

**Toolkit from the
US-ASEAN Smart Cities Mobility Program**

**PEDESTRIAN-FOCUSED SIDEWALK DESIGN:
COMMUNITY-ENGAGED AND DATA-DRIVEN
DECISION MAKING**

INSIGHTS FROM PHNOM PENH AND BOSTON



Sponsorship

The authorship of this toolkit is the result of a collaboration between the organizations listed below.

Volpe National Transportation Systems Center

METRANS Transportation Consortium at the University of Southern California

Institute of Technology of Cambodia

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INTRODUCTION

Sidewalk barriers, such as illegally parked vehicles and motorbikes, unattended micromobility devices (e.g., electric scooters), food vendors, and outdoor dining furniture, are a common urban transportation challenge that many communities face globally. These limit pedestrian mobility, reduce accessibility for people with disabilities, and can create unsafe walking conditions. Addressing these obstructions requires balancing a vibrant street network with the need for safe and efficient pedestrian walkways. This toolkit outlines lessons learned and data-driven best practices for 1) planning and designing sidewalk spaces in urban environments with mixed land uses, and 2) engaging key partners and members of the public in the delivery of sidewalk projects.

This toolkit is the result of the Smart Mobility Program, a U.S. Department of Transportation (USDOT)-led initiative under the U.S.-ASEAN Smart Cities Partnership. This program engaged experts from four peer-to-peer pairings representing 8 cities across the U.S. and Southeast Asia, with research support from a university team led by the METRANS Transportation Consortium at the University of Southern California. This toolkit summarizes outcomes from the pairing representing Phnom Penh, Cambodia and Boston, Massachusetts. This partnership included participation from the following agencies:

Phnom Penh Capital Administration (PPCA): PPCA plays a key role in the planning, design, and implementation of roadway infrastructure projects. They also coordinate internally within their respective city departments and local officials, and under the guidance of leadership officials including the Governor

Box 1. What is the [U.S. - ASEAN Smart Mobility Program](#)?

This program addresses the transportation priorities of participating ASEAN smart cities by identifying innovative solutions to urban transportation challenges. The primary participants are local and regional transportation planner and policymakers from eight cities across the U.S. and Southeast Asia working on projects of mutual interest. The program focuses on how effective policy setting, good planning practices, the judicious use of technology, and targeted engagement with the private sector can increase mobility and improve transportation network operations. Participating cities include:

- Johor Bahru, Malaysia and Portland, Oregon
- Phuket, Thailand and Las Vegas, Nevada
- Phnom Penh, Cambodia and Boston, Massachusetts
- Jakarta, Indonesia and Los Angeles, California

The University Partnership Program (UPP) was formed to assist the city pairs with field research to support policy objective. The UPP is led by the METRANS Transportation Consortium at the University of Southern California and brings together four Southeast Asian Universities to lead research projects:

- Chulalongkorn University
- Institute of Technology of Cambodia
- Universitas Indonesia
- Univerisity Teknologi Malaysia

and Deputy Governor of Phnom Penh.

City of Boston: The City of Boston's Transportation Department is responsible for planning, building, maintaining, and operating city streets. They also oversee a range of projects including a bike share program, corridor redesign, bike lane implementation, and priority bus lanes, among others.

Massachusetts Bay Transportation Authority (MBTA): The MBTA is the public agency responsible for operating most public transportation services in Greater Boston. The MBTA is a division of the Massachusetts Department of Transportation (MassDOT), and provides subway, bus, commuter Rail, ferry, and paratransit service to eastern Massachusetts and parts of Rhode Island.

