



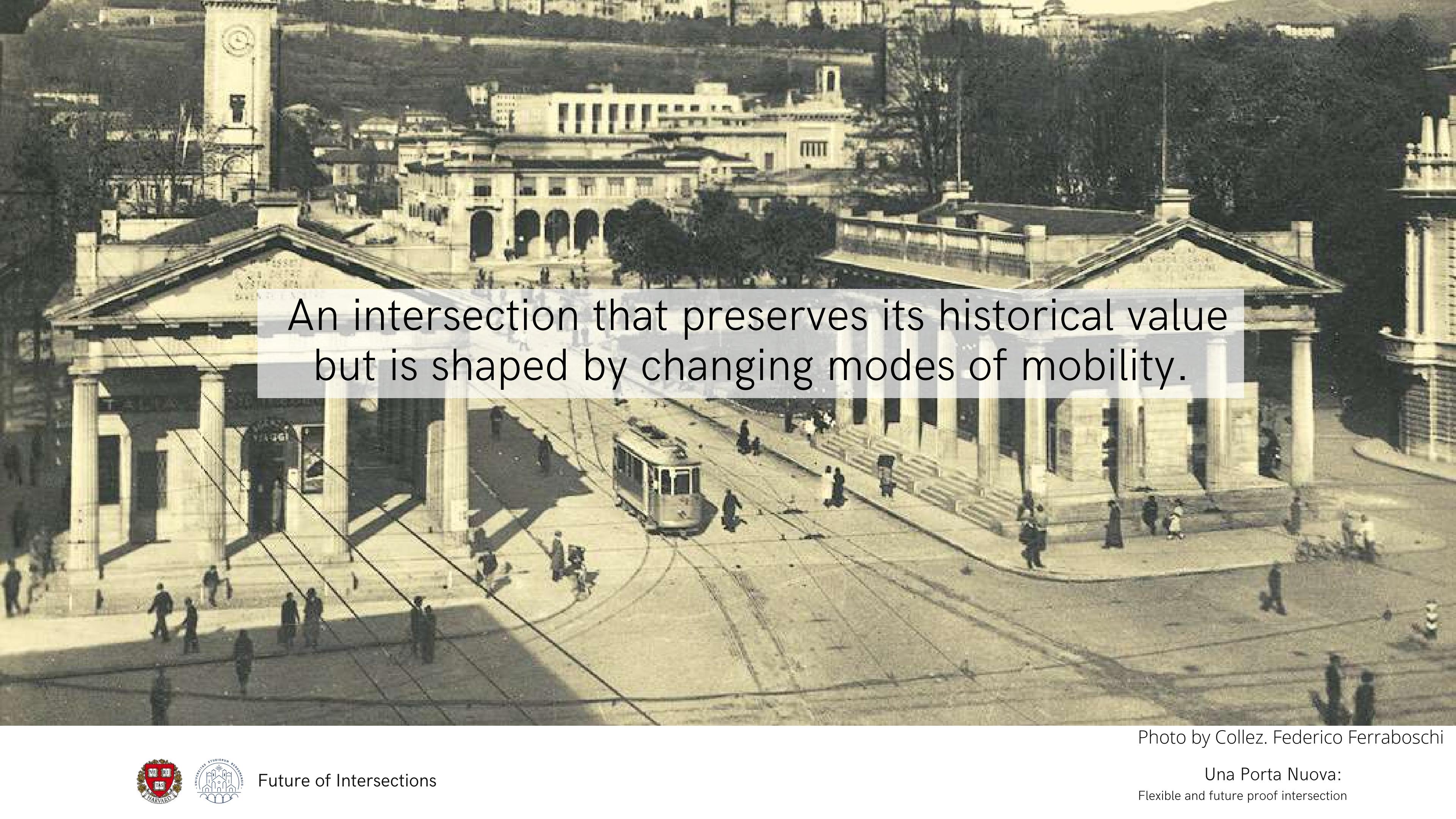
Porta Nuova & Viale Papa Giovanni XXIII

Una Porta Nuova: A Model for Flexible and Future Proof Intersections



Future of Intersections

Una Porta Nuova:
Flexible and future proof intersection



An intersection that preserves its historical value
but is shaped by changing modes of mobility.

Photo by Collez. Federico Ferraboschi



Future of Intersections

Una Porta Nuova:
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03

Roadmap

01 Framing the Problem

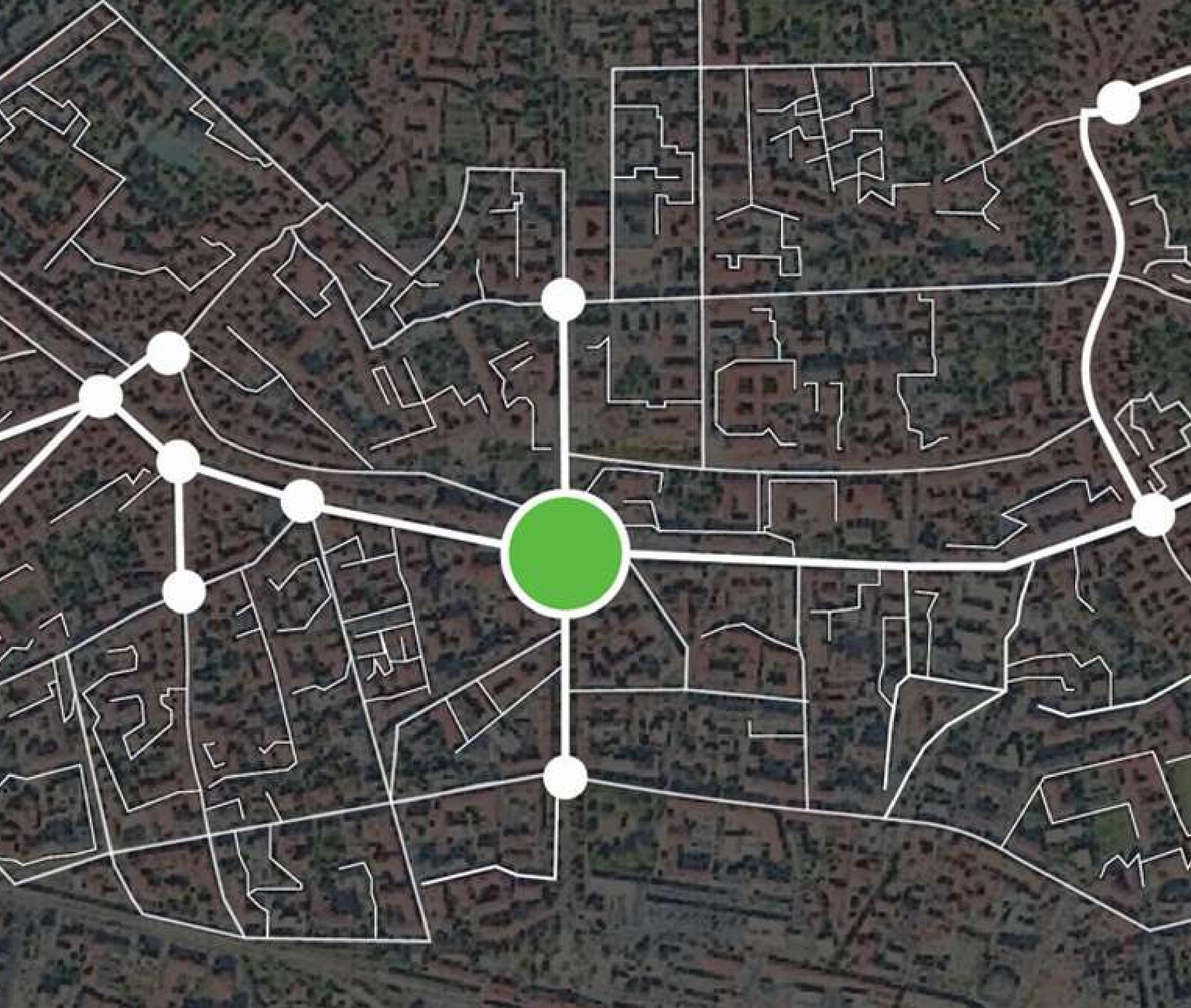
02 Our Approach

Collaborative Governance

Built environment intervention

Urban Technology

03 Impact Evaluation



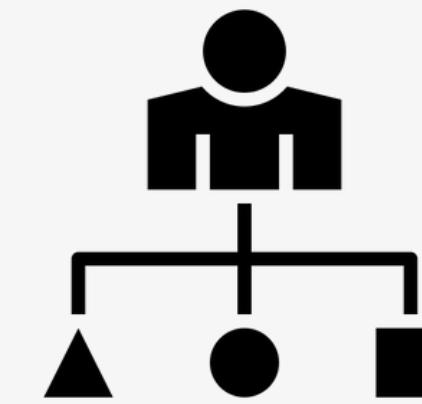
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Objectives

