Theme 1

Transition to Low Carbon

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This theme advocates mutually supportive projects that reduce GHGs from transportation to make Istanbul's transport system environment-friendly and to promote a sustainable, active and healthy lifestyle for its residents. This theme adopts the following key approaches:

- Managing vehicle traffic through measures such as spatial restrictions and pricing,
- Encouraging the use of cleaner and environment-friendly vehicles,
- Reallocating the street space to increase the share of walking and cycling for a healthier, cleaner and inclusive urban space.

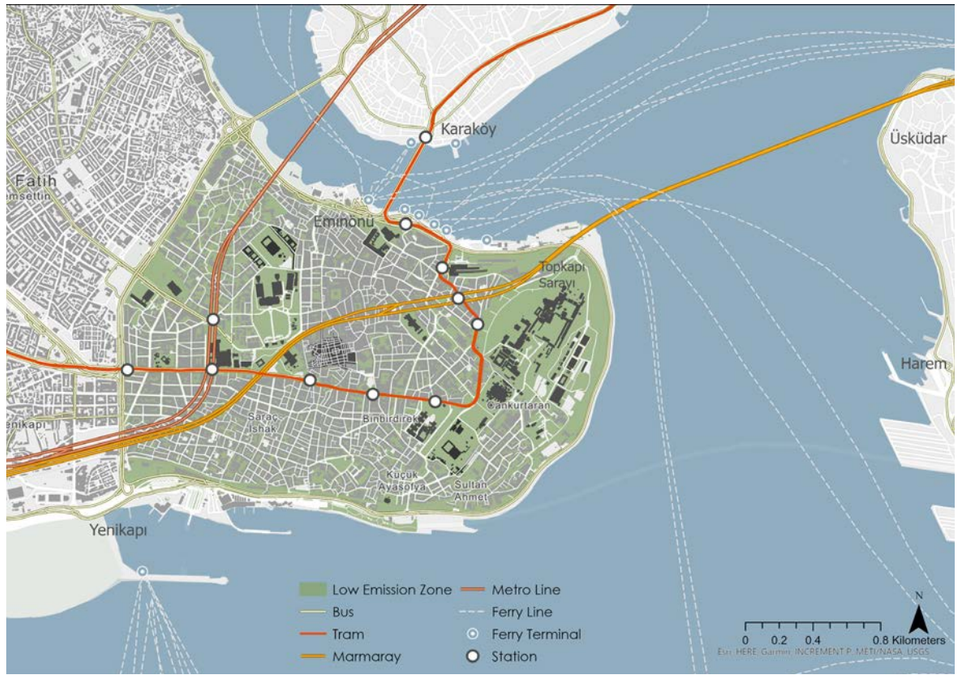
Eight projects were proposed under this theme and these were grouped under decarbonisation of public transport and interventions that encourage active mobility.

Decarbonisation interventions include practices to reduce air (and, as a secondary benefit, noise) pollution from vehicles. These projects are: the **Decarbonisation of the Public Transport Bus Fleet** and the **Decarbonisation of Metrobus** by using electric vehicles in public transportation; the **E-Bikes and E-Scooters** project is a suitable and efficient option, especially for first/last mile trips; the **Low Emission Zones (LEZ)** project is part of implementing restrictions and/or pricing on air pollution originating from vehicles.

Interventions to encourage active mobility improve infrastructure and safety levels for better integration of walking and cycling. Active mobility is important for health, economic, social and environmental benefits in metropolitan areas. A major part of daily mobility needs can be met by encouraging active modes of transport, such as cycling and walking for short distance trips to key destinations, and to and from public transport stops for long distance trips. Four projects aim to increase daily active mobility in Istanbul: **Cycle Feeder Routes, Pedestrian Routes, Traffic Calming** and **Junction Improvements for Pedestrians and Cyclists**. These proposals will trigger a behavioural change to increase use of active modes, increasing quality of life in the city and supporting citizens in reclaiming public space by reallocating street space.

1 Low Emission Zone

Low Emission Zones are one of the demand management policies to discourage the use of motor vehicles in designated areas if they do not meet emission standards. Vehicles that do not comply cannot use the zone at all or can only use it at a price, according to the "polluter pays" principle. These zones: (i) relieve traffic congestion; (ii) discourage private car use; (iii) increase the share of trips made by public transport and active modes; and (iv) make the city safer and healthier for people. Although the contribution of LEZs to the overall reduction in emissions in the city is low, there will be local area benefits as air quality improves. If this project is implemented, its local impacts will need careful monitoring to avoid spatial segregation and social exclusion. The first LEZ pilot project in Istanbul is planned for the Historic Peninsula (Eminönü), followed by Kadıköy (Moda District).



LEZ Pilot Area in the Historic Peninsula Eminönü

Problem Description

Air pollution arises from transportation is high and this decreases the air quality and threatens the health of citizens.

Relation with Other Projects

- Congestion Charging
- Istanbul Network Management Control Centre (INMCC)

Preparatory Tasks

- A feasibility study for LEZ.
- A study to look at legislation to allow IMM to collect revenue.
- Review of IMM's institutional capacity in line with the Istanbul Climate Change Action Plan (ICCAP).
- Defining a price policy for drivers who want to enter the LEZ with their private vehicles, which ranges according to the emission levels of the vehicles and which promotes drivers to use low emission vehicles.
- Consideration for the LEZ to comply with EU vehicle regulations.
- Approval process from public authorities.
- Establishing a database includes all vehicles currently using the area which is defined as the LEZ.

Follow-Up Tasks

- Launch an air quality monitoring programme.

