

GDCI Webinar Series

Measuring People-Friendly Streets



Global
Designing
Cities
Initiative



**Bloomberg
Philanthropies**

INITIATIVE FOR GLOBAL ROAD SAFETY



**Global
Designing
Cities
Initiative**

Global

Street

Design

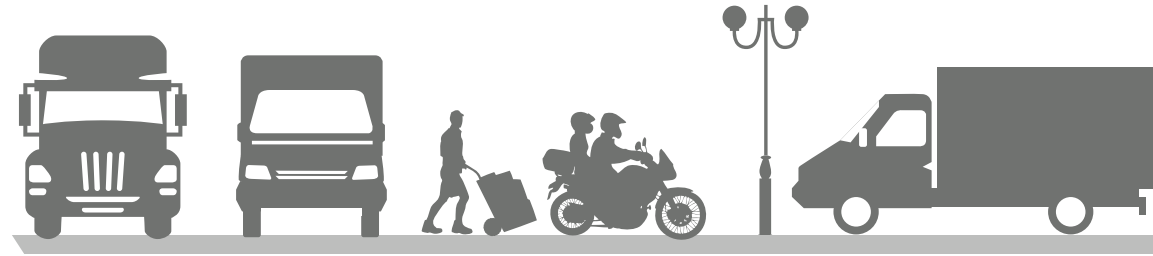
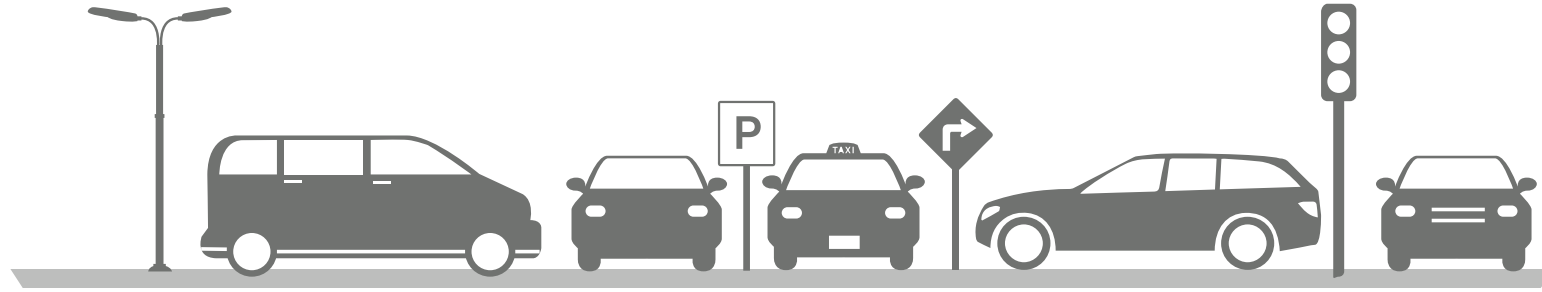
Guide

Global Designing Cities Initiative

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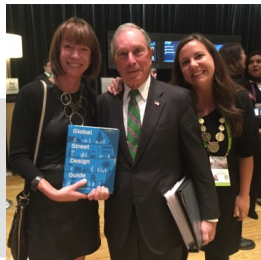
Global Network







Endorsed by: 35+ Cities and 25+ Organizations



As of May 2017

Free Download

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The logo for Bloomberg Philanthropies, featuring the words "Bloomberg" and "Philanthropies" in a white serif font, stacked vertically, against a solid purple rectangular background.

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**Bloomberg Philanthropies
Initiative For Global Road Safety**

São Paulo Brasil



Bogotá Colombia



Addis Ababa Ethiopia



Fortaleza Brasil



Mumbai India



Global
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Initiative

Policy and Design Guidance



Capacity Building and Community Engagement



Interventions and Transformations



Metric Collection and Evaluation

Policy and Design Guidance

Capacity Building and Community Engagement

Interventions and Transformations

Metric Collection and Evaluation

Analysis



Evaluation



Why is the evaluation important?

- **Make the case for the project: build community and political support**
- **Build evidence to advocate for innovative projects**
- **Show what is possible to designers and engineers and inform future design**
- **Communicate achievements and progress**
- **Document a project: Because people forget how it was before!**



**If you can't measure it,
you can't manage it.**

Michael Bloomberg

SHIFT HOW WE MEASURE SUCCESS

Mobility-Automobile Safety



Mobility-Automobile Safety



Mobility-Automobile Safety



Mobility-Automobile Safety



Mobility-Automobile Safety



Mobility-Automobile Safety



SHIFT HOW WE MEASURE SUCCESS

Access/Mobility (Multi-modal)



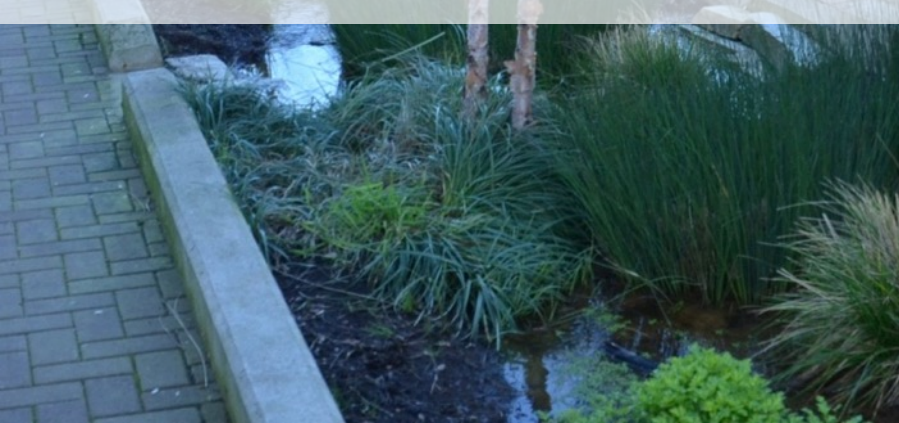
Public Health + Safety



Economic Sustainability



Environmental Quality



Livability/ Quality of Life



Equity





...to change the measure of
success for safer streets
we need to change...

