Sharing the experience from the MOBILITAS project & Opportunities of actions for the pilot area Antibes/Biot/Villeneuve-Loubet
Strategies for sustainable and low-carbon mobility in Mediterranean tourist destinations

Sharing the experience from the MOBILITAS project (Mobility for nearly-zero CO$_2$ in Mediterranean tourism destinations)

And opportunities of actions for the pilot area Antibes-Biot-Villeneuve Loubet (Alpes-Maritimes)
This report was realised by ENERGIES 2050 within the framework of the European project MOBILITAS (Mobility for nearly-zero CO₂ in Mediterranean tourism destinations) of the Interreg Mediterranean Programme. MOBILITAS is co-financed under this programme by the European Regional Development Fund.

The opinions expressed in this document are those of the authors and do not necessarily represent the views of the European Commission nor the ones of the European Regional Development Fund.

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Executive summary

The project MOBILITAS (Mobility for nearly-zero CO₂ in Mediterranean tourism destinations) is co-financed by the European Regional Development Fund (ERDF) under the Interreg-MED programme. It aims to provide concrete solutions to mobility issues faced by Mediterranean tourist destinations, and by this mean to increase these territories’ attractiveness, to reduce pollutions and traffic and to mitigate greenhouse gas emissions from the transport sector.

MOBILITAS is coordinated by the Regional Development Centre of Koper in Slovenia and involves nine other partners from a total of seven Euro-Mediterranean countries, including ENERGIES 2050 (France) but also the cities of Dubrovnik (Croatia), Misano (Italy), Platres (Cyprus) and Piraeus (Greece), Zdra’s Development Agency (Croatia), the Rimini Strategic Planning Agency (Italy), Paragone Europe (Malta) and the University luav of Venice (Italy).

In France, MOBILITAS’ experimental work was carried out in the Alpes-Maritimes department (Region SUD - Provence-Alpes-Côte d'Azur) with a specific focus on the cities of Biot, Antibes and Villeneuve Loubet (Plage). This work was implemented around 4 main activities. First, a wide range of data and statistics were collected to establish socioeconomic trends and profiles in the fields of climate change, tourism and mobility. A report of over 100 pages was produced, which was used among other to develop prospective scenarios on tourist mobility’s greenhouse gas emissions.

In parallel, states of the art of initiatives and actors as well as policies implemented at local level in the field of sustainable mobility were done. These enabled to better frame the project’s activities, in cohesion with dynamics already in place, to avoid duplication of actions and to enhance synergies.

Through these data gathering and analysis, several objectives and opportunities of actions that may support more sustainable modes of transport could be identify, with a particular emphasis placed on the use of electric bicycles. Roads and traffic lanes in the experimental area were screened in order to assess their practicality of use for this mode of transport.

This feds-in the development of a dedicated mobile application, ethiCycle, whose aim is not only to promote the use of electric bicycles in the pilot area but also to promote its attractiveness to tourists and residents alike. This application enhances a greener discovery of the local natural and cultural heritage through several functions: mapping of roads and their practicality for bicycle use, including danger zones, but also mapping of sites of interest through specific decks of e-"cards", predefined recreational cycling routes and collection of mobility data.
Eventually, a set of recommendations and courses of action related to tourist mobility, which could be integrated into local sustainable urban mobility plans, was designed, as summarized in the table below.

**Recommendations for sustainable mobility in the pilot area**

| SOFT AND ELECTRIC MOBILITY | Design adequate infrastructures  
|                           | Enhance green tourism  
|                           | Set up an e-bike renting system  
| SHARED AND PUBLIC TRANSPORTS | Adapt the offer to needs  
|                           | Enhance attractiveness through GPS monitoring and multimodal hubs  
|                           | Discourage the use of individual vehicles  
|                           | Develop self-serviced vehicles’ rental systems  
| TERRITORIAL AND WORK ORGANISATION | Enhance functional diversity  
|                           | Promote teleworking  
|                           | Develop carpooling and shift working hours  
| COOPERATION AND COORDINATION | Integrate the issue of tourist mobility into a new PCAET Ouest 06  
|                           | Increase participation  
|                           | Enhance transparency and governance  
| ITs                       | Use mobile applications  
|                           | Raise awareness with new tools  

Strategies for sustainable and low-carbon mobility in Mediterranean tourist destinations – MOBILITAS Project

**Acronyms**

**ADEME**: Agence de l’Environnement et de la Maîtrise de l’Énergie (Agency of the Environment and Energy Conservation)

**BAU**: Business as usual

**CASA**: Communauté d’Agglomération Sophia Antipolis

**CH**: Methane

**CIGALE**: Consultation d’Inventaires Géolocalisés Air cLimat Energie (Consultation of Geolocalised Inventories Air-Climate-Energy)

**CO**: Carbon Monoxide

**CO₂**: Carbon Dioxide

**COVNM**: Composés organiques volatils non méthaniques (non methane volatile organic compounds)

**DREAL**: Direction Régionale de l’Environnement, de l’Aménagement et du Logement (Regional Direction of the Environment, Planning and Housing)

**EPA**: Établissement Public à Caractère Administratif (Public administrative organisation)

**EAB**: Electric Assisted bicycle

**GDP**: Grosse Domestic Product

**GHG**: Greenhouse gas

**GNV**: Gaz Naturel de Ville – Urban natural gas

**INSEE**: Institut National de la Statistique et des Études Économiques (National Institute of Statistics and Economic studies)

**IPCC**: International panel on climate change

**NH₃**: Ammoniac

**NOₓ**: Nitrogen Oxide

**N₂O**: Nitrous Oxide

**ORECA**: Observatoire Régional Air Energie Climat (Regional Observatory Air-Energy-Climat)

**PACA**: Provence-Alpes-Côte d’Azur

**PADD**: Projet d’Aménagement et de Développement Durable (Project of planning and sustainable development)

**PCAE**: Plan Climat Air Energie Territorial (Territorial Climate Air Energy Plan)

**PCET**: Plan Climat Energie Territorial (Territorial Climate Air Energy Plan)

**PDU**: Plan de déplacements urbains (Urban mobility plan)

**PLH**: Plan local de l’habitat (Housing local plan)

**NDC**: Nationally Determined Contribution

**PLU**: Plan local d’urbanisme (Urban planning local plan)

**PLUI**: Plan local d’urbanisme Intercommunal (Intercommunal urban local plan)

**PPE**: Programmation Pluriannuelle de l’énergie (Plurennial energy programmation)

**PNACC**: Plan national d’adaptation au changement climatique (National Plan for climate change adaptation)

**PNR**: Parc Naturel Régional (Regional Natural Park)

**PNSE**: Plan National Santé Environnement (National Health and Environment Plan)

**PPA**: Plan de protection de l’Atmosphère (Atmospheric protection plan)

**PREPA**: Plan national de réduction des émissions de polluants atmosphériques (National plan to reduce emissions of atmospheric pollutants)

**PROA**: Plan Régional de la Qualité de l’Air (Regional Plan for Air quality)

**PRSE**: Plan Régional Santé Environnement (Regional Plan Health and Environment)

**PUQA**: Plan d’urgence de la qualité de l’air (Emergency plan for air quality)

**RD**: Route Départementale (Departmental road)

**RN**: Route Nationale (national road)

**SAR**: Schéma Régional d’Aménagement (Regional planning scheme)

**SCOT**: Schéma de Cohérence Territorial (Territorial Coherence Scheme)

**SDAGE**: Schémas directeurs d’aménagement et de gestion des eaux (Director Scheme for planning and water management)

**SICASIL**: Syndicat intercommunal de l’eau potable du bassin cannois

**SNBC**: Stratégie Nationale Bas carbone (Low Carbon Strategy)

**SNCF**: Société Nationale des Chemins de Fer (Railway national organisation)

**SO₂**: Sulphur dioxide

**SRADDÉT**: Schéma régional d’Aménagement, de Développement Durable et d’Égalité des Territoires (Regional Scheme for planning, sustainable development and territorial equality)

**SRCAE**: Schéma Régional Climat Air Energie (Regional Scheme Climate, Air, Energy)

**SSP**: Shared Socio-Economic Pathways

**UCGLA**: United Cities and Local Governments of Africa
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1. Introduction

This document was prepared by ENERGIES 2050 as part of the MOBILITAS project (Mobility for nearly-zero CO₂ in Mediterranean tourism destinations), in which the NGO is involved as partner. It aims to share the project’s experience and activities and to formulate policy recommendations for the "pilot" area Antibes-Biot-Villeneuve Loubet (Alpes Maritimes), selected for experimentation in France. On a more global perspective, the objective of this report is also to contribute to the global reflection on sustainable mobility in Mediterranean tourist destinations and to inspire other similar initiatives.

1.1. The MOBILITAS project

Mediterranean territories are subject to intense tourist flows impacting transport infrastructures and local mobility, especially during summer. These impacts are significant, whether it is traffic and congestion issues, reduced air quality, increased CO₂ emissions, noise pollution, etc. This is even more problematic when they add-up to already significant freight and work related transport flows.

In this context, appropriate responses must be brought, and alternatives to private vehicles should be offered and enhanced, including in particular public (bus, tram, train) and soft (bicycle, walking) modes of transport. For tourists arriving by sea or air, the integration between ports / airports and local modes of transport such as shuttles, bicycles, etc. must also be emphasised.

