How to

Evaluate Street Transformations

A Focus on Pop-up and Interim Road Safety Projects

Global Designing Cities Initiative

How to

Evaluate Street Transformations

A Focus on Pop-up and Interim Road Safety Projects

Edition I - May, 2022

Bloomberg Philanthropies
INITIATIVE FOR GLOBAL ROAD SAFETY

Global Designing Cities Initiative

About GDCI

Global Designing Cities Initiative (GDCI)

The mission of the Global Designing Cities Initiative (GDCI) is to inspire a shift toward safe, sustainable, and healthy cities through transforming streets around the world. We are a team of designers, planners, and urban strategists committed to working in support of city practitioners to get projects on the ground. We focus on empowering local officials and communities to become changemakers, equipping them with the knowledge, tools, and tactics needed to improve urban mobility and fundamentally change the role of streets in our cities.

GDCI Publications Referenced

Global Street Design Guide

Designing Streets for Kids

How to Implement Street Transformations

Fortaleza, Brazil

Special Thanks

The genesis, ideas, and content of this handbook are rooted in the experiences and lessons learned in the various contexts that the GDCI team has been fortunate to work in over the last six years, particularly as a partner of the Bloomberg Philanthropies Initiative for Global Road Safety (BIGRS) and the National Association of City Transportation Officials (NACTO), as well as Bloomberg Associates and the Streets for Kids program.

Special thanks to the city teams we've had the pleasure of working and learning with, including Addis Ababa, Bogotá, Cali, Fortaleza, Guayaquil, Istanbul, Milan, Mumbai, Quito, Recife, Salvador, São Paulo, Tirana, and more. We are honored to have learned so much from these experiences and look forward to continuing this important work together.

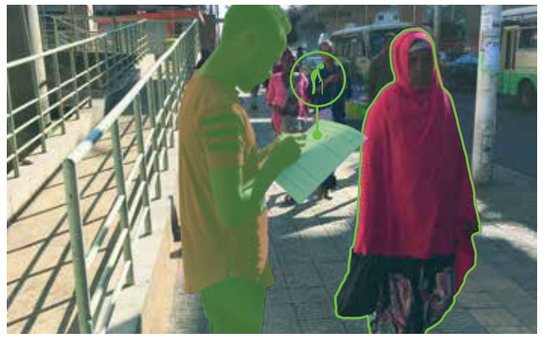
This handbook also builds on the work, research, studies, and publications of many individuals and organizations that, through the years, helped establish and consolidate the importance of measuring and evaluating street transformations.

We would like to acknowledge the wonderful work of authors, scholars, and practitioners such as William H. Whyte, Donald Appleyard, Jan Gehl, Jane Jacobs, Christopher Alexander, Allan Jacobs, and the work of organizations such as Vital Strategies, Johns Hopkins University, the World Resources Institute (WRI) and all the partners of the Bloomberg Philanthropies Initiative for Global Road Safety (BIGRS), the Institute for Transportation and Development Policy (ITDP), Project for Public Spaces, Street Plans Collaborative, Gehl Architects, Better Block, and many others that directly or indirectly contributed to or inspired this work. We are truly grateful to our external reviewers and contributors who have amiably reviewed this handbook and shared their invaluable knowledge and insights with us. See page 78 for a list of these individuals in the Acknowledgements section.

Contents

Introduction

Section A



Section B

Legend

To facilitate the navigation of this handbook, look for these buttons and boxes.

Bookmark
These buttons refer to external resources or parts of this handbook with complementary guidance on specific subjects

Pro tips
These boxes indicate key tips and important things to keep in mind

Case studies
These boxes show inspiration from cities we've worked with, showing how they've applied the methods and tools covered in this handbook

The importance of data

São Paulo, Brazil

Harness short-term impact

City authorities around the world are finding that investing in pop-up and interim projects can help build community support, improve designs, and speed up the pace of change. Data plays a critical role in propelling these short-term projects into permanent and widespread changes on streets. The *How to Evaluate Street Transformations* handbook is an approachable tool that provides a starting point for any reader to measure, evaluate, and communicate street design data related to road safety impact and their co-benefits.

This handbook is designed to complement the *Global Street Design Guide*. It draws on the experience of the Global Designing Cities Initiative (GDCI) and our partner, the National Association of City Transportation Officials (NACTO), in demonstrating the impact of street transformation projects. While implementing shorter-term, cost-effective solutions with quick-build materials, these interventions often lead to permanent projects through capital construction.

Since 2015, primarily within the Bloomberg Philanthropies Initiative for Global Road Safety (BIGRS) program, GDCI has worked with governments and data collection teams in cities around the world—including in Addis Ababa, Bogotá, Fortaleza, Mumbai, São Paulo and more—to design, implement, and measure the impact of temporary street transformation projects. Through this experience, GDCI has developed the approach, tools, and practices outlined in this handbook.

This handbook is intended for a diverse audience of public sector leaders, practitioners, community members, and other stakeholders interested in demonstrating the impacts of safer street transformation projects to encourage a broader conversation about what matters most on our streets as a key step toward longer-term, more permanent change.

Meaningful metrics can help cities to:

- **Expand upon data collection practices**
  to focus on more types of street users, mobility, and place functions
- **Measure the impact**
  of project designs
- **Analyze the performance**
  of new materials and ideas
- **Encourage fairer conversations**
  focused on equitable design strategies
- **Build evidence**
  on the importance and impact of safe, healthy, and sustainable streets
- **Strengthen community and political support**
  for projects through engagement

Street transformations

This handbook is intended to be applicable for "pop-up", "interim", and capital construction street transformation projects, with a focus on the first two types. Data can, and should, be collected at all phases whenever possible.

How do we define these different types of street transformations?

Pop-up street transformation project

Lasting a few hours up to a few days, a pop-up project is a quick way to generate excitement, demonstrate the immediate impacts of a design on a project site, trial a new design, and make the case for an interim project. A pop-up project uses temporary paint, cones, free-standing delineators, movable street furniture, and/or barriers.

Interim street transformation project

Lasting a few weeks, months, or years, an interim project generally uses street markings, paint, signs, free-standing delineators, plants, movable street furniture, and/or barriers. It gives the opportunity to experience the project and collect data over a slightly longer time frame: before, during, and after the project.

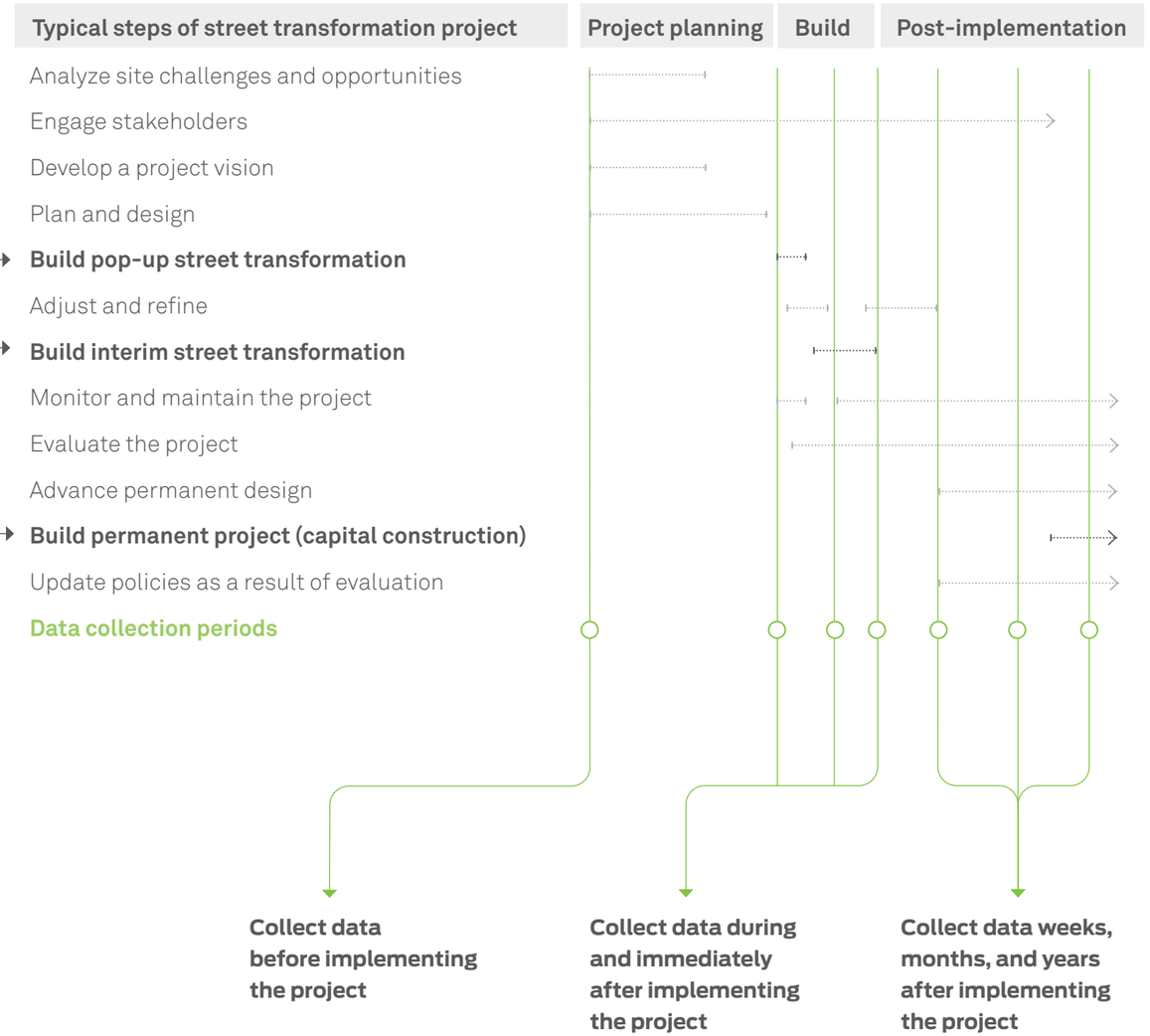
Capital construction project

Often, the ultimate goal of pop-up and interim projects is to lead to a permanent project through capital construction. This type of project allows for long-term impact evaluation over several years. Although this document's methodology can be applied to capital construction projects, the focus is on using data effectively during pop-up and interim street transformation projects to enable capital construction, or permanent change.

These three types of street transformation processes are not necessarily mutually exclusive or linear by nature. Depending on the budget, capacity, and political will behind your project, it could fall into any one (or any combination of) these categories.

For more information on how to implement a pop-up or interim street transformation effectively, reference the *How to Implement Street Transformations* handbook.

The three types of street transformations may occur in a sequence:



The importance of data | Harness short-term impact

USING DATA TO ADVOCATE FOR A PROJECT'S PERMANENCE

LeGare, Addis Ababa, Ethiopia

In partnership with the City of Addis Ababa, GDCI helped support the goal of improving road safety and reducing traffic injuries and fatalities around the city.

One key strategy for improving road safety is through effective street design. In order to test design approaches, a pop-up project was implemented at LeGare intersection in June 2016 and data was collected to understand the best long-term solution for this location.

Street transformation type:
Pop-up, interim, and capital

Project site:
LeGare intersection had long been a hotspot for road crashes, with more than 80 crashes recorded between June 1 and November 30, 2015. Given its poor safety record and high pedestrian volume, LeGare was chosen for the first pop-up project in the city.

Project outcome

After the interim transformation, there was a **33% reduction in vehicular speeds** on weekends,

92% of surveyed pedestrians were satisfied with levels of safety, comfort, convenience, and attractiveness (compared to 24% before),

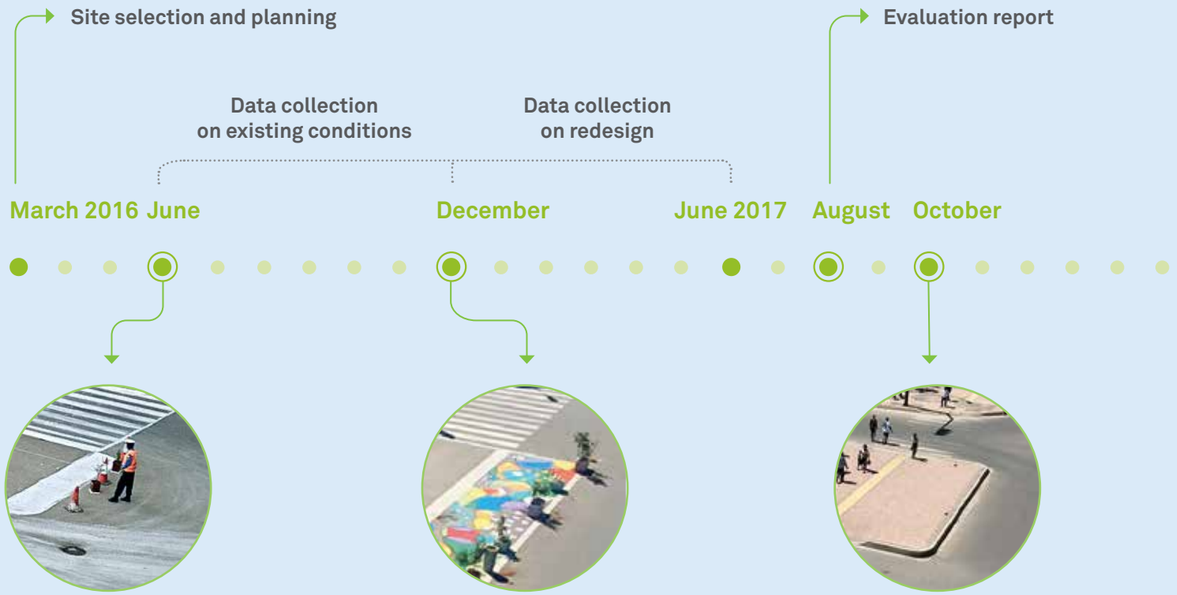
and **13% more pedestrians crossed the street on protected facilities**


BEFORE


POP-UP


INTERIM


CAPITAL



POP-UP PROJECT

The intersection geometry was transformed using chalk, string, and plants borrowed from a local nursery. Lanes were narrowed and aligned to shorten crossing distances and lower vehicle turning speeds.

The one-day implementation, a first for the city, gave the team the opportunity to engage with head city officials. They were able to see and experience the site, analyze critical movements, and to collect data quickly. **This was a powerful tool to get permission to paint and enter the interim project stage to collect more robust data.**

INTERIM PROJECT

The successful one-day trial helped gain support from local officials to pursue a six-month interim street transformation.

A lack of proven local precedents, limited funding, and regulatory restrictions created barriers for innovative solutions. The interim project allowed Addis Ababa to trial ideas in a flexible, low-cost way before investing in permanent construction. **The six-month duration also provided enough time to collect longer-term data, which showed reduced vehicle turning speeds and increased pedestrian satisfaction and protection.**

CAPITAL CONSTRUCTION

In October 2017, a longer-term design was implemented.

The data collected at the previous stage garnered support for the permanent construction of the project. The LeGare experience led to the development of the citywide Safe Intersections Program, and over 17 intersections have been transformed since 2018.

How to navigate this handbook

The sections outlined below will walk you through how to set up your data evaluation plan. *Refer to each chapter listed in the first row of the chart for more information.*

	A Identify where to start			**B** Measuring impact				
Reference section	A1	A2	A3	B1	B2	B3	B4	B5
Process of evaluating a street transformation	**Understand and prioritize the issues at hand**	**Select metrics that will evaluate the project goals**	**Determine when to collect data**	**Organize the team**	**Select appropriate tools**	**Collect data on site**	**Standardize and analyze the data**	**Communicate the results**
What you will find in this section	→ Compile data from existing databases, archives, and online research about the project site and surrounding network → Identify preliminary data to collect on site from conversations with communities, site observation, etc. → Come to an agreement about the collective goals and priorities	→ Define what a successful project would look like and achieve → Prioritize the metrics that matter most to demonstrate the impact of the project	→ Create a schedule to collect the same data before, during, and after the project is implemented to understand the impact over time	→ Identify, train, and brief surveyors → Define the data collection schedule and prepare a surveyor location map to guide the team on site	→ Select visual documentation tools according to what you want to capture and show → Prepare data collection tools that will support the counts and measurements on site	→ Prepare forms/boards to support standardized data collection → Understand different types of data, tools that can support its collection, and things to look out for while on the project site	→ Use spreadsheets and other tools to extract valuable metrics → Analyze the variation in data (before, during, and after the project is built) to understand shifts in use and function, and to evaluate the resulting impacts	→ Use a variety of visual tools and strategies to disseminate information about your project throughout the process and beyond → Encourage broader conversations about the important role of our city streets

The importance of data | Harness short-term impact

São Paulo, Brazil

A

Identify where to start

A1 | Understand and prioritize the issues at hand

Collecting data at the planning stage is fundamental to the success of the project. Studying the existing site dynamics through various sources of data will provide a stronger understanding of the site and what is possible.

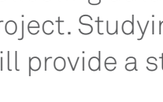
The collected data will also serve as a benchmark of the site conditions and community voices, which can be referred to after the implementation to measure success, and to inform the planning and design processes.

The process described begins after the project site has been selected. For information on how to select the site, see *How to Implement Street Transformations*, *Section A*.

Types of data:

Existing databases and archival research

For instance, crash, injury, and traffic fatality data can typically be sourced from your city's police department or paramedic records. Other useful data could include land use, demographic information, street user counts, and more.



Information from technical drawings

Study and confirm dimensions of existing base maps or create new ones to include the necessary details that can influence your design decisions and operational changes.

Online research

Additional baseline data can be found outside of city archives, including local news and research conducted by other organizations.

Interviews, focus groups, and intercept surveys

To understand the priorities, insights and feedback of community members and other stakeholders.

Observational data

To understand behavior, activity, challenges, and characteristics of a project site. This can be qualitative and/or quantitative.

Initial steps

Below is an overview of how to launch the data collection process for a chosen site, and define what success will look like. If available, begin by compiling data from existing databases, archives, and online research about the project site and surrounding network. Examine existing city planning documents and strategic plans. This will help align the project to current city goals, and determine what data gaps exist, potential impediments, and what still needs to be collected. Considering the often fast-paced timelines of pop-up and interim projects, it is essential to prioritize which data to collect, measure, and analyze.

What data exists, what is missing, and how can it be sourced or collected?

- What should be collected at the site, online, and/or from the city's existing databases and archives?
- What preliminary data do we already have about the city and neighborhood scales?
- What additonal data do we need to study the challenges, potential benefits and impacts of the project?
- What resources are available? (Staff, finances, materials?)

Collect more background data on site

- With whom in the community can the team conduct preliminary conversations and surveys to better understand the needs and priorities for the space?
- Who are the main users of the street and what are their stories, key destinations, and activities?
- Do the site dimensions match the existing technical drawings?

Identify collective goals and priorities

- What is the main issue that the project seeks to address?
- Which street user(s) will the project prioritize?
- What do communities at and adjacent to the project site care about the most?
- What changes might the project cause, and how will they be managed? (For instance: redirected traffic routes)
- What are the top three to five project priorities, being cognizant of the timeline and the city's goals?

Define success

- What is the desired, measurable impact of the project?
- Does success mean different things to the decision maker (who may have final say on whether an interim project is made permanent) and to the community? Where are the commonalities?
- In one year's time, what would the team aspire to say about the project to the community? To other city agencies? How would this be communicated?
- How would communities ideally be using the new space?

PRIORITIZING A ROAD SAFETY-FOCUSED AGENDA

Barão do Rio Branco, Fortaleza, Brazil

GDCI partnered with the City of Fortaleza to improve pedestrian safety and walkability in the heart of the city's commercial center on the Barão do Rio Branco corridor.

This case study breaks down how to define a vision for success and the subsequent data to collect following the steps listed on the previous page.

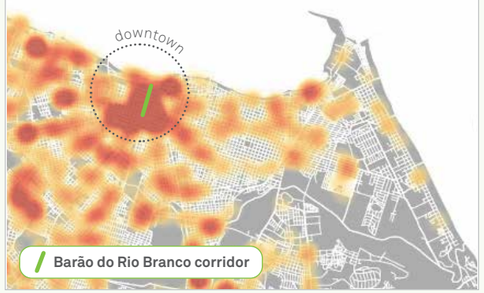
Reference the continuation of this case study on page 72 for more information on how outcomes were communicated in this project.

What data exists, what is missing, and how can it be sourced or collected?

The examples below highlight a couple metrics that were created from data that was sourced and collected prior to project development.

Existing database and archival research

The chance that a pedestrian will be struck by a vehicle is **90% higher in the downtown core** than the rest of the city



91 pedestrians were killed in traffic crashes in the City of Fortaleza in 2018

Observational data

Before the transformation of Rua Barão do Rio Branco, **67% of the street space was allocated for motorized vehicles**, although that mode **accounts for less than 25% of the street users**

Collect more background data on site

- **Existing pedestrian desire lines:** especially midblock locations where there were no crosswalks
- **The number of pedestrians walking on the roadbed:** with inadequate sidewalk space, an average of 200 people per hour were left to walk on the roadbed, putting themselves at risk from oncoming vehicles.
- **Number of street users by travel mode:** 67% of the street space was allocated for motorized vehicles, although that mode accounts for less than 25% of the street users.
- **Speeds of motor vehicles to show the need for traffic-calming elements:** peak speeds measured at the site reached 50 km/h.
- **Perceptions of the project site:** the Fortaleza team surveyed people to understand their perceptions of the challenges and opportunities on site.

Reference Section B for tips on how to document the existing conditions mentioned in this case study.

Identify collective goals and priorities

- Which street user(s) will the project prioritize?
  Pedestrians walking in the downtown area
- Ultimate project priority:
  Reduce pedestrian road traffic fatalities. This will take multiple years of recurring data collection, paired with a broader, citywide data collection effort to measure this resulting impact.
- Top three immediate priorities:
  - Reallocate space between the different modes, giving more space to pedestrians and less space to motor vehicles.
  - Reduce speeds with traffic-calming elements.
  - Reduce pedestrians' risk and exposure to vehicles while crossing the street.