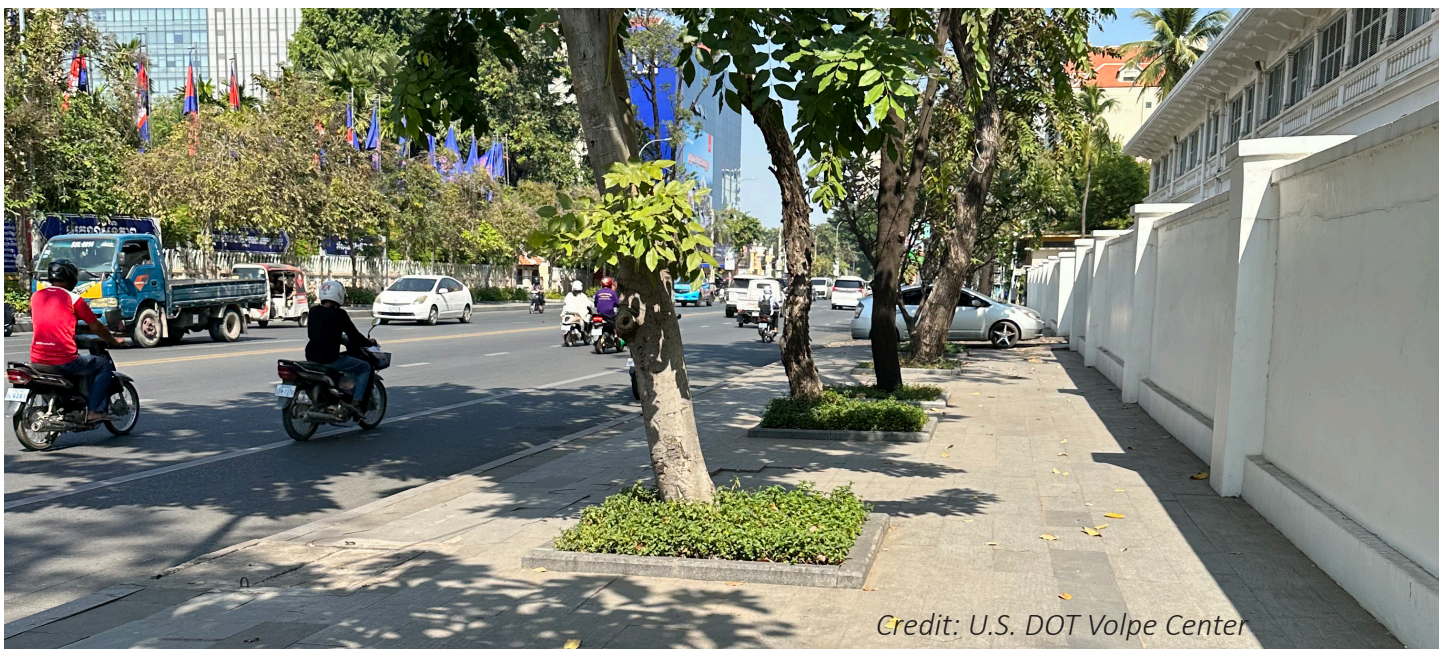
The cities of Phnom Penh, Cambodia and Boston, Massachusetts have experienced rapid growth and urban development in the last several decades. Although these cities have key differences in geography, culture, and history, both Phnom Penh and Boston share challenges related to roadway infrastructure, traffic patterns, and environmental conservation due to urban expansion and sprawl. The Phnom Penh administration seeks to make their city safer, more accessible, livable, and healthier by supporting the ability of users to safely and efficiently travel by a variety of means, including safer roadways, more comfortable sidewalks, and accessible curb spaces. Boston seeks to continue their effort to ensure their city meets the needs of residents, to advance mobility options that support safe, integrated travel, and to balance economic growth and environmental preservation. Together, these cities are exploring innovative transportation technologies and planning processes to ensure

their road networks are safe for all users.

What you will learn from this toolkit

This toolkit is intended for government practitioners and urban planners involved in the planning, design, and maintenance of sidewalk improvements. It includes best practices and strategies related to data analysis, stakeholder coordination, and public engagement. The primary audience for this toolkit is practitioners looking to become “smarter” by doing more with less, leveraging community partnerships, and identifying opportunities to apply low-cost, quick-build innovations and demonstrations to address transportation challenges. This toolkit will help cities facing similar challenges identify community-supported interventions to reclaim sidewalks and public spaces for pedestrians, thereby improving walkability. The toolkit covers the following steps to develop pedestrian-focused sidewalks:

- Stakeholder and community engagement. As a first step in planning for major changes to infrastructure or how infrastructure is used, especially when these changes conflict with existing norms, public engagement and consultation with stakeholders is critical
- Data-driven approaches for planning and designing sidewalks. Sidewalks in large cities are spaces that connect complex urban environments with mixed land uses (e.g., businesses, food vendors, transit facilities). Effective use of sidewalks requires data on both current use, barriers to intended use, and addressing the needs of users. To that end, the toolkit covers methods to assess the built environment, assess support for changes to sidewalks from users and community representatives, and consideration for implementing



Credit: U.S. DOT Volpe Center

and maintaining sidewalk projects.

- Best practices and recommendations. The toolkit provides a set of lessons learned to guide public sector actors in decision-making processes that are aligned with feasible plans and have public support.