The MOBILITAS project, co-financed by the European Regional Development Fund (ERDF) under the Interreg-MED Programme, aims to promote low-carbon mobility models in Mediterranean tourist destinations, applying methodologies at local levels that can then be replicated on larger scales. This project is coordinated by the Regional Development Centre of Koper in Slovenia and involves nine other partners from a total of seven Euro-Mediterranean countries, including ENERGIES 2050 (France) but also the cities of Dubrovnik (Croatia), Misano (Italy), Platres (Cyprus) and Piraeus (Greece), the
Local and regional transport data in these areas, as well as solutions already implemented, were analysed in order to design appropriate action plans. Various scenarios (business as usual vs. scenarios where sets of solutions were implemented) were developed to enable decision-makers and other stakeholders to better assess the impacts of their decisions, in a logic of transparency and close monitoring and reporting. The partners of MOBILITAS project also promote the implementation of the recommended measures through a series of activities that support the action of local authorities and other stakeholders.

1.2. The NGO ENERGIES 2050

ENERGIES 2050 was born with the certainty that the development trajectories of our societies are not inevitable. As an informal network since 2007, and as a French non-profit and non-governmental organisation working exclusively in the general interest since 2011, ENERGIES 2050 contributes relentlessly to the transformation of our societies for a more humane and sustainable future.

Bringing together members and partners from more than sixty nationalities, ENERGIES 2050 works internationally to set up a new, positive and inclusive development model to transform constraints into opportunities for action. As a collective adventure in the quest for better ways of living together, ENERGIES 2050 has committed to a Great Transition around the energy transition, more sustainable cities and regions, and a shift towards a more humane, plural and united society, bringing peace and respecting the common goods of humanity.

ENERGIES 2050 organises its activities according to five complementary areas:

- Executing demonstrative and repeatable projects accompanied by technical studies and research actions to demonstrate the possibilities.
- Organising or attending meetings and conferences in order to expand the opportunities for exchanges and discussions.
- Publishing research results to pool and share knowledge.
- Educating, training and building capacities so that each individual can understand, know and act.
• Communicating to the greatest number to inform, mobilise and rally the willingness to act.

ENERGIES 2050 implements projects in more than forty countries. See more at the end of this report or online at www.energies2050.org.

1.3. Pilot/experimental zone of MOBILITAS in France and global objectives

ENERGIES 2050 is based in the Alpes-Maritimes department (Region SUD) and leads MOBILITAS’ activities in France. The Alpes-Maritimes, and in particular the coastal strip from Cannes to the West towards the Metropole Nice Côte d’Azur to the East, was selected for implementing these activities.

More particularly, and after an initial phase of data gathering, focus was brought on the cities of Villeneuve Loubet, Biot and Antibes. This choice was motivated by several parameters including:

• ENERGIES 2050’s knowledge of this territory;

• This area benefits from strong touristic attractiveness, which combined with the proximity of the employment centres of Nice and Sophia Antipolis, can lead to major mobility issues (especially at peak hours and during Summer);

• Individual modes of transport continue to be mainly used in this area, whereas important opportunities exist to promote alternative modes, including soft modes of transport, public transports, electric mobility and shared mobility.

The main trends and specificities of the area in terms of mobility and tourism have been identified in order to build suitable and feasible recommendations. In particular, these focus on the promotion of electric bicycles through a global approach covering different aspects: technical, infrastructures, costs, etc.

1.4. Structure of the document

This document is structured around two components and objectives:

1. To enhance and share all the work implemented by ENERGIES 2050 within the framework of MOBILITAS project, with the eventual aim of scaling it up to other territories;

2. Formulate a number of concrete recommendations to support the implementation of sustainable mobility and tourism policies in the pilot experimental area.

To this end, it offers, first of all, a review of the mobility and tourism challenges met by the Biot-Antibes-Villeneuve Loubet area, and more generally by the Côte d’Azur (French Riviera) and the Alpes-Maritimes department (part 2). This review contextualizes the various activities carried out within the framework of MOBILITAS, described in Part 3. These first two parts lead eventually to concrete proposals (part 4) that could enhance sustainable mobility, related to tourism but not solely, on the territory.
2. Trends and policies in the pilot area

ENERGIES 2050's activities within the framework of MOBILITAS focused, initially and for the review of local trends and policies on tourism and mobility, on the coastal strip from Cannes to the West to the Nice Côte d’Azur Metropole to the East, and more generally on the Alpes-Maritimes department.

*Figure 2.1: Alpes-Maritimes Department*

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1 See [online]: http://www.provenceweb.fr/f/alpmarit/carte.htm
2.1. Data on tourism and mobility in the Alpes-Maritimes and the French Riviera (Côte d’Azur)

2.1.1. General data

The Alpes-Maritimes department is located in the South-East of France, along the Mediterranean coast at the border with Italy. It includes diverse geographical areas, the coastline rapidly rising towards the hilly hinterland and further in toward the mountains of the Southern Alps and the Mercantour natural park. This sunny region benefits from a strong touristic potential, around seaside activities, lively and dynamic coastal cities (Nice, Cannes, Antibes, etc.), old villages dominating the coast (Saint Paul de Vence, Biot, Vence, etc.), a diversified cultural and natural heritage and also winter sports resorts such as Isola 2000, Auron and Valberg.

Taken globally, the French Riviera is the second touristic pole in France, after Paris and its region. The Côte d’Azur Tourism Observatory estimated the sector’s contribution to the regional economy at 18% of its Gross domestic product in 2016, and 16% of its jobs. The infrastructures are varied and include for the whole department a large number of hotels, almost half of which are 3 to 4 stars, 8 exhibition and congress centres, 15 ski resorts, 5 ports, hundreds of restaurants, etc.

Among the most visited local attractions are Marine land in Antibes (1.2 million visitors in 2014), the Fragonard perfumery (Grasse and Eze, 900,000 visitors in 2015), Biot’s traditional glassware (700,000 visitors in 2014), Phoenix flower park (Nice, 400,000 visitors in 2015) and the Lérins islands (Cannes, 370,000).

According to a study conducted among passengers landing at Nice Cote d’Azur airport, visitors are mainly couples (26% of respondents), followed by seniors (20%), independent travellers (17%) and families (14%), with an average age of 43 years old. The cultural, natural and culinary heritage of the Côte d’Azur (58%) is the main reason behind their visit, ahead of family tourist resorts (26%). The Alpes-Maritimes department has a total of 630 hotels with a capacity of 27016 rooms, as well as a large number of second homes (177943, 48,000 of which are foreign-owned).

2.1.2. Delimitation of the experimental zone

After an initial phase of data analysis and desk research, MOBILITAS project’s activities focused in particular on the cities of Biot, Antibes and Villeneuve Loubet (Plage - beach). The selected area includes a variety of tourist attractions, including the coastal area linking Villeneuve Loubet in the East to Antibes in the West, typical old towns (Antibes and Biot), natural areas (hills, parks), as well as some of the most visited sites in the region (Antibes Land, Marine Land, Biot’s Glassware, Fernand Léger National Museum, etc.).

It is also, from a mobility perspective, a strategic gateway between Cannes and Nice and also to the Sophia Antipolis’ activity zone. Mobility issues are therefore often important, especially during rush hours and summer tourism peaks.

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4 http://www.cotedazur-touriscope.com/v2/statistiques/?action=tableaux&yann=DEMANDE
To cope with these flows, a number of policies related to transport are already implemented by local authorities (such as sustainable urban mobility plans, climate and energy territorial plans, etc.). It should be noted here that, on the administrative level, the cities of Antibes, Villeneuve Loubet and Biot are part of the CASA, the Communauté d’Agglomération Sophia Antipolis (Sophia Antipolis Urban Community).
2.2. Mobility at the heart of local action against climate change

2.2.1. Framework to local actions for sustainable mobility

The diagram below summarizes the various local policies and planning tools existing in France, coordinated by the 2015’s Loi NOTRE (Loi sur la Nouvelle Organisation Territoriale de la République – Law on the new territorial organisation of the Republic). The loi NOTRe introduces a regional planning scheme, the SRADDET - Schéma régional d’aménagement, de développement durable et d’égalité des territoires (Regional scheme for planning, sustainable development and territorial equality), which groups together pre-existing schemes such as the SRCAE (Regional Scheme Climate, Air, Energy), regional inter-modality schemes, the regional waste prevention and management plan or the plan on biodiversity (article 6 of the loi NOTRe). The SRADDET is compliant with general planning and urban development rules, the master plans for water development and management (SDAGE) and flood risk management plans. It provides a framework for local urban planning plans (Plans locaux d’urbanisme, PLU), which are themselves constrained by the Territorial Coherence Schemes (SCOTs – Schémas de Cohérence Territoriale), municipal maps, urban travel plans (PDUs – Plans de Déplacements Urbains), as well as the SRCAEs.

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7 See [online] https://casa-infos.agglo-casa.fr/carte_casa
11 Learn more: GEST'EAU, La communauté des acteurs de gestion intégrée de l’eau, Qu'est-ce qu'un SDAGE ? See [online] http://www.gesteau.eaufrance.fr/presentation/sdage
As the SRADDET is prescriptive, it applies to all lower-ranking documents (SCoT, PLU; PDU, PCAET, PNR charts, etc.)\(^{13}\).

Figure 2.4: Urban planning tools and policies\(^{14}\)

Region SUD (formerly PACA - Provence-Alpes-Côte d’Azur)’s SRADDET provides a frame to local urban planning documents, including those of the Communautés d’Agglomération Sophia Antipolis (CASA) and the municipal documents of Antibes, Biot and Villeneuve-Loubet. It has been under development since early 2017 and is expected to be completed by July 2019\(^{15}\), following the SRCAE developed in 2013 (see box below).

