CIVITAS
Sustainable and smart mobility for all
2030

# CIVITAS indicators

## Accessibility for citizens with disabilities – Version 2 (SOC_IN_IA2)

### DOMAIN

| Transport | Environment | Energy | **Society** | Economy |
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|---|---|---|
| **TOPIC** | **Inclusion** | |
| **IMPACT** | **Accessibility of stops, stations and intersections for citizens with disabilities**<br>*Increasing transport accessibility* | **SOC_SC** |

### Category

| **Key indicator** | Supplementary indicator | State indicator |
|---|---|---|

## CONTEXT AND RELEVANCE

Accessible mobility refers to the extent to which people with disabilities can use transport services and navigate the urban environment. Accessibility depends on several physical and design features such as step-free access, tactile paving, audible information systems, clear signage, adequate lighting, and the general condition of facilities. High accessibility enables independent and safe mobility for all users, promotes social inclusion, and supports a shift toward more sustainable and equitable urban transport systems.

This indicator measures the accessibility of public transport stops and stations, as well as intersections, in the pilot area, based on the presence and functioning of step-free access, tactile paving, and audible information systems. **It is a relevant indicator when the policy action aims to improve accessibility for persons with disabilities. A successful action is reflected in a HIGHER value of the indicator.**

## DESCRIPTION

This indicator is a **dimensionless score** representing the **availability and functionality of three accessibility features, namely step-free access, tactile paving, and audible information systems, at public transport stops, stations, and at intersections in the pilot area**. The indicator takes values between 0 and 100, with 0 indicating that no accessibility measures are available and functional at any stop, station, or intersection, while 100 indicates that all three accessibility measures are available and functional at all stops, stations and intersections.

## METHOD OF CALCULATION AND INPUTS

**The indicator should be calculated exogenously** based on the specified inputs and its value should be coded in the supporting tool.

| Method | |
|---|---|
| **Calculation of the indicator based on direct observation** | Significance: **1.00**  |

### INPUTS

**The following information is needed** to compute the indicator:

a) **The total number of public transport stops and stations** in the pilot area.

b) **The total number of signalized intersections on distributor and collector roads equipped with at grade pedestrian crossings** in the pilot area.

c) **The availability and functionality of accessibility features, namely step-free access, tactile paving, and voice announcement systems, at each public transport stop and station**.

d) **The availability and functionality of accessibility features, namely step-free crossings, tactile paving, and audible pedestrian signals, at each intersection**.

The experiment would be reflected in terms of a different availability and functionality of accessibility measures at stops, stations, and intersections in the pilot area.

## METHOD OF CALCULATION

The indicator should be computed **exogenously** according to the following steps:

- **Retrieval of the total number of public transport stops and stations in the pilot area.** This information can be obtained from the local transport authority.

- **Retrieval of the total number of signalized intersections on distributor and collector roads equipped with at grade pedestrian crossings.** This information can be obtained from the city's GIS spatial data.

- **For each public transport stop and station, record the presence and condition of the following accessibility features: 1) step-free access, 2) tactile paving, and 3) a voice announcement system. For each accessibility feature present, verify that it is functional.** Mark each accessibility feature as functional if it is found to be operational, unobstructed, and properly maintained. This information can be obtained from the local transport authority, or through direct observation.

- **For each intersection, record the presence and condition of the following accessibility features: 1) step-free crossings, 2) tactile paving, and 3) audible pedestrian signals. For each accessibility feature present, verify that it is functional.** Mark each accessibility feature as functional if it is found to be operational, unobstructed, and properly maintained. This information can be obtained from the city's GIS spatial data, other municipal sources, or through direct observation.

- **Estimation of the indicator** (see equation below).

## EQUATIONS

The indicator should be computed using the following equation:

$$AccIndex = \frac{(\sum_s f_s + t_s + a_s) + (\sum_i f_i + t_i + a_i)}{3(S + I)} * 100$$

Where:

$f_s$ = Binary variable with value 1 if stop or station *s* allows for step-free access and all required ramps, lifts, or stairlifts are operational and unobstructed, else 0

$t_s$ = Binary variable with value 1 if stop or station *s* has tactile paving that is continuous, intact, unobstructed, and properly maintained, else 0

$a_s$ = Binary variable with value 1 if stop or station *s* is equipped with a voice announcement system that is fully operational and clearly audible, else 0

$f_i$ = Binary variable with value 1 if intersection *i* allows for step-free access and all required ramps are well-maintained and unobstructed, else 0

$t_i$ = Binary variable with value 1 if intersection *i* is equipped with tactile paving that is continuous, intact, unobstructed, and properly maintained, else 0

$a_i$ = Binary variable with value 1 if intersection *i* is equipped with audible pedestrian signals that are fully operational, clearly audible and properly maintained, else 0

$S$ = Number of public transport stops and stations in the pilot area

$I$ = Number of intersections in the pilot area

# ALTERNATIVE INDICATORS

This indicator assesses the accessibility of urban environments and transport systems for persons with disabilities and individuals with reduced mobility. It measures the functionality of three accessibility features in the pilot area namely step-free access, tactile paving, and audible information systems, at public transport stops, stations, and at intersections. Alternative indicators include **SOC_IN_IA1** and **SOC_IN_PA1**.

Alternative indicator **SOC_IN_IA1** tracks the availability of accessibility features rather than their functionality. This makes it a less significant measure, since it does not account for whether features are fully operational, but it also requires less detailed data. Should such data on the functionality of each accessibility feature be unavailable or too resource-intensive to collect, SOC_IN_IA1 may be preferred.

Indicator **SOC_IN_PA1** measures perceived accessibility as reported by persons with disabilities. Since perceived accessibility can differ from objective accessibility, this indicator is more complementary than substitutive. Calculating it requires conducting a sample survey, which can be a resource-intensive endeavour, but if one is already planned for other indicators, adding a question on perceived accessibility would require minimal effort.