WHAT we measure

WHO we measure

HOW we measure

WHEN we measure

WHAT

TO MEASURE?

What to measure?

Physical & Operational Changes



- Length and width of new and improved sidewalk
- Added length of bike lanes
- Added length of dedicated transit facilities
- Improved signal timing for pedestrian crossing length
- Number of additional trees planted

Changes in Use & Activity



Resulting Impact



What to measure?

Physical & Operational Changes



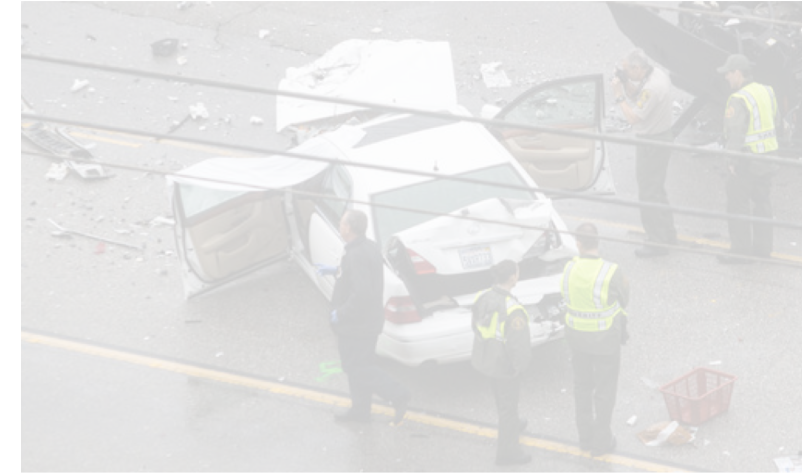
- Length and width of new and improved sidewalk
- Added length of cycle facilities
- Added length of dedicated transit facilities
- Improved signal timing for pedestrian crossing length
- Number of additional trees planted

Changes in Use & Activity



- Shift in mode share and user counts
- Changes in travel times
- New or changed non-mobility activities
- User preferences
- Change in average vehicular speeds

Resulting Impact



What to measure?

Physical & Operational Changes



- Length and width of new and improved sidewalk
- Added length of cycle facilities
- Added length of dedicated transit facilities
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Changes in Use & Activity



- Shift in mode share and user counts
- New or changed non-mobility activities
- User preferences
- Change in average vehicular speeds

Resulting Impact



- Road safety (KSI/ fatalities and injuries by location)
- Air Quality
- Total CO2 from Transportation
- Respiratory and chronic disease rates
- Water volumes diverted from city system.