Box 1: Presentation of the SRCAE – Region SUD-PACA\(^{16}\)

On a regional scale, the regional climate, air and energy schemes (SRCAE) foreseen by the law Grenelle 2 constitute framework plans for regional climate action. They are the result of a collegial process led by the regional prefect and the president of the Regional Council, in association with all stakeholders, and are supervised by the State, through the Regional Directorates for the


\(^{15}\) See [online] http://www.paca.developpement-durable.gouv.fr/sraddet-r2208.html


The SRCAEs serve as a reference for all territorial policies in the field of energy and climate actions, and are reviewed every five years. Their objectives are multiple:
- Define regional energy management objectives to mitigate climate change;
- Set guidelines to prevent or reduce air pollution or mitigate its effects;
- Set qualitative and quantitative objectives per geographic zone to exploit potential for terrestrial, renewable and waste energy.

The SRCAE of the PACA region was approved by the regional assembly on the 28th of June 2013 and adopted by the regional prefect on the 17th of July 2013. It proposes different regional greenhouse gas emission scenarios based on projections in the key sectors of passenger and freight transport, private and tertiary buildings, industry, agriculture and the development of renewable energy.

**Emissions and final energy consumption in region SUD (source SRCAE/Air PACA)**

The strategic objectives of the SRCAE are to:
- Reduce the region’s final energy consumption by 13% in 2020 and 25% in 2030 compared to 2007;
- Reduce per capita energy consumption by 20% in 2020 and 33% in 2030 compared to 2007;
- Reduce the region’s GHG emissions by 20% in 2020 and 30% in 2030 compared to 2007;
- Increase the share of renewable energy in final energy consumption to 20% in 2020 and 30% in 2030;
- Reduce nitrogen oxide emissions by 40% in 2020 compared to 2007;
- Reduce fine particulate matter (PM 2.5) emissions by 30% in 2015 compared to 2007;
- Adapt to the impacts of climate change through 6 strategic measures.

The objectives specific to transports are presented below.

**Energy efficiency in transports and urban planning - SRCAE PACA**

- Doubling the modal share of public transports by 2030
- Active modes (biking, walking) represent 50% of intra-urban mobility by 2030
- Demographic growth mainly localised in already urbanised hubs
- 8% of electric and hybrid vehicles in 2030
- Doubling the share of railway and fluvial transports for freight
Transport is at the heart of this regional strategy for sustainable development and the fight against climate change, with the aim of increasing the use of public transports (doubling its modal share) and soft modes of transport (reaching half of intra-urban travel) by 2030.

In addition to these master plans, the Region SUD also committed itself to a voluntary climate plan, published in 2018, with the following objectives:
- Regional carbon neutrality by 2050;
- 25% reduction in transport-related emissions by 2021;
- Massive investment in renewable energy;
- The focus on green growth, leading to the creation of sustainable, non-exportable jobs;
- The development of public transport through a tax on heavy goods vehicles in transit.

Once again, transport is at the heart of this strategy, which is divided into 100 initiatives and 5 strategic lines of action. The “Cap sur l’écobilité” (Move toward ecomobility) line has a budget of €191 million with components related to public transport and freight, individual mobility, and transport with 0 consumption, 0 waste.

### Figure 2.5: Region SUD’s Climate plan

<table>
<thead>
<tr>
<th>Axis</th>
<th>2018 Budget (millions €)</th>
<th>Lighthouse initiative</th>
<th>Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move toward eco-mobility</td>
<td>191</td>
<td>1 electric charging station every 100km</td>
<td>Public transports</td>
</tr>
<tr>
<td>Carbon neutrality</td>
<td>73</td>
<td>Reduce energy consumption by 20% in high schools within 3 years, and equip 30% of them with rooftop PV</td>
<td>Freight, Individual mobility, Transports « 0 conso, 0 gaspi » (no consumption, no waste)</td>
</tr>
<tr>
<td>A factor of growth</td>
<td>47</td>
<td>Dedicate at least 30% of funding to environmental objectives</td>
<td>Develop Renewable energy, Refurbish more... and better</td>
</tr>
<tr>
<td>Preserve the natural heritage</td>
<td>39</td>
<td>Reach the objective 0 plastic by 2030</td>
<td>Prevent risks, Preserve terrestrial areas, Preserve the Mediterranean sea</td>
</tr>
<tr>
<td>Live well in PACA</td>
<td>23</td>
<td>Design an indicator for well-being</td>
<td>Create cities where life is good</td>
</tr>
</tbody>
</table>

The individual mobility component is of particular interest to the MOBILITAS project and is divided into three objectives:
- Support and develop projects offering new mobility services (car sharing, carpooling, on-demand transport, cycling, walking, etc.);
- Support the implementation of Corporate Mobility Plans (plans de déplacements entreprises);
- Implement actions to promote public transport, inform the general public about alternatives to using a private car and support behaviour changes.

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Regional climate and energy schemes are implemented at the territorial level through the preparation of climate air energy plans (PCEAT, PCET – see box 2). According to ADEME’s23 observatory, 24 territorial climate plans (mainly PCET) could be identified in the Region SUD, to which can be added some initiatives not referenced in this observatory24, including 9 in the Alpes-Maritimes.

Figure 2.6: Local authorities with a climate energy plan in Region-SUD 25

<table>
<thead>
<tr>
<th>Department</th>
<th>Local authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alpes de haute Provence</td>
<td>Durance Lubéron Verdon Agglomération</td>
</tr>
<tr>
<td></td>
<td>Conseil Départemental des Alpes de Haute Provence</td>
</tr>
<tr>
<td>Hautes Alpes</td>
<td>Conseil départemental</td>
</tr>
<tr>
<td>Alpes Maritimes</td>
<td>Communauté d’agglomération de la Riviera française</td>
</tr>
<tr>
<td></td>
<td>Communauté d’Agglomération du Pays de Grasse</td>
</tr>
<tr>
<td></td>
<td>Communauté d’agglomération des Pays de Lérrins</td>
</tr>
<tr>
<td></td>
<td>Ville de Nice et Métropole Nice Côte d’Azur</td>
</tr>
<tr>
<td></td>
<td>Ville de Cannes</td>
</tr>
<tr>
<td></td>
<td>Commune d’Antibes Juan les Pins</td>
</tr>
<tr>
<td></td>
<td>Communauté d’agglomération de Sophia Antipolis</td>
</tr>
<tr>
<td></td>
<td>Conseil départemental des Alpes Maritimes</td>
</tr>
<tr>
<td></td>
<td>Ouest 06</td>
</tr>
<tr>
<td>Bouches du Rhône</td>
<td>Pays d’Arles</td>
</tr>
<tr>
<td></td>
<td>Ville d’Arles</td>
</tr>
<tr>
<td></td>
<td>Agglomération du pays d’Aubagne et de l’Etoile</td>
</tr>
<tr>
<td></td>
<td>Marseille Provence Métrope</td>
</tr>
<tr>
<td></td>
<td>Ville de Marseille</td>
</tr>
<tr>
<td></td>
<td>Agglomération du pays d’Aix</td>
</tr>
<tr>
<td></td>
<td>Ville d’Aix en Provence</td>
</tr>
<tr>
<td></td>
<td>Syndicat d’agglomération nouvelle Ouest Provence</td>
</tr>
<tr>
<td></td>
<td>Communauté d’agglomération du pays de Martigues</td>
</tr>
<tr>
<td></td>
<td>Communauté d’agglomération Arles Crau Camargue Montagnette</td>
</tr>
<tr>
<td>Var</td>
<td>Communauté d’agglomération Sud Sainte-Baume</td>
</tr>
<tr>
<td></td>
<td>Communauté de Communes du Golf de Saint Tropez</td>
</tr>
<tr>
<td></td>
<td>Communauté d’agglomération Dracénoise</td>
</tr>
<tr>
<td></td>
<td>Commune de Fréjus</td>
</tr>
<tr>
<td></td>
<td>Communauté d’Agglomération Var Esterel Méditerranée (CAVEM)</td>
</tr>
<tr>
<td>Vaucluse</td>
<td>Communauté d’agglomération Ventoux-Comtat Venaissain</td>
</tr>
<tr>
<td></td>
<td>Communauté d’agglomération du Grand Avignon</td>
</tr>
</tbody>
</table>

Four climate plans directly concern MOBILITAS project’s experimentation area:
- The departmental climate plan of the Alpes Maritimes;
- The Ouest 06 Climate Plan, which includes the CASA and the city of Antibes Juan les Pins;
- The CASA’s climate plan;
- The climate plan of the city of Antibes Juan les Pins.

A brief analysis of these different action plans, and in particular their mobility aspects, is provided in the next sections.

23 See [online]: https://www.territoires-climat.ademe.fr/observatoire
Box 2: The Territorial Climate Air Energy Plans (PCAET)²⁶

In 2004, France launched its national climate plan, inviting local authorities to draw up their own climate plans, then named “Territorial Energy and Climate Plan” (PCET – Plan Climat Energie Territoire)²⁷. The aim was to implement the national strategy for sustainable development at the territorial level, based on the local authorities’ own competences and specificities.

