

BIKEDISTRICT

THE SMART CITY BY BICYCLE

BLOISE D.
QUAGGIOTTO M.
SCACCHETTI S.



BIKEDISTRICT

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EUROPEAN CONTEXT

GROWING BIKE USE:

NUMBER OF BIKES SOLD

BICYCLE USE

NUMBER OF BIKESHARING SYSTEMS

INFRASTRUCTURE INVESTMENTS



ITALIAN CONTEXT

SHARES THE EUROPEAN TREND



CONTESTO ITALIANO

A photograph of two cyclists riding on a cobblestone street in a city. The cyclist in the foreground is an elderly man wearing a dark jacket and a patterned cap. The cyclist in the background is a younger man wearing a dark jacket. The street has tram tracks and buildings in the background. The image has a dark, reddish tint.

SHARES THE EUROPEAN TREND
BUT WE ARE LATE!

INADEQUATE INFRASTRUCTURES

ITALY: 3.227 Km

ENGLAND: 17.000 Km

GERMANY: 37.000 Km

LIMITED INVESTMENTS



HOW CAN WE SUPPORT CICLYING?

BIKE SMART CITY

A photograph of two cyclists riding on a city street. The cyclist on the left is an older man wearing a dark jacket and a patterned headband. The cyclist on the right is a younger man wearing a dark jacket. The street has tram tracks and a cobblestone pattern. In the background, there are buildings and a sign with the letter 'H'. The image has a dark, reddish tint.

SUPPORT USERS:

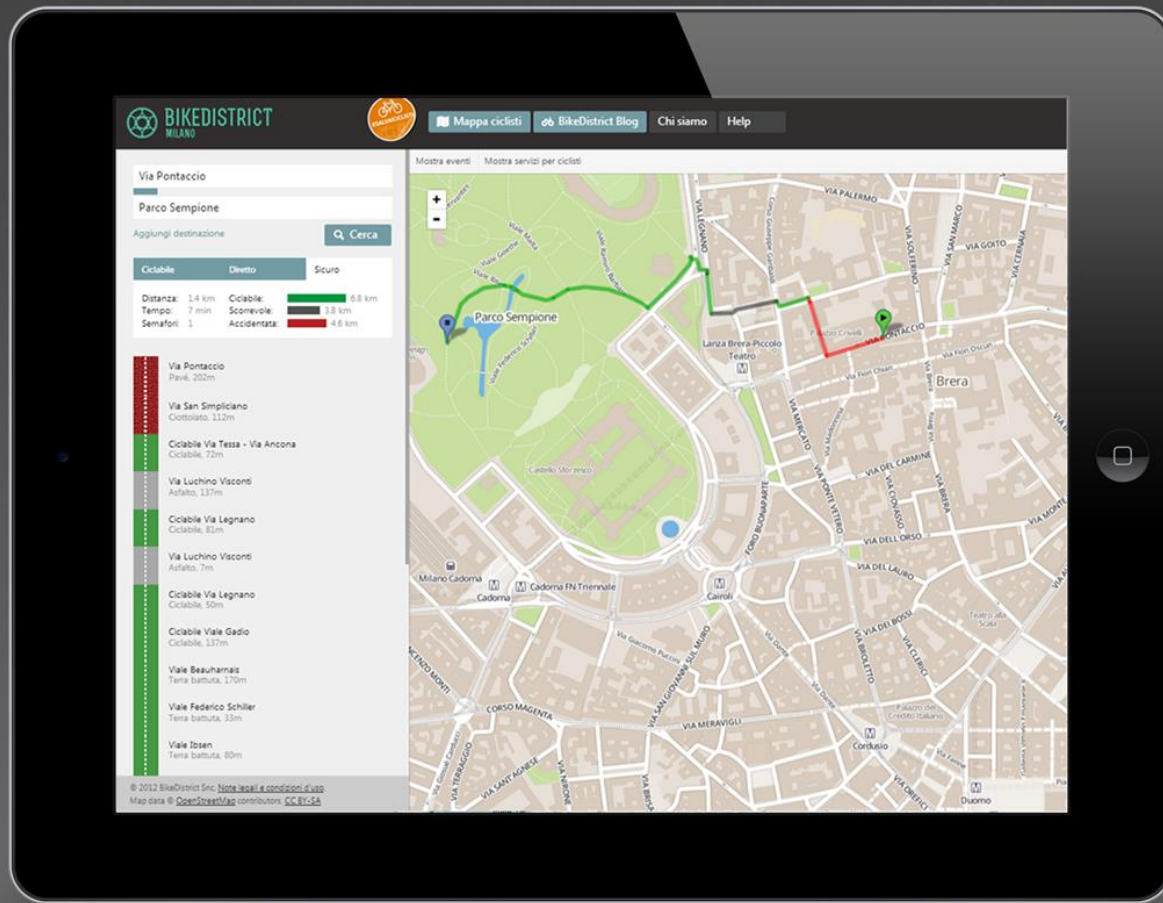
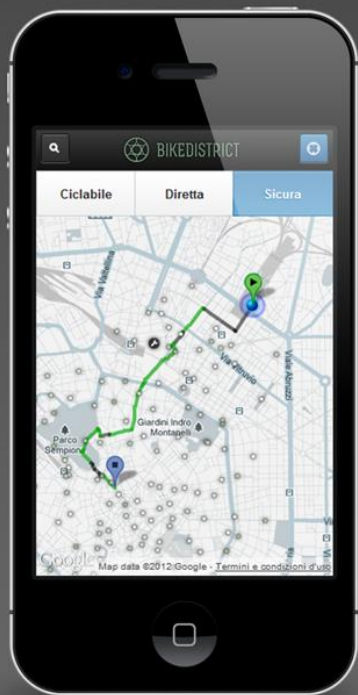
**USE THE EXISTING INFRASTRUCTURE
ACCESS AVAILABLE SERVICES**

SUPPORT PLANNING:

**IDENTIFY POSSIBLE IMPROVEMENTS
OPTIMIZE INFRASTR. SPENDING**





BIKEDISTRICT



Piazzale Carlo Maciachini

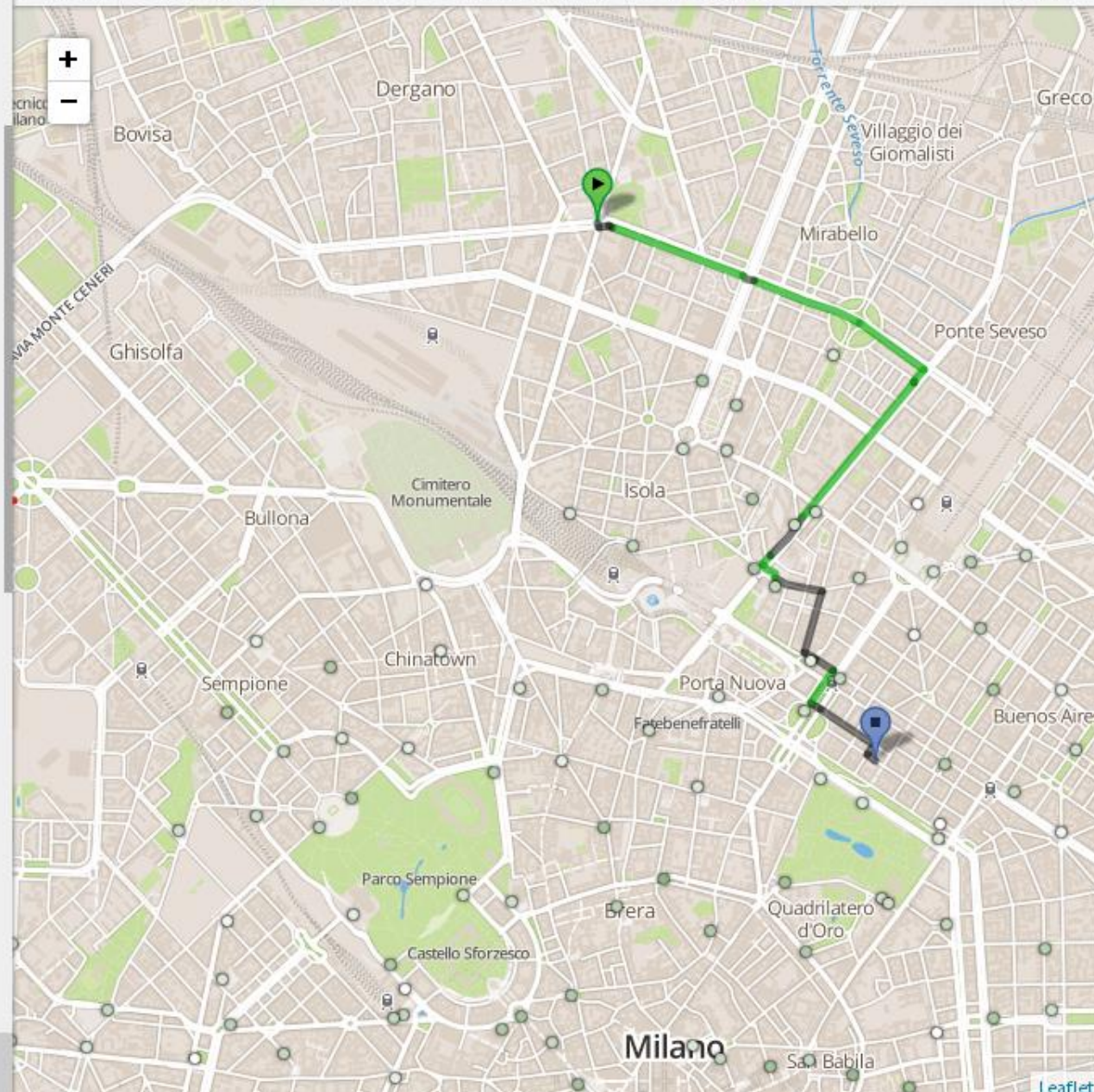
Via Panfilo Castaldi

Add destination

Cycle	Direct	Safe
Distance: 3.9 km	Cycle friendly	 2.5 km
Time: 19 min	Fair	 1.4 km
Lights: 16	Rough	 0 m

	Piazzale Carlo Maciachini Asphalt, 24m
	40m
	Viale Marche Asphalt, 15m
	Cycle path, 579m
	Viale Marche Cycle path, 472m
	Viale Lunigiana

- Events
- Bike sharing
- Bike shops
- Drinking fountains
- Bike Parkings
- Roads ▼