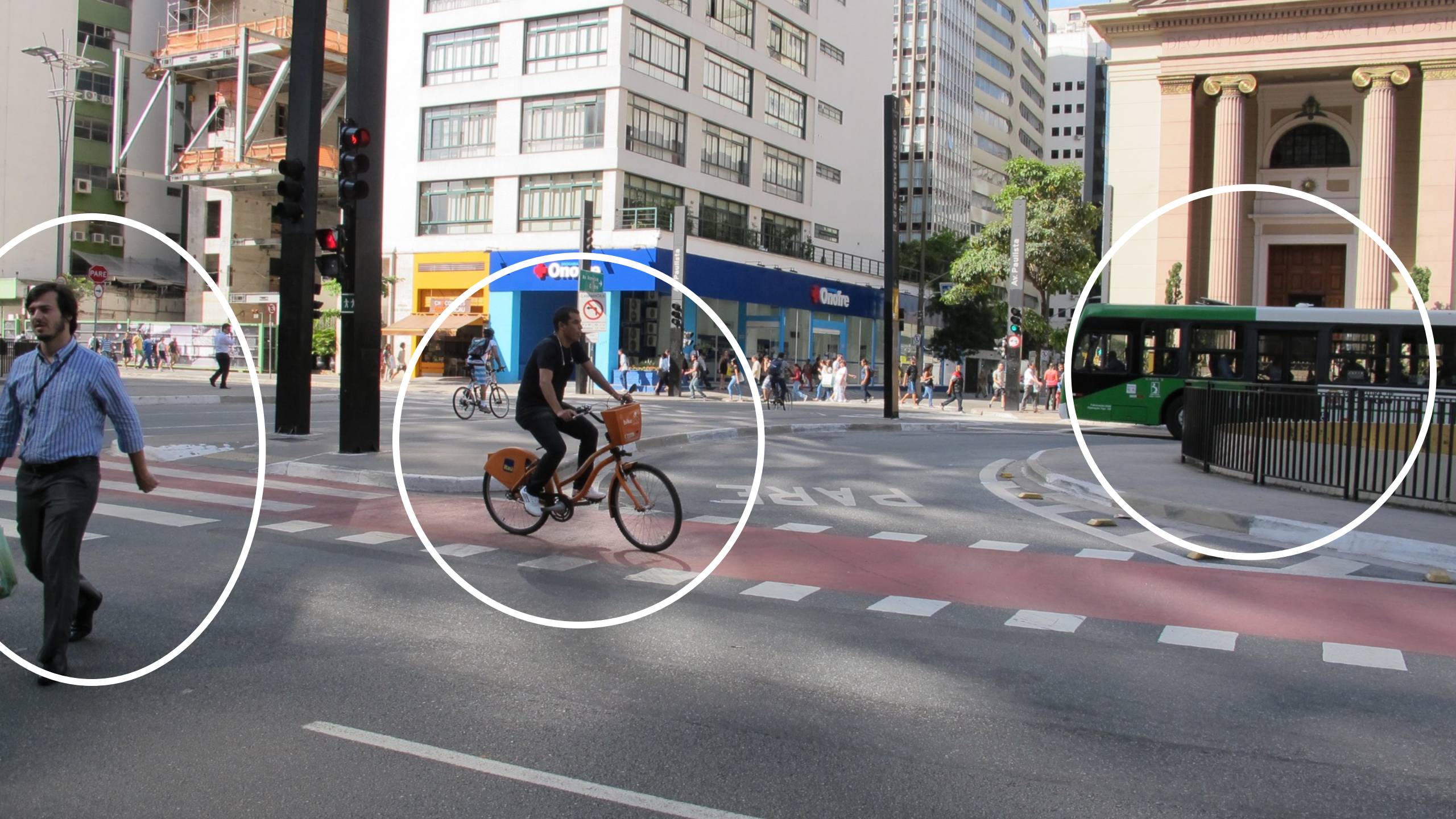
WHO

TO MEASURE?



THESE





Measuring the Street – From Measuring one user



Measuring the Street – Measure All Users



HOW

TO MEASURE?

1. Clarify priorities

What are you trying to demonstrate?

2. Identify the metrics

That tell the story and make the case

3. Using limited resources wisely

Measure what matters most

4. Define a methodology

Ensure ease of continuity and flexibility





1. Clarify priorities

What are you trying to demonstrate?

2. Identify the metrics

That tell the story and make the case

3. Using limited resources wisely

Measure what matters most

4. Define a methodology

Ensure ease of continuity and flexibility



Story: inequitable allocation of space



Story: Lack of safe infrastructure for children

1. Clarify priorities

What are you trying to demonstrate?

2. Identify the metrics

That tell the story and make the case.

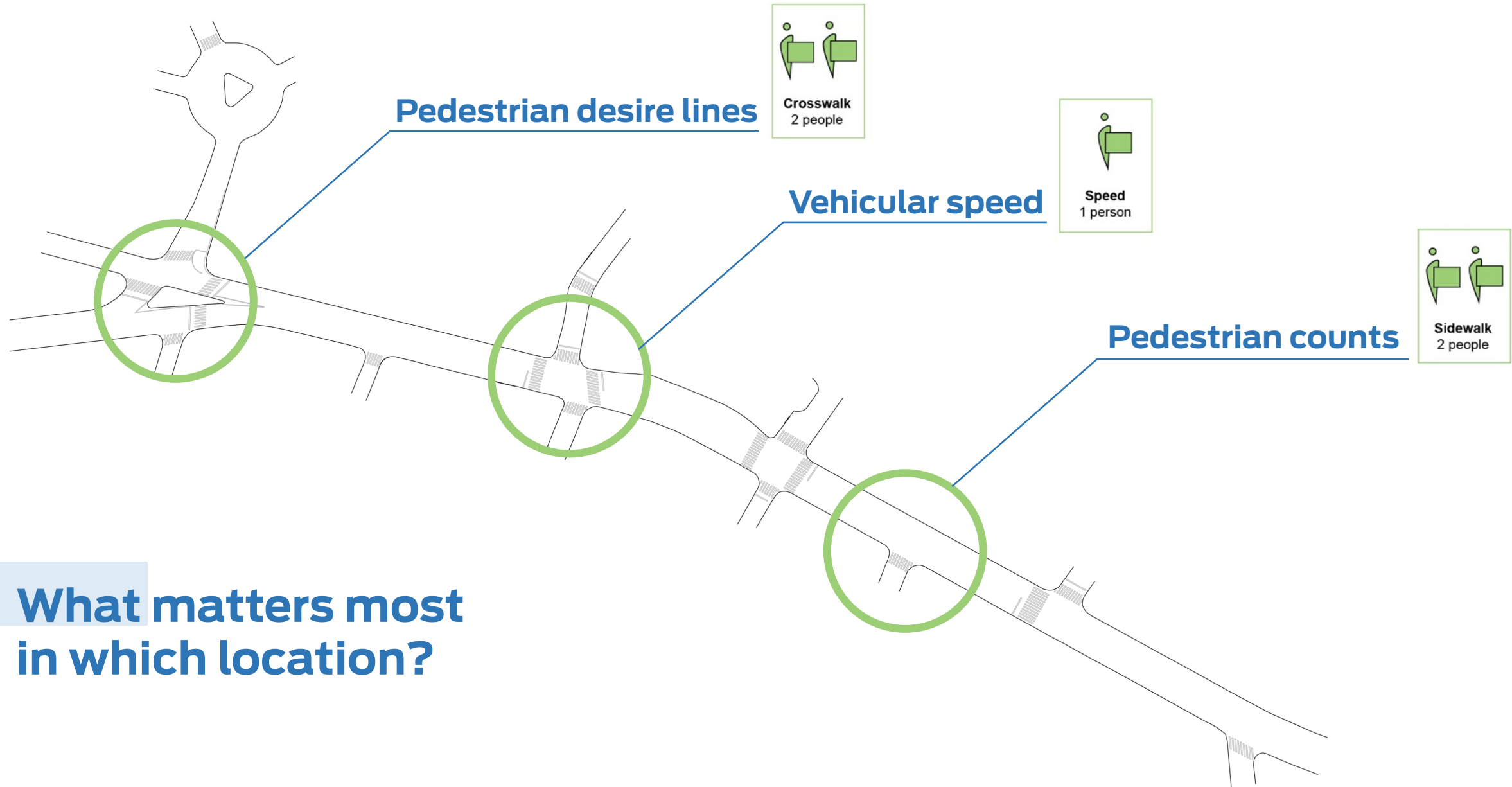
3. Using limited resources wisely

Measure what matters most

4. Define a methodology

Ensure ease of continuity and flexibility

Using Limited Resources Wisely



**What matters most
in which location?**

1. Clarify priorities

What are you trying to demonstrate?