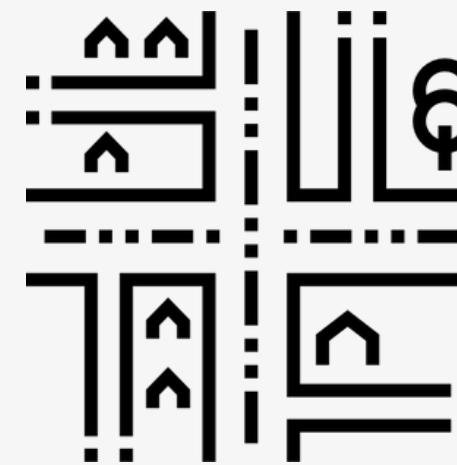
Sustainable Urban Mobility Plan (SUMP) in Bergamo

Framing the problem



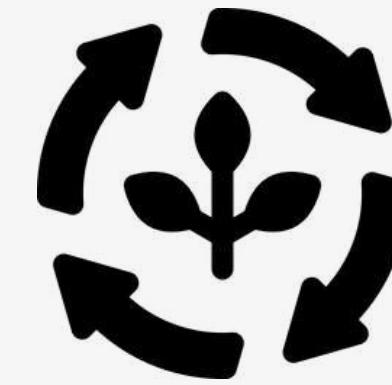
COMPATIBILITY

Making city streets and public spaces compatible with the needs of different road users according to the different needs throughout the day;



LIVEABILITY

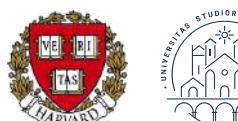
Improving liveability, accessibility and attractiveness for all users by preserving the city's peculiarities and its historical value;



ENVIRONMENTAL SUSTAINABILITY

Reducing air pollution and energy consumption and reducing car dependency in favour of more sustainable modes of transport.

<https://www.eltis.org/resources/case-studies/sustainable-urban-mobility-plan-bergamo-and-its-functional-area>



Future of Intersections

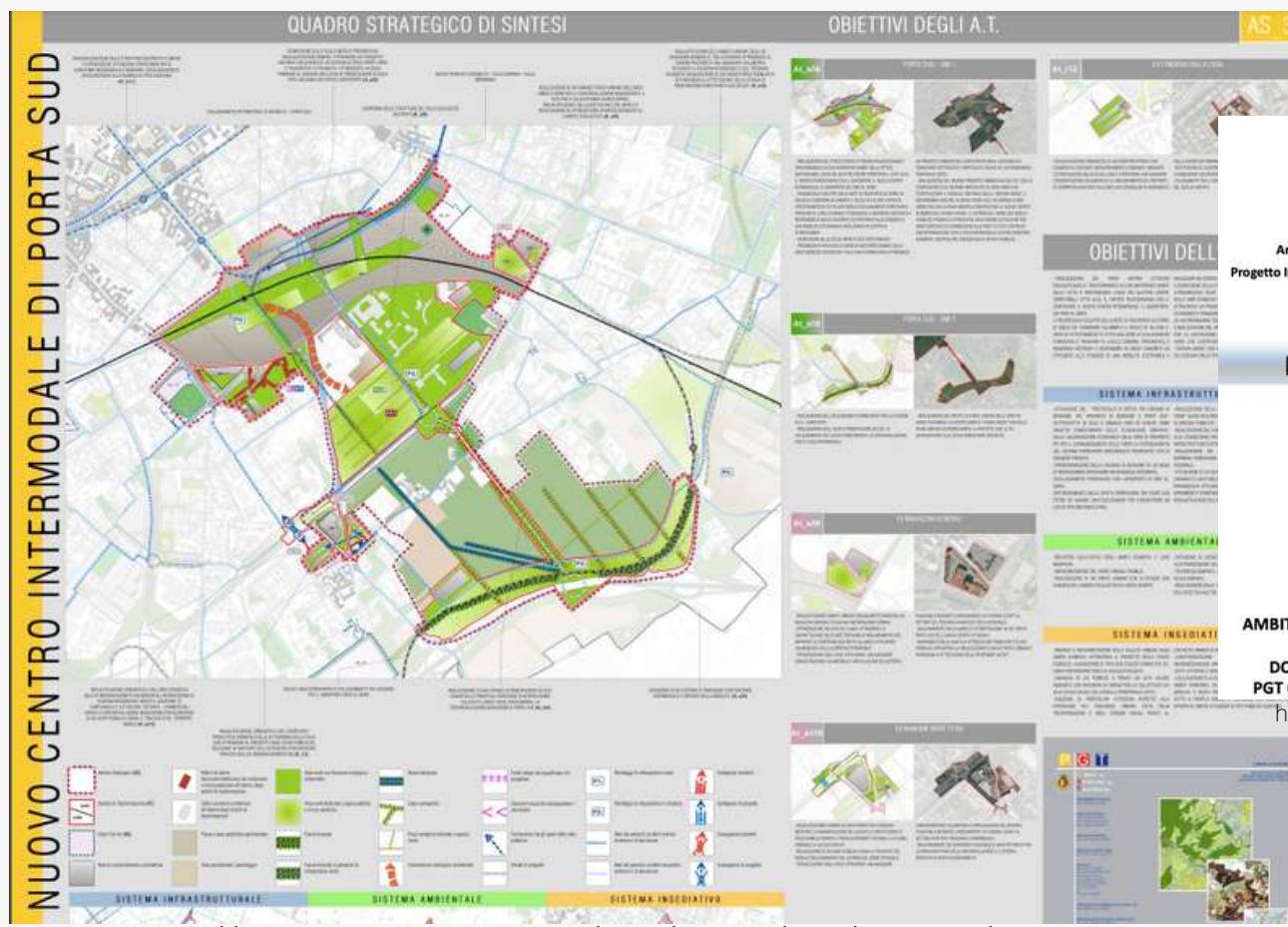
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Rationale

The centre of Bergamo set to become pedestrian-friendly

Porta Sud (central station) set to become a multi-modal node

Framing the problem



Lavori in centro, prende forma il nuovo Sentierone. E per piazza Matteotti c'è l'ok della Soprintendenza

Procedono spediti i lavori nel tratto tra la chiesa di San Bartolomeo e il teatro Donizetti. Davanti a Palazzo Frizzoni l'intervento nella primavera del 2022.

webecodibergamo



Basta automobili davanti a Palazzo Frizzoni: in arrivo Ztl, nuova pavimentazione e più verde

di Federico Rota Da aprile del 2023 gli automobilisti non potranno più svoltare a sinistra da viale Papa Giovanni XXIII, imboccando piazza Matteotti. L'area antistante il palazzo degli uffici comun...