Piazzale Carlo Maciachini

Via Panfilo Castaldi

← JOURNEY CALCULATION

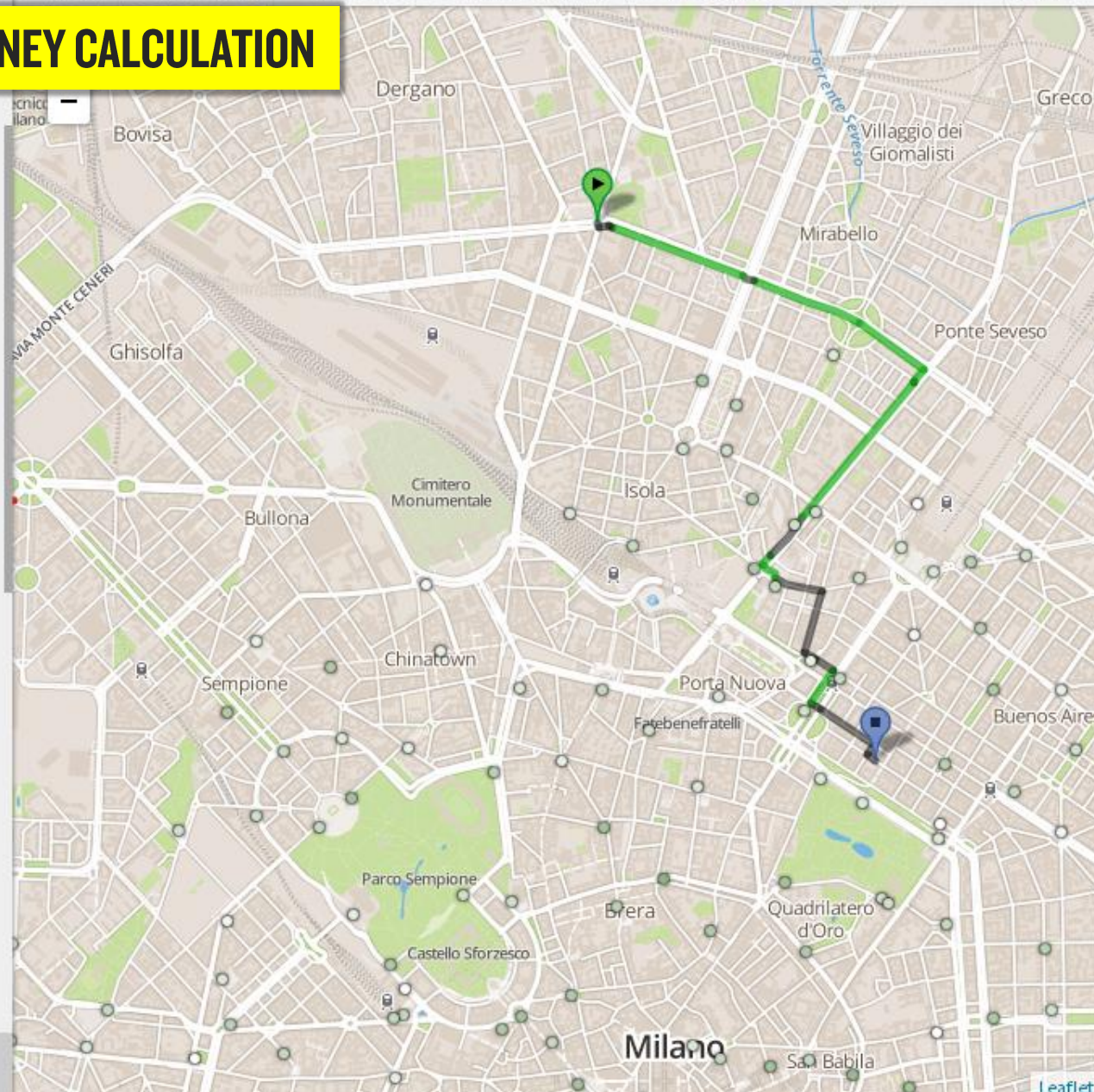
Add destination

Search

Cycle	Direct	Safe
Distance: 3.9 km	Cycle friendly	2.5 km
Time: 19 min	Fair	1.4 km
Lights: 16	Rough	0 m

Piazzale Carlo Maciachini	Asphalt, 24m
40m	
Viale Marche	Asphalt, 15m
Cycle path, 579m	
Viale Marche	Cycle path, 472m
Viale Lunigiana	

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- Roads

Piazzale Carlo Maciachini

Brera

Pinacoteca di Brera (Museo)

Piazzetta di Brera

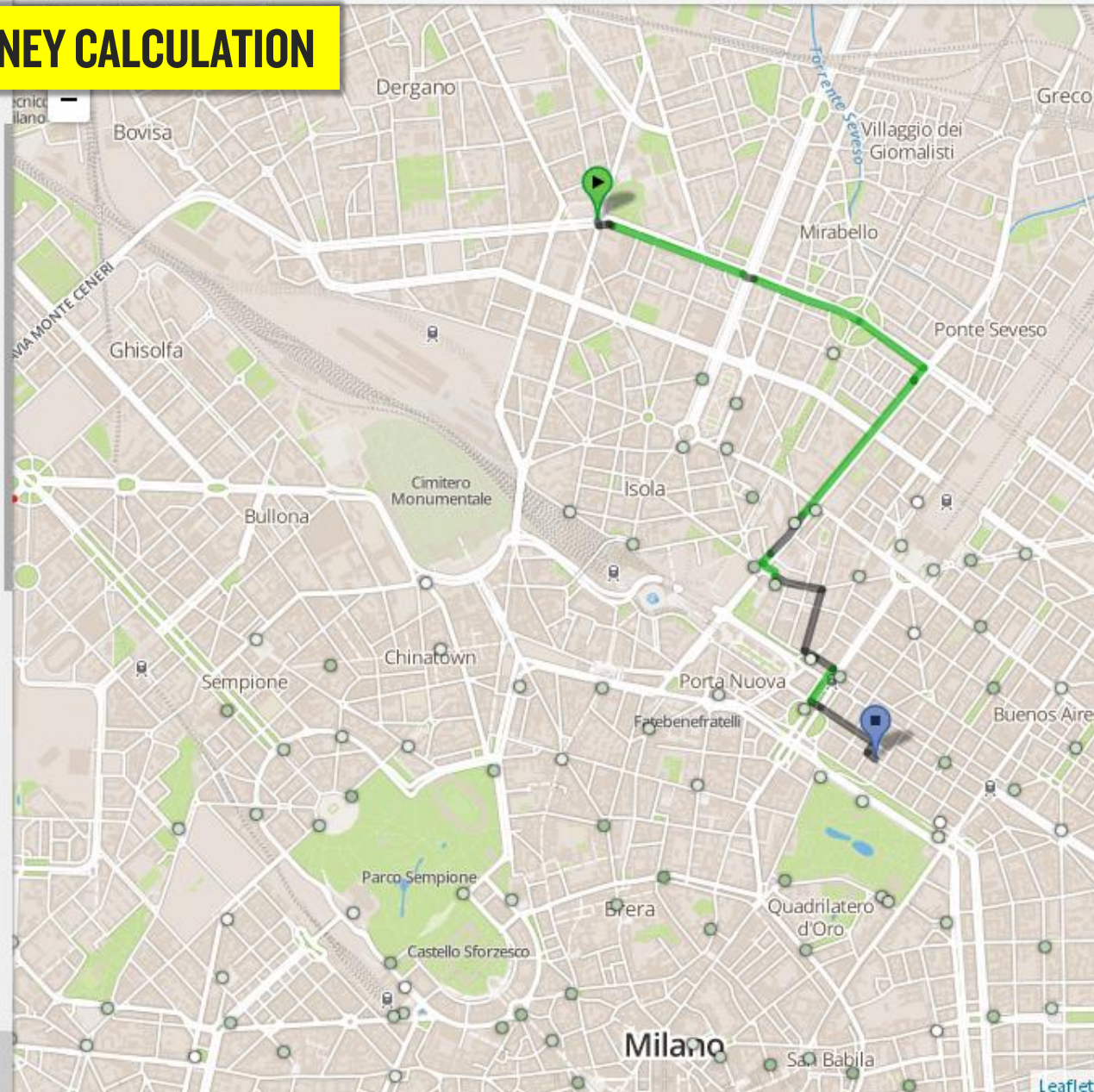
Via Brera

○ Posizione attuale

Time:	19 min	Fair	1.4 km
Lights:	16	Rough	0 m

← JOURNEY CALCULATION

Piazzale Carlo Maciachini	Asphalt, 24m
40m	
Viale Marche	Asphalt, 15m
Cycle path, 579m	
Viale Marche	Cycle path, 472m
Viale Lunigiana	

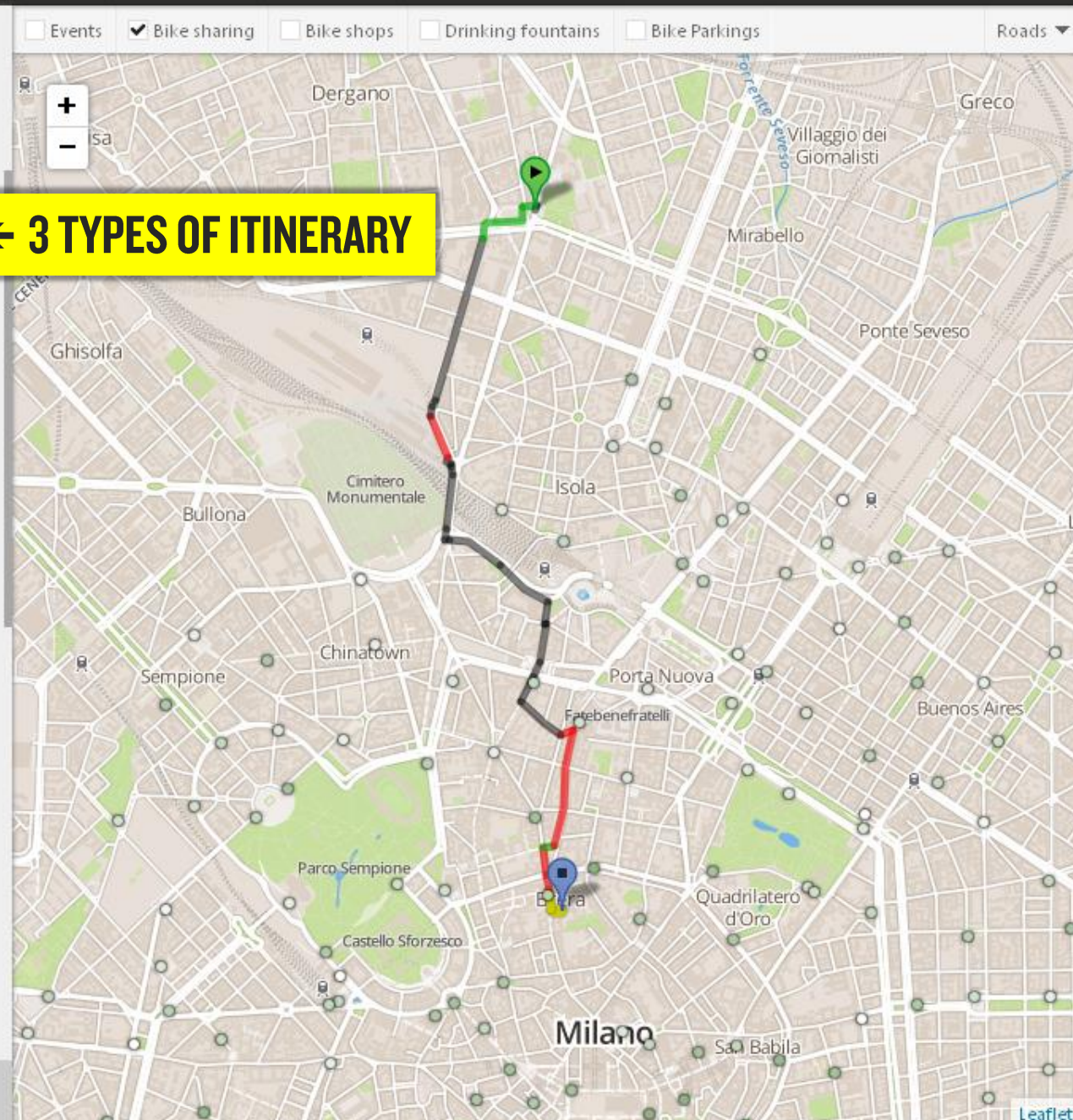


Piazzale Carlo Maciachini
Piazzetta di Brera
Add destination Search

Cycle	Direct	Safe
Distance: 4.0 km	Cycle friendly 394 m.	
Time: 20 min	Fair 2.4 km	
Lights: 12	Rough 1.2 km	