Beneficiaries	Owner/Responsible	Third Parties Involved
Population, especially groups living within the LEZ area.	IMM	Public, public transport and freight vehicle operators

Project Process

Preparation

Duration: Short
Scope: Feasibility studies

Pilot

Duration: Medium
Scope: Pilot area implementation

Implementation

Duration: Medium and Long
Scope: Roll-out of the project citywide

Estimated Budget

High Cost – Above 100 million TL

Financing Source

IMM, domestic and foreign grant programmes

Contribution to SUMP Objectives

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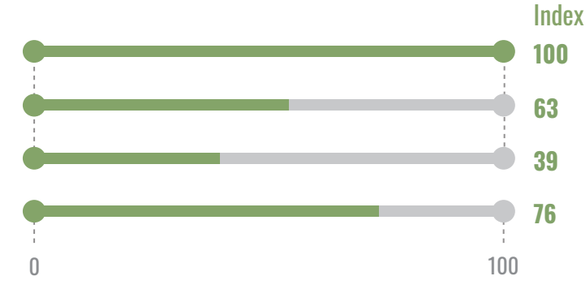

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2 Decarbonisation of Metrobus

The Decarbonisation of Metrobus project proposes the electric conversion of all buses that serve the D100 Highway in European side of the city. This will improve air quality for users of the high-frequency Metrobus system and for residents along the route. Although this project will make a low contribution to the reduction of emissions throughout the city and its investment costs are high, in the long run it will lead to a decrease in operating costs by reducing fuel and maintenance costs and, thanks to improved air quality, will decrease expenditure on health issues caused by air pollution. Creating a completely clean system and ensuring its economic sustainability by converting the public transport bus fleet and Metrobus to electric vehicles depends on the availability of electricity from local renewable sources.

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Problem Description

Air pollution arises from transportation is high and this decreases the air quality and threatens the health of citizens.

Relation with Other Projects

- Decarbonisation of the Public Transport Bus Fleet

Preparatory Tasks

- Developing Electric Vehicle Master Plan by 2050. The "2021 EV City Casebook – Scaling up to Mass Adoption" provides a good benchmark.
- Building a long-term sustainable plan for incentives/subsidies and investment in electric vehicles.
- Need to set ambitious, yet realistic targets backed by achievable action plans.
- Prepare a Low Carbon Transport Strategy, based upon the available technologies and aligned with the Istanbul Climate Change Action Plan (ICCAP).
- Moving to low carbon sources of energy in transport helping people make low carbon decisions.

Follow-Up Tasks

- Launch an air quality monitoring programme.

Beneficiaries	Owner/Responsible	Third Parties Involved
Istanbul citizens, population especially groups living proximate to the Metrobus System.	IMM/IETT	Public transport vehicle operators

Project Process

Preparation	Pilot	Implementation
Duration: Short Scope: Feasibility studies, decision of technology system	Duration: - Scope: -	Duration: Medium Scope: Implementation of the project

Estimated Budget	Financing Source
High Cost – Above 100 million TL	IMM, tax discounts, incentives for sale

Contribution to SUMP Objectives

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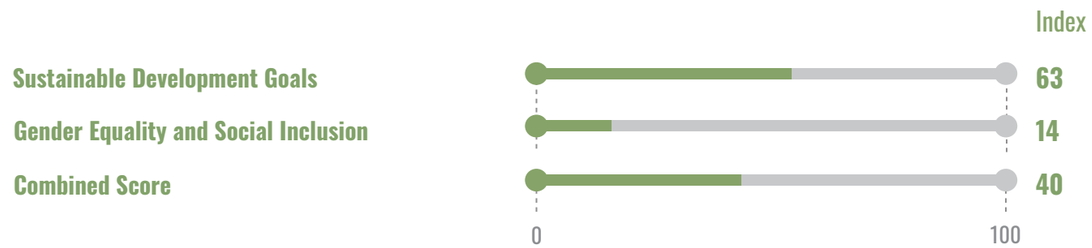

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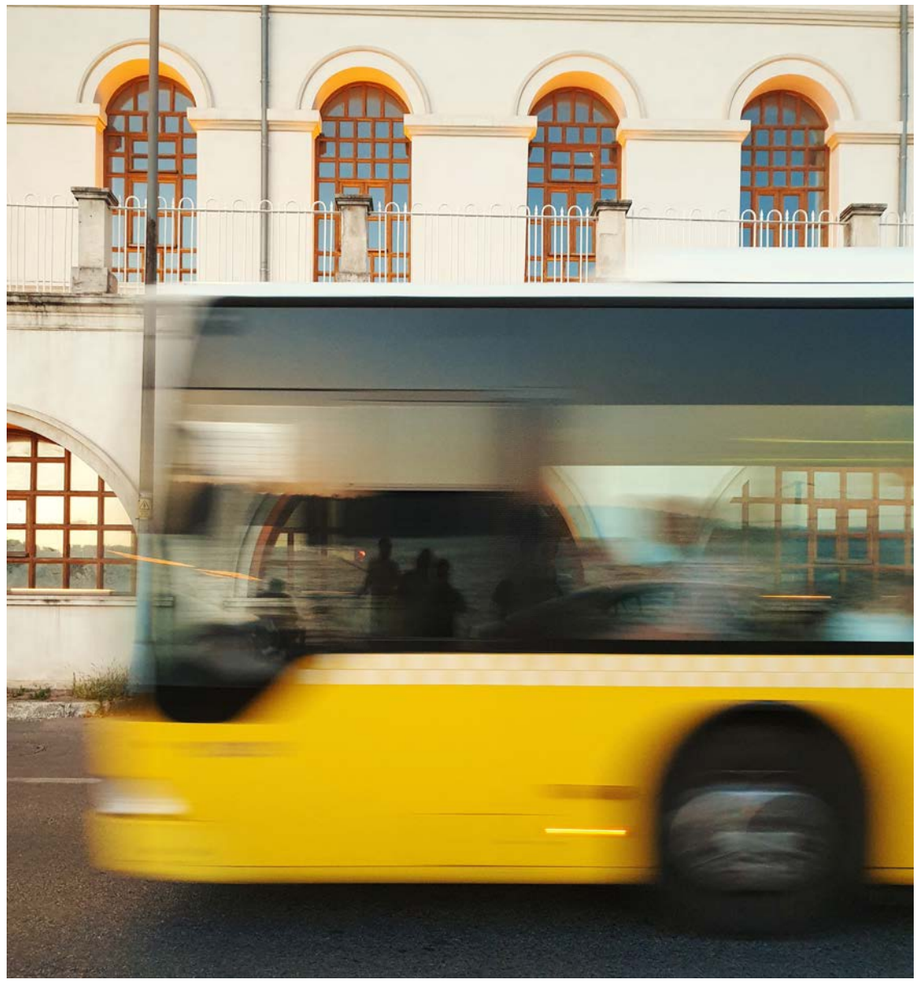
3 Decarbonisation of The Public Transport Bus Fleet