Prima Bergamo / May 7



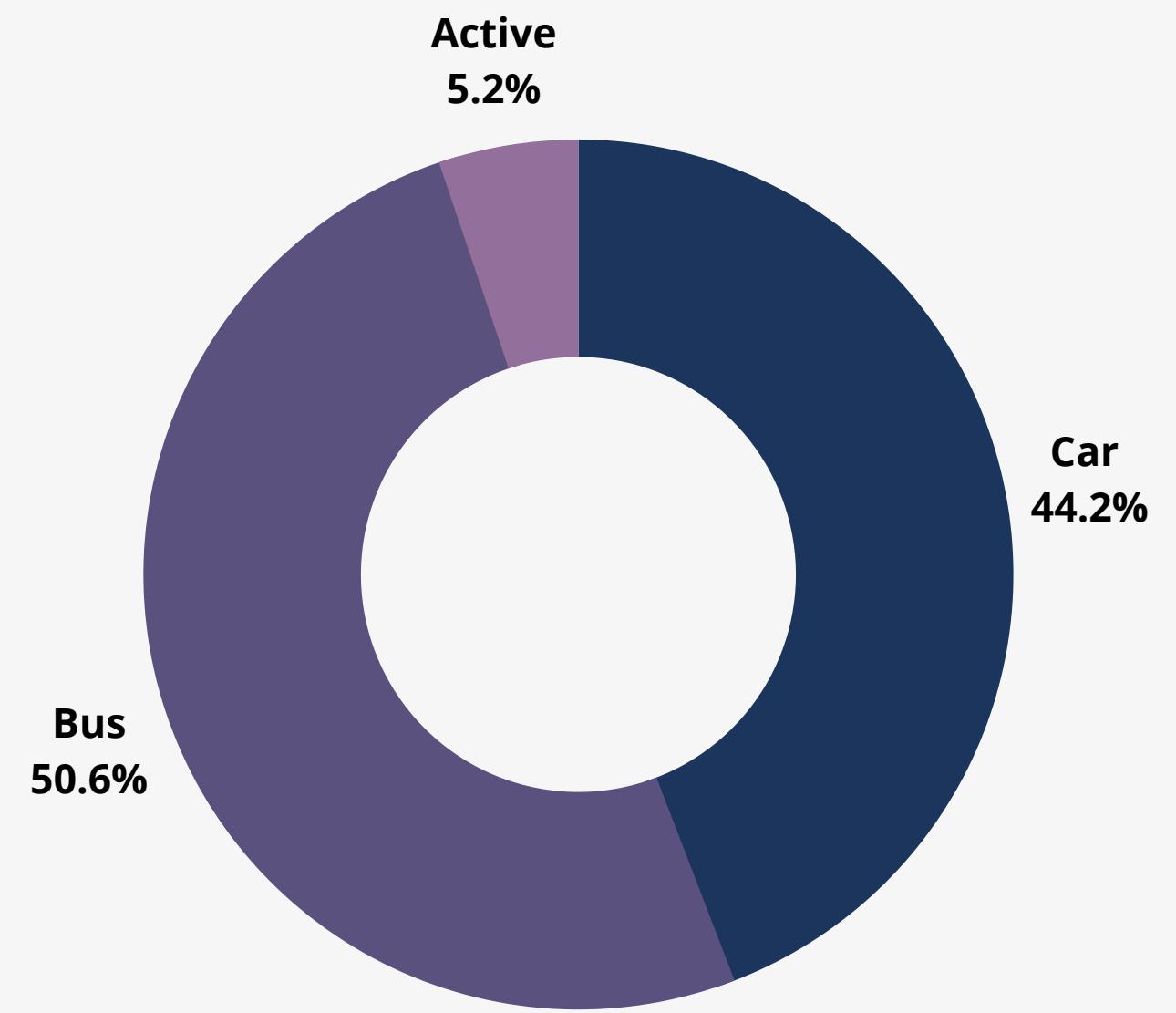
Il futuro di piazza Matteotti è con una vocazione pedonale e più verde

Una Piazza Matteotti più verde, con alberi a sostituire i posti auto, senza la pietra a sostituire l'asfalto e una nuova mobilità

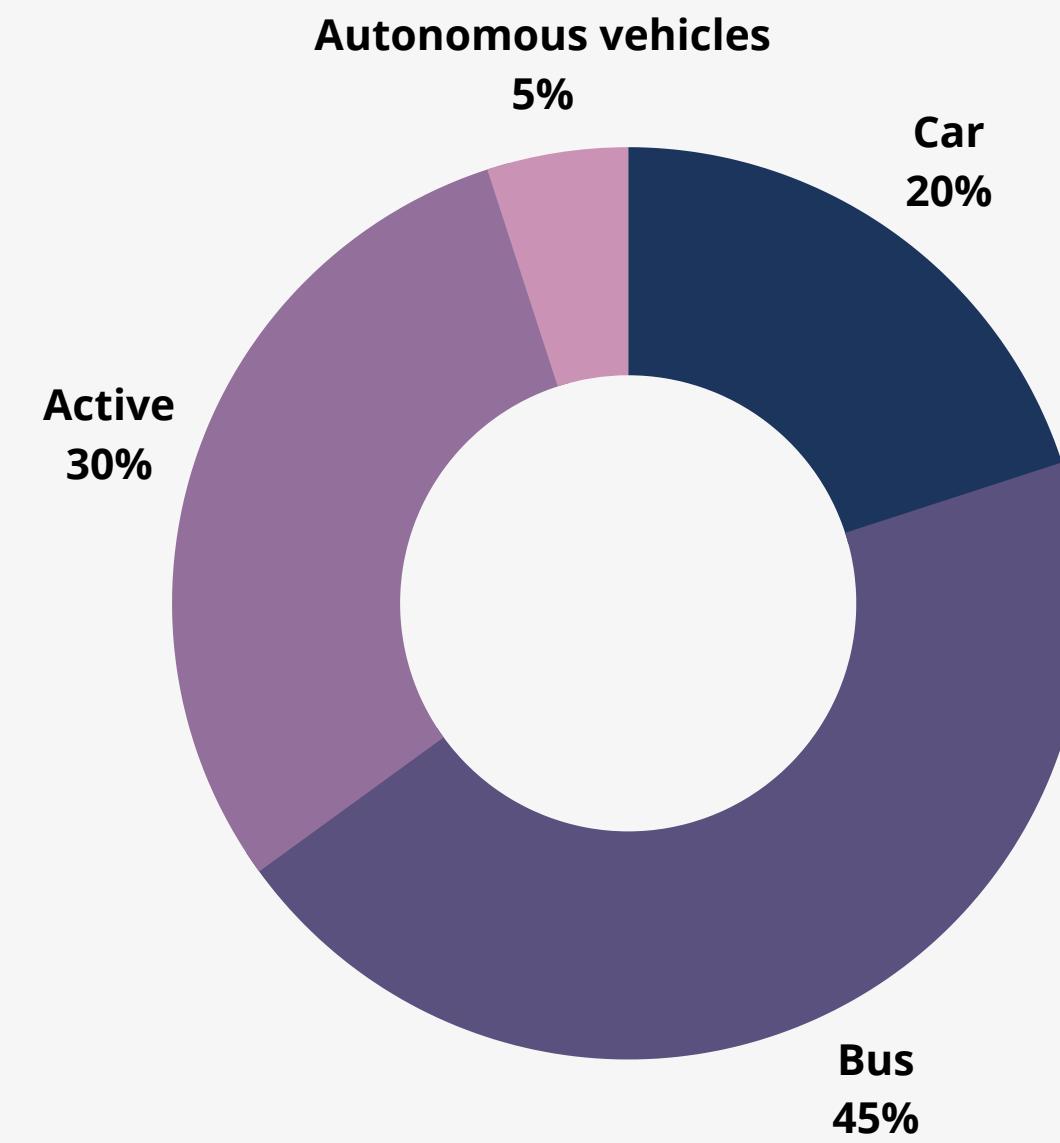


Modes of Mobility

Framing the problem

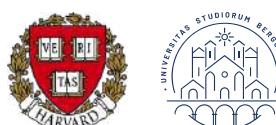


Bergamo City Centre Today



Bergamo City Centre 2040

Cattaneo, Mattia & Malighetti, Paolo & Morlotti, Chiara & Paleari, Stefano. (2018). Students' mobility attitudes and sustainable transport mode choice. International Journal of Sustainability in Higher Education. 19. 10.1108/IJSHE-08-2017-0134.



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The Issue

How can we rethink Largo Porta Nuova as a case study for flexible future-proof intersections where sustainability is at the core?