- Piazzale Carlo Maciachini
Asphalt, 41m
- Ciclabile Via Crespi - Maciachini
Cycle path, 62m
- 283m
- Via Valtellina
Asphalt, 716m
- Via Valtellina
Paving stones, 192m
- Via Valtellina
Asphalt, 13m

← 3 TYPES OF ITINERARY









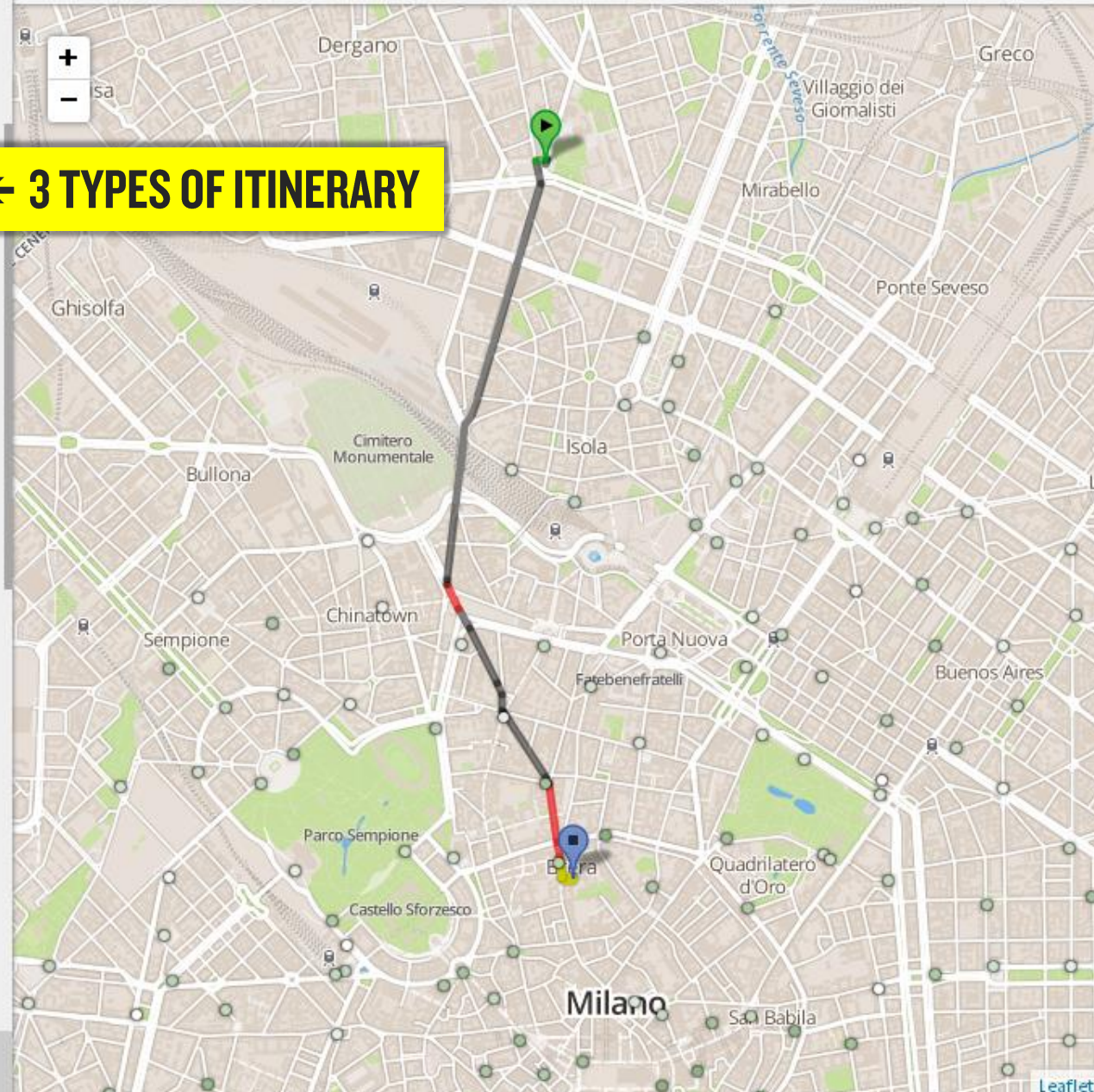
Piazzale Carlo Maciachini
Piazzetta di Brera
Add destination Search

Cycle	Direct	Safe
Distance: 3.4 km	Cycle friendly 50 m	
Time: 17 min	Fair 2.7 km	
Lights: 18	Rough 707 m	

- Piazzale Carlo Maciachini
Asphalt, 41m
- Ciclabile Via Crespi - Maciachini
Cycle path, 50m
- Piazzale Carlo Maciachini
Asphalt, 93m
- Via Carlo Farini
Asphalt and rail, 1.7km

Events Bike sharing Bike shops Drinking fountains Bike Parkings Roads

← 3 TYPES OF ITINERARY

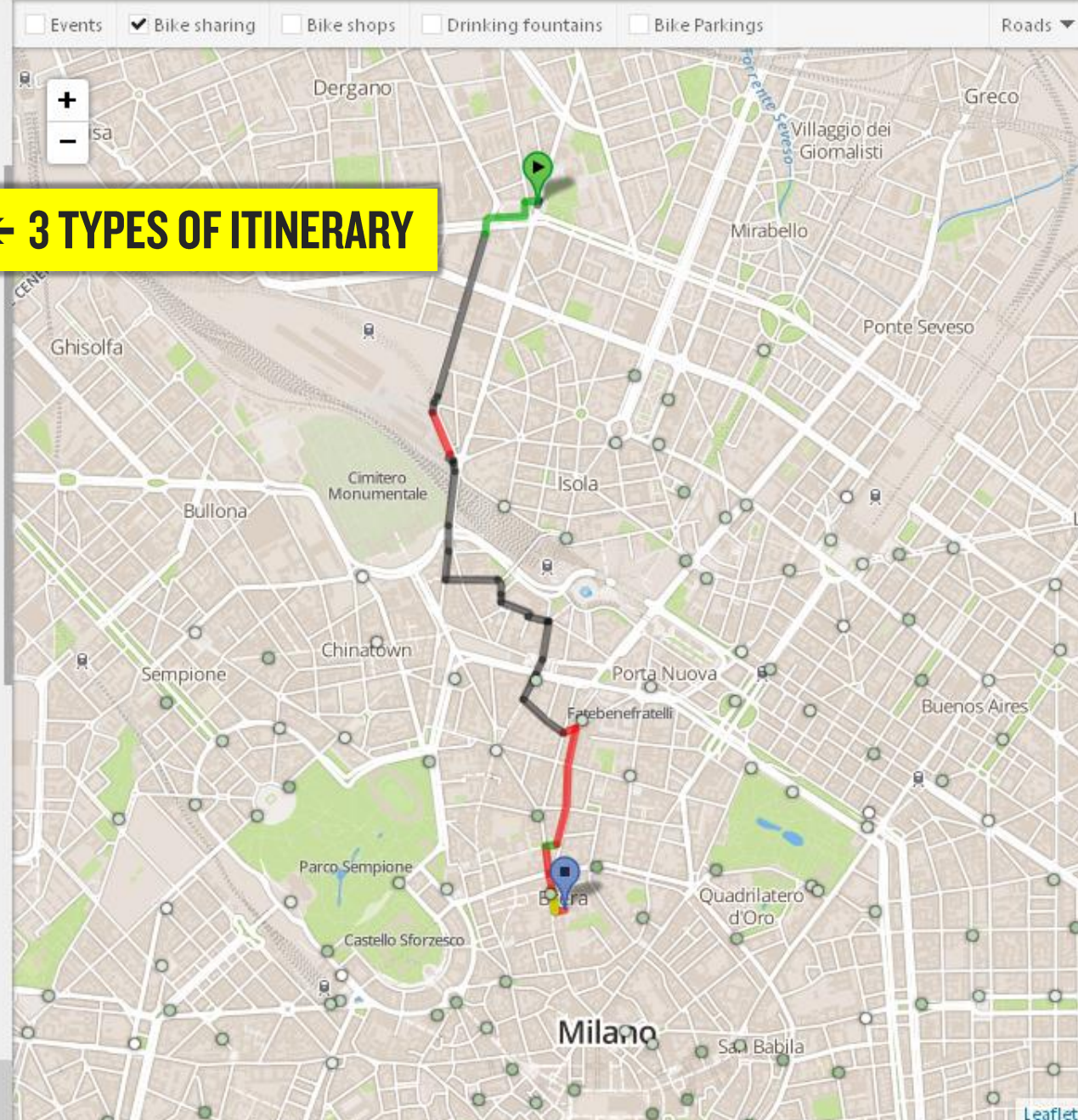


Piazzale Carlo Maciachini
Piazzetta di Brera
Add destination Search

Cycle	Direct	Safe
Distance: 4.0 km	Cycle friendly	394 m
Time: 20 min	Fair	2.5 km
Lights: 11	Rough	1.1 km

- Piazzale Carlo Maciachini
Asphalt, 41m
- Ciclabile Via Crespi - Maciachini
Cycle path, 62m
- 283m
- Via Valtellina
Asphalt, 716m
- Via Valtellina
Paving stones, 192m
- Via Valtellina
Asphalt, 13m