This toolkit does not provide guidance on how to design or engineer street cross-sections. The project began with a shared understanding of the core problem: competing sidewalk uses, particularly informal parking and commercial activities, that limited pedestrian movement and access to transit. Based on this problem definition, a technical design team led by Mr. Phanin developed a set of conceptual design options intended to balance parking needs, pedestrian safety, and transit accessibility. These design concepts were not the output of the toolkit; rather, they served as inputs to the research. The data collection and engagement activities documented in this toolkit were used to assess whether the proposed changes aligned with user needs, operational realities, and the priorities of community leaders and city officials.

SIDEWALK DESIGN AND MANAGEMENT: DEFINING THE PROBLEM IN THE ASEAN CONTEXT

Phnom Penh's rapid urban growth since the late 1990s has placed intense pressure on street space that was never designed to accommodate current levels of motorization. As traffic congestion has increased, sidewalks have become informal extensions of the roadway—used for parking, loading, vending, and private commercial activities rather than pedestrian movement. Although sidewalks exist along many major corridors, they are frequently obstructed, discontinuous, or in poor condition, leaving pedestrians with few safe or reliable walking options. These conditions also undermine access to public transit: buses operate on major roads, but poor sidewalk connectivity and blocked walkways make reaching bus stops difficult and unsafe. Weak enforcement and the absence of a clearly defined authority responsible for sidewalk management have allowed these practices to persist, effectively eroding the pedestrian realm.

These challenges are particularly evident along Monivong Boulevard, one of Phnom Penh's principal arterial roads and a focal area for improvement by the Phnom Penh Capital Administration (PPCA). The corridor serves a wide range of users and land uses—pedestrians, cyclists, motorcycles, auto-rickshaws, buses, freight vehicles, commercial establishments, residences, and major public institutions—within a constrained right-of-way. While sidewalks are present on both sides of the boulevard and are formally designated for pedestrian use, they are routinely occupied by parked vehicles, business equipment, and informal modifications by adjacent property owners. Limited off-street parking, high parking costs, and the absence of a street-parking pricing culture further incentivize the use of sidewalks as de facto parking space.

Addressing these conditions requires more than physical upgrades. Effective sidewalk management in Phnom Penh depends on clear rules, coordinated governance, and consistent enforcement to balance competing demands for limited street space. By prioritizing sidewalk improvements along Monivong Boulevard, PPCA is using this corridor as a test case to reclaim pedestrian space, establish clear parking limits, and strengthen the role of sidewalks as essential infrastructure for walkability, public transport access, and overall urban mobility.

METHODS FOR REDESIGNING PEDESTRIAN-FOCUSED STREETS

The research conducted under the Smart Mobility Program sought to understand how sidewalks are currently used in Phnom Penh, the barriers pedestrians face, and the