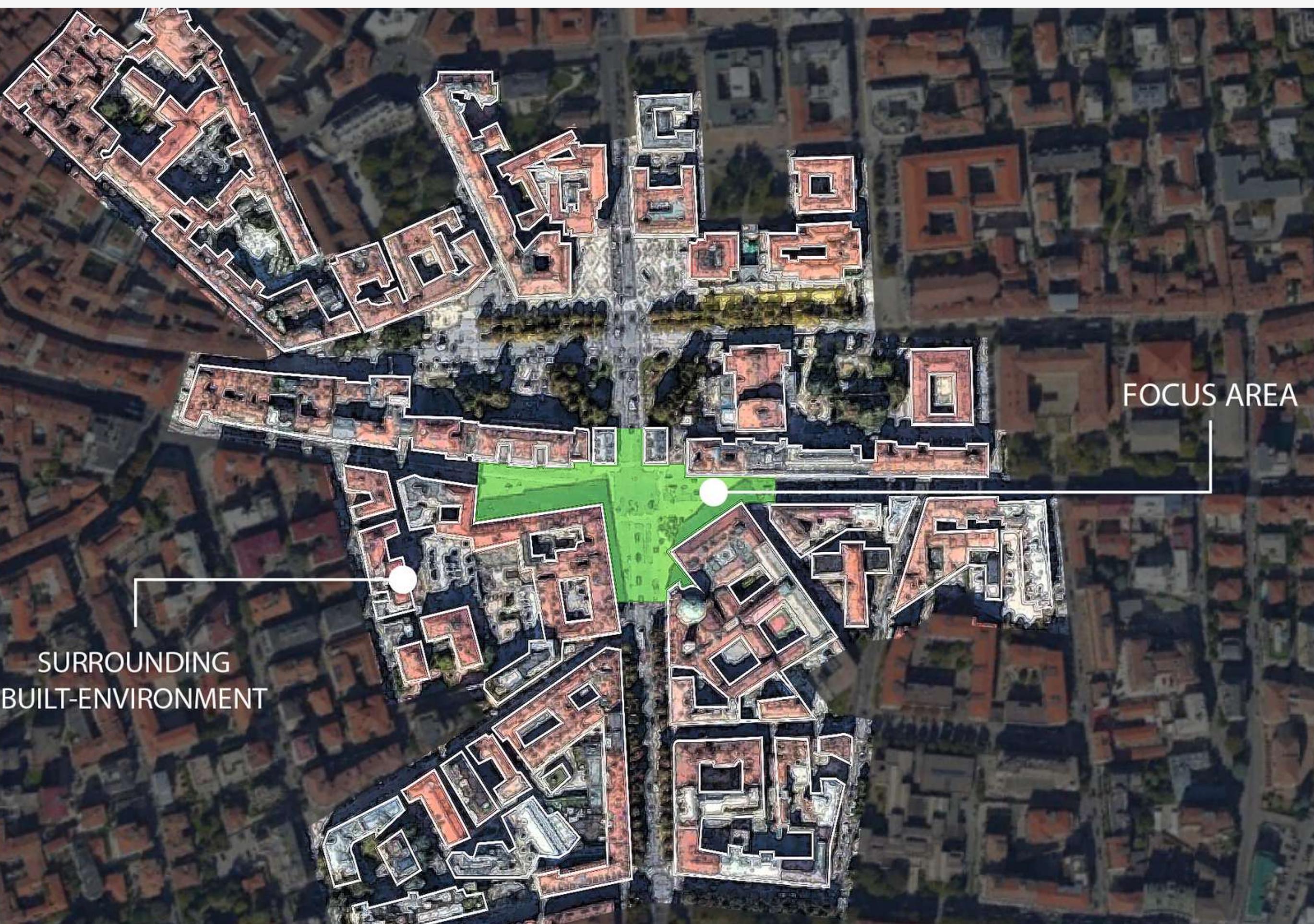
How can we make it future-proof and human-centered, ensuring we can still preserve its historical value, while integrating new and different ways of moving?



Our vision

Envision a space that favours sociability promoting cleaner and light-weight mobility choices.

Increase citizens awareness towards the need of a more sustainable mobility system and favour their participation to the decision-making and re-design process.



Our Approach

Our Approach

COLLABORATIVE GOVERNANCE

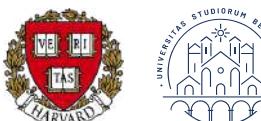
How can we involve relevant stakeholders at each stage of the re-design process?

SUSTAINABILITY & BUILT ENVIRONMENT

What are the unexplored opportunities of using sustainability and green strategies as design tools?

URBAN TECHNOLOGY

What are the opportunities of emerging technologies for a truly smart intersection?



Future of Intersections

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Collaborative Governance

Understanding User Needs



Flexible Boundaries

Can be adapted according to different needs throughout the day.



Pedestrians Centered

Pedestrians are the focus and safety is the key-word.



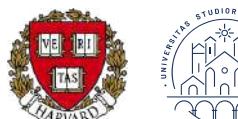
Public Transportation

key in facilitating a multi-modal type of mobility



Future Proof Mobility

Autonomous vehicle systems can be accommodated, providing comfort and traffic optimization.



Collaborative Governance

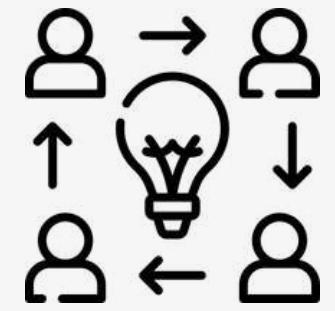
Increasing Citizen Participation

MIT Mocho and CityScope ecosystem integration



Interactive and Accessible Tangible User Interfaces:

People are encouraged to share their own vision about mobility experience and city patterns. It can help with the mobility choices impact prediction.



Favoring Socialisation & Increasing Environmental Awareness:

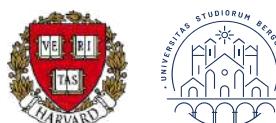
With a tangible user interface, people are allowed to design their different mobility choices.



Data-driven approach and Sentiment Analysis:

Behavioural models can be calibrated through a combination of both individual and aggregate level census data.

<https://www.media.mit.edu/projects/mobcho/overview/>



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Built Environment

Urban Regeneration



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Built Environment

Urban Regeneration

We go beyond the concept of ornamental green. The green element is an essential component of our intervention and has multiple interconnected functionalities that provide social, environmental and economic benefits.

<https://territorio.regione.emilia-romagna.it/paesaggio/pubblicazioni/rigenerare-la-citta-con-la-natura>