2. Identify the metrics

That tell the story and make the case

3. Using limited resources wisely

Measure what matters most

4. Define a methodology

Ensure consistency and flexibility

Define a methodology

The image shows a stack of five forms used for data collection in urban planning. From top to bottom, they are:

- Speeds:** Includes fields for Name, Date, Time, and a table for recording speed data.
- Neighborhood Context:** Includes fields for Name, Date, Time, and a section for 'Overview to the Neighborhood' with checkboxes for various urban context factors.
- Vehicle Counts:** Includes fields for Name, Date, Time, and a section for 'Vehicle Type' with checkboxes for different vehicle categories.
- Pedestrian Counts:** Includes fields for Name, Date, Time, and a section for 'Pedestrian Type' with checkboxes for different pedestrian categories.
- Additional Notes:** A page for recording additional observations and notes.

✓ Quantitative

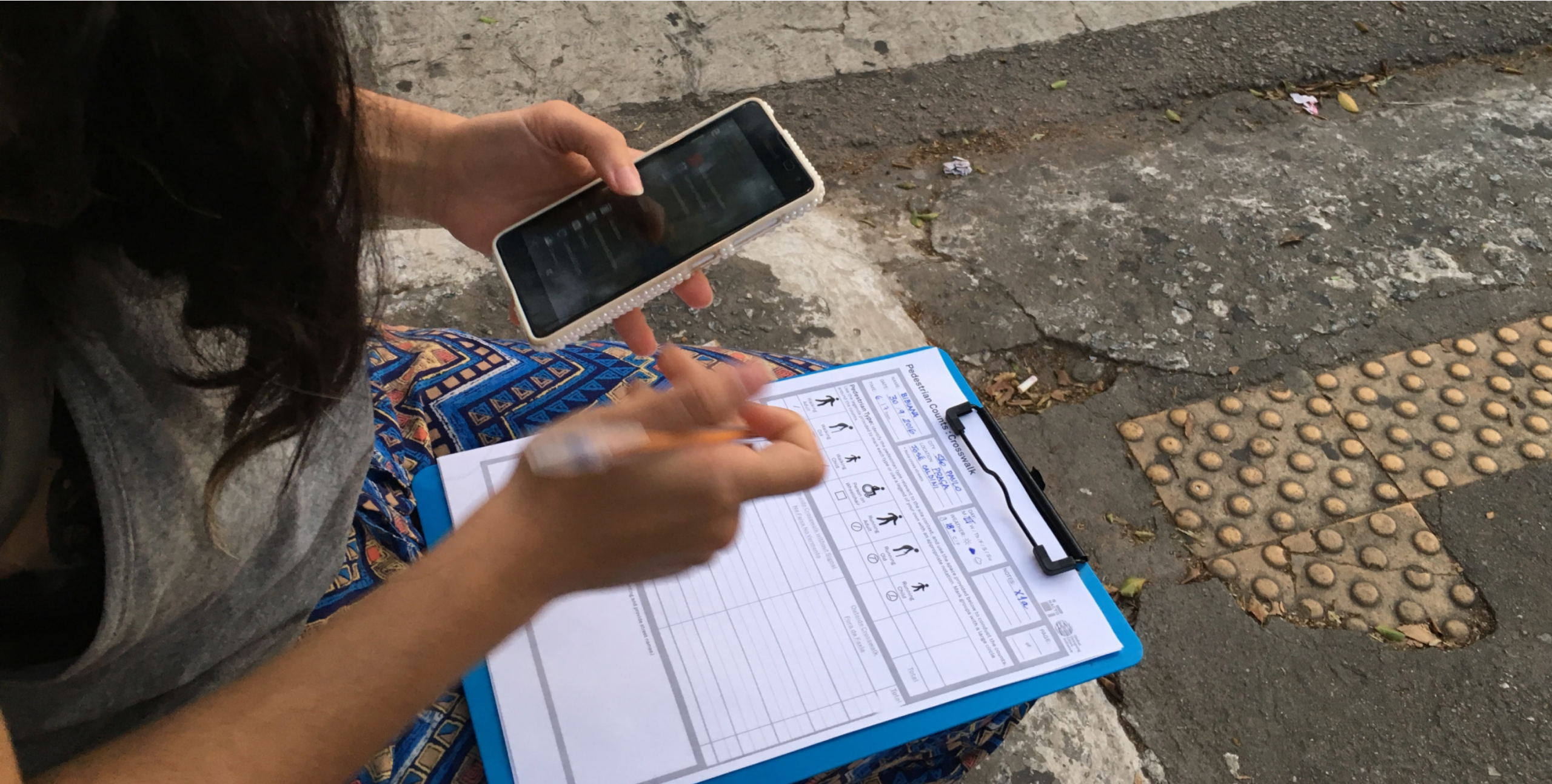
✓ Qualitative

✓ Inclusive

✓ Contextual

GDCI metrics form (available soon!)

