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Rome's GRAB—Great Bicycle Ring Route—as Complex Landscape Infrastructure

Lucina Caravaggi, Cristina Imbroglini * and Anna Lei *

Department of Architecture and Design, Sapienza Università di Roma, Via Flaminia 359, 00196 Roma, Italy; lucina.caravaggi@uniroma1.it

* Correspondence: cristina.imbroglini@uniroma1.it (C.I.); anna.lei@uniroma1.it (A.L.); Tel./Fax: +0039-349-159-8346 (C.I. & A.L.)

Abstract: This paper aims to describe the design strategy adopted in Rome to support and enhance sustainable mobility. It is a strategy aimed at promoting new green infrastructures for urban accessibility, daily sports practice and social inclusion in a historic city, stratified and not very inclined to change. Therefore, the dissemination of this experience is useful for planning a sustainable future for heritage cities that ensures an appropriate and equitable balance between conservation and development. Sustainable mobility is now considered one of the most important challenges for metropolitan areas and large conurbations. In these terms, Rome is a weak city. The city's great bicycle ring route (GRAB), an integral part of the Extraordinary Tourism Mobility Plan 2017–22, is a key infrastructure for increasing more sustainable and healthier modes of travel, even on a local scale. The GRAB project, whose complex infrastructure provides multiple services, differs from a simple cycle path network. Its complexity refers to an ability to attract different types of users in different types of urban contexts—historical settings, monuments, newer neighborhoods and areas of contemporary urbanization. The project results can be measured first in relation to its progress (already funded, in the executive planning phase, with the approval of the first construction sites expected by 2022). A second important result is the participation of institutional bodies and citizens' associations, which will oversee the construction and maintenance work as well as infuse into the project a constant vitality, in a true civic ecology perspective. Third, the results are important for enhancing metropolitan area accessibility and the environmental and social re-activation of the areas crossed, achieved directly and through the project's realization. The GRAB strategy belongs to the new generation of landscape projects that have radically changed the priorities and hierarchies of intervention in the contexts of contemporary urbanization. These projects are based on the ecological analysis of the context but are located close to the fluctuating dynamics of contemporary metropolises and the problems of exclusion and marginality—both spatial and social—linked to the very rapid ecological, economic and demographic transformations.

Keywords: landscape design; sustainable mobility; Rome; urban accessibility; green infrastructure

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1. Introduction

Sustainable mobility is now considered one of the most important challenges for metropolitan areas and large conurbations. Urban accessibility has been included among the UN's Millennium Development Goals (MDGs), which aim to significantly implement safe, accessible and sustainable public transport systems for all by 2030, with a view to significantly reduce climatic and environmental risks: "Without doubt, an unsustainable transportation network poses numerous challenges. For example, the transport sector is responsible for about one quarter of greenhouse gas emissions. […] Sustainable transportation, on the other hand, helps create the infrastructure on which we can build a sustainable future, providing access to commerce, jobs, markets, education, health care and other services that improve people's lives" [1].

The UN-Habitat program defines mobility as a key topic of urbanization, a "circulatory system" that, with its associated infrastructural network, shapes the urban corpus by defining the spatial footprint connected to roads, transportation systems, buildings and open spaces [2].

1.1. New Urban Prisoners

In these terms, Rome is a weak city, whose inadequate infrastructure is the legacy of the city's recent growth phases (in terms of population and urbanized areas), which have not kept pace with adequate development policies.

Recent research by our DiAP research group in Rome cites an overlap between population and mobility data that reveals an overall condition of effective "urban imprisonment" linked to the great difficulty of moving from one side to the other of the urban space [3]. Between 1992 and 2016, the resident population outside the GRA (the major beltway surrounding Rome's inner city) increased by almost 64%, making it Italy's most populous metropolitan area, with 74% of the entire population of the Lazio Region now residing therein [4]. Rome is also the metropolitan capital that demands the greatest degree of daily mobility for work and study (1,340,818 systematic commutes, compared to 650,396 in Milan and 424,583 in Turin), with consequently enormous pressure on the available urban infrastructural resources of public transportation, roads and parking facilities [5]. Lastly, Rome is among the metropolitan municipalities with the highest level of self-containment; 95.8% of daily commutes begin and end within its own territory, stressing the high level of the city's gravitational centripetism [6]. Hence, Rome ranks as a resounding last for travel times; only 21.8% of commuters take less than 15 min in daily commutes, 15.8% over 45 min and 11.4% over 60 min [7]. The strong gravitational pull of the central area negatively affects movement dynamics within the city. In particular, almost 64% of all systematic travel (by residents and tourists) takes place with private vehicles, so that roads, motorways and motorway junctions are infrastructures increasingly relied on for commuter transit, even for local movement (the total costs of congestion for the EU economy are estimated at over EUR 240 billion per year, or almost 2% of the EU's GDP) [8]. The interaction between the needs of rapid transit and local sorting produces a high rate of accidents and overall roadway danger (in 2016, 13,689 accidents and 144 victims were recorded in Rome's inner city, 2,915 accidents and 90 deaths in the extra-urban ones) [9], as well as significant noise and air pollution. Regarding this last aspect, a recent Legambiente report has placed Rome, even during the extraordinary closures imposed by the COVID-19 lockdown from March to May 2020, at the 35th place in the ranking of the Italian provincial capitals that have exceeded the average annual fine particle rate (PM10) indicated by the WHO guidelines, with its average of 26 μg/m3 [10].

1.2. Benefits of Cycling

The main goal of reducing private vehicular traffic is not only to reduce air pollutants but also to upgrade and make safe run-down and marginal areas by favoring forms of active protection, social activities, education and well-being, as well as offering greater cultural and economic opportunities. Likewise, it is now certain that the advantages of cycling do not concern only specific or isolated sectors. They can also be perceived in many more intimately related areas, impacting on key issues at the basis of the three dimensions of sustainable development—environment, economy and social activities. Among others, the benefits of cycling involve the following:

- Environment and climate: In 2018, the European Cyclists Federation (ECF) published the latest update of its study on the benefits of cycling [11]. The positive effects on the environment and climate hinge on three types of data. (1) Containment of CO_2 emissions: If we consider the entire European cycle network, a more structural use of bicycles would reduce CO2 emissions across the EU by more than 16 million tons per

year, an amount equal to the total annual emissions of Croatia, for a value of between EUR 600 million and 5,630 million, in accordance with the Social Cost of Carbon [12]. (2) Reduction in air pollution for a value of EUR 435 million: It is to be noted that air pollution presents the greatest risk for environmental health in Europe, responsible for 400,000 premature deaths each year [13]. (3) Reduction in noise pollution, for a value of EUR 300 million: Noise pollution caused by vehicular traffic causes nearly 8,900 premature deaths and nearly 800,000 cases of hypertension per year [14]. Clearly, cycling infrastructure needs less space than automotive infrastructure. If less infrastructure is needed, this means less paved over soils, less soil pollution and less water pollution.

- Urban health (physical and mental): Active mobility has a positive impact on health not only in terms of greater life expectancy and quality (mortality and morbidity), but also of economic savings for the community (lower healthcare costs) and gains in productivity. At the Europe-wide level (EU-28), cycling prevents 18,110 premature deaths per year. This corresponds to an economic value of EUR 52 billion per year [15]. Physical activity related to bicycle use contributes to preventing numerous serious chronic diseases, such as type 2 diabetes, cardiovascular diseases, osteopathy and some forms of cancer. Moreover, a recent British study showed that bicycle commuters from home to work have a lower mortality risk from heart disease (-52%) and cancer (-40%) [16]. At the same time, active mobility reduces absenteeism from work by increasing the average productivity of employees who cycle to work regularly by 1.3 fewer sick-day absences per year. This means a gain of almost EUR 5 billion per year for employers throughout the EU (an amount corresponding roughly to the direct and indirect cost of absences due to illness to the Austrian economy). The recent lockdown imposed during the most acute phases of the Sars-CoV-2 pandemic also stressed the close relationship between mental health and urban mobility. Several studies indicate that active mobility reduces depression, anxiety and other mental health problems. In a large meta-analysis of relevant studies, physical activity was also linked to 17% lower odds for developing depression [17]. The common benefits from physical exercise (increased blood flow, release of endorphins and reduction in general stress levels) seem to have even more positive effects on some categories of the most fragile population [18], such as the elderly (engaging in moderate physical activity reduces the risk of Alzheimer's disease by 29% and that of cognitive decline by about 26%) [19] and children (a higher concentration of children cycling or walking to school led to, 4 h after arriving in the classroom, the concentration levels of children who cycled or walked to school being 8% higher than those who were brought to school by car) [20].
- (Sustainable) tourism*:* There are an estimated 2.3 billion cycle tourism jaunts per year in the EU, which represent a total economic value of EUR 44 billion and 525,000 jobs. In comparison, the cruise ship industry represented an economic value of EUR 38 billion and 326,000 jobs [21]. Much of this wealth is produced thanks to the EuroVelo cycle system, which boasts 17 long-distance cycle routes connecting 42 European countries, for a total of over 90,000 km. Italy is the fourth country by extension of EuroVelo itineraries (about 5000 km). The data on national cycle tourism are constantly growing [22]; in 2019, it generated almost 55 million overnight stays (6.1% of the total) for a total cost of EUR 4.7 billion (5.6% of the total). The extent of cycle tourism on overall tourist demand in Italy is, on average, 6% and reaches 15-20% in the regions with the highest level of cycling tourism. This is the case of Trentino-Alto Adige, where the economic impact generated by cycling tourism is approximately EUR 338,000 per km of cycle path. The Extraordinary Tourism Mobility Plan 2017-2022 goes in this direction [23], being a project for constructing 1,000 km of new urban and metropolitan area cycle paths and 1,626 km of tourist paths. A further EUR 600 million from the Recovery Fund have recently been added to the EUR 1,122 billion financing allocated for the 2016–2024 period.