Decarbonisation of the Public Transport Bus Fleet project entails the use of electric and/or hybrid buses along urban corridors. In the long run, cleaner vehicles reduce the adverse environmental impact of road transport by decreasing nitrogen oxide (NOx) and PM emissions, while mitigating the exposure of pedestrians, cyclists, the elderly, people with health problems, pregnant women, children and infants to air pollution-related health problems. A secondary benefit will come from transferring the existing bus fleet, which will become idle after the conversion, to other cities in Turkey that are trying to develop a public transport system. This should reduce dependence on private cars throughout the country and contribute to social inclusion by increasing accessibility to public transport systems. Even though direct local benefits and indirect national impacts will be high, the overall contribution of this project to mitigating emissions in Istanbul is low as the share of buses in the transportation system in Istanbul is limited.



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Problem Description

Air pollution arises from transportation is high and this decreases the air quality and threatens the health of citizens.

Relation with Other Projects

- Decarbonisation of Metrobus

Preparatory Tasks

- Developing Electric Vehicle Master Plan by 2050. The "2021 EV City Casebook – Scaling up to Mass Adoption" provides a good benchmark.
- Building a long-term sustainable plan for incentives/subsidies and investment in electric vehicles.
- Need to set ambitious, yet realistic targets backed by achievable action plans.
- Prepare a Low Carbon Transport Strategy, based upon the available technologies and aligned with the Istanbul Climate Change Action Plan (ICCAP).
- Moving to low carbon sources of energy in transport helping people make low carbon decisions.

Follow-Up Tasks

- Launch an air quality monitoring programme.

Beneficiaries	Owner/Responsible	Third Parties Involved
Population, especially groups living in close proximate of arterial routes operating buses	IMM/IETT	Public transport vehicle operators

Project Process

Preparation	Pilot	Implementation
Duration: Short Scope: Feasibility studies, decision of technology system	Duration: Short and Medium Scope: Pilot implementation	Duration: Medium and Long Scope: Roll-out of the project citywide

Estimated Budget	Financing Source
High Cost – Above 100 million TL	IMM, tax discounts, incentives for sale

Contribution to SUMP Objectives

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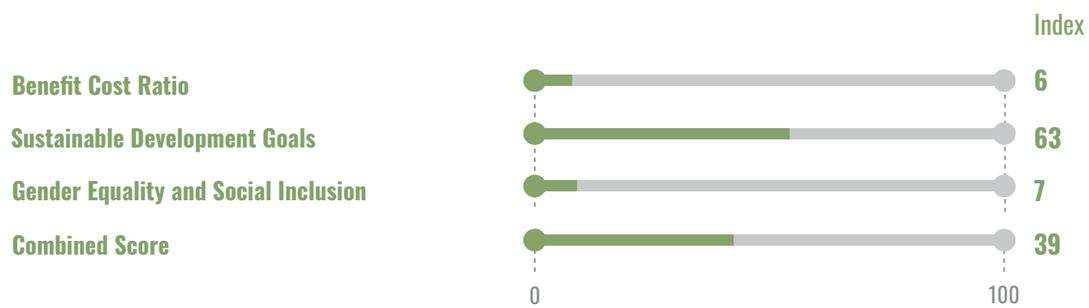