Quantitative (counts)



Qualitative (surveys)



Cidade 2000, Fortaleza

Inclusive



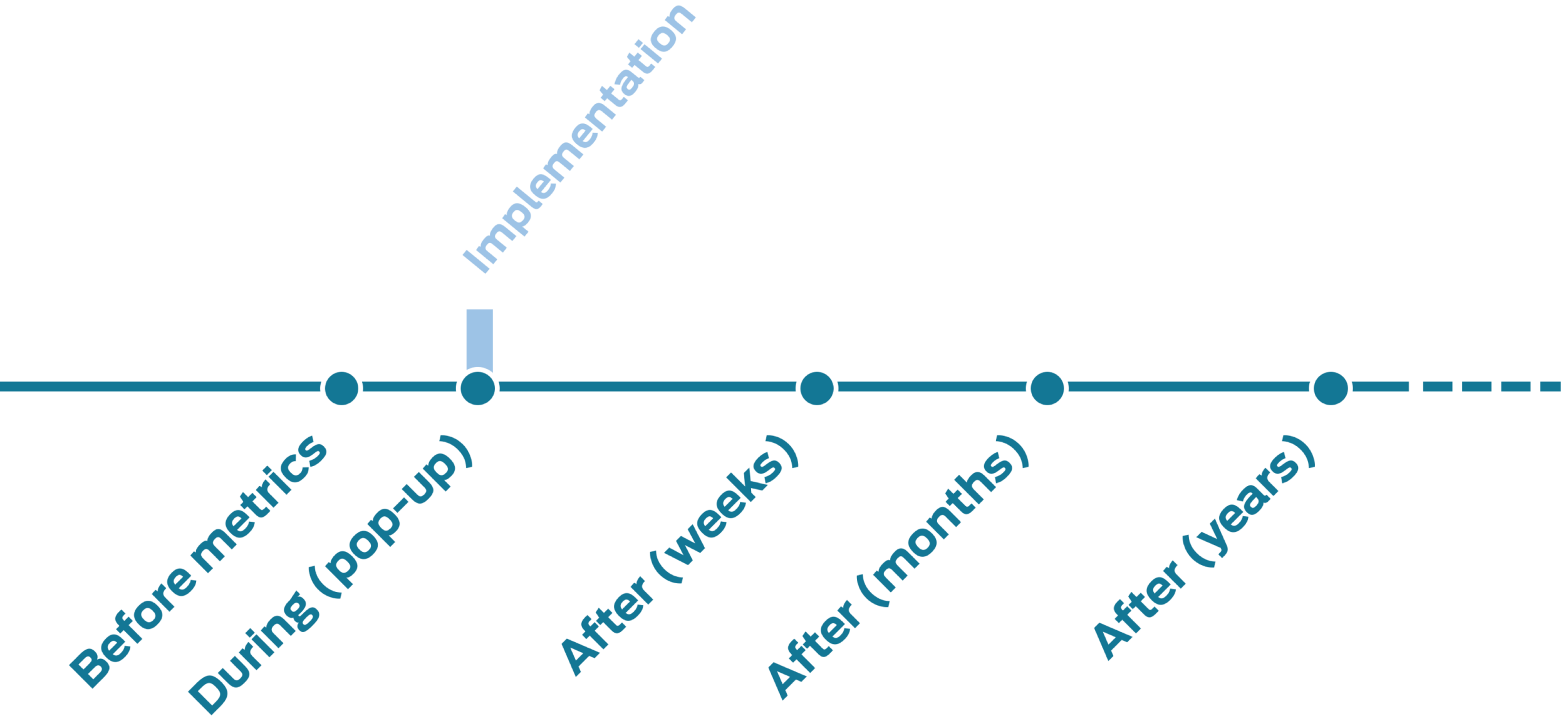