- Social inclusion and urban accessibility: Accessible transport also has a positive impact on social inclusion and community integration. Pedestrian-friendly neighborhoods encourage walking and cycling by encouraging greater interaction among neighbors, increasing a sense of community in residents and lessening the risk of social exclusion by encouraging a perception of urban safety [24]. In fact, perception appears central. Recent research concludes that people who rate public transport as "good" are almost three times more likely than those who rate it as "poor" to access public services such as transportation, health care, shopping or education. They are also less likely to report feeling pressured, dissatisfied with life, or having mental health problems [25]. In terms of equality, the yearly costs of owning and using a bicycle only amount to around 5% or 10% (for electric bicycles) of the costs of owning and using an automobile. By providing a cheap transportation option, cycling can help make work and participation in social life more accessible to disadvantaged population groups [11].

1.3. Rome, a Cyclable City

For many years, Europe has played a leading role in developing and disseminating a new culture of urban mobility for improving accessibility, the quality of life and the urban environment [26]. To this end, in 2011, the UPSM—Urban Plan for Sustainable Mobility [27]—was introduced in all major European cities. It is a compulsory planning tool for mobility in the inner city and outlying urban areas, used to define new systems of collaboration between private and local public transport, cycle and pedestrian mobility, and door-to-door inter-modality and -mobility, road safety, traffic flows, urban logistics, parking, mobility management and ITS (intelligent transport systems). In Rome, UPSM has outlined the following main objectives [28]: for modal rebalancing, reduction in automobile use (from 49.4% to 37.4%), increase in TPL (from 29.6% to 42.1%), bicycles (from 0.6% to 5.1%) and shared mobility (from 0.4% to 2%); for environmental matters, a reduction in C02 from 3,856,431 tons/year to 3,140,903 tons/year by 2030 (−18.6%); a reduction from in NOX 9,363 tons/year to 7649 tons/year and a reduction in PM10 from 639 tons/year to 518 tons/year. In this context, the enhancement of cycle mobility is to be considered a strategic objective mainly connected to the construction of almost 300 km of new cycle paths in the most congested areas of the city, in order to serve frequent, less than 5 km, daily, habitual travel needs. In addition to expansion, UPSM stresses the need to enhance the 254 km of existing cycle paths by placing them in a network, scaling the entire system in both a central and a local network and interconnecting the latter as much as possible to the other sustainable, soft transportation modes. The key project for implementing UPSM is GRAB, Rome's first cycle route, designed specifically for tourism within the aforementioned 2017-22 Extraordinary Tourism Mobility Plan, but developed as a key infrastructure of expanded urban mobility and for increasing more sustainable and healthier travel modes, even on a local scale. The Cycle Route project differs from a simple cycle path network in that its route communicates with the city it crosses, starting with importing processes of enhancement and redevelopment of physical urban spaces currently neglected, abandoned or run down. Spaces of excellence and daily urban functions are identified and networked by the Cycle Route also thanks to the maximum interconnection that the route has with other "soft mobility" infrastructures—existing and planned cycle paths—and the LPT network, with reference to rail.

2. Materials and Methods

The GRAB project responds concretely to a new green, clean, climate-neutral [29] inter-modality based on the idea that cycling and walking as a renewed structural mode of crossing town can function as a means of interacting between subjects and areas, capable of nurturing new, healthier, more inclusive lifestyles and of revivifying a landscape heritage of high ecological and social value.

Rome's cycle route is a complex infrastructure, an essential public work for urban living, also thanks to the following multiple services it offers along the entire route (Figure 1):

- Sustainable infrastructure: GRAB promotes and supports forms of sustainable mobility by guaranteeing continuity, recognizability, security and connection of pedestrian and cycle paths; opportunities to exchange with public transport networks; crucial services.
- Tourist infrastructure: GRAB strengthens Rome's cultural offering and supports tourism not only by connecting monuments and central places of the historic city but, above all, by offering unusual viewpoints; new information systems and multimedia visit opportunities.
- Green infrastructure: GRAB connects urban and nature parks and historic villas in the form of a socio ecological green belt.
- Local infrastructure: a 10 min neighborhood system that guarantees daily connection (to services, schools, etc.) and supports and promotes daily sports practice.
- Agro-food infrastructure: supports and enhances the urban agricultural sector.

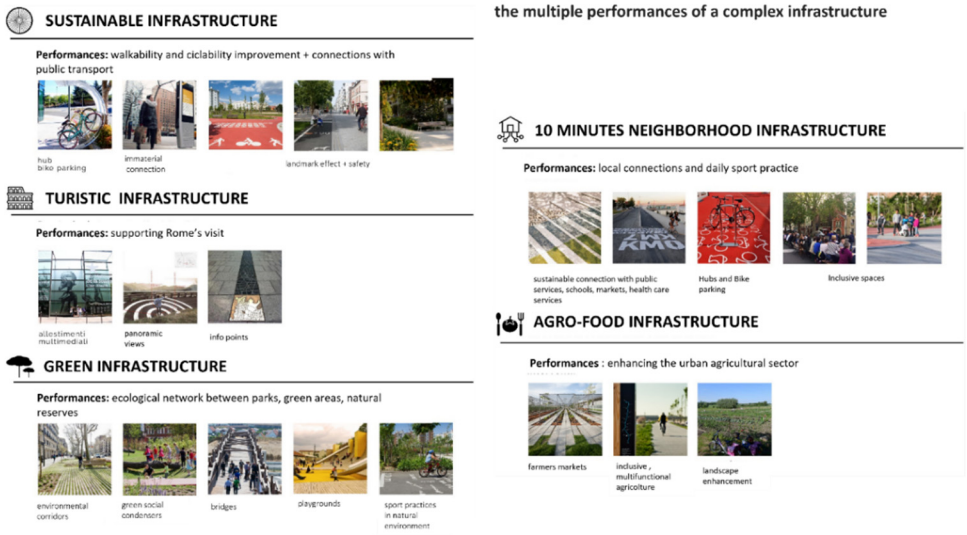


Figure 1. GRAB, multiple services of a complex urban infrastructure**.**

The complexity of the proposed infrastructure lies in its ability to attract different types of users (tourists, residents, cyclists, pedestrians, sportspersons, students, people with different skills, etc.) and different types of urban contexts, such as historical settings, monuments, newer neighborhoods and areas of contemporary urbanization. It is intended as more than just a cycle path—a continuous linear construct, recognizable, accessible and safe for people who move around the city with very different purposes, rhythms and methods.

In order to correctly harness these variables, the final design phase has employed two key, distinct but interconnected tools that, in some respects, complement one another.

First, the Participation Workshops enhance an original idea born from a "grass roots" proposal that has developed and finalized the project's original intent. By maintaining uniformly functional performances along the entire route, in both the city center and the outlying areas, it responds to the demands made in the process of collective mobilization, from which GRAB originally came into being, i.e., to provide a democratic response to the need for urban mobility and connection of the outskirts; to generate relationships between different communities; to create opportunities for sociality and inclusion; and to become a fountainhead of energy, ideas and proposals for improving the city.

Second, the Guidelines project is a manifesto that clearly outlines the intent of the GRAB project, an ongoing document inspired by the comparison among the multiple subjects involved in the project (technicians, administrators and the civil society) and by numerous forms of direct scrutiny (inspections, technical checks, in-depth analyses and evaluations of alternative possibilities). Consistent with these assumptions, the Guidelines are divided into sections that orient the project's multi-faceted aspects, that is, verifying its layout, choosing technical solutions and materials, and defining its construction. Some of the Guideline contents have undergone fine-tunings, reviews and deeper elaborations in the Participation Workshops.

2.1. Participation Workshops

The purpose of the Participation Process was to gather the contributions (ideas, suggestions and needs) of the civil society (citizens, associations and stakeholders) to be technically evaluated and then integrated into the project.

The process was divided into five territorial participatory workshops called "GRAB workshops". Each workshop, devoted to a different facet of urban redevelopment, offered an opportunity to experiment with a precise, open dialogue for working and planning on the issues of urban accessibility, developed through a project proposal directly with the interested social subjects. All the workshops, starting from the discussion around urban and local accessibility, in addition to comparing possible alternative routes, went on to clarify the relationship between the cycle path and other sustainable mobility modes, as well as developing new green economies and supporting slow, quality tourism.

