stones to be arranged inside.²¹

**Seasonality**

When designing an enclosure, take into account that during the winter they will not have leaves and will lose considerable privacy. Therefore, it makes sense to plant them densely so that they provide a partial visual barrier year-round.

**Woven fences**

Woven material does not have to be for a roof component. It can be made into a fence simply by arranging it in a line, creating partial visibility and privacy from one or more sides.

**Pruning creates structure material**

Seasonal trimming of trees will make available huge amounts of biomass. Much of it can be used in creative ways on site, such as adding onto enclosures.

**Adding topography**

A small hollow can be created with earth, with larger dead branches embedded in the ground to create a roof structure. This is a good opportunity to use detritus from routine tree maintenance.

**NATURAL ENCLOSURES**

Enclosures grant children their “own places”—a key concept for free, creative, and imaginative play—on small sites. Children can stay close to seating areas and still find a degree of privacy. Studies of play have noted that enclosures set up the potential of “in and out” games for older children (four to five years old, at least) of house or spaceship, for example, where children intuitively play out social scenarios using their imaginations.²⁰

These enclosures can be created using flexible branches or living saplings. Every schoolyard park should include one or multiple semi-enclosed spaces created by these materials. Such spaces are known to stimulate young children’s imaginations. They can be based on open-air stone grotto-style formations, or created with a dome armature planted with vines.

A natural enclosure made from woven living willow stalks. An elaborate nest created from woven saplings becomes host to grasses growing on top of it. A carefully constructed pile of fallen branches creates an enclosure.
PARK MAINTENANCE

Park maintenance includes green space, playgrounds, and natural play spaces, all of which are differently affected by wear and vandalism. If unattended to, heavy use can lead to the deterioration of these spaces, diminishing their value for ITCs. Regular maintenance for spaces along streets is essential to budget for and carry out.

The following section provides guidance on how to maintain urban green space.

KEY PRINCIPLES

→ If play spaces do not feel maintained and safe, caregivers will not bring young kids to use them.

→ Vandalism and the intentional destruction of public equipment can be deterred with appropriate design.

→ Natural materials like logs and boulders not only have better early childhood development (ECD) outcomes than off-the-shelf equipment; they better resist vandalism too.

→ Keeping costs low helps make maintenance sustainable.
A good maintenance program is vital to keeping green spaces open and healthy.

**Species selection**

See section 4.1 for Tirana-specific species selection, as well as local planting, watering, and pruning cycles. Select plant species that are appropriate for the given soil type and the amount of water that can be delivered in dry months.

**Watering regime**

Plant trees and shrubs in the winter when groundwater is most consistent. Planting locations should be well studied on any site. In Mediterranean climates, higher ground like crests and hills will dry out first. Trees and shrubs on lower portions of sites where ground water concentrates will stay green longer into the dry season. This can be a simple rule-of-thumb guide for where to plant.

**Avoiding over-manicuring green space**

Let green space grow wild in some areas of every park and play space. Refrain from over-clearing underbrush, and avoid expense on decorative planting. Wild grasses and other species are especially good for groundwater infiltration, contribute to healthy soil, and require almost no maintenance.

**Maintaining sand pits**

Sand should be replaced entirely once annually or once every two years in playgrounds with less frequent use. Nets can be custom made to be draped over school sand pits in the evenings to prevent stray animals especially cats from using the sand. Sand will need to be inspected and groomed weekly at least to remove litter.

**GENERAL GUIDANCE ON MAINTAINING GREEN SPACES**

Creating a network of green spaces provides attractive and calming environments for everyday life close to home. Parks with a lot of greenery can deteriorate more quickly than other infrastructure. A good maintenance program is vital to keeping green spaces open and healthy.

**Fallen organic matter like leaves and sticks should be kept and spread around planted areas of the school. This mulch is free, adds important nitrogen and micro-organisms, and helps retain moisture in the warmer months.**

**Wood shaving and fallen leaves spread across soil in the winter.**

**Adding layers of mulch to planted areas annually builds up a layer of organic material that helps retain water.**

**A net system for sand pits keeps stray animals off the sand.**
The maintenance and administration of the park should be conceived as a dynamic and evolving community project.

**Scheduling with the school community**

Ensure that there are a variety of actors engaged in maintenance at various degrees: people who are doing daily work, others weekly, and then others who partake in quarterly or biannual maintenance events.

**Organizing maintenance responsibility**

Maintaining the schoolyard park will require some restructuring of responsibilities. Student government should be encouraged to take a leadership role in the management of the space of the schoolyard. Older kids should be organizing younger kids.

**Building administrators**

Recruit a network of building administrators from within the three-hundred-meter radius to supervise the schoolyards during opening times, on a rotating basis between different administrators. This competence can be added to the procedure that regulates building administration. Though it is not currently part of the regulation for administrators to care for green areas outside their immediate buildings, it can be added to their competences.

**Student-led maintenance efforts**

As part of their academic curriculum, once a month the students should participate in cleaning the school area. Alternatively, school student councils can form maintenance groups.

Maintaining the schoolyard requires orchestrating as many individuals as possible, from city agencies, the ministry of education, local action groups, and the immediate neighborhood. If the maintenance and administration of the park becomes the responsibility of too few actors, the park risks functioning as an unsolicited burden rather than as a dynamic and evolving community space.

Full-time city staff are expensive and can be slow to initiate. Maintenance help can be recruited from neighborhood networks in the meantime.

Community-led trash pickup days help build accountability among neighbors for keeping public spaces trash free.

Once a park is established there’s no reason why the community and school shouldn’t keep planting trees if they are able to maintain them.
Education programming

Integrate with the educational programming at the Agency of Parks and Recreation where children and teachers visit the greenhouses to learn more about planting and plant maintenance.

Coordinating planting

Planting in schoolyards can be done in a creative way, such as forming friendly inter-school competitions for best courtyards.

Cleanup day

Consider organizing a neighborhood cleanup day that can occur around four times a year, where the community is asked to come and contribute to the maintenance of the park.

Neighborhood engagement

Engage the leaders of neighborhoods for oversight of the schoolyard, especially with respect to anti-vandalism.

Learning about solid-waste management

Solid-waste management (SWM) is the process of collecting and classifying solid waste. ITCs should learn and participate in processes of SWM in their school curriculum (with the help of volunteer groups), so as to foster a sense of responsibility for the environment they live in. Public school education can build on the work the municipality of Tirana is already doing to empowering children’s leadership in building a sustainable city, including creating a “children’s council” and encouraging children to change household recycling behaviors.22

Bringing color-coded, visible bins into the school-yard and making sure that students and staff know how to use them is an important first step to countering litter and dumping.

A trash pickup program is very efficient on bi-weekly or monthly schedules.
A school community can actively participate in preventing vandalism from the original design of the park, to its construction and maintenance.

**Material selection**
Select natural materials for play: large logs, boulders, pea gravel and sand, wood chips, and topography. These elements have the highest play value and are difficult to vandalize.

**Avoiding camera surveillance**
It is discouraged to install surveillance cameras in park spaces. Functioning camera systems are expensive and send the wrong message that a place is already unsafe, or can discourage otherwise law-abiding citizens from comfortably spending time in a place.

**Rules and regulations signage**
Install signage that states in simple terms the expectations for behavior in the park. If rules are posted, it can empower neighbors to observe and self-regulate according to written standards. Rules signage should be combined with a bulletin board where other useful information for the park can be posted, such as a calendar of events and important phone numbers and online resources for reporting problems in the park.

**Communal ownership**
Foster a sense of community ownership of the park space by engaging neighbors in the maintenance and care of the schoolyard. Neighborhood engagement tries to create the conditions where someone would feel that in committing an act of vandalism, they are doing damage to their own space.

**Teen administrators and other local leaders**
As part of their academic curriculum, once a month the students should participate in cleaning the school area. Alternatively, school student councils can form maintenance groups.

**VANDALISM-PREVENTION MEASURES**

The community can actively participate in preventing vandalism in various ways, from the original design of the school, to the building, renovation, and maintenance (senior citizens could be part of the maintenance team of the twenty-four-hour school, working to smooth the transition between school and community center). This will catalyze the creation of a neighborhood ethos, or bolster an already existing one. The school reaches out to the community and vice versa.
ENDNOTES


3 Ibid.


5 Superpool, Playground Ideas for 0–3 Years, Istanbul95 Studies (Istanbul: Superpool, 2019), 24


8 Superpool, Playground Ideas, 20.

9 Ibid.

10 Arlene Brett et al., The Complete Playground Book (Syracuse, NY: Syracuse University Press, 1993).


13 Superpool, Playground Ideas, 36.


19 Superpool, Playground Ideas, 42.


OBJECTIVE 4

→ Protection from harsh weather enables children to spend more time outside, meaning caregivers are encouraged to leave the house as well.
→ Clean air, proper drainage, and widespread access to shade are essential in any ITCN.

PLANTING GUIDANCE

→ Selecting Plant Species for Neighborhood Streets and Parks
→ Grasses and Groundcovers
→ Understory
→ Tree Species Selection Wheel
→ Canopy Size Considerations
→ Canopy Clearance Considerations
→ Fruit Trees
→ Roots and Subsurface Treatment for Trees

COOLING PUBLIC SPACES

→ Built Shelters
→ Natural Shading
→ Water Elements
→ Mitigating Ground Surface Heat

STORMWATER MANAGEMENT

→ Drainage and Water Collection
→ Pervious, Permeable, and Porous Paving
→ Stormwater Runoff Facilities
→ Swales
→ Vegetated Gutter and Buffer Strips
→ Channels and Runnels
→ Soakage Trench
→ Rainwater Collection: Cisterns
→ Rain Garden

REDUCING AIR POLLUTION FROM VEHICLES

→ Regulating Vehicle Emissions

RENEWABLE ENERGY

→ Retrofitting Public Buildings
→ Decarbonizing Streets
The Exposure to “nature”—loosely defined in this context as green space—calms, lowers stress, and improves people’s mental health. Numerous studies show that children who grow up around green space are less prone to developing psychiatric disorders later in life.1 To a child, the ability to touch, squeeze, pull, and bat at natural material is a vital learning experience.

Trees and plants also make our environments more comfortable by creating shade in the hot summer months. A cooler ground temperature makes daily trips less arduous, and benefits the city in many ways, from retaining more water in the soil to blunting wind speeds to diffusing excessive noise. Drought-resistant grasses need almost no care but keep areas green and stimulating in all seasons. Cities make sound financial choices when expanding their provision of green areas by selecting species that don’t overburden maintenance budgets for staff, scheduling, and equipment.

There are 3,200 species of plants that grow in Albania, but not all plants are equally beneficial to infants, toddlers, and caregivers (ITCs). This section outlines what to look for when selecting species for urban greening in streets, playgrounds, and public spaces.

→ Albania is in the geographic hardiness zone nine, according to a metric that provides indication of frosting frequency and severity and defines a spectrum of appropriate plant species.

→ In selecting species for planting, priority should be given to those that are heat and drought tolerant.

→ Toddlers learn through touch: stimulate their imaginations by planting as much variety in texture, color, and scent as possible.

→ Prioritize the educational and ecological value of plants over their decorative beauty.

→ Species requiring little water will help to keep natural scapes appealing and comfortable year-round.
SELECTING PLANT SPECIES FOR NEIGHBORHOOD STREETS AND PARKS

Parks and gardens offer immersive experiences for young children who are just beginning to learn about plant life. Planting choices should aim to stimulate all the senses in order to support early childhood development. Several factors must be taken into consideration; the following criteria for choosing plants and trees are applicable for all types of implementation.

**Climate appropriateness**

Climate appropriateness can be judged most simply by hardiness and drought tolerance. In Tirana, new plants and trees need to be installed in places that lack a reliable watering source. Choosing plant species that require less water will allow more of them to flourish longer into the dry season.

**Soil condition**

Ensure that plant and tree species are appropriate for the soil condition. The hardness, moisture, porosity, and pH levels of the soil all affect plant growth.

**Human comfort value**

Greening plays a significant role in improving human comfort. The ITC neighborhood (ITCN) should have as much shade as possible, most of which can come from tree canopies and vines. Canopy size should be prioritized over beauty.

**Taste**

Parks and gardens should feature fruit-bearing plants and trees, and edible plants such as herbs, spices, and edible flowers. There should be no toxic species in the sensory garden. If edible plants are grown in conditions with unknown water or soil, they should be accompanied by signs to not ingest.

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Priorities from high to low

- **COST**
  - Buying + Planting + maintenance
- **CLIMATE APPROPRIATENESS**
  - Ngurtësia e tokës, Drought tolerance
- **HUMAN COMFORT VALUE**
  - Shade, Absorption, Infiltration
- **ECD Value**
  - Senses: Scent, texture, acoustics
- **CULTURAL HERITAGE VALUE**
  - Tradition, memory
Cultural heritage value

Consider that plant and tree species carry cultural meaning. For example, the rrapi (plane tree), indigenous to the Balkan region, has been used for centuries to mark the central gathering point for certain villages in Albania. This cultural significance can influence residents’ interpretation of a natural space.

Texture

Ensure that plant species have interesting textures: smooth, furry, rough, and even prickly. Too often, children are kept away from prickly plants because they are perceived to be dangerous, but this risk-averse mentality stunts children’s healthy pursuit of their curiosities. Avoid locating prickly plants at the edges of sidewalks where passersby may make unwanted contact.

Sound

Consider including plants that make pronounced sounds when moving in the wind, such as tall grasses. Other acoustic elements such as wind chimes or water features can also add to the calming environment of the sensory garden.

Color

Color is an exciting source of stimulation for children and should be carefully considered when it comes to the planting as well as the hardscaping materials used in the garden. Plants can be organized in such a way that their colors are clustered or strongly contrasting one another, but either way, there should be a balance between vibrant colors and more restful, calm colors.