Define success

- What is the desired, measurable impact of the project?
  - Fewer pedestrians walking on the roadbed
  - Reduced vehicle speeds
  - Increased number of traffic-calming elements
  - Increased square footage and quantity of pedestrian space and facilities
  - High approval rating from community
- In one year's time, what would the team ideally like to say about the project? How would the team respond to critics?
  The project created safe walking environments for pedestrians, supported the most vulnerable road users, and brought the community into the process.

A2 | Select metrics that will evaluate the project goals

For decades, streets have been evaluated based on the efficiency and capacity of vehicles, but true mobility function and road safety improvements should focus on a combination of data types, road user types, place functions, and the resulting co-benefits.

Fortaleza, Brazil

Identify where to start | Select metrics that will evaluate the proj-

Library of metrics

Below is a sample library of metrics that cities can use to understand the impact of their projects and to compare with their own data collection and evaluation plans. Note that this is not a comprehensive list but a suggestion of where to start. Refer to page 47 and 54 for more information on qualitative metrics.

Remember that every metric will not be applicable to all street projects or all contexts and to focus on what matters most for your project.

Physical and operational changes

Document the change in facilities, technologies, and infrastructure as a result of the project and track short-term results. Most of the metrics below can be analyzed by comparing technical drawings of the existing conditions to those of the new project.

Pedestrian-focused accessibility, safety, and comfort

- Presence and width of sidewalks
- Materiality of sidewalks (slipperiness, etc.)
- Water management (drainage issues close to crossings)
- Accessibility of sidewalks (obstacles, potholes, etc.)
- Number and quality of accessibility ramps
- Number of handrails or similar facilities
- Furniture for pedestrians to rest/sit
- Areas with shelter/shade
- Type and direction of street lighting
- Number and quality of pedestrian crossings
- Crossing distance
- Distance between crossings
- Refuge islands (dimensions, level of protection from vehicular traffic)
- Number of accessible pedestrian signals
- Number of adequate waiting areas for transit

Cycling-focused accessibility, safety, and comfort

- Length and width of cycle facilities
- Percentage of bike lanes that are protected from vehicular traffic
- Bollards (type, height, and visibility if applicable)
- Number of bike share stations and docks

Motor-vehicle-focused accessibility, parking, and geometry

- Kilometers of dedicated transit facilities
- Number of transit stops
- Number of parking spaces and loading bays
- Percentage of parking spaces for mobility-impaired accessibility
- Number of vehicles illegally parked on site
- Average parking turnover time
- Width of each travel lane
- Size of the curb radii at intersections

Changes in use and function

Understand how and why a street functions differently as a result of the project. Measure changes that affect pedestrians, cyclists and motorists and the level of satisfaction with the changes. These quantitative and qualitative changes can be assessed at the project site, and adjacent streets and networks.

Pedestrian counts, behavior, and perception

- Number of pedestrians by age and gender
- Number of pedestrians by type of activity and duration of stay
- Number of pedestrians walking on the roadbed vs. on dedicated facilities
- Number of pedestrians crossing the street with and without crossing facilities
- Number of people at transit stops
- Average time it takes for pedestrians to finish crossing the street
- Number of people using spaces with polluted/clean air
- Pedestrians' perception of safety and comfort level

Different survey questions can help understand the nuances of the perception of safety and comfort:

- Do you feel empowered to move around as a result of this project?
- Is this a place where you would choose to meet your friends?
- Can people easily walk/bike to this place?
- Do you see a mix of ages and ethnic groups that generally reflect the community at large?
- Are there activities happening here that you enjoy?

Cyclist and micromobility counts, behavior, and perception

- Number of cyclists and micromobility users per day
- Percentage of cyclists and shared micromobility users riding within facilities vs. on the sidewalk
- Change in volume of clients at local businesses before and after a cycle lane is implemented
- Cyclists' level of stress and comfort

Motor vehicle behavior and speed

- Peak and average motor vehicle speed
- Percentage of traffic traveling within the speed limit
- Percentage of drivers yielding for pedestrians at crossings
- Percentage of motorcyclists wearing helmets
- On-street parking spaces converted into pedestrian spaces
- Average travel time of buses/transit
- Loading locations and durations
- Vehicular drop-off locations and durations
- Noise pollution levels
- Emission of air pollutants and number of polluting vehicles in the area

Resulting impacts

This longer-term evaluation of a project is an important part of understanding whether an investment or implementation is having the desired outcomes as set forth by the larger goals of public health and safety, quality of life, environmental sustainability, economic sustainability, and equity for the city.

It can take many years to fully understand the impact on the city, and how different projects played a role. These metrics are important to track as they can have implications for the allocation of transportation investments based on indicators such as increased ridership demand or to correct inequities in specific areas.

These might include, but are not limited to:

- The number of pedestrians and cyclists killed or seriously injured (KSI)
- The levels of pedestrian/cyclist/motorist perceptions of risk and comfort
- The percentage of overall street network with safe access for all users
- Mode share breakdown and travel times
- Frequency, reliability and affordability of public transit services by neighborhood
- The percentage of population living...
  - ... near public transit stations and stops
  - ... near safe cycle facilities
  - ... within a 10-minute walk to bike share facilities
  - ... within a 60-minute transit ride to education and employment opportunities
  - ...within a 10-minute walk to quality parks, play areas, and public spaces
- Degree of public involvement in the planning process
- The public and personal fiscal cost of commuting
- The urban heat island effect at a local and city scale
- Ambient concentration of air pollution (particulate matter, nitrogen dioxide, measured at a local and city scale)
- Prevalence of asthma and new cases of asthma attributed to air pollution
- Percentage of kids with respiratory issues
- Change in sales tax receipts and in number of total customers from adjacent businesses
- Overall economic health of local businesses

Being that walking, cycling and public transit are frequently the most affordable way to travel, providing ample opportunities to safely use these modes of travel within a reasonable distance from home to areas of opportunity (education, jobs, healthcare, groceries, etc.) are key to **transportation equity improvement**. For this analysis, metrics can be disaggregated for specific population groups, including: by race and ethnicity, by income level, for users with disabilities, etc.

Measure what matters most

Collect data related to existing challenges and defined project goals before and after the street transformation to understand its impact. The diagrams below show an example of a project site's ▲ *existing challenges*, **project goals,** the ● corresponding data points to collect, and the relationship among the three.

BEFORE STREET TRANSFORMATION

▲ *Pedestrians perceive the street as an unsafe and unpleasant place to walk.*

1. Survey how pedestrians perceive the street's safety at different locations and how it can be improved.

▲ *Pedestrian and cyclist crash rates and fatalities are reported to be high.*

2. Document lane width dimensions, blind spots, and corridor speeds.

▲ *High pedestrian volumes crossing without pedestrian infrastructure and lack of space for stationary activities near a pick-up/drop-off zone.*

3. Count pedestrians who are walking on and off of the sidewalk to understand risk levels and where additional pedestrian infrastructure is needed.

▲ *Cyclists do not have dedicated infrastructure and are forced to ride with vehicular traffic at unsafe speeds.*

4. Count the number of cyclists and micromobility users on the street, and note any qualitative observations about behaviors and their safety in these conditions.

5. Photograph existing challenges in how the street functions, such as people walking on the roadbed, running to cross the street, or cycling in speeding traffic.

▲ *High pedestrian volumes crossing long distances without crossing facilities.*

6. Mark pedestrian desire lines and note where there are existing pedestrian crossings, or if they are crossing at risk on the roadbed.

▲ *Travel lanes are very wide and motor vehicles are traveling at high speeds.*

7. Measure turning speeds and count vehicles to determine if a slip lane is necessary.

Identify where to start | Select metrics that will evaluate the proj-

Consider studying multiple scales of the site to identify how it functions as part of the immediate and larger street network: at the local scale, neighborhood scale, and city scale.

This data contributes to project goals, such as:

- → Making pedestrians and vulnerable road users feel safe
- → Reducing vehicle speeds
- → Accommodating freight deliveries
- → Providing adequate pedestrian/cycling infrastructure
- → Encouraging safer driving behavior
- → Eliminating road safety crashes and fatalities

AFTER STREET TRANSFORMATION

1. Survey how pedestrians perceive the street's safety at locations where there have been transformations.

2. Measure the new travel lane dimensions and calculate how the narrower travel lanes impact corridor speeds.

3. Count pedestrians who are walking on and off of sidewalks and crossings to understand if new pedestrian infrastructure adequately addresses need and reduces risk.

4. Count the number of cyclists and micromobility users who are using the new bike lane or riding with vehicle traffic.

5. Take aligned "after" photos from the same vantage point as before the transformation.

6. After implementing a new crosswalk, document the number of people using the new pedestrian crossing vs. walking on the roadbed.

7. Measure new turning speeds due to tightened radius and new design elements to determine change in risk to pedestrians.

A3 | Determine when to collect data

Once the priorities are set, create a plan to measure and collect data before, during, and after your street transformation project is built. Examine the variation between the sets of data to understand the changes to the street condition, measure shifts in use and function, and evaluate the resulting impacts of the project.

Collect data before implementing the project to:

- Understand the site and define a vision
- Have a benchmark to compare future data. Remember that the "after" data needs to be collected at the same time/conditions/place as the baseline data
- Document and understand community members' and other stakeholders' needs, interests, and knowledge
- Locate activities, obstacles, and opportunities to implement specific design elements and take plenty of "before" photos to show the change!

Collect data during or immediately after implementing the project to:

- Keep up momentum and continue to be transparent by communicating short-term results and initial reactions from the community
- Document immediate physical and operational changes
- Refine the design based on new observations
- Begin to build the case for a more permanent project

Collect data weeks, months, or years after implementing the project to:

- Assess longer-term changes in usage, function, and perception of the site
- Inform new policies and future designs for similar projects
- Evaluate the impact on the frequency and severity of road traffic injuries, air quality, etc.
- Make the case for a more permanent project

In order to replicate the data collection methodology and accurately measure change, the research design needs to remain stable throughout studies conducted over successive months and years. It is crucial to **collect the before and after data and documentation** at the same time of day, the same day of the week, and **in comparable conditions.**

Collect the data at various stages

Data collection before the project has been implemented provides the baseline with which to compare the after conditions. Many **physical and operational changes** can be measured from design drawings or plans, and confirmed on site afterward. The **change in use or function** of the street can sometimes be measured immediately after implementation, with follow-up weeks or months afterwards. The **longer-term resulting impacts** may take months or years to determine.

The table below shows a sample of data to collect at various stages before and after the project is implemented to reveal the impact.

Examples of data points to collect and measure	When to collect and measure
Physical and operational changes	
Presence and width of sidewalks (in square meters)	Before, Immediately after
Number and quality of pedestrian crossings	Before, Immediately after
Changes in use and function	
Number of pedestrians walking on the roadbed vs. on dedicated pedestrian facilities	Before, During, Immediately after, Weeks, months, or years after
Pedestrians' perception of safety and comfort level	Before, During, Immediately after, Weeks, months, or years after
Volume of cyclists and micromobility users per day	Before, Immediately after, Weeks, months, or years after
Average motor vehicle speeds	Before, Immediately after, Weeks, months, or years after
Resulting impacts	
Percent of road users walking and cycling	Before, Weeks, months, or years after
Number of pedestrians killed or seriously injured (KSI)	Before, Weeks, months, or years after

For more information on selecting the right metrics for your project, and a more comprehensive list of suggested metrics, reference the *Global Street Design Guide*, Chapter 3, and Appendix B.

Addis Ababa, Ethiopia

B

Measure the impact

B1 | Organize the team

Once you have planned and prioritized the most relevant data to collect for the project in Section A, evaluate how to proceed with the number of staff available, the site conditions and size, and the number of person-hours needed.

Identify surveyors and resources

The team of surveyors can be composed of city staff, consultants, or students. Identify a team leader to coordinate logistics and serve as the main point of contact. Community organizations and local volunteers can be brought into the project to develop co-ownership of the process.

Team size affects the data collection method; a larger team of surveyors may be able to rotate shifts and cover more ground, while a smaller group may benefit from installing cameras at various locations to analyze recorded videos at a later time.

PRIORITIZE SAFETY

Ecuador, 2021

Make sure that surveyors feel supported and comfortable with their assigned responsibilities. Conducting intercept surveys in certain conditions, like poorly lit areas in the evening, or during a public health crisis when contact might be risky, can compromise the safety of your staff.

The following photos from Ecuador show surveyors in Guayaquil and Quito who are interacting with the community in a masked and socially distant manner to accommodate public safety recommendations in response to the COVID-19 pandemic.

Community meeting in Guayaquil, Ecuador

Intercept survey in Quito, Ecuador

Train and brief surveyors

Clear, approachable training sessions are crucial for informing team members about overall project goals, methodology, tools, and specific tasks, and to situate them within the site. The following points outline content that is typically helpful to cover in these sessions, such as methodologies for collecting data, the forms and tools to use, and how to ensure consistency and accuracy among surveyors.

1 Communicate goals

- Start by explaining the goals and scope of the project.
- Explain the context of the site through maps and photos: show activities, operations, and conditions that the team should take note of.

2 Review schedules and materials to bring on site

- Review the schedule and times that each surveyor will be collecting data. *Refer to page 28 for more information.*
- Share contact information for everyone who will be on site.
- Provide checklists that indicate what materials, safety gear, and paperwork that each surveyor is responsible for, and what the team leader will bring on site. *Refer to the Surveyor Checklist in the Appendix.*

3 Review data collection forms and tools

- Review how to collect data on the specific forms, and provide instruction sheets.
- Conduct trial counts and use each of the tools; review surveyor results and make corrections or retrain as needed.
- Remind participants about how each of the data points contributes to the larger project goal. For example: Collecting data on pedestrian desire lines will help define where to implement crossings and contribute to making streets safer and more livable.

4 On-site debrief

- Establish a meeting point and time, and walk through the site with all the surveyors before beginning the counts.
- Give an overview of the site conditions, operations, and functions at each data collection location.
- Be clear about how surveyors can communicate the project goals to passersby when they are not conducting counts, and keep track of potential local partners.

5 End of day

- When returning data collection forms, have staff review results and clarify any discrepancies as quickly as possible.

Define data collection schedule

Develop a surveyor schedule to plan the time commitments required of each surveyor.

Questions to guide scheduling:

1. How often and for how long should data be collected?

To capture the performance fluctuations and for a comprehensive understanding of the street operations and peaks throughout the day:

- Measure at multiple times of day: peak and off-peak hours for vehicles, pedestrians, micromobility, and transit for at least one hour at a time
- Measure multiple days of the week (weekdays and weekends): Tuesday, Wednesday, and Thursday can be used interchangeably for counts on a weekday
- Divide daily tasks in shifts of 2-4 hours
- Ensure that breaks are scheduled between shifts, allowing surveyors to change locations, rest, and take bathroom and snack breaks
- If possible, count multiple times of the year, for multiple years
- Count during different seasons and with different weather conditions

2. Can the team save time and resources by estimating certain counts?

While it is best practice to count for at least one hour during each of the data collection sessions in the morning, noon, and evening hours, sometimes the time or staff are limited. In that case, collect data for a portion of an hour and then estimate hourly sum. For example, to collect pedestrian volumes on a street, collect this data for intervals of 15-, 20-, or 30-minutes. Multiply the results to calculate the hourly totals.

These short interval counts should be repeated at least three times a day to get an accurate sample.

3. What contextual considerations about how the site operates should be taken into account while scheduling data collection?

The following areas may have different peak hours due to their varying modes of travel, operations, and activities:

- School zones
- Commercial/business districts
- Residential areas
- Weekend/weekday destinations
- Transit routes and operations
- Climate considerations
- Hospitals
- Parks and recreational areas
- Government buildings and institutions
- Squares and public spaces

4. Are there any events that might impact the typical operations of the street?

To have exact comparisons of before and after conditions, look out for atypical operations that might impact the results, such as those listed below. Cancel and reschedule if conditions will not be reasonably comparable.

- Rain, snow, and other weather conditions
- Holidays
- Festivals, markets, parades, strikes, sporting events
- Construction activities
- Seasonal or recurring events (summer streets, block parties)
- Road closures
- Ensure school is consistently in session or not in session as it impacts travel times and volumes

Make a surveyor location map

Pairing a surveyor location map with a data collection schedule will help communicate the plan to your team as clearly as possible. These resources will facilitate the process of collecting data before, as well as days, weeks, or months after a project has been implemented, by reminding surveyors of the context and exact data collection location. Overview maps can be supplemented with photos and zoomed-in maps that divide the site into smaller sections. *Refer to pages 30-31 for an example schedule and map from a GDCI project in São Paulo, Brazil.*

Remember that collecting each data type at every location on the project site is not effective. For instance, consider collecting motor vehicle speeds at locations where travel lanes are wide, where speeding has been observed, or where sidewalks are narrow and pedestrians are exposed to oncoming traffic.

Ensure that the data collection spot **does not obstruct the sidewalk's clear path** to interfere with pedestrian movement and safety.

Each surveyor should **mark their standing location** for all "before" data collection on a basemap. Anticipate if any new development or construction will hinder the surveyor's ability to **return to the exact same location to measure the "after" data**, and adjust the position accordingly.

Measure the impact | Organize the team

MATCHING THE SCHEDULE TO SURVEYOR LOCATION MAPS

Penha, São Paulo, Brazil

This interim street transformation project was implemented on a mixed-use commercial corridor in the borough of Penha, São Paulo. Data was collected on pedestrian and vehicle movements to assess the impact of the project design on road safety.

The chart below clearly notes the data type, the surveyor who will be responsible, and the timeframe, and it gives basic instructions. The data codes correspond with locations on the map on next page.

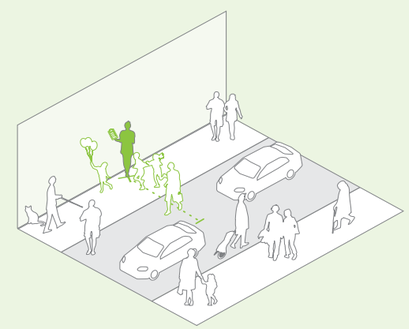
In this schedule, note that more surveyors are present during hours that are popular for lunch time to capture peak volumes for pedestrians. More surveyors are also present to count vehicles at 7 am when people are commonly driving to work in order to **capture the different peak hours for each mode of travel.**

Data Type	Data Code	Street Name	Detail	3 days (2 weekdays + 1 weekend day)							
				7:00-7:30	7:35-8:05	9:00-9:30	9:35-10:05	12:00-12:30	12:35-13:05	18:00-18:35	18:35-19:05
Pedestrian Counts	P	Street A	Count pedestrians by type and direction	Surveyor 01		Surveyor 01		Surveyor 01	Surveyor 03	Surveyor 01	
Crossings Counts	CR	Street A	Show number of people crossing the road and main desire lines		Surveyor 01		Surveyor 01	Surveyor 03	Surveyor 01		Surveyor 01
Vehicle Counts	V	Street A	Count vehicles by type and direction	Surveyor 02	Surveyor 03	Surveyor 02		Surveyor 02		Surveyor 02	
Cyclist Counts	C	Street A	Count cyclists by type and direction	Surveyor 03	Surveyor 02		Surveyor 02		Surveyor 02		Surveyor 02
Intercept Survey	I	Street A		Surveyor 04		Surveyor 04		Surveyor 04		Surveyor 04	Surveyor 03
Activities Mapping	A	Street A	Indicate main activities at location		Surveyor 04		Surveyor 04		Surveyor 04	Surveyor 03	Surveyor 04
Vehicle Speeds	S-1	Street A	Document midblock speeds	Surveyor 05		Surveyor 05		Surveyor 05		Surveyor 05	
	S-2	Street B	Document turning speeds		Surveyor 05		Surveyor 05		Surveyor 05		Surveyor 05

Legend

- "Invisible line" reference
- xx Data code
- Path the Activity Map (A) will cover

Decide on an "invisible line" on the project site, and count only pedestrians/cyclists/motor vehicles crossing that line. Mark it on your basemap: this "invisible line" will help the surveyor focus on one section of the street to facilitate the counts, minimize the chance of counting people twice, and provide a reference for future surveyors to count from the same location.



B2 | Select appropriate tools

Visual documentation tools

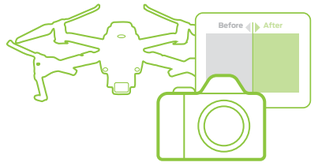
Photos, time-lapses, and videos are the most common and accessible tools to document a project. Use a combination to compare the existing conditions (before), the implementation process (during), and the completed street transformation project (after) to best show the changes on your site over time.

Cameras and smartphones

Capture images that represent the challenges and opportunities to support communication about the project

Time-lapse videos

When possible, set your time-lapse camera in a secure location to capture the different uses of the space throughout the day; it can also document the implementation process.



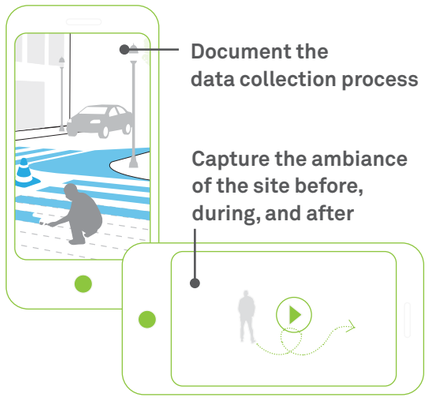
Before-and-after photos

Align photos side by side of before-and-after conditions to explain the changes of the street in a way that will connect with a larger audience. *Refer to pg. 34-35 about the best methods to achieve this.*

Cameras and smartphones

Be cautious about potential legal constraints of taking close-up photos of people, especially children. Always bring printed child confidentiality/consent waivers on site.