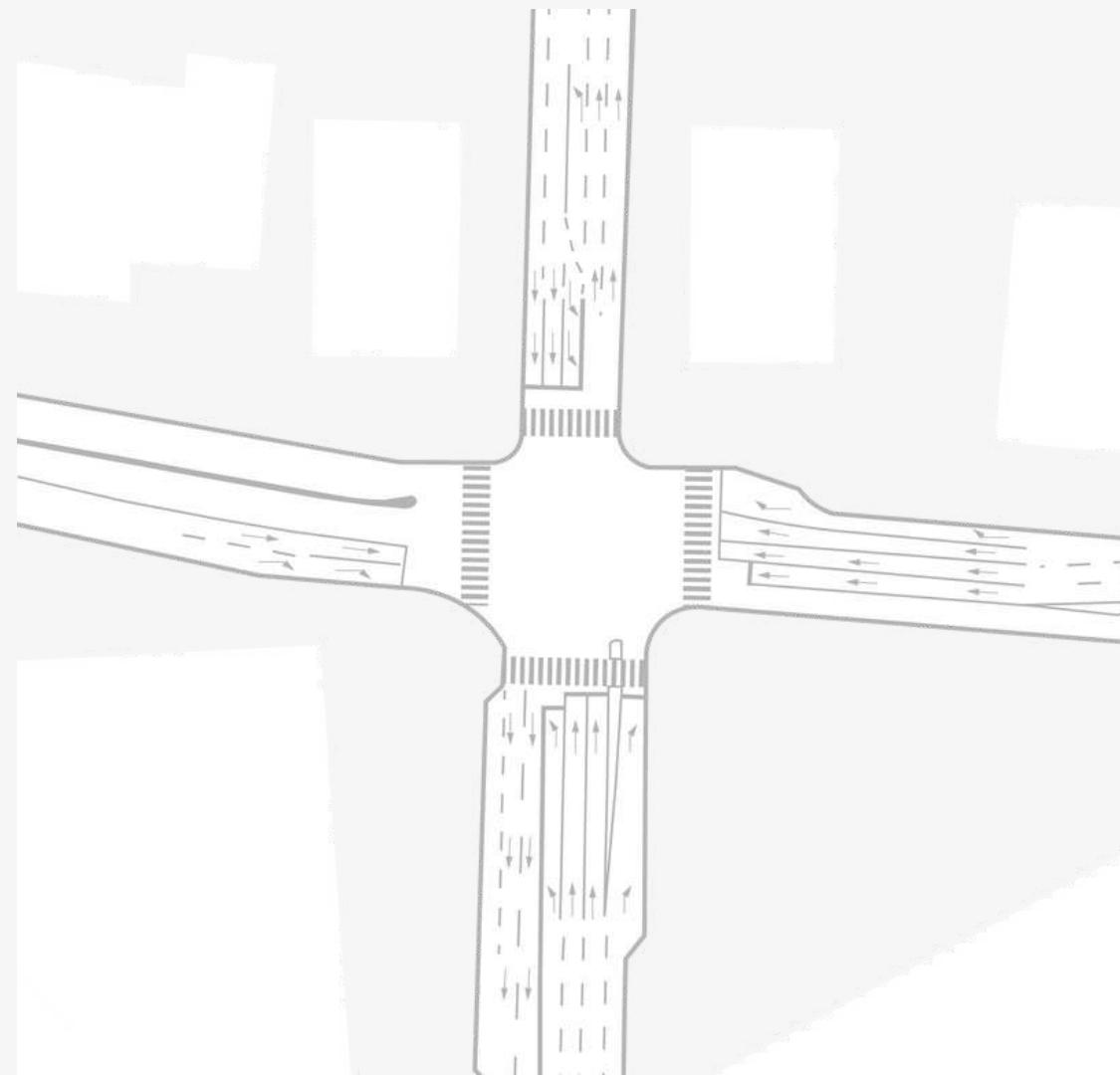
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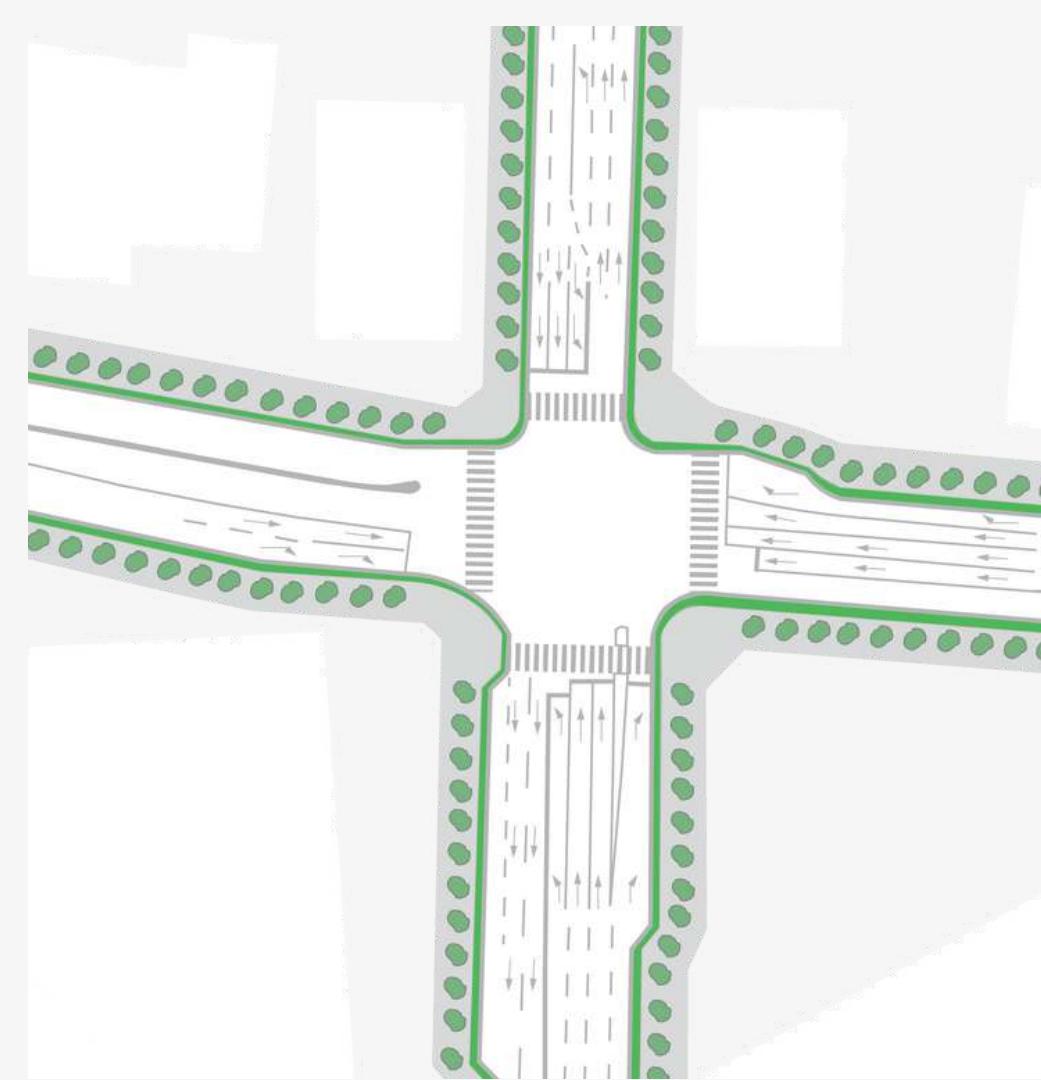
Built Environment