Cultural heritage value

Consider that plant and tree species carry cultural meaning. For example, the rrapi (plane tree), indigenous to the Balkan region, has been used for centuries to mark the central gathering point for certain villages in Albania. This cultural significance can influence residents’ interpretation of a natural space.

Tree detritus

The detritus from trees adds a sensorially rich and educational dimension to trees’ presence on schoolyards and in parks. Fallen fruit, the seasonal shedding of leaves, naturally peeling bark, dripping sap, and other cyclical changes all provide sensorial richness to children’s interactions with trees. When planted in open spaces, this detritus should be welcomed, however trees hanging over walkways should be considered with respect to the increased cleaning needs they may incur.

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Wildflowers can add stimulating color and texture to public spaces.

The neighborhood should have as much useful shade as possible to improve comfort.
LOCAL SPECIES CULTIVATION AND INCREASING SUPPLY CAPACITY

The ITCN initiative should expand local greenhouse and plant-nursery capacities. What is grown in the greenhouses should be determined primarily by demand. The variety of species that will populate ITCNs will give nursery management the ability to plant at a greater capacity. As with city nurseries, the schoolyard can cultivate plants by means of micro-nurseries operated by students and neighbors. The plants that grow in the school nursery can be subsequently planted throughout the neighborhood, keeping annuals refreshed through all seasons. The school yard and the work of students, faculty, and parents drives the regeneration of natural areas in the neighborhood by creating a dependable supply of inexpensive plants.

A nursery creates dependable access to healthy local species of plants, shrubs, and young trees. Plants grown from seed locally have a better chance of survival than those that are imported.
Grasses are heat resistant and can easily live with minimal shade and water, as well as help keep moisture in the soil and prevent erosion on slopes.

<table>
<thead>
<tr>
<th>Species diversity</th>
<th>Maintenance</th>
<th>Sensory benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grasses don’t have to be boring: there are many varieties of ornamental grasses, including flowering ones, that range in color, texture and size.</td>
<td>Grasses often don’t need regular care for pruning or maintenance, and typically last for three to five years, whereas flowering annuals live for one growing season and then decompose. Since they are also relatively disease and pest resistant, grasses don’t require pesticides or fertilizer to stay healthy.</td>
<td>Long grasses move with the breeze and create rich soundscapes. They can be a variety of hues—green, blue, purple, tan and red—and can add beautiful shocks of color to a landscape.</td>
</tr>
<tr>
<td>Rate of growth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grasses grow extremely fast; they can re-green an area in a matter of months.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Not in climates like Tirana’s, the ground rarely freezes in the winter and is thus able to support grasses that live through multiple seasons. Grasses don’t require chemical pesticides and, relative to other plant species, require little water and maintenance.

They also offer several climate-control benefits; for example, grasses grow very well on slopes and prevent erosion. On hot summer days and even in areas without shade, grasses help keep moisture in the soil and dust at a minimum. There are many varieties of grasses that are heat resistant, and can easily live with minimal shade and water through a summer.
**Ecosystem benefits**

Certain grasses provide seeds for birds to eat, and thus contribute to the overall health of the ecosystem. Grasses also improve soil condition and fertility. Their root systems regenerate every three to four years, and when they die, they decompose and contribute to the subterranean life cycle.

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**Varying sizes**

Use grasses at edges and borders along walls, fences, screens in open spaces, or in the buffer space between sidewalk and roadway. Use shorter grasses to create soft groundcovers where children play.

---

**Switchgrass**

Switchgrass is a perennial warm-season bunchgrass native to North America that grows well in the Mediterranean climate. The grass is known to withstand tough soil and climate conditions, and requires relatively low fertilizer and herbicide treatment. Recent studies have shown that switchgrass can capture significant amounts of atmospheric carbon dioxide while preserving groundwater reserves.

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Many grasses and groundcovers are drought resistant and can thrive in dry climates.

Groundcovers of many colors and textures.
The understory layer partially blocks sunlight, keeping soils shaded, moist, and cool.

UNDERSTORY

An understory is the intermediate layer of shrubs, ferns, and small trees that grows between the groundcover and tree canopy. Understory plants thrive in partial or full shade (most grasses are full-sun plants and not considered understory). With tree canopies typically being three to four meters high, a lot of UV energy can reach the ground. The purpose of the understory layer is to block some of that light, keeping soils shaded, moist, and cool. It also creates “leaf litter,” which supports soil vitality and provides habitat in the winter for many creatures, such as butterflies, moths, frogs, salamanders, and ground-nesting birds.3

Shading the soil

Keep shaded as much of the ground on a given plot as possible. Use understory in combination with canopy and groundcover to protect the soil from the sun.

Exposed soil

Exposed (i.e., unplanted) soil beneath shrubs and trees will collect leaf litter, which over time will enrich the soil and help to ensure a vital ecosystem for plants, animals, and insects in the area.

Understory in large green areas

Understory is especially effective at keeping soil cool and healthy when in large planted areas with a relatively continuous canopy. They are decoratively beautiful in narrow plots, but will have less effect at regulating ground temperature.

Sensory qualities

Consider choosing understory species that are also sensorially rich; toddlers are attracted to the colorful leaves and scented flowers found in some shrubs and small trees.

The understory is the planting level most directly at the eye-height of toddlers.

Entire understory landscapes can be created from shrubs and small trees.
Cost

Obtaining a large number of mature trees for streets and small parks is usually prohibitively costly. However, it is worth investing in at least some mature trees, even if it means fewer trees overall. Budgets should be increased whenever possible to allow for purchasing trees that will provide shade immediately. Cost should also account for maintenance, especially for trees with excessive pruning and care needs, or large amounts of detritus.

Shade quality

Shade character is the sum of leaf density and size, and tree crown size. The primary purpose of planting trees in the public realm is to create canopies and lower ground heat. Therefore, select only trees with a high shade character.

Growth rate

Fast-growing tree species are preferable.

Water needs

Species planted along streets should be able to survive on seasonal fluxes in groundwater, without city watering systems.

U95 TREE SPECIES SELECTION WHEEL

The following chart defines the priorities designers should weigh when selecting tree species. Species like olive have cultural significance and bear useful fruit, but are so slow growing and expensive, that they should not be extensively planted in neighborhoods, because other species simply have better qualities for less expense. The points below are organized by the priority with which they should be considered. The species’ cost at the beginning of the chart should never vary, whereas color-change or detritus are less critical. Consider the lower priorities to be qualities that should be deliberately varied by designers to create a sensorially stimulating park- and streetscape.

The giant “room” of shade created by the Weeping Willow. A very high quality shade, but the willow needs a lot of water to survive. All needs to be considered when selecting species.

Color change of leaves is a valuable characteristic to consider when selecting species to plant.
Vertical root structure

Street tree species are more successful over the long term when they have deeper root structures, and when their root growth is engineered in the planting process through root barriers or other means.

Changing color

Consider color and other visual effects of trees that change with the seasons. Select a diverse mixture of evergreen and perennial trees, so that there is a rich palette of green year-round.

Other considerations: tree detritus

The detritus from trees adds a sensorially rich and educational dimension to trees’ presence on schoolyards and in parks. Fallen fruit, the seasonal shedding of leaves, naturally peeling bark, dripping sap, and other cyclical changes all provide sensorial richness to children’s interactions with trees. When planted in open spaces, this detritus should be welcomed, however trees hanging over walkways should be considered with respect to the increased cleaning needs they may incur.

Ficus have aggressively horizontal roots and should not be planted on sidewalks.

The leaves of the Sugar Maple become covered with a sticky secretion that drips onto sidewalks. Trees that drip or drop fruit heavily should not be planted near benches or tables.
CANOPY SIZE CONSIDERATIONS

Intensive tree planting should be a priority intervention for toddler-friendly routes, especially in less dense neighborhoods. Trees are useful during all seasons: in the summer, they are one of the best sources of shade; in the winter, they shed their leaves and allow sunlight to reach the ground level.

Aesthetic and functional factors determine what types of trees are best for the urban design of the street. Tree canopies can be evaluated based on the density of their foliage and their crown diameter. These qualities determine which streets they are most appropriate for and how they should be planted.\(^5\)

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**Small trees**

Small tree species have a crown diameter of less than six meters at maturity. They should be planted 4.5 to 6 meters on-center to provide an even shade coverage on the ground.

**Medium-sized trees**

Medium-sized tree species have a crown diameter of 6 to 11 meters at maturity. They should be planted 6 to 7.6 meters on-center.

**Large trees**

Large tree species have a crown diameter of more than 11 meters at maturity. They should be planted eleven meters on-center.

**Trees for narrow streets**

In narrow streets or alleys, trees with a columnar form (such as cypress or juniper trees) or plants that climb along facades are more appropriate, because they allow easier circulation for a caretaker with a stroller.

**Trees for wider streets**

Medium-sized trees, like chestnuts, with light- to medium-density foliage, work best for residential and commercial streets. Larger trees, like planes, with overarching canopies and medium-density foliage are most appropriate for wider streets, such as mixed-use streets, throughways, and boulevards.

**Height differentiation**

There should be height variation in street planting. While larger trees provide necessary shading, the scale of lower plants makes them more stimulating for small children, who can better see and reach the foliage.
### CANOPY CLEARANCE CONSIDERATIONS

Designers must take care to ensure that the canopy will maintain sufficient clearance from other elements such as buildings, crosswalks, and street-lighting fixtures. Determining tree placement requires considering potential visual obstructions for pedestrians, cyclists, drivers, and people within buildings. Trees trunks should also never obstruct the path of pedestrians, including a caregiver pushing a stroller.

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<tr>
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<tbody>
<tr>
<td>Ensure that trees are planted far enough from building facades that their predicted mature crown diameter will not impede the property line. The canopy should always maintain a thirty-to-sixty-centimeter clearance from a sign or building facade.</td>
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<th>View-obstruction risks</th>
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Street tree species can grow very tall and shouldn’t be planted too close to buildings. In the case where they would, other shade solutions need to be considered instead.
Trees trunks should also never obstruct the path of pedestrians, including a caregiver pushing a stroller.

**Canopy clearance from buildings**

Ensure that trees are planted far enough from building facades that their predicted mature crown diameter will not impede the property line. The canopy should always maintain a thirty-to-sixty-centimeter clearance from a sign or building facade.

**View-obstruction risks**

A mature tree canopy should not obstruct street and pedestrian lighting (minimum two-meter clearance) or views of signage and building fronts. View obstruction is not only dangerous for traffic-related reasons, but also tends to make people—particularly children—feel less secure.

**Prevent trees from obscuring visibility of pedestrians**

Street trees should be kept well trimmed at intersections to maximize the visibility of pedestrians waiting to cross the street, as well as the traffic signs and signals. Trees that are within eight meters of the corner property line on approach, and three meters of the property line on exit, should be pruned to keep the lowest branch at least four meters from the ground.

**Clearance along sidewalks**

Tree branches that extend into the footpath must maintain 2 meters of vertical clearance and 1.8 meters of horizontal clearance from the footpath.

**Crosswalks**

Street trees should not be planted closer than a meter and a half from the crosswalk edge at the far side of intersections, and seven meters at the near side of intersections. This helps ensure mutual visibility between pedestrians, cyclists, and drivers.6

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**Street tree species can grow very tall and shouldn’t be planted too close to buildings.**

**The location of trees shouldn’t obstruct sidewalks. In the case where they would, other shade solutions need to be considered instead.**
**Bus stops**

Trees providing shade and comfort at bus zones should not be planted closer than two meters from the bus, in order to avoid interference with people boarding.

**Medians**

Trees may be planted in medians that are 1.2 meters or wider. They should have a columnar form that guarantees visibility without excessive pruning. Trees should have a vertical clearance of 2.5 meters in height over the median, and 4.3 meters in height for any portion of the tree that hangs over the roadway. Shrubs located in the median should not be taller than 1.1 meters above the carriageway.

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**Flow of traffic**

Trees need to be set a minimum of 1.8 meters from street corner to allow clear visibility around corners.

**Trees planted even in small open spaces create important public space along with providing shade.**
FRUIT TREES

Fruit trees are a source of joy and learning for toddlers, and should be present in the ITCN on large plots. The droppings of fruit trees need to be considered during placement, as they will require less ground cleaning if located away from pathways. Fruit trees enable learning through taste, and also provide rich experiences of color, texture, and scent.

Schoolyards
Consider planting fruit trees in schoolyards. They are educational and interactive: children can not only eat fruit directly from its source, but also learn about life cycles and seasons by observing the growing process and detritus.

Detritus maintenance
Fruit trees do require more maintenance than other species, as they can leave considerable amounts of fallen fruit on the ground, which may attract insects and other vermin, as well as stain pavements. Some fruit trees can also attract birds, whose concentrated droppings pose problems to pedestrians below as well as to the ground surface. For these reasons, locate fruit-bearing trees primarily in open spaces away from paths to reduce frequency of cleaning. This maintenance can be offset by harvesting fruit before it falls. Picking fruit should be included in the school curriculum when possible; it can also be encouraged as an activity through maps and other resources that celebrate rather than stigmatize making use of free food growing in public space.7

Water consumption
Many (though not all) fruit-tree species consume more water than non-fruit-bearing species. The need for dependable water supply should be considered before planting.

Orchards
Like many other species of trees, fruit trees benefit from being planted in clusters: the soil quality is better, the branches can mingle, and the canopies develop a dense cover.