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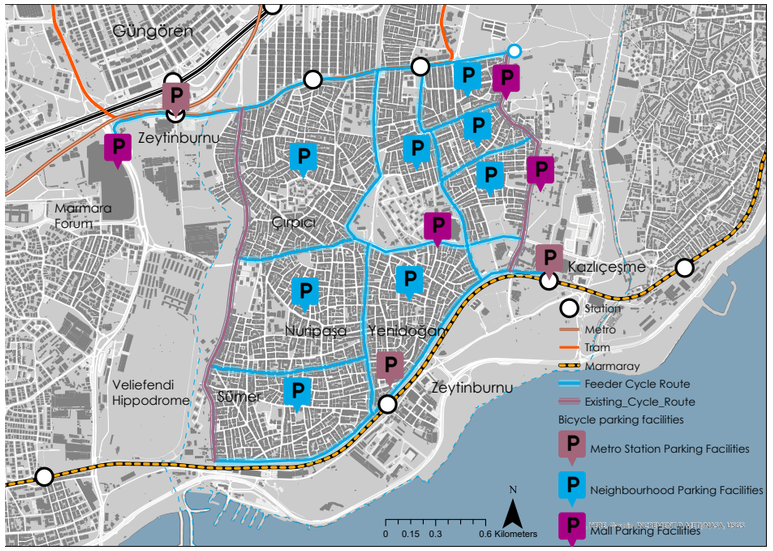
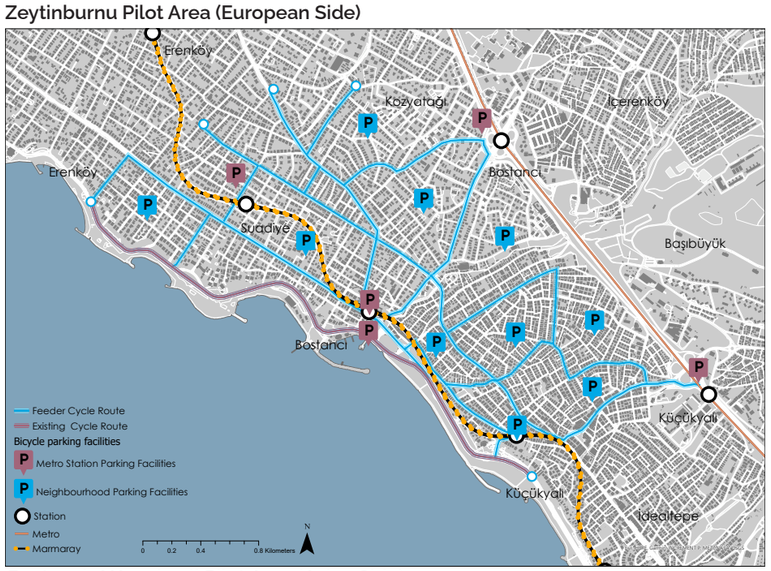
4 Cycle Feeder Routes

The main focus of the Cycle Feeder Routes project is on the feeder function of cycling, especially so that bicycles are used for the first/last mile to access public transport stations and stops. In addition to its health benefits, cycling empowers women and provides opportunities for independent mobility, especially for low-income groups. Apart from the fact that being able to ride a bicycle at an early age is beneficial to a child's mental and social development, cycling also makes the streets more liveable and lively, and therefore enhances security. The Cycle Feeder Routes project is especially important as it will provide safe, pleasant and comfortable access, often with dedicated bike lanes, to high-capacity and rapid public transport modes, such as Metrobus, LRT and Metro, which are not always in walking distance. Two pilot implementation areas are proposed: part of Zeytinburnu district and Bostancı-Küçükyalı. The project also includes investing in cycling infrastructure around Metro stations in coordination with the Istanbul Bicycle Master Plan. From a broader perspective, through the changes brought about by this project, citizens of Istanbul will develop cycling habits, and the share of cycling trips will increase as safer bicycle lanes are introduced to the city in the medium and the long term.



Zeytinburnu Pilot Area (European Side)



Bostanci / Kucukyali Pilot Area (Asian Side)

Problem Description

Bicycle is not chosen as a transportation mode due to the low awareness of cycling. Additionally, integration of current cycle infrastructure with public transport is low.

Relation with Other Projects

- Traffic Calming
- Junction Improvements for Pedestrians and Cyclists
- E-Bikes and E-Scooters
- Extension of Transfer Centres

Preparatory Tasks

- Detailed design of route corridors and application of parking restrictions and displacement of parking.
- Undertake a consultation engagement process with stakeholders and residents along the routes to gain acceptance of the proposals.
- Istanbul Bicycle Master Plan should adopt the following key principles: Comprehensive cycle network, Feeder function, Integration with PT, Cycle parking, Bike sharing, Holistic design approach.

Follow-Up Tasks

- Automatic bike counters could be placed and changes in bike sharing can be analysed.
- Launch an air quality monitoring programme.
- Inform citizens with various campaigns, about choices of modes.

Beneficiaries	Owner/Responsible	Third Parties Involved
City population, Cycling NGOs, IMM, District Municipalities	IMM	Citizens and Cycling NGOs, District Municipalities, ISPARK

Project Process

Preparation
Duration:-
Scope: -

Pilot
Duration: Short
Scope: Pilot area implementation

Implementation
Duration: Medium and Long
Scope: Roll-out of the project citywide

Estimated Budget

High Cost – Above 100 million TL

Financing Source

IMM, district municipalities

Contribution to SUMP Objectives

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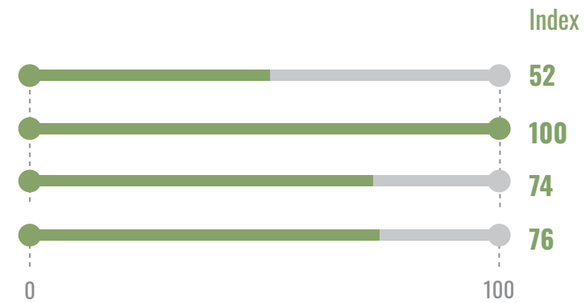