Be conscious about the weather and time of day. If there are shadows in the “before” photos, try to capture the same time of day in the “after.” If possible, shoot at twilight/dusk when the light is softer but the streets are still active.



Time-lapse videos

Using time-lapse videos can be very powerful to demonstrate change. Use this tool as part of the site analysis process to document activity and nighttime operations where it may be unsafe to collect data in person during night hours. Inform the neighbors or local establishments such as shops and schools, and get permission from local entities or community organizations, if needed.

Keep in mind:

- Choose a safe location for the camera such as a shop’s window or the top of a street light
- Consider the sun’s position and potential glare or shadows
- Check batteries
- Select the right memory card capacity

Basic camera settings

Cameras and video equipment will vary. However, the following list considers some sample basic settings to take quality time-lapses:

- Frame rate: 20 FPS
- White balance: Auto
- Quality: Better or Best, depending on memory
- Scene: Night, unless using only during the day
- Timer: Not necessary
- HDR: Medium
- Exposure: Default - 0.0
- Low light: On
- Time stamp: Keep it on if the frame can be cropped later
- Set date and time: Make sure it is configured to the specific time zone
- LED indicator: On
- Band filter: None
- Focus: Make sure image is sharp

What this could look like:

Use the correct size SD card

SD card size	Stored photos
4 GB	30,000
8 GB	60,000
16 GB	120,000
32 GB	240,000

Battery life (night mode)

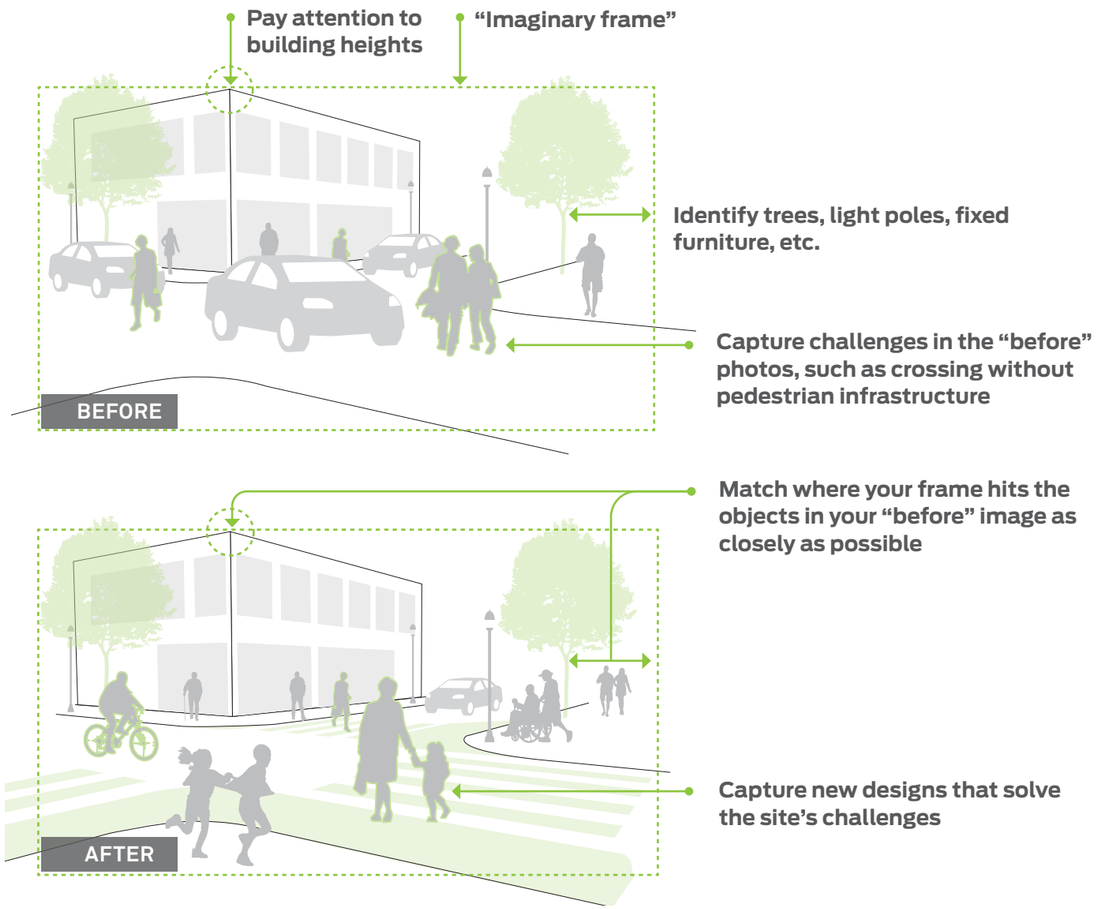
*Capture interval	Frames to low battery	Stored photos
5 min	9,300	32.0
10 min	5,400	37.0
1 hr	1,040	43.0
4 hr	268	44.0

*Your capture interval should be influenced by your objectives, e.g., a desire lines study will need a capture interval of less than five seconds, but a general change-over-time reel could have hourly capture intervals

Before-and-after photos and videos

Before-and-after photos taken at street level are very effective in demonstrating the process, appreciating the exact changes that were made in the geometry and the operations of the street. To plan for effective before-and-after images, determine an imaginary frame that includes trees, signs, and/or identifiable street elements that will guide you to take the same image on different days and at different times. Mark this on a site map in case the same photographer cannot return for the "after" shot. It is also helpful to take "during" shots of the implementation process.

Tools you'll need:



Model photographs

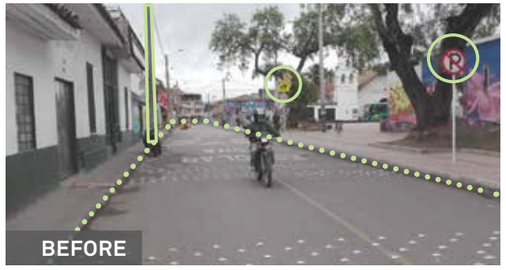
Ideally, the "before" photo should show some key challenges on site, and the "after" photo should show some key improvements. When placed together, the photos match almost exactly. The perspective, frame, angle, and elements all have the same position in both photos, making it easier to see the changes. Small differences are to be expected, but the main features of the image should align (e.g., a light pole or building edge in the same location).

Photographs that could be improved

The images are not aligned.

- Different perspective: it helps to have the camera perpendicular to the ground plane
- Different location (farther away)
- Different elements show up in the photos

Images that don't align can sometimes be adjusted or cropped with computer software, but alterations may affect the quality of the images.



Tips when taking before-and-afters

- Capture many different angles and locations, and crop for an exact match.
- Photos must not only show the design improvement, but also people using it! Pick active times to document the project and wait until you get people within the frame.
- Capture moments without large shadows cast over the site, and at the same time of day.

If a smartphone is the only camera

- Smartphones are great for taking illustrative pictures "on the fly" of how people use the street.
- Take a time-lapse video moving through the site or record the change over time from one spot.
- Take aerial photos and videos by using a bucket truck, ladder, nearby rooftops, or second-story retail/office windows.
- Check resolution of photos.

Data collection tools

Create a plan about the types and numbers of tools required for each data type and surveyor on site. There are many more tools that can be used depending on what is being measured, the duration of the project, and the available resources. Below are some tools to consider.

In addition to the following data collection tools, make sure surveyors and staff have what they need for safety, such as safety vests and sun protection gear. They also need to be aware of local laws related to filming and photography, and should have the appropriate insurance, consent forms, and waivers.

For a more comprehensive printable checklist of what your data collection team might need on site, see the *Surveyor Checklist* in the Appendix.

Portable speed radar

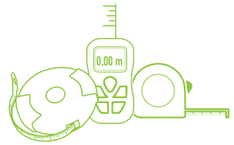
Portable speed radars document moving vehicle speeds on site. It is helpful to know the existing speed limit and if there are other speed controls such as cameras or display boards in the area.

Tally counters

User volumes can be counted with analog tally counters, digital tally counters, or phone applications (if it is safe to use phones openly). Count pedestrians, bicycles, motor vehicles, and other modes.

Timers

Set stopwatches or personal phone timers for the duration of the counting interval to let surveyors know when to stop/start a new round of counts, or to measure the time street users need to cross.



Measuring tapes and wheels

Use measuring tapes or lasers to get dimensions of lanes, sidewalks, building heights, and street elements' distances. Even if a base drawing exists, plan to verify the dimensions and any recent changes on site.

Noise and air quality devices

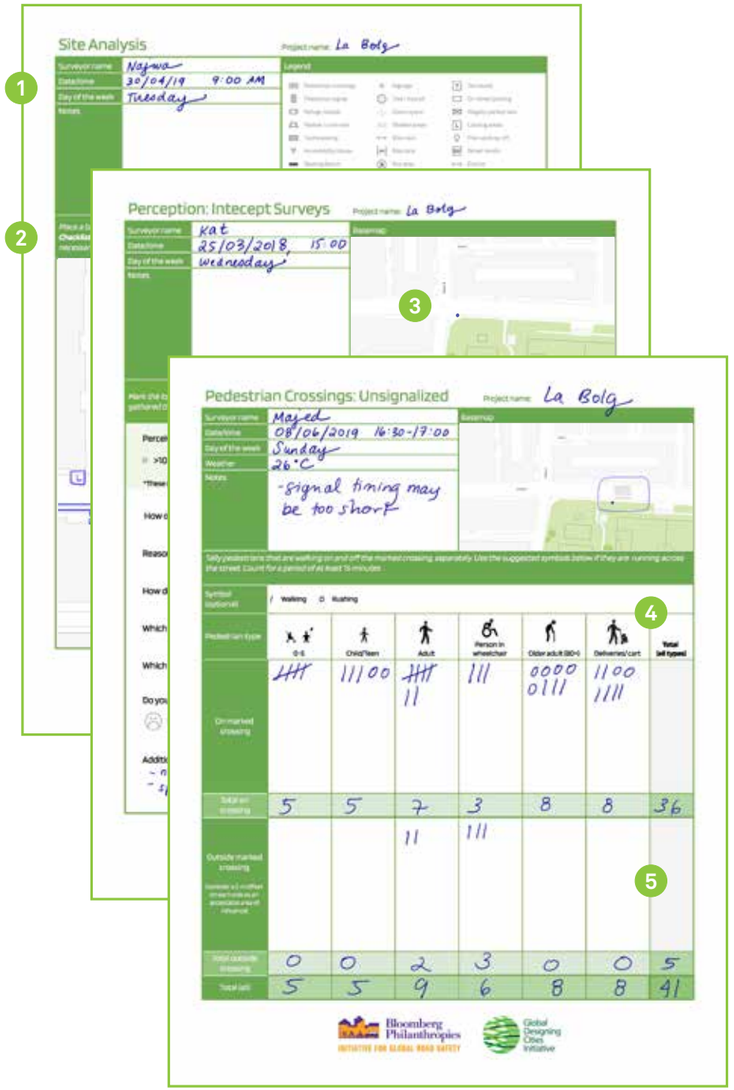
Decibel meters, air sensors, and smartphones are used to measure noise and air pollution on the project site and in surrounding areas. These are especially important to further arguments for street designs that improve public health and livability, especially for vulnerable populations such as young children, older adults, people with health issues, and disabled people.

Sensor and digital counter technology

When available, high-resolution video analysis tools, laser scanners, infrared beams, and more can be used for collecting data. These systems can document speed, mode share breakdowns, and user volumes, and they can process results through specific software. However, since video is the most commonly available tool, this handbook focuses on video and manual analysis.

Surveys and count forms

Develop forms or use the templates in the Appendix to collect site data. Using standardized forms ensures consistency throughout the process, even if the data is collected at different times, dates, or by different surveyors. It is important to brief and practice with the surveyors on how to use the forms before each data collection session; include short instructions and descriptions of the activities for clarity. *The next section will give more in-depth information about using each form.*



1 General information
Document date, time, surveyor name, and weather conditions. Note any relevant information about the site that is not included in the form.

2 Instructions
Include short instructions and descriptions of the activity to remind the surveyor how to correctly use the form.

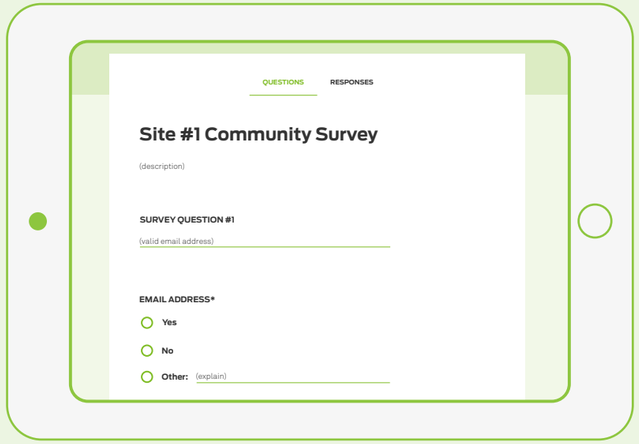
3 Site map
Include location maps of the data collection points. The maps can be satellite images, digital plans, or hand-drawn maps.

4 User groups
Select user groups and the level of detail (age, gender, ability, etc.) to be collected according to project goals and context.

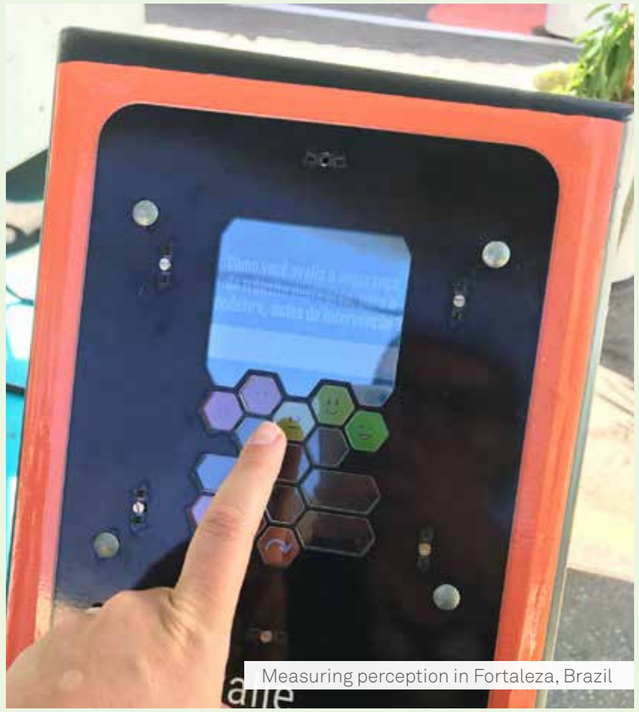
5 Data input
Clearly document data according to the instructions. Annotate totals to facilitate data tabulation.

Consider digital forms and surveys

Forms can also be formatted digitally on a smartphone or tablet to allow for more efficient data input on site and less processing time afterwards. They consolidate and visualize results instantly for easier understanding and sharing. Make sure to have batteries and chargers for the duration of the collection shifts.



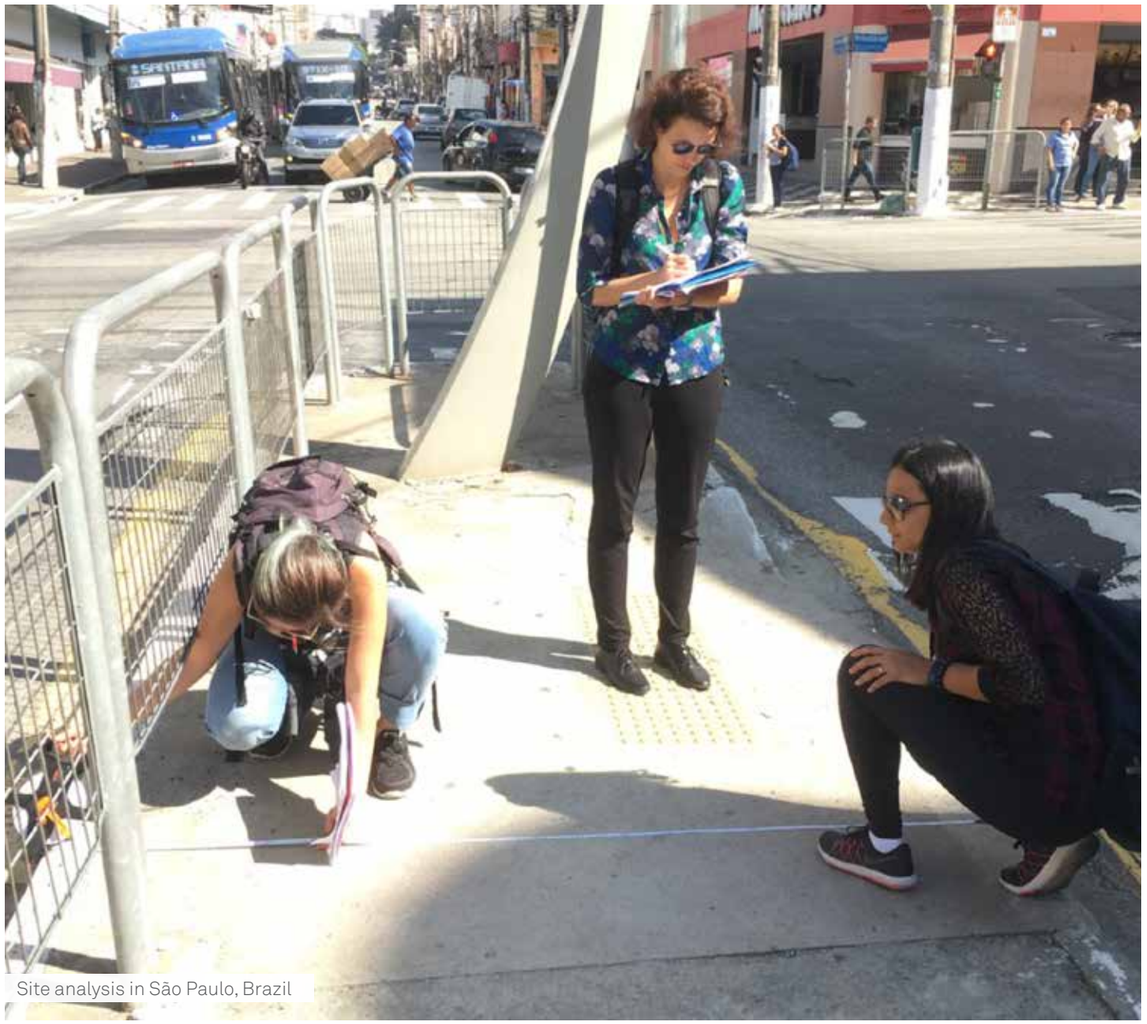
With staff guidance, **tablets and smartphones can also be used to digitize surveys** and make the data analysis process more immediately accessible and efficient.


Measuring perception in Fortaleza, Brazil

B3 | Collect data on site

This section gives further instructions on how to use each form and methods to count effectively on site. Ensure surveyor safety and comfort on site by planning ahead, equipping everyone with the relevant tools, and providing information about where surveyors can find water, food, restrooms, health services, and extra materials if needed.

Refer to the the *Surveyor Checklist* in the Appendix.



Site analysis in São Paulo, Brazil

How to use the forms

Spend time understanding, testing, and adapting the forms before data collection starts. They are meant to be an easy and replicable way to annotate information about the project site.

Refer to the Appendix to find form templates and instructions on how to print and adapt them.

When counting pedestrians and cyclists, it is helpful to indicate any observational data about age, ability, and gender. Each form should focus on the user groups most relevant to the context. This handbook breaks down multiple ages and abilities when collecting data about pedestrians and cyclists. Delete or replace the user groups as necessary, and simplify what is collected on high-volume streets. This data must always be used anonymously, but can be useful in furthering agendas that prioritize the safety and comfort of groups such as children, caregivers, women, and older people, who might need more nuanced design accommodations.

Maintaining accuracy on busy streets

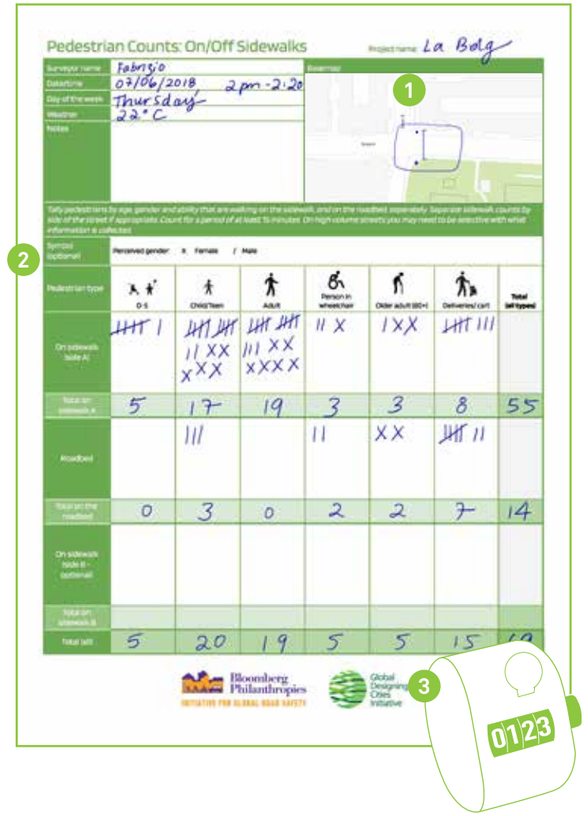
Some of the most dangerous crash hotspots are characterized by wide streets with high volumes and many travel modes. Below are some general rules of thumb to help maintain surveyors' accuracy when using forms on high-volume or wide streets.

1. **Locate one surveyor on each side of the street to count** movement going in each travel direction. For instance, on busy crossings surveyors on opposite sidewalks can count only the pedestrians crossing towards them.

2. **A surveyor should focus on only one** street user and type of movement at a time.

→ **Set up video devices** that can capture the activities on site for your team to revisit and document later if needed.