Microclimatic considerations
For south-facing slopes, plant hardier trees such as apples, pears, plums, and sour cherries, which will do well with high sun exposure. North-facing slopes are better for trees that flower early, such as apricots, sweet cherries, and peaches.8

Fruit trees create an exciting seasonal life cycle that young children can participate in. Fruit trees, like Figs or Mulberries that aren’t harvested can leave a mess on the ground. Encourage fruit harvesting throughout the neighborhood!
Street trees die from subsurface problems affecting their root health.

ROOTS AND SUBSURFACE TREATMENT FOR TREES

The root system of a mature tree can break up sidewalks, curbs, and utilities, creating problems in street circulation, especially for strollers. Good practices in ground and subsurface treatment are thus important for maintaining both the health of street trees and the accessibility of the street. Street trees die for three main reasons, all of them related to root care: they are not given the proper space for their roots to grow, their basin in the sidewalk is too small, or they are surrounded by compacted or otherwise impermeable paving that doesn’t allow for absorption of rainwater.¹⁰

Soil improvements

Street trees are often planted in heavily compacted soils that are used to support the load of the roadway. This starves the tree roots of water and sunlight, which forces them to grow toward the surface, causing damage to the sidewalk as well as underground utilities. To avoid this, soil conditions should be regularly tested for toxins and aerated.¹¹

Soil contents

Soils that support tree health have high organic content, moisture, and aeration. Use structural soils that can be compacted to support pavement loads while still maintaining the characteristics necessary for healthy tree growth.

Trenching

Continuous trenching should exist between tree basins (which can be covered by paving) so that oxygen and water can enter the soil in a basin.

Tree grates

Tree grates—metal grating that surrounds the stump of a tree—allow for water, sunlight, and air to reach the tree’s roots while protecting the soil from pedestrian traffic. They can also be designed as decorative elements that add to a street’s style. Grate openings should be small (less than one centimeter) in order to provide a safe walking surface and prevent refuse from entering the basin. Ensure that the grate is not choking the tree’s root flare as it grows, as this will stunt the tree’s health.
Pervious paving

Pervious paving allows water and oxygen to access the tree roots below the walkable surface. Options for pervious paving systems are outlined in Section 4.4.

Tree basin edges

Tree basins may be edged with low guards where sidewalks have appropriate clearances. Edging treatments reduce soil compaction, but they also send an unfriendly message to curious toddlers: keep off. Wherever possible, keep tree basins accessible to children as play spaces with large, evident openings on the sides. Guards must be at least ten centimeters high to allow for white-cane detection.

Soil improvements

The tree basin grade should be at the same level as the existing sidewalk. If a tree basin grade is much lower, it can be a potentially dangerous obstacle for pedestrians, particularly those who rely on mobility aids.12

Tree guards

The implementation of tree guards is discouraged, but may be appropriate around newly planted trees on heavily traveled sidewalk. Tree guards should have a minimum width of forty-five centimeters wide to provide sufficient distance from the tree trunk at the time of planting.

Diagram of the basic necessary elements of a tree-pit located, in a sidewalk.

A tree bulb placed in the ground before backfilling and grate added.

Tree pit along a sidewalk.

Blocking pedestrian access prevent soil compaction

Latteral openings preserve play opportunities & access for toddlers

Gravel under pavement improves air and water movement

Set root ball higher than adjacent pavement

Where possible extend rooting space under pavement

Enlarge hole as much as possible

Surface mulch or pavers set in sand - no tree grates!

Drainage and inspection

Compacted rootball support pad

Trunk wrap only species with thin bark

Stake and guy only trees in very wind locations

Remove wires after 4-6 months

INDICATOR 4.1

Enlarges hole as much as possible

Drainage and inspection

Surface mulch or pavers set in sand - no tree grates!
COOLING PUBLIC SPACES

Walking in Tirana for more than twenty minutes between the months of May and October is quite a feat for a young adult, let alone an older caregiver pushing a stroller on a road with no shading. Tirana, like most cities, experiences the urban heat island (UHI) effect, where temperatures are higher in urban areas in comparison to their surrounding regions. This is primarily the result of changes to the surface of the land; a greater proportion of the ground in cities is paved with dark, heat-absorbing materials like asphalt and concrete, and an ever-decreasing proportion of it allows for drainage and plant growth. Cities are thus doubly impacted by the high levels of heat radiating from paved surfaces and the loss of the evaporative cooling effects of trees and other vegetation.

In Tirana, like in many cities, streetscapes with cooling green spaces are unevenly distributed, with lower-income neighborhoods having the least.

The ITCN strategy treats shade as an essential civic resource that should exist equally in every neighborhood. All neighborhoods should have dense tree canopies and green shelters; the amounts of sun-exposed asphalt surface should be reduced wherever possible. In collaboration with business owners and residents, the city should work to implement overhangs where they are needed. In addition to shade, neighborhoods should have access to other ways of cooling down, like public pools and protected parks. Encouraging children and their caregivers to spend more time playing outdoors will require providing the soft infrastructure that allows them to do so.

This section provides guidance on mitigating the effects of high temperatures in the ITCN.

KEY PRINCIPLES

→ Ample shade invites caregivers to spend time outdoors for more days during the year and for longer periods.

→ Use natural shading whenever possible.

→ Transform asphalt surfaces, particularly in schoolyards, by converting them into green spaces, and paint roofs in reflective paint.

→ Water can be used as a cooling technique, especially in bounded areas like courtyards.
Shelters give caregivers the confidence to travel farther from home on a cloudy day, so they know that in the case of a downpour they will have options for pause.

**Awnings**

Enable and encourage ground-level businesses and residents to install awnings. Awnings are a cheap and easy way to provide shade for the sidewalk, while also adding aesthetic character to the neighborhood.

**Freestanding structures**

In cases where protection by trees and awnings does not suffice, freestanding shelter structures can be erected. Structures should ideally be granted permission by the local road authority to be designed to be permanent. Structures need to be robust enough to withstand children hanging from them and shaking them. They should be at least 3 meters deep to allow people to stand under them within sufficient space from each other, and the edges far enough to avoid splashing in a heavy rain. Structures should be a minimum of 2.2 meters, with a maximum of 3 meters clearance underneath. Columns and beams can be inexpensively and durably built from timber or welded steel.

**Temporary shelters**

In open spaces especially, temporary shelters can provide the means for pop-up fresh-food vendors and other goods markets, or for festivals and other public events on a weekend-only basis. Temporary rain shelters can be erected seasonally, during the school year, and then removed over the summer. Temporary shelters should have footings embedded in the ground to receive removable poles; if set above ground, footings will be a tripping hazard when the poles are not in place. Roof structure can be designed from retractable steel-wire cable and lightweight textiles.

**DRAINAGE**

The roofs of both permanent and temporary shelters need to drain water away from where people will be standing, either toward the center of the street away from the sidewalk, or into a green area. Gutters are not necessary on temporary structures. On permanent structures they can be considered, but their inclusion will increase the cost of a project and is not necessary as long as there is an adequate space for the roof runoff to reach that doesn’t disturb pedestrian space.
Shading with foliage can come from tree canopies or climber vines on built structures.

### Green shelters
Green shelters are shade corridors that feature planting. They can consist of vine-climber walls with trellises or young trees shaped into a freestanding structure. They can be public resting areas or play structures for children. Different kinds of vines and young tree species, like wisteria or young willow branches, can make a variety of forms, from a simple surface to a complex arch structure. 3

### Tree shaping
Tree shaping (also known as pooktre and arborsculpture) is the practice of training living trees and other woody plants into artistic shapes and useful shade structures. Shaped trees can also be made into play structures and enclosures that are very exciting for infants and young children to explore. Some commonly used species for shaping include willow, sycamore, poplar, birch, and Persian ironwood.

### Tree framing
Framing is a technique used to gradually shape a tree by guiding its growth with a supportive frame made of materials such as timber, steel, wood, wire, or the tree itself. Though requiring specialized maintenance, tree framing can be used to create a dense shadow.

### Vine species
One optimal vine species is Dorzonja, a classic climbing vine historically planted in Tirana courtyard houses and fences. It is a native species that requires minimal maintenance and has a wonderful scent. Wild rose is also commonly used throughout the area, and has greenery all year long. Avoid wisteria and white jasmine, as they are difficult to maintain.

### Fruit-giving vines
Some fruit-giving vine species like grape offer good shade coverage but should be planted in open spaces where they can be easily accessed for their fruit and for maintenance, not above or along roadways.

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**NATURAL SHADING**

Natural shading from trees is preferable wherever space and climate allows. Trees with wide canopies should line the streetscape as much as possible. When space, budget, or climate don’t permit tree planting, however, consider alternatives such as vine-climber walls with metallic or wooden trellises, or trees shaped into freestanding structures and shade corridors. Both of these options require little time to grow and provide critical shade to the pedestrian way.
“Blue mitigators” of heat such as water misting systems, sprinklers, and pools can help reduce the need for air conditioning.

WATER ELEMENTS

Water has long been used as a cooling method in Albania: on hot summer days, residents often pour cold water over their paved courtyards or adjacent streets to cool down the surrounding air. It is a tested, simple, and effective tool for mitigating urban heat, and should be included as much as possible in a city-wide cooling strategy.

Tirana has already implemented water features in large public spaces like the Skanderbeg Square, where they have become very popular. Similar technologies can be expanded throughout the city to provide smaller-scale and better-distributed cooling zones. “Blue mitigators” of heat such as water misting systems, sprinklers, and pools can help reduce the need for air conditioning, which comes at a high energy consumption price. Other fixtures like fountains add motion and sound to the street environment.

Misting systems

Misting systems cool the air by spraying tiny droplets of water. Studies have shown that misters have the highest local cooling impact while also using much less water than all other common urban water technologies. They are appropriate for sidewalks, and can be implemented by the city or by street-level business owners. When compared to the cooling effects of large urban water bodies, misting systems have been found to be more effective because they are small-scale and better distributed. They also carry the added benefits of repelling insects, expelling dust and pollen, and protecting against UV radiation.15

Sprinklers

Sprinklers are an inexpensive and mobile tool for introducing water into public spaces, both for cooling the surrounding air and for people to pass through to cool themselves directly. They can be stored inside and set up in large park areas where there is enough clearance on all sides for people to pass without getting wet. School park custodians should keep a sprinkler connected to a hose, ready to create a spontaneous water feature for toddlers on hot days.

Flush-mounted ground sprays and geysers

Like misting systems, spray nozzles and geysers embedded in the ground cool the ambient air in a small area. Like sprinklers, they are exceptionally stimulating for toddlers. Geysers are a people-watching spectacle as well, and function best in public spaces that host high volumes of pedestrians. Their installation and maintenance cost should be justified by high use. Locate flush-mounted ground sprays in dense neighborhood centers throughout the city.

Misters can significantly lower ambient temperatures.

Sprinkler in a public pond. Water fountains filter and cool surrounding air.
Waterfalls and water walls

Design waterfalls and water walls so that they can be accessed by toddlers. These elements provide a stimulating tactile and auditory sense, and in semi-enclosed spaces can drown out nearby traffic noise. Water walls, where water flows down a vertical or canted surface, and waterfalls, which can be freestanding cascades of water without any other supporting surface, are also the most effective methods of purifying the air of particulates. Their installation and maintenance can be inexpensive depending on the desired lifespan of the structure.

Public pools

Public pools are vital neighborhood amenities that provide cooling and recreation on hot summer days. Facilities should include shallow wading pools for babies and toddlers. Maintenance is of the utmost importance in public pools and should be budgeted for at least five to ten years into a pool’s lifespan. Publicly operated pools should be free of charge. Public pools should not be located on school grounds, but should be nearby.

Potable water fountains

Free potable water sources in public spaces is enormously beneficial to ITCs, allowing them to drink, refresh, and clean. Place potable water fountains in and around school parks, public plazas, and shaded niches in the streetscape where ITCs might take a rest break.

Streams and lakes

Urban water bodies such as streams and lakes are even more efficient than green spaces in generating cooling effects, due to their higher rates of evaporation. The areas surrounding them should be landscaped in a way that invites residents to sit or lie down by the water.

Free clean water gives caregivers the confidence to comfortably spend more time, further from home.
MITIGATING GROUND SURFACE HEAT

Typical road-paving materials (such as black asphalt) absorb up to 95 percent of the sun’s energy, becoming a major contributor to the UHI effect. In some asphalt schoolyards in Tirana, the temperature has been recorded as high as sixty-three degrees Celsius in August. Much of this heat can be counteracted by greening and varying surfaces that receive direct sunlight. Some cities that face consistent high temperatures, like Los Angeles, have begun experimenting with large-scale interventions to change the color of streets and roofs at the neighborhood or district level.16

Green roofs

A green roof is a system of planting on top of buildings. Studies have shown that green roofs can reduce runoff by up to 100 percent. Others have noted their insulating effects, as they help buildings remain warm during the winter. Best of all, they provide a comfortable and cool urban amenity on an otherwise unused surface. Roof plantings are faced with direct heat for much of the day, and can easily succumb to heat stress. Select species that are able to withstand high heat without losing too much moisture, such as shrubs, annual and biennial plants, and small trees. Ensure that the species matrix will not cause structural issues, such as membrane penetration by roots.

Cool pavements

There are several alternative options for paving materials that conduct and store less heat. Foam concrete, permeable asphalt, and permeable natural resins create lightweight and light-colored pavements suitable for walking and biking.20 A white roof or road is an asphalt surface that has been painted with a white reflecting coating, which can reflect up to 90 percent of sunlight. Their cooling effects are even greater than that of green roofs, and they are cost-effective and easy to implement.21

Great amounts of urban heat can be counteracted by greening and varying surfaces that receive direct sunlight.

Green roofs are an expensive but extremely effective way of counteracting the urban heat-island effect. On schools or other public buildings they offer great learning and classroom opportunities too.