Green infrastructure

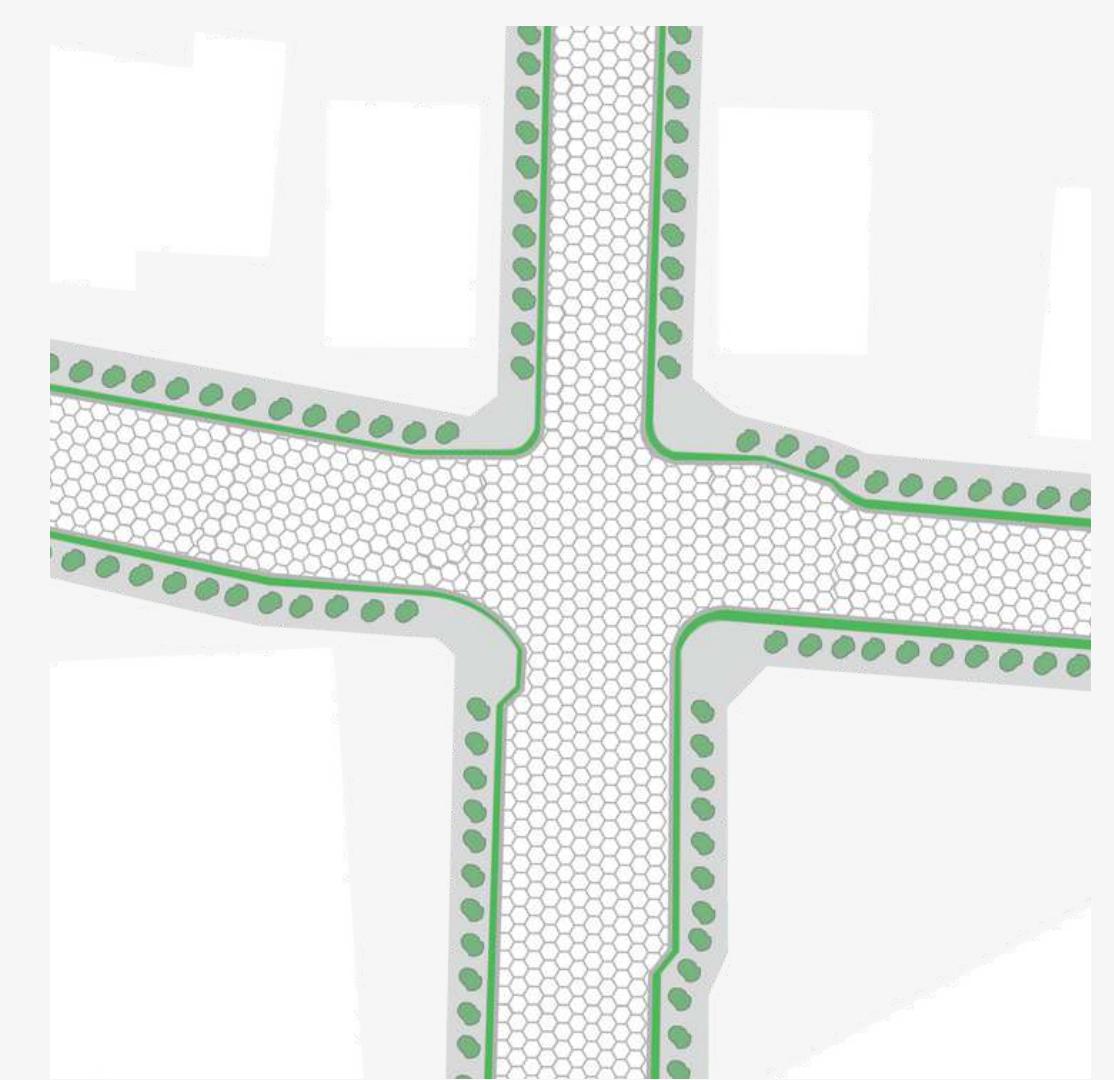
Our Approach - Built Environment



PHASE 1
ANALYZE EXISTING STREET

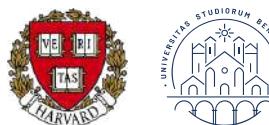


PHASE 2
GREEN INFRASTRUCTURE



PHASE 3
FLEXIBLE MOBILITY SYSTEM

A green infrastructure is defined as a continuous line of parks, gardens, trees and green spaces that links urban and extra-urban areas. By enhancing the green lines already present along the boulevard and around the intersection we aim to facilitate the development of such infrastructure.



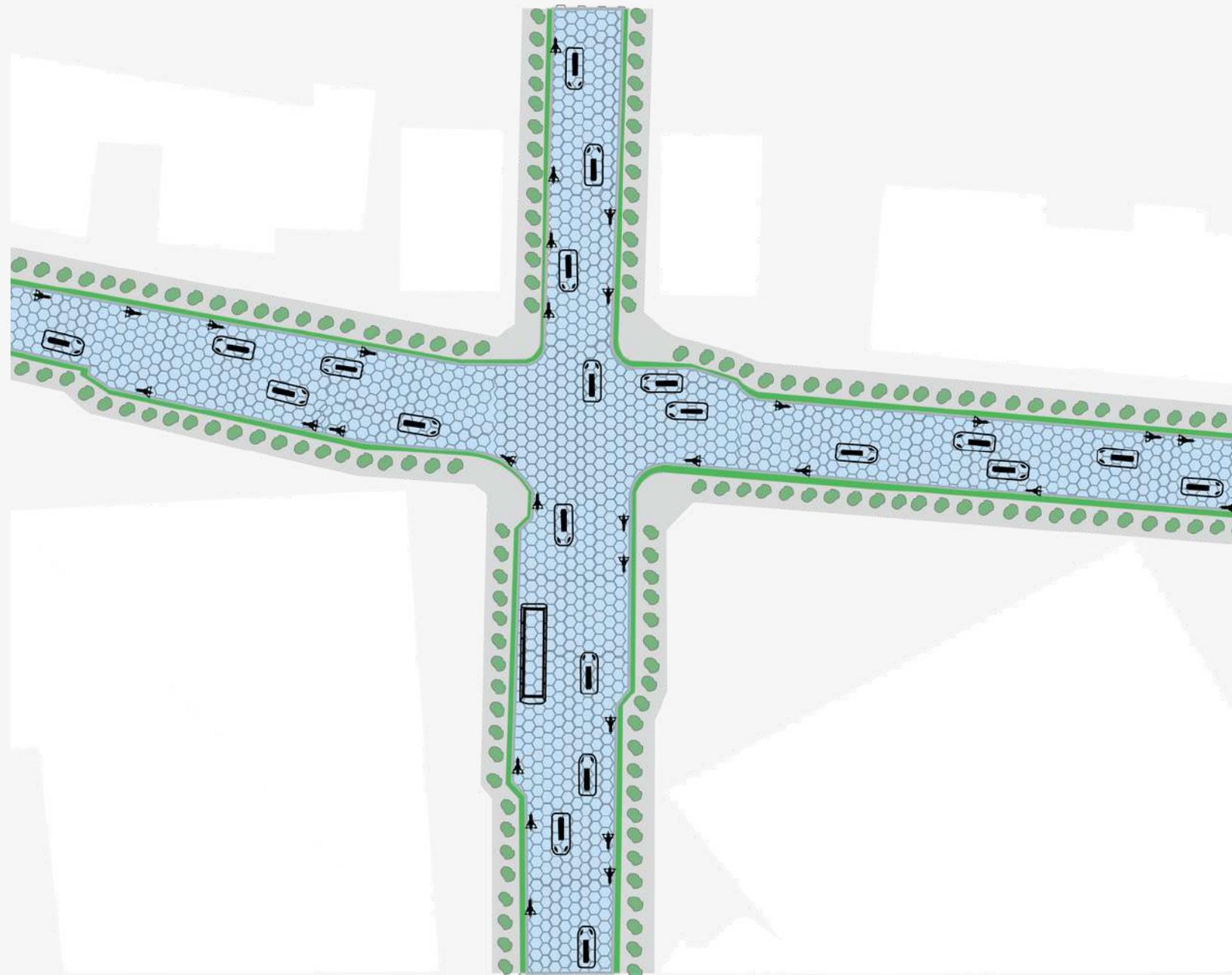
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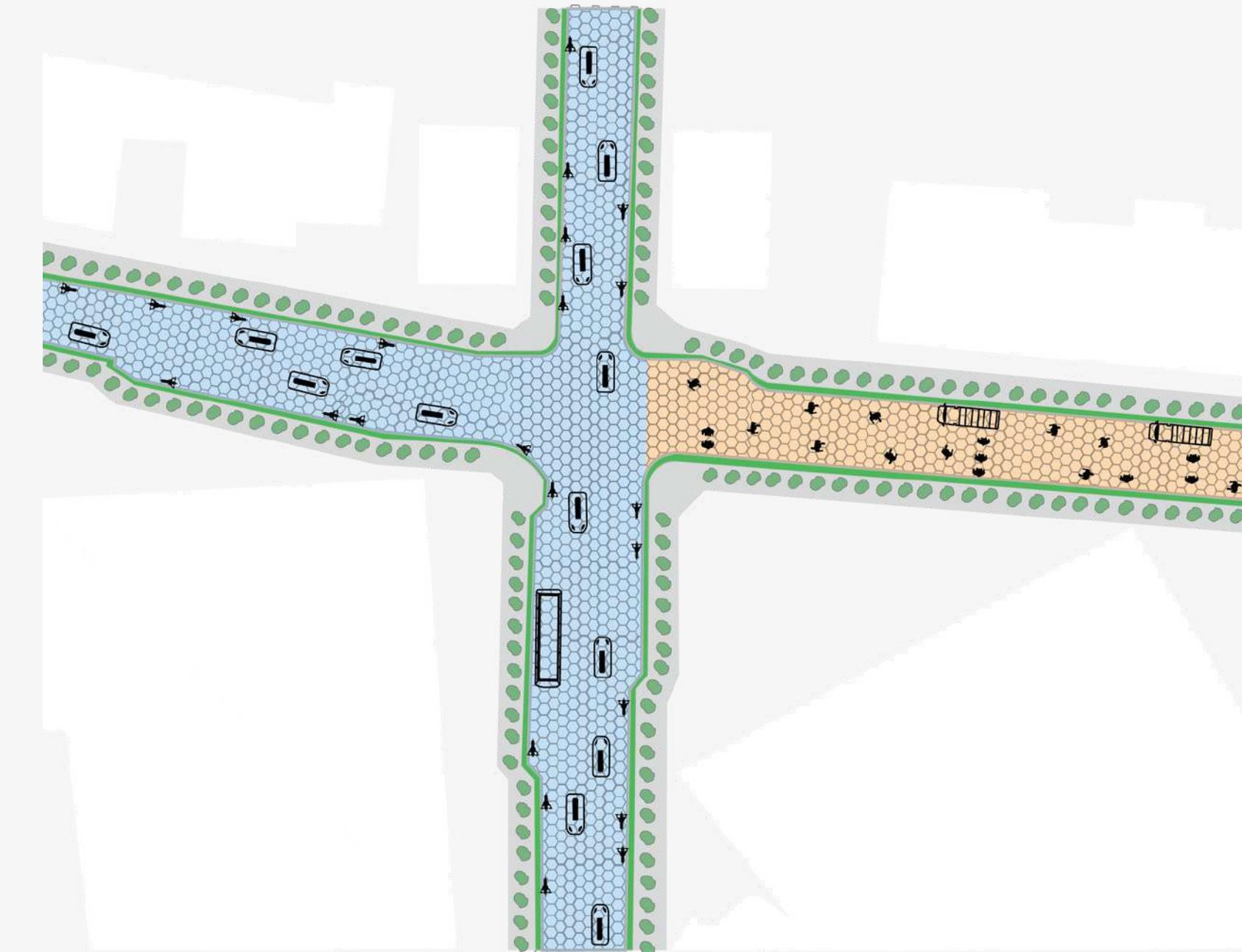
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Scenarios