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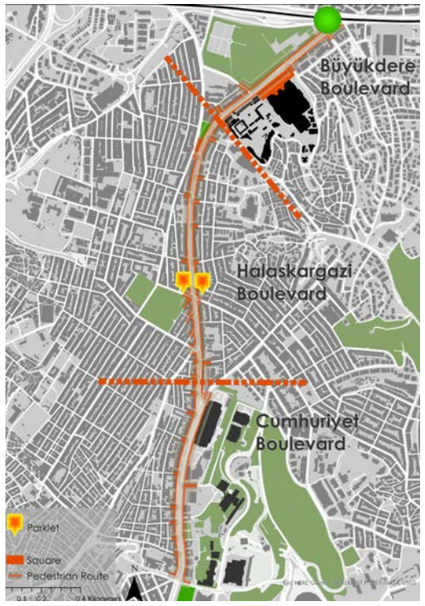
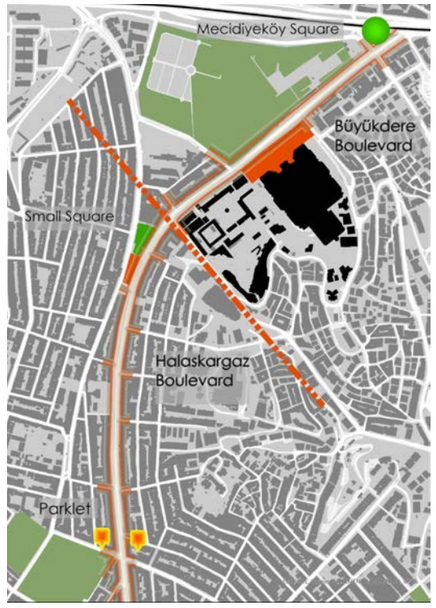
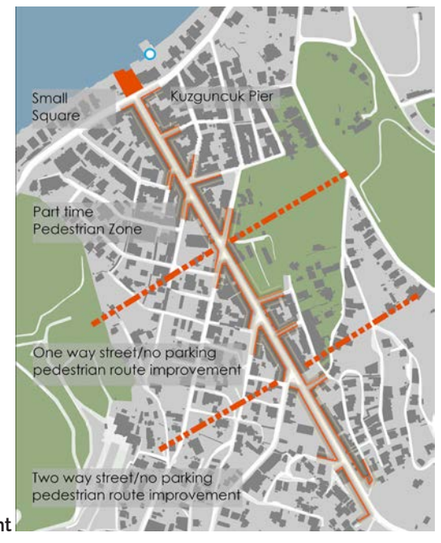
5 Pedestrian Routes

The Istanbul SUMP aims to make walking a safe, pleasant, comfortable and healthy mode of transport for more people in the city. The Pedestrian Routes project will enhance existing pedestrian paths and build new ones to improve access to public transport and key attraction centres and to connect squares and green areas to main centres, in coordination with the Istanbul Pedestrian Master Plan. Some of the practices that may be adopted are: improving control of cars occupying pavements; engineering continuous pavements as part of a pedestrian network; increasing the attractiveness, safety and quality of pedestrian spaces; prioritising pedestrians over vehicle traffic; and applying universal design standards to pedestrian spaces. Two pilot axes have been identified in Istanbul, the first is Halaskargazi Street, located in the Şişli district, which has one of the highest rates of pedestrian accidents in the city and connects Taksim and Mecidiyeköy square projects. The second is İcadiye Street, which is one of the busiest roads within the pedestrian-intensive district of Kuzguncuk. Following these two pilots, the proposal is to extend pedestrian routes to other districts.



Location of Halaskargazi/Cumhuriyet Avenue pedestrian route improvements





Kuzguncuk Pedestrian Improvement

Problem Description

Existing footpaths in the city do not provide a good pedestrian experience. Streets and roads are dominated by car traffic.

Relation with Other Projects

- Traffic Calming
- Junction Improvements for Pedestrians and Cyclists
- Extension of Parking Regulation
- Reorganisation of Parking Regulation Enforcement

Preparatory Tasks

- Detailed design of route corridors and application of parking restrictions and displacement of parking.
- Undertake a consultation engagement process with stakeholders and residents along the routes to gain acceptance of the proposals.
- Align the objectives of the Istanbul Pedestrian Master Plan with the Istanbul SUMP.
- Development of a comprehensive walking strategy.

Follow-Up Tasks

- Automatic people counters could be placed to record changes in people walking.
- Pedestrian surveys can be carried out to ask people for their opinion on the introduced interventions.
- Business surveys can also be carried out to identify if their customer numbers changed due to interventions.
- Walking buses for school children are a good way to promote walking at an early age.

Beneficiaries	Owner/Responsible	Third Parties Involved
Neighbourhood residents, vulnerable road users (children, elderly, individuals with disabilities, parents/caretakers), businesses	IMM	Neighbourhood residents and business owners

Project Process

Preparation
Duration: Short
Scope: Feasibility studies

Pilot
Duration: Short
Scope: Pilot area implementation

Implementation
Duration: Medium and Long
Scope: Roll-out of the project citywide

Estimated Budget

Medium Cost – 10-100 million TL

Financing Source

IMM, district municipalities

Contribution to SUMP Objectives

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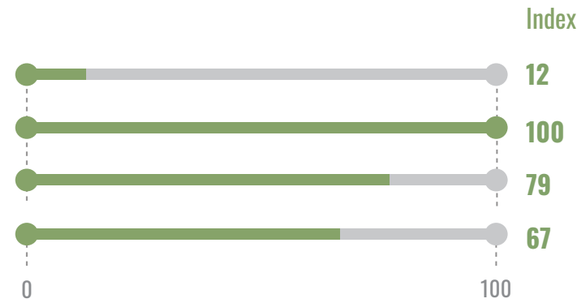
Index Values of Appraisals