Climate action framework at the national level

In France, the structuring framework for climate action is governed in particular by the law on energy transition for green growth of 2015²⁸, which aims to reduce greenhouse gas (GHG) emissions by 40% by 2030 and 75% by 2050 (Factor 4), compared to 1990 levels.²⁹

To facilitate the achievement of these objectives, planning tools have been established at the national level:

- the national low-carbon strategy (LCS - cross-sectoral and sectoral recommendations for the transition toward a low-carbon economy);
- carbon budgets (GHG emission ceilings defining the emission reduction trajectory path through successive five-year periods); and
- Multiannual energy planning in line with the low carbon strategy and the carbon budgets, setting priorities for action to public authorities on energy management.

Climate action framework at the territorial level

At the territorial level, this same law related to the energy transition for green growth foresaw the modernising of pre-existing PCET through the Territorial Climate Air and Energy Plans (PCAET, where Air is added to the PCET)³⁰. While the Grenelle laws provided that PCET should be implemented by local authorities over 50,000 inhabitants, the PCAET are now mandatory for all inter-communalities of more than 20,000 inhabitants.³¹

The PCAET take over the objectives of the PCET (urban planning and development, improvement of energy efficiency in the transports and buildings sectors and development of renewable energy) to which are added air quality. In practice, the PCAET are implemented through four stages:

(i) a territorial diagnosis (GHG emissions and local pollutants; energy consumption; power distribution networks; renewable energy; vulnerabilities to climate change effects);
(ii) a territorial strategy (linked to national priorities);
(iii) an action plan (operational coordination tool); and
(iv) a monitoring and evaluation system (related to governance, management and indicators to be used to achieve the objectives).

Dynamics and synergies between national, subnational and territorial strategies

It should be noted that beyond complying with national objectives, territorial climate plans must also be in line with other subnational levels of governance. This is notably provided for by the law on the New Territorial Organisation of the Republic (known as the loi “NOTRe”) adopted in 2015³², which organises environmental governance and competences at different territorial levels. The development of PCAET must take into account all national and regional strategies which are themselves interdependent, setting targets - at least - ambitious enough to meet the objectives set at the higher level.

²⁶ See [online] ENERGIES 2050, CGLUA (2018)
²⁸ Légifrance, JORF, 2015.
²⁹ SOeS, 2016. see p. 72.
³⁰ Légifrance, JORF, 2016.
2.2.3. The Alpes-Maritimes’ climate plan

The Alpes-Maritimes’ climate plan based on three strategic axis: buildings and urban planning, mobility and transports, and economic and social development.

Figure 2.7: Climate Plan 06 – Regional Council Alpes-Maritimes

The Mobility and Transport axis is divided into five components:

- Equipment: departmental roads;
- Infrastructures: supervises digital development and communication channels in order to strengthen territorial cohesion;
- Ownership of the ports of Villefranche-sur-Mer (Darse et Santé);
- Organisation of interurban collective road passenger transports and scholar transport outside urban areas;
- Development of bicycle lanes.

See [online] https://www.departement06.fr/cadre-de-vie/plan-climat-5820.html

See [online] https://www.departement06.fr/plan-climat/trophees-climat-energie-5356.html

See [online] https://www.departement06.fr/plan-climat/le-contexte-territorial-5347.html
In addition, the economic and social development axis is divided into three components, including one related to tourism, with actions linked to the renovation of tourist accommodation and the development of thematic tourist tours.

The webpage dedicated to the climate plan recalls that the department’s emissions were estimated at 3.5 MtCO₂e and that a major source of emissions is linked to air transport (mainly tourists and visitors), also adding that this activity is essential for the department’s current economy, with low margins for emission reduction. It therefore insists on the necessity to consider potential areas for improvement here as part of an overall reflection on the department’s accessibility and economic vulnerability in the event of a continuous increase in fuel prices36.

It also points out that annually, more than 2 million tourists use the train (each trip having an estimated carbon intensity of 5kgCO₂e), compared to 5.8 million for passenger cars (35kgCO₂e) and 2.4 million for air travel (500kgCO₂e). Finally, it stresses that 63% of the territory’s emissions (2.2 MtCO₂e) are associated with people’s mobility37. The MOBILITAS project is here fully in line with the context of the department.

2.2.4. The climate plan Ouest 06

The Climate Plan Ouest 06 is a singular approach gathering several local authorities of over 50000 inhabitants. Launched in 2012 and adopted in 2014, the climate plan Ouest 06 in fact involves the CASA, the city of Antibes Juan les Pins, the Communauté d’Agglomération of Pays de Grasse, the city of Cannes, the city of Grasse and the Communauté d’Agglomération of Pays de Lérins.

Box 3: Objectives of the climate plan Ouest 0638

The objectives of the Ouest 06 climate plan are to implement:
- joint actions, based on shared issues throughout the territory;
- specific actions to each authority, according to their local context and skills.

Together for an ambitious climate plan

The political willing behind the plan is to pool resources and conduct a joint reflection to ensure greater coherence in the implementation of actions at the territorial level. Some actions are already carried out in partnership such as:
- the contribution to the Otto and Co carpooling site;
- the publication of the "eco-construction" guide for local authorities and individuals;
- the design of a Territorial Supply Plan for wood energy and development studies initiated at the level of the Western Territorial Coherence Scheme and the SCOT CASA.

The PCET Ouest 06 enhances the collaboration that already exists between local authorities, by initiating a reflection on structuring ambitious actions, on the scale of a living basin, in fields such as public transports, the development of renewable energy, regional planning, etc.

A long-term partnership

After the implementation of a first set of concrete actions, the PCET Ouest 06 was to be evaluated and revised every 5 years. A steering committee bringing together the political and technical representatives of local authorities guarantees the common governance of the project.

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36 See [online] https://www.departement06.fr/etat-des-lieux/resultats-du-bilan-carbone-a-l-echelle-departementale-5355.html
37 See [online] https://www.departement06.fr/etat-des-lieux/resultats-du-bilan-carbone-a-l-echelle-departementale-5355.html
38 See [online] http://www.planclimatouest06.fr/wordpress/objectifs-3/
Strategies for sustainable and low-carbon mobility in Mediterranean tourist destinations – MOBILITAS Project

Figure 2.8: Key steps of the climate plan

- **Concertation Interne**
  - Octobre 2012: état des lieux de la prise en compte de la problématique de l'énergie et du climat dans les politiques publiques actualisées
  - Mars 2013: élaboration des pistes d’actions propres à chaque collectivité
  - Avril 2013: élaboration des pistes d’actions communes aux collectivités

- **Concertation Externe**
  - Juin 2013: ateliers de concertation des partenaires des collectivités
  - Juillet 2013: ateliers avec les communes de la CASA
  - Octobre 2013: 2ème rencontre des véhicules propres

- **Forum de lancement**
  - Décembre 2012: Forum de lancement du Plan Climat Energie Ouest 06

- **Adoption du PCET**
  - Décembre 2013: Adoption du PCET Ouest 06 en conseils communautaires et municipaux

- **Forum de restitution**
  - Dates et modalités à fixer.
  - Restitution des résultats - Consultation des représentants de la société civile.

Figure 2.9: Actions specific to mobility in the Climate Plan Ouest 06

<table>
<thead>
<tr>
<th>Operational Objective</th>
<th>Action</th>
<th>Content</th>
</tr>
</thead>
</table>
| Promote the use of environmentally friendly modes of transport and alternatives to mobility | Facilitate mobility between the Transport Organizing Authorities of Ouest 06 | > Continue cooperation on a concerted service offer between the AOTs (Authorisation d’Occupation Temporaire – temporary Occupation Authorisation)  
> Strengthen the readability of the territory's intermodal offer through joint communication at the level of the AOTs and SYMITAM (Syndicat Mixte des Transports des Alpes-Maritimes – Mixt syndicate of Transports in the Alpes Maritimes) |
|                      | Structuring an incentive policy for alternative modes to private cars | > Act through a privileged parking policy  
> Support the development of electrical charging stations  
> Structure a development strategy for the 3rd modes: On-demand transport, carpooling, car sharing, rental vehicles |
|                      | Encourage collective solutions to the use of soft modes by companies | Coordinate the various inter-institutional travel plans in the territory and promote their dissemination |
|                      | Optimize urban logistics at the scale of Ouest 06 | > Carry out a freight analysis Ouest 06  
> Set up a consultation body: local authorities, retails, transporters, local associations, etc.  
> Relay towards carriers the charter of voluntary commitments to reduce GHG emissions  
> Integrate urban distribution as a strategic axis in local PDUs  
> Identify the courses of action to be implemented |

---

The joint action plan linked to PCET Ouest 06 is structured around 5 axes and 31 operational objectives, several of which are directly linked to transports, notably within axis 1: Engaging Ouest 06 towards the construction of a sustainable territory. Adopted in 2014, this climate plan should be revised in 2019, five years after it was adopted.

2.2.5. CASA’s climate and energy plan

Launched in 2011\textsuperscript{41}, the Sophia Antipolis Urban Community’s PCET is structured around 11 strategic axes including, with a direct link to mobility issues:

- Integrate energy and climate issues into urban planning and construction policies;
- Promote the use of environmentally friendly modes of transport and alternatives to travel;
- Develop eco-responsibility;
- Assist and facilitate the emergence of exemplary projects.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure2_10.png}
\caption{General orientation plan SCOT - CASA\textsuperscript{42}}
\end{figure}

The area’s greenhouse gas emissions inventory highlighted the significant share of transports (taking into account long-distance tourist travel), with mobility accounting for more than a quarter of the territories direct emissions. Two thirds of all trips were made, according to some data, by car - a mode of transport that accounted for 90% of CASA’s direct "mobility" emissions. The total energy bill for mobility was estimated (2012) at €75 million and could reach €100 million by 2020\textsuperscript{43}.