← 3 TYPES OF ITINERARY



Piazzale Carlo Maciachini

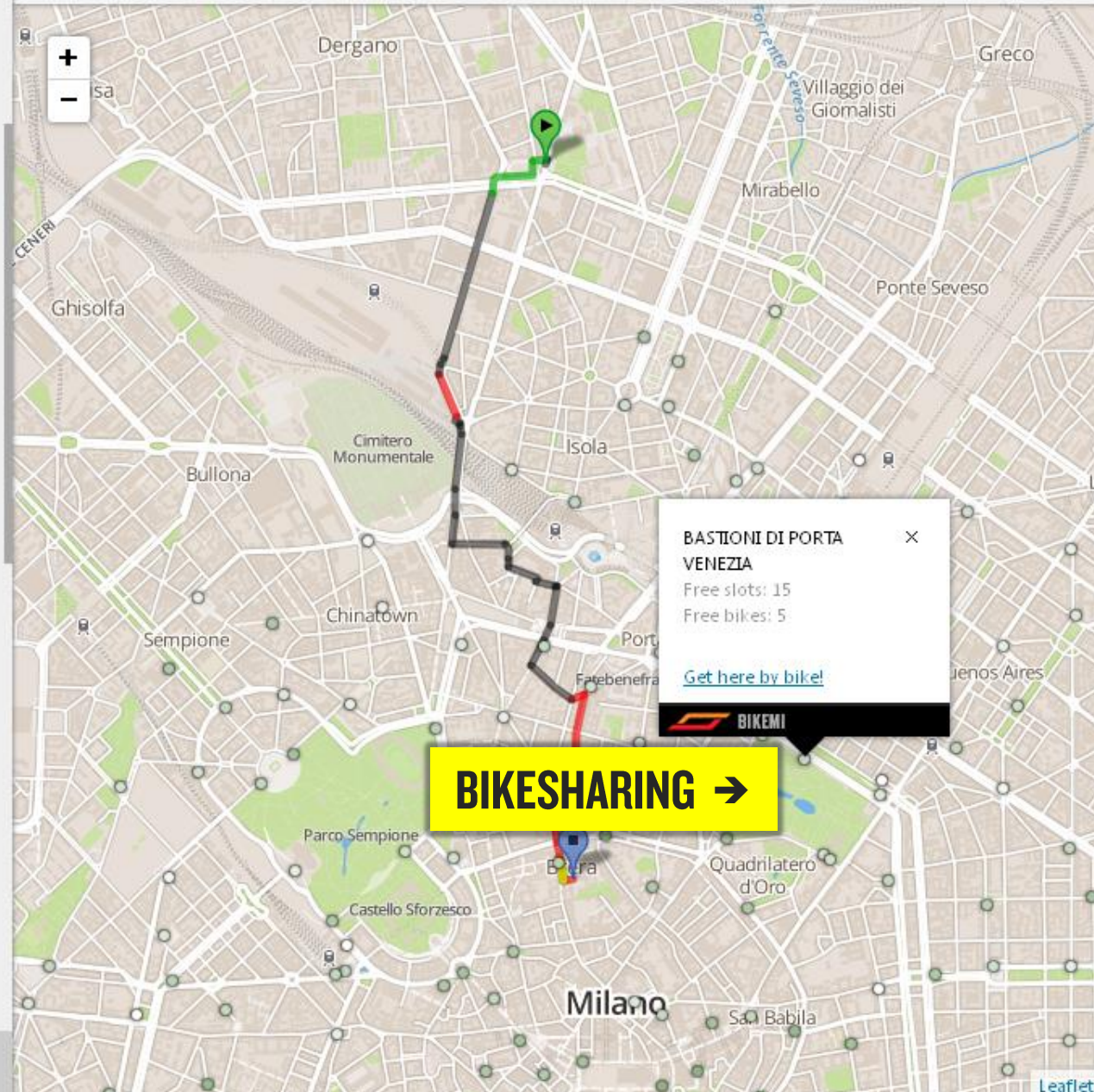
Piazzetta di Brera

Add destination

Cycle	Direct	Safe
Distance: 4.0 km	Cycle friendly	394 m.
Time: 20 min	Fair	2.5 km
Lights: 11	Rough	1.1 km

- Piazzale Carlo Maciachini
Asphalt, 41m
- Ciclabile Via Crespi - Maciachini
Cycle path, 62m
- 283m
- Via Valtellina
Asphalt, 716m
- Via Valtellina
Paving stones, 192m
- Via Valtellina
Asphalt, 13m

Events
 Bike sharing
 Bike shops
 Drinking fountains
 Bike Parkings
 Roads ▼

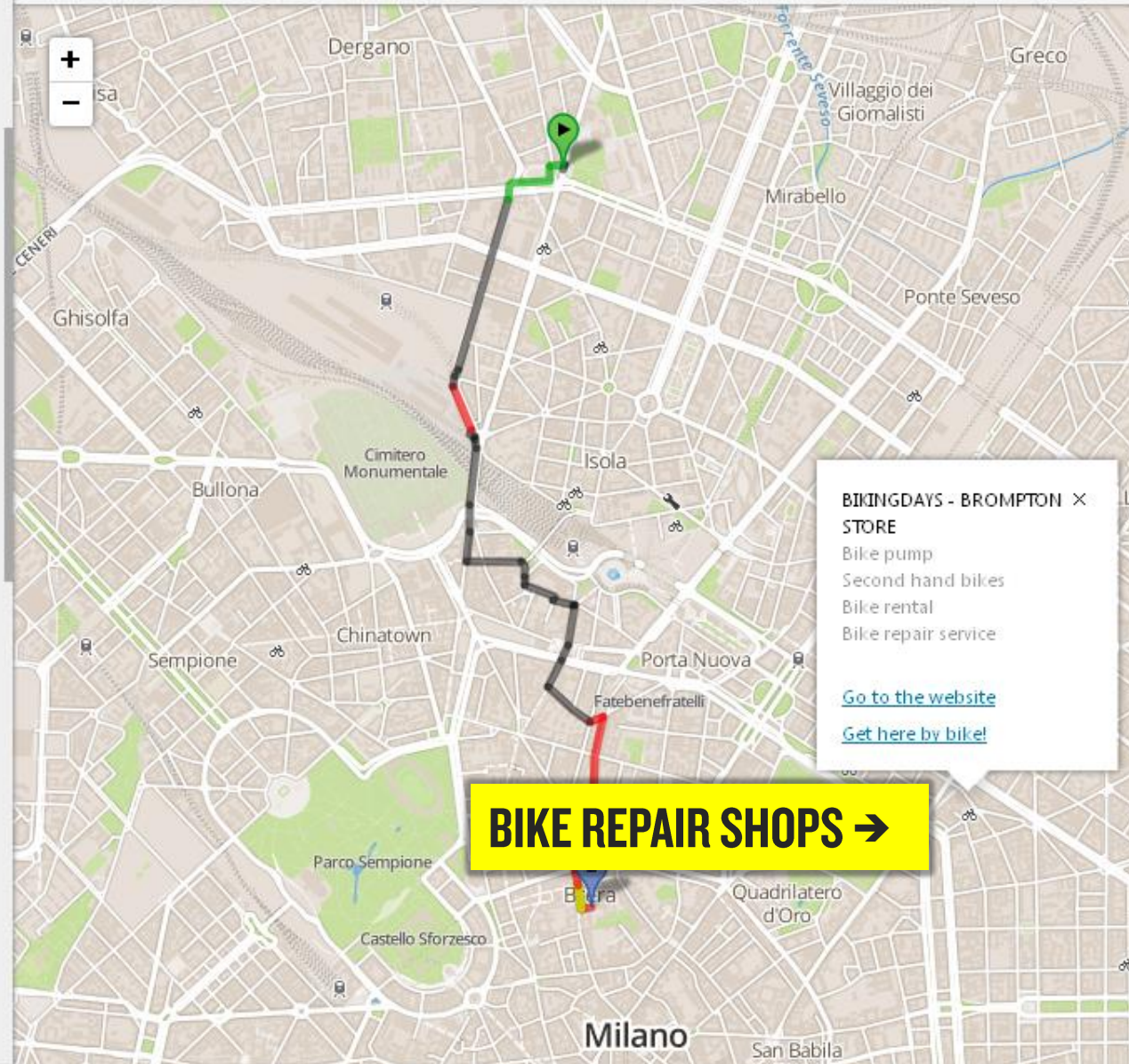


Piazzale Carlo Maciachini
Piazzetta di Brera
Add destination Search

Cycle	Direct	Safe
Distance: 4.0 km	Cycle friendly	394 m.
Time: 20 min	Fair	2.5 km
Lights: 11	Rough	1.1 km

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Asphalt, 41m
- Ciclabile Via Crespi - Maciachini
Cycle path, 62m
- 283m
- Via Valtellina
Asphalt, 716m
- Via Valtellina
Paving stones, 192m
- Via Valtellina
Asphalt, 13m

Events Bike sharing Bike shops Drinking fountains Bike Parkings Roads



BIKINGDAYS - BROMPTON X STORE
Bike pump
Second hand bikes
Bike rental
Bike repair service
[Go to the website](#)
[Get here by bike!](#)