Contextual



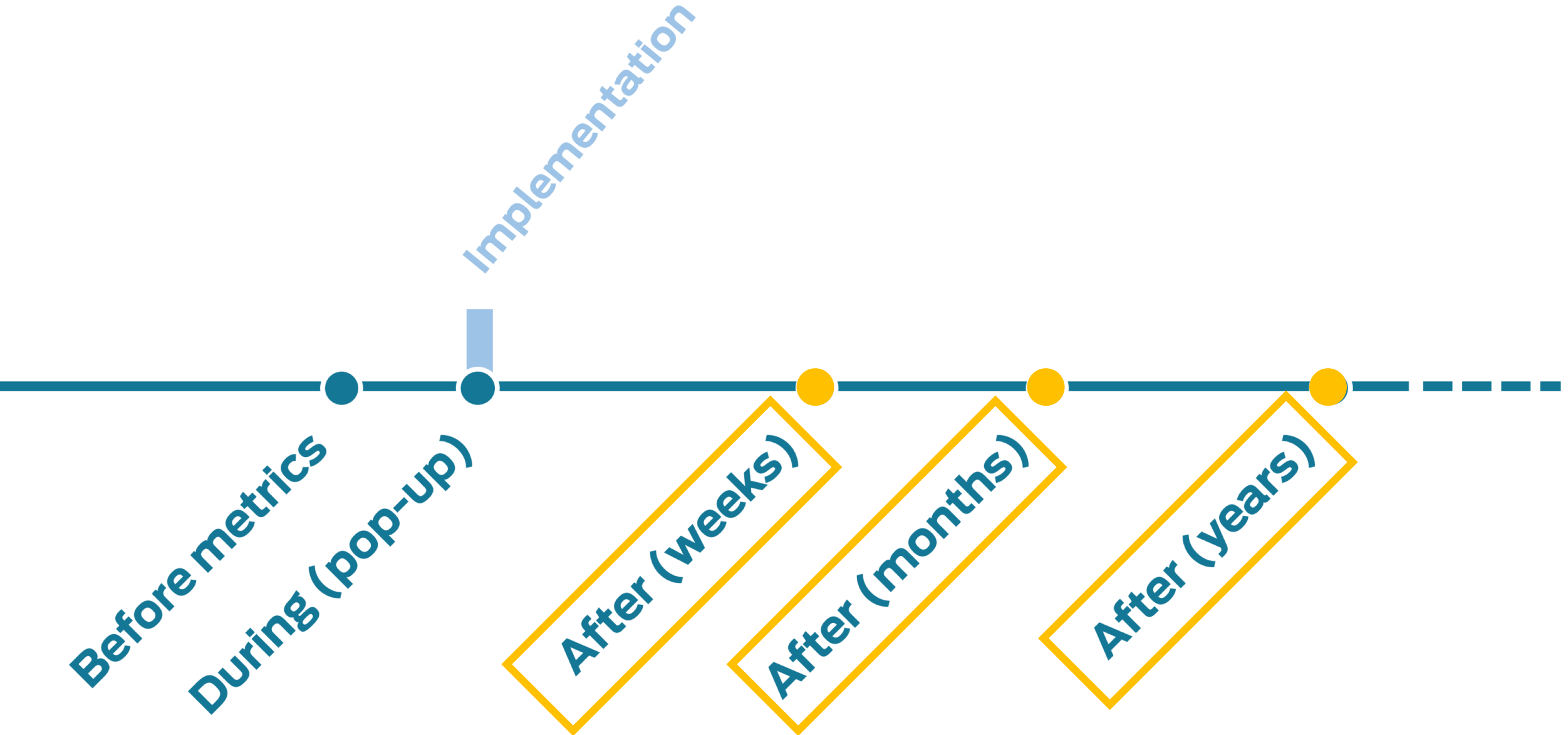
WHEN

TO MEASURE?

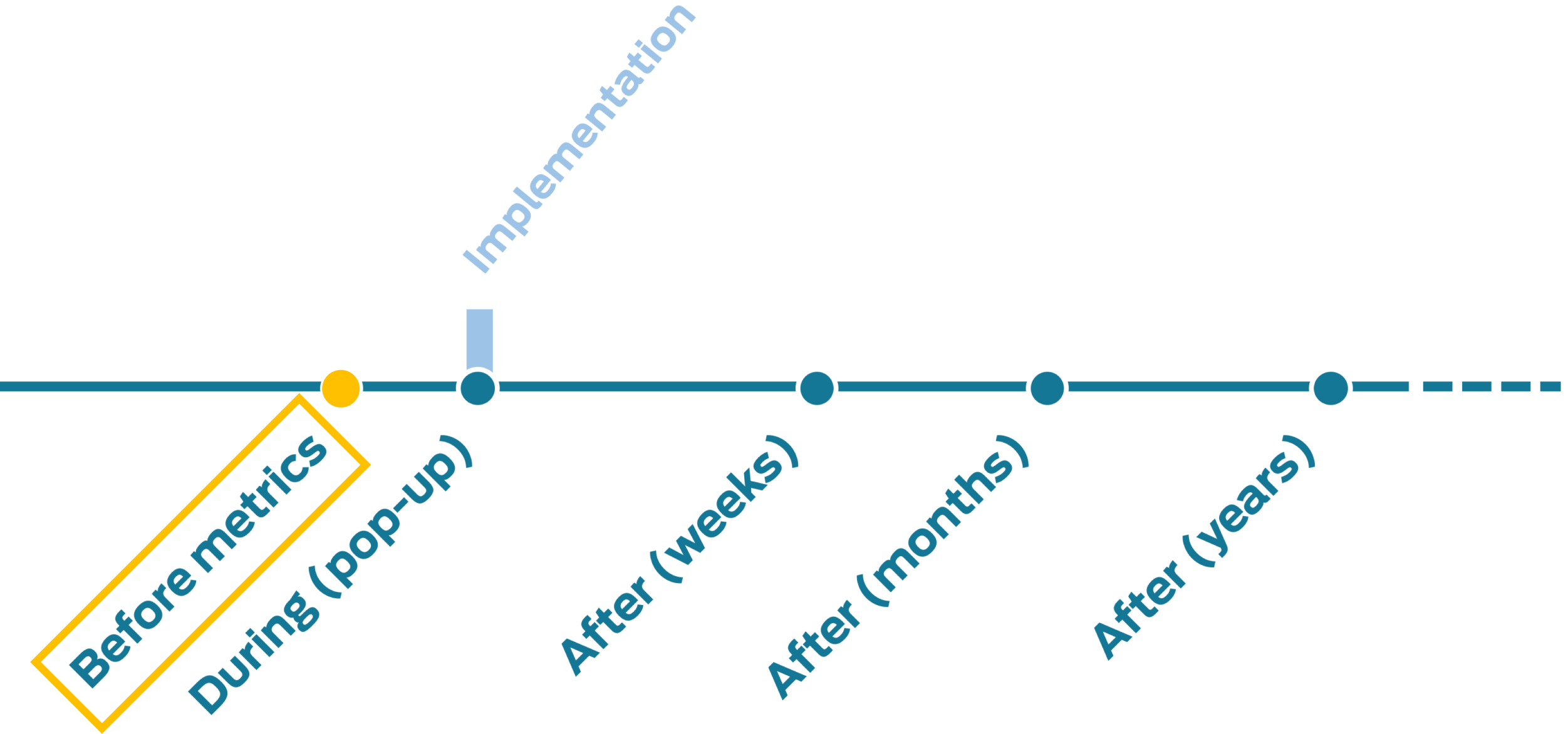
When to measure?