Operationally, the project ideas outlined by the designers were illustrated in terms of performance objectives advanced by the social subjects concerned. Their observations and proposals were then collected through a questionnaire containing 13 questions (single, multiple and open answer). All the answers collected were cataloged by type (accessibility, interconnection, paths, materials, safety, etc.) in order not only to gauge the relevance of the different questions posed but also to verify if it was possible to include them as FAQs within the project.

2.2. Guidelines

The Guidelines were formulated to keep track of the numerous variables that characterize the design of a complex infrastructure such as GRAB's. In particular, they were formulated to ensure overall continuity and recognition of the route by interpreting and enhancing the specificities of the different urban areas it crosses. In other words, it is a question of guaranteeing certain key project standards along the entire route—the need for continuity, unity and recognition of the cycle path—and, at the same time, ensuring the adaptability of the new infrastructure to very different urban areas, each of which involves specific choices and appropriate variations in order to establish a correct and profitable dialogue with the area it crosses. Hence, to avoid the risk of the cycle path being configured as an "isolated" and "alien" path with respect to the different green spaces involved (nature parks and agricultural areas), GRAB was conceived as a linear landscape device [30]. It was a question of developing a new spatial sequence not only for cycling but also for a renewed relationship with the places crossed, more sustainable and efficient, capable of generating environmental redevelopment, ecological enhancement (linear wooded areas, escarpments and habitable meadows and green service areas) and new forms of protection of the open spaces for sports activities, multifunctional agriculture and new circular economies.

In keeping with these overall objectives and the framework of current legislation, the Guidelines define the key concepts for a standardized way of structuring and qualifying the cycle path project, i.e., continuity, interconnection and redevelopment.

2.2.1. Continuity

For a cycle route that aspires to be a genuine urban infrastructure, continuity is an essential requirement. First, the physical and functional continuity is necessary to guarantee safety in use and significant accessibility for all; second, the perceptual continuity of the path, which must always be clearly recognizable and guarantee easy orientation, is fundamental. The certainty alone of not mistaking a correct turnoff path can satisfy a variety of user needs.

The perception of continuity is guaranteed both by the homogeneity of the sections of the route, which make up the project's structural variables, and by certain qualifying variables. These latter are continuous or recurring elements, capable of building the identity of the cycle path as a unitary infrastructure while varying its specific traits, rhythms and landscapes in relation to the different areas it crosses.

Among the structural variables, the first continuity trait of the cycle path regards the homogeneity of each section. Wherever possible—compatibly with the areas it crosses—the cycle path is two-way and occupies a minimum reserved road section measuring 3.5 m; for the sections where the cycle path is one-way, the section measures 2.5 m. At the end of the cycle path, the pedestrian path must always be guaranteed autonomously and can be adjacent, disconnected, or resume on the other side of the road along roadways that prohibit any section remodeling.

The main criterion for guaranteeing the continuity of the GRAB route was as much as possible to avoid intersecting with vehicular traffic, so as to ensure the safety and fluidity of the cycle and pedestrian routes. Roadway crossings are preferably located in correspondence with existing pedestrian crossings, providing for their possible adaptation and rearrangement for cyclist safety.

Route continuity, which is obviously maximum when crossing parks and green areas, will be subject to changes at night to comply with any closures of parks, gardens and natural reserves. Likewise, the paths could undergo variations where they cross areas subject to flooding, in order to avoid exposing users to risk. In all these instances, route variants have been planned as alternatives to temporarily closed or unsafe sections.

In addition to the section and the route variables, six qualifying variables have been formulated in order, as already stated, to ensure continuity and recognizability of the cycle path, qualify its image and adapt itself "programmatically" to different situations. They are: paving, horizontal signs, luminous signs, vertical signs, pedestrian paths and green strip.

Each of the six variables has been varied in relation to two main types of urban areas affected by the cycle route, namely, historic, monumental contexts, consolidated urban areas and more outlying areas [31].

The resulting matrix briefly illustrates the intent to adapt the qualified elements to the differences in the areas crossed and involved (Figure 2):

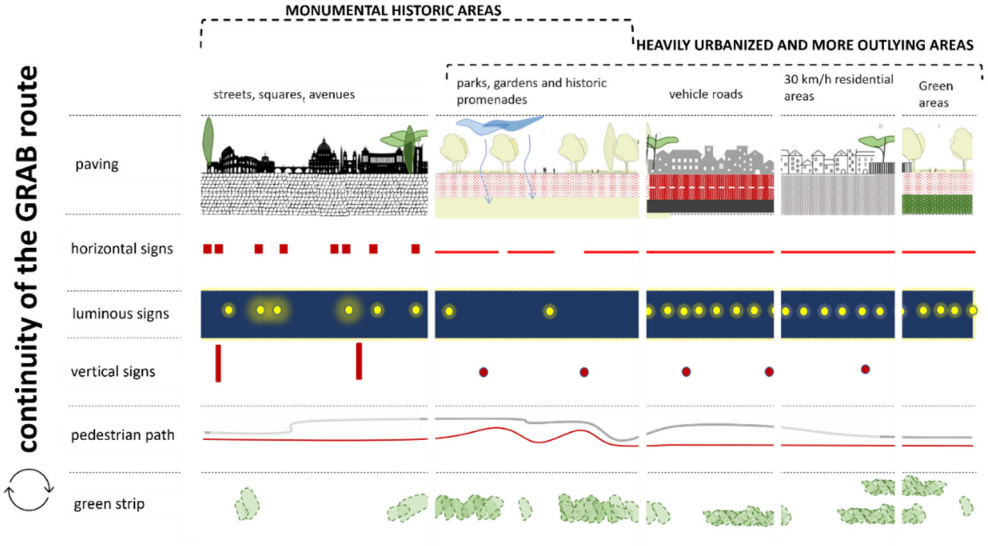
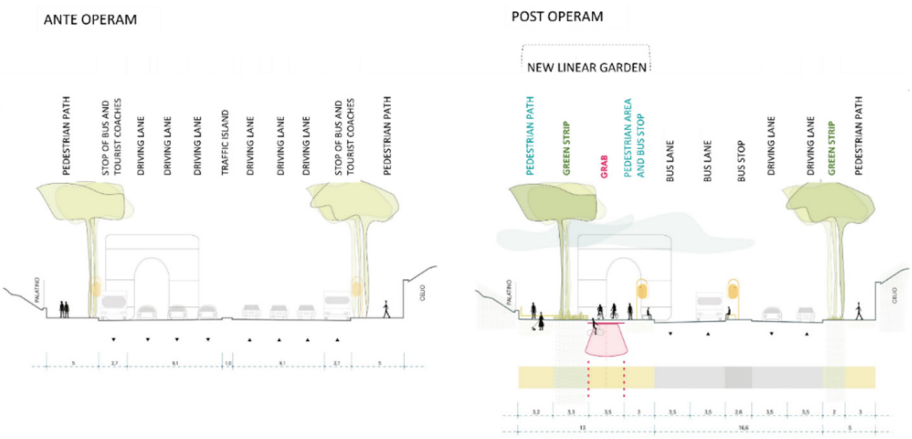
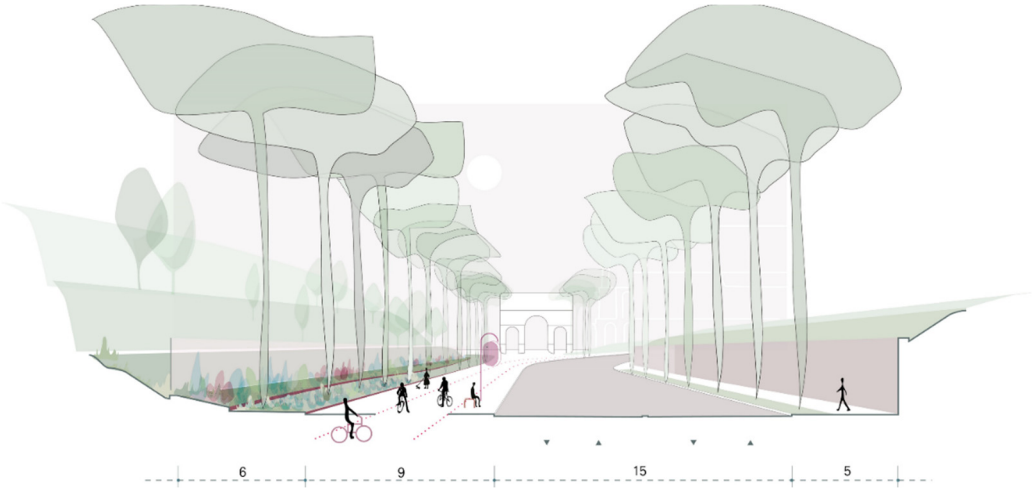


Figure 2. Continuity of GRAB route: qualifying variables.