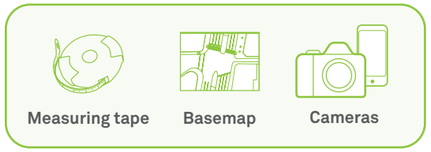
3. **Use a tally counter for the most common user type and draw tally marks on your count form for all others.** For instance, if children are the most common pedestrian, use a tally counter for them, and tally marks on your count form for adult caregivers and older people.



Site analysis: Existing conditions and geometry

Spend time understanding the neighborhood and specific site. Place existing plans or maps of the site in the blank space on the form, and take this to the project site. Mark exact dimensions, geometries, street elements, and activities on site to create an accurate basemap. Be intentional about what is marked on the basemap, as not everything will be relevant to your project design.

Tools you'll need:



Why is this important?

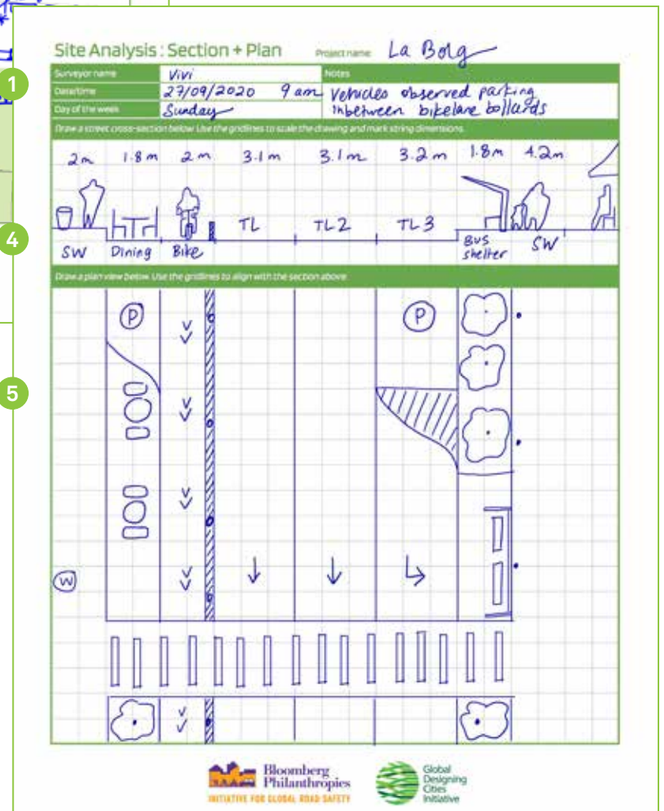
- To have a comprehensive site analysis to develop evidence-based design proposals
- To decide on data collection locations and help surveyors navigate the site
- To understand what elements are missing or causing obstructions
- To confirm dimensions on basemaps

Marking street elements on the basemap

Drawing the exact conditions on site can be tricky and time consuming, so you can use icons to make this process simpler. You will find this list of suggested icons on the top of the provided Site Analysis form template, but we encourage you to add more as needed or even to develop your own. Refer to the *Site Analysis Checklist* in the Appendix for further ideas about what to look out for. Remember to also mark obstructions, and elements that do not exist, but should, such as pedestrian crossings.

- Pedestrian crossings
- Pedestrian signal
- Refuge islands
- Ramps / curb cuts
- Tactile paving
- Accessibility issues
- Seating/bench
- Improvised seating
- Waste bins
- Light pole
- Signage
- Tree / tree pit
- Green space
- Shaded areas
- Bike rack
- Bike lane
- Bus stop
- Bus shelter
- Bus lane
- Metro station
- Taxi stand
- On-street parking
- Illegally parked cars
- Loading areas
- Pick-up/drop-off
- Street vendor
- Entries
- Outdoor dining
- Potholes / cracked pavement
- Speed bumps and cushions

What your forms could look like:



1. General information
2. Descriptive legend
3. Mark key elements for street context
4. Street section with dimensions
5. Corresponding plan drawing

See Appendix for printable versions of these forms.

Bring multiple copies of these forms on site, as they can start to get cluttered with information while trying to capture as many details as possible. Use different sheets for different levels of information; for example, one could focus on street elements, dimensions, or qualitative observations.

Measuring perception: Interactive boards

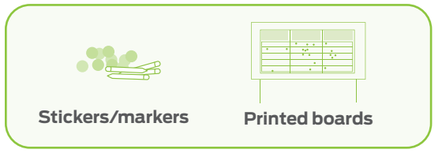
Be present on site, make connections with local residents and street users, and create an opportunity for conversation and participation. Engagement through posters and boards is one of many methods to gather input and understand priorities for the site.

Why is this important?

- To know how people feel about the site and learn from local insights
- To collect information on feelings of personal safety, accessibility and belonging
- To locate the specific parts of the street where challenges exist
- To communicate the process that contributed to the site selection and the project goals
- To demonstrate possibilities for the site, and the expected benefits and outcomes of the project
- To display examples of potential design interventions, and receive feedback

Refer to the *How to Implement Street Transformations* handbook for more detail on how to communicate specific information at each stage of the project.

Tools you'll need:



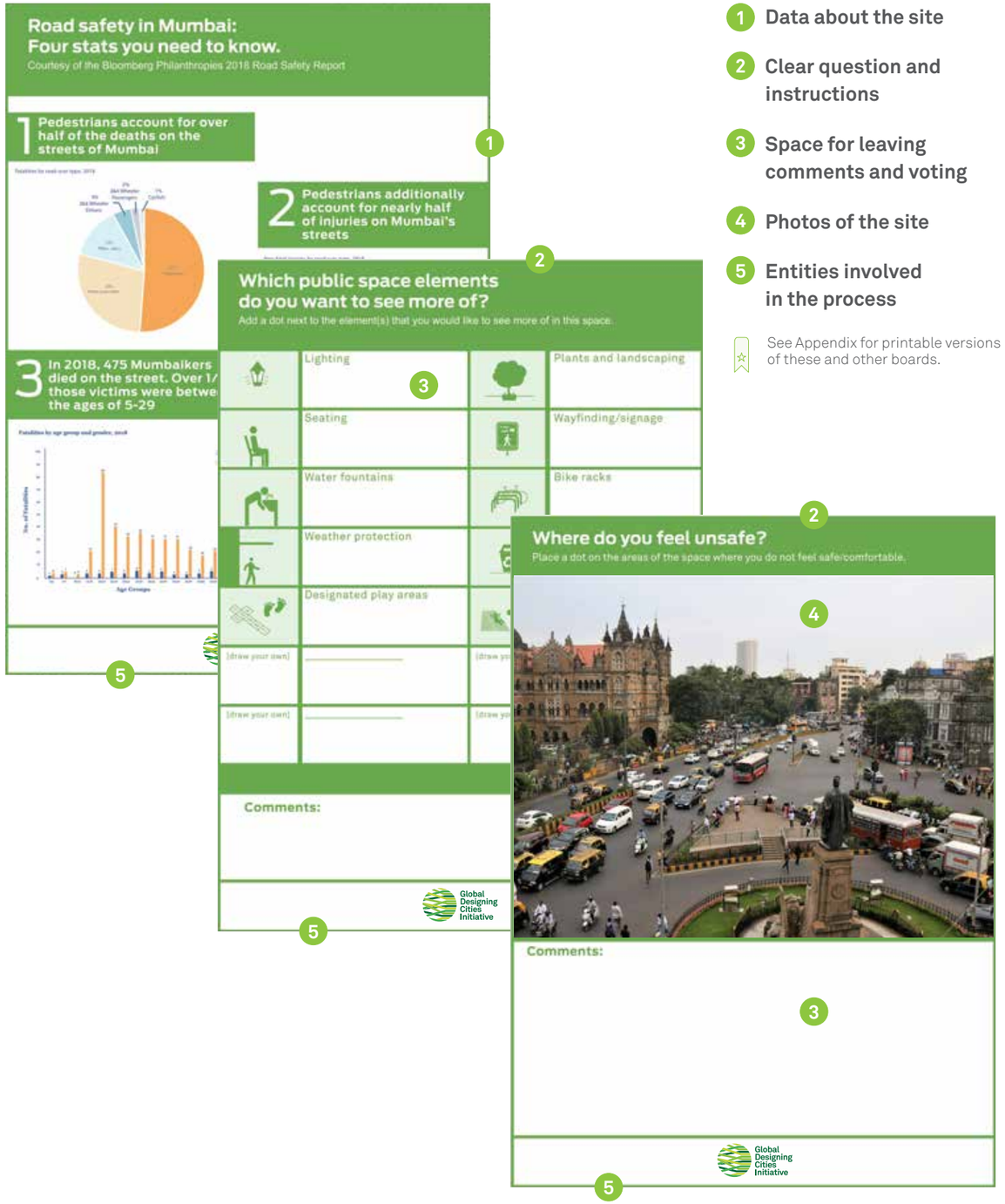
Enable participation

Provide methods so people of all ages and abilities can easily share their ideas without relying on technical knowledge and vocabulary:

- Avoid technical drawings and plans to present the design; simple diagrams and graphics that show the main changes are preferable
- Use photos and footage of the site to discuss existing challenges and design possibilities by overlaying the images with the proposed changes
- Use images of real-life examples to showcase design possibilities
- Use cut-out elements to scale, that people can pin or stick to a base map, to assist in communication of design ideas
- Hang banners, maps, and posters with clear questions and information at the project site, where passersby can write, draw, or use colored stickers to respond (see example on the right page)
- Have people on the team who are ready to listen and document what the community has to say
- Provide online tools to engage virtual audiences
- Provide interpretation services and prints, and support for visual and hearing impairments
- Post boards at different locations around the site and in high-traffic public spaces/buildings

Surveyor explaining the boards in Mumbai, India

What your boards could look like:



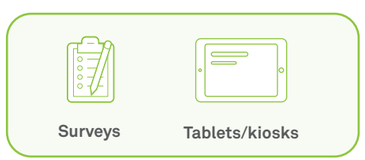
1. Data about the site
2. Clear question and instructions
3. Space for leaving comments and voting
4. Photos of the site
5. Entities involved in the process

See Appendix for printable versions of these and other boards.

Measuring perception: Intercept surveys

While surveys are not the only way to do so, the current perceptions of different pedestrians, motorists, and other street users interacting with the project site can be understood through 5-minute intercept surveys taken at different hours of the day. Make sure to survey at least 80-100 people that represent a diverse sample size.

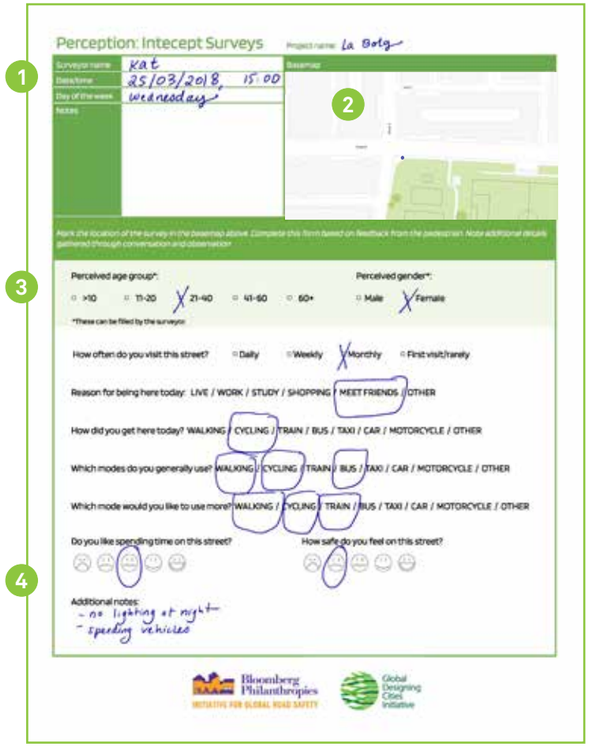
Tools you'll need:



Why is this important?

- To know how people feel about the site, use the site, and to learn from local insights
- To learn where people feel least safe walking, crossing the street, waiting, and cycling
- To discover the social dynamics of the site and who is represented in the street and in the area
- To demonstrate the need for improved pedestrian, cycling and public spaces, transit routes, night lighting, or otherwise
- To humanize the data being collected, when telling the story about the project later
- To measure against census data

What your form could look like:



1 General Information

2 Location Map

- Mark the location the survey took place

3 Type of user:

- Age group
- Gender
- Income

4 Survey:

- Add space for extra notes that they may have about the site

See Appendix for a printable version of this form.

Refer to page 18 for additional survey question ideas.

Engage a diverse audience

Ask a wide range of people to gain a more comprehensive view. Talk to people who are walking, biking, or using mobility devices. Talk to people of different genders and ages, and talk to caretakers with children. If certain groups are not present, investigate why. Are the streets accessible for disabled people? Is public transportation connected to this site? What conditions exist that might dissuade different genders, ethnicities, and ages from being here?

NOTE: **People you survey on site may not be representative of the whole population in this neighborhood.** It is important to prepare a stakeholder map to understand all the different groups involved that the team should reach out to and ensure are included in the process.

Intercept survey in Bogotá, Colombia

Qualitative data

Ask more detailed questions in surveys and conversations to understand the nuances of people's perceptions and experiences within the neighborhood, for example:

- Do you feel safe from oncoming traffic while crossing the street here?
- Do you feel safe from oncoming traffic while walking in this sidewalk? Is it wide enough?
- Do you feel empowered to move around as a result of this project?
- Is this a place where you would choose to meet your friends?
- Can people easily walk/bike to this place?
- Do you see a mix of ages and ethnic groups that generally reflect the community at large?
- Are there activities happening here that you enjoy?
- Are there enough place to sit? Are seats conveniently located?
- What do you wish for this place?
- Would you like this project to be permanent?

Intercept survey in Istanbul, Turkey

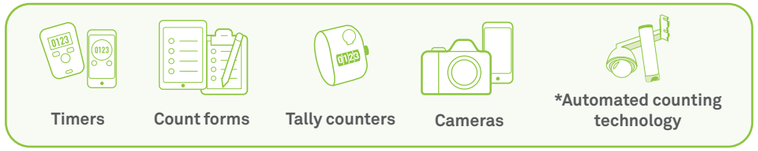
Counting pedestrians: On and off sidewalks

Identify different pedestrian types according to which user groups are relevant to the context and if they are walking on the sidewalk. Separate sidewalk counts by side of the street if relevant. Count for a period of at least 15 minutes.

Why is this important?

- To understand who uses the street
- To count pedestrian volumes
- To understand if existing pedestrian facilities such as sidewalks are adequately maintained, free of obstructions, wide enough, etc.
- To use this information to assess pedestrian exposure to risk from oncoming traffic

Tools you'll need:



*An optional alternative or complement to surveyors if resources allow. This technology allows for data to be collected for a longer, and more continuous, amount of time.

What your form could look like:

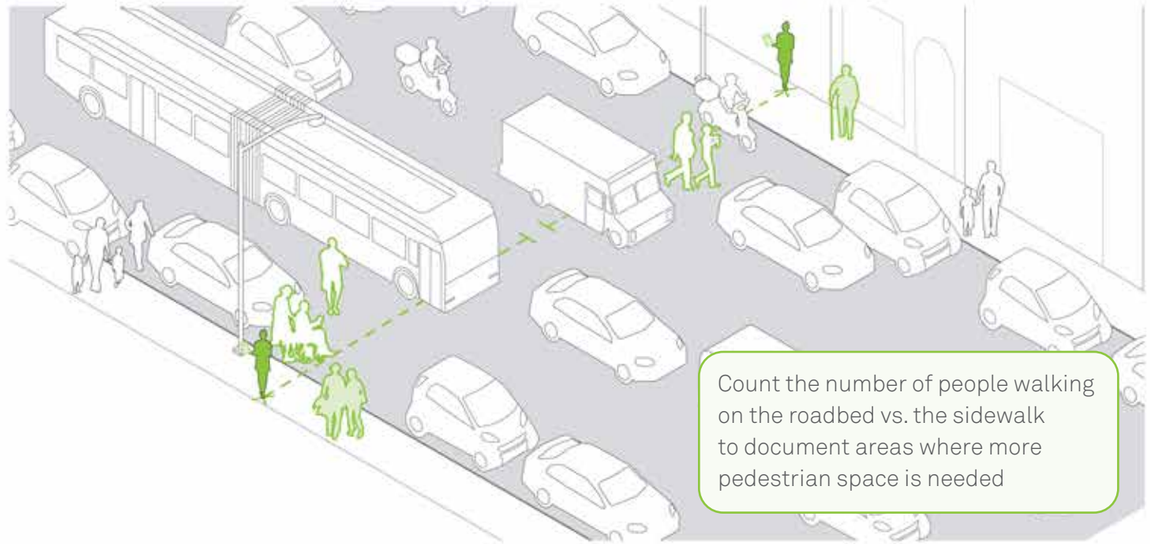
1. **General information**
2. **Location map**
3. **Pedestrian type**
   - Use a tally mark and/ or an icon to keep track of numbers and age groups of street users
4. **Separate counts of pedestrians on the roadbed vs. the sidewalk in each row**

See Appendix for a printable version of this form.

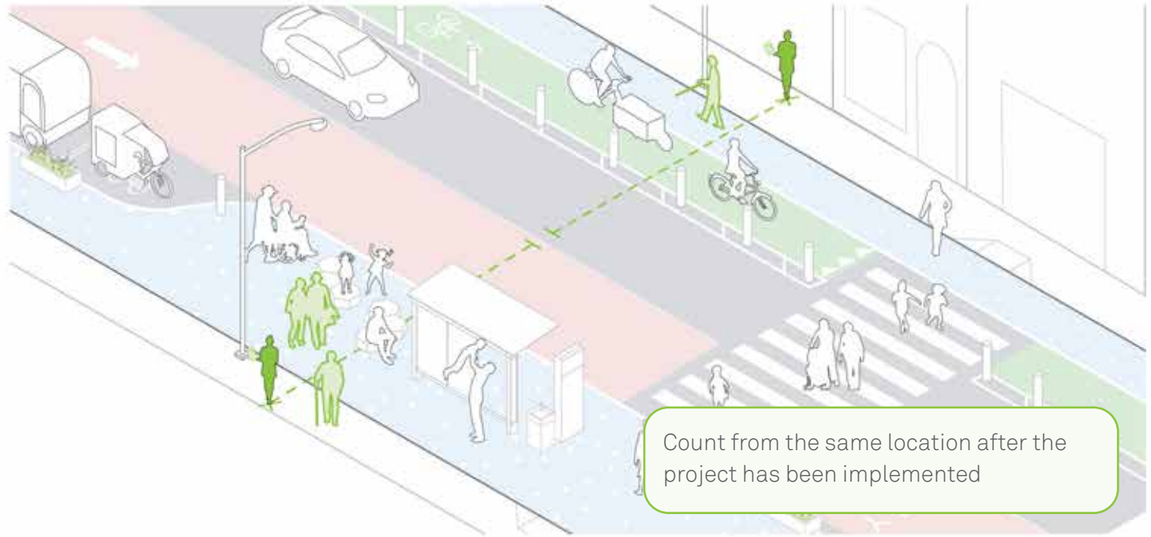
NOTE: This form can be adapted for different pedestrian counts. For instance, numbers of people boarding/ disembarking from transit.

Update the user groups based on the context
The users shown in the form to the left are just examples and you can choose to remove or add information you want to collect based on your project goals. For example gender, age, level of ability, people carrying goods, transit riders etc.

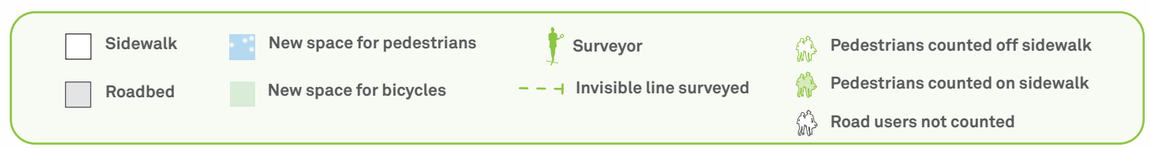
Pedestrians are forced to walk on the roadbed due to narrow sidewalks and obstructions to the clear path



Measuring before street transformation



Measuring after street transformation



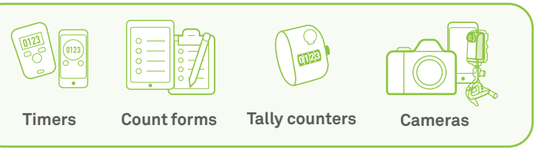
Counting pedestrians: Desire lines

Desire lines indicate pedestrians' desired paths. Drawing where people cross the street can reveal specific locations where there is a need for improved or additional facilities to allow pedestrians to cross safely. This can be especially important to observe in the middle of a block and at intersections. Use multiple forms to allow you to focus on small sections of the street at a time.

Why is this important?

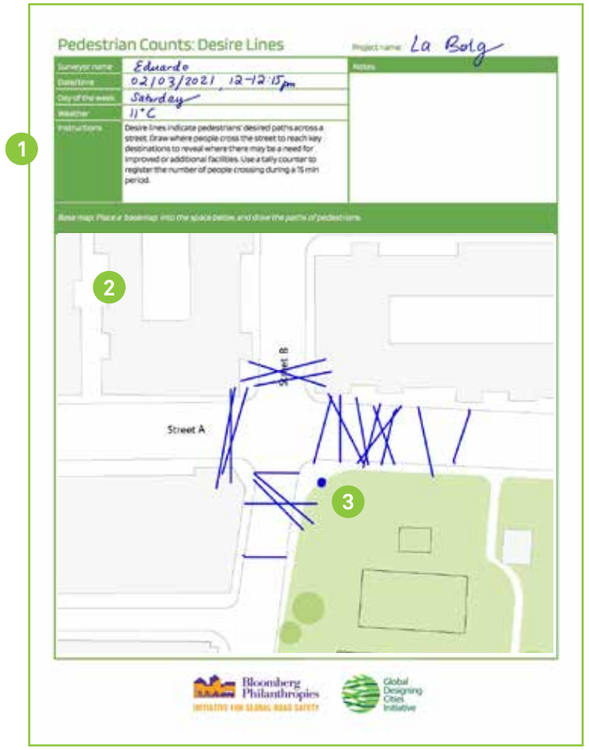
- To document the need for pedestrian facilities at specific locations (such as sidewalks, refuge islands, or new pedestrian crossings where the distances between existing crossings are too far)
- To explain pedestrian exposure to risk by documenting long crossing distances without protection
- To design for easier and safer access to popular origins and destinations

Tools you'll need:



Timelapse-cameras can be especially effective for capturing desire lines and pedestrian queuing.