\textsuperscript{41} See [online] https://www.territoires-climat.ademe.fr/observatoire/540-communaute-dagglomeration-de-sophia-antipolis/demarche
\textsuperscript{42} See [online] https://casa-infos.agglo-casa.fr/sites/files/documents/carte_assemblage.pdf
Figure 2.11: GHG emissions inventory (upper figure) and journey’s motivations (bottom)\textsuperscript{44,45}

\begin{itemize}
\item \textbf{Consommations énergétiques et émissions directes du territoire:}
  \begin{itemize}
  \item 1. Habitats
  \item 2. Mobilité
  \item 3. Entreprises (Tertiaire, Industrie, Agriculture)
  \end{itemize}

\item \textbf{Evaluation consolidée à partir de données du territoire:}
  \begin{itemize}
  \item Autres motifs
  \item Accompagnement
  \item Visites
  \item Achats
  \item Études
  \item Travail
  \end{itemize}

\item Energy consumption and direct emissions of the territory

\item Les émissions indirectes liées à la mobilité longue distance:
  \begin{itemize}
  \item Evaluation incontournable pour intégrer le tourisme
  \item Evaluation plus approximative mais à partir de statistiques locales
  \end{itemize}

\item Indirect emissions linked to long distance mobility

\item Les autres émissions indirectes du territoire:
  \begin{itemize}
  \item Emissions qui ont lieu à l’extérieur du territoire
  \item Emissions taking place outside the territory (food prod., materials)
  \end{itemize}

\item Les autres émissions indirectes du territoire:
  \begin{itemize}
  \item Emissions qui ont lieu à l’extérieur du territoire
  \item Emissions taking place outside the territory (food prod., materials)
  \end{itemize}

\item Consommations:
  \begin{itemize}
  \item Achats
  \item Études
  \item Travail
  \item Shopping
  \item Study
  \item Work related
  \item Déplacements
  \item Distances
  \item Consommations
  \end{itemize}

\item Other indirect emissions on the territory

\item Emissions taking place outside the territory (food prod., materials)

\item More uncertainty with lack of local data

\item Journey

\item Distance

\item Consumption

\end{itemize}

\textsuperscript{44} Translations: top left to bottom right

\textsuperscript{45} See [online] \url{http://www.planclimatouest06.fr/wp-content/uploads/2014/04/Synthese-GES-territoire-CASA-2013.pdf}
The following table summarizes some of the specific actions then envisaged in the field of transport to address these issues.

**Figure 2.12: Examples of actions specific to transport in CASA’s climate plan**

<table>
<thead>
<tr>
<th>Axis</th>
<th>Actions</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrating energy and climate into planning and construction policies</td>
<td>Integration of an &quot;Energy Transition&quot; component into the revision of the SCOT CASA</td>
<td>Realised</td>
</tr>
<tr>
<td>Promote the use of environmentally friendly modes of transport and alternatives to mobility</td>
<td>Carrying out feasibility studies for the development of cycle lanes in CASA municipalities</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td>Construction of a bus with a high level of service in a dedicated site between Antibes and Sophia Antipolis</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td>Construction of a multimodal hub at Antibes’ SNCF station</td>
<td>Realised</td>
</tr>
<tr>
<td></td>
<td>Opportunity study for the development of carpooling and network of meeting points for carpooling</td>
<td>Planned</td>
</tr>
<tr>
<td></td>
<td>Installation of public charging infrastructures for electric vehicles to promote the development of electro-mobility on the territory and ensure the reinsurance of electric vehicle users (shared action)</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td>Inventory and support by an expert consulting firm on the improvement of urban logistics (shared action)</td>
<td>Realised</td>
</tr>
<tr>
<td>Develop eco-behaviours</td>
<td>Acquisition of clean vehicles in the captive CASA fleet (electric vehicles and Natural gas vehicles)</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td>Organization of awareness sessions for agents on eco-responsible actions</td>
<td>Realised</td>
</tr>
<tr>
<td>Assist and facilitate the emergence of exemplary projects</td>
<td>Launch of the City Mobil 2 project in partnership with the European Commission: commissioning of autonomous experimental electric shuttles in Sophia Antipolis</td>
<td>Realised</td>
</tr>
</tbody>
</table>

It should be noted that little information (at least publicly available) exists on the implementation of these actions and their impacts, and that delays have been experienced in the preparation of the PCAET.

Interventions on CASA’s Urban Travel Plan and sustainable mobility were however made at a workshop held in April 2017\(^{47}\). These interventions have highlighted some recent achievements, such as the construction of the bus-tram (in progress) between Antibes and Sophia Antipolis, the experimentation of a driverless shuttle in Biot and the arrival of electric scooters as an alternative to thermal powered vehicles.

\[^{46}\)](footnote_text) At time of report
\[^{47}\)](footnote_text) See [online] [https://www.centraliens-marseille.fr/article/plan-de-deplacement-urbain-de-la-casa-et-la-mobilite-durable/03/05/2017/95](https://www.centraliens-marseille.fr/article/plan-de-deplacement-urbain-de-la-casa-et-la-mobilite-durable/03/05/2017/95)
In terms of electric bicycle mobility, a number of initiatives were also put forward by the Association pour l’Avenir du Véhicule Electro-Mobile (AVEM) during this workshop, in particular the operation of 1000 electric bicycles in Sophia.

Once again, the MOBILITAS project fits perfectly into these multi-stakeholder dynamics for the promotion of sustainable mobility. In addition, in view of the specific characteristics of transport in the area, it seemed essential to integrate the issue of commuting and not only touristic mobility into the actions carried out.

2.2.6. PCET of the city Antibes Juan les Pins

Also launched in 2011, the PCET of the city of Antibes Juan les Pins is part of the overall Climate Plan Ouest 06’s approach. The city’s emissions profile showed a strong impact of mobility and transport: 60% of daily trips were made by private vehicle, with an energy consumption of 170GWh per year.

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48 See [online] https://www.centraliens-marseille.fr/article/plan-de-deplacement-urbain-de-la-casa-et-la-mobilite-durable/03/05/2017/95

The territory’s action strategy is divided into the same 5 components described for the Ouest 06’s climate plan. Specific contributions of the city to this plan includes, related to transports:

- Support the development of electric vehicles;
- Optimize the cycling traffic scheme;
- Implement a travel plan for the administration and give priority to less polluting vehicles.

In December 2017, the city published its Sustainable Development and Planning Project (PADD – Projet d’aménagement et de développement durables)\(^5\), the objectives of which are to guarantee sustainable mobility and lifestyles for residents, to set quantified objectives for reducing spatial consumption and combating urban sprawl, and to ensure harmonious spatial development and planning, with actions directly related to transport, in particular:

- Continue and adjust urban renewal in areas close to the main public transport axes;
- Support the restructuring of the Antibes Nord road complex;
- Improve the flow of local freight traffic in the densest areas;
- Continue the implementation of exclusive right-of-way public transport from the Antibes transportation hub to the techno-pole;
- Boost and/or create a hub at the railway stations in the city centre, Juan-les-Pins and Biot, including management of schedule between rail and road transports;
- Promote safe soft transportation modes, walking and cycling, in particular: requalify the RD 6098 between Fort Carré and Villeneuve Loubet, support the bus-tram by developing areas dedicated to soft travel modes and set up a network of cycle lanes throughout the city;
- Encourage the development of public spaces in certain high-stakes sectors by building equipment to limit nuisances such as bicycle parking spaces;
- Create park and ride facilities on the outskirts of the city centre, close to the bus-tram.

Strategies for sustainable and low-carbon mobility in Mediterranean tourist destinations – MOBILITAS Project

2.2.7. In Biot: PLU, transports and citizen based initiatives

**Box 4: Network and circulation in Biot**

Some of the local transport issues are summarized in the city’s PLU as follows (translated): Biot is located 20km from Nice airport and more precisely north of the A8 motorway, a major East-West axis linking Italy to Aix en Provence. The SNCF Biot’s train station is located 3km from the centre, and is served by direct bus lines. Means of access to Biot from Antibes or Villeneuve-Loubet exit. From the motorway, the municipality is served south of Biot by two major roads: the RD4 which links Antibes to Valbonne and the RD504 which serves the Sophia Antipolis business sector. Local service is most often provided by private, dirt or paved roads/paths. However, due to many areas served by dead ends, car or pedestrian permeability does not exist. People, in order to pass from one street to another, are forced to pass through the main service road. There are malfunctions on the municipal territory linked to congestion problems towards Sophia Antipolis, particularly during peak hours. The roads are saturated and poorly adapted to the high traffic due to commuting traffic.

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The section below focuses on different policies implemented in the city of Biot, where most of MOBILITAS’ experimentation work was carried out.

Figure 2.16: PLU Biot, Cadastre 2014

Nine bus lines are circulating through Biot, but the offer is considered to be poorly adapted (timetables, frequencies) and their circulation becomes very complicated in the event of traffic jams.

Figure 2.17: Transport network envibus in Biot

Only 6% of population would thus use public transport for work related trips and 7.5% (compared to 13% at the departmental level) of CASA residents make nearly 3 trips using public transport per week.