For example, the green strip variable, understood as an arboreal, shrubby, herbaceous linear element, was conceived to accompany the cycle path by varying in relation to user protection needs and/or protection and improvement of the areas it crosses. In monumental historic areas and along historic promenades, the green strips take on the appearance of new linear green spaces (e.g., along via di San Gregorio) (Figure 3), in keeping with greening and de-permeabilizing programs such as those underway in many European cities (for example, the "jardin extraordinaire" along Paris's Champs Elyseès) [32]. Contrarily, in the heavily urbanized and more outlying areas, the green strips are true ecological enhancements for restoring depleted soils and abandoned areas (e.g., along via della Serenissima). Lastly, along the motor vehicle roads, where it is allowed by the section, the strip has the significant though not necessarily continuous ecological function of separation and protection, with low herbaceous, shrubby compact–cover formations and/or tree stands (via dei Gordiani) (Figure 4).

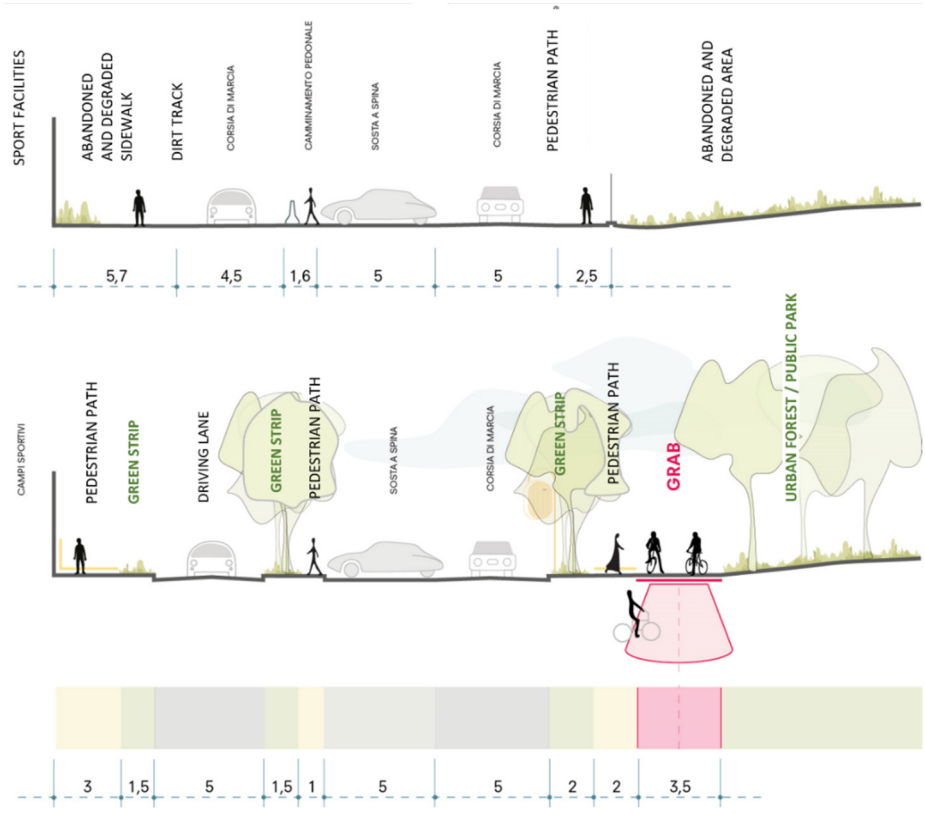


(**a**)



(**b**)

Figure 3. GRAB project along via di San Gregorio: (**a**) spatial reorganization of the entire road before and after interventions; (**b**) perspective view of the project proposal. On the left, the Palatine Hill and the new linear park; on the right, the Celio. In the background, the Arch of Constantine and the Colosseum.



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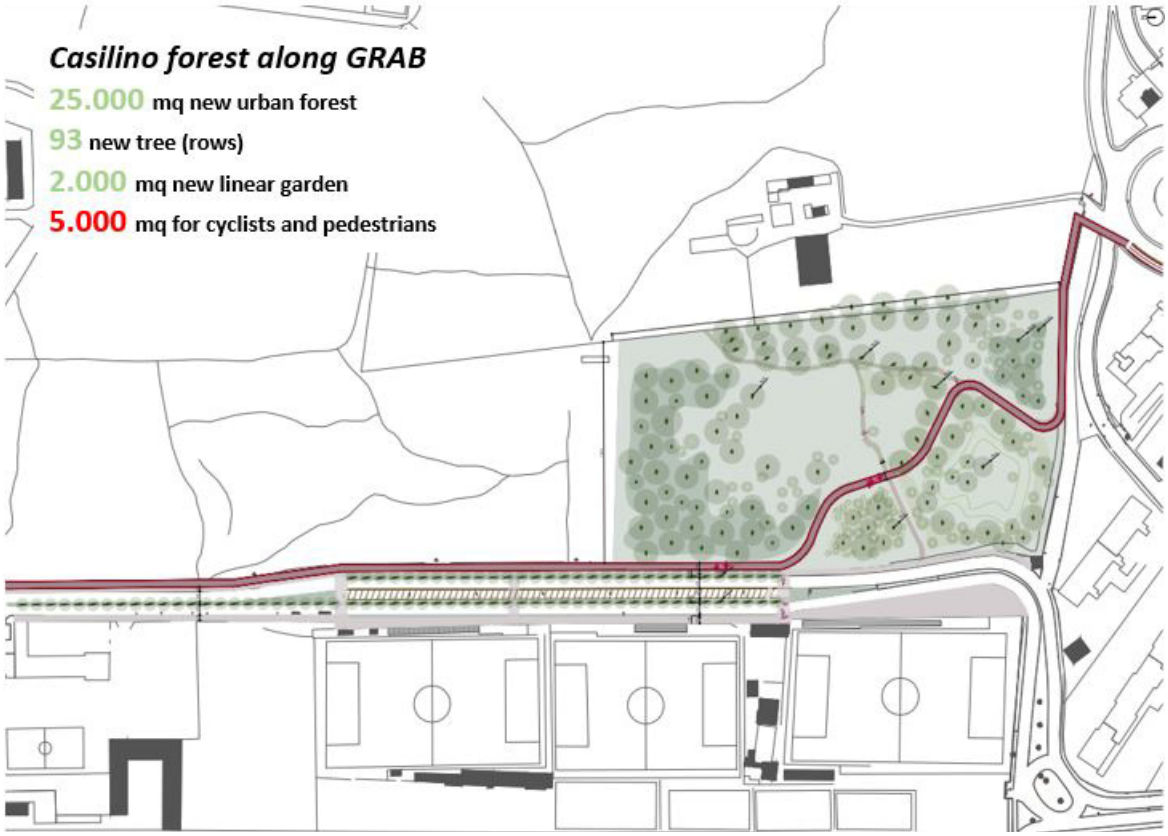

(**b**)

Figure 4. Interventions of spatial reconfiguration and ecological enhancement on via dei Gordiani, with protective green strip separations and an urban wood conceived as a public park for sports and recreational activities: (**a**) section; (**b**) layout.

2.2.2. Interconnections

Interconnections are a key element for making GRAB an infrastructure for supporting urban accessibility, understood as enabling all citizens to travel and access services and opportunities both in the metropolitan area and locally (neighborhood and urban sector), autonomously, safely, easily and not necessarily dependent on the use of private vehicles. GRAB's intersection with the LPT network (local public transport) by rail and with other sustainable mobility circuits (e.g., existing cycle paths), ensures functionality in the pace of daily life by avoiding the idea of a self-referential cycling circuit exclusively devoted to sports and leisure activities (Figure 5).

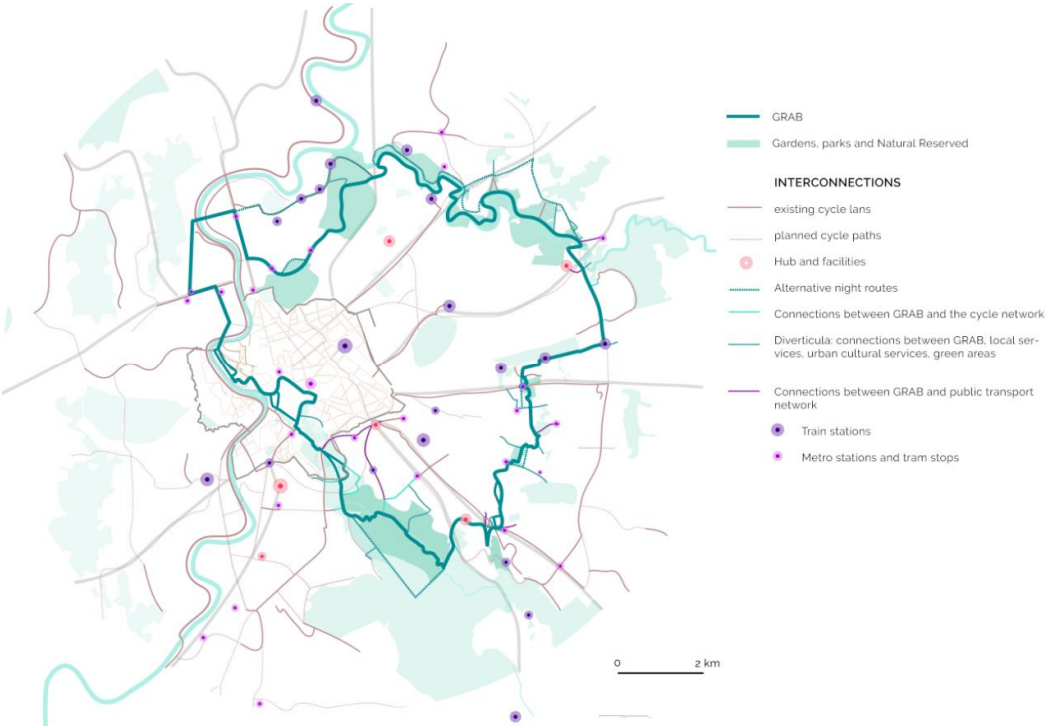

Figure 5. GRAB's interconnections.