What your form could look like:

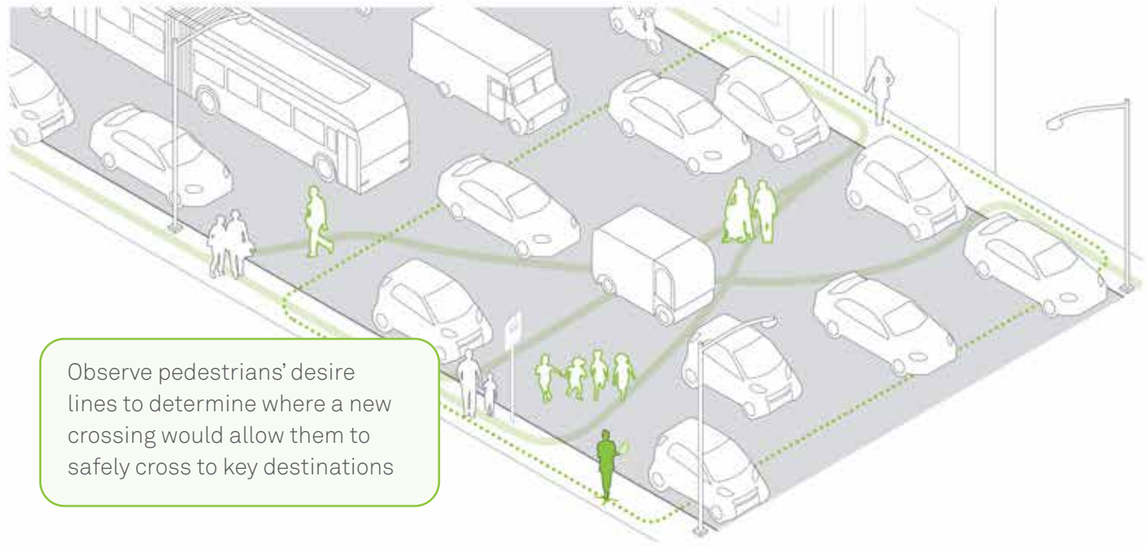


1. **Instructions for surveyor**
   - Helpful for larger teams or to reinforce methods
2. **Location map**
3. **Surveyor position**
   - Surveyor should mark their position and the perimeter that is visible

See Appendix for a printable version of this form.

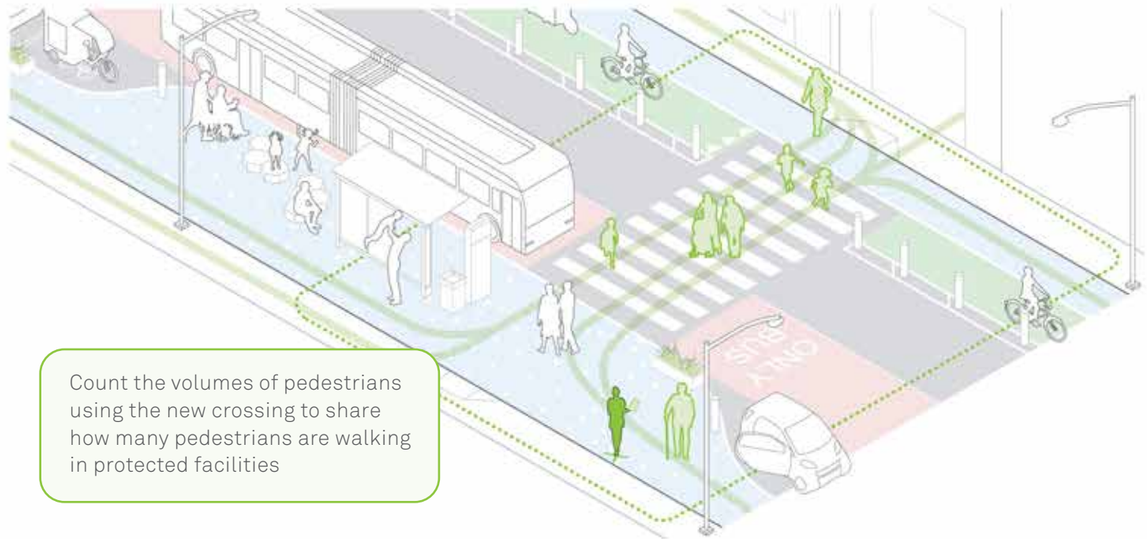
NOTE: Safe, accessible crossings should be provided every 80-100 m, and at all legs of an intersection, to ensure a connected walkable network.

▲ High pedestrian volumes crossing long distances without crossing facilities



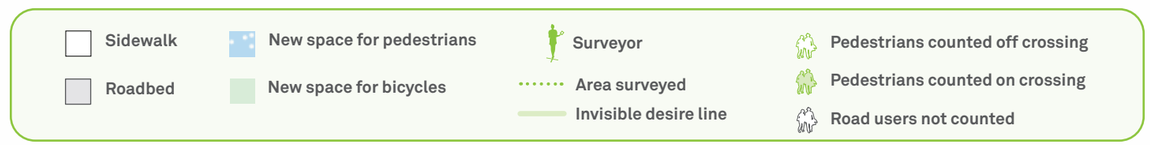
Observe pedestrians' desire lines to determine where a new crossing would allow them to safely cross to key destinations

Measuring before street transformation



Count the volumes of pedestrians using the new crossing to share how many pedestrians are walking in protected facilities

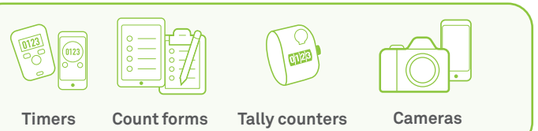
Measuring after street transformation



Counting pedestrians: Safe crossings

Identify different pedestrian types, the volumes, and if they are crossing the street on existing crossings or on the roadbed. The form below identifies whether pedestrians are walking or rushing across the street during the signal cycle. Rushing may indicate the distance is too long, or the signal is too short. Adjust the counts to the signal cycle if applicable. For instance, if the cycle is 90 seconds (1.5 minutes), count 10 cycles for 15 minutes.

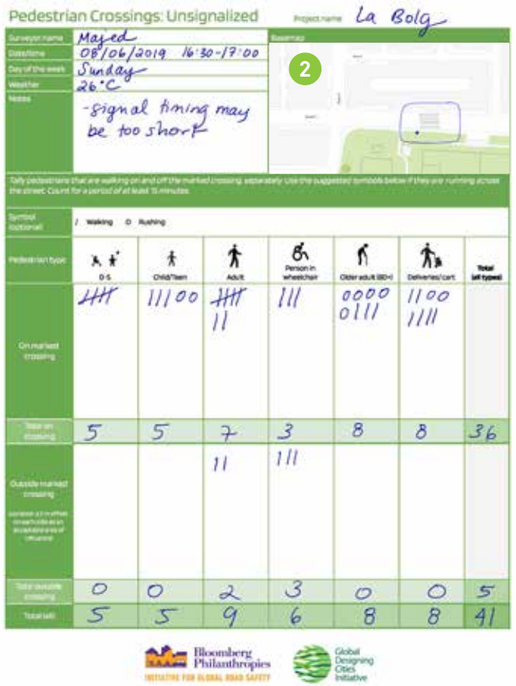
Tools you'll need:



Why is this important?

- To justify the need for new crossings
- To evaluate effectiveness of existing crossings
- To observe whether the implemented design serves pedestrian desire lines
- To measure pedestrian volumes at crossings
- To measure pedestrian comfort crossing the street (running vs. walking, during signal vs. without signal)
- To observe if crossing distances are too long
- To design sidewalk extensions, refuge islands, wider crossings and other solutions

What your form could look like:

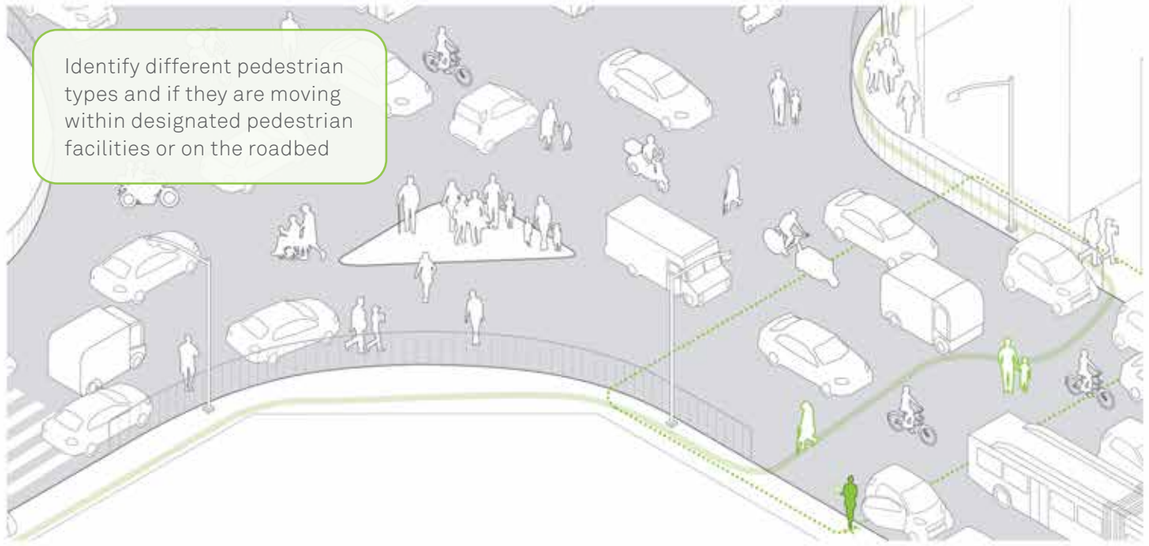


1. **General information**
2. **Location map**
   - Include location map with the data collection points and mark the invisible line to guide surveyors
   - Add conventions and notes to describe the context
3. **Pedestrian type**
4. **Tally counts**
   - Pedestrians walking on crossings in both directions
   - Pedestrians walking outside of crossings
   - Totals

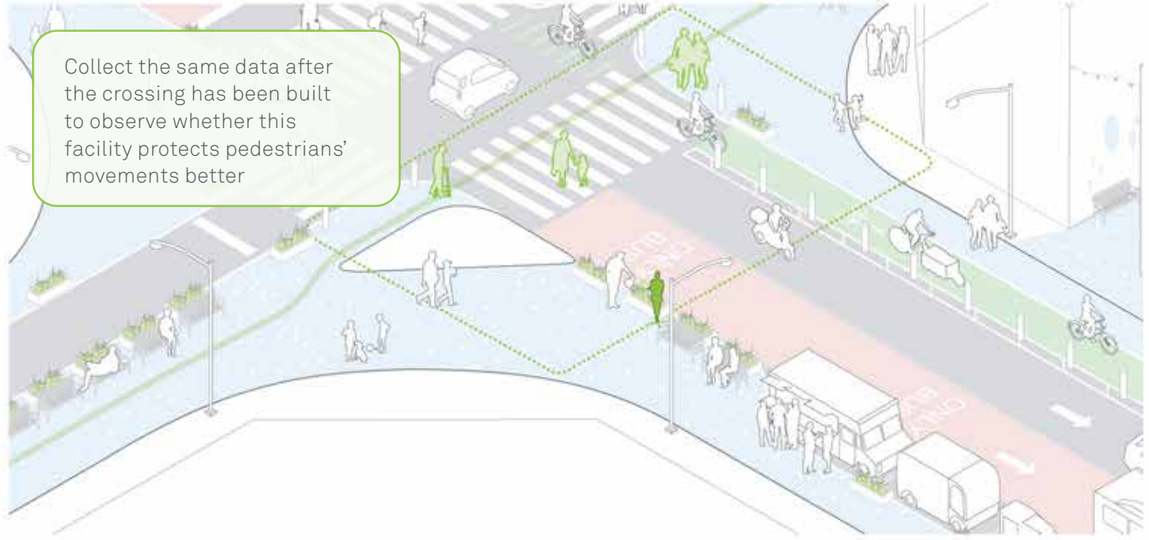
See Appendix for a printable version of this form.

Be sure to pair this qualitative data with observational notes, survey responses, and photographic evidence to comprehensively evaluate the change in pedestrian crossing safety.

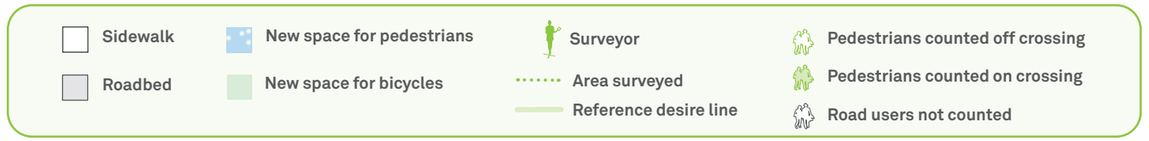
▲ **The crossing is not in line with the natural flow of pedestrians. People are observed walking in the roadbed.**



Measuring before street transformation



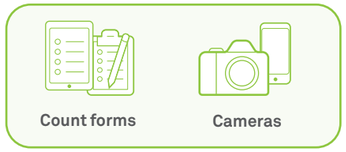
Measuring after street transformation



Counting pedestrians: Activity mapping

Street transformation projects can also generate public spaces as they redistribute space to pedestrians. Define the boundary of the area being surveyed and create a route to walk around the boundary once an hour. Alternatively, you can stand in a central location, depending on the scale of the site. Collect information about co-benefits of the project, such as new stationary activities after the project is built.

Tools you'll need:



Why is this important?

- To enhance understanding of the place, dynamics and activities in public space, and the change after the project is built
- To design better spaces according to observed activities
- To demonstrate that streets can be used for more functions and activities than moving vehicles
- To make the case for other public spaces throughout the city

What your form could look like:

Qualitative data to observe

- Are people able to walk comfortably across the street? Do they have to run between moving cars?
- Who is using the space? Are different ages and genders, groups and individuals present?
- Are people using wheelchairs or pushing strollers able to move through the space without difficulty?
- Are spaces clean and free of garbage?
- Which activities or popular destinations could benefit from more pedestrian space?
- Is transit connected to this area? Is it frequent and reliable?

1 General information

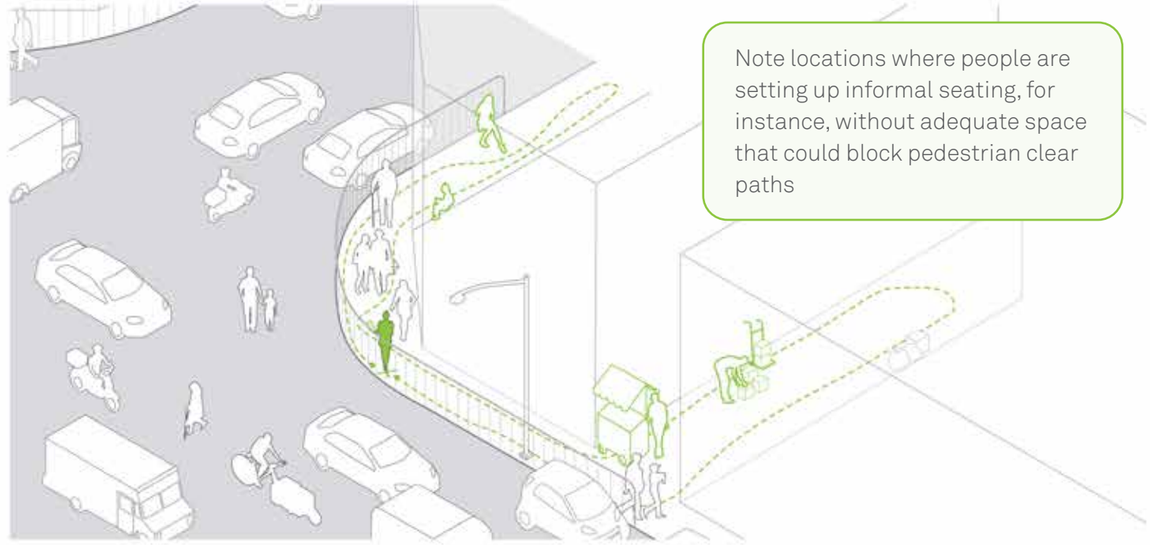
2 Legend

- Define codes or icons for each activity

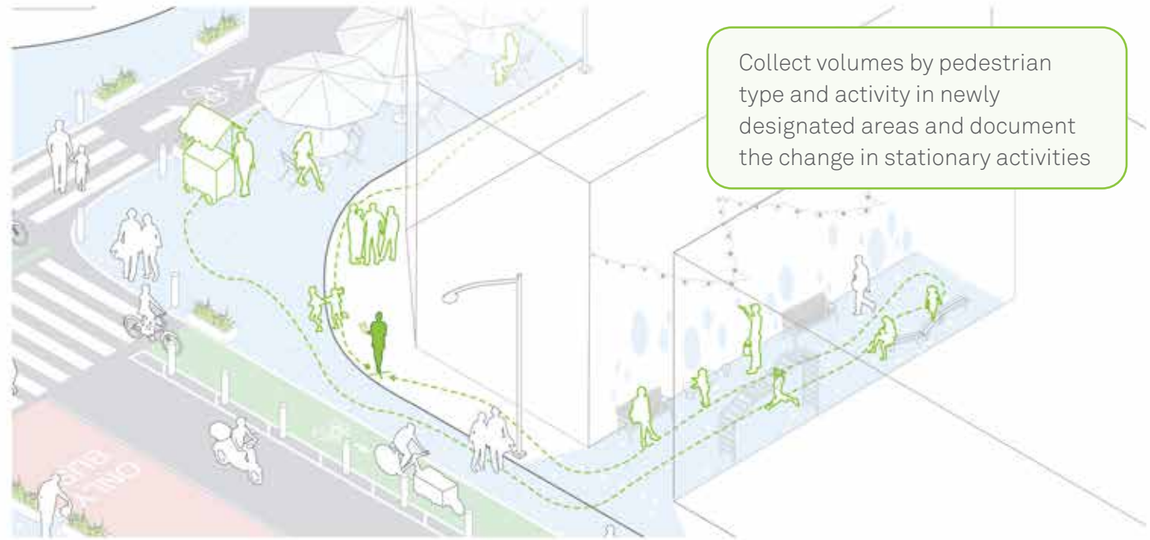
3 Location map

- Walk around the site (follow the boundary to be consistent) or stand in a central location and mark where activities are happening using the codes defined in the legend

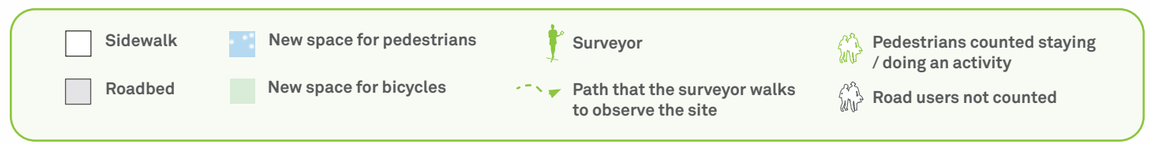
▲ Lack of space for various activities



Measuring before street transformation



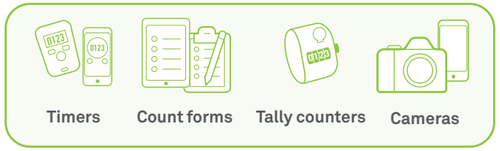
Measuring after street transformation



Counting cyclists and micromobility users

Count all bicyclists and micromobility users riding through the project site according to age, type of bicycle, or other category that corresponds most with the project goals. Separate counts into three rows: one row counts those who are riding within a cycle facility, the second row for those traveling on the sidewalk, and the third row to mark cyclists traveling in the roadbed with other vehicles. Count for at least 15 minutes.

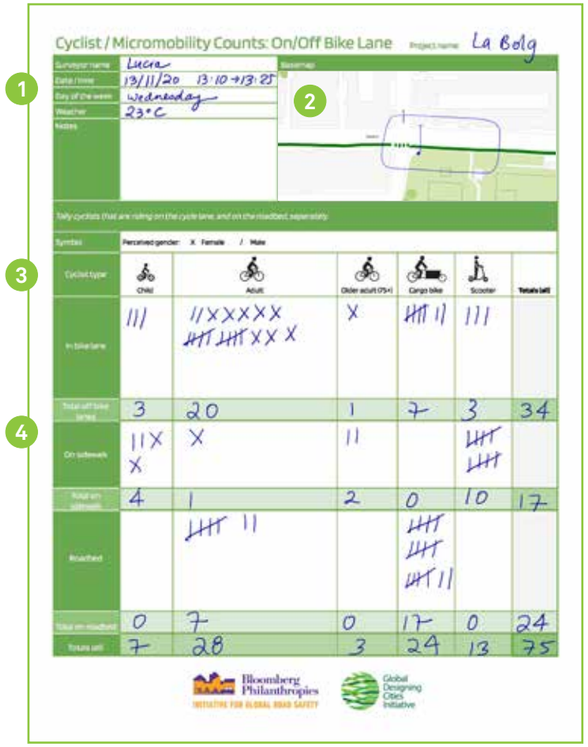
Tools you'll need:



Why is this important?