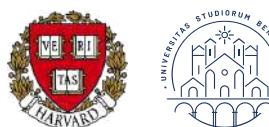
Our approach - Urban Technology



NORMAL DAY - Bikes | Lightweight Mobility| Cars | Buses



ACTIVATED STREET - Specialized space for pedestrians



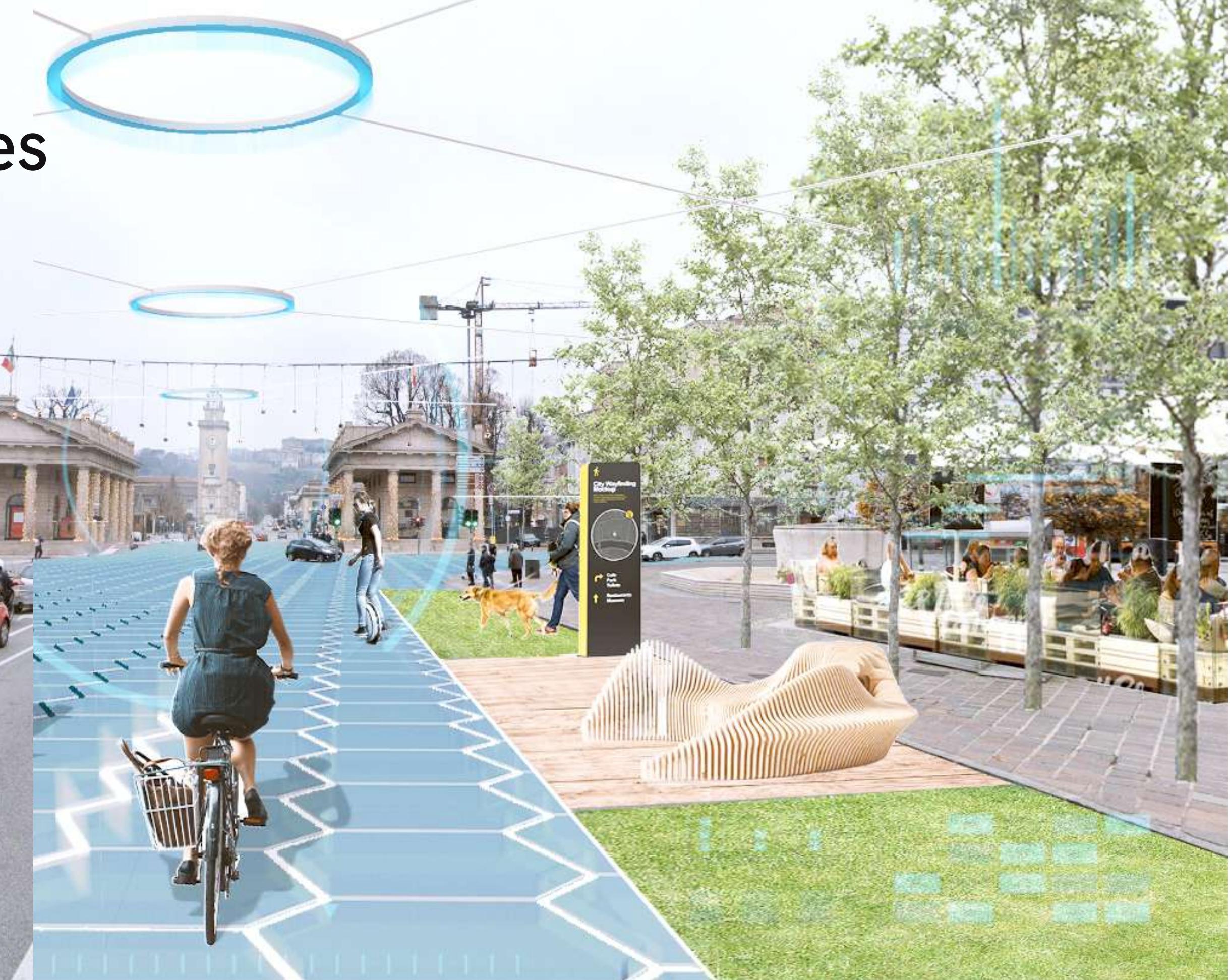
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Urban technologies