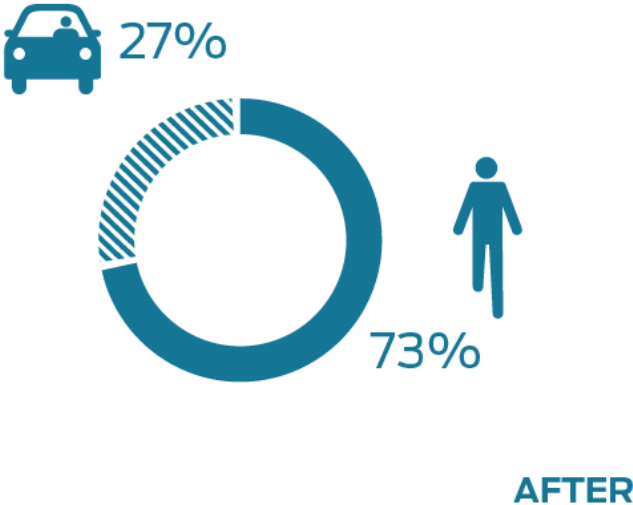
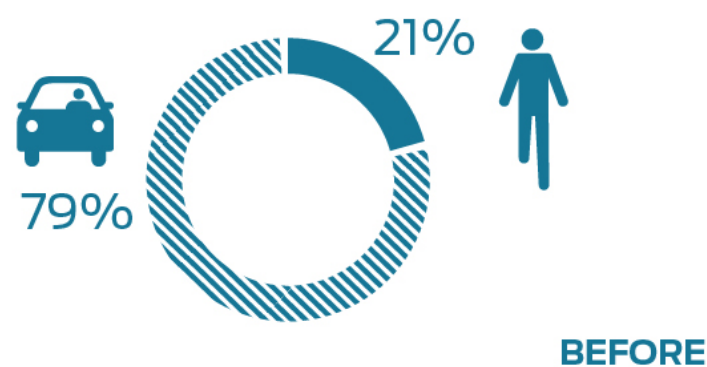
When to measure?



When to measure?



Fortaleza
Space allocation



Fortaleza

User satisfaction and experience



94%

Approve of the intervention






97%









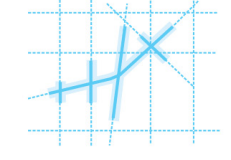




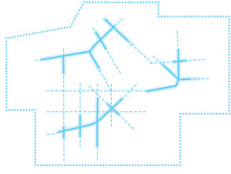
Believe Pedestrians should be prioritized over motorized traffic

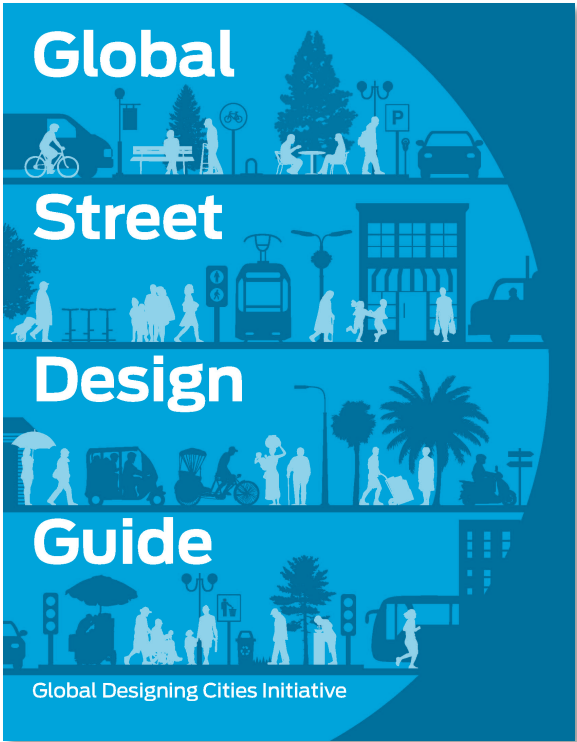




3.2 | Summary Chart

	What to Measure	When to Measure	Why It's Important
Measuring Physical and Operational Changes	The physical and operational changes resulting from a specific project.	<p>Before: Measure and document existing site conditions.</p> <p>After: Measure immediately after construction completion.</p>  <p>Implementation</p>	<ul style="list-style-type: none"> For benchmarking against prior conditions or control areas. To build an inventory and database of the city's infrastructure. To demonstrate and communicate short-term achievements and progress to stakeholders. To measure perceived quality of conditions.
Measuring Shifts in Use and Function	The change in behavior and use of the street. Identify how and why the street functions differently, and measure the level of satisfaction with the changes.	<p>Before: Observe and document existing use and function. Note locations on site plans.</p> <p>After: Measure periodically after 1, 3, 6, and 12 months. Measure during different seasons and at varying times of the day and week.</p>  <p>Implementation</p>	<ul style="list-style-type: none"> To evaluate success of intended change in behavior and function. To measure user satisfaction and user perception. For benchmarking against prior conditions and other projects. To build an evidence base for sustainable streets To learn lessons and inform future street designs.
Measuring Resulting Impacts	The extent to which the project contributes to larger local and regional goals and principles of: <ul style="list-style-type: none"> Public Health and Safety Quality of Life Environmental Sustainability Economic Sustainability Equity 	<p>Before: Identify existing metrics or collect new data relevant to project goals and priorities.</p> <p>After: Measure matching metrics periodically after multiple months, and after 1, 2, and 3 years.</p>  <p>Implementation</p>	<ul style="list-style-type: none"> To evaluate long-term impacts and benefits. To benchmark against larger citywide goals and priorities. To build an evidence base for sustainable streets. To measure return on investment and evaluate cost effectiveness. To communicate and build support for sustainable streets.