- To assess bicyclists' and micromobility users' exposure to risk (riding on bicycle infrastructure, pedestrian infrastructure, or the roadbed)
- To understand cycling volumes and the change as a result of the project
- To understand and document cyclist/scooter user types and behaviors

What your form could look like:



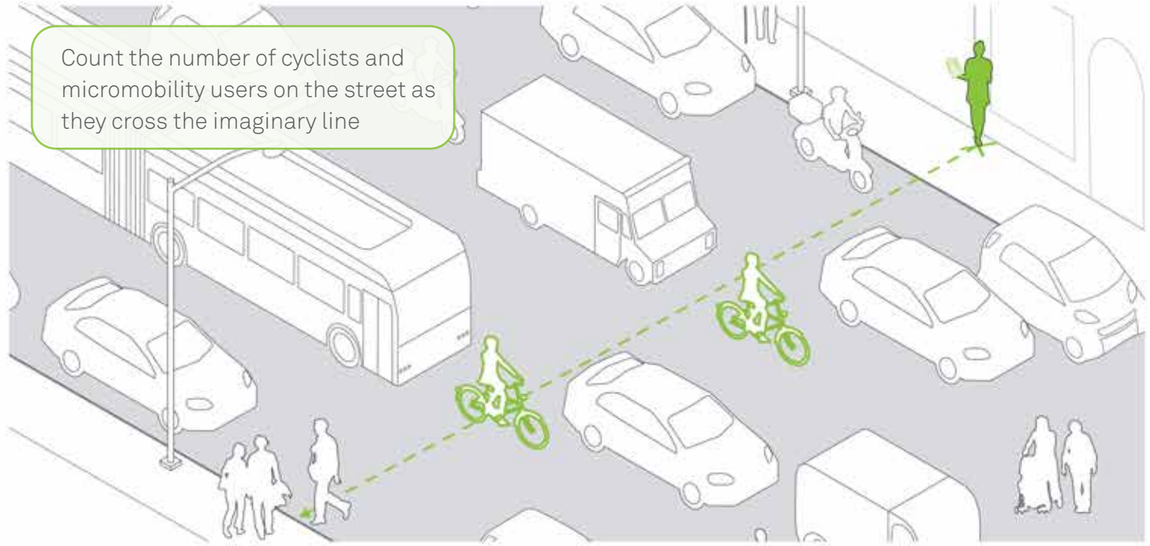
1. **General information**
2. **Location map**
3. **Cyclist type**
4. **Tally counts**

See Appendix for a printable version of this form.

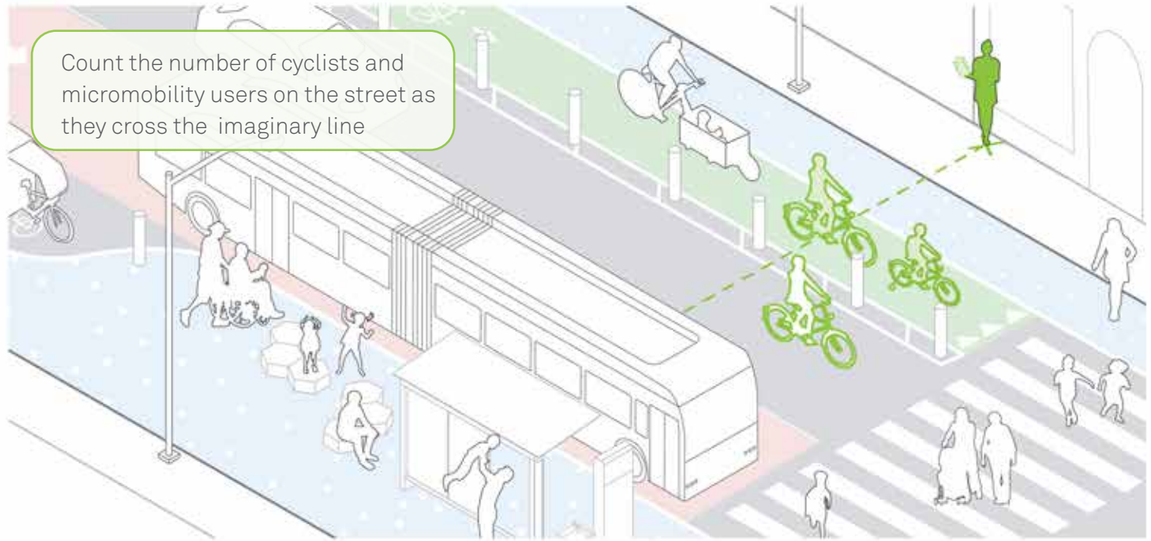
NOTE: An increase in kids, families, and women riding are a strong indication of safer facilities.

Documenting counter-flow cyclists can also be helpful to understand whether this street could benefit from a two-way cycle lane.

Cyclists do not have dedicated infrastructure and are forced to ride with vehicles driving at unsafe speeds



Measuring before the street transformation



Measuring after street transformation

Sidewalk
Roadbed
New space for pedestrians
New space for bicycles
Surveyor
Invisible line surveyed
Road users not counted
Cyclist or micromobility user counted off protected facility
Cyclist or micromobility user counted on protected facility

Counting vehicles

Count different vehicles types driving through the project site. It is recommended to separate counts by direction, especially if there are high volumes. This can be measured in the middle of a block and at intersections, and the appendix includes forms for both locations. Adjust the tally counts to the signal phasing, if applicable.

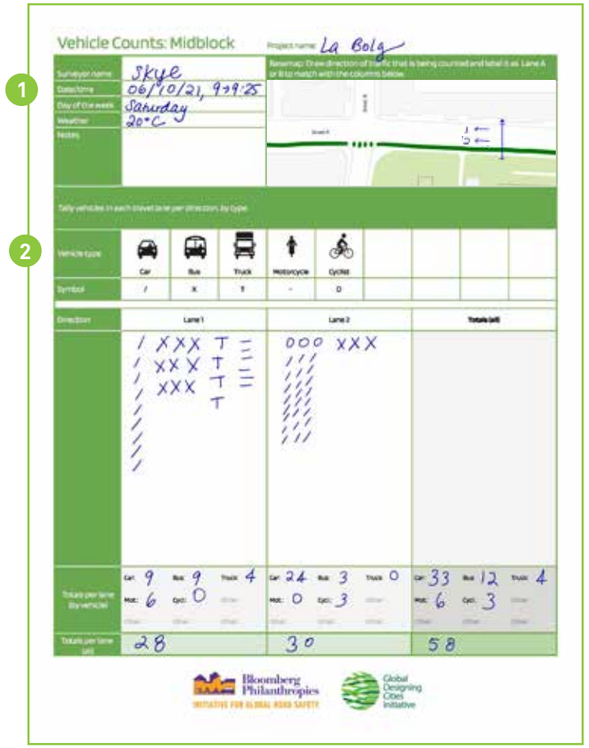
Why is this important?

- To count vehicle volumes by type and movement
- To understand movements of taxis, transit, freight, ride-shares, etc.
- To compare space distribution by mode
- To understand if low traffic areas can be pedestrianized at certain hours, or permanently

Tools you'll need:

It may be helpful to distinguish between short and long trucks (e.g., trucks with trailers) because those vehicles can influence what is possible in terms of reducing turning radii.

What your form could look like:



1 **General information**

2 **Vehicle type**

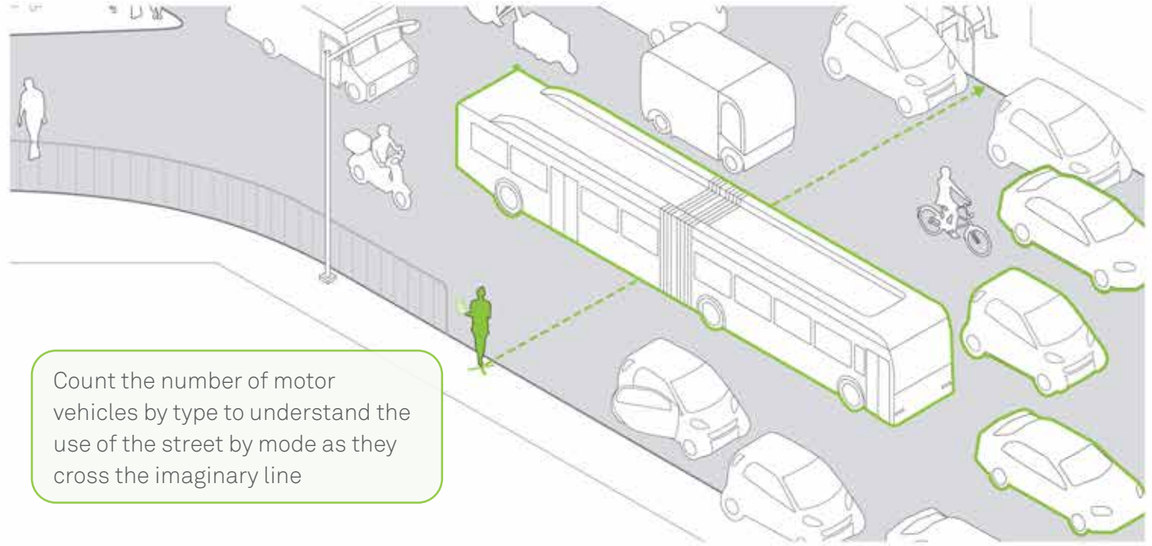
- Car
- Bus
- Truck
- Motorcycle
- Cyclist

See Appendix for printable versions of this form.

NOTE: Mark locations of loading and unloading on the basemap if applicable.

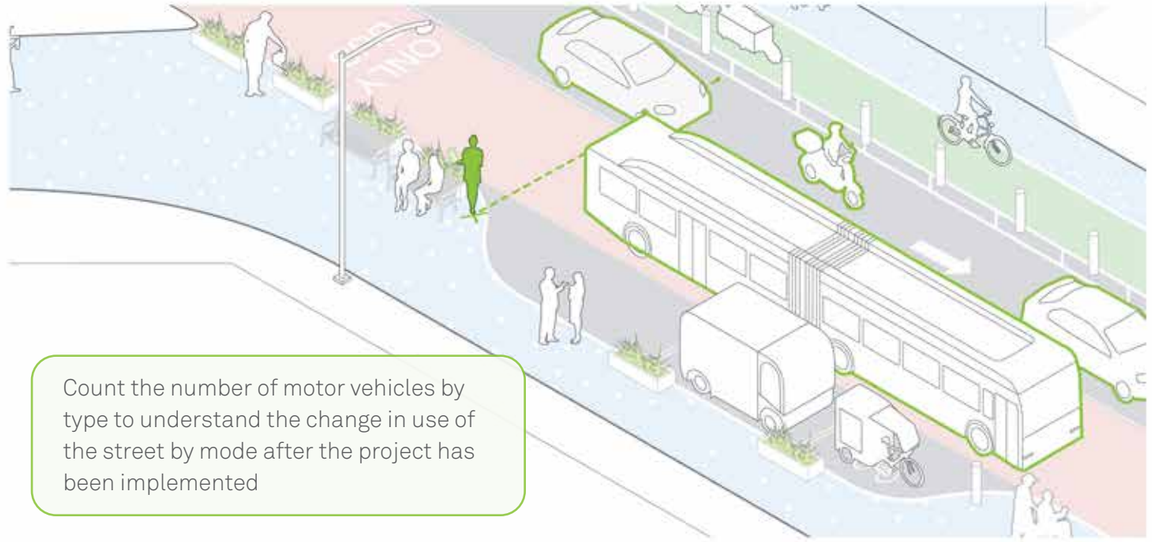
Counting vehicles in Addis Ababa, Ethiopia

▲ Pedestrian and cyclist crash rates and fatalities are high at this location



Count the number of motor vehicles by type to understand the use of the street by mode as they cross the imaginary line

Measuring before street transformation



Count the number of motor vehicles by type to understand the change in use of the street by mode after the project has been implemented

Measuring after street transformation

Measuring vehicle speeds

Use compact speed radars to document the speed of vehicles on specific corridors and corners, according to vehicle type. Count a minimum of 40 vehicle speeds to have a significant sample size, and more if possible. Count turning speeds at corners, and free-flowing speeds at mid-block locations.

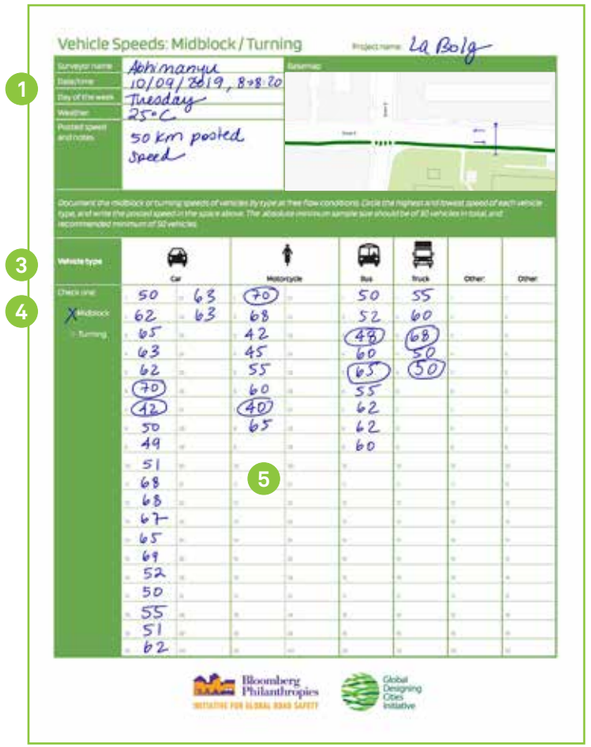
Why is this important?

- To observe characteristics of the site that affect vehicle speed, such as extra-wide lanes, and identify design solutions
- To identify peak speeds at specific locations
- To document speeds of different vehicle types moving through the site, before and after
- To understand if the operating speed of the street segment is appropriate for its surrounding context

Tools you'll need:

Always measure speeds in free-flowing conditions; select a time to avoid moments of traffic congestion

What your form could look like:



1 General information

2 Location map

3 Vehicle type
- Car
- Motorcycle
- Bus
- Truck
- Other (register)

4 Midblock or turning speed
- Check one of the boxes

5 Speed
- Turning speed
- Corridor speed
- Register speed of all vehicles passing by

See Appendix for a printable version of this form.

If vehicle volumes are too high, divide vehicle types into multiple forms to facilitate data collection

How to point your speed radar and/or gun:

1 Speed radar
- A compact speed radar has the advantage of being more discreet (it looks like a smartphone) than classic "speed guns." If drivers identify the surveyor as speed enforcement by the city, this may influence their behavior and survey results.
- The radar must be pointed at oncoming traffic (instead of across the road) in order to work.
- Note that compact radars may be inaccurate for speeds below 15-20 km/h, limiting its applicability for turning speeds.

2 Speed gun

MEASURING SPEED

Bosa - Bogotá, Colombia

Due to street parking, this two-lane street regularly operates as a wide, one-lane street, encouraging higher traffic speeds and exposing a high volume of pedestrians to traffic violence. The first pop-up chicane project in Bogotá narrowed the street with paint and cones as a traffic calming strategy to reduce speeds.

Speed reduction during pop-up:

Private car	**31% reduction**
Taxi	**25% reduction**
Motorcycle	**37% reduction**
Truck	**8% reduction**
Bus	**28% reduction**

B4 | Standardize and analyze data

To understand a street transformation's impact, organize the collected data of each project into standardized formats. Organizing data into clear before-and-after comparisons reveals valuable analyses that can inform design decisions, influence policies, and inspire the scaling up of similar types of projects.

Analyze and share metrics at multiple stages throughout the project's lifespan to continually assess whether project goals have been met. Evaluation processes are often most effective when nuances and observational anecdotes in datasets are celebrated and bias towards initial project goals are not limiting to opportunities for learning and improvement.

Standardize the data that has been collected

Standardize all collected data from different sources into spreadsheets by the following categories to have accurate data comparisons:

- Location of data collection point
- Before or after project implementation
- By day (weekday or weekend, school in session or not, holiday or working day, etc.)
- By time (Peak or off-peak hour, morning or evening, etc.)

Analyze the data and evaluate the impact

Study the standardized datasets and extracting meaningful information that relates to your project goals. As shown on page 66-67, when collecting data about speeds, for example, you can focus on the following metrics to analyze them: change in average speed, peak speeds, and the mode (or most repeated speed), among others. Peak speeds can be tracked over time to evaluate if the design influenced safer driving speeds.

Refine the design

After the initial results of a project become apparent, this is an optimal time to refer back to the project goals and assess whether the design has achieved them. The case study on the next page shows how the City of São Paulo revised a design after initial data indicated that some adjustments would be beneficial.

USING DATA TO INFLUENCE DESIGN ADJUSTMENTS

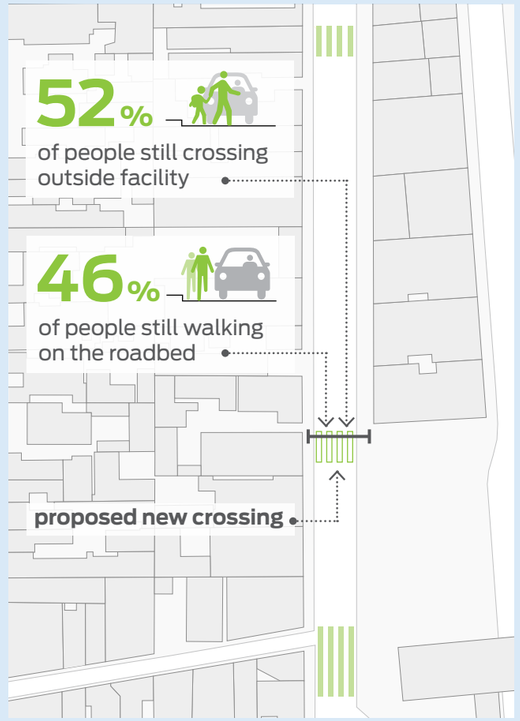
Penha - São Paulo, Brazil

The main goal for this street transformation project was to improve pedestrian safety at the site of a crash hotspot in São Paulo's borough of Penha.

The data collected during the two-month interim street transformation revealed additional locations where people were crossing the street without protected pedestrian facilities. Initial designs had on-street parking spaces that blocked the possibility for crossings at these locations.

After the data collection process showed 77 people per hour crossing the street at a location between two other new crossings, it became clear that the distance between the existing crossings was too great to meet the demand, and pedestrians were still at risk. The curb would need to be extended to accommodate an additional crossing at this location.

Presenting this evidence to the Department of Traffic Engineering resulted in a quick agreement to do so, and the parking spaces were relocated elsewhere.



Measure the impact | Standardize and analyze data

EXAMPLE SPREADSHEET TO ANALYZE PEDESTRIAN DATA

This spreadsheet focuses on understanding pedestrian volumes. It compiles and standardizes the counts by user type, separated by those taken "before" and "after" project implementation.

The spreadsheet then extracts the most powerful metrics to highlight and share in relation to the project goals. For instance, the change in percentage of people walking on the roadbed is highlighted to demonstrate the initial hazard posed to pedestrians, and to assess whether it has been resolved through the design.

As shown ▶, the data findings indicate a 126% increase in the volume of children walking or being carried compared to before the project was implemented.

Be open!
Stakeholder input and collected data may show that the initial expected priority or key goal needs to change after deeper knowledge of the site. Listen and be open to changing gears.

Note the importance of collecting data at comparable days/times to ensure comparability of the before/after figures

1 General information
Note the day of the week, date, and time the data was collected, plus weather conditions and notes

2 User types
Clearly note the relevant data subjects on the spreadsheets

3 Before/after
Standardize the data collection input to be able to easily make before-and-after comparisons about the same time of day, before and after the project has been implemented

4 Totals
Separate totals by street user type to compare

5 Variation over time
Compare before-and-after data to evaluate the impact of implementations

6 Project goals met?
Analyze metrics related to your project visions for success to see if they have been achieved

Pedestrian Volume Counts

Location (1)	Day type (use dropdown menu)	Time (use dropdown menu)
Street A	Weekday (Tue-Thu)	12 pm - 1 pm

Project Goals and Outcomes (5)	(6)	(4) Totals	
Goal description	Outcome	Goal achieved?	Before	After
Increase in pedestrian volume	14%	Yes	1,238.0	1,412.0
Reduction in pedestrians walking outside designated facilities	72%	Yes	3.6%	1.0%
Fewer children walking or being carried on the roadbed	58%	Yes	5.9%	2.5%
Increase in children volume ▶	126%	Yes	38	86
More people with disabilities included	-25%	No	1.13%	0.85%

Input Data

		Total per hour (All types)	Total (All types) (2)	Adult	Older person	Person in wheelchair	Child/Teen	0-5
Before Counts (3)								
Time	**1:20 PM** (1)							
Date:	**Wed, Oct 17, 2018**							
Counted for:	30 **minutes**							
BEFORE	**Sidewalk A** (identify with reference point)	**554**	277	264	3	1	8	1
	Roadbed (always use this line for roadbed)	**44**	22	19	0	1	1	1
	Sidewalk B (identify with reference point)	**640**	320	310	2	0	8	0
	Total			593	5	2	17	2
	Total p/ hour	**1238**		**1186**	**10**	**4**	▶ **34**	▶ **4**
	% walking on the roadbed	**3.6%**		3.2%	0.0%	50.0%	5.9%	50.0%
After Counts (3)								
Time	**1:20 PM** (1)							
Date:	**Wed, Nov 28, 2018**							
Counted for:	30 **minutes**							
AFTER	**Sidewalk A** (identify with reference point)	**610**	305	280	2	2	18	3
	Roadbed (always use this line for roadbed)	**14**	7	6	0	0	1	0
	Sidewalk B (identify with reference point)	**788**	394	371	1	1	21	0
	Total			657	3	3	40	3
	Total p/ hour	**1412**		**1314**	**6**	**6**	▶ **80**	▶ **6**
	% walking on the roadbed	**1.0%**		1%	0%	0%	3%	0%

EXAMPLE SPREADSHEET TO ANALYZE SPEED DATA

This spreadsheet focuses on analyzing speed data that was collected on a corridor. It separates the data by vehicle type, before and after the project was implemented.