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53 See [online] http://www.biot.fr/wp-content/uploads/2017/05/DIAGNOSTIC-PLU.pdf – Translation: Main network; Secondary network; Tertiary network; Path; Communal entry; Railway Station
In terms of soft transportation modes, many limits are identified by the PLU, with unevenly distributed and particularly lacking infrastructures in the eastern part of the municipality. It is mentioned that the lack of adequate facilities (sidewalks, secure trails) and the topography do not make the territory a welcoming place for soft mobility, particularly to access the village centre. The PLU also insists that secured access is still unsatisfactory to allow real pedestrian and cyclist developments. The lack of parking spaces during the summer tourist season is finally highlighted.

A consultation meeting with the population was held in March 2016 to update the PLU, including a workshop specific to mobility and the local economy. Issues associated with transports were widely highlighted by respondents, as summarised in the table below:

<table>
<thead>
<tr>
<th>Place of residence for people working in Biot</th>
<th>Mode of transport used for commuting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top to bottom: Biot; Alpes Maritimes (other than Biot); Region SUD (other than Alpes Maritimes); Other Region; Abroad</td>
<td>Top to bottom: Vehicules, truck and van; Two wheels; Walking; Public transports</td>
</tr>
</tbody>
</table>

Figure 2.18: Modal share – Commuting

Figure 2.19: Infrastructures soft transportation modes - Biot

Sources: DGT3P - Geodetrie 2014, DREAL PACA Conception : Ever 2010


Figure 2.20: Responses to citizens’ consultation - Biot

<table>
<thead>
<tr>
<th>Question asked</th>
<th>Main responses</th>
<th>Solutions proposed by respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>How would you describe the travel conditions in Biot?</td>
<td>Saturation in Sophia and in the village during rush hour Traffic jams between Biot / Antibes / schools / village crossing Problem of narrow streets Real estate development wrongly precedes road development, causing significant congestion</td>
<td>Shift companies’ work schedules by a quarter of an hour Biot bypass road Road development must be studied before the development of the territory and anticipate its consequences</td>
</tr>
<tr>
<td>Is the offer and frequency of transports adapted to your needs? What are the obstacles to the use of public transport?</td>
<td>Routes are insufficient Bus are too large Frequencies are too low</td>
<td>Increased frequency, especially at night and during weekends Smaller but more frequent shuttles, with adapted schedules.</td>
</tr>
<tr>
<td>What are your uses of soft mobility? (practicality / purpose / leisure) Which routes do you take? What are the important roads to preserve, or reopen?</td>
<td>Lack of sidewalks strongly underlined, accentuated by the difficulty of cycling. Very few real bicycle lanes Pedestrian paths: many paths are closed, inaccessible because they are privatized: Claussones, Roquefort/issarts, Vignasses, Baume à Saint-Julien...</td>
<td>Off road cycling lanes</td>
</tr>
<tr>
<td>How are the connections between the different modes of transport ensured? What connections with the municipalities near Biot and the cities of the Alpes Maritimes?</td>
<td>No intermodal hubs is effective without parking spaces</td>
<td>Possibility to reach a multimodal hub by car and to have a secure car park near the SNCF station of Biot Coordinate timetables between trains and buses and set up park and ride.</td>
</tr>
<tr>
<td>What development of eco-mobility in Biot? Which eco-motilities are preferred? (electric car / carpooling)</td>
<td>Provide electrical outlets in parking, but beware of costs. Parking for eco-mobility</td>
<td></td>
</tr>
</tbody>
</table>

Through this consultation process, 4 strategic travel priorities were identified:

- Reorganize traffic flows in Biot to solve major congestion issues;
- Implement the conditions of an effective intermodal hub, for higher use of public transports;
- Develop soft modes: secure bicycle lanes and pedestrian paths accessible to the public;
- Define procedures to facilitate access to the village centre from parking lots.

Beyond this consultation, various initiatives carried out in Biot and more generally in the experimental area can be highlighted, such as: Campaign 1, 2, 3... Mobility, a process of citizen participation and consultation on the theme of sustainable and solidarity-based mobility56; The hitchhiking initiative organized at the communal level rezo Pouc57; Sophia Antipolis' mobility challenge58; The setting up of an electric minibus in Antibes59; Etc.

The activities of the MOBILITAS project are part of these dynamics and aim to respond to the various constraints observed in this territory toward sustainable mobility.

56 See [online] http://www.biot.fr/1-2-3-mobilite/
3. MOBILITAS’ pilot activities

The MOBILITAS project aims to provide concrete solutions to issues encountered by tourist destinations of the Mediterranean in terms of mobility. The aims are especially to enhance attractiveness of these territories, reduce pollutions, make road traffic more fluid and reduce GHG emissions from transports. Experimental activities were carried out in several Mediterranean countries: within the Biot/Antibes/Villeneuve Loubet area in France but also in Croatia, Slovenia, Malta, Italy, Greece and Cyprus.

ENERGIES 2050’s pilot actions within the frame of MOBILITAS focused in particular on 4 main axis:

- Local data research and analysis, including trends in tourism and mobility. These data were later used to better understand local issues and develop prospective CO₂ emission scenarios;
- State of the art of initiatives, policies and actors involved in promoting sustainable mobility and tourism in the area;
- Mapping of roads with regards to their "cyclability", i.e. their practicality of use for cycling;
- Development of an application whose aim is to promote the use of bicycles, particularly electric bicycles, in the pilot area and a greener tourism.

The results from these activities are summarised in this document and informed the recommendations it contains (part 4).

3.1. Data analysis and research on tourism and mobility... and scenarios

Extensive data collection and analysis was initially carried out on the following topics:
- Geographical, topographical, demographic and socio-economic profile of the area;
- Tourist profile;
- Transport and mobility issues.

It should be noted that the French Riviera, the Alpes-Maritimes department and Region SUD benefit from a range of observatories and organisations specialised in the provision of statistics on transport, air, energy, tourism and climate. The section below presents some of the main databases used in the research. The purpose of this section is to facilitate the work of organisations that may conduct similar work, and also to highlight certain gaps and potential for improvement.

3.1.1. Local database on climate, energy, sustainable mobility and tourism

The Regional Observatory Energy, Climate, Air (L’Observatoire Régional de l’Energie, du Climat et de l’Air - ORECA)

At the regional level, the main objective of ORECA⁶⁰, the Regional Observatory for Energy, Climate and Air, is to provide people and organisations working on energy issues with information that will enable them to design their field operations as effectively as possible. Gathering major players in energy and air quality, ORECA has a steering team, including the Region, the Regional Direction of Environment, Air and Housing (DREAL), AirPACA and ADEME, as well as 18 members who contribute to its actions and provide it with data (Nice Côte d’Azur Chamber of Commerce, University Aix Marseille, EDF, Enedis, Météo France or the Hautes-Alpes department (04)...).

⁶⁰ See [online] http://oreca.maregionsud.fr/
ORECA prepares each year a regional assessment of policies’ impacts on energy consumption, the development of renewable energy and the emission of GHGs and local pollutants. A regional dashboard containing key data was developed and is regularly updated. The observatory also publishes reports aimed at developing knowledge and facilitating decision-making by stakeholders, covering both the evaluation of specific techniques, the quantification of regional potentials and the identification of energy related impacts of certain types of infrastructures. Finally, it supports actors, whether local authorities, consulting firms, CSOs (Civil Society Organisations), etc. in statistical research related to energy in the PACA region.

Regional Group of experts on climate in region SUD (Groupe Régional d’Experts sur le climat en Région Sud GREC-SUD)

GREC-SUD (Regional group of experts on climate change in Region SUD) is another central initiative for regional climate-related information. Its objective is in particular to centralize, transcribe and share scientific knowledge on climate change at the regional level, and to inform local managers and decision-makers (elected officials and technicians from local authorities, protected areas, large facilities, etc.) so that they gain better understandings and take into account scientific results in public policies.

GREC-SUD is managed by a steering committee bringing together scientists and key stakeholders from the region. It is supported by researchers and volunteer experts as well as by an animation and coordination structure led by A.I.R. Climat, the Association pour l’Innovation et la Recherche au service du Climat (Association for Climate Innovation and Research), and is supported by the Region and ADEME. Its actions (thematic publications and events) have the following objectives:

- to be accessible to a non-scientific audience;
- to offer an inventory of knowledge and scientific expertise;
- to make visible the consequences of climate change on a given subject by facilitating understanding of scientific results;
- to identify and clarify key issues, the main points of vulnerability of the territories in the region and the levers for action;
- to highlight existing solutions and initiatives regarding mitigation and adaptation issues;
- and to promote interactions between territorial actors and those involved in research activities.

AIR-PACA / AtmoSud

ORECA and GREC-SUD are supported by the work of Air PACA (now AtmoSud). AtmoSud is a member association of the ATMO France Federation and is supported by the Ministry in charge of the Environment for the Monitoring of Air Quality in the Provence-Alpes-Côte d’Azur region. Like ORECA and GREC-SUD, AtmoSud reflects a partnership strategy and brings together local authorities, government departments and public institutions, industrials as well as associations active in the fields of environmental and consumer protection or health professionals, all of whom make up its board of directors.

Its public policy work focuses in particular on improving regional knowledge on air quality and air pollutants, and identifying areas where populations are exposed (exceeding health standards) and where action is required. AtmoSud raises awareness and informs all stakeholders, whether citizens, government services, local authorities or economic actors, and offers decision-making assistance with regard to air quality.