Cool pavements replace “blacktop” exposed asphalt that absorbs and stores heat at a higher rate than lighter colored material.
STORMWATER MANAGEMENT

Thinking of rainfall in Europe likely brings to mind the grey north: coastal UK, Scotland, the Netherlands. But out of the major cities in Europe, only two—Podgorica and Ljubljana—receive more rain than Tirana. Tirana gets more than twice as much rain annually as London!²²

What sets coastal Adriatic rain apart is its intensity, both in seasonality—Tirana has hot, dry summers—and in the amount of water that falls in a single precipitation event. Climate crisis will cause the intensity of storms and of drought periods to become more extreme.

Traditional stormwater facilities—designed to move water out and away from the city as quickly as possible—have not been built with the capacity currently required, let alone for the more intense weather patterns of the future. Rain infiltration into the ground makes schools and their streets cooler and greener longer into the summer months. Air moisture also mitigates road dust that is so especially bad for babies to breathe.

Sustainable stormwater infrastructure operates on a small, easy-to-build scale (no mega projects) that networks to form an efficient city-wide system. The climate and landscape of central Albania is beautiful, and city infrastructure should strive to always work with it, not against it.

Though abstract, stormwater systems have huge bearing on the ITC experience of the city. During Tirana’s winter rainy season, standing water makes moving in the neighborhood difficult, slow, and potentially dangerous.

KEY PRINCIPLES

→ Good infiltration reduces pressure on sewer infrastructure, keeping streets drier, puddle-free, and walkable in downpours.

→ Schoolyards are a significant surface area and can act as local sponges to take on surface water, relieving stress on stormwater facilities.

→ Infiltration recharges groundwater and soil moisture, keeping trees and plants in parks green later into the summer season, requiring less maintenance.

→ Schoolyards should store rain to be used for watering into the dry seasons.
Drainage and Water Collection

Building drainage- and water-collection features into the neighborhood streetscape doesn’t just keep routes passable for caregivers during heavy rain periods; it also carries ecological benefits and contributes to the overall enjoyment of the street, especially for children. When implemented well, these features reduce overall pumping and maintenance costs. The choice of stormwater amenities depends on the context of the surrounding streetscape; some options are detailed below.

New York City is transforming schoolyards into green infrastructure-activated play spaces for the local community that double as stormwater absorbents. These ease pressure from the city’s sewer system and protect its waterways from pollution.

Treatment train

Several stormwater-management tools should be used in succession. Between the time rain hits the ground surface until the time that it joins the ground water table, it will have brought toxic pollutants with it, including asbestos from brakes, tire particles, and trace amounts of lead all from the residues left on streets by motor vehicles. Stormwater management features are designed to filter out those pollutants, and are most effective when planned in a sequence, an approach called a “treatment train.”

Topography

Topography should be taken into account in order to avoid too much runoff being concentrated in one area. In streets, ensure that slopes are accurately calculated to allow rainwater to drain properly. Infiltration trenches, paved with porous pavers, should be provided for absorbing excess rainfall along the pavement.

Play areas and plazas

Consider the drainage of play areas and plazas. In parks, provide percolation pits or create artificial aerated water-harvesting ponds.
Permeable pavement systems

Per square meter, permeable pavers offer less stormwater infiltration than porous and pervious pavers, so to achieve particular quantities of water passed downward they need to cover very large areas. Permeable paving systems, however, are very sturdy and can be used in street paving on low-speed neighborhood streets with cars and even trucks.

Permeable paving maintenance

If properly maintained, permeable paving materials can last thirty years or more, which is even longer than asphalt. All permeable surfaces require regular street sweeping, annual testing for proper function, and, every five to ten years, scheduled removal of gap pea-stones and joint refilling.

Areas to avoid permeable paving

Permeable paving materials are not suitable on streets with high-speed traffic, streets where heavy trucks pass, concrete bus pads, or as curbs. In addition, they should not be used in areas with shallow groundwater or seasonal high groundwater (ground water level at less than three meters below the surface) because they won’t drain. They should also be avoided on steep hillsides with slopes greater than 20 percent, or in contaminated areas.

Permeable paver subgrade design

Permeable paver subgrade should be constructed to support anticipated vehicular and pedestrian loads for the site and the surface, as well as subsurface materials such as filter fabrics. Subgrade layers should be composed of the following materials: a five-centimeter layer of fine-gravel bedding, a ten-centimeter base of rough gravel, a twenty-five centimeter sub-base of crushed rock, and a stormwater-runoff layer of large crushed rock.

The “three Ps” of paving types—pervious, permeable, and porous—allow water to pass downward and absorb instead of being moved laterally toward a drainage point.

As an alternative to standard impervious paving materials like common asphalt, the “three Ps” of paving types—pervious, permeable, and porous—allow water to pass downward and absorb instead of having to be moved laterally toward a drainage point.23

The absorbed water is provisionally stored in a covered rock base layer before being discharged through subdrains or infiltrating into the soil. Pervious, permeable, and porous paving systems have key differences, but all share the goals of reducing runoff, reducing downstream erosion, and cleaning and charging ground water.

In permeable pavers, rainwater passes around the module and downward through a gap, whereas rain passes through pervious and porous pavers.24

The “three Ps” of paving types—pervious, permeable, and porous—allow water to pass downward and absorb instead of being moved laterally toward a drainage point.
Porous pavers

Porous pavers contain large, usually gridded holes that are filled with gravel, soil, grass, or other groundcover. They drain extremely well and serve the easy mobility functions of pavement while offering a soft and cooler green ground surface. The cellular structure of the pavers reduces compaction of soil, maintaining good downward drainage over long periods of time. Use porous pavers heavily in joint-use parks to replace asphalt.

Pervious paving

Pervious pavers are cast with small aggregate and a polymer cement, which create air gaps through which water can transfer downward. This material has the strong advantage of allowing tree roots and the soil around them to breathe without compaction. Pervious pavers have the highest water infiltration rate—ninety times greater than permeable pavers. This means that many fewer of them need to be used in a given area, allowing other surfaces to be designed to drain toward them while maintaining significant ground infiltration. They need occupy only 12 to 18 percent of a project’s total surface area to allow for optimal project drainage and stormwater management, greatly reducing the maintenance area.

Pervious pavement system passes water through small gaps.
Stormwater runoff ponds settle metals, sediments, pathogens, and other pollutants before they can enter the larger groundwater system.

Retention swales and ponds
Retention facilities can vary greatly in size: a swale can be a couple of square meters along a roadside, while a pond can cover several hundred. (See detailed information on swale design below.) Retention ponds contain a low level of water year round, but are built with the capacity to absorb and store large amounts of water in heavy rains, acting as flood control by alleviating pressure on the storm sewer system. Swales and ponds both collect rainwater in a basin where sediments settle and filter before being conveyed into an adjoining drainage system and infiltrating deeper into the ground.

Street types
Small retention facilities (like swales) can be integrated into large streets, where there is enough space to accommodate frontage or furnishing zones. Larger facilities (like retention and detention ponds) need much more space and are appropriate in parks.

Natural soils
Infiltration-based retention facilities should be used only in areas where natural soils have a minimum permeability rate of 1.25 centimeters per hour, and where the high water table and bedrock are at least 1.2 meters below the bottom of the facility.

Detention ponds
Detention ponds are large, low areas, often in parks or other open spaces, that are designated to provide overflow space during flash-flood events. They detain water temporarily in large basins, taking pressure off of storm-sewer and other piped drainage. Unlike retention ponds, which always have some amount of water, detention ponds are normally dry, only activated in extreme precipitation events. Therefore, detention ponds are often planted with grass and double as play fields.
Ponding depths

Retention systems should drain stormwater within forty-eight hours after a rain event so that mosquitoes can't breed. Ponding depths should be limited to 1.8 meters or less for aesthetics, safety, and efficiency. Depending on location, deeper ponding depths up to 2.7 meters may be allowed.

Underdrain system

In cases where subsoil infiltration rates are less than 1.27 centimeters per hour, an underdrain system should be placed—potentially a gravel trench with underdrain. It should be placed at least 3 meters downgradient and 30.5 meters upgradient of building foundations.

Slope

Infiltration-based retention facilities are best suited to sites that have less than a 5 percent slope. For slopes greater than 5 percent, check dams or other flow control can be incorporated.

Planters

Wherever building-adjacent planters are present, roof drains should direct water there first. These planters should pond water for less than forty-eight hours after each storm. Minimum planter width should be sixty to ninety centimeters to be able to accommodate this system.

Facility size

It is recommended to use several small facilities rather than one large facility, as this network provides a dispersed infiltration area. The ratio of impervious area to infiltration area should generally be five to one, but can vary depending on soil conditions.

Flush ribbon curbs

Flush ribbon curbs can be used to direct roadway runoff into bioretention.

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A diagram of the components of a typical swale facility.
Swales improve the quality of the runoff water before it enters the water table through filtration.

**Swale width**

The preferred width for swales is 1.5 to 3.35 meters. However, swales as narrow as 0.9 meters may also be appropriate. For swale slopes over 6 percent, there should be added check dams.

**Soil types**

Swales are suitable for almost all soil types, but a full understanding of local soil topography and climatic conditions is still required before implementation.

**System integration**

Swales can be connected with other stormwater facilities (such as rain gardens) to provide pre-treatment.

Swales improve the quality of the runoff water before it enters the water table through filtration. They are much smaller than retention and detention ponds, which serve more of a flood control function. Swales are highly customizable according to the available area. In natural swales, plantings and amended soils are combined.

Cross-section diagram of a swale.

Buffer strips like this in Tirana can be improved by simply removing some soil for a concave shape and lining them with stone to hold and filter rainwater.
Vegetated gutters and buffers infiltrate water at especially narrow spaces, usually placed along street frontages to capture and slow stormwater flow.

Vegetated gutters or green gutters are water infiltration systems for especially narrow spaces, usually placed along street frontages to capture and slow stormwater flow. Vegetated buffer strips are vegetated surfaces used to treat runoff from roads and highways, small parking lots, and other pervious surfaces. They can be used in multiway boulevards, park edge streets, or parkways with significant medians.

**Street types**

Vegetated gutters are suitable for extra-wide streets that can accommodate a narrow landscaped strip, or for residential streets where it can be easier to introduce additional geometry. It is most appropriate, though not necessary, to use vegetated gutters on streets with no on-street parking lanes and infrequent driveways.

**Vegetated-gutter length**

Since they are narrow in width, considerable length is needed to adequately filter and slow stormwater.

**Buffer-strip vegetation height**

The vegetation in a buffer strip should be between two and four inches, and as dense as possible.

**Buffer-strip elevation**

The top of the strip should be set five to twelve centimeters below the adjacent pavement or contributing drainage area, so that vegetation and sediment accumulation at the edge of the strip does not prevent runoff from entering. Buffer strips should be sited on gentle slopes between 1 and 15 percent, because steeper slopes may trigger erosion during heavy rain events.

**Maintenance**

Buffer strips should be inspected for erosion and damage to vegetation about three times a year, as well as after major rainstorms. Maintenance activities include mowing to maintain proper height, removing litter and debris, irrigating when necessary during dry season, and removing and replanting dead vegetation.

**Lip addition**

Vegetated gutters are shallow, allowing no more than seven centimeters of runoff to pond at one time. A ten-centimeter lip should be provided around the feature to protect from a drop-off from the sidewalk.

**Buffer-strip width**

The maximum drainage width (with the direction of flow being toward the buffer) of the contributing drainage area should be 1.5 meters. To provide water-quality treatment, a buffer strip should be at least 4.6 meters wide in the direction of flow.
Concrete- or stone-lined pathways, whose function is to direct rainwater runoff to desired collection points.

Materials
A wide range of materials can be used, such as unit pavers, bricks, recycled cobblestone, flat river rock, concrete, colored concrete, steel-plate edging, or any durable impermeable material. In high-traffic urban areas, concrete mortar between pavers should be used for durability. Use contrasting material at the edge to aid with visibility or any durable impermeable material.

Decoration
If pedestrian crossing or accessibility is required, channels or runnels should be covered with decorative and durable linear trench drain grates.

DIMENSIONS
Runnels are usually designed as an integrated element within street or plaza hardscapes. Its dimensions range from 25 to 90 centimeters wide. Runnels should be designed with a smooth sloping cross section with depths not exceeding 6 centimeters to avoid a serious tripping hazard.

CHANNELS AND RUNNELS
Channels and runnels are concrete- or stone-lined pathways, whose function is to direct rainwater runoff along the surface to other stormwater-control sites or the main control systems. Runnels are shallow systems usually designed for small spaces, while larger and deeper channels are used for collection and conveyance of moderate to large flows.

Street types
Channels and runnels can be constructed in most street types and open spaces. They can also be designed as a deliberately aesthetic element into the streetscape.

Slope
Runnels should have a gentle slope of between 0.5 and 3 percent toward the outlet or discharge point. Channels should maintain a minimum slope of at least 0.5 percent.

A runnel moves water across the ground surface without a vertical edge.

A channel has a vertical edge. In this image, a channel is used as a tree watering system.
**Depth**

Channels are usually deeper than 2.1 meters. They should be set back a minimum of 2 feet from the sidewalk or curb.

**Elevation**

In cases where there is a change of level in sidewalk or plaza areas, there should be incorporated a ten-centimeter raised curb or border.

**Playability**

Add small gates and dams to runnels to make them playable for children. An easy way to engage children to interact with runnels is to add dams connected to a small chain anchored in the ground.

![Diagram showing drainage dimensions](image-url)
SOAKAGE TRENCH

A soakage trench is an excavated depression in the landscape that forms a below-ground reservoir. Soakage trenches assist keeping large swaths of land well drained and puddle-free by moving water toward specific destinations, where they infiltrate the soil. Water enters the subsoil with the same infiltration rates as the existing underlying soils.