The data is then summarized according to the information that is most valuable to be communicated, or how the data is requested. This will help the team understand whether the project contributes to the goal of creating a safer environment for pedestrians: vehicles going over the speed limit, vehicles in the 95th percentile, etc.

For instance ▶, the findings show an 86% reduction in vehicles exceeding the speed limit, compared to before the project was implemented, which meets their goal of increasing road safety.

1 General information

Note the day of the week, date, and time the data was collected, plus weather conditions and notes

2 User types

Clearly note the relevant data subjects on the spreadsheets

3 Before/after

Standardize the data collection input to be able to easily make before-and-after comparisons about the same time of day, before and after the project has been implemented

4 Totals

View the totals according to those in the 95th percentile for speed, those going above the speed limit, etc.

5 Variation over time

Compare before-and-after data to evaluate the impact of implementations

6 Project goals met?

Analyze metrics related to your project visions for success to see if they have been achieved

Vehicle speeds | Midblock

Location (1)	Day type (use dropdown menu)	Time (use dropdown menu)
Street A	Avg. multiple days	11 am - 12 pm

Project Goals and Outcomes

Description	Outcome (5)	Goal achieved? (6)
▶ Fewer vehicles exceeding 30 km/h	-86%	Yes
Fewer 4-wheelers exceeding 30 km/h	-99%	Yes
Reduction in vehicle top speeds (95th percentile)	-25%	Yes
Fewer heavy vehicles exceeding 30 km/h	-100%	Yes

Totals (4)

Before	After
43.1%	6.1%
28.8%	0.4%
41.1	31.0
50%	0%

Data Analysis

30 km/h | Excessive Speed	Before	After	Variation (5)
▶ All vehicles	43.1%	6.1%	-86%
(2) 4-wheelers	28.8%	0.4%	-99%
Heavy vehicles	50.0%	0%	-100%
2-wheelers	59.0%	16.2%	-73%

95 th Percentile Speed	Before	After	Variation
All vehicles	41.1	31.0	-25%
4-wheelers	37.0	23.0	-38%
Heavy vehicles	46.4	18.8	-60%
2-wheelers	42.0	34.0	-19%

Median Speed (50th Percentile)	Before	After	Variation
All vehicles	29.0	15.0	-48%
4-wheelers	26.0	14.0	-46%
Heavy vehicles	30.0	14.0	-53%
2-wheelers	31.0	19.0	-39%

Sample Size	Before	After
All vehicles	190	288
4-wheelers	100	185
Heavy vehicles	10	10
2-wheelers	90	103

Input Data

Before Counts (3)		After Counts (3)	
Time:	11 am - 12 pm (1)	Date:	11 am - 12 pm (1)
Date:	Avg. multiple days	Time	Avg. multiple days

Before Counts (3)				After Counts (3)			
Motorcycles	Cars	Buses	Trucks (2)	Motorcycles	Cars	Buses	Trucks
29	32	31	24	19	23	14	14
27	27	42	29	23	18	16	11
40	29	31	11	35	18	14	14
31	26	50	18	18	19	21	11
29	35	31	20	32	16	13	11
27	29			24	23		
35	24			26	21		
42	29			21	19		
35	27			23	23		
37	29			51	26		
29	24			37	24		
34	26			34	21		
40	18			34	21		
27	20			32	21		
37	19			31	19		
29	32			27	24		
18	26			23	18		
40	24			34	16		
31	18			34	14		
37	31			24	27		
29	32			19	29		
37	27			24	16		

B5 | Communicate the results

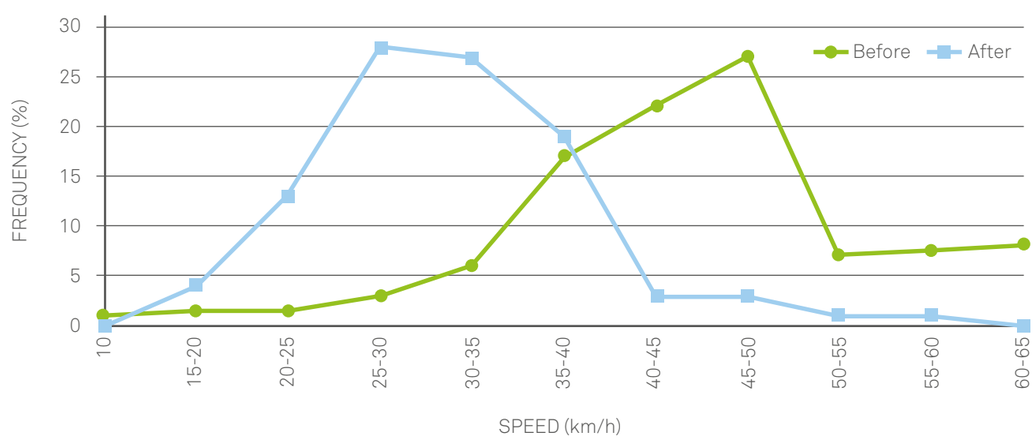
Inform the public about project-related goals and impacts in a visually engaging way and through a clear communications strategy. Depending on who the audience is, the extracted metrics can be visualized as a table, infographic, graph, map, plan drawing, or something else. Most people respond best to photos and simpler graphics, as well as specific statistics. **The following visuals exemplify a few different ways that the same metrics can be formatted.**

Example table

Speeds	50th Percentile	85th Percentile	40+ MPH Speeders
Before	25.6 MPH	31.2 MPH	1119
After	23.1 MPH	29.0 MPH	513
% Change	**-9.8%**	**-7.1%**	**-54.2%**

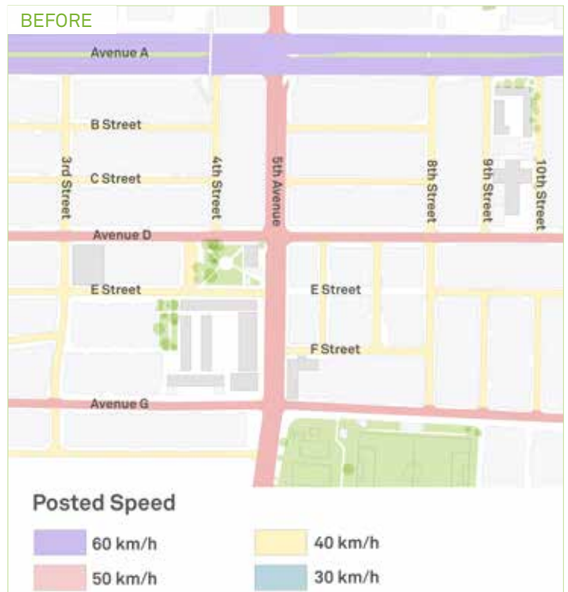
Example graph

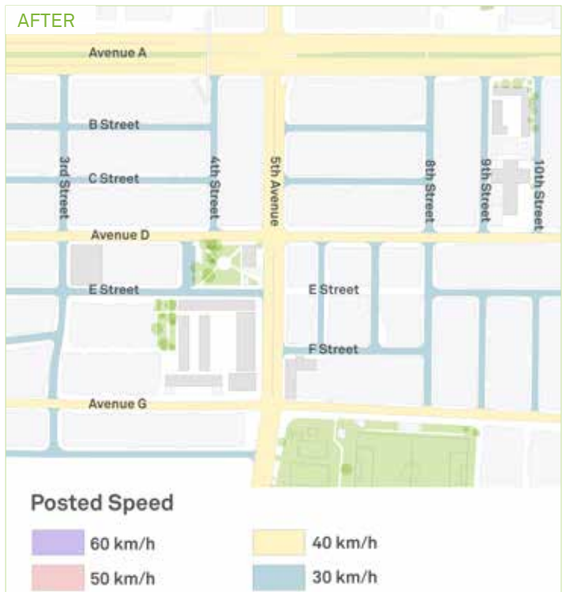
Before and after speed data



Infographic over photo

Plan drawings, before and after





Use collected data to support the communications deliverables

Feature key metrics in easily digestible online/print formats such as social media posts, blogs, and articles; you can also include them on photos. Your metrics can be prepared and shared at various stages of the project.

Refer to the *How to Implement Pop-up and Interim Street Transformations* handbook, Section A3 for more information.

Use each interaction as a chance to garner more feedback, information, and stories about the site to tell in the future stages.

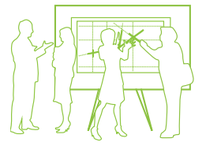
At each stage in a project's lifespan:

Frame the narrative

Raise awareness about existing conditions, challenges, and the need for the upcoming project. This could be done through:

- Blog posts or articles
- Social media posts
- Posters, flyers, and announcements
- Stakeholder meetings (in-person or virtual)

Explain the project



Visit the project site before implementation and share information about the goals of the upcoming project. Present key challenges and design concepts to stakeholders. This can be done through:

- Stakeholder meetings (in-person or virtual)
- Posters, flyers, and announcements
- Social media posts

Share initial impacts

Share immediate impacts! This can be done through a combination of the following:

- Informational posters/ boards
- Press releases / media coverage
- Social media posts
- Blog posts or articles

Share long-term impacts

Share key findings, impacts, and next steps to advocate for the success and longevity of the project. This can be shown through a combination of the following:

- Long-form blog posts or articles
- Technical reports
- Presentations

Include these visual elements:

Photos of the site/challenges/implementation	✓	✓	✓	✓
Short video clips (30-60 seconds)	✓		✓	✓
Time-lapse videos	✓		✓	✓
Before-and-after photo sets			✓	✓

Use collected data:

Perception surveys	✓	✓	✓	✓
Site maps / informational boards	✓	✓	✓	✓
Crash location maps and road safety statistics	✓	✓	✓	✓
Written/recorded testimonials/interviews/stories	✓		✓	✓
Dissemination of metrics through graphics	✓	✓	✓	✓

Measure the impact | Communicate the results

BRINGING IT ALL TOGETHER: SHARING LONG-TERM IMPACT

Barão do Rio Branco, Fortaleza, Brazil

Approximately one month after implementing a project in downtown Fortaleza, a blog post was published with a comprehensive collection of metrics and visual materials that demonstrated how the road safety concerns on the site were addressed and advocated to make the redesign permanent.

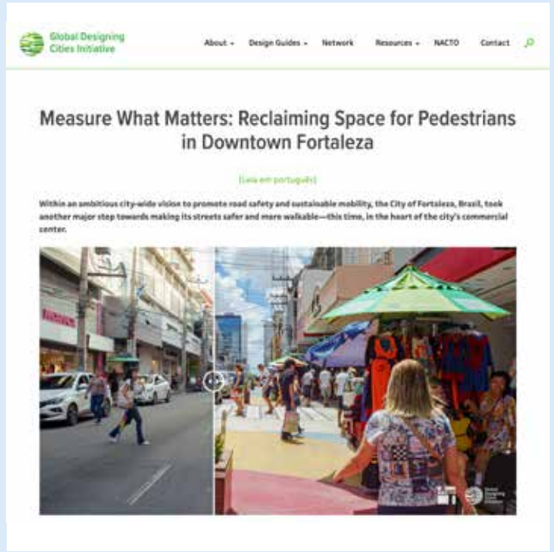
The steps highlighted below break down the different visual components in this long-format blog post.

The full blog is available at https://bit.ly/3CYPuzK

1. Clearly reiterate the goal

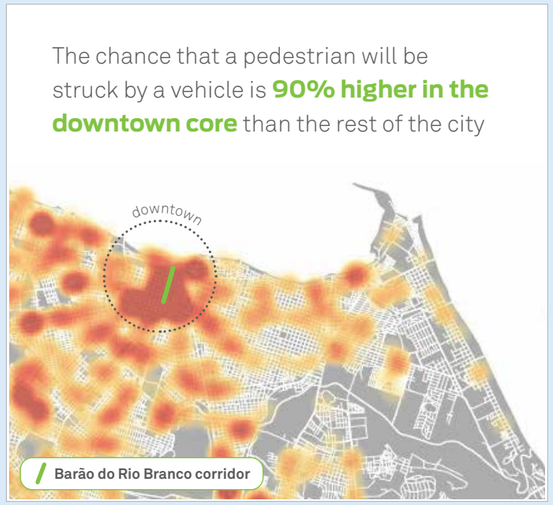
The title featured the overarching project goal, followed by a before-and-after photo comparison to clearly and visually demonstrate how the project site has changed.

For guidance on how to start your goal-setting process, see page 13.



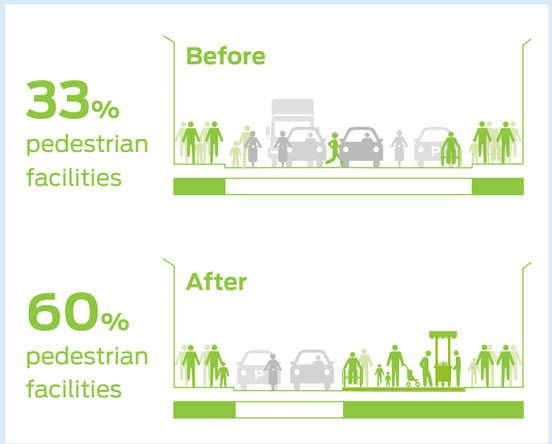
2. Be intentional with justifying the "why" behind site selection

This crashmap, sourced from the City of Fortaleza's police department, helped make the case for the specific project site location.



3. Return to the specific goal of the project

The infographics below demonstrate the percentage of space allocated to pedestrians and motor vehicles before and after the project.



4. Break down new design components and quantify the physical changes made on site

Infographics were created to quickly understand the overview of the physical and operational changes of the project design, new user counts, mode share counts, and changes in speed. These were overlaid on photos of the new street.

5. Share a time-lapse video to allow viewers to "experience" the site in a quick and engaging way

A short time-lapse video was embedded into the blogpost. This was recorded while walking through the new sidewalk extension space, and shows the experience and new usage of the street in a relatable way.

6. Videos including testimonials from stakeholders experiencing the street are an effective way to show excitement around the new project

This video is also great to have on hand for meetings with communities and government officials to quickly and powerfully summarize the project process, experience, and reactions from street users.

If you don't have internal graphic design capacity

- Use Microsoft Word or Google Docs to format your photos side by side (you can screenshot your selection to quickly turn the pairing into a .jpg)
- Use Microsoft Excel or Google Sheets to create charts from your datasets to show changes between your before/after data (road space allocation, mode user breakdown, etc.)
- You can download icons of road users from the internet, and place them in Microsoft PowerPoint / Google Slides with your text to create basic infographics

Resources

Addis Ababa, Ethiopia

Acknowledgements

Global Designing Cities Initiative

CORE PROJECT TEAM

Skye Duncan, Director
Fabrizio Prati, Director of Design
Najwa Doughman, Program Manager
Kat Gowland, Design Associate
Vivi Tiezzi, Program Associate

CONTRIBUTORS

Abhimanyu Prakash
Anna Siprikova
Annah MacKenzie
Annie Peyton
Brianna Williams
Eduarda Aun
Eduardo Pompeo Martins
Francisca Benitez
Hayrettin Günç
Lucia De La Mora
Majed Abdulsamad
Paul Supawanich
Solomon Green-Eames

National Association of City Transportation Officials (NACTO)

Celine Schmidt, Design Associate
Corinne Kisner, Executive Director
Jenny O'Connell, Program Manager
Kate Fillin-Yeh, Director of Strategy
Matthew Roe, Technical Lead
Zabe Bent, Director of Design

Key contributors

Catalina Parra Ramirez, Design Consultant
Grace Duggan, Copy Editor

External reviewers

Abdul Bachani
Johns Hopkins University, Baltimore, United States

Adriana Jakovcevic
World Resources Institute (WRI), Buenos Aires, Argentina

Alina Burlacu
World Bank, Washington DC, United States

Anna Nord
NZ Transport Agency (NZTA), Auckland, New Zealand

Beatriz Rodrigues
Bloomberg Initiative for Global Road Safety, Fortaleza, Brazil

Bernardo Baranda
Institute for Transportation and Development Policy (ITDP), Mexico City, Mexico

Ezequiel Dantas
Vital Strategies, São Paulo, Brazil

Giovanni Zayas
World Bank, Puebla, Mexico

Hannah Machado
Vital Strategies, São Paulo, Brazil

Irene Figueroa Ortiz
NYC Department of Transportation, New York City, United States

Javier Vergara Petrescu
Ciudad Emergente, Santiago, Chile

Jennifer Rivera
Monash University, Melbourne, Australia

Mariana Campos Sánchez
Universidad Nacional Autónoma de México, Mexico City, Mexico

Rita Jacinto
City of Lisbon, Portugal

Robin Abad
SF Planning, San Francisco, United States

Sarah Whitehead
Vital Strategies, Toronto, Canada

Sofie Kvist
Gehl Studio, San Francisco, United States

Yohannes Legesse
City of Addis Ababa, Ethiopia

Photo credits

All images used in this handbook are taken by the authors, unless specified below.

II Paulo Winz; IV left Cidade Ativa.

Introduction: 1 Cidade Ativa.

A Identify where to start: 14 left Paulo Winz; 16 Paulo Winz.

B Measure the impact: 35 left Paulo Winz; 47 top Juan Paez, bottom right EPMMOP Quito; 63 bottom Hannah Machado; 72 City of Fortaleza crash map; 75 EPMMOP Quito.

Key terms and definitions

Data analysis

The process of extracting meaningful information from standardized datasets for evaluation.

Data collection

The process of gathering, measuring, or counting variables of interest in a planned, systematic manner. In this handbook, the data collection process enables movement, perception, and activity in urban streets to be captured so that outcomes of a project can be evaluated.

Data standardization

The process of organizing collected data into groups such as by date or time it was collected, street user type, mode, etc. This formatting enables it to be analyzed.

Evaluation

The determination of whether a project has achieved its initial goals. This process can be informed by both qualitative and quantitative analysis, and should be made at multiple points throughout a project's lifespan to understand the degree of success, strategy for improvement, or inform particular next steps to be taken.

Metric

A simplified measurement of impact that may indicate the attainment of a goal or the result of a specific change over time. The methodology in this handbook uses metrics as a means of embodying the change in collected data before and after a street transformation, in comparable conditions, to enable understanding of overall project impact, indications of success, and areas of improvement.

Pop-up and interim street transformations

Within this handbook, a temporary transformation of one to a few days is referred to as a "pop-up," while a longer-term transformation (lasting weeks to months) is called "interim." Refer to page 4 for additional details, or reference the *How to Implement Pop-up and Interim Street Transformations* handbook.

Quantitative data

What you can **count, measure, rate, or scale**. Quantitative data measures the change in physical space, operations, number of people or vehicles, movements, and more.

Qualitative data

Intangible qualities that can be observed or shared through stories. Qualitative data is subjective and relates to how space is **perceived rather than measured**.

References

Publications

AARP and Smart Growth America. "Evaluating Complete Streets Projects: A guide for practitioners," 2015.

Appleyard, Donald, M. Sue Gerson, and Mark Lintell. Livable Streets. Berkeley, CA: University of California Press, 1981.

California Bicycle Coalition and Alta Planning + Design. "Quick-build Guide: How to Build Safer Streets Quickly and Affordably," 2020.

Despacio. "Caminar En Bogotá: Las Cuentas 2017."

Gehl Institute, City of San Francisco's Planning Department, Copenhagen Municipality's City Data Department, Seattle Department of Transportation, Gehl. "Public Life Data Protocol - Version: Beta," 2017.

Gehl, Jan, and Birgitte Svarre. How to Study Public Life. Washington, DC: Island Press, 2013.

Gehl, Jan. Life between Buildings: Using Public Space. New York, NY: Van Nostrand Reinhold, 1987.

Gehl Studio. "Volume I: Makers on Market," 2015.

Gehl Studio. "Volume II: Planning by Doing," 2016.

India's Ministry of Housing and Urban Affairs, Town and Country Planning Organisation, CEPT University. "LAP (Local Area Plan) for transit," 2000.

ITDP. "Pedestrians First: Tools for a Walkable City," 2018.

ITDP. "TOD Standard," 2017.

LA DOT. "People St: Project Evaluation Manual V1.1."

National Association of City Transportation Officials. Urban Street Design Guide. Washington, DC: Island Press, 2013.

National Association of City Transportation Officials' Global Designing Cities Initiative. Global Street Design Guide. New York City, NY: Island Press, 2016.

National Cooperative Highway Research Program. Guidebook on Pedestrian and Bicycle Volume Data Collection. Report 797, Transportation Research Board, 2014.

NYC DOT. "Measuring the Street: New Metrics for 21st Century Streets," 2012.

NYC DOT. "The Economic Benefits of Sustainable Streets," 2013.

People For Bikes and the Alliance for Biking & Walking. "Protected Bike Lanes Mean Business," 2014.

Philippe Panerai. Urban Analysis. Paris: Editions Parenthèse, 2003

San Francisco Planning Department. "Public Life Study: Standards Manual," 2019

San Francisco Municipal Transportation Agency. Equity Toolkit. Accessed January 2022, https://sfgov.maps.arcgis.com/apps/MapSeries/index.html?appid=0ed0f731fd09458386193b5747e18584#.

Swanson, J. M., Roehler, D. R., & Sauber-Schatz, E. K. "Traffic Conflict Technique Toolkit: Making the Journey to and from School Safer for Students." CDC Foundation and FIA Foundation, 2020.

Todd Alexander Litman, Victoria Transport Policy Institute. "Evaluating Transportation Equity: Guidance for Incorporating Distributional Impacts in Transport Planning," 2022.

Transit Center. Equity Dashboard. Accessed January 2022, https://dashboard.transitcenter.org/.