BIKE REPAIR SHOPS ->

Piazzale Carlo Maciachini

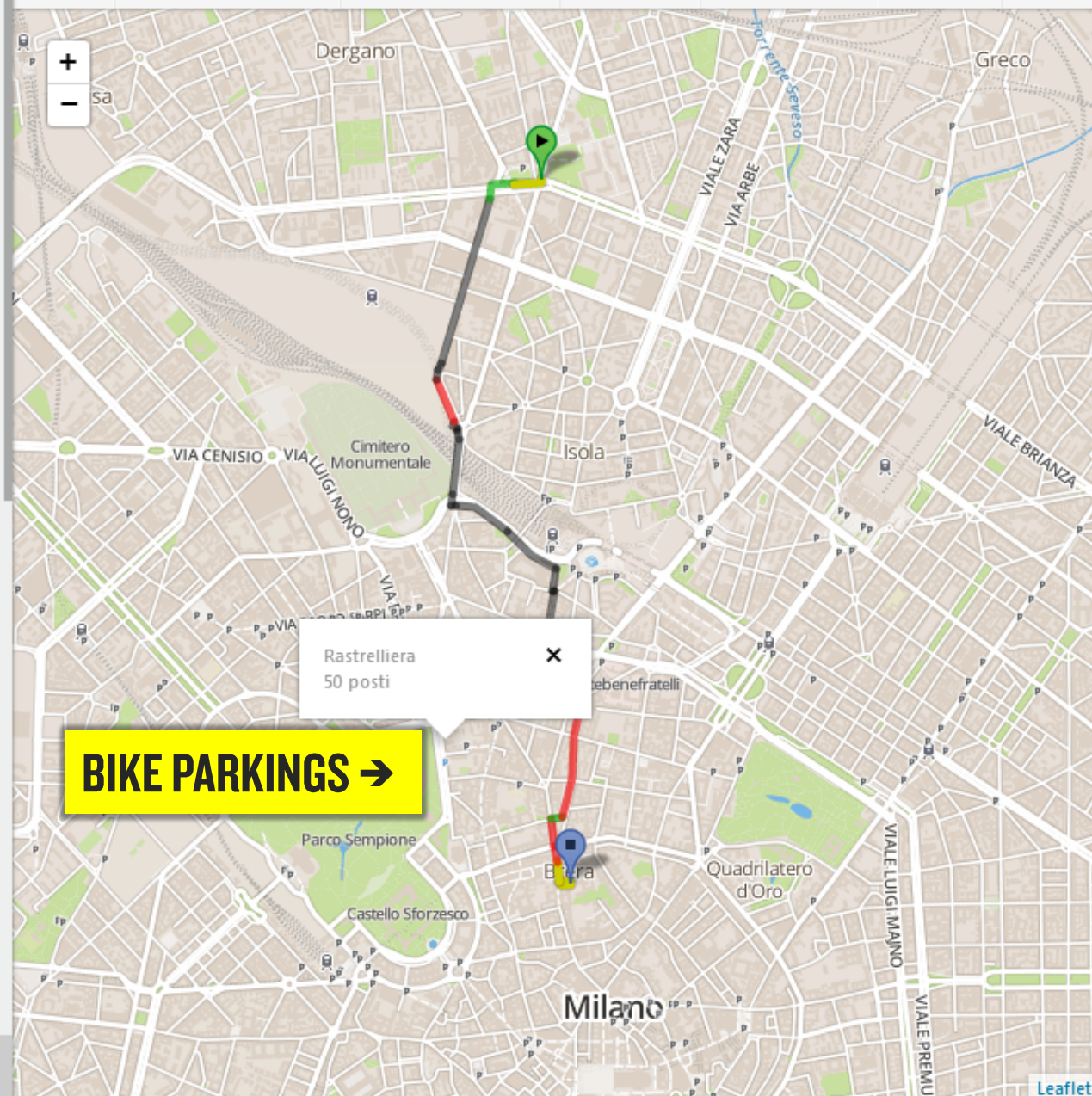
Piazzetta di Brera

Aggiungi destinazione Cerca

Ciclabile	Diretto	Sicuro
Distanza: 3.9 km	Ciclabile: █ 218 m	
Tempo: 20 min	Scorrevole: 2.5 km	
Semafori: 12	Accidentata: █ 1.2 km	

- ▲ Piazzale Carlo Maciachini
Asfalto, 145m
Senso contrario: portare la bici a mano!
- █ Ciclabile Via Crespi - Maciachini
Ciclabile, 169m
- █ Via Valtellina
Asfalto, 716m
- █ Via Valtellina
Pavé, 192m
- █ Via Valtellina
Asfalto, 13m
- █ 32m

- Eventi
 Stazioni bike sharing
 Ciclofficine e negozi
 Fontanelle
 Parcheggio bici
 Roads ▼



Piazzale Carlo Maciachini

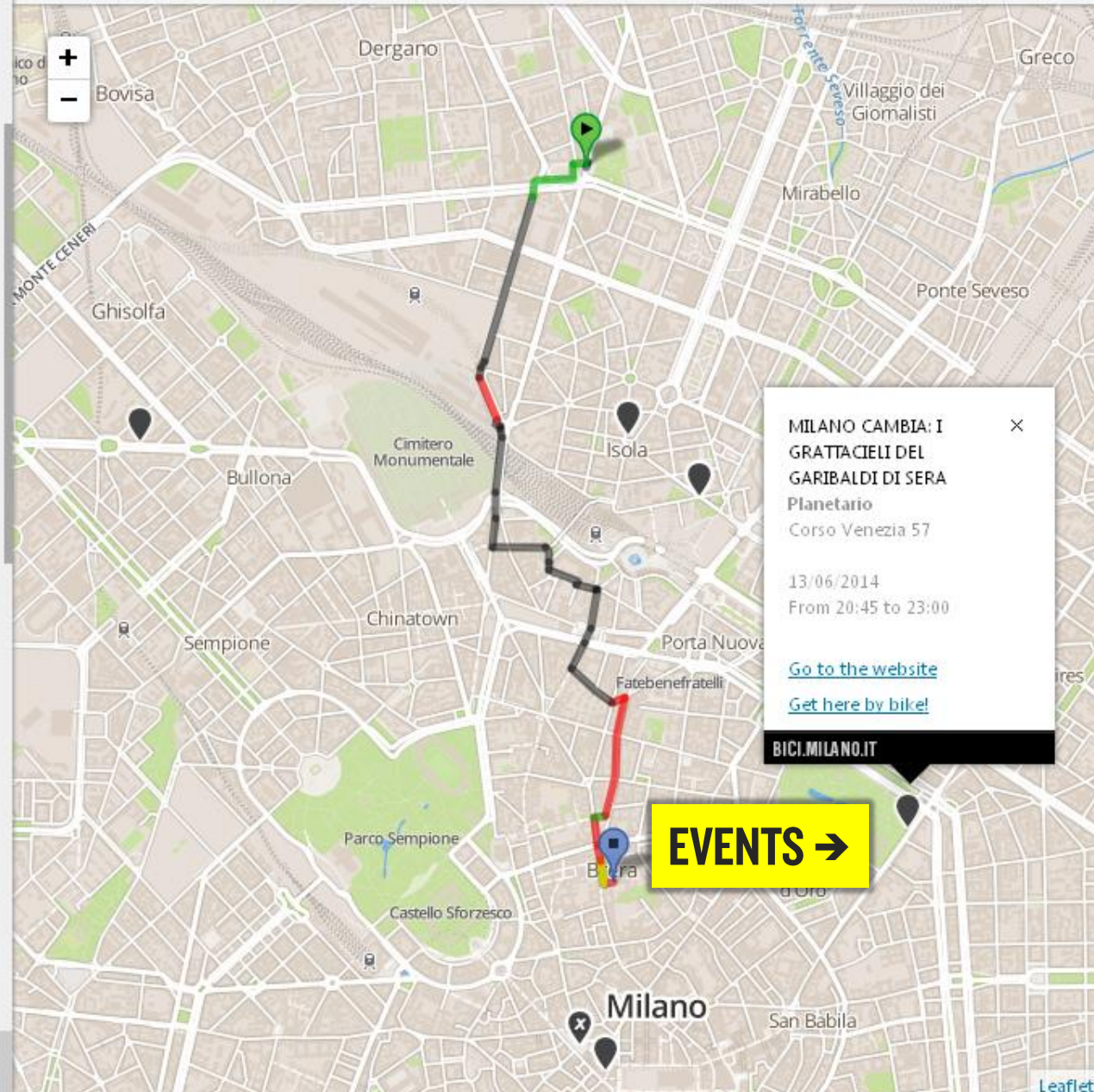
Piazzetta di Brera

Add destination

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Lights: 11	Rough	1.1 km

- Piazzale Carlo Maciachini
Asphalt, 41m
- Ciclabile Via Crespi - Maciachini
Cycle path, 62m
283m
- Via Valtellina
Asphalt, 716m
- Via Valtellina
Paving stones, 192m
- Via Valtellina
Asphalt, 13m

- Events
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- Drinking fountains
- Bike Parkings
- Roads



MILANO CAMBIA: I GRATTACIELI DEL GARIBALDI DI SERA Planetario

Corso Venezia 57

13/06/2014
From 20:45 to 23:00

[Go to the website](#)

[Get here by bike!](#)

BICI.MILANO.IT

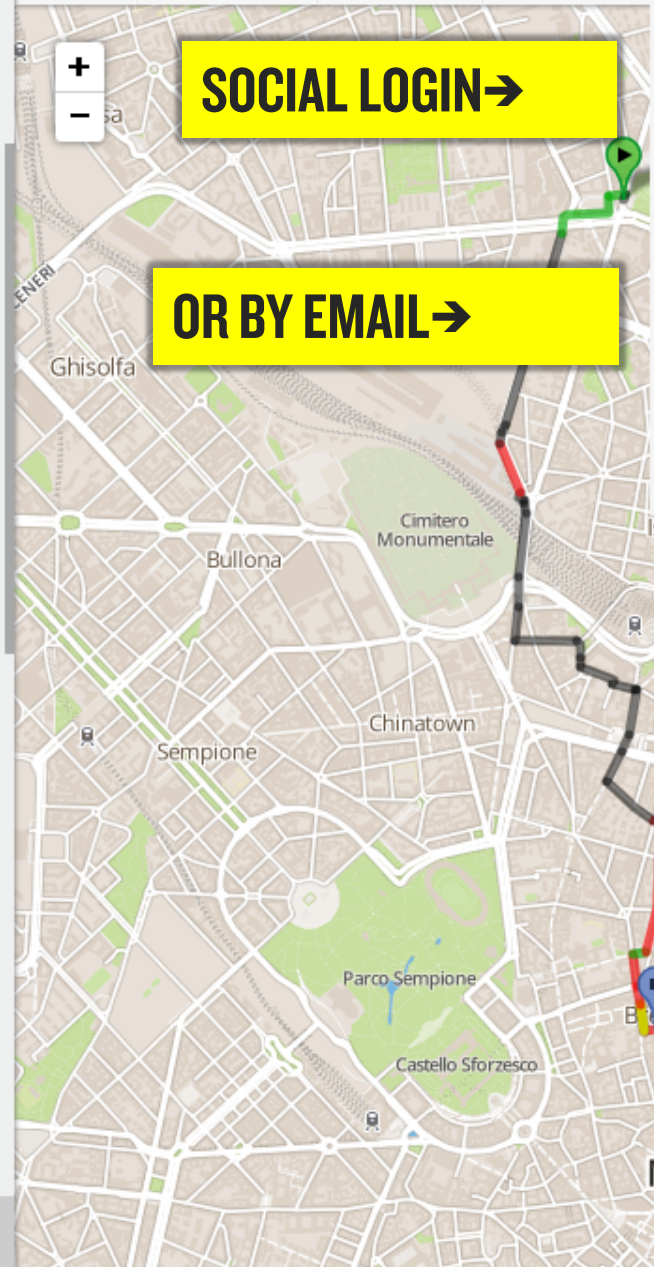
EVENTS →

Piazzale Carlo Maciachini
Piazzetta di Brera
Add destination Search

Cycle	Direct	Safe
Distance: 4.0 km	Cycle friendly	394 m
Time: 20 min	Fair	2.5 km
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Asphalt, 41m
- Ciclabile Via Crespi - Maciachini
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- Via Valtellina
Asphalt, 716m
- Via Valtellina
Paving stones, 192m
- Via Valtellina
Asphalt, 13m

Events Bike sharing Bike shops Drinking foun



SOCIAL LOGIN →

OR BY EMAIL →

Log in with:

- Twitter
- Facebook
- Google

Or login in with your BikeDistrict account:

Email

Password

Submit

Not registered yet? [Sign up now!](#)

USER PROFILE →

Profile




[Change image](#)

Name

Email

Password

Confirm password

Language Gender Age  I would like to receive the extremely rare newsletter (max. once every 3 month). [Connect to Twitter](#) Connected to Facebook (Marco Quaggiotto) Connected to Google

Piazzale Carlo Maciachini

Piazzetta di Brera

Add destination

Cycle	Direct	Safe
Distance: 4.0 km	Cycle friendly ■	394 m
Time: 20 min	Fair ■	2.4 km
Lights: 12	Rough ■	1.2 km

- Piazzale Carlo Maciachini
Asphalt, 41m
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- 283m
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Asphalt, 716m
- Via Valtellina
Paving stones, 192m
- Via Valtellina
Asphalt, 13m

STREET RATING →

Events
 Bike sharing
 Bike shops
 Drinking fountains
 Bike Parkings
 Roads ▼

Viale Luigi Sturzo
Asphalt, 261m

I don't like it. Please avoid it

I don't like it. Please avoid it

Viale Luigi Sturzo
Asphalt, 261m

Asilo Maurizio
Quadrio

Milano Porta Garibaldi

Milano Porta Garibaldi
Passante

Garibaldi FS

VIA DEL NORD

VIA DEL NORD

VIALE PASUBIO

VIA BONNET

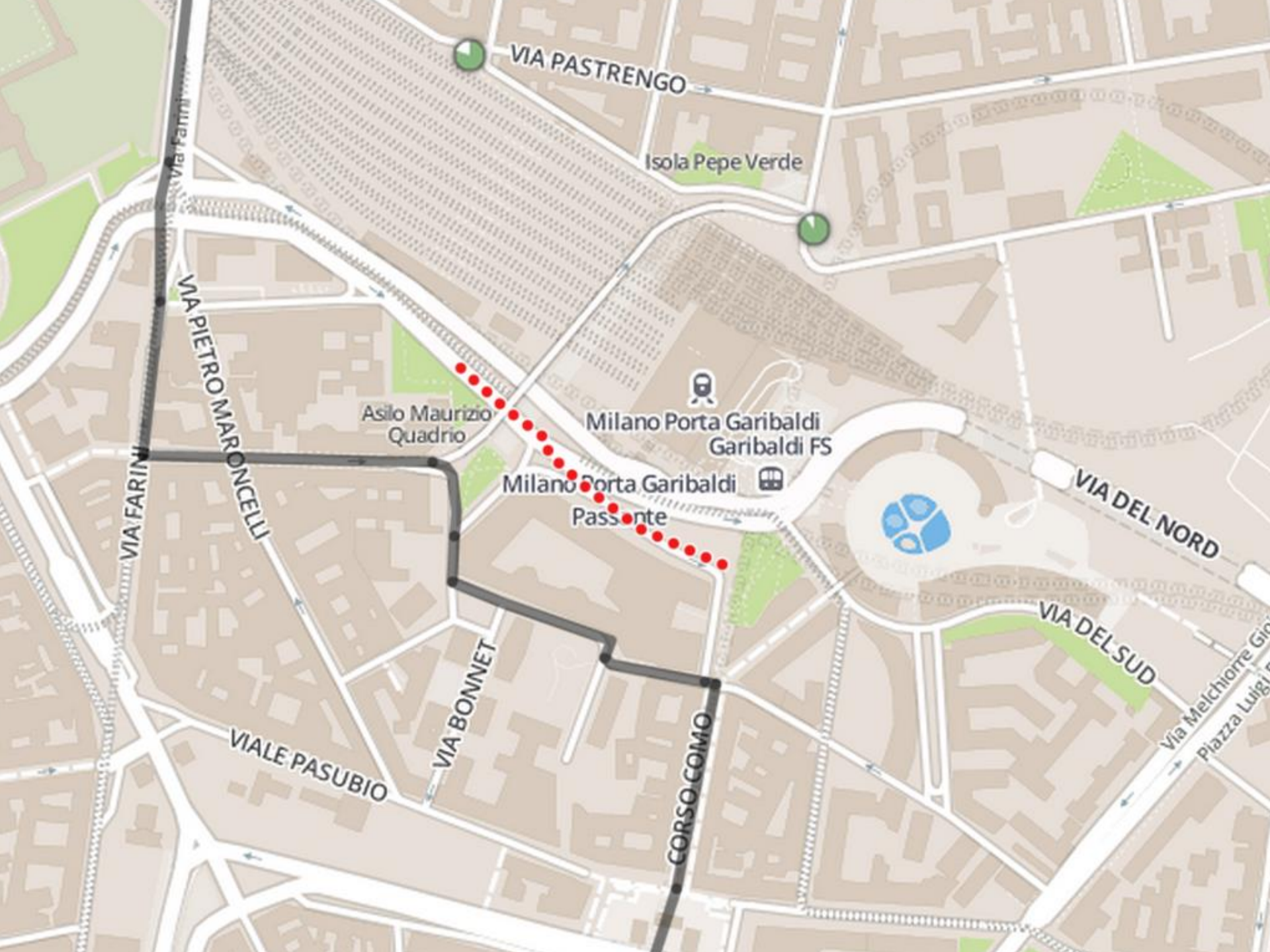
VIALE PASUBIO

Corso Cairoli

Via di Porta Volta

VIA

Por



VIA PASTRENGO

Isola Pepe Verde

VIA PIETRO MARONCELLI

Asilo Maurizio Quadrio

Milano Porta Garibaldi Garibaldi FS

Milano Porta Garibaldi Passante

VIA DEL NORD

VIA DEL SUD

VIA FARINI

VIALE PASUBIO

VIA BONNET

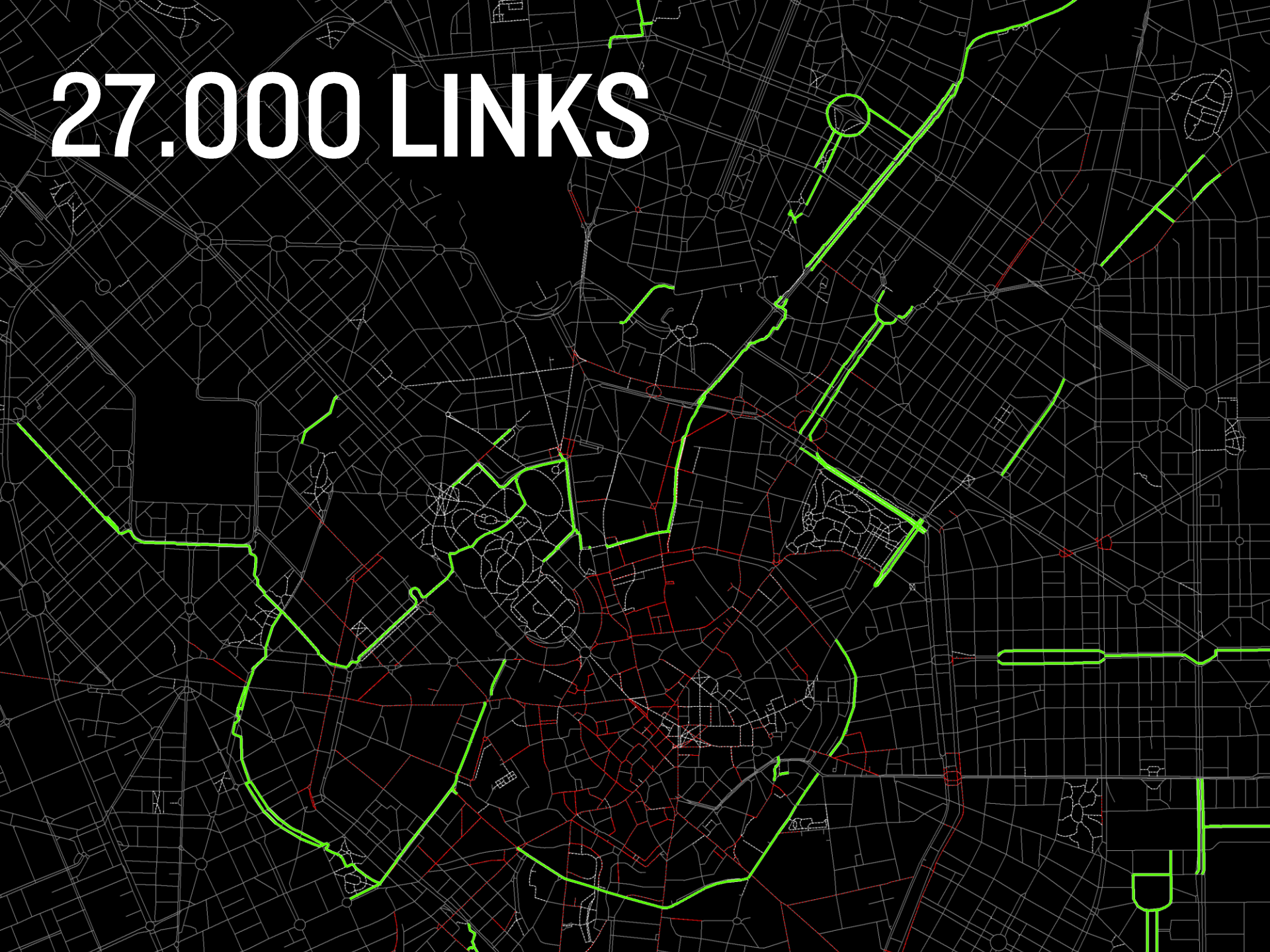
CORSO COMO

Via Melchiorre Giove
Piazza Luigi

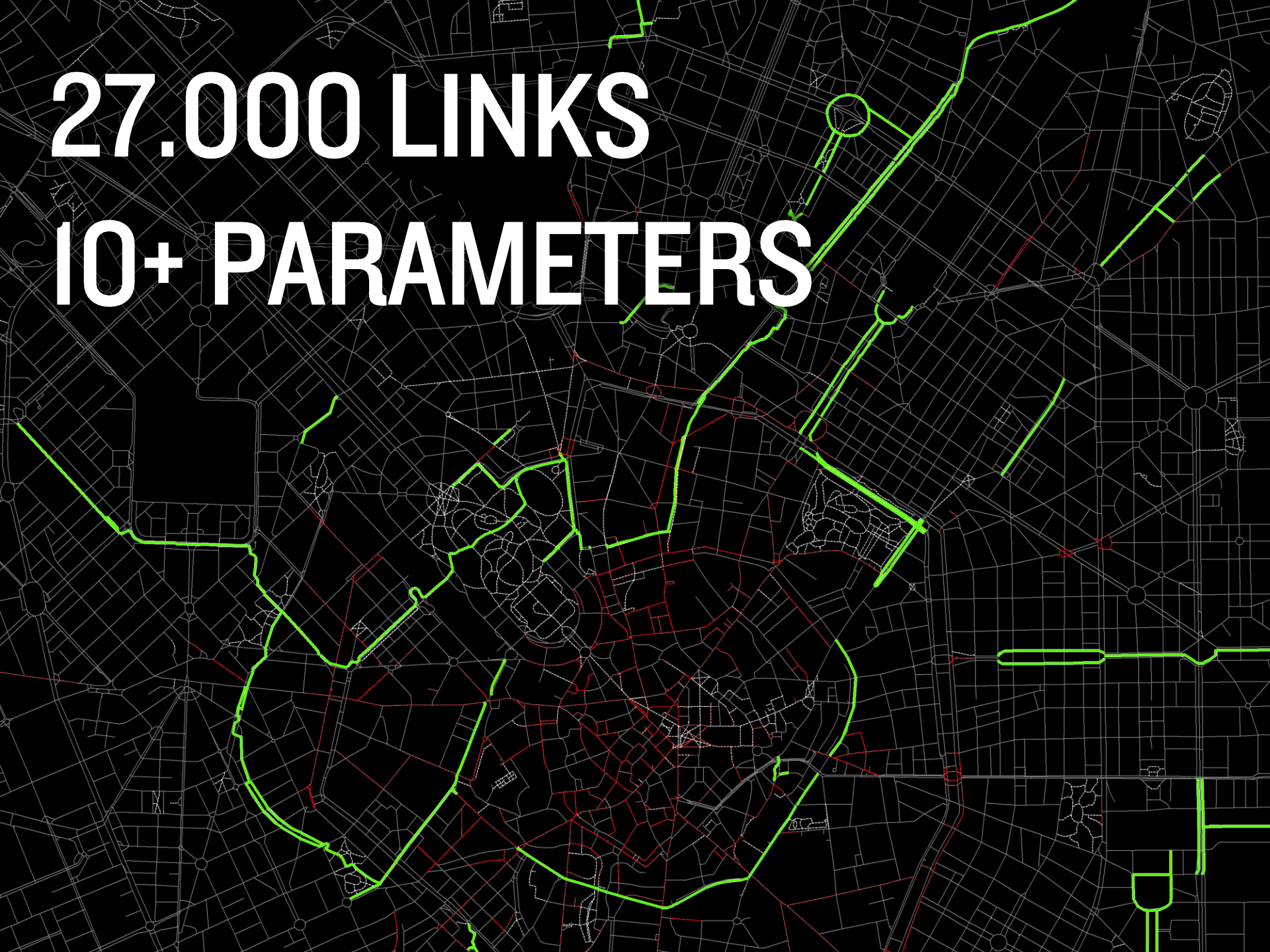


DIGITAL TOOLS FOR BIKE MOBILITY

27.000 LINKS



27.000 LINKS
10+ PARAMETERS