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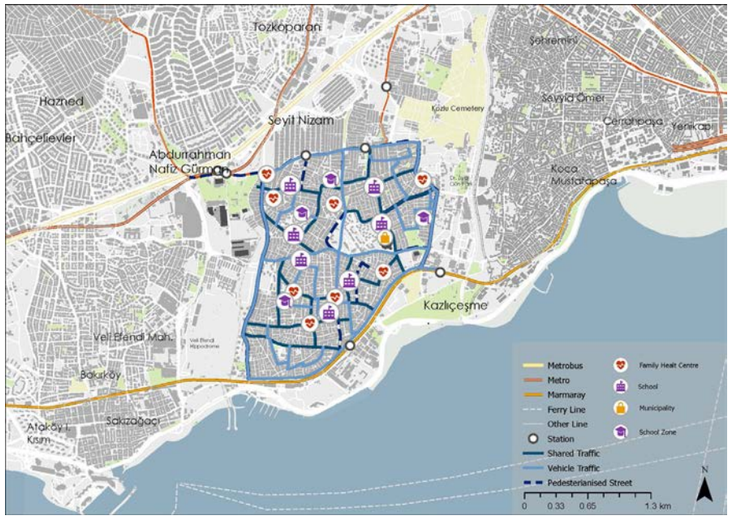
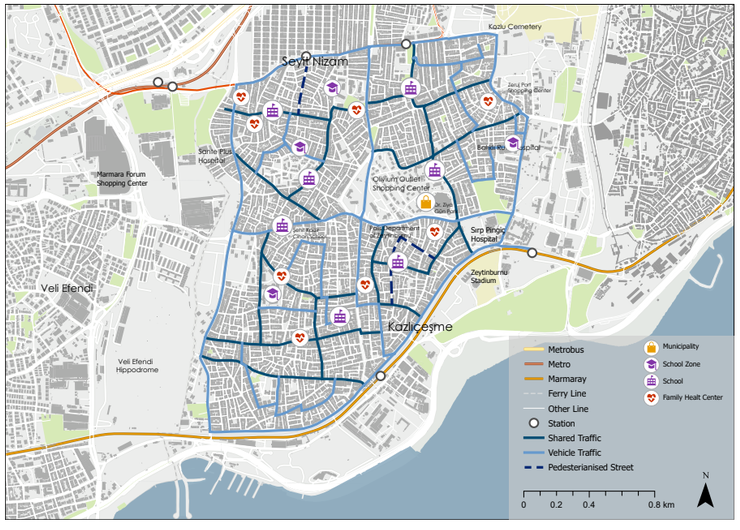
6 Traffic Calming

The Traffic Calming project aims to reduce car dependency in the urban area and to make the city more liveable for all demographic and socio-economic groups. Reducing the use of motor vehicles is essential for a sustainable transport system and for mobility. This project proposes a combination of traffic calming measures for volume and speed control. Interventions will include: changing street alignments and geometry; widening pavements; narrowing vehicle lanes for level passenger crossings; reducing vehicle speeds for pedestrian crossings; increasing pedestrian spaces on streets using landscaping; reducing on-street parking and allocating those spaces for public transport stops. Traffic calming interventions are generally associated with increasing health and safety benefits, which not only reduces health costs but also boosts the local economy and reduces crime rates. These practices will also increase the daily activity level of individuals by creating attractive areas for pedestrians. As part of this project, a pilot application area (as complementary to the Cycle Feeder Routes project) was selected in Zeytinburnu. This area provides several opportunities due to the large number of commercial activities, schools and health facilities, as well as connections to key public transport modes, such as Marmaray, LRT and the Metrobus. After the pilot, traffic calming methods will be implemented in other districts, especially in pedestrian-intensive areas, around schools, health institutions and other public buildings.



Traffic Calming Project / Zeytinburnu



Proposed Hierarchy of Roads

Problem Description

- Problems with pedestrian safety (including vulnerable road users) in neighbourhoods and (day/care & primary) school catchment areas (500 m radius)
- Poor pedestrian infrastructure and parked cars.
- Lack of public space in neighbourhoods as well as safe areas/playgrounds for kids (more notable during Covid-19).
- Noise and air pollution within neighbourhoods..

Relation with Other Projects

- Pedestrian Routes
- Junction Improvements for Pedestrians and Cyclists
- Extension of Parking Regulation
- Reorganisation of Parking Regulation Enforcement
- Introduction of an Automated Payment System for Parking

Preparatory Tasks

- Detailed design of route corridors and application of parking restrictions and displacement of parking.
- Undertake a consultation engagement process with stakeholders and residents along the routes to gain acceptance of the proposals.
- Approval process from public authoritie.

Follow-Up Tasks

- Automatic people counters could be placed to record changes in people walking.
- Pedestrian surveys can be carried out to ask people for their opinion on the introduced interventions.
- Air quality controls can be conducted in the area to demonstrate the changes in emissions.

Beneficiaries

Neighbourhood residents and vulnerable road users (children, elderly, individuals with disabilities, parents/caretakers)

Owner/Responsible

IMM

Third Parties Involved

Neighbourhood residents and business owners, School shuttle companies

Project Process

Preparation

Duration: Short
Scope: Feasibility studies

Pilot

Duration: Short
Scope: Pilot area implementation

Implementation

Duration: Medium and Long
Scope: Roll-out of the project citywide

Estimated Budget

Medium Cost – 10-100 million TL

Financing Source

IMM, district municipalities

Contribution to SUMP Objectives

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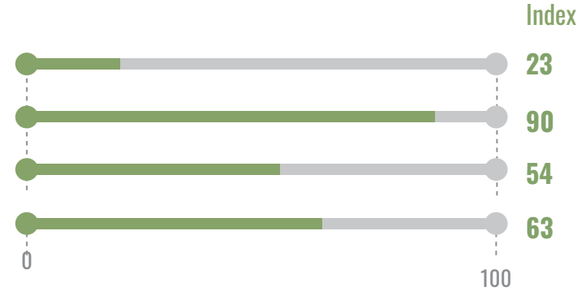