The project entails some strategic connections with SUMP programming and the substantial project work underway on Rome's cycle network. In order for GRAB to really function as a "connecting" and structuring device of the soft mobility network of Rome, the interconnection of the cycle path is guaranteed by a system of diverticula, a term of Latin origin that refers to small branch-offs from the main route that guarantee connections between GRAB, local services (schools, municipal offices, health centers, sports facilities, markets and meeting places), urban cultural services (museums, archaeological areas, monuments and historic villas), green areas (not only large urban parks and agricultural areas, but also unsettled public green spaces, unstructured and unattended, subject to fire, earthquake, or flooding).

The capillarity iteration of paths and tracks is necessary to make the cycle–pedestrian network the backbone of urban health, in which citizens can rediscover their city while enjoying a natural workout, also in accordance with the manifesto of Rome's City Health Institute [33], which actively promotes the right to health through daily physical exercise to prevent major diseases related to a sedentary lifestyle and isolation (obesity, depression, diabetes and cardiovascular diseases) [34].

2.2.3. Redevelopments

Rome's cycle route project interacts with the areas it crosses by building active relationships with neighborhoods and open spaces. Similar to a "magic line", it triggers processes of enhancement of areas subject to various forms of congestion and hyper-tourism (such as the Colosseum–San Gregorio area), processes of redevelopment and recovery of run-down and marginal areas (such as villa Gordiani and via della Serenissima) and ecological enhancement of nature areas (such as Villa de Sanctis). In this sense, GRAB is a landscape device and itself a landscape of proximity, understood not only as physical proximity but as a relational, spatial and temporal contact among people, places and activities. The changes envisaged in the definitive project are not just about transforming physical space but also encouraging innovative and productive processes of open-space appropriation, based on direct participation in cultural and recreational activities, theme-related horticulture and gardening, individual and group well-being (food education,

supply chains linked to limiting waste and recycling, agricultural self-production, new landscape and biodiversity cultures) (Figures 6 and 7).

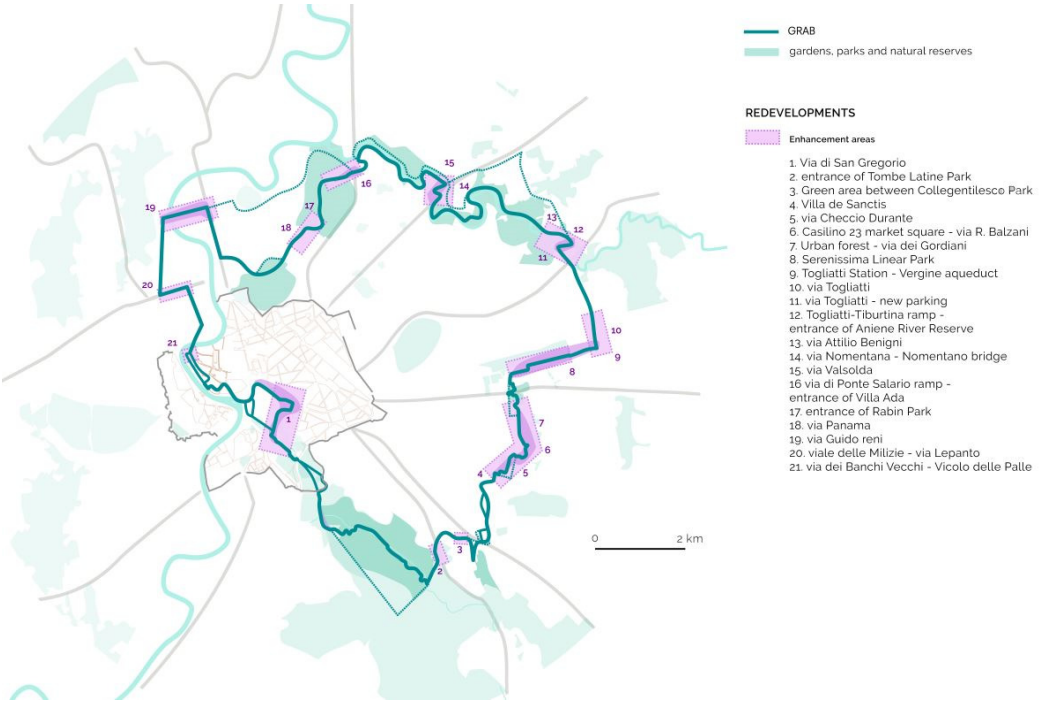

Figure 6. GRAB's redevelopments.

Figure 7. Ecological and social enhancement of via di San Gregorio connecting the Circus Massimo and the Colosseum.

Among the various possible forms of redevelopment, the following are some recurring aspects:

- Renewal of run-down areas: When GRAB crosses outlying areas, especially those that are underused or abandoned, often subject to improper, downgrading or dangerous use, the cycle path project functions as an ecological, social reactivation mechanism capable of suggesting new activities and supporting environmental recovery, but also management and sustainable supervision of the open space. One of these is the public green area adjacent to via dei Gordiani, parallel to the Metro construction site,

where the cycle path offers an opportunity for constructing a habitable urban wood whose broad spaces alternate between arboreal vegetation with reduced maintenance requirements and high ecological efficiency and clearings available for group uses and activities.

- Renewal of sheltered areas: In many cases, GRAB crosses frequently underused impermeable areas, such as parking lots, yards and artificial tunnel floors. In these instances, the cycle path offers an opportunity to renew such environments by increasing environmental performance (climate mitigation, biodiversity, etc.) and comfort. One of these is the coverage of the Rome–Pescara railway. The GRAB project intervention reconfigures the existing park, now mostly abandoned and rundown, through de-permeabilization and an increase in the wooded area with shrubs of high ecological efficiency. The areas remaining asphalted are transformed into playgrounds and play areas through low-cost interventions (Figure 8).
- Reconstitution of highly ecological vegetation or tree stands: In several cases, the GRAB route offers an opportunity to reconstitute tree stands, hedges and green belts with multiple functions—environmental connectivity, filter and protection, cycle path signaling and increased climatic comfort for users. One of these places is Villa De Sanctis, where the plan is to insert new protection and filter arboreal–shrub plants that will provide shade in the warmer seasons and sunlight in the colder ones, as well as separating spaces for different activities;
- Redevelopment and/or refurbishment of public areas following the cycle path route, also as an opportunity to radically reconceptualize public space (streets, squares, promenades and gardens), meeting places and socialization, today increasingly associated with health [35], movement and sports activities [36].

(**a**)

(**b**)

(**c**)

Figure 8. Environmental and social reactivation project of the spaces of the Roma–Pescara railway's artificial roofing through depaving, creating green spaces with high ecological efficiency, playground, cyclodromes along the GRAB: (**a**) overview; (**b**) current state of the Roma–Pescara railway's artificial roof; (**c**) reactivation of the project plan, Depaving the Park.

3. Results

The project results can be measured first in relation to its progress (already funded, in the executive planning phase, with the go-ahead of the first construction sites expected by 2022).

A second important result is the participation and co-management with institutional bodies and citizens' associations assisting in the construction work and infusing a constant civic and ecology-minded vitality in the tasks of maintenance and supervision [37].

Third, the results are important for enhancing the accessibility and environmental and social re-activation of the metropolitan areas crossed, achieved directly and through the project's realization.

3.1. Project Progress

In September 2017, the first "Traveling in Italy" tourism mobility plan was presented, allocating total investments of EUR 180 million. Of the Plan's approximately 6000 km of overall cycle network (the existing routes and those to be built), GRAB is the only urban-oriented tourist cycle route.

Between September and December 2017, GRAB's Technical Economic Feasibility Project was drawn up. For this project phase (the first of the three envisaged by Italian law for public works construction), EUR 146,400 of resources were allocated.

Following the approval of the feasibility project, in June 2019, a memo of understanding was shared between Rome Capital and the Ministry of Infrastructure and Sustainable Mobility. The protocol allocated an additional EUR 842,248.00 for the project's completion. The final phase has recently ended (December 2020–July 2021) and work is about to get underway.

3.2. Participatory Workshops

The participation process that flanked the definitive planning phase of the cycle path has achieved two types of results.

The first is the development of an open and participatory way of working and designing that makes GRAB a prototype of community planning that can be replicated in other areas and situations of urban renewal.