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61 See [online] http://www.grec-sud.fr/
62 See [online] https://www.airpaca.org/
As part of its missions and its involvement within ORECA, AtmoSud has developed the CIGALE application (Consultation d’Inventaires Géolocalisés Air Climat Energie – Consultation of Geolocalised inventories Air Climate Energy), a fusion of the former Ener’Air and Emiprox databases. Its aim is to provide annual data on energy consumption and production as well as GHG and air pollutant emissions at different scales, ranging from the Region as a whole to municipalities. A set of maps and reports per territory is proposed, as well as the raw extraction of data.

CIGALE is used in particular in the development of the region’s PCAETs as a diagnostic tool, with pollutant and GHG emissions and energy consumption/production being provided by sector of activity (agriculture, industry, residential/tertiary, transport and energy production).

Technical characteristics of CIGALE

The CIGALE tool provides everyone with annual data on energy production and consumption, emissions of atmospheric pollutants (1) and greenhouse gases (2). Thus, all the data from AtmoSud’s inventories are gathered in the same tool ("merging" the data distributed via Ener’Air and Emiprox). All data are available by municipality for the years 2007, 2010, 2012 to 2015. Each year, the data will be completed with the figures for year N-2.

Additional functionalities, compared to Ener’Air and Emiprox, are offered for EPCIs, such as the visualization of maps and the automatic creation of reports by territory.

Data extraction can be done in spreadsheet format at the EPCI and municipal levels.

(1)- Initially, the pollutant emissions made available concern the pollutants required for PCAET diagnostics (PM10, PM2.5, NOx, VNMOC, SO2, NH3, CO). These data will be supplemented by other pollutants in the inventory.

(2)-Greenhouse gas emissions are provided for CO2, CH4 and N2O, as well as PRG100.
networks but also to expand with new partners wishing to share an approach of transparency and pedagogy towards citizens, local authorities and economic actors, and thus contribute to the development and evaluation of energy policies.

DataSud\textsuperscript{67} is a new shared data platform between the Region and the Regional Centre for Geographic Information in PACA. The objective of this initiative is to enable public actors to comply with their regulatory obligations regarding the publication of data, particularly in areas related to climate action such as Energy and networks, Environment and climate, Planning and urban development or Sea, mountains and coastlines. DataSud gathers and redistributes information produced by institutions with the ambition of becoming a one-stop shop for data.

Thematic observatories, particularly in the field of tourism\textsuperscript{68} and transport\textsuperscript{69} in Region SUD, can also be found, containing data relevant to the implementation of climate and sustainable development actions.

**Regional Observatory of Transports (observatoire régional des Transports - ORT)**

The Regional Observatory of Transports in Region SUD is a specialised body with multiple objectives. In particular, it aims to\textsuperscript{70}:

- Be a regional place of exchange between professionals and users of freight and passenger transport, institutions, government services, and all legal entities interested in the activity of transport;
- Collect, process and disseminate statistics and studies;
- Constitute an economic documentation centre at the disposal of its members.

The statistics available include economic aspects of transport, energy and environment, infrastructures, road vehicles, traffic and safety issues (figure below).

**Figure 3.1: Statistics of the ORT\textsuperscript{71}**

In addition to providing data, the ORT PACA offers several recurrent publications, sets up a reciprocal information system and organizes statistical collection, information processing and dissemination of studies and research. These publications include in particular a quarterly review (Le Journal des...

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\textsuperscript{65} See [online] IM, FEMISE, ENERGIES 2050 (2018)
\textsuperscript{66} See [online] https://cigale.atmosud.org/
\textsuperscript{67} See [online] https://opendata.reseaux-energies.fr/pages/accueil/
\textsuperscript{68} See [online] https://www.datasud.fr/
\textsuperscript{69} See [online] http://tourismepaca.fr/pros/chiffres/ - www.cotedazurtouriscope.com/v2/home/
\textsuperscript{70} See [online] https://www.ort-paca.fr/
\textsuperscript{71} See [online] https://www.ort-paca.fr/Missions-
transports) and an annual leaflet (key transport figures). The observatory also offers short debates and the animation of thematic working groups, as well as the organization of study days.

**Observatory of Tourism on the French Riviera (Touriscope Côte d’Azur –)**

The French Riviera benefits from a dedicated observatory\(^2\) that operates the local tourism’s measurement and knowledge system via its tourism statistics system. Its objective is in particular to set up statistical tools and ensure the production of information that makes possible the refinement of economic intelligence in relation to tourism. Its main targets are local authorities and professionals.

The observatory offers a set of statistics as well as publications in French and English, for example on key figures (arrivals, departures, nights, etc.), thematic sheets and studies and analyses. The statistical information offered is divided into supply, demand and accounts tables and includes a wide range of information relevant to the analysis of tourism developments on the Côte d’Azur area.

**Figure 3.2: Statistical report – Touriscope Côte d’Azur\(^3\)**

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\(^2\) See [online] http://www.cotedazur-touriscope.com/v2/about/

Other databases

Among the other databases used for MOBILITAS’s data research:

- The European database Copernicus Land Cover data: https://land.copernicus.eu/
- The websites of governmental bodies and in particular the Ministry of Energy, the Sea and Sustainable Development: http://www.stats.environnement.developpement-durable.gouv.fr/Eider/tables.do#
- Databases related to public transport such as Envibus or lignes d’Azur
- Among others...

3.1.2. Results of research

The data collection carried out gave a precise overview of the trends and issues of mobility, in particular related to tourism, in the pilot area. The main conclusions of this research can be briefly summarized as follows:

- The area is a very important touristic hub and offers many activities, with consequent pressures on transport infrastructures that are sometimes unfit to the challenge;
- Many actions have already been carried out in the field of sustainable transport and mobility by local authorities and other stakeholders, but important opportunities can still be exploited, particularly in the field of green tourism and soft modes of transport.

A statistical report of about 100 pages was produced. This report was used by the University Iuav of Venice to develop prospective scenarios (based on different policy choices) and thus establish a set of projections and recommendations for the area in terms of sustainable mobility and tourism.
The box below summarises some results of the data collected.
Box 6: Synthetic summary of data collected

A) Description of the case studies in general terms (economy, physical description etc.).
Description of the status quo including quantitative data.

This study focuses on the Nice’s employment basin along the French Riviera (South East of France, Italian border). The French National Institute of Statistics and Economic Studies defined employment zones as a geographical area within which most of the labour force lives and/or works (to this extent it is relatively similar to a commuting area), and in which companies mostly recruit their employees. The Nice employment basin has been chosen as it extends around the municipality of Nice Eastwards and Westwards and is representative of the flux of mobility caused by Nice’s economic activities, including tourism (the French Riviera is French’s second touristic pole behind Paris). For data availability reasons, the Alpes Maritimes department or the Nice Metropole were sometimes analysed as a whole.

Nice employment basin has a great touristic potential. It is located in the Alpes Maritimes and the PACA (Provence Alpes Côte d’Azur) Region and encompasses (roughly) the area between Cap d’Ail in the East and Biot in the West. It goes inland towards the Southern Alps. Nice is located at over 900km from Paris but is close to many point of interests including Provencal villages, a rich historical heritage and lively cities... The area is composed of Mountainous regions and steep hillsides going almost straight to the Mediterranean Sea. As such, it encompasses seashores, hilly countryside and part of the Southern Alps.

The area presents a high level of biodiversity with a Mediterranean endemic flora and fauna. It should be noted that climatic conditions can vary widely from the Mediterranean climate in the coastline to the mountainous and hilly areas of the countryside. Finally, the area is really vulnerable to natural hazards (flood; seism hazards; risks of potential marine submersion; forest fire; etc.).

Some river basins and a 5-Km strip along the coastline are highly artificialized. Population density and urban density decrease when moving further away from the coast. Population density can be very low in the upper parts of Nice employment zone. According to the French Territorial Observatory, 6 municipalities are classified as very dense areas (Cagnes-sur-Mer, Nice, Saint-André-de-La-Roche, Saint-Laurent-du-Var, La Trinité, Villefranche-sur-Mer, and Villeneuve-Loubet) and 21 as dense area. The other municipalities are classified as low dense area (43 municipalities) and very low density (61 municipalities).

Regarding touristic potential, many activities can be done with lively cities (Nice; Antibes, Cannes and Monaco not far away), historical villages, trekking, beaches, sea activities, an important cultural heritage, etc. Three important ski resorts - Isola 2000, Auron and Valberg - as well as smaller ones are located less than a couple of hours away from Nice. The area is highly diversified offering all types of tourism activities (with luxury hotels; exposition and congress centres; ski resorts; numerous cultural activities; countryside activities; cruisers; free frequentation of beaches and natural areas etc.).

As such, the contribution of tourism to the area’s economy was estimated at 18% (GDP of the area) by the Côte d’Azur Observatory of Tourism in 2016. The same year, the tourism employment was estimated at around 16 %. However, its real weight on the local economy is difficult to assess.

74 Extract from a MOBILITAS project report written in 2017
precisely as touristic activities are distributed over several classes of activities such as ‘Accommodation and restoration’, ‘Real estate activities’, information and communication’, most of seasonal jobs, etc.

B) The mobility in the pilot areas: description of the infrastructural supply and demand. Highlight of the most critical parts, according to traffic flows. Environmental issues.

Within the Alpes Maritimes Department, we can highlight that individual transports are still very important. As an example, in 2015 there were 34,202 new cars registered compared to 102 buses.