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7 Junction Improvements for Pedestrians and Cyclists

The Junction Improvements for Pedestrians and Cyclists project will ensure that junctions are designed and upgraded to provide safe and convenient crossings for pedestrians and cyclists, giving them priority and an uninterrupted active transport network. Junctions are generally seen as part of the road network, and their importance for pedestrians and cyclists is underestimated. The project recommends reducing waiting times at junctions for pedestrians and cyclists and proposes interventions at different scales. Pedestrian and cycle bridges are recommended along the main arteries. Such bridges can be attractive facilities, with the application of design principles that take account of climate conditions for landscape elements, floor coverings, lighting and materials. In addition, level crossings, raised junctions, textured crossings and accessible pedestrian signals with shorter waiting times would be implemented in central areas. The pilot proposal is to improve three junctions: a proposed pedestrian-cycle bridge over the Ümraniye Kemerdere Junction on D016 highway, as an example of a macro-scale intervention; an intersection in Pendik district, to be geometrically designed as a safe junction for cyclists, as an example of a meso-scale intervention; a signal-crossing in Levent to connect Plazas and the Levent Çarşı, designed as a raised junction (at the same level as the pavement) to reduce waiting times for pedestrians, as an example of a micro-scale intervention.

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Problem Description

The design and operation of the existing junctions are car oriented. As a result, waiting times for pedestrians and cyclists are very long. The current design is not pedestrian and cycle friendly. The provision for disabled users is poor. Safety and inclusion are not considered..

Relation with Other Projects

- Cycle Feeder Routes
- Pedestrian Routes

Preparatory Tasks

- Prepare a detailed design of the junction upgrades.
- Undertake a consultation engagement process with stakeholders and affected users to inform them about proposals, their benefits and to gain acceptance of the proposals.

Follow-Up Tasks

- Automatic people counters could be placed to record changes in walk and cycle trip patterns.
- Pedestrian surveys can be carried out to ask people for their opinion on the introduced interventions.

Beneficiaries

Neighbourhood residents, vulnerable road users (children, elderly, individuals with disabilities, parents/caretakers), businesses

Owner/Responsible

IMM

Third Parties Involved

Neighbourhood residents and business owners

Project Process

Preparation

Duration: -
Scope: -

Pilot

Duration: Short
Scope: Pilot area implementation

Implementation

Duration: Medium and Long
Scope: Roll-out of the project citywide

Estimated Budget

High Cost – Above 100 million TL

Financing Source

IMM, district municipalities

Contribution to SUMP Objectives

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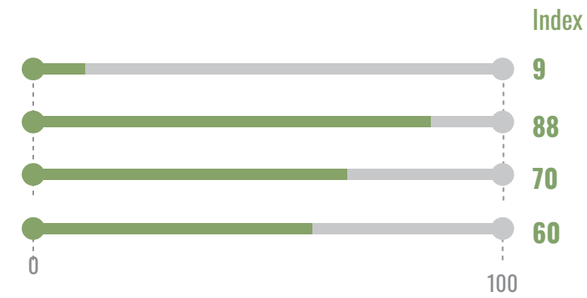

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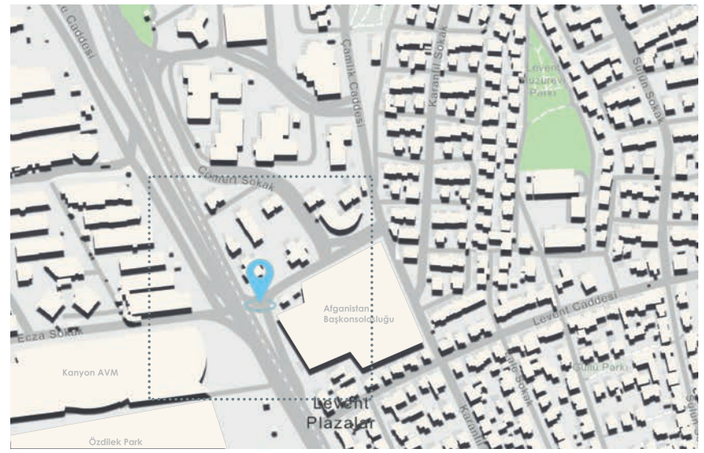
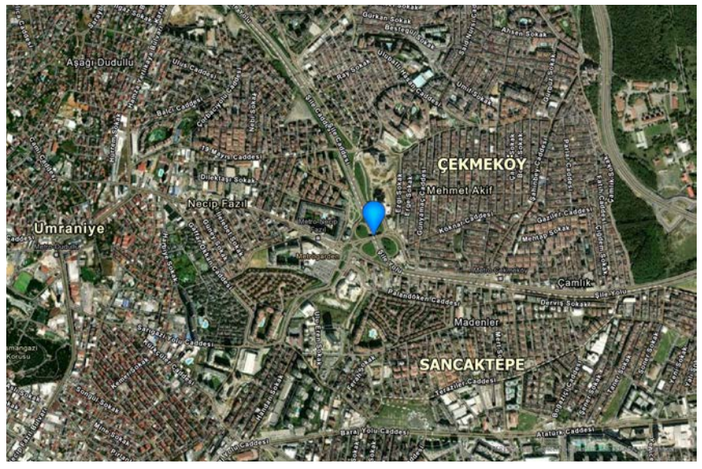
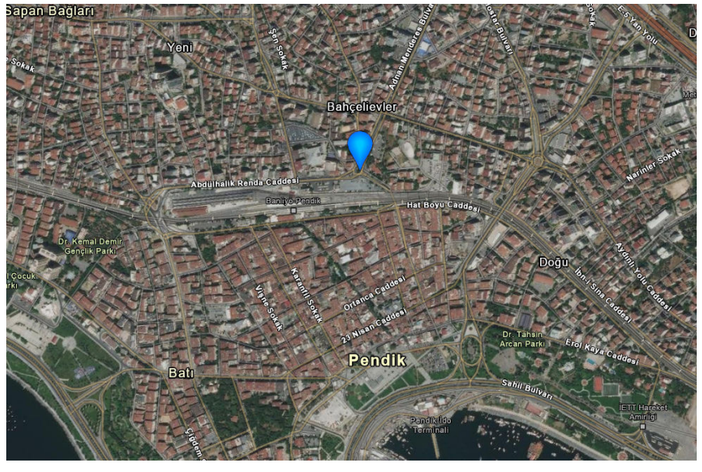
Levent – Büyükdere Avenue pedestrian crossing / raised junction (major road)