It is an interpretive design strategy of ideas, suggestions and needs advanced by the participants rather than a pre-defined configuration, whose strength lies in its ability to frame the co-planning process not just within a framework of social feasibility (to be verified directly in the workshop) but also of technical–regulatory and economic–financial feasibility (in the project proposal itself).

The success of the workshops can be seen first in the number of average participants in the direct Facebook and Zoom events recorded, respectively, during the five that took place, as follows: 140 for the central archaeological area, 119 for the Appia Antica area, 92 for the area of the Aniene River Reserve, 71 for the Villa Ada area and via Guido Reni, and 73 for the Villa Gordiani area and the Serenissima Linear Park. The participation data are especially positive regarding two aspects of fundamental importance; first, the workshops were carried out during one of the most intense phases of the COVID-19 pandemic, which not only made participation more difficult but also limited the opportunities for promoting and advertising the workshops themselves; second, how most of the participants in the work were group subjects marked by shared rather than individual interests. Many of the participants were actually representatives and spokespersons for many important civil society associations of Italy in general and of Rome in particular, such as VeloLove (the association that gave shape to the initial idea of GRAB) and many others.

The number of views of the videos deposited at the end of the work are also significant, with 1,950 for the central archaeological area, 2638 for the Appia Antica park, 1900 for the Aniene River Natural Reserve, 1350 for the area of Villa Ada and via Guido Reni, and 3,000 for the area of Villa Gordiani and the Serenissima Linear Park.

The positive evaluation of the workshop experience is also directly related to analyzing the results of the questionnaire submitted to the participants (a total of 240 responses were received). In this sense, they have effectively verified the project's social feasibility, understood as its taking root in the five areas under consideration. The verification of social feasibility is of absolute importance for the project's success, since the activities potentially generated (or attracted) by GRAB are often unimaginable without the actual involvement of local communities. It is not a question of "participating" (in a rhetorical sense) but of undertaking and supporting activities with clear individual and collective

advantages, which are cultural, economic, time–organization advantages, linked to well-being, sociality, etc. In this regard, an analysis of the questionnaires reveals that 71% of the participants declared that they were willing to become a "Friend of GRAB" by embracing activities such as communication and promotion of the cycle route; maintaining a section of the route; contributing to planning; providing services; and organizing events.

The last positive result of the participatory process regards integrating the proposals made during the workshops directly into the design of the cycle path. The territory presented a total of more than 150 project proposals. Many of the general and specific aspects of these proposals have in fact merged into the Guidelines document in the form of the cycle route's structure and quality services. For example, 22% of the proposals received asked for the cycle path to be interconnected with other existing tracks and cycle–pedestrian paths and for developing the route to favor transferring to rail and bike-friendly modes of transport; 19% of the proposals dealt with path safety, whose aspects comprise, among others, civil coexistence between cycle and pedestrian mobility or the study of alternative route variants to crossing green areas.

3.3. Creation of the Route and Application of the Guidelines

The implementation of the cycle route proceeds by applying guidelines that ensure compliance with the design requirements dictated by the Ministry of Transport, with the functional performance of an urban cycle route and with the specific characteristics of Rome's urban context.

3.3.1. Attractiveness

With the GRAB project, approximately 45 km "pedal ring" (to which small additions to the route are being studied) will connect Rome's most significant sites, from center to outskirts (Figure 9).

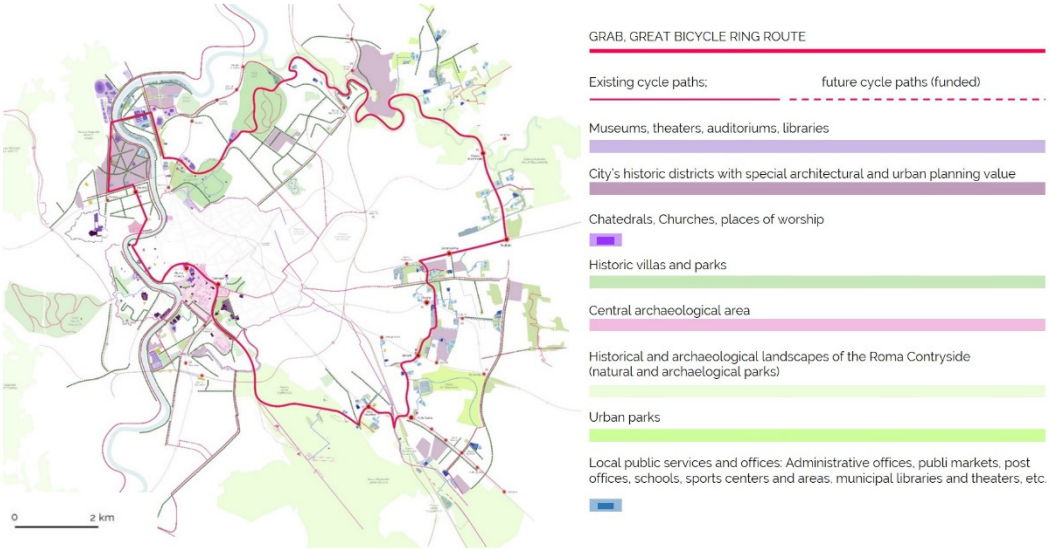

Figure 9. GRAB's attractiveness**.**

Of the total route, 19 km are newly designed and 26 km are the result of adaptation, re-stitching and joining of many sections of existing cycle paths. If we consider just the 17 km that pass through the green area, the cycle path directly intercepts and interconnects 2 protected natural areas (888 ha), 1 regional park (3,400 ha), 1 nature network 2000 site (SIC IT6030052 site) and 14 parks and historic villas uniformly spread out over all parts of the city that it crosses.

In addition to green areas, the cycle route interconnects numerous art sites among those most visited nationally. Five sites directly intercepted by GRAB are included in the ranking of Italy's 30 most visited state archaeological museums and parks (2019), i.e., the Colosseum Archaeological Park (7,554,544 visitors), Castel Sant'Angelo (1,197,078 visitors, fourth place in the national ranking), the Borghese Gallery (572,976 visitors), the complex of Rome's National Museums (322,089 visitors) and the archaeological site of the Baths of Caracalla (258,486 visitors) [38]. Together with these, we also indicate the Pantheon, which, though open to visitors free of charge and so excluded from this previous ranking, still totaled about 9 million visitors in 2019, winning the title of Italy's most visited culture site.

In addition to these sites of absolute value and national importance, the GRAB circuit was also put in place to increase accessibility to the culture sites most frequented by citizens. In particular, the following attractions were considered: the circuit of Rome's libraries and its Municipal Museums (Capitolini Museum; the Ara Pacis Museum; the museum of the Aurelian Walls; Rome's Modern Art Gallery; the Museum of Rome, where, for example, contemporary art exhibits of national appeal alternate), the locations of its main theaters and cinemas, squares and meeting places that are symbols of the city. The GRAB route intercepts a total of 44 of Rome's 45 official tourist itineraries [39].

In the less central areas, GRAB crosses and connects other parts and the city's historic districts that have special architectural and urban planning value. Casilino 23, the Olympic Village, the Aniene Garden City are present in all the history books of modern Italian architecture and are constantly visited for educational and tourist purposes. GRAB also intercepts the Flaminio Urban Sector where many of Rome's most famous contemporary architectural works are concentrated, including its main Auditorium, designed by Renzo Piano (424 thousand spectators in 2019) and the MAXXI Museum of 21st Century Arts, designed by Zaha Hadid, which welcomed 3,328,000 visitors over a 10-year period (doubled in 2019 in respect to 2018) (Figure 10).