How to Measure	Where to Measure	Example Metrics
 Before-and-after photos and videos  Before-and-after plans and sections  Qualitative surveys of infrastructure quality	 Project site and immediate surroundings. Maintain consistency with locations measured.	<ul style="list-style-type: none"> Length and width of new and improved sidewalk. Added length of cycle tracks. Added length of dedicated transit lanes. Improved signal timing for pedestrian crossing length. Number of additional trees planted. Percentage of residents happy with specific facilities or conditions.
 Before-and-after photos and videos  On-site counts and observations. Note locations  Quantitative analysis  Qualitative surveys	 Project site, connecting networks, and surrounding neighborhood. Maintain consistency with locations measured.	<ul style="list-style-type: none"> Shift in mode share and user counts. New or changed non-mobility activities. Change in average vehicular speeds. User preferences. Volume of water treated or infiltrated.
 Quantitative analysis  Qualitative surveys  Comparative analysis of census results  Environmental analysis	 Project, neighborhood, network, and citywide scale. Choose scales relevant to specific metrics.	<ul style="list-style-type: none"> Road safety (KSI/ fatalities and injuries by location). Respiratory and chronic disease rates. Air quality. Total CO₂ from transportation. Water volumes diverted from city system. Property values. Percentage of population with access to public transportation. Perceived quality of life.



Appendix B | Metrics Charts

Use the following tables to identify relevant metrics to evaluate your project and goals. These tables are a supplement to chapter 3: Measuring and Evaluating Streets and should be understood in conjunction with it. Measure the changes before and after the project, or over time, to generate data indicating a change in physical facilities, operations, or usage. Make use of the notes to document additional information around a metric for obtaining larger interrelated data sets for complete evaluation of a project. Note location and frequency of facilities. Count users across demographic parameters of age, gender, income, ethnicity etc.

Physical and Operational Changes

These metrics help document and evaluate the physical changes in street conditions, and the resultant operational shifts, in order to understand the impact of a particular project.

Category	Metric	Notes
Pedestrian Facilities		
Sidewalks	Sidewalks dimensions and area.	Measure total widths, clear paths, and furniture/frontage zone. Measure at multiple locations when dimensions vary.
Other Pedestrian Facilities	Number, dimension, length, and frequency of pedestrian crossings.	Overall, and by type and location, within the project area.
Sidewalk Quality*	Number and location of: <ul style="list-style-type: none">• Pedestrian crossing signals• Seating• Wayfinding• Shade protections• Curb extensions• Pedestrian refuge islands• Parklets, plazas etc.	
Universal Accessibility*	Percentage or length of sidewalk surface in good condition.	Note potholes, obstacles, cracks, and trip hazards removed or total area resurfaced.
	Percentage and number of universally accessible facilities.	
	Length of wheelchair-accessible sidewalks.	Must be continuous and unobstructed.
	Number of accessible ramps installed.	Note frequency and alignment with other pedestrian facilities.
	Length of accessible path with textured guidance.	Must be continuous and unobstructed.
	Number or percentage of crossings with tactile paving at edge.	Number of street elements and furniture designed to be easily detected by visually impaired people (tonally contrasting markings, street bollards, waste receptacles, street signs, etc).
	Number or percentage of traffic signals with Audible Signaling Devices.	

*Location. When relevant, note the location and spacing of these facilities for each of these categories.

Category	Metric	Notes
Cycle Facilities		
Facilities*	Length of cycle facilities by type.	Note width of travel path and buffers. Note length and percentage of continuous and connected cycle facilities.
Network	Percentage of total segments with safe and comfortable cycling facilities.	Include separated cycleways in streets above 30 km/h or shared access on slow streets of less than 30 km/h.
Intersections*	Number of intersections with cycle facilities and percentage.	Measure number. Note location of advanced stop lines/ cycle boxes, turn boxes, signal priority, and cycle detection.
Quality of Cycle Facilities	Percentage or length of cycle facilities surface in good condition.	Note potholes, obstacles, cracks, and trip hazards removed, or total area resurfaced.
Parking*	Number of cycle parking spaces.	Note percent occupied at various times of the day.
Cycle Share*	Number of cycle share facilities.	Note station size, location, and type. Note if conventional or e-bikes.

Transit Facilities		
Dedicated Lanes*	Length of transit lanes by type.	Note width, buffers, and passing lanes.
Intersections*	Number of intersections with transit facilities and percentage.	Measure number and note the location of queue jumps, transit priority signals, dedicated facilities, etc.
Quality of Transit Lanes	Percentage or length of transit lanes surface in good condition.	Note potholes, obstacles, vandalism, cracks, and trip hazards removed or total area resurfaced.
Transit Stops*	Number of stops/stations.	Note location, size, and type.
	Number and percentage of stops with shelter and seating.	Note seating types and capacity.
	Number and percentage of stops with off-board payment options.	
	Number and percentage of transit stops with wayfinding information.	Note number of interactive and audible devices.
	Number and percentage of shelters with real-time arrival information.	
Accessibility	Number and percentage of universally accessible transit stops.	Note walking distance to the transit station.

Motorized Vehicles Facilities		
Facilities*	Number and width of travel lanes.	
Parking*	Number of parking spaces.	Note if fixed or user activated.
Car Share*	Number of facilities and spaces for on-street car-share facilities.	Note if fixed or user activated.
Curb Cuts*	Number of curb cuts. Average number of driveways per 100 m of block frontage.	One way to Two way conversions and vice versa. Note daily directional/one-way/two-way changes, and timings.
Curb Radii	Radius of curb at intersection.	
Enforcement	Number of traffic-enforcement and traffic-control equipment (cameras, photo-radars, ANPR, average speed cameras).	Note location.
Quality of Lane, Roadbed	Percentage or length of roadbed surface in good condition.	

*Location. When relevant, note the location and spacing of these facilities for each of these categories.

THANK YOU!

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