Soakage trenches reduce peak stormwater flow volumes, rate, and temperature, and facilitates local recharge of groundwater. If there is an adequate amount of sand or soil for filtration, soakage trenches can meet pollution-reduction requirements. Soakage trenches are a space-efficient way to manage runoff, but they require periodic maintenance.

Appropriate planting

Avoid planting trees or other plants that have deep roots, because they can damage the pipe system underneath. Instead, plant grass, small plants, or shrubs over the soakage trench, or otherwise design a dry creek bed with pavement or rocks.

Maintenance

After major storms or floods, inspect soakage trenches for any damages to structural stability. Check the soakage trench at least twice annually for erosion and debris accumulation by cleaning, repairing, or replacing the fabric or pipe system. If properly maintained, a soakage trench can last more than thirty years.
Roofing materials

The best materials for clean rainwater capture and reuse are treated metal, clay, or concrete tile roofing. Avoid harvesting rainwater from roofs with untreated metal, treated wood, copper, lead, or asbestos.

Designing for overflow

Design an overflow method that will support peak flowing periods, otherwise a cistern might overflow during heavy storm season. A 90-square-meter roof will produce 2,200 liters of runoff during a 2.5-centimeter rain storm (the upper limit of most rainfall events and standard benchmark for drainage).

Directing overflow

Direct overflow water away from a home, neighboring homes, or a cistern into a drain or adequate rain garden that can absorb water at a suitable rate.

Pipe screens

Design an overflow method that Install a screen on the cistern overflow pipe that prevents insects, birds, rodents, or other animals from entering.

Drip irrigation

If using rainwater for drip irrigation, install a one-hundred-micron filter downstream of the cistern to avoid clogging the drip emitters.

Irrigation piping

Use food-grade irrigation piping if irrigating edible landscapes with the collected rainwater.

Large cisterns are used at schools in Tirana currently. They are filled regularly from the cities water supply.

An above-ground cistern connected to a downpipe collects and stores rainwater.
A depression that collects and temporarily holds water before it infiltrates into the soil, but where surface water is usually present.

**RAIN GARDEN**

A rain garden is similar to a runoff pond that collects and temporarily holds water before it infiltrates into the soil. Rain gardens at schools can gather rainwater from downspouts draining rooftops. Rain gardens are planted with species that filter out chemicals and contaminants, and installed with special attention for the visual and tactile interest of toddlers and young children.

**Plant selection**

Select species of plants that can tolerate the soil fluctuating from very moist to periodically dry.

**Adjacent buildings**

When rain gardens are next to buildings, use waterproof barriers to prevent water saturation of the soil under the building.

**Porous paving**

Parts of the rain garden can be covered with porous paving to increase water collection.

**Stone additions**

Use rocks or pebbles as mulch, because they don’t float and won’t clog drains. Similar to organic mulch, they stunt weeds and protect the soil from evaporation.

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![A rain garden with a pool of water that will eventually drain into the water table, being filtered along the way.](image)

A cross-section showing the components of a rain garden.
REDUCING AIR POLLUTION FROM VEHICLES

As with all environmental risks, the youngest are the most vulnerable to air pollution. Children inhale faster than adults, taking in more pollutants. Even before they are born, babies are negatively affected by air pollution. This kind of exposure in the early years of life, when organs, lungs, and brains are still developing, can lead to lifelong respiratory illnesses.

Traffic reduction is a major focus of ITCN design, because cars are the single greatest source of air pollution in the city, and are particularly dangerous for children, for whom exhaust fumes are close to eye level.

Reducing car usage doesn’t happen overnight, nor can it happen without urban planning that centers the needs and wellbeing of people. This means prioritizing protecting children from respiratory illnesses over the convenient movement of traffic.

Car-free days, low-emissions zones, and school streets not only make for better air quality, but for a more free and active street life. This section outlines policy and planning tools for mitigating air pollution in the ITCN.

KEY PRINCIPLES

→ Implement low-emission zones on neighborhood streets to curb air pollution.

→ Introduce parking and pollution fees.

→ Ensure that there is signage communicating vehicle regulation.
Low-emission zones are a spatial way of reducing kids’ and caregivers’ exposure to vehicle exhaust.

Infant, toddler, caregiver neighborhoods should be classified as “low-emissions zones,” where traffic on many streets is substantially reduced or banned, and speed limits are aggressively enforced. Street closures effectively provide bubbles of higher-quality air, as well as safety from collisions in neighborhood blocks, particularly around schools and daycares. They are ideally permanent, but can begin as temporary pilot projects: see Section 1.1–1.3 for guidance on temporary street closures.

Pedestrian zones
Create space for pedestrian-only zones wherever possible in the ITCN, particularly around schools.

Signage
Implement signage for banning, diverting, or controlling the passage of highly polluting vehicles.

No-idling zones
Streets around schools and daycares should become no-idling zones in order to avoid unnecessary emissions during pickup and drop-off. Road signs should clearly identify the perimeter where car idling is banned.

Street parking removal
Curb space is a limited commodity along city streets, and not all cars occupy it equally. Parking next to school areas should be limited to residents, and a pollution surcharge should be introduced around school areas. Parking should also be eliminated entirely on streets where parking often takes up pedestrian space.

Pay-by-plate system
A new parking fee can be applied via pay-by-plate technology: drivers input their plate numbers, informing the system of the make and model of the car, and then receive a parking rate based on their vehicle’s emissions.

Length-based fees
Introduce length-based fees, which charges drivers based on the length of the space the car occupies.

Idling vehicles near schools contribute heavily to toxic air children are forced to breathe.

Street closures create a buffer of cleaner air where there are concentrations of young kids and caregivers.
RENEWABLE ENERGY

The construction and operation of buildings accounts for 36 percent of global energy use, making the decarbonization of the sector a key strategy for mitigating climate change. Albania is one of over one hundred countries that have ratified the Paris Agreement, pledging to be carbon-neutral by 2050. But what does net-zero carbon emissions mean in the building sector? It involves taking a holistic perspective on the many factors that determine a building’s carbon footprint, which includes how it is constructed, how it is used, if it is to be demolished, and where it is located.

Other sections of this book have addressed the latter issue: residential, school, and commercial buildings should be clustered together so as to minimize transportation emissions. This section deals with the first two factors. Low-carbon and zero-carbon retrofits of buildings must account for not only operating consumption, but also the carbon emitted throughout its lifecycle, also known as “embodied carbon.” This takes into account the extraction and manufacture of construction materials, emissions from construction machinery, and the impact of the building’s demolition in order to effectively identify areas where energy efficiency can be improved or made totally renewable. This must be done without increasing the cost to residents, who are already overburdened by their water and energy bills.

KEY PRINCIPLES

→ Ensure that all on-site energy uses are powered by electricity.

→ Invest in low-carbon retrofits and passive-design strategies.

→ Decarbonize the transport sector by upgrading existing fleets and investing in zero-carbon transport modes.

→ Improve carbon accounting in the building sector through quality standards that regulate new construction.
Many of Tirana’s public buildings, and particularly its schools, are in need of significant retrofits. Outdated energy systems and building designs do not only come at a high energy-consumption cost, but inability to control temperature and light quality are also impediments to students’ ability to focus. By investing in energy-efficient technologies, passive-design measures, and on- and off-site renewable energy sources, the city will ultimately save on electricity in the long run, while contributing to carbon-dioxide reduction targets and making buildings work better for ITCs.

Establishing a carbon-neutral standard

In Albania, energy generation and building standards are regulated at the national level. National governments should work with municipalities to develop carbon-neutral retrofitting strategies for the building sector. Establishing a quality standard provides demonstrable evidence of government initiative, and will better position the country for obtaining EU grants that can help finance major future retrofits.

Municipal-level retrofits

While municipalities in Albania have relatively little power over the decarbonization of private building construction and operation, they do control how public buildings in their ownership are powered. In Tirana, this includes public schools. Schools should be retrofitted to include more on-site renewable-energy sources and passive-design measures.

Electrification of end uses

All buildings that are currently relying on energy from oil, natural gas, or propane should undergo complete electrification, when electricity is delivered from non-petroleum-based origin sources. These non-renewable energy sources emit unsustainable amounts of carbon, and their distribution systems are costly and sometimes dangerous to maintain. Electricity-based end uses are also much safer for homes with children.

On-site renewable energy

On-site renewable energy sources, such as solar or wind power, can cut electric bills for schools while reducing their reliance on fossil fuels and strengthening their energy security.

Passive design

Passive design refers to a form of building design that maximizes energy efficiency by working with the outdoor climate to generate interior thermal comfort. It achieves this through a combination of design tools and technologies, including building orientation, overhangs, wall and ceiling insulation, triple-paned windows, skylights, and other elements. Public-works departments should identify where passive design measures can be integrated into existing buildings.

Passive design measures for buildings and their surrounding can significantly reduce energy use, and improve comfort.

Retrofitting public buildings facades for better energy efficiency.

A completed project with improved insulation.
88% of total transport fuels are consumed by private and commercial vehicles, with public transportation consuming only 11%.

**Public street lighting**

According to the City of Tirana’s Green City Action Plan, only about 4 percent of the city’s public street lighting makes use of energy-efficient LED lights. While the cost of retrofitting public lighting may seem high, it carries cost benefits in the long term: the electricity savings from LED lights are projected at 60 percent, as they have a much longer life span and require less maintenance.

**Personal and commercial vehicles**

The average age of personal vehicles used in Tirana is thirteen years, meaning their greenhouse gas (GHG) emissions are 36 percent greater than newer models and do not meet current EU emissions standards. Many trips taken by car in Tirana are relatively short in distance and would likely be more convenient by foot, bike, or public transport if the city’s urban design supported these modes. The city can drastically reduce the disproportionately high GHG emissions from passenger and commercial vehicles by investing in infrastructure for zero-carbon active transport and energy-efficient public transportation.

**Low-carbon bus network**

Many public buses in Tirana are old and emit high amounts of carbon. The city must begin to phase out diesel in the bus fleet in favour of low-emissions vehicles. This must be coupled with strategies that support public-transport use, such as dedicated lanes.

**Smart sensors and cooling systems**

Other streetscape elements such as smart sensors and cooling systems can all be powered by renewable energy. The cost benefit increases every year, making renewable energy solutions more affordable in the long run.

**Electric vehicles**

Electric vehicles currently make up the main part of Tirana’s renewable energy plan for the transport sector. While electric vehicles do not pollute while in use, their overall environmental impact is contingent on the ways in which electricity is generated, stored, and distributed. Research also shows that widespread adoption of electric vehicles, particularly in global-South cities, face multiple barriers to surpassing the use of fuel vehicles. These barriers include the high capital costs of electric vehicles, their low distance range, costs and size of batteries, and a lack of fast-charging stations.

**Decarbonizing freight**

Urban freight is a major contributor to GHG emissions in the transport sector. Commercial vehicle fleets must become more energy efficient, and different organizational strategies should be pursued to reduce emissions from urban freight, such as consolidated pickup points, zero-carbon “last mile” deliveries, and maximized capacities.


6 Ibid., 6.

7 For example, see the Falling Fruit initiative, https://fallingfruit.org/.


12 Ibid.


15 Ibid.


25 Ibid.


29 “Main Challenges in Tirana: Energy Consumption in Buildings,” in Tirana Green City Action Plan (City of Tirana, 2018), 89.

30 Green City Action Plan, 41.

BUILDING THE INFRASTRUCTURE OF CARE: ACCESSIBLE SERVICES CLOSE TO HOME

OBJECTIVE 5

- ITCs need access to public facilities such as washrooms, drinking fountains, and diaper-changing areas in order to feel welcome and well served in public space.
- Access to daily needs such as nutritional food, education, childcare, recreation, and healthcare must be clustered close to home to offer maximum convenience and care.
- Cities must budget for the high-quality maintenance of services and green spaces.

CLUSTERING SERVICES

- Health Services
- Childcare
- School Design Principles
- Building Entrances
- Outside the School
- Lighting Outdoor Space Near Schools

PRESENCE OF INFORMAL PATHS

- Paths, Trails, and Shortcuts

PRESENCE OF ADEQUATELY Sized AND LOCated GREEN SPACE

- Utilizing Vacant Lots
- Median Pocket Parks
- Sidewalk Pocket Parks

NUMBER OF PARKS WITH TOILETS AND OTHER FACILITIES FOR FAMILIES

- Public Toilets for ITCs
- Maintenance for Public Toilets
- Drinking Water
- Baby Feeding Areas
Proximity is the core principle of the Tirana One Hundred Neighborhoods Plan. No resident should live further than a fifteen-minute walk from healthcare clinics, nurseries and schools, significantly sized open green spaces, and fresh food, among other local amenities. The fifteen-minute standard applies to new developments in greenfield sites as well as existing neighborhoods disposed to retrofitting.

Why does proximity matter? In Albania the vast majority of caregivers are women, who are more likely to walk, use public transportation, or rely on a male family member for a ride rather than drive themselves. The fact that care labor is disproportionately performed by women firstly makes proximity a gender issue. Proximate services and daily needs enable women caregivers to be less dependent on male family members and to enjoy improved access to the city.

We know that caregivers, regardless of gender, have a unique way of navigating the city. Before a child starts daycare or school, their itinerary is defined by multiple stops, and the rest of their day a typically constant coordination between parks, family member’s homes, clinics, and basic shopping. This differs substantially from the mobility pattern of a working adult without young children.

When daily services are within a short walk from home, a young mother is able to balance taking a child to school and getting herself to work on time. This proximity also enables
caregivers to more easily share caregiving duties: A grandparent who wants to supervise a toddler while they play in the park but isn’t able to travel far from their home can do so if there’s a park nearby. Similarly, an older sibling can be trusted to walk their younger sibling to kindergarten on their way to school if the two buildings are nearby.