Before and After

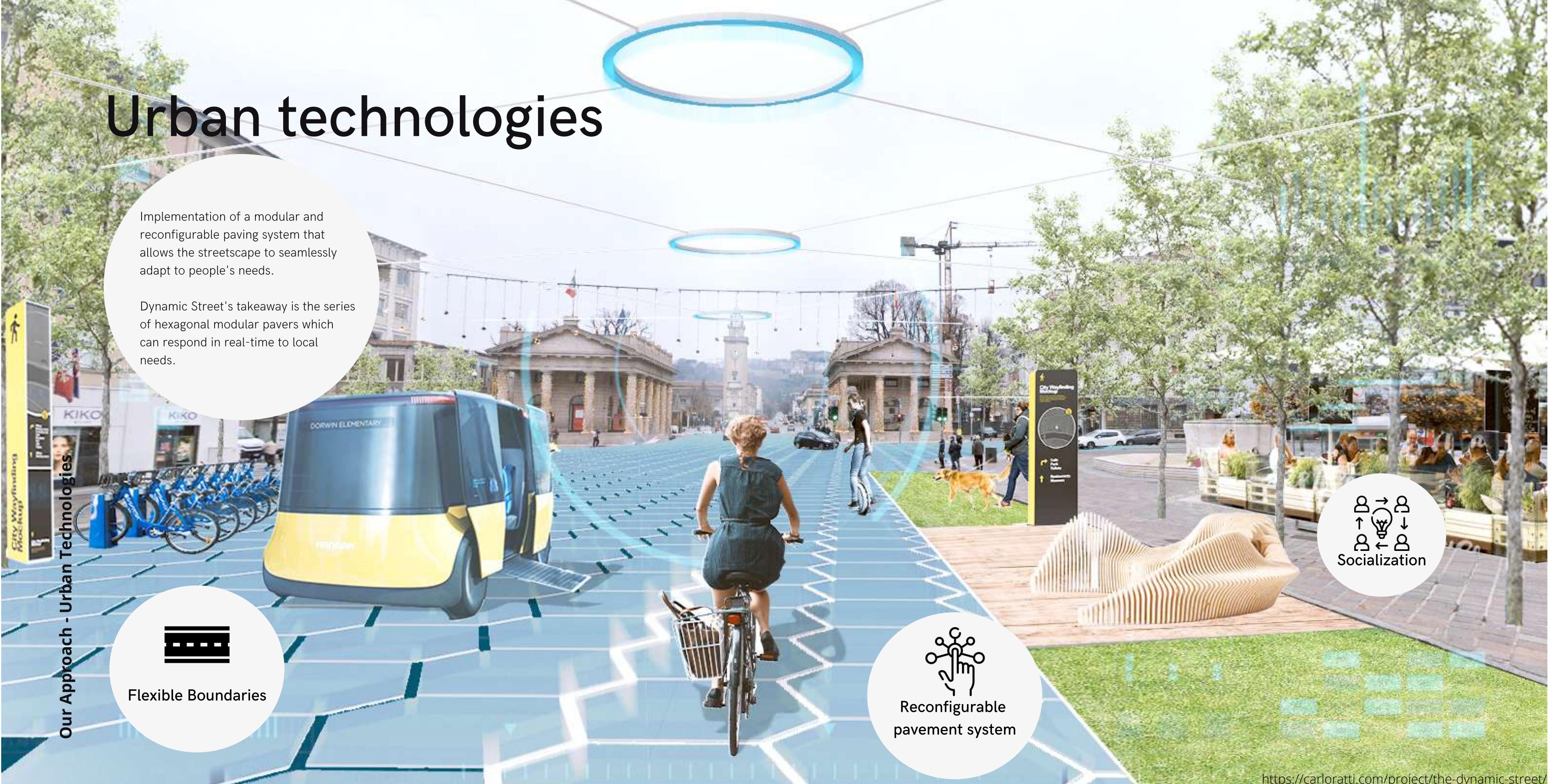
Our Approach - Urban Technologies



Future of Intersections

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Urban technologies

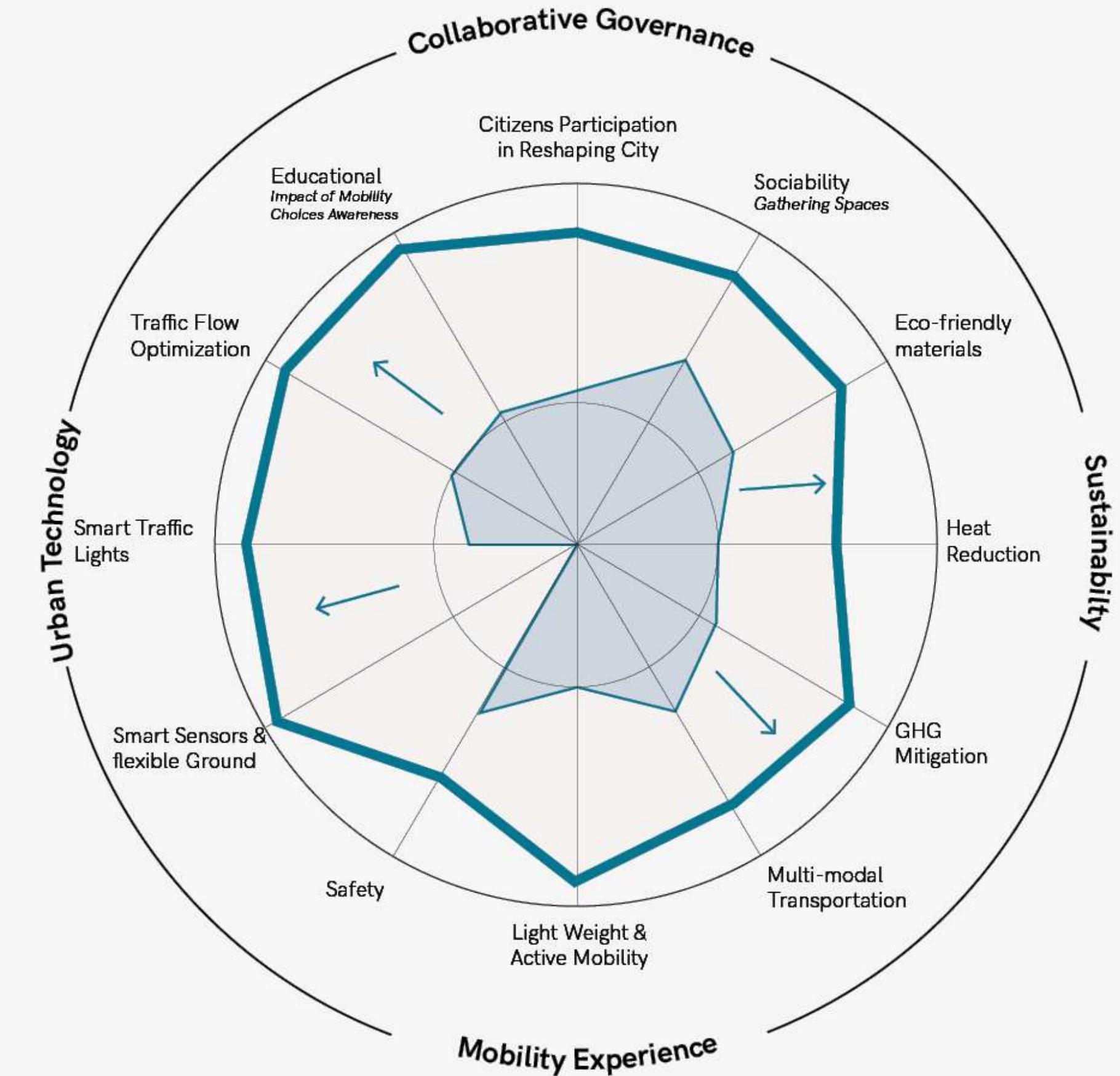


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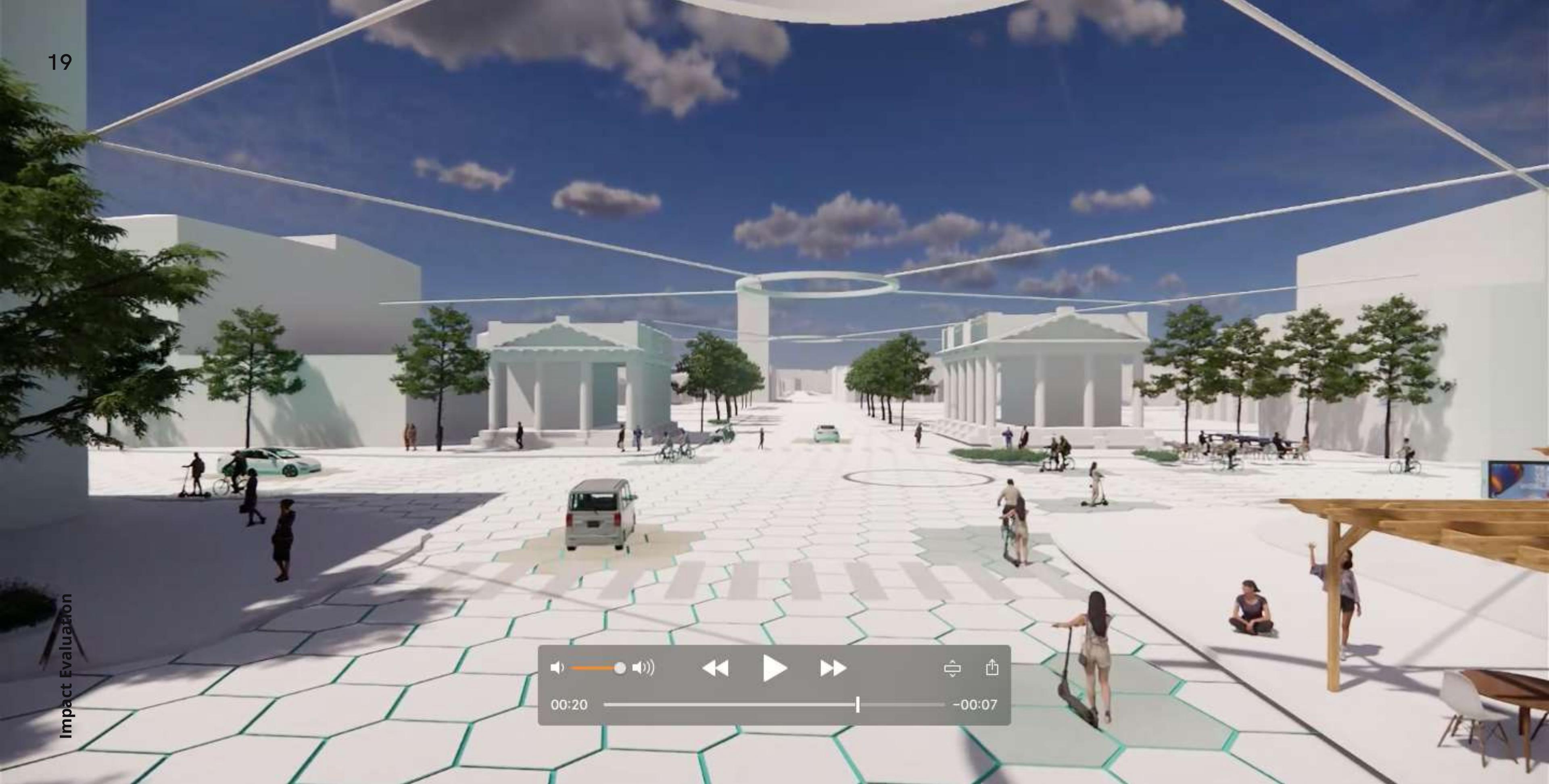
Intervention Impact

Future Intersection Metrics



Impact Evaluation





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