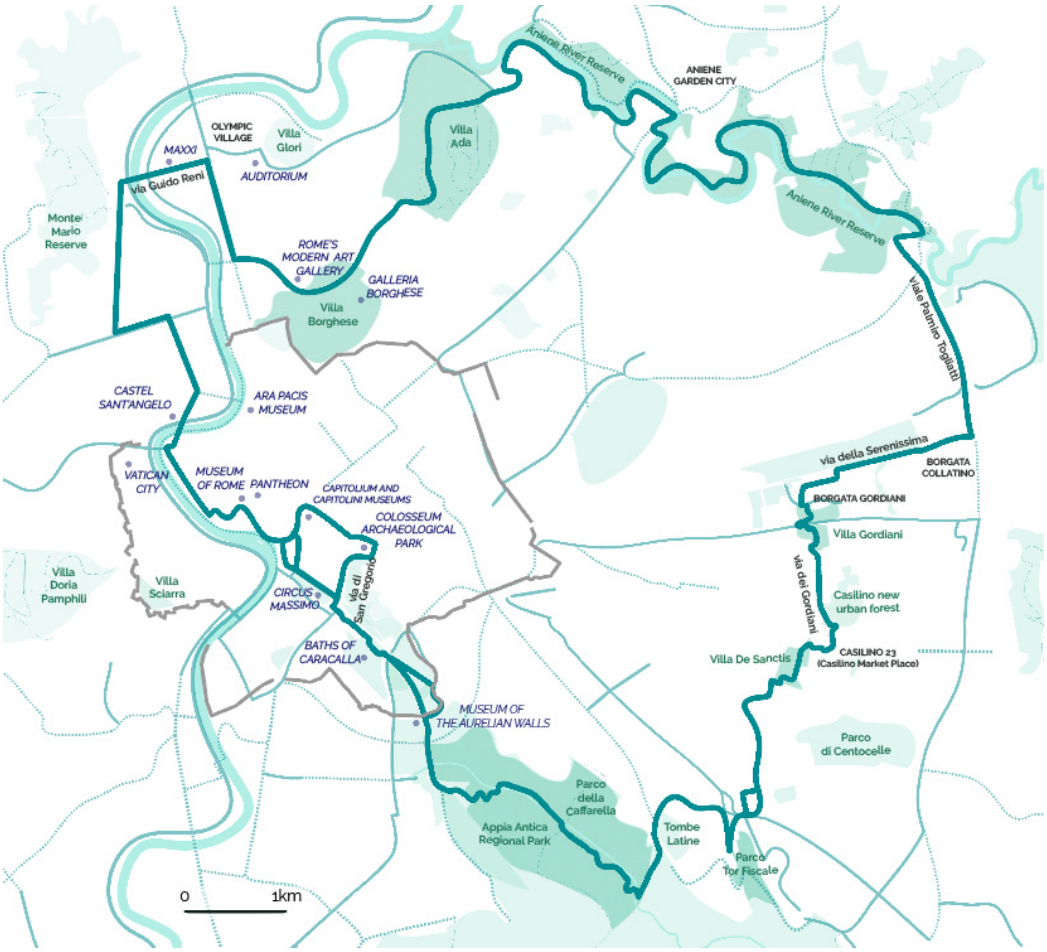

Figure 10. Map of relevant urban sites connected by GRAB.

3.3.2. Usability, Interconnection and Inter-modality

The tourist cycle route creates a single, branched, highly accessible circuit connecting the many tracks of the existing network (254 km of cycle lines), currently under construction or in the design phase. In particular, the GRAB project enhances and amplifies the effects of the recent investments of the European PON Metropolitan Cities Fund, which consists of EUR 13.5 million invested in Rome between 2014 and 2020 for implementing sustainable mobility interventions such as new cycle paths, bicycle parking facilities near schools, public offices and universities, and multimodal hubs at the main public transport interchange nodes, equipped to encourage bicycle use and to provide sustainable mobility services (electric charging stations, bike and car sharing).

Furthermore, to ensure the greatest possible accessibility, the GRAB route ensures intersection and intermodal exchange with Rome's 4 Metro lines, 5 bike-friendly tram lines and 5 metropolitan area train lines, for a total of 16 railway stations present along the entire ring.

3.3.3. Environmental Comfort, Landscape Quality and Social Reactivation for All the Areas it Crosses

The GRAB project, intended as a system of interventions for the new cycle path, offers an opportunity to improve environmental comfort (increase in permeability, shade, climate mitigation) with benefits for both users and the urban environment. The project also improves the relationship with the landscapes it crosses by recovering the physicality of the urban experience through slow movement, also supported by landscape insertions capable of interpreting and enhancing the areas, with reference to both environmental and socio-cultural characteristics. The interconnection with the main reference places of the

community favors a sense of togetherness, as well as maintenance, management and supervision by the city's inhabitants, according to the most recent civic ecology surveys.

Achieving this last set of objectives is especially significant in the eastern sector of the city, where, between via Casilina and viale Palmiro Togliatti, GRAB crosses a large, populous portion. Here, the cycle path crosses and connects some historic residential districts (Casilino 23, Borgata Gordiani and Borgata Collatino) with urban parks and historic villas (Villa De Sanctis and Villa Gordiani) and numerous spaces of the contemporary city still awaiting definition (such as the area adjacent to the Metro construction site along via dei Gordiani, Serenissima park, the infrastructure areas for railways and roads, etc.) through specific redevelopment interventions. In this highly articulated urban area, the development of just over 5.5 km of new linear cycle path generates the following: the de-impermeabilizing of approximately 11,227 square meters (of which 7241 square meters of cycle path are made up of draining concrete, 1,386 square meters of the public square before the entrance to the Casilino Market and approximately 2600 square meters of asphalted surface inside the via Basiliano and Herbert Spencer parks); the construction of almost 1720 million of new green strips serving to filter, separate and environmentally renew, arranged both inside the parks and along some major road axes (of which almost 586,000 field maple stands along via dei Gordiani alone, in proximity to the Metro construction site); the forestation of over 35,000 square meters of abandoned, uncultivated surfaces, internal and external to the existing park areas (for example, two linear lime groves with *Cornus* undergrowth have been inserted inside Villa De Sanctis as a filter and separation element between the park's various green rooms); and the re-naturalization and ecological re-activation of almost 46,000 square meters of de-impermeabilized or already permeable but biologically depleted soils (for example, in the Serenissima park, the renaturing of the 11,000 square meters of existing garden is planned, removing approximately 1000 square meters of existing flooring and inserting arid herbaceous species organized in theme islands).

4. Discussion and Conclusions

The GRAB project is a low-cost, easily replicable and eco-resilient urban regeneration strategy capable of producing significant changes in the space, behavior and economies of the contemporary metropolis. Metropolitan cities need now strategic visions more than ever, but also concrete actions. This is a complex double register, in which significant and urgent challenges of metropolitan areas are taken on through local actions, promoted and controlled by the community.

GRAB, as a complex infrastructure, guarantees multiple benefits to the city of Rome and its inhabitants through achieving the strategic objectives undertaken at the national and international levels, starting with the UN's Millennium Development Goals (MDGs). Among all, GRAB creatively generates benefits related to sustainable mobility, reduces vehicular traffic and increases physical activity in urban centers (11 objectives for sustainable cities and communities, 3 objectives for health and well-being and 13 objectives for climate action); benefits for increasing inclusive urban accessibility to services, cultural and social opportunities (5 objectives for gender equality and 10 objectives for reducing inequalities); and benefits for soil conservation and for creating an interconnected system of open spaces that favor all living species (15 objectives for life on land).

Moreover, the GRAB project effectively ensures a sustainable future for historic cities, in line with UNESCO's initiative to integrate historical–cultural heritages into the international agenda of sustainable development, with reference to both the great monuments of central archaeological areas and the many cultural sites and historical landscapes of the consolidated city and contemporary urban expansions. Light infrastructure, suitable for different contexts and different users (residents and tourists, sports enthusiasts and amateurs, etc.) appears, in fact, suitable for guaranteeing projects of historical and environmental protection and spatial and social innovation that ensure "an appropriate and eq-

uitable balance between conservation, sustainability and development, so that World Heritage properties can be protected through appropriate activities contributing to the social and economic development and the quality of life of our communities " [40] (p. 4).

In this sense, GRAB reconciles different modes of mobility and use of urban spaces, conserving the historic city and redeveloping the suburbs and abating conflicts and inequalities between residents and tourists, which have worsened due to the pandemic

The GRAB participatory project has also fueled new forms of dialogue and confrontation between public authorities and citizens that can prove to be particularly fertile, replicable and adaptable to different contexts.

The GRAB project demonstrates how architecture can, at times, play a creative role in interpreting grass-root proposals.

The GRAB project has proved itself to be an effective approach to working even in other heritage cities, greatly appreciated in various international contexts, such as the recent UN-Habitat innovate cities conference (11–15 October 2021) [41] and the 55th IMCL International Conference on Healthy, 10 min neighborhoods, Ottawa, Canada, (14–18 May 2018) [42].

The GRAB strategy belongs to the new generation of landscape projects that have radically changed the priorities and hierarchies of intervention in the contexts of contemporary urbanization. These projects are based on the ecological analysis of the context but are located close to the fluctuating dynamics of contemporary metropolises and the problems of exclusion and marginality—both spatial and social—linked to the very rapid ecological, economic and demographic transformations.

In this sense, the GRAB landscape project will be able to give shape to new urban ecologies, new ways of relating and imagining nature within the city, toward new forms of sustainable mobility, social benefits and ecological performance on an urban and metropolitan scale (Figure 11).

Figure 11. GRAB's benefits.