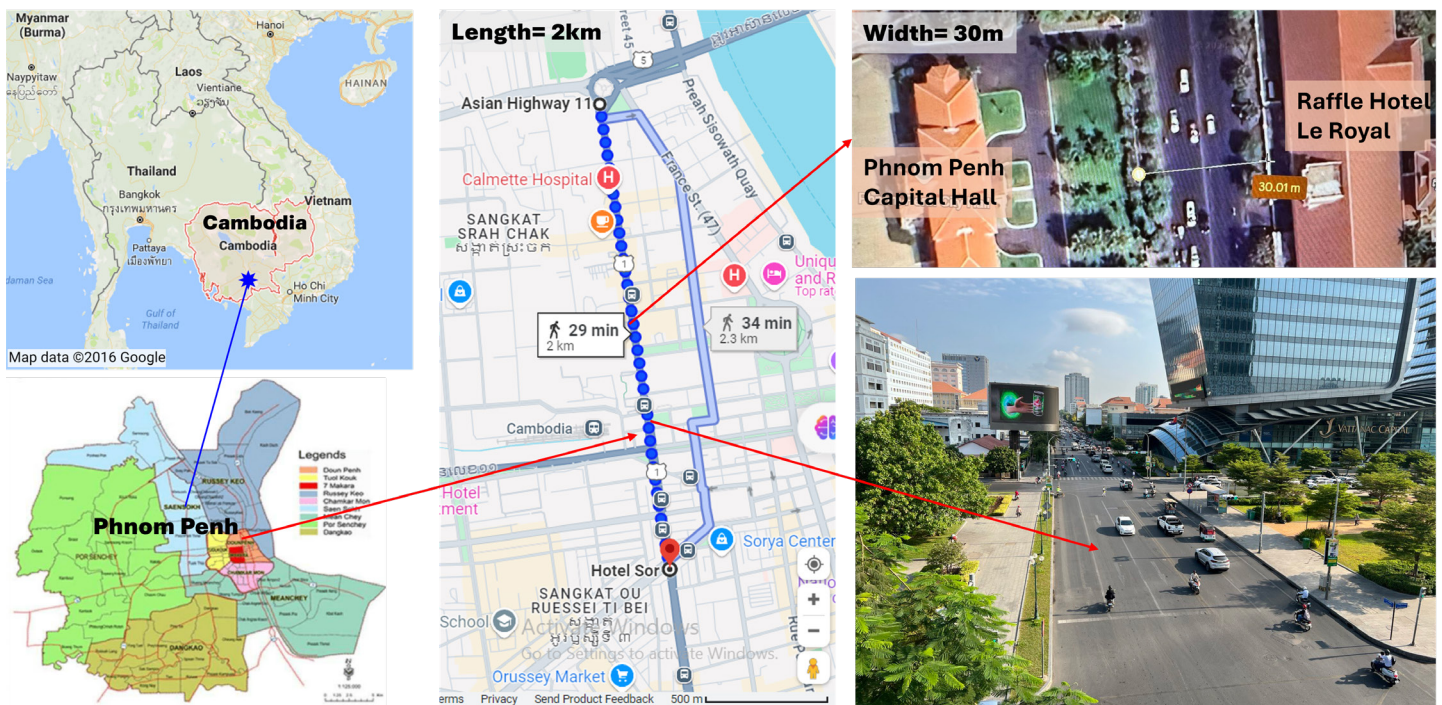


Figure 1. Location of the 2-km segment of Monivong Boulevard, in Phnom Penh, Cambodia (Source: ITC)

conditions required to improve sidewalk accessibility. A central challenge identified was the competition between pedestrian use and informal parking, particularly in commercial areas where off-street parking options are limited. Addressing this tension requires a multi-pronged approach that captures both parking demand and pedestrian behavior. To do so, the UPP team examined sidewalk use along Monivong Boulevard, and how proposed design changes might affect users, through a combination of data collection and community engagement methods, including a parking study, mapping and site surveys, pedestrian surveys, and interviews with Sangkat Chiefs and other local officials. No single dataset captures both formal regulations and informal sidewalk use, so the research combined quantitative observation with qualitative engagement to build a comprehensive picture. Together, these methods provide insight into how sidewalk design, parking management, and governance arrangements can be improved to reclaim space for pedestrians. The following section presents a framework of best practices for implementing sidewalk projects as part of a safe and integrated road network, drawing on key findings from the research led by the Institute of Technology of Cambodia (ITC).

Data Collection and Analysis

This section focuses on how data were collected and applied to inform decisions about sidewalk management, prioritization, and implementation in Phnom Penh. The project did not use data to generate design solutions; instead, it combined multiple data types to document existing conditions and to evaluate how preliminary design concepts would affect sidewalk users and surrounding activities. These data included

observations of pedestrian and parking activity, documentation of land use and access constraints, assessments of safety and site conditions, and input from community members and local officials. Together, these activities helped the team identify priority locations, clarify the sources of conflict between pedestrians and vehicles, and assess whether the proposed design concepts aligned with user needs and local priorities. The Phnom Penh project progressed through several stages of collaboration among city officials, peer experts from Boston, and the UPP research team. The following sections describe how the study area was selected and how specific data needs were identified and addressed.

Identifying and Evaluating a Priority Location

Selecting a location for sidewalk reconstruction typically combines policy priorities with a data-informed assessment of community goals, stakeholder input, and public engagement. In Boston, where transportation policy emphasizes safety, accessibility, and state of good repair, sidewalk and street projects are prioritized through the city's long-range transportation plan, Go Boston 2030. The city relies on a comprehensive data framework, giving priority to projects located on the High Crash Network or within areas ranking highest on the Social Vulnerability Index. Project selection is coordinated with scheduled roadway repaving and sidewalk maintenance to improve network continuity and maximize efficiency.

In selecting a pilot location for the Smart Mobility Program research, PPCA prioritized a location in Phnom Penh that has the greatest potential to advance the city's mobility goals.

The team developed a corridor evaluation framework (see Appendix A) that draws from Boston’s corridor analysis practices, with key priorities related to improving safety where crashes are prevalent, increased network connectivity and access to transit, and enhanced mobility options for vulnerable road users (e.g., children, people with disabilities, and older adults). This process involved assigning points across different categories, such as crash history and network connectivity. The process faced limitations due to data availability, which informed the next step of the research in terms of data collection. The team complemented

the corridor evaluation with knowledge of existing conditions, current and long-range smart city goals, and direction from PPCA leadership. The choice of Monivong Boulevard, a high visibility and high traffic artery, also supported the goal of serving as a model for future mobility interventions.