For the neighborhood environment to support the unique mobility needs of infants, toddlers, and their caregivers (ITCs), community participation and co-design should always be integrated within development and planning processes. By spending less time getting from point A to point B—and then to point C and D—caregivers can go about their busy days with minimal disturbances and stress, and with more time for social “staying” activities that can build rich, intergenerational neighborhood communities.

Finally, it is crucial that proximity remains consistent across neighborhoods regardless of housing costs and does not become a luxury amenity. By collecting comprehensive and publicly accessible data about the distribution of essential services, cities can monitor and improve their walkability performance over time.

**KEY PRINCIPLES**

- Plan for essential services such as health and education institutions, daycares, groceries, and parks to be within a fifteen-minute walking distance from new residential developments.

- Gather data on the distribution of essential services throughout the city’s neighborhoods, and create a strategy for siting these services in areas where they are lacking.

- Consider including services such as a clinic, counseling, a nursery, and after-school care on a school campus itself.

- Ensure that entrances to all essential-service buildings are easily accessible for a caregiver with a stroller.
Access to health services walking distance from home improves preventative care provision.

Clinic design and accessibility
Well-designed ramps and stroller rails at the entrance of health clinics are essential to ITC accessibility (consult section 2.3). Shaded street furniture and benches in front of clinics (consult Section 3.5–3.6 for design guidelines on the ITC bench) can provide a pleasant waiting area or resting spot for caregivers and children.

Health clinic distribution
Every ITC neighborhood (ITCN) shall have at least one general health clinic that has either maternity specialization or is close to a freestanding maternity clinic.

Fund nurses
Kindergartens and 0-9 schools should have a part-time or full-time nurse on staff, this requires a portion of public school funding to be allocated for health care professionals in schools.

HEALTH SERVICES
Children thrive in an environment that offers safety, health, and nutrition. Access to health services walking distance from home improves preventative care provision which helps save local and national governments money over time. Clustering health centers with libraries and near schools is convenient for caregivers.

This health clinic in Tirana is located on a busy street and doesn’t have ramps for strollers.
**CHILDCARE**

Access to an affordable variety of childcare services, and ensuring these spaces are within close proximity to where caregivers live or work, is ultimately a gender-equity issue.

Many caregivers in Albania rely on extended family members for childcare support, but it is imperative that the neighborhood be designed to accommodate primary caregivers as if they had no extended network of care. Access to an affordable variety of childcare services, and ensuring these spaces are within close proximity to where caregivers live or work, is ultimately a gender-equity issue. This can take the form of commercial or at-home daycares, or just housing that is designed to benefit those caring for multiple children. The clustering of childcare services and a play-oriented public realm supports both caregiver mobility chains and the independent mobility of children.

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**In-home nurseries and family units**

In order to guarantee proximity and accessibility of childcare services, developers of new housing projects (whether in already dense neighborhoods or greenfield) should dedicate two ground units either for the purpose of an in-home daycare run by paid caregivers or to be leased to commercial daycares. This should be accompanied by child-friendly common green spaces directly accessible from the units. Larger units that are suitable for families can also be concentrated on the ground level to allow visibility of children playing outside, however, these units should still be well-distributed between floors to provide more options for families.

**ITC Courtyards**

An outdoor courtyard can provide an important social space for ITCs and others residents. The courtyard should be green, include shade and furniture, and be fully accessible for all residents. It can integrate playable elements and connect with other trails and paths toward the local school park.

**Playable communal areas**

Within a building’s design there are multiple “in-between” spaces that can be made ITC-friendly, such as a lobby with comfortable furniture or a wide courtyard-facing corridor with small tables and chairs. These spaces become welcoming to child play socialization among caregivers. Building managers should be engaged in facilitating corridors as social spaces while balancing the need for resident privacy and quiet.1

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1 Childcare is made easier with spaces that facilitate it intentionally.

2 Courtyards should be considered essential spaces for young children and caregivers, and should receive funding for maintenance and upgrades.

3 A playable communal area protected from moving cars.
School interior design principles should focus on basic comfort and providing genuine equal access.

Natural light
When building schools in new neighborhoods, designers should incorporate south-facing windows, skylights, and shading devices such as light shelves and external overhangs, which help to maximize natural light during the winter, reduce energy use, and avoid glare or overheating. Some recommendations for daylighting in classrooms include having the minimum average illuminance at 300 lux, and a uniformity ratio (the human perception of the contrast between the darkest area and the brightest area.) of at least 3:5 in the working plane and 2:5 in the surrounding area. A low uniformity ratio means less contrast—or a more even light quality in a given space.

Ventilation
Well-ventilated schools with effective air-treatment systems are essential for maintaining indoor air quality and temperature. Particularly with children returning to school amidst COVID-19 and its immediate aftermath, it is important that classrooms have windows that open a sufficient amount.

Acoustics for learning
Acoustic paneling on ceilings is required in the construction of all new schools and the reconstruction upgrading of existing schools. Acoustic measurements must meet requirements laid out in the Unicef Child-Friendly Schools Manual.

Wheelchair-accessible doorways and bathrooms
All doorways must be at least 82 centimeters wide. All bathrooms must have a 153-centimeter diameter clearance for wheelchair turnaround. For further guidelines on wheelchair-accessibility requirements, consult the Municipality of Tirana’s School Project Standards (Standartet e Projectimin për Shkollat).

SCHOOL DESIGN PRINCIPLES

The construction of new schools in Tirana over the past fifty years was done in accordance with new population centers, such that today schools are fairly evenly distributed geographically. Such thorough distribution makes primary schools especially attractive candidates for becoming the neighborhood centers of recreation and public services. Schools functioning as community hubs across Tirana can function equally as necessary service providers for caregivers, and healthy and productive learning environments for children.

Adequate levels of natural light, and it’s relatively even distribution inside a school building.

Proper acoustics make classrooms much better places to learn. Even when there is considerable noise being created, it doesn’t derail focus.
Community-shared program

Designing schools as the center of community life should not stop with the school park. Multi-use rooms within schools can be utilized for community events and recreational activities, while publicly-accessible cooking facilities greatly expand programming possibilities. These spaces should be accessible to the public through an alternative entrance available during off-hours, securely separate from the classroom areas. In high-volume school parks, a staff person can manage locking and unlocking the entrance before and after school hours.

Extra childcare space

At least one designated room within the school should be set aside for after-school programs or childcare for those who are unable to pick up children immediately at the end of the day. These spaces should be designed and furnished to indicate a transition away from the regular school day and classroom setup. The size of the space and the age groups using it will determine how many children and staff are expected to use the room. Important features include sufficient space at the entrance for caregivers with strollers to dress children near cubbies, storage space for supplies, a nap area, an accessible washroom (see section 5.6 for more on child-size toilets), and, if care for children under thirty-six months is available, a diaper-change station adjacent to a wash basin.
Accessibility is both flexibility and adaptability in the built environment, as well as clear measures for communicating information on access.

**Building entrances**

Building entrances must accommodate all access needs while taking into account how ITCs navigate walking while caring for children. This means considering how the mobility needs of disabled people, small children, the elderly, and caregivers with strollers all intersect. It is essential that “accessibility” encompasses both flexibility and adaptability in the built environment, as well as different measures for communicating information on access. In addition to addressing the distribution of services on the street and in public spaces, a consideration of accessibility must also ensure the transition between the streetscape and these buildings is equally accessible.5

**Building ramps**

Ramps must be included at any building entrance with stairs. The ramp’s slope ratio can not exceed one to twelve. If a building cannot accommodate the installation of a permanent ramp, temporary ramps can be installed.

**Stroller rails at other stairs on the school site**

Ensure that any stairs on the school site larger than two stairs or 20 centimeters, that aren’t building entrances, are retrofit with a stroller rail.

**Signage**

Clear signage at building entrances should be installed to communicate where elevators (if available), accessible restrooms, community spaces, and waiting areas are located. Other accessibility considerations such as fragrance-free spaces can also be marked. Locate signs at a height visible to a child or a seated adult: 90 to 120 centimeters from the ground. Ensure the text contrasts with the background and the color is clearly legible. Incorporate non-visual signage, like braille or raised pictograms. It is also important to account for wayfinding and additional directional support beyond signage, such trained staff members who can guide members of the community to different access points.

**Doorways**

Building entrances should be at least 91.5 centimeters wide. Automatic doors are recommended wherever possible; where doors swing towards instead of away from the user, place a contrasting surface or mat on the ground that projects a minimum of 30 centimeters beyond the door swing to indicate the area from which to keep clear. Where there is a pair of doors, one opening should provide a clearance of at least 81 centimeters.6 To visually indicate an entrance, it is recommended that door frames differ in color from the door.

**Railings**

Ensure that any stairs on the school site larger than two stairs or 20 centimeters, that aren’t building entrances, are retrofit with a stroller rail.

Wheelchair ramps are required at the entrances of all schools. Stroller rails improve accessibility on steeper stairs, and can be shorter and more direct than ramps. Building entrances should be flat whenever possible, planting keeps them cooler and more comfortable.
An orderly and pedestrian oriented pick-up drop off reduces stress on kids and improves traffic.

OUTSIDE THE SCHOOL

For the school to best serve the community, it must be a close walking distance to the nursery and kindergarten. That way, a caregiver who has to drop off two children of different ages will not have to travel far distances, or an older sibling can pick up their younger sibling nearby.

Separate modes

The drop-off area for caregivers walking children to school should be clearly delineated from the vehicle drop-off area. Vehicle and bus drop-off lanes should be one-way, moving counterclockwise and strictly forward moving.

School buses

Ensure that minibuses have designated parking spots for pickup and drop off. These spots should be separate from the private vehicle drop-off in order to ease congestion. So children can disembark directly on the sidewalk without having to cross the street or otherwise encounter traffic, the bus stops should be on the school-adjacent curb.

Pickup and drop-off rules

Establish rules for pickup and drop-off, and communicate them to guardians through take-home pamphlets and signage near the school. For a smooth pickup and drop-off, ensure that double parking, cutting in line, and caregivers getting out of cars is not allowed.

Private-vehicle drop-off

Private-vehicle drop-off should be sited away from the school street where children and caregivers are gathered, but close enough that children disembarking are in sight and sure to be safe for the remainder of their journey to school. Consider appropriating a lane on a larger nearby street for a drop-off zone.

Cycling

To encourage older students to cycle to school, ensure that there are protected bike lanes on larger streets nearest to the school and bicycle racks in a convenient area near the building.

Staff presence

School staff must be present at each drop-off zone to greet students and help the process run smoothly.
Lighting outside schools is especially important in winter months when low light and bad weather make dangerous walking conditions.

**Light distribution**

On crosswalks, position light posts or sources to hit the pedestrian at a forty-five-degree angle, illuminating passersby both horizontally and vertically. This accounts for the height of the pedestrian from the ground. If the light points straight down, it will succeed in illuminating the pavement, but not the pedestrian.

**Placement**

Place lighting ahead of an intersection or mid-road crossing in order to properly illuminate the pedestrian as they cross. Lighting from behind the crossing can create a silhouette that is less visible to oncoming vehicles. Place lighting in front of the crosswalk from the driver’s perspective. Install lighting on both sides of the street on bidirectional roads.

**Luminance level**

The appropriate luminance level for proper detection at a crosswalk is 20 lux, measured at 1.5 meters from the road surface. At a two-lane road, ensure crosswalk lighting provides 20 lux for a width of 5.8 meters and a distance of 5 meters from the position of the crosswalk light. If the crosswalk is located somewhere with high amounts of ambient light, the appropriate luminance for detection is 30 lux.¹⁰

**Streetlight dimension**

The appropriate height and distance of a streetlight from the crosswalk will depend on site-specific analysis. Place an 8.5-meter-tall lamp about 4 meters away from the crosswalk, with the height decreasing the closer the streetlight is to the crosswalk.

**Light distribution**

On crosswalks, position light posts or sources to hit the pedestrian at a forty-five-degree angle, illuminating passersby both horizontally and vertically. This accounts for the height of the pedestrian from the ground. If the light points straight down, it will succeed in illuminating the pavement, but not the pedestrian.

**Lamp type**

Consider using different colored lighting between the road and crosswalk to emphasize the crosswalk. High-pressure sodium (HPS) lamps are most commonly used for roadway lighting, because they are highly efficient and have a long-life span. They produce an amber-colored light. Metal halide (MH) lamps produce a cool white light, and are frequently used because they can improve the peripheral vision of drivers approaching crosswalks.

**Lighting outside schools**

Even lighting distribution near a school.

Lighting a pathway with overhead lamps.

Stringed bulbs create a festive atmosphere.

Proper lighting at crosswalks is essential to pedestrian safety, especially around school routes where, depending on the time of year, children might be walking to or from school when it is dark outside. While pedestrians may see oncoming vehicles ahead of time, drivers do not always see crossing pedestrians in time to stop, especially when lighting is insufficient. For more on the installation of lighting fixtures, see chapter 2.5 “Lighting the Street.”
PRESENCE OF INFORMAL PATHS AND TRAILS

Improving the quality and safety of Tirana’s already popular informal paths and trails can make these routes feel safe for caregivers with young children in all weather and lighting conditions. Shortcuts behind and through buildings expand route options between destinations, lessening walking time. They are also by definition separate from main roads, removed from car exhaust and noise. Trails and walkways should have adequate lighting, shade, ramps, and smooth surfaces, and be unobstructed and connected to buildings and the pedestrian network in all directions.

KEY PRINCIPLES

→ Paths, trails, and shortcuts make ideal neighborhood routes for ITCs for their convenience and relatively quiet atmospheres.