The background is a dark map of a city street grid. A prominent path is highlighted in bright green, starting from the top right and winding through the center and bottom of the frame. Another path is highlighted in red, primarily in the lower central and right areas. The text is overlaid on the top left portion of the map.

27.000 LINKS

10+ PARAMETERS

UPDATED IN REAL TIME



**OSM / POSTGRESQL /
POSTGIS / PGROUTING /
QGIS / OSM2PGSQL /
OSM2PGROUTING /
NGINX / UWSGI / FLASK /
PYTHON / LEAFLET**



**400.000 ITINERARIES
CALCULATED**

CROWDSOURCED DATA

A photograph of two cyclists riding on a cobblestone street with tram tracks. The cyclist on the left is an older man wearing a dark jacket and a patterned beanie. The cyclist on the right is a younger man in a dark jacket. The background shows a city street with buildings and other pedestrians. The entire image has a dark, reddish-brown tint.

STREET RATING
USERS PROFILE

FUTURE:

GPS TRACKING OF JOURNEYS

CROWDSOURCED DATA

A photograph of two cyclists riding on a cobblestone street with tram tracks. The cyclist on the left is an older man wearing a dark jacket and a patterned beanie. The cyclist on the right is a younger man in a dark jacket. The background shows a city street with buildings and a 'H' sign. The entire image has a dark, reddish-brown tint.

BETTER AND RICHER INFORMATION

FREQUENTLY UPDATED

REAL TIME DATA GATHERING

CHEAP



ANALYTICAL TOOLS

ANAYTICAL TOOLS

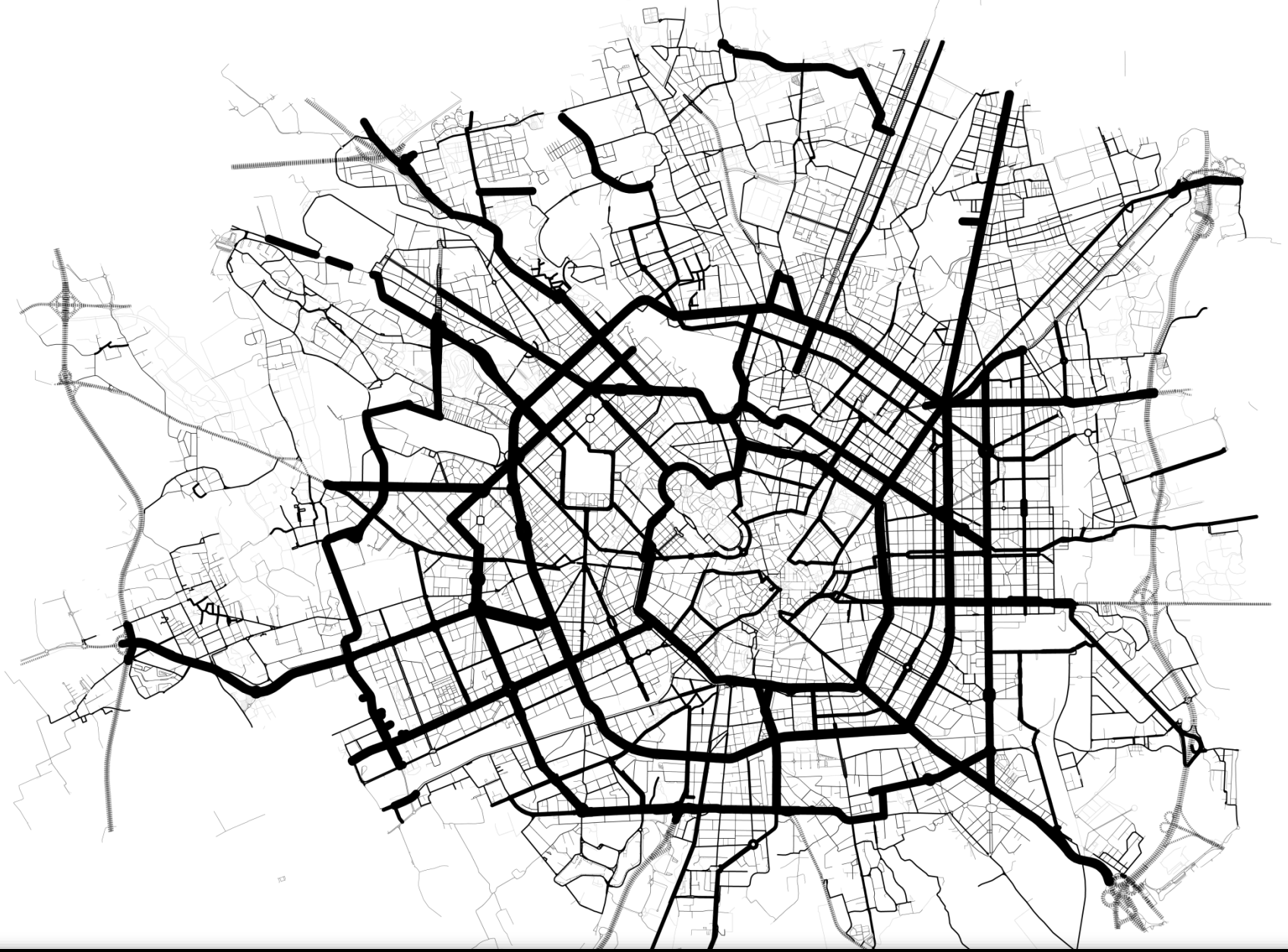
A photograph of two men riding bicycles on a city street. The man on the left is older, wearing a dark jacket and a patterned cap. The man on the right is younger, wearing a dark jacket. They are riding on a cobblestone street with tram tracks. The background shows buildings and other people. The image has a dark, reddish-brown tint.