William H. Whyte. The Social Life of Small Urban Spaces. New York, NY: PPS, 1980.

Appendix

How to use the templates

This section contains basic, ready-to-print checklists, forms, and community engagement boards to support your data collection. You can digitally add basemaps of your site where needed or simply hand-draw it once it has been printed. *Refer back to Section B3 for examples of what the forms might look like when completed.*

If you prefer to work with digital resources, or customize the forms provided, we are also offering a digital version. Use the editable file below and follow the instructions to prepare your own forms from our templates.

1. Access the editable file

Click the button below to access the online spreadsheets where you will find:

- One tab for each of the provided forms
- A reference library of street users and the corresponding icons that you can copy and paste into your new forms. These are just suggestions, you can also create your own.
- Sample data processing tables for pedestrian counts and vehicular speeds, like the ones shown on pages 64 to 67.

Metrics collection forms
https://bit.ly/3GIbbX7

2. Create your own copy

Start by making a copy of the file on your own drive so you can work freely:

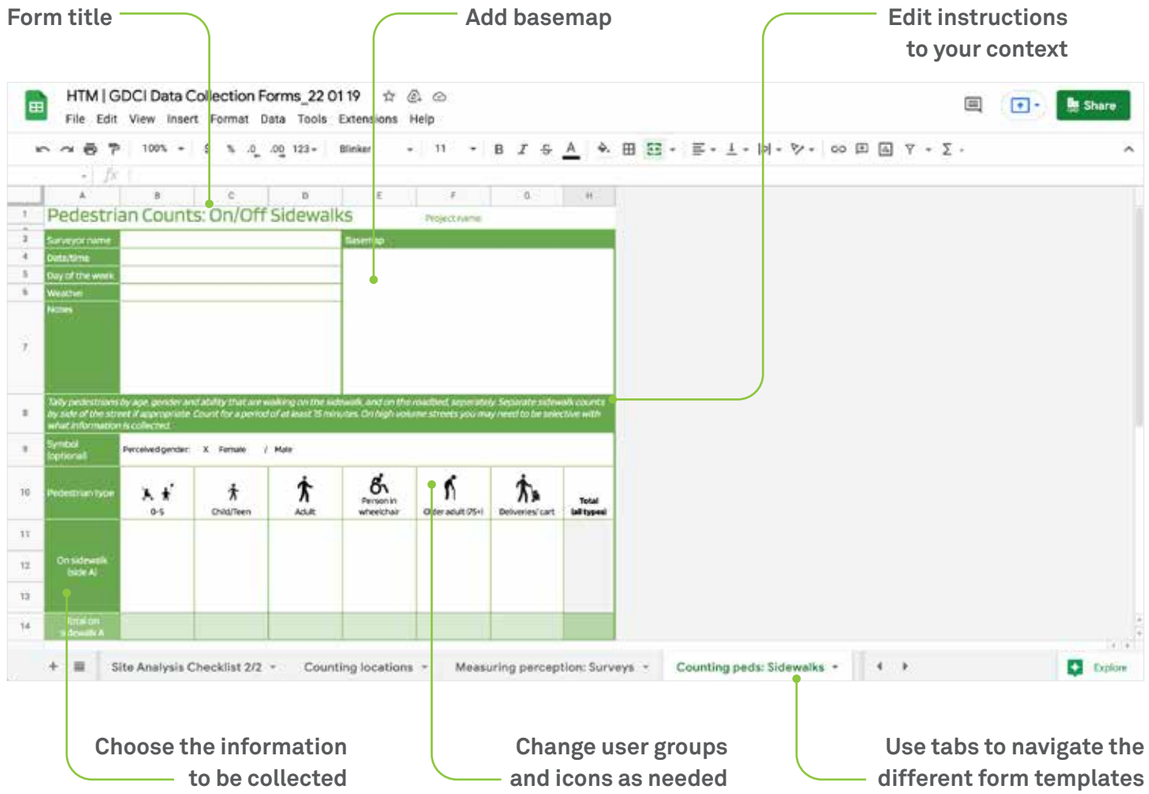
- In the menu, click **File** and then **Make a copy.**
- Name your file and choose where to save it.
- If you want to copy the comments, click **Copy comments and suggestions.**
- Click **Ok.**

If you prefer to work offline, follow these steps:

- In the menu, click **File** and then **Download.**
- Choose a file type (.xlsx or .ods will keep it editable).
- The file will download onto your computer.

3. Edit as needed

Make all the changes you want to the text and images in the forms:



4. Print your forms

Once you are done with the edits, export PDFs and print your forms:

- In the menu, click on the printer icon or go to **Menu > Print.**
- The file is already set up to print in "letter" format.
- Click **Next:**
  - If you're using Chrome, click **Print** in the window that appears. You can choose to print directly from there or save it as a PDF first.
  - If you're using Firefox or Safari, a PDF file will automatically download. In your PDF viewer, go to **File** and then **Print.**

Surveyor Checklist

When preparing to go on site, consider which of the following materials you might need:

SAFETY AND ORIENTATION GEAR

- ☐ Reflective safety vests / uniform, identifiable t-shirts
- ☐ Mobile phone / charger
- ☐ The coordinator's cell phone number
- ☐ A copy of the surveyor map and schedule
- ☐ PPE (reflective vests, hard hats, as necessary)
- ☐ A letter from the project lead explaining surveyor's data collection tasks

MEASUREMENTS TOOLS

- ☐ Timer (could be a downloaded app on mobile phone)
- ☐ Speed radar
- ☐ Laser measuring tape
- ☐ Counter
- ☐ Clipboard
- ☐ Plenty of printed forms, or downloaded digital forms
- ☐ Writing utensils (a pen)
- ☐ Printed posters / flyers and a pre-approved plan for posting on nearby buildings, poles, or walls
- ☐ Sticky dots for public engagement with perception boards

DOCUMENTATION TOOLS

- ☐ Camera (DSLR camera or mobile phone)
- ☐ Timelapse video camera
- ☐ Drone camera (with printed permit, if applicable)
- ☐ Any other printed permits potentially needed to access building rooftops nearby the site
- ☐ Child/general photography consent forms, if applicable

OTHER POTENTIAL RECOMMENDATIONS

- ☐ Comfortable clothing, and a bag or backpack
- ☐ Sunscreen and/or a hat for sun protection
- ☐ A poncho for rain protection
- ☐ Identification
- ☐ Water and snacks

Organizer Checklist

When preparing your team to go on site, consider preparing the following:

ORIENTING THE TEAM TO THE SITE

- ☐ Where is the nearest convenience store for snacks and water?
- ☐ Where is the closest medical facility?
- ☐ Where is the closest hardware store for materials like tape or extra safety vests?
- ☐ Where is the closest print shop?

EXTRA COPIES OF KEY SURVEYOR TOOLS AND MATERIALS

- ☐ Extra tools: timers, speed radars, laser measuring tapes, counters, clipboards, etc.
- ☐ Plenty of extra printed forms
- ☐ A USB with all forms and permits on it
- ☐ Extra writing utensils

EMERGENCY PREPAREDNESS

- ☐ A medical emergency kit
- ☐ Extra water bottles
- ☐ Local emergency phone numbers

CONTACT INFORMATION FOR SURVEYORS ON SITE WITH YOU:

Global Designing Cities Initiative

Site Analysis

Project name:

Surveyor name	
Date/time	
Day of the week	
Notes	

Legend

- Pedestrian crossings
- Pedestrian signal
- Refuge islands
- Ramps / curb cuts
- Tactile paving
- Accessibility issues
- Seating/bench
- Improvised seating
- Waste bins
- Light pole
- Signage
- Tree / tree pit
- Green space
- Shaded areas
- Bike rack
- Bike lane
- Bus stop
- Bus shelter
- Bus lane
- Metro station
- Taxi stand
- On-street parking
- Illegally parked cars
- Loading areas
- Pick-up/drop-off
- Street vendor
- Entries
- Outdoor dinning
- Potholes / cracked pavement
- Speed bumps and cushions

*Place a basemap into the space below and document the elements in the legend and relevant dimensions. Refer to the **Site Analysis Checklist** for a more complete list. Remember, not everything will be relevant to your site analysis. Print multiple copies of this form if necessary, and adjust the scale to the appropriate level of detail.*

Global Designing Cities Initiative

Site Analysis : Section + Plan

Project name:

Surveyor name		Notes
Date/time		
Day of the week		

Draw a street cross-section below. Use the gridlines to scale the drawing and mark string dimensions.

Draw a plan view below. Use the gridlines to align with the section above.

Global Designing Cities Initiative

Site Analysis Checklist 1/2

Survey and map the details of the site from building line to building line, including private front yards, private seating areas (e.g., cafe terraces), public sidewalks, public plazas, and the roadbed. Register user behavior and how the site is being used.

This checklist supports GDCI's Site Analysis form: we recommend using them together. Please note that this list is not exhaustive and those conducting site visits should add other things they see as relevant.

SIDEWALK/PEDESTRIAN AREAS

- ☐ Sidewalk present or not
- ☐ Sidewalk and clearpath dimensions (at different key points)
- ☐ Clearpath obstructions
- ☐ Surface conditions (e.g. potholes, cracked pavement, etc)
- ☐ Curb cuts and accessible ramps, or clear accessibility issues
- ☐ Shaded areas
- ☐ Tree pits and planting
- ☐ Street furniture (public/private seating, etc.)
- ☐ Utilities (lamp posts, power poles, fire hydrants, etc.)
- ☐ Signage

ROADBED

- ☐ Number of travel lanes
- ☐ Width of travel lanes
- ☐ Medians dimensions (if existing)
- ☐ Pedestrian crossings (position, width, length, and distances between them)
- ☐ Pedestrian crossings (condition of paint, is there an obvious one missing)
- ☐ Refuge islands dimensions (if existing)
- ☐ Traffic calming elements (bumps, cushions, etc)
- ☐ Horizontal signage conditions
- ☐ Asphalt conditions
- ☐ Pedestrian bridges
- ☐ Drainage channels and drains
- ☐ Underutilized areas (if existing)

PARKING

- ☐ Regulated or unregulated
- ☐ Designated spaces or random
- ☐ Illegal parking
- ☐ Parked vehicles blocking the sidewalk clear path

Site Analysis Checklist 2/2

LAND USE

- ▫ Adjacent buildings (property lines, setback, land use, entrances, etc.)
- ▫ Adjacent uses (identify schools, places of worship, shopping centers, blank facades, residential, etc.)
- ▫ Activity areas (playground, skatepark, restaurant seating area, etc)
- ▫ Parks and greenspace
- ▫ Entrances to metro, subways, pedestrian bridges, key walking destinations, etc.
- ▫ Driveways and parking lots

SIGNALS

- ▫ Signalized or not
- ▫ Signal timings and cycle lengths
- ▫ Any dedicated pedestrian signals
- ▫ Do pedestrians get a clear green to cross without any turning traffic on all legs?

PEDESTRIANS

- ▫ Desire lines
- ▫ Are there lots of children / school etc nearby?
- ▫ Are people walking on the sidewalks or on the roadbed?
- ▫ Are there any pedestrian congregation zones?

CYCLISTS

- ▫ Cyclists present or not
- ▫ Cyclists types (freight, bikeshare, commuters, kids)
- ▫ Dedicated facilities present or not
- ▫ If not, do people cycle on the roadbed or on the sidewalk?
- ▫ Cycle parking

MOTORISTS

- ▫ Trucks or other large vehicles
- ▫ Motorcyclists
- ▫ Loading zones
- ▫ Pick-up or drop-off zones (formal and informal)
- ▫ Taxi stands
- ▫ Entrances to parking lots, and other key vehicle destinations

TRANSIT USERS

- ▫ Bus stops/ shelters
- ▫ Are bus stops obstructing the sidewalks?
- ▫ Transit routes
- ▫ Dedicated facilities
- ▫ Informal transit

PEOPLE DOING BUSINESS

- ▫ Are there street vendors?
- ▫ Which part of the street do they use?
- ▫ What are they commercializing?

Counting Locations

Project name:

Surveyor name		Legend
Date/time		
Day of the week		
Notes		

Place a basemap into the space below and mark where surveyors should stand for the data collection. Use the symbols defined in the legend above to indentify the specific data to be collected in each spot.

Global Designing Cities Initiative

Perception: Intecept Surveys

Project name:

Surveyor name		Basemap
Date/time		
Day of the week		
Notes		

Survey one person per form. Mark the location of the survey in the basemap above. Complete this form based on feedback from the pedestrian. Note additional details gathered through conversation and observation.

Perceived age group*:

☐ >10 ☐ 11-20 ☐ 21-40 ☐ 41-60 ☐ 60+

Perceived gender*:

☐ Male ☐ Female

*These can be filled by the surveyor.

How often do you visit this street? ☐ Daily ☐ Weekly ☐ Monthly ☐ First visit/rarely

Reason for being here today: LIVE / WORK / STUDY / SHOPPING / MEET FRIENDS / OTHER

How did you get here today? WALKING / CYCLING / TRAIN / BUS / TAXI / CAR / MOTORCYCLE / OTHER

Which modes do you generally use? WALKING / CYCLING / TRAIN / BUS / TAXI / CAR / MOTORCYCLE / OTHER

Which mode would you like to use more? WALKING / CYCLING / TRAIN / BUS / TAXI / CAR / MOTORCYCLE / OTHER

Do you like spending time on this street?

How safe do you feel on this street?

Additional notes:

Global Designing Cities Initiative

Pedestrian Counts: On/Off Sidewalks

Project name:

Surveyor name		Basemap	
Date/time			
Day of the week			
Weather			
Notes			

Tally pedestrians by age, gender and ability that are walking on the sidewalk, and on the roadbed, seperately. Separate sidewalk counts by side of the street if appropriate. Count for a period of at least 15 minutes. On high volume streets you may need to be selective with what information is collected.

Symbol (optional)	Perceived gender: X Female / Male						
Pedestrian type	 0-5	 Child/Teen	 Adult	 Person in wheelchair	 Older adult (75+)	 Deliveries/ cart	**Total (all types)**
On sidewalk (side A)							
Total on sidewalk A							
Roadbed							
Total on the roadbed							
On sidewalk (side B - optional)							
Total on sidewalk B							
Total (all)							

Global Designing Cities Initiative

Pedestrian Counts: Desire Lines

Project name:

Surveyor name		Notes
Date/time		
Day of the week		
Weather		
Instructions	Desire lines indicate pedestrians' desired paths across a street. Draw where people cross the street to reach key destinations to reveal where there may be a need for improved or additional facilities. Use a tally counter to register the number of people crossing during a 15 min period.	

Base map: Place a basemap into the space below, and draw the paths of pedestrians.

Global Designing Cities Initiative

Pedestrian Crossings: Signalized

Project name:

Surveyor name		Basemap	
Date/time			
Day of the week			
Weather			
Notes			

Tally pedestrians that are walking on and off the marked crossing, separately. Use the suggested symbols below if they are running across the street. Count for a period of at least 15 minutes.

Symbol (optional)	/ Walking O Rushing						
Pedestrian type	 0-5	 Child/Teen	 Adult	 Person in wheelchair	 Older adult (75+)	 Deliveries/ cart	**Total (all types)**
On marked crossing, at pedestrian green phase							
Total on crossing, green							
On marked crossing, at pedestrian red phase							
Total on crossing, red							
Outside marked crossing (consider a 2 m offset on each side as an acceptable area of influence)							
Total outside crossing							
Total (all)							

Global Designing Cities Initiative

Pedestrian Crossings: Unsignalized

Project name:

Surveyor name		Basemap	
Date/time			
Day of the week			
Weather			
Notes			

Tally pedestrians that are walking on and off the marked crossing, separately. Use the suggested symbols below if they are running across the street. Count for a period of at least 15 minutes.

Symbol (optional)	/ Walking O Rushing						
Pedestrian type	 0-5	 Child/Teen	 Adult	 Person in wheelchair	 Older adult (75+)	 Deliveries/ cart	**Total (all types)**
On marked crossing							
Total on crossing							
Outside marked crossing (consider a 2 m offset on each side as an acceptable area of influence)							
Total outside crossing							
Total (all)							

Global Designing Cities Initiative

Activity Map

Project name:

Surveyor name	
Weather	
Date/time	
Day of week	
Notes	

Legend: Mark observed activities within a defined area, on a basemap below.

IS	Informal seating area	**P**	Playing
FS	Formal seating area	**E**	Exercising
E/D	Eating/Drinking	**T/S**	Talking/Socializing
W	Working	**L/S**	Laying down/Sleeping
SV	Street vendors	**PH**	Talking on their phone
WT	Waiting for transit		

Global Designing Cities Initiative

Cyclist / Micromobility Counts: On/Off Bike Lane

Project name:

Surveyor name		Basemap
Date / time		
Day of the week		
Weather		
Notes		

Tally cyclists that are riding on the cycle lane, and on the roadbed, seperately.

Symbol	Perceived gender: X Female / Male					
Cyclist type	 Child	 Adult	 Older adult (75+)	 Cargo bike	 Scooter	**Totals (all)**
In bike lane						
Total in bike lanes						
On sidewalk						
Total on sidewalk						
Roadbed						
Total on roadbed						
Totals (all)						

Global Designing Cities Initiative

Vehicle Counts: Intersection

Project name:

Surveyor name		Basemap: Draw direction of traffic that is being counted and label it as Movement A, B, or C to match with the columns below
Date/time		
Day of the week		
Weather		
Notes		

Tally vehicles at each leg of the intersection, by type and direction. Draw a horizontal line across the form after each signal change. If the intersection is very busy, break down the counts into separate forms either by lane, by movements, or vehicle type groups.

Vehicle type	 Car	 Bus	 Truck	 Motorcycle	 Cyclist				
Symbol	/	X	T	-	O				

Direction	Movement A	Movement B	**Totals (all)**
Totals (by vehicle)	Car: Bus: Truck: Mot.: Cycl.: Other: Other: Other: Other:	Car: Bus: Truck: Mot.: Cycl.: Other: Other: Other: Other:	Car: Bus: Truck: Mot.: Cycl.: Other: Other: Other: Other:
Totals (all)			

Global Designing Cities Initiative

Vehicle Counts: Midblock

Project name:

Surveyor name		Basemap: Draw direction of traffic that is being counted and label it as Lane A or B to match with the columns below
Date/time		
Day of the week		
Weather		
Notes		

Tally vehicles in each travel lane per direction, by type.

Vehicle type	 Car	 Bus	 Truck	 Motorcycle	 Cyclist				
Symbol	/	X	T	-	O				

Direction	Lane 1	Lane 2	**Totals (all)**
Totals per lane (by vehicle)	Car: Bus: Truck: Mot.: Cycl.: Other: Other: Other:	Car: Bus: Truck: Mot.: Cycl.: Other: Other: Other:	Car: Bus: Truck: Mot.: Cycl.: Other: Other: Other:
Totals per lane (all)			

Global Designing Cities Initiative

Vehicle Speeds: Midblock / Turning

Project name:

Surveyor name		Basemap	
Date/time			
Day of the week			
Weather			
Posted speed and notes			

Document the midblock or turning speeds of vehicles by type at free flow conditions. Circle the highest and lowest speed of each vehicle type, and write the posted speed in the space above. The absolute minimum sample size should be of 30 vehicles in total, and recommended minimum of 50 vehicles.

Vehicle type	 Car		 Motorcycle		 Bus	 Truck	Other:	Other:
Check one:	1	21	1	21	1	1	1	1
☐ Midblock	2	22	2	22	2	2	2	2
☐ Turning	3	23	3	23	3	3	3	3
	4	24	4	24	4	4	4	4
	5	25	5	25	5	5	5	5
	6	26	6	26	6	6	6	6
	7	27	7	27	7	7	7	7
	8	28	8	28	8	8	8	8
	9	29	9	29	9	9	9	9
	10	30	10	30	10	10	10	10
	11	31	11	31	11	11	11	11
	12	32	12	32	12	12	12	12
	13	33	13	33	13	13	13	13
	14	34	14	34	14	14	14	14
	15	35	15	35	15	15	15	15
	16	36	16	36	16	16	16	16
	17	37	17	37	17	17	17	17
	18	38	18	38	18	18	18	18
	19	39	19	39	19	19	19	19
	20	40	20	40	20	20	20	20

Global Designing Cities Initiative

City-wide road safety stats you need to know:

1

2

3

4

Global Designing Cities Initiative

Designing Safe and Sustainable Streets

Strategies from the *Global Street Design Guide* available for FREE download at:
www.globaldesigningcities.org/publication/global-street-design-guide/

Curb extensions

Crosswalks

Refuge islands

Parklets

Slip lane removal

Speed bumps

Corner radii

Median cut-throughs

Pinch points

Global Designing Cities Initiative

Which street design safety elements do you want to see more of?

Add a dot next to the element(s) that you would like to see more of in this space.

	Curb extensions		Speed bumps
	Crosswalks		Corner radii
	Refuge islands		Median cut-throughs
	Parklets		Pinch points
	Slip lane removal	[draw your own]	_____
[draw your own]	_____	[draw your own]	_____
[draw your own]	_____	[draw your own]	_____

Comments:

Global Designing Cities Initiative

Which public space elements do you want to see more of?

Add a dot next to the element(s) that you would like to see more of in this space.

	Lighting		Plants and landscaping
	Seating		Wayfinding/signage
	Water fountains		Bike racks
	Weather protection		Waste receptacles
	Designated play areas		Game elements
[draw your own]	_____	[draw your own]	_____
[draw your own]	_____	[draw your own]	_____

Comments:

Global Designing Cities Initiative

Where do you feel unsafe?

Place a dot on the areas of the space where you do not feel safe/comfortable.

Comments:

Global Designing Cities Initiative

Which design do you prefer?

Add a dot beside the image that you would feel the most safe and comfortable in.

This design?

Or this design?

Global Designing Cities Initiative

www. globaldesigningcities.org