→ Informal routes are usually unmapped and technically unknown to the city. Key routes in every neighborhood need to be identified and acknowledged so that their repair and maintenance can be included in budgeting.

→ Trails can be used as loops protected from traffic, not as connection from one point to another, but rather as a place to walk quietly as an infant falls asleep in a stroller.

Street  
Sidewalk  
Lighting  
Stroller-friendly walkway  
Shade Tree  
Bioswale  
Green Corridor  
Trash & Recycling Receptacle  
Street  
Sidewalk  
Lighting  
Stroller-friendly walkway  
Shade Tree  
Bioswale  
Green Corridor  
Trash & Recycling Receptacle
**Shortcuts**

Many neighborhoods in Tirana contain small passageways that pass underneath and through housing blocks, connecting two or more streets. These routes should be indicated with modest ITC signage.

---

**Signage placement**

Many neighborhoods in Tirana contain small passageways that pass underneath and through housing blocks, connecting two or more streets. These routes should be indicated with modest ITC signage.

**Wayfinding and proximity**

Wayfinding elements and signage can be implemented using stencil signs, and can indicate travel distances between sites in clustered communities for different ages and abilities.

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**Provide shelter and shade**

Trails that are longer than one hundred meters should have effective rain shelter (for more guidance on shelters, see section 4.2–4.3, “Cooling Public Spaces”). Maintaining greening and natural shade along these paths is also important to encourage ITC comfort and safety. Consult section 4.1, “Planting Guidance,” for further instruction on planting and tree canopies.

---

**Trail width**

The trail should be a minimum of 1.8 meters wide to allow for a two-way movement of strollers.

**Trail width**

The trail should be a minimum of 1.8 meters wide to allow for a two-way movement of strollers.

**Lighting**

Install consistent lighting across the whole length of a trail so that it remains safe and accessible at night.

---

A narrow pathway in a Tirana neighborhood offers pedestrians a shortcut. Not only are shortcuts quicker, they are isolated from car traffic, making them usually quieter and with cleaner air than walking on the street.
Landscaping and surface material

Paving trails can be an important way to promote ITC use and maintain a stroller-friendly route, but materials other than asphalt should be considered for the surface material. Stamped concrete can be used for paving these trails in order to add texture and patterns, such as leaves on the surface or other playful designs.

Build ramps and rails

If there are stairs leading to a trail, connecting the trail to a park, or leading to a sidewalk, ensure a 1:12-slope ramp is built. Where ramps are not possible, ensure stroller rails are installed to facilitate ITC mobility.

Retrofitting an informal route would require very little investment and substantially improve quality of the commute for many caregivers.

A trail inaccessible to cars connecting two streets is an ideal route for caregivers with young children.
PRESENCE OF ADEQUATELY SIZED AND LOCATED GREEN SPACE

ITCs benefit from being close to green spaces, but not all of these green spaces have to be large parks. Sometimes children are just as drawn to small, semi-enclosed spaces to play, where they are freer to experiment than in a traditional playground. Green pockets present an opportunity to integrate wilder, more creative and flexible spaces that should be added to the streetscape.

Lots of neighborhoods in Tirana have “leftover” spaces that are unused and often collect trash due to lack of maintenance. Other spaces might be paved without that paving serving any purpose. In these cases, greening the area can transform it into a relaxing and noise-buffered oasis, or a pleasant shaded area to sit and people watch on the street.

KEY PRINCIPLES

→ Planting should consider the curious nature of ITCs and the potential for play.

→ Plants chosen should be fast growing, easy to maintain, and comfortable to touch.

→ Pocket parks should have densely planted blocks of species that serve as noise buffers.

→ Consider collecting planters from residents who would like to participate in the beautification of a corner of their neighborhood.
### VACANT LOTS

Vacant lots can be greened and improved in a variety of ways without necessarily obtaining ownership. Options can range from cheap and easy interventions such as planters, or more long-term investments such as planted trees. These green spaces can be best enjoyed when they also contain seating and play structures.

<table>
<thead>
<tr>
<th>Natural materials for furniture</th>
<th>Accessibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Include natural materials in the pocket park such as logs, large stones, and wild planting to encourage stimulating play for children.</td>
<td>Planning and design of urban &quot;leftover&quot; spaces should be sensitive to different regions, encouraging their use by diverse groups. In order to be inclusive of various mobility needs, any walkways within these spaces should be at least 1.8 meters wide, have a headroom clearance of 2.1 meters so that trees or signage do not create an obstacle, have firm ground surfaces, and include ramps or slopes where needed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Plant to maximize usable ground space</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pocket parks created from small niches in the street scape are good ways to create comfortable places to rest. They are small spaces and should avoid ground cover species and small shrubs that would take away usable space on the ground. Trees that don’t require tree pits and with branches that begin above 2 meters should be used to green pocket parks.</td>
<td>Plant species in the green pocket should be fast growing and easy to maintain</td>
</tr>
</tbody>
</table>

A vacant lot in Tirana. These spaces hold high potential as play spaces. Simple intervention of seating can make them comfortable enough for caregivers to spend time in them.  

“Demoiselle 2 Femme,” vacant lots project in Chicago, USA. Courtesy Project for Public Spaces.
Pocket parks with places to pause, sit and rest can be added to median strips on wide roads.

MEDIAN POCKET PARKS

Median pocket parks can provide welcome relief from traffic. They need to be connected to the primary pedestrian network through marked crossings at each end.12

**Dimensions**

Median pocket parks should be a minimum of 3.6 meters wide and 7.3 meters long, and include an accessible pedestrian path: 1.2 meters or wider, connected to intersection and mid-block crossings. Median pocket parks should extend the full length of the block or as long as space allows.

**Parking**

In cases where there is on-street parking, there should be at each parking space a minimum 0.6-meter vehicle outlet area (courtesy strip) and a 1.2 meter walkable pathway or another accessible route, to allow access from parked cars to the sidewalk.

**Bollards**

Bollards can be used to define the edges of the park space and create a formalized, special entrance. These bollards should be fixed and can be decorative. When on a pedestrian refuge, bollards should be 0.6 to 1.2 meters tall on the raised thumbnail of the median, as they should not obscure driver visibility of those crossing.

---

Medians that are at least 2.5 meters wide can accommodate small seating areas. Caregivers wouldn’t typically spend much time there, but they can provide very welcome places to stop and rest if needed.

A median pocket-park on a wide street provides enough space for seating, trash, and plenty of planting.
PARK TOILETS FOR FAMILIES

Anyone who has spent a few hours in public with a baby knows the value of being close to home: babies need to be fed, changed, and allowed to sleep very frequently, which can make it a hassle to take them outdoors. This is why it is so important not only that ITCs are a short walking distance from recreational and green spaces, but also that these spaces accommodate their needs. If the neighborhood lacks places to rest, feed, change a diaper, or drink water, mothers won’t leave home on foot or stay outdoors for long.

KEY PRINCIPLES

→ Public toilet facilities should be ubiquitous in the ITCN.
→ Be sure to include toddler-sized water fountains and toilet seats.
→ Lower the risk of exposure to toxins by cleaning with safe detergents and regularly testing water for contamination.
→ Develop high-standard maintenance protocols for facilities, and budget for their implementation.
Toilets are a critical asset in public spaces because infants and toddlers require frequent diapering and other sanitary care.

Distribution

Every schoolyard should have at least one public toilet available to the public during the hours it is open. If there are other major play and gathering areas in the neighborhood, install public toilet facilities nearby.

Location

Where possible, public toilets should be placed inside the school, with a lockable barrier to the rest of the school. This toilet facility can be located near an interior gymnasium or other recreational facility open to the public during park hours.

Child-size toilets

Either all public toilet facilities should include at least two child-sized toilets, or all toilets should feature a dual adult- and child-sized seat cover.

Diaper-changing table

All bathrooms in the ITC zone, either public or private, should contain fold-down diaper changing tables. Diaper-changing facilities should include hand-washing and -drying stations, a disposal bin, and a counter for caregivers to place their belongings.

Engaging with businesses

Business owners in the neighborhood should be given incentives to maintain extra clean and welcoming restrooms for use by ITCs. A special sign will demarcate these places as safe for caregivers to bring their children. This will increase the density of toilets for use during daytime excursions.

Infant seats

To maximize comfort for parents who often don't have anywhere to put their child when they need to use the bathroom, public toilets should include wall-mounted infant seats.

PUBLIC TOILETS FOR ITCS

To extend the hours spent outdoors in a green open space, the school and all public parks should offer access to clean, well-maintained toilet facilities. Toilets are a critical asset in ITC-friendly public spaces because infants and toddlers require frequent diapering and other sanitary care.

- Toddler-height toilets and sinks in playground bathrooms
- Shaded, ramped, and well-planted public toilet spaces.
Public toilets are only comfortable if they are clean.

### MAINTENANCE FOR PUBLIC TOILETS

Public toilets are only comfortable if they are clean, so a concerted effort must be put into their consistent maintenance.

<table>
<thead>
<tr>
<th><strong>Toilet cleaning</strong></th>
<th><strong>Budget</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The frequency of toilet cleaning usually depends on the number of users. Toilets should be cleaned at least once every day during off-peak hours, and receive touch-up cleaning during peak hours.</td>
<td>Ensure that budget funds allocated to maintenance allow for implementation of a high-quality standard.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Protocol</strong></th>
<th><strong>Cleaning agents</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>A standard protocol for maintenance and repair should be developed and implemented.</td>
<td>Cleaning agents should not be toxic to humans or otherwise consist of any hazardous substances (carcinogenic, allergenic, or teratogenic).</td>
</tr>
</tbody>
</table>

Well-maintained toilets and sinks in public places, especially parks, are key to inviting caregivers with young children to be comfortable spending a lot of time there.
DRINKING WATER

A second-century Greek writer, Pausanias, wrote that a place is never rightfully called a “city” without water fountains. In addition to clean bathrooms, areas to comfortably feed, and diaper-changing stations, drinking water makes caregivers feel that they can handle the routines of very young children. They are necessary features to allow families to stay longer and do more activities at the park. In addition, public drinking water in parks reduces plastic waste, easing routine site clean-up. Drinking fountains also keep pets hydrated in the summer.

Fountains next to bathrooms
In the school park, locate drinking fountains indoors, adjacent to the dedicated public toilet. Students can use it comfortably during school hours, and being located indoors will simplify maintenance.

Contamination
To help ensure the availability of safe drinking water, there test regularly for water-related contamination.

Free-standing drinking fountains
In the school park, locate drinking fountains indoors, adjacent to the dedicated public toilet. Students can use it comfortably during school hours, and being located indoors will simplify maintenance.

Fountain accessibility
Fountains should have at least one faucet at 60 centimeters from the ground for small children to access.

Fountain maintenance
Drinking fountains require weekly, monthly, and annual maintenance routines to keep them hygienic. Factor realistic estimates of these costs into the installation.

Avoiding piped drains
Drinking fountains take extra amounts of abuse in play areas being filled with dirt, sand, leaves and other material. Piped drains are difficult to maintain. Design the drinking fountain using a channels and runnels to carry water away from the mouth comfortably, with minimal splashing.
BABY-FEEDING AREAS

Caregivers will only feel comfortable feeding in public areas when they sense that the area is family friendly and not dominated by men.

Avoiding over-designing

Avoid designing an isolated space for caregivers to totally remove themselves from sight, as those spaces feel less secure, not more. Instead, ensure that seating is well distributed, with some benches in more concentrated areas and others against a wall in a more private area, so that a caregiver can choose where they are comfortable feeding.

Benches and shade

Other examples for making the public realm more friendly to baby feeding include: well-shaded benches where both edges serve as a screen, benches with armrests, and a 1.5 meter deep stroller space on all sides of benches. See also section 3.5 for specifications on the ITC bench.

The ideal place to breast feed is simply a really comfortable place where we would want to spend some peaceful time anyway. (image courtesy magic travel blog “breastfeeding while traveling”)

image courtesy the project “Understanding Community Attitudes and Identifying Design Solutions to Increase Women’s Comfort with Breastfeeding in Public” from Latrobe University.
Endnotes


7 Accessibility for Ontarians with Disabilities Act, S.O 2005, c. 11, s. 80.24, (7) (ii) (Can.).


9 National Center for Safe Routes to School, “School On-Site Design,” Safe Routes to School: Briefing Sheets (Institute of Transport Engineers, 2012), www.ite.org/pub/?id=e2660aa0%2D2354%2Dd714%2D510d%2D6a9aed049d40.


12 For further guidance on medians and median greening, see “Medians and Islands,” SF Better Streets (website), City and County of San Francisco, May 22, 2019, www.sfbetterstreets.org/find-project-types/pedestrian-safety-and-traffic-calming/traffic-calming-overview/medians-and-islands/.