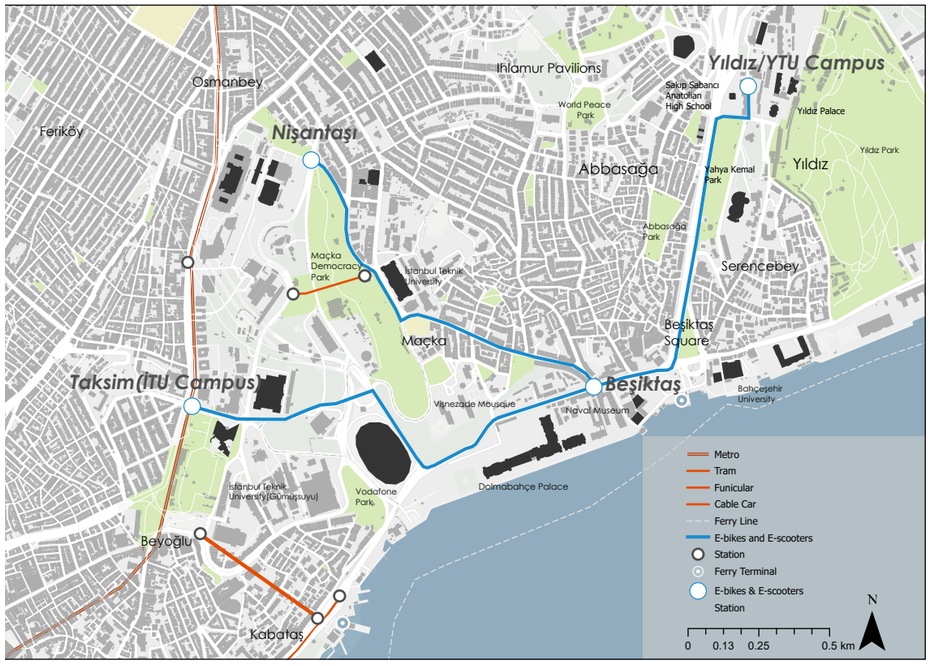
Kemerdere Junction, Pedestrian Crossing



Pendik Cycle Crossing

8 E-Bikes and E-Scooters

The E-Bikes and E-Scooters project focuses on micro-mobility in Istanbul. Its aim is to increase use of these modes of transport across the city, especially for first/last mile trips. This project also contributes to the innovation theme, as it is supported by the entrepreneurship ecosystem and smart applications. E-bikes and e-scooters offer an alternative not for active mobility but to short car and bus/minibus trips. Regulating location choices for e-scooters is of the upmost importance, and proposals include university campuses, commercial areas and transfer centres. Pilot areas cover the Beşiktaş Pier–Yıldız Technical University Campus, Istanbul Technical University Taşkışla Campus, and Nişantaşı.



Beşiktaş (Pier) – Yıldız /YTÜ Campus – Taksim (İTÜ Campus) / Beşiktaş – Nişantaşı

Problem Description

Create alternative for short car trips.

Relation with Other Projects

- Cycle Feeder Routes
- Neighbourhood Mobility Service Centres

Follow-Up Tasks

- Monitor distribution of e-scooters and regularly receive data from companies on the uses of e-scooters to determine key locations for new infrastructure development.
- Monitor accidents and develop necessary precautions.
- Observe charging fees of companies and provide incentives for low-cost companies (e.g. giving priority in the number of licenses).

Beneficiaries	Owner/Responsible	Third Parties Involved
University students, young working population	IMM	Business Community

Project Process

Preparation	Pilot	Implementation
Duration: Short Scope: Feasibility studies	Duration: Short Scope: Pilot area implementation	Duration: Medium and Long Scope: Roll-out of the project citywide

Estimated Budget	Financing Source
Low Cost – 0-10 million TL	IMM, private sector

Contribution to SUMP Objectives

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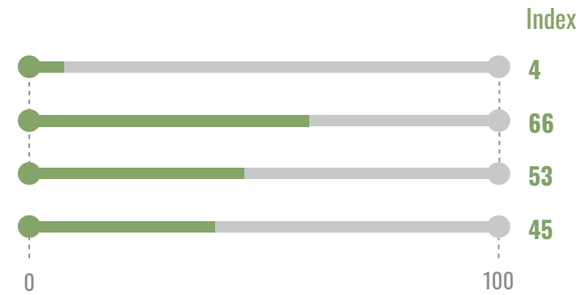

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