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References

1. United Nations, Department of Economic and Social Affairs. Available online: https://www.un.org/ru/desa/un-conference-address-way-forward-global-sustainable-transport-challenges (accessed on 20 December 2021).
2. UN HABITAT for a Better Urban Future. Available online: https://unhabitat.org/topic/mobility-and-transport (accessed on 20 December 2021).
3. Caravaggi, L.; Carpenzano, O. *Roma in Movimento*, 1st Edition; Quodlibet: Macerata, Italia, 2019; Imbroglini, C.; Caravaggi, L.; Lei, A. Rome's GRAB (Great cycle ring): Inclusive design for healthy 10- minutes urban environment. In Abstract's book of the 55th International Making Cities Livable Council Conference in healthy, Ottawa, May 14-18, 2018. Available online: https://www.livablecities.org/category/conference/55th-imcl-conference (accessed on 29 November 2021); L. Caravaggi, C. Imbroglini, Pontili Coviale, Eds.; 1st edition; Quodlibet: Macerata, Italia, 2016; Caravaggi, L.;.
4. Ciità metropolitana di Roma Capitale. Available online: http://ptpg.cittametropolitanaroma.it/default.asp?nPagina=relazioneRT (accessed on 20 December 2021).
5. ISTAT, Istituto Nazionale di Statistica. Available online: https://www.istat.it/it/files//2014/06/Censimento-popolazione-nuove-informazioni.pdf (accessed on 29 November 2021).
6. Ufficio di Statistica della Città metropolitana di Roma Capitale. Available online: https://static.cittametropolitanaroma.it/uploads/WorkingPaper_35.pdf (accessed on 29 November 2021).
7. Roma Capitale. Available online: https://www.comune.roma.it/web-resources/cms/documents/Trasporto_2016.pdf (accessed on 29 November 2021).
8. EC, European Commission. Available online: https://op.europa.eu/en/publication-detail/-/publication/0efedf2c-a386-11e9-9d01-01aa75ed71a1 (accessed on 15 December 2021).
9. Roma Capitale. Available online: https://www.comune.roma.it/web-resources/cms/documents/Mobilita_sostenibile_2016.pdf (accessed on 29 November 2021).
10. Legambiente. Available online: https://www.legambiente.it/wp-content/uploads/2021/01/Rapporto_Malaria_2021.pdf (accessed on 29 November 2021).
11. ECF, European Cyclists' Federation. Available online: https://ecf.com/what-we-do/cycling-economy/economic-benefits (accessed on 11 December 2021).
12. Ricke, K.; Drouet, L.; Caldeira, K.; Tavoni, M. Country-level social cost of carbon. *Nat. Clim. Change* **2018**, *8*, 895–900. https://doi.org/10.1038/s41558-018-0282-y.
13. EEA, European Environmental Agency. Available online: https://www.eea.europa.eu/publications/air-quality-in-europe-2018 (accessed on 11 December 2021).
14. RIVM, National Institute for Public Health and the Environment. Available online: https://rivm.openrepository.com/handle/10029/557224 (accessed on 11 December 2021).
15. Celis-Morales, C.A.; Lyall, D.M.; Welsh, P.; Anderson, J.; Steell, L.; Guo, Y.; Maldonado, R.; Mackay, D.F.; Pell, J.P.; Naveed S.; et al. Association between active commuting and incident cardiovascular disease, cancer, and mortality: Prospective cohort study. *BMJ* **2017**, *357*, j1456. https://doi.org/10.1136/bmj.j1456.
16. Hendriksen, I.J.; Simons, M.; Garre, F.G.; Hildebrandt, V.H. The association between commuter cycling and sickness absence. *Prev. Med.* **2010**, *51*, 132–135. https://doi.org/10.1016/j.ypmed.2010.05.007.
17. Schuch, F.B.; Vancampfort, D.; Firth, J.; Rosenbaum, S.; Ward, P.B.; Silva, E.S.; Hallgren, M.; Ponce De Leon, A.; Dunn, A.L.; Deslandes, A.C.; et al. Physical Activity and Incident Depression: A Meta-Analysis of Prospective Cohort Studies. *Am. J. Psychiatry.* **2018**, *175*, 631–648. https://doi.org/10.1176/appi.ajp.2018.17111194.
18. Mccay, L.; Bremer, I.; Endale, T.; Jannati, M.; Jihyun, Y. Urban Design and Mental Health. In *Mental Health and Illness in the City*, 1st Ed.; Niels Okkels, Christina Blanner Kristiansen; Povl Munk-Jørgensen; Springer: Berlin/Heidelberg, Germany, 2017； pp. 1–24. https://doi.org/10.1007/978-981-10-2327-9.
19. Guure, C.B.; Ibrahim, N.A.; Adam, M.B.; Said, S.M. Impact of Physical Activity on Cognitive Decline, Dementia, and Its Subtypes: Meta-Analysis of Prospective Studies. *Biomed. Res. Int.* **2017**, *2017*, 9016924. https://doi.org/10.1155/2017/9016924.
20. Science Nordic. Available online: https://sciencenordic.com/children-and-adolescents-denmark-exercise/children-who-walk-to-school-concentrate-better/1379550 (accessed on 20 December 2021).
21. European Parliament, Directorate General for Internal Policies. Available online: https://www.europarl.europa.eu/thinktank/en/document/IPOL-TRAN_ET(2012)474569 (accessed on accessed on 15 December 2021).
22. ISNART, Istituto Nazionale Ricerche Turistiche. Available online: https://www.legambiente.it/wp-content/uploads/2020/11/BikeSummit_2020.pdf (accessed on 15 December 2021).
23. Ministero delle Infrastrutture e della Mobilità Sostenibili. Available online: https://www.mit.gov.it/connettere-litalia/ciclovie-turistiche-nazionali (accessed on 15 December 2021).
24. Litman, T. *Evaluating Active Transport Benefits and Costs;* Victoria Transport Policy Institute: Victoria, Canada, 2018; pp. 134–140.
25. Department for Transport, Government of the United Kingdom. Available online: https://www.gov.uk/government/publications/access-to-transport-and-life-opportunities (accessed on 14 January 2022).
26. EU. European Commission. Available online: https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:0551:FIN:IT:PDF (accessed on 15 December 2021).
27. Eltis, The Urban Mobility Observatory of European Union. Available online: https://www.eltis.org/sites/default/files/guidelines-developing-and-implementing-a-sump_final_web_jan2014b.pdf (accessed on 15 December 2021).

28. Roma Mobilità. Available online: https://romamobilita.it/it/progetti/pumsroma/piano (accessed on 15 December 2021).
29. MUR, Ministero dell'Università e della Ricerca. Available online: https://www.mur.gov.it/sites/default/files/2021-01/Pnr2021-27.pdf (accessed on 15 December 2021).
30. The Francois Mitterand Strip Project, Rennes France (2015). Available online: https://landezine.com/the-francois-mitterrand-strip-by-mutabilis-paysage-et-urbanisme/ (accessed on 10 January 2022); Ciclovia de Lisboa Project, Lisbon Portugal (2009). Available online : https://landezine.com/ciclovia-de-lisboa/ (accessed on 10 January 2022); Better Market Street Project, San Francisco U.S. state of California (2020). Available online: https://gehlpeople.com/projects/san-francisco-market-street/_(accessed on 10 January 2022); Jinan CBD Streetscape Project, Jinan China (2018). Available online: https://www.sasaki.com/projects/jinan-cbd-streetscape/ (accessed on 10 January 2022); The Red Folding Paper in the Greenway Project, Qian'an City China (2015). Availale online: https://www.turenscape.com/en/project/detail/4554.html (accessed on 10 January 2022).
31. Dipartimento di Programmazione e Attuazione Urba nistica, Roma Capitale. Available online: http://www.urbanistica.comune.roma.it/images/uo_urban/prg_vigente/prg_nta.pdf (accessed on 15 December 2021).
32. PCA-Stream. Philippe Chiambaretta Architecte. Available online: https://www.pca-stream.com/en/projects/champs-elysees-study-48 (accessed on 15 December 2021).
33. HCI Health City Institute. Available online: https://healthcityinstitute.com/manifesto/ (accessed on 15 December 2021).
34. HCI Health City Institute. Available online: https://viewer.ipaper.io/sp-servizi-pubblicitari-srl/ccd-roma-report-2021/?page=1 (accessed on 15 December 2021).
35. Liu, Y.; Wang, R.; Lu, Y.; Li, Z.; Chen, H.; Cao, M.; Zhang, Y.; Song, Y. Natural outdoor environment, neighbourhood social cohesion and mental health: Using multilevel structural equation modelling, streetscape and remote-sensing metrics. *Urban For. Urban Green.* **2020**, *48*, 126576. https://doi.org/10.1016/j.ufug.2019.126576.
36. Sallis, J.F.; Cain, K.L.; Conway T.L.; Gavand, K.A.; Millstein, R.A.; Geremia, C.M.; Frank, L.D.; Saelens, B.E.; Glanz, K.; King, A.C. Is Your Neighborhood Designed to Support Physical Activity? A Brief Streetscape Audit Tool. *Prev. Chronic.* Dis. **2015**, *12*, E141, https://doi.org/. https://doi.org/10.5888/pcd12.150098.
37. Krasny, M.; Tidball, K. *Civic Ecology*, 1st Ed.; MIT Press: Cambridge, MA, USA, 2015.
38. MIC, Ministero della Cultura. Available online: https://www.beniculturali.it/comunicato/musei-top-30-colosseo-uffizi-e-pompei-superstar-nel-2019-franceschini-autonomia-funziona-andiamo-avanti-su-percorso-innovazione-1 (accessed on 15 December 2021).
39. Roma Capitale, Sito Turistico Ufficiale. Available online: https://www.turismoroma.it/it/tipo-itinerari/itinerari-tema (accessed on 15 December 2021).
40. UNESCO World Heritage Committee. Available online: https://whc.unesco.org/en/documents/1334 (accessed on 10 January 2022).
41. Innovative4cities. Available online: https://www.innovate4cities.org/ (accessed on 15 December 2021).
42. International Making Cities Livable. Available online: https://www.livablecities.org/conferences/55th-conference-ottawa (accessed on 15 December 2021).