APPENDIX: LIST OF INDICATORS

Chapter 1:
1.1 Number of fatal injuries occurring due to traffic
1.2 Average speed of motorized traffic
1.3 Presence of slow driving speed signage
1.4 Presence of physical traffic calming measures
1.5 Volume of motorized traffic on school streets
1.6 Presence of controlled street crossing elements

Chapter 2:
2.1 Perception of safety on streets in the ITC neighborhood
2.2 Percentage of daily trips by non-motorized means
2.3 Percentage of adequate, unobstructed width of walking space
2.4 Presence of adequately sized and protected cycling lanes
2.5 Percentage of street length that has adequate lighting in both sides of the street for the whole block
2.6 Percentage of streets with decibel levels above standard 55 dB
2.7 Presence of no-honking zone
2.8 Presence of street attractions that are mentally stimulating for babies and toddlers
2.9 Percentage of municipal budget on public art investments to enhance the aesthetic of public spaces

Chapter 3:
3.1 Number of primary schools with campus joint-use agreements, by administrative unit
3.2 Hours per day that ITCs are present in the school park
3.3 Average amount of time per week caregivers engage with their 0-5 year old in outdoor green spaces
3.4 Number of parks and playgrounds with dedicated play spaces for children aged 0–5
3.5 Number of play spaces that have seating facing infant and toddler play area
3.6 Walking distance between resting points such as benches, ledges, and other informal sitting surfaces
3.7 Presence of natural materials in play equipment
3.8 Frequency of maintenance of parks
3.9 Percentage of municipal budget allocated for open spaces or parks including management/maintenance and programming

Chapter 4:
4.1 Frequency of Large Street Trees
4.2 Length of Sidewalk Space in Shade at 12 noon
4.3 Presence of rain shelters in the street corridor
4.4 Presence of soil infiltration zones in the public realm
4.5 Incidence of chronic respiratory disease in children 0-5
4.6 Daily concentrations of PM2.5
4.7 Daily concentrations of NO2
4.8 Daily concentrations of PM10
4.9 Presence of no-idling zone
4.10 Presence of public buildings using renewable energy

Chapter 5:
5.1 Presence of a health center in the ITC neighborhood
5.2 Presence of nurseries in the ITC neighborhood
5.3 Presence of kindergartens in the ITC neighborhood
5.4 Presence of informal pathways
5.5 Presence of adequately sized and located green space
5.6 Number of parks with toilets and other facilities for families
GLOSSARY

0–3 play areas: Dedicated play spaces inside a playground or a park for infants and toddlers (age 0–3).

0–9 school: Primary mandatory education that lasts for nine years, which starts when the child is six years old.

active facade: A facade that allows visual connection and interaction between people inside a building with those outside the building.

active transport: All forms of non-motorized transportation that involve physical activity, such as cycling or walking.

advance stop: Solid white lines thirty to sixty centimeters wide that extend across traffic lanes to establish a buffer zone between a crosswalk and the front bumper of a car idling at a stop light or sign.

amenity: A useful feature, service, or facility of a building or place that provides convenience and comfort to the public.

asphalt: A surface paving material made of a combination of bitumen—a semi-solid form of petroleum—and rock aggregate.

berm: Soil mounds or banks of earth that are typically designed with engineered water-absorption features.

bioretention: The process of removing sediments and contaminants from stormwater runoff; rainwater is collected and filtered through a plant buffer, sand, or ponding area.

bollard: A short, sturdy, vertical barrier that serves to separate usage of horizontal surfaces, for example separating car traffic from foot traffic.

bulb-out (or, curb extension): A protrusion of the sidewalk area into the parking lane, which narrows the roadway and provides additional pedestrian space.

bus bulb: A curb extension used as a transit stop for riders to exit and enter a bus or streetcar.

caregiver: The person or people responsible for the daily nurturing and raising of a child. The caregiver is one half of the infant, toddler, and caregiver unit.

carriageway: Portion of the road solely intended for motorized vehicles.

central drainage: A system of street drainage with a concave section, where water drains away from the building edge toward the center line of the road.

channel: Concrete or stone-lined routes for water, open to the sky or covered by a grate, whose function is to direct rainwater runoff along the surface to the other stormwater control measures.

chicane: An intervention that calms traffic by introducing alternating curb extensions into the space of the carriageway to create an S-shaped route.

child: Any person under 18 years old.

clustering: The act of grouping a set of objects, services, and/or amenities. Clustering is crucial in the infant, toddler, and caregiver neighborhood, because it offers caregivers convenience in their daily trips.

color temperature: The property of visible light that refers to color.

controlled intersection: Intersections regulated by the presence of stop lines and traffic lights.

corner-curb radius: The radius of the street corner that impacts vehicle turning speed as well as pedestrian crossing time; the wider the radius, the further pedestrians have to walk to reach the other side of the street.

crosswalk: A marked or regulated part of the street where pedestrians have right-of-way when they cross.

curb: The vertical edge separating the sidewalk at a higher level than the road.

curb cut: A solid ramp or depression in the curb that joins the sidewalk to the surface of the adjoining street.

curb extension: See “bulb-out”

delineator post: A flexible and sometimes temporary bollard with reflective features, that serves to guide traffic in particular direction rather than block it.

desire line: An unmarked route often taken because it is shorter, more convenient, or more comfortable than the established route.

diffusion: The ability of sound or light to scatter in many directions.

driveway: A private way used to access a structure or a group of structures, owned and maintained by an individual or a group.

drop-off and pickup period: The time of day when children are delivered to school (7:30–8:00) and retrieved at the end of the day (dependent on class schedule and school shift), usually by their caregiver.
edge seating: A seat that is not free standing, such as a ledge, a low window sill, or a bench attached to a building.

encroachment: Intrusion, usually by private entities, into either public property or another private entity’s property.

evergreens: Plants that retain leaves or needles throughout the year.

“eyes on the street”: A term coined by Jane Jacobs referring to ensuring public safety through the organic “surveillance” of people from adjacent buildings.

foot traffic: The presence and movement of pedestrians in a certain area.

footpath: A pedestrian-only path through buildings. (Not interchangeable with “sidewalk” in this book.)

flush ribbon curb: A curb edge that is flat and flush with the road surface, instead of upturned, to allow water to flow laterally off to the side, key to swales and other stormwater infrastructure designed to absorb rain close to where it falls.

frontage: The area between the sidewalk and the space in front of buildings, including the facade of the building fronting the street, as well as the space immediately adjacent to the building.

furnishing zone: Area on a sidewalk equipped with “urban furniture” such as benches, bicycle racks, kiosks, restrooms, streetscape signage, or trash receptacles.

gateway: A curb extension that is implemented at the beginning of a residential street, marking a transition to a lower speed street.

geyser: A ground-mounted spray nozzle often fitted in public areas such as plazas that sprays water vertically and is intended to be playable.

green buffer: Plants that serve as a barrier from traffic, noise, and dust.

green pockets: Small leftover or underused spaces in the public realm that can be planted.

groundcover: The uppermost surface of a public area (street, park, playground).

horizontal signage: Signage applied to the surface of the street.

infiltration and soakage trench: A linear, shallow subsurface stormwater collector, which can be installed beneath other stormwater management tools (permeable paving, landscaped facilities) to increase capacity for infiltration to mitigate localized flooding.

infant, toddler, and caregiver (ITC): A grouping of at least two people, the youngest of whom is under five years old.

ITC neighborhood (ITCN): A zone of contiguous enhanced urban design features supportive of infant, toddler, and caregiver wellbeing.

kindergarten: The service and facility offering non-mandatory (in the Albanian system) early childhood education to children ages three to five years old.

Kindlint: A Dutch term describing a walking route through a neighborhood that avoids major streets.

light trespass: Incidental illumination that can cause irritation to residents if it shines inside their home.

low-emission zone: A legally protected area where traffic is substantially reduced or banned completely, with the goal of improving the air quality.

masking: Adding artificial sound (referred to as “white noise” or “pink noise”) into an environment to cover up harsh, unpleasant sounds.

median: The segment of the roadway that separates either lanes of opposing directions or local lanes from through-travel lanes.

median island (or, pedestrian refuge island): A median that is adequately large for ITCs to safely stand in the middle of the road when unable to continuously cross.

median pocket park: A median that is activated for public use by the addition of seating and greenery.

midblock crossing: A marked street crossing situated where there is high crossing demand far from an existing intersection.

mobility chain: The sum of a household unit’s daily trips to, for example, work, educational facilities, recreation, and public services.

neighborhood: An ultra-local community of “place,” whose boundaries are defined both geographically and socially. The neighborhood refers to where people live and—especially young children—spend most of their time.

no-idling zone: Area where a vehicle’s engine is forbidden from running if it is not in motion.
nursery: Facility offering optional childcare to children from six months to three years of age.

open-ended play: A form of play without rules, instructions, or guidelines, often done with everyday objects that can be played with in a variety of ways according to a child's imagination.

passive design: A form of building design that makes use of the outdoor climate to reduce energy use associated with indoor climate control.

paver (or, unit pavers): Uppermost layer of exterior flooring. Unit pavers are small modules of paving (such as tiles) placed close to each other to create a paving layer.

pedestrian: Any person using the street to move without the aid of a motor.

pedestrian countdown signal: A signal that shows how many seconds before the change of the light.

pedestrian scramble: A traffic signal that stops vehicle movement in all directions, allowing pedestrians to cross an intersection in every direction, including diagonally.

perennial: A plant (including trees and shrubs) that live more than two years and can grow a woody stalk that endures seasonally (as opposed to annuals or biennials, whose entire life cycle occurs within one to two years).

permeability: A material's ability to allow water to pass through it.

percolation pit: A hole dug into the ground that facilitates groundwater recharge by channeling surface runoff into the soil.

percolation test: A test that measures the rate at which the soil is absorbing water.

pinch point: A midblock curb extension that is used to calm traffic and support midblock pedestrian crossings.

Play street: A street, typically within a residential area, where residents temporarily block motor traffic to allow children to play. Play street events can accommodate various sports and activities, as well as interactions between neighbors of all ages.

play worker: A person, usually educated in child development, who watches over young children when they are playing at playgrounds or other play areas, allowing caregivers to let down their guard.

pocket park: Leftover or unused public spaces that have been transformed into a verdant area.

pop-up play: An area with temporary playable structures and surfaces, usually within a street.

porous paver: A paver that allows for water to seep downward into the soil rather than moving laterally, usually through gridded holes that are filled with gravel, soil, grass, or another groundcover.

raised crosswalk: A crossings flush with the vertical level of the sidewalk, sometimes referred to as “tabletop crossings.”

road grading: The process of using heavy machinery to restore the evenness of a road.

runnel: A concrete- or stone-lined pathway whose function is to direct rainwater runoff along the surface to other stormwater-control measures or main control systems.

school street: A street directly adjacent to a school, where traffic-calming measures or car-free zones have been implemented for student drop-off and pickup.

sharrow: A road marking that indicates a lane is to be shared by cyclists and drivers.

sidewalk: A paved path that runs parallel to and is usually elevated above the carriageway, designed primarily for pedestrian movement.

site furnishing: Furniture in the public realm, such as benches, bicycle racks, news racks, public art, sidewalk restrooms, or waste receptacles.

sky glow: The oversaturation of the sky with artificial light, created when light is incorrectly directed to the sky from a ground reflection.

speed tables: A traffic-calming technique similar to a raised crosswalk that makes the paved area of the crossing flush with the sidewalk. Speed tables are longer than speed humps and flat-topped.

street corridor: The entire width of a street between two opposing building facades.

streetscape: The elements of the street—the carriageway, pavements, adjacent buildings, street furniture, trees, and other public or open spaces—that combine to form the street's character.

stormwater facility: Street infrastructure element that ease the burden on the city's drainage system by collecting and moving stormwater.

stroller rail: A narrow ramp installed in stairs that allow strollers and other wheeled equipment (e.g. bicycles or wheelchairs) to roll up or down.
**structural soil:** A mixture of gap-graded gravels and soil that can be compacted such that it provides a strong pavement system while permitting healthy root growth of surrounding trees.

**swale:** A shallow, vegetated depression designed to capture, treat, and infiltrate stormwater runoff as it moves downstream. They are typically designed to treat the water from the first stage after a storm event, when it is often most-polluted, before passing it onto the next stage of water treatment.

**toddler:** A child between the ages of twelve to thirty-six months.

**traffic calming:** Traffic-control strategies to slow traffic and emphasize the pedestrian nature of a space.

**transit shelter:** A shaded structure near a bus stop. It can range from a simple structure that provides shading from above to a more elaborate and spacious structure with seating.

**tree grate:** An iron grate used to protect the exposed soil near the trunk of the tree from compaction and other stresses of the street.

**tredge:** A tree that is managed as a hedge and used to shield a space (such as a schoolyard) from traffic noise and air pollution.

**tree pit:** The opening in pavement kept free from underground wiring and plumbing, and backfilled with soil for a tree-root system.

**understory:** Underlying layer of vegetation located between the forest canopy and the ground cover. Understory landscaping consists of sidewalk planting strips and landscaping in tree basins.

**urban freight:** Trucks, container ships, and other large vehicles that transport goods and cargo through an urban center.

**urban heat island:** An urban or metropolitan area that is warmer than its surrounding areas (urban or rural) due to heat-absorbing materials.

**utility box:** A box at street level containing fuses connected to the electric grid, or in some cases other lighting or electric controls.

**vegetated buffer strip:** A plant buffer on the side of a road that treats runoff from roads and highways, small parking lots, and pervious surfaces.

**vegetated gutter (or, green gutters):** Narrow landscape systems, usually placed along street frontages, that capture and slow stormwater flow.

**water wall:** A cascading water feature along a wall that recirculates water through a pump.

**wayfinding:** The signaling of a path through various means, such as signage and paving materials.

**woonervf:** A Dutch term for a holistic intervention into a residential street intended to transform it from a channel for vehicular mobility into a social space where it is safe and appropriate to be stationary.


Government of the District of Columbia- Office of Planning, District Department of Transportation.


National Center for Safe Routes to School. “SRTS Briefing Sheets: School On-Sight Design.” 2012. ITE, www.ite.org/pub/?id=e2660aa0%2D2354%2Dd74%2D50d%2D6a
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WORKSHOPS ROUND 1
MARCH 21 – 29, 2019

WORKSHOPS ROUND 2
APRIL 2 – 9, 2019

WORKSHOP ROUND 3
APRIL 12, 2019
Qendra Marrëdhënë (Relationship Center) collaborates with local institutions to build just spaces for children and those who care for them.

www.qendra-m.org