Establishing Benchmarks and Documenting Existing Conditions

Monivong Boulevard is one of Phnom Penh’s primary arterial corridors and a highly visible public space. Its heavy traffic volumes and mixed land uses make it both a site of acute mobility challenges and



Figure 2. Sidewalk along Monivong Boulevard in Phnom Penh shows damaged sidewalk and pedestrian access blocked by parked vehicles, motorbikes, and storefront activities. (Credit: U.S. DOT Volpe Center)

a valuable test case for approaches that could be applied elsewhere in the city. For this reason, the research team focused on establishing baseline benchmarks to document existing conditions and to create a reference point for evaluating how pedestrian use and street activity may change following sidewalk improvements. All data collection activities were conducted with approval from PPCA, and the necessary permits were issued to the research team.

The team began by collecting benchmark data on overall street use, including vehicle and pedestrian activity and ambient pollution levels. Traffic volumes and vehicle composition were measured using a combination of temporary video cameras and manual counts conducted by trained research assistants. Cameras were installed at selected locations and programmed to capture conditions during different periods of the day, representing varying congestion levels. These data provided insight into traffic intensity, modal mix, and peak-use periods along the corridor.

Pedestrian data collection focused on both crossing behavior and sidewalk use. At two high-volume crossings near a major hospital, the team administered in-person surveys to understand how frequently pedestrians crossed the boulevard and how safe they perceived those crossings to be. This survey yielded responses from 61 participants. A second pedestrian survey was conducted at multiple locations along the corridor to capture how people moved along the boulevard, their trip purposes, and perceived barriers to walking. This effort resulted in 161 completed surveys. All surveys were administered face-to-face by trained research assistants to ensure consistency and data quality.

Finally, because one objective of the boulevard redesign is to support greater use of public transit and reduce car-related congestion, the team collected air quality measurements along the corridor. Using portable pollution monitoring equipment, measurements were taken at street level at multiple locations and times of day to reflect conditions experienced by pedestrians. These data established an environmental baseline against which potential changes associated with sidewalk improvements and shifts in travel behavior can be assessed. These benchmarks are designed to be replicable over time and transferable across locations, providing PPCA with a practical model for documenting conditions and evaluating sidewalk improvements elsewhere in the city using consistent methods and shared materials.

Community-Responsive Roadway Design

Context-Sensitive Solutions and Design Approach

The conceptual designs developed for Monivong Boulevard were intentionally preliminary and flexible, serving as discussion tools rather than final engineering solutions (see Figure 3). By omitting detailed engineering constraints, parcel-level impacts, and regulatory requirements, the designs were intended to elicit reactions from stakeholders and users. The designs will be refined based on insights gathered from data collection and engagement activities.

Street design plays a critical role in shaping how sidewalks are used and how safe, comfortable, and accessible public space is for pedestrians. A widely adopted best practice is to define street typologies—such as arterials, collectors, and local

streets—to ensure that the allocation of space for vehicle lanes, parking, sidewalks, buffers, and other elements aligns with surrounding land use, pedestrian demand, and mobility needs. Applying this approach to Monivong Boulevard required a detailed understanding of how land uses vary along the corridor and where special conditions warranted tailored solutions.

The city conducted an initial land use survey, which the research team expanded through a more detailed analysis aligned with building footprints. Using a combination of GIS data and on-the-ground observations, the team classified dominant land uses and identified segments with distinct characteristics, such as higher concentrations of residential, institutional, or commercial activity. This analysis provided a consistent basis for comparing needs along different sections of the boulevard.

Land use information was paired with a parking study to better understand how curb and sidewalk space was being used. For example, hospitals and hotels often provide off-street parking and actively manage sidewalk conditions to maintain access for pedestrians and vehicles. In contrast, areas dominated by small-scale commercial and residential uses may show greater reliance on sidewalks for informal parking and loading activities. The parking study documented the off-street parking supply, typical occupancy and vacancy rates, and the extent of informal on-street parking. Together, these data helped the team develop hypotheses about why parking pressure persisted despite the presence of local parking options and informed context-sensitive design responses along the corridor.

Context-sensitive design depends not only on physical conditions but also on how people actually use and perceive sidewalk space. The project incorporated user perspectives to identify barriers, tradeoffs, and priorities that are not evident from spatial data alone. The following section summarizes the approach to developing and implementing a pedestrian survey and interviews with community leaders.

Integrating User Experience into Sidewalk Planning

Sidewalks are spaces of shared use, often characterized by competing needs. How users perceive obstructions or conflicts depends in part on trip purpose and context. For example, street vendors may impede pedestrian movement for some users while serving as an important destination for others. To capture these perspectives, the project relied on intercept surveys, a method designed to gather feedback from users directly in the space and at the time of their experience.