1. DEMAND FOR MOBILITY
2. ROAD INFRASTRUCTURES
3. INFRASTRUCTURAL PLANNING

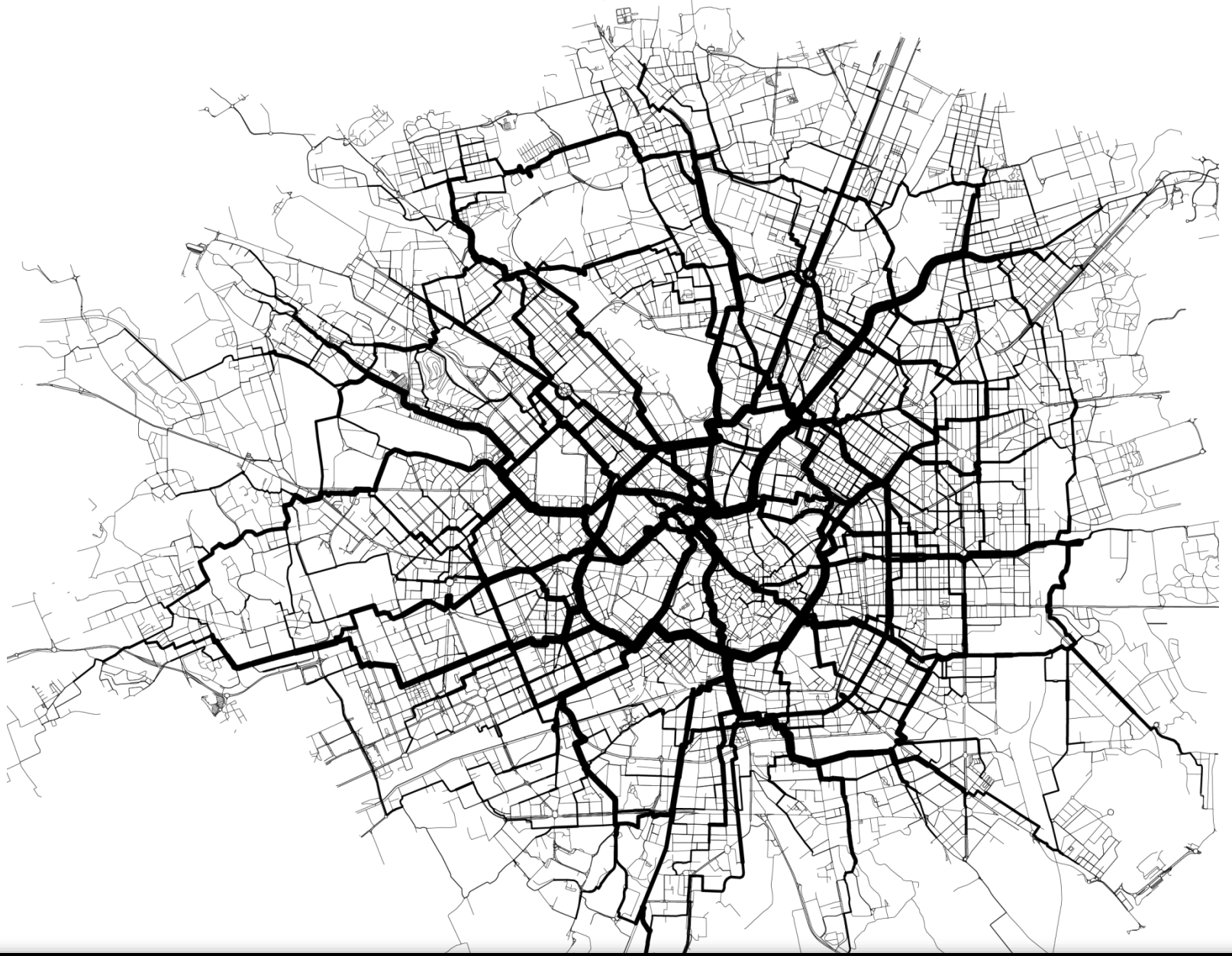
I. DEMAND FOR MOBILITY

A photograph of two cyclists riding on a cobblestone street in a city. The cyclist on the left is an older man wearing a dark jacket and a patterned cap. The cyclist on the right is a younger man wearing a dark jacket. The background shows buildings and other people, with a red tint overlaying the entire image.

bike flow estimates and bike traffic profiling
commuters trips home/workplace
popular itineraries
critical connection identification
bike highways



Municipal road classification



Bike Highways

2. ROAD INFRASTRUCTURE

A photograph of two cyclists riding on a city street with tram tracks. The cyclist on the left is an older man wearing a dark jacket and a patterned beanie. The cyclist on the right is a younger man wearing a dark jacket. The background shows a city street with buildings and other people. The image has a dark, reddish tint.

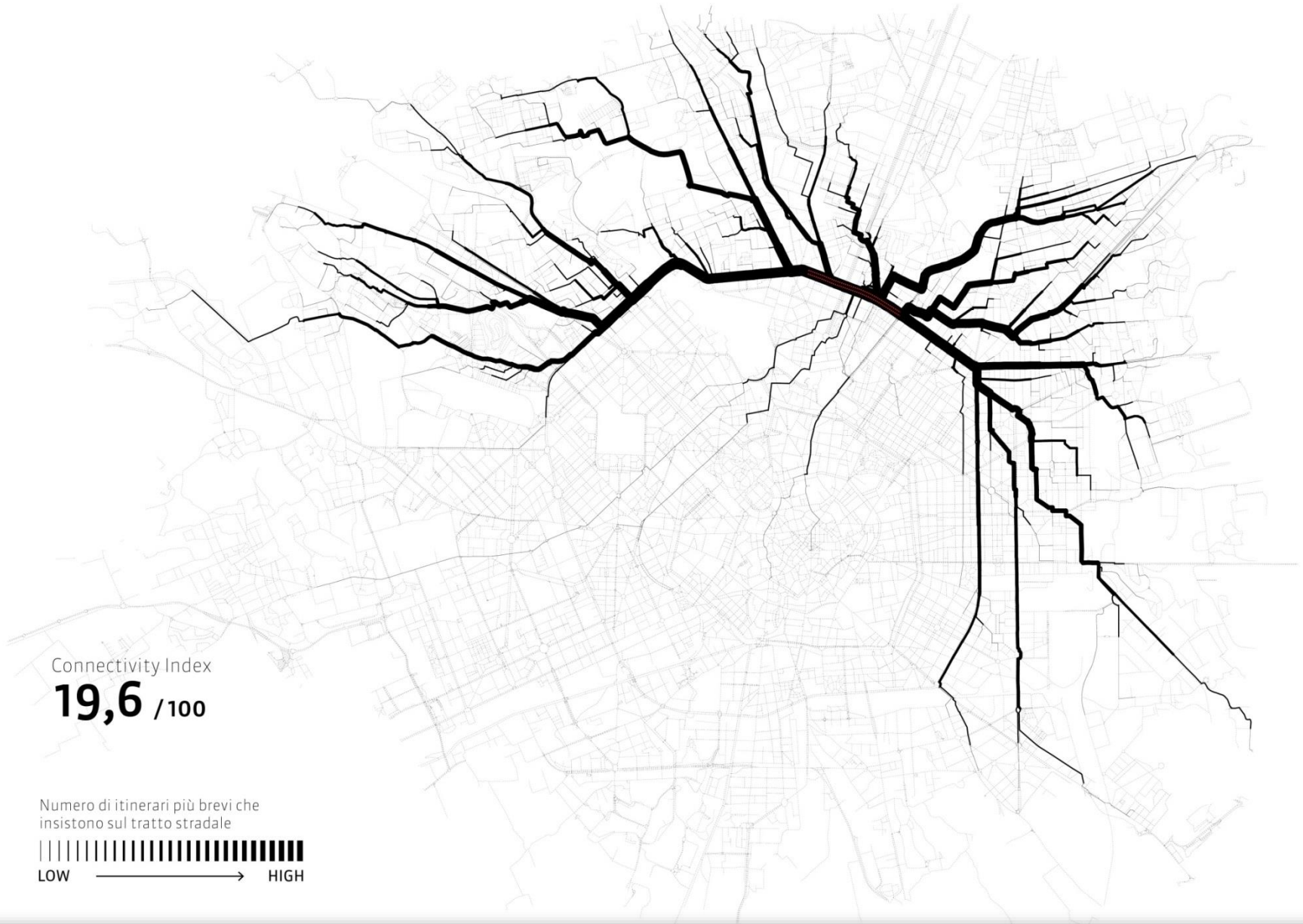
road conditions & maintenance issues

bike network temporary interruption

critical issues

identification of poorly connected areas

bike connections efficiency



Viale Marche bike lane - Impact evaluation (orbital itinerary)



Corso Lodi bike lane - Impact evaluation (radial itinerary)

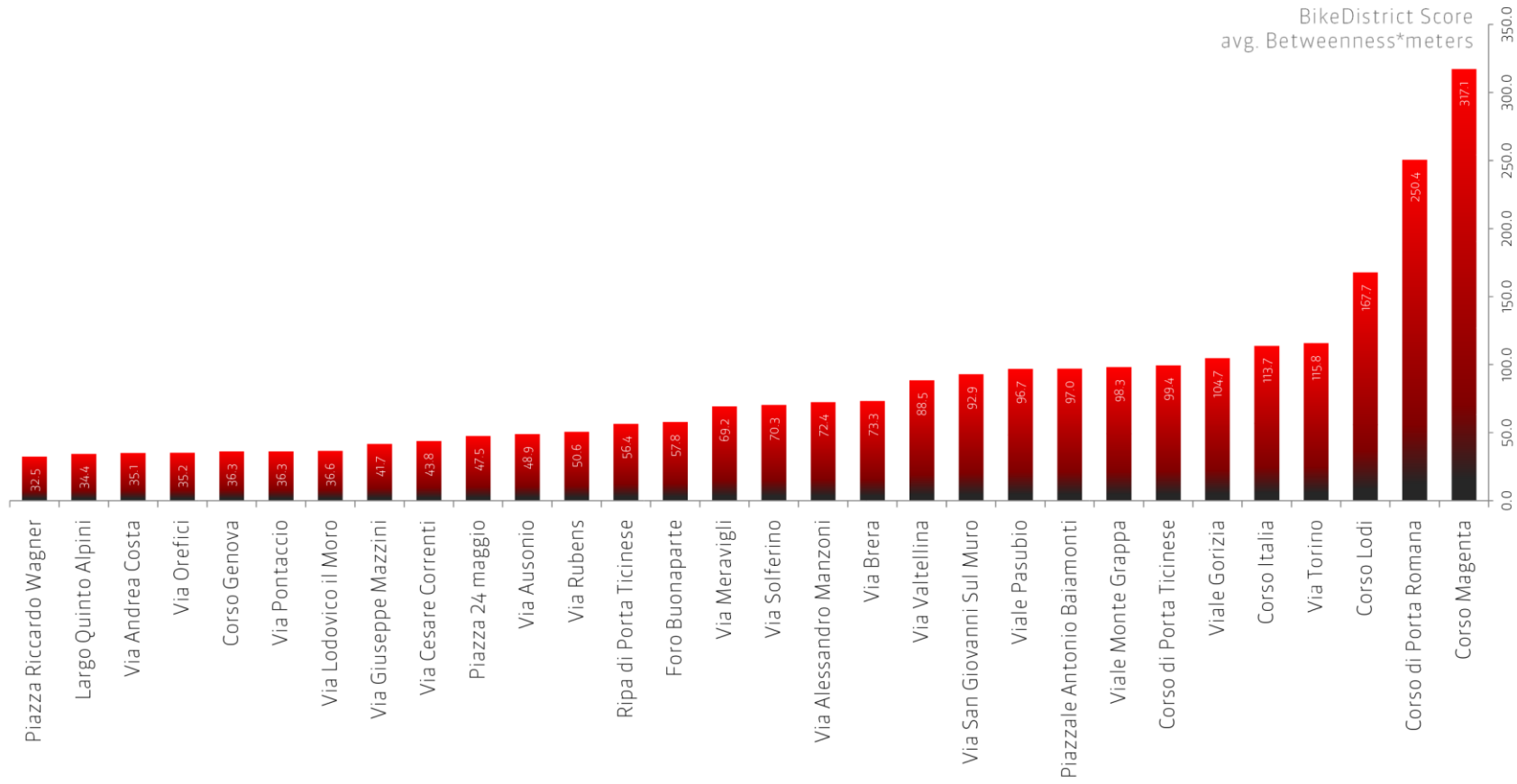
3. PLANNING NEW BIKE INFRASTRUCTURE

A photograph of two cyclists riding on a cobblestone street with tram tracks. The cyclist in the foreground is wearing a dark jacket and a patterned beanie, riding towards the camera. The cyclist in the background is wearing a dark jacket and is riding away from the camera. The street is lined with buildings, and there are tram tracks visible on the ground.

roads with high connectivity potential
dangerous roads busy of cyclists
two-ways circulation for bikes on oneway st.



Identification of roads with high connectivity potential



Identification of roads with high connectivity potential

FUTURE PLANS

New structure for new data

Better intergration with OSM

New cities

Native mobile apps





BIKEDISTRICT.ORG