Another indication is provided with traffic modal share for commuting in 2010 that was of 22.8% for pedestrian/bike; 12.3% for collective transport and 64.9% for cars.

The Department has many cycling infrastructures with 125km of cycling lanes and 175 stations for bicycle rental. There are also many pedestrian areas, especially in the cities’ centres and all along the coastal zones. Furthermore, soft mobility and sharing services are available, such as car sharing and bike sharing.

Public transports are also well developed. For railways, the main routes are along the Coastline (from Cannes to Vintimille – 12.8€ - 1.5h) with a distance of 70km; the “Train des Pignes” (from Nice to Digne – 23.3€ - 3.5h) with a distance of 150km; the train towards Breil sur Roya (Nice to Breil sur roy – 10€ - 1h) with a distance of 44 km and to Grasse (Cannes to Grasse – 5€ - 0.5h) with a distance of 20km. Concerning the bus lines, moving along the coastline can be done using the Line 200 (from Nice to Cannes – 1.5€ - 2h) with a distance of 33km; or to the inland with the Line 730 (from Nice to Ski stations – 5€ - 2h) with 90km and the “Bus Rando” Line (from Nice to Saint Dalmas – 2.5€ - 2h) with a distance of 100km. The airport is also connected directly to other cities and especially Villefranche sur Mer, Menton, Vallauris, Cannes and Grasse. Bus 200 going along the coastline from Cannes to Nice also stops at the airport (1€ ticket). Some other Nice’s inner-city buses link the airport to the city for 1€. For boats, most of the traffic concerns the port of Nice with passengers in 2014 (against 448375 in Villefranche and 103724 in Cannes), including 795106 from/to Corsica.

Finally, there are many other transports available: 350 taxis in Nice; around 30 vehicles rental companies, tramways and other services such as Uber, Blabla car, C2C vehicle hiring, etc.

Even if significant efforts are made by the authorities to develop public/sustainable transports in Nice employment area, GHG emissions are still important in the zone. On another side, there is a sensible decrease along the years (e.g. 2938 in 2014 – 3080 in 2013; 3129 in 2012; 3219 in 2010...). For Nice Metropole (that is a surface smaller, with only 29 municipalities, than the employment zone), it was estimated that 69.500 travels between Nice and external areas (around 11 600 daily travels from or to Monaco and 26 000 from or to Sophia-Antipolis) in 2010. 83% of workers live and work within Nice-Metropole (around 179.000 daily travels). Around 19.600 daily travels are between coastal areas to hinterland (Medium altitude). For example, 3.800 daily travels are accounted between Carros and Nice.
The most congested roads/zone due to tourism flows are the M6098 road (the road along the coast); the D6098 between Antibes and Cagnes sur Mer (coastline); the highway 8 linking the Nice area to Marseille/Aix en Provence to the west and Italy to the East. Environmental priorities (and policies) are linked with traffic jams, use of individual vehicles and better connections of the territories to reduce pollution and greenhouse gas emissions (GHG). The results expected (and under achievement) are mainly to improve public transports (tramway and buses); enhance the use of bike for short trips; promote electrical vehicles; etc.\textsuperscript{83}.

C) The tourism in the pilot areas: characteristics.

The French Riviera is French’s second touristic hub behind Paris. Most of the visitors are couple (26%) or senior (20%). Lonely travellers (17%) and families (14%) also represent an important number of touristic arrivals. The rest of people are part of a group (9%). On average, the visitors’ age is 43 years old (data based on visitors coming by planed having filled in a questionnaire\textsuperscript{84}).

For most visitors, the natural, cultural or gastronomic heritage motivated their visit (58%), above family resorts (26%). Regarding accommodations, there is a total of 630 hotels representing 27016 rooms within the Alpes Maritime Department. There are also various types of other accommodations available, such as Villas (130); Hostels (43); Guesthouses (884); Campsites (96) and other (163) such as mountain accommodations, etc.

There is also a significant number of second home in the area (177,943 - including 48,000 belonging to foreigners). The ratio between the total number of second home and the total number of dwellings is of 35% and the ratio between the total number of bed accommodations and the total number of second home is of 137%.

The region offers an infinite range of activities, which can be sea related (boat trips, sea sports, leisure at the beach), cultural (numerous museums, cultural heritage), mountain related (trekking, ski, canyoning, etc.), with also amusement parks and lively cities.

In other words, the area is highly diversified offering all types of tourism activities. According to the observatory of tourism of the French Riviera, there is especially (Alpes Maritimes and Monaco altogether)\textsuperscript{85}:

- Luxury hotels: 46% of hotels are 4 or 5 stars;
- 8 Exposition and congress centres;
- 15 Ski resorts;
- Numerous cultural activities – over 8 million of entry in amusement parks, museums and monuments;
- Sea resorts and activities;
- Countryside activities (trekking, historical village and heritage);
- Over 800 hundred thousand cruisers over 5 ports;
- 180 thousand secondary homes, including 48 thousand belonging to foreigners.

The 5 main tourist activities in terms of visits were:

- Marineland park, Antibes: 1.2 million visitors in 2014
- Fragonard Perfumery, Grasse and Eze: 900 thousand visitors in 2015
- Glassware of Biot: 700 007 visitors (2014)
- Phoenix Floral park, Nice: 394 599 visitors in 2015

\textsuperscript{83} See [online] http://www.nicecotedazur.org/deplacement/I-action-de-nice-c%C3%B4te-d-azur/en-route-vers-la-mobilite%C3%A9-durable
\textsuperscript{84} See [online] http://www.cotedazur-touriscope.com/v2/statistiques/?action=tableaux&yann=DEMANDE
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- Lerins Islands, Cannes: 368 665 visitors in 2015

Of course these data do not reflect on the free frequentation of beaches and natural areas. Regarding the beach resort system, there is a total number of 15 private beach resort. 90% of the beaches are free, covering most of the coastline.

Finally, there are a lot of restaurants (according to TripAdvisor, over 1000 in Nice only), bars/nightclubs/pub (over 750 on the French Riviera), etc. There are also 10 “Info-point” in Nice and surrounding areas offering tourists or visitors pieces of information about the Region activities, accommodations, means of transport, etc.

D) Mobility and transport: current transport supply and initiatives.

Regarding annual touristic arrivals by type of transport, it was estimated (data available for 2016) that 26% of the travellers were coming by airplane; 16% with train; 56% by private car/bus or boat and 2% with other means of transport.

Considering the travels within the area, there are much frequented touristic routes for each means of transport.

- For railways, the main touristic routes are along the Coastline (from Cannes to Vintimille – 12.8€ - 1.5h) with a distance of 70km and the “Train des Pignes” (from Nice to Digne – 23.3€ - 3.5h) with a distance of 150km.
- For bus, the main touristic lines are the Line 200 (from Nice to Cannes – 1.5€ - 2h) with a distance of 33km; the Line 730 (from Nice to Ski stations – 5€ - 2h) with 90km and the “Bus Rando” Line (from Nice to Saint Dalmas – 2.5€ - 2h) with a distance of 100km.
- For boats, most of the traffic concerns the Nice port with 8347171 passengers in 2014 (against 448375 in Villefranche and 103724 in Cannes), including 795106 from/to Corsica.

There are multiple initiatives engaged in the Nice employment basin for sustainable mobility (bike to school; bike to word; events...). Some examples are provided below but it is not meant to give a comprehensive view of all actions in this fields.

- 14th of September 2016: 2pm-5pm - Event Think sustainable mobility for children, to raise awareness of children with specific workshops. https://www.nice.fr/fr/l-agenda/pensons-mobilite-durable?type=events#
- Example of Inter-companies’ mobility plan initiatives – Industrial zone of Carros aiming to promote the use of public transports and bike in this area http://www.caipdv.com/index.php/pdie
- The school of sustainable development 2016/2017: Programme of pedagogical animations for Nice’s elementary and primary schools focusing on sustainable mobility with various events and projects dealt with by different classes. Full agenda and programme can be found here: https://www.nice.fr/uploads/media/default/0001/11/Plaquette%20EEDD%202016-2017.pdf
- ...

On another side, some hotel (and other amenities) offer sustainable transport service to their guests. As an example, according to TripAdvisor, 25 hotels in Nice are offering free bicycles/rent bicycles. Some Hotels also offer shuttle services to the Airport/Port/Train Station, such as Hotel Negresco.

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87 See [online] http://www.cote-azur.cci.fr/var/ptic/storage/original/application/667f97f9d16fee06277a1ae1b9239f34.pdf

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Hyatt Regency Nice Palais Méditerranée or Hotel La Pérouse, etc. 105 hotels in the French Riviera are officially offering shuttle services to the airport according to TripAdvisor. There are also transports available for leisure activities. For example, 234 Hotels in the French Riviera are offering access to a beach, and many hotels in the regions are offering services such as SPAs (94 hotels) Fitness centres (100 hotels) and golf (14 hotels).

An effort is also made on the promotion of electrical vehicles and for intermodal services at port and airports. The main intermodal poles for transports are located in Antibes, Nice Ville, Nice Saint Augustin and Nice Airport. An electric vehicle stations (Auto Bleue) is located within the airport as well. Electric vehicles are promoted through a wide range of charging booths between Cagnes Sur Mer in the West and Villefranche in the East and a specific car rental service (Autobleue).

Finally, the website www.ecotourismepaca.fr offers a wide range of advices and