Intercept surveys are administered in the field and are intentionally brief, since they interrupt people's activities. In this project, the survey included 23 questions and took approximately four to five minutes to complete. Questions covered perceived safety, types of obstacles encountered, basic respondent characteristics, and reactions to the proposed sidewalk design. To support these discussions, respondents were shown images of the existing streetscape alongside renderings of the proposed design. The survey served two purposes: documenting current sidewalk experiences and assessing whether the conceptual designs addressed user concerns.

BEFORE

AFTER

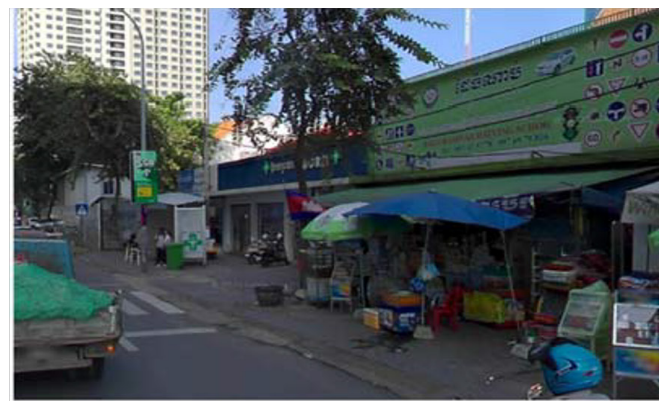


Figure 3. Side by side comparison of existing conditions and conceptual design.

A limitation of intercept surveys is that they are resource-intensive and sensitive to context. Each round of data collection requires in-person fieldwork, and external factors—such as weather or time of day—can influence responses. To mitigate these effects, the research team refined the questionnaire through internal testing and a field pilot to ensure clarity and consistency. Surveys

were administered on weekdays only, and respondents were selected at regular intervals (every fifth passerby) to reduce selection bias. Formal permission was obtained from relevant government authorities, which was essential both for field access and for establishing the legitimacy of the survey with respondents.

Following finalization of the instrument, the research team trained student enumerators

during a half-day session that covered safety protocols, the display of permits, and standardized procedures for approaching potential respondents. Surveys were conducted at predetermined times to improve comparability across responses. The target sample size was 150 pedestrians; of the 185 individuals approached, 161 completed the survey. Participants were offered a modest incentive (a pen) as a token of appreciation.

While pedestrians are the primary users of sidewalks, the project also identified local officials as critical stakeholders in sidewalk management. In the Phnom Penh context, sangkat chiefs—who serve as leaders of local administrative subdivisions—play an important role in enforcing sidewalk regulations, including parking controls. Four sangkats overlapped with the study corridor. With approval from city authorities, the research team conducted one-on-one interviews with each sangkat chief using a common interview structure administered by the research team lead. These interviews focused on sidewalk governance and enforcement,

relationships with residents and businesses, and reactions to the proposed designs.

Insights from pedestrian surveys and interviews with sangkat chiefs were analyzed together to identify areas of alignment and tension between user experience and governance realities. Pedestrian feedback highlighted where sidewalk conditions most directly affected safety, comfort, and accessibility, while discussions with local officials clarified enforcement constraints, parking pressures, and institutional responsibilities. Taken together, these perspectives helped the team refine design priorities, identify locations where management solutions would be as important as physical changes, and ground recommendations in both lived experience and administrative feasibility.

RESULTS FROM A CASE STUDY IN PHNOM PENH, CAMBODIA

Benchmarking and establishing context

The first phase of data collection focused on strengthening the evidence base for the study area by documenting existing



Credit: Ethan Long
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conditions related to land use, pollution exposure, parking availability, and pedestrian experiences when crossing the boulevard. Together, these activities produced a set of baseline indicators to support design decisions and future evaluation.

The land use survey revealed a strong imbalance in how space along Monivong Boulevard is allocated. Large public and institutional uses account for more than 75 percent of the built area, while residential uses represent only about 1 percent (Figure 4 illustrates the distribution of building footprints). This finding indicates that sidewalk encroachment by parked vehicles is largely driven by visitor demand rather than residential parking needs. Although many public and institutional buildings provide off-street parking, survey results suggest that users are often unwilling to pay higher parking fees or walk the distance between formal parking facilities and their destinations. This mismatch between parking supply and convenience helps explain persistent sidewalk occupation.

Traffic flow analysis showed that motorcycles dominate vehicle traffic along the corridor, while cars account for roughly one in five vehicles. Pedestrian survey results indicated

that vehicle speed is the primary factor influencing perceived safety when crossing the boulevard (see Figure 5). Respondents consistently identified pedestrian traffic signals as the most preferred intervention to improve crossing safety at busy locations.

Taken together, these findings establish clear benchmarks against which future changes can be measured and directly inform the design approach for Monivong Boulevard. The results also provide actionable guidance for the city on where alternative parking may be most effective, how parking pricing could be used to reduce sidewalk encroachment, and which interventions are likely to improve pedestrian safety at key crossings.

User perspectives on the existing and proposed boulevard

Survey results indicate that most respondents use the sidewalks along Monivong Boulevard daily or several times per week, primarily for short trips to nearby retailers and food establishments. This finding underscores the importance of pedestrian-focused design while also highlighting the need to account for the operational needs of businesses that generate a high volume of local trips. Despite these competing demands, nearly nine in ten



Figure 4: Detailed floor area by business types along Monivong Blvd

respondents agreed that sidewalks should be reserved for pedestrian use and expressed support for the proposed design, which clearly delineates pedestrian and vehicular space.

Support for the conceptual design was mirrored among sangkat chiefs. Chiefs reported that sidewalk conditions are a frequent topic of discussion with community members and that most residents and users express general satisfaction with the state of repair and basic usability of sidewalks. This aligns with survey findings showing that respondents viewed the existing infrastructure as largely adequate but in need of improvement, particularly with respect to crossing safety and pedestrian comfort. Chiefs also described their role in enforcing parking regulations and working with local businesses to limit vehicle use of sidewalk space.

Taken together, input from pedestrians and sangkat chiefs served two critical functions in refining the design approach. First, it demonstrated broad support for reallocating space to prioritize pedestrian movement and transit access. Second, it

suggested that sidewalk encroachment is driven more by capacity constraints than by a lack of willingness to comply with rules. While chiefs did not oppose stronger enforcement, both interviews and parking data pointed to localized parking demand that exceeds available supply. These findings reinforce the need for coordinated action among sangkat chiefs, city departments (such as public works), and adjacent businesses to pair physical design changes with parking management strategies

LESSONS LEARNED AND RECOMMENDATIONS

Stakeholder Coordination and Public Involvement

Engaging with those that reside, work, visit, have an interest in, or do business in an area potentially affected by transportation decisions is critical to successful project delivery. Other key stakeholders that should be involved in transportation investments decisions include traditional transportation planning partners, such as local government

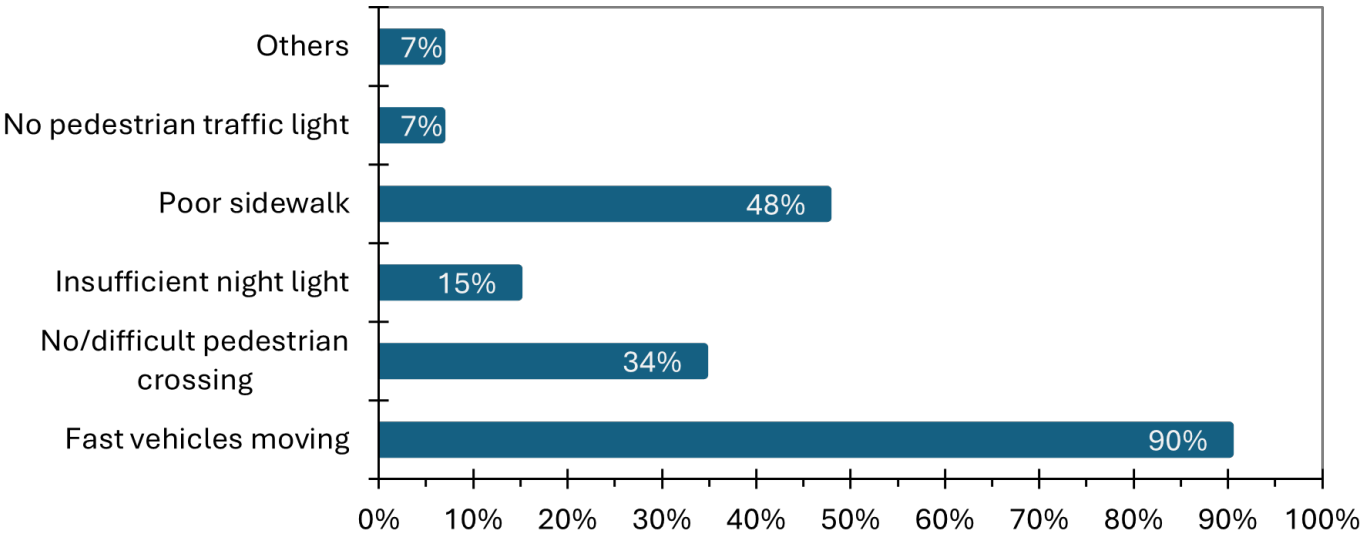


Figure 5: Major safety concerns for crossing the road (n = 61)



Credit: Mao Piseth [CC BY SA 4.0](https://creativecommons.org/licenses/by-sa/4.0/)

agencies and organizations, as well as advocacy groups and community-based organizations (CBOs) that serve communities. Conducting public involvement early and often throughout the transportation decision making process increases trust between agencies and the community, increases the likelihood that projects, programs, or plans will be accepted, and creates more effective solutions that directly respond to local needs.

The UPP pedestrian survey results highlight the strong impact that future sidewalks will have on Phnom Penh and residents' enthusiasm towards dedicated pedestrian walkways free of vehicles and barriers. The land use and parking surveys suggest that complementary strategies to redesign will be needed. People tend to park for a short duration and specific purpose (e.g., deliveries), making parking structures an unappealing alternative and enforcement

challenging. At the same time, respondents indicated that they would visit local businesses more often if sidewalks were cleaner and safer. Higher demand may spur more businesses to open and create higher demand for delivery spaces. Developing a strategy for managing deliveries and short-term parking will be important to ensure the redesign continues to prioritize pedestrians. The city pair discussed the potential impact that a parking subsidy could play in attracting the public to use the underutilized private parking lots in the area. There may be opportunities to pilot this effort on a temporary or small-scale to assess the community's response and overall benefits.

Public involvement also empowers people from different backgrounds to become involved in transportation decision making and generates ideas for deeper community involvement. The UPP team that administered

the survey included university students that engaged pedestrians along Monivong Boulevard during their commute. The intercept survey asked residents about the purpose of their walk, their perceptions of the pedestrian environment, and thoughts about a proposed redesign of the boulevard. This approach was important for PPCA as it invited community members, vendors, and commuters to share ideas and co-design sidewalk features (e.g., pedestrian crossings, night lighting, green buffers). Additionally, the research reveals the role that local champions play in influencing behavior change. For example, in both cities, local officials have organized “ride the bus with your local official” events or social media campaigns that invite community members to walk and take the bus with their local officials and share ideas or concerns. These findings show the impact that public involvement and participatory planning methods have on delivering long-term goals.

Based on the findings from the business census, traffic, air pollution, pedestrian behavior, parking study, sidewalk use, and insights from sangkat authorities, several recommendations can be made to improve Monivong Blvd.:

- Enhance pedestrian safety and accessibility
 - Install traffic lights and pedestrian signals at mid-block crossings, especially near high-demand locations like Calmet Hospital, and consider constructing pedestrian bridges where feasible.
 - Improve sidewalk conditions by repairing damaged surfaces, ensuring consistent width, and providing sufficient lighting to enhance safety during day and night.
- Reclaim and protect sidewalks

- Strictly enforce regulations to prevent illegal parking and vendor encroachment on sidewalks.
- Introduce designated pedestrian-only zones, supported by public education campaigns and regular monitoring by Sangkat authorities and police.
- Manage parking effectively
 - Implement structured parking policies with regulated on-street and off-street spaces, including time-limited and pay-per-use schemes to encourage turnover.
 - Encourage use of existing off-street and underground facilities to reduce sidewalk encroachment and improve pedestrian flow.
- Improve microclimate and comfort
 - Increase tree planting, shading structures, and street furniture along sidewalks to reduce exposure to extreme heat and provide resting areas, supporting longer and safer pedestrian trips.
- Reduce traffic-related pollution
 - Implement traffic management measures to reduce congestion at intersections and bus stops, such as dedicated turning lanes or signal timing optimization.
 - Investigate the use of low-emission vehicles and alternative transport modes to improve air quality along the corridor.
- Support vulnerable users
 - Ensure pedestrian facilities to accommodate elderly, disabled, and mobility-impaired individuals, including ramps, tactile paving, and curb cuts at crossings, particularly at high-demand locations like hospitals and schools.
- Encourage complete-street design
 - Fully implement the proposed complete-

street concept, integrating safe pedestrian pathways, regulated cycling lanes, greenery, and designated vehicle parking, as there is overwhelming support from both pedestrians and local authorities.

- Strengthen coordination and governance
 - Foster collaboration between Sangkat authorities, city hall, landowners, businesses, relevant ministries, and transport agencies to monitor and maintain sidewalks, manage parking and vendors, and ensure consistent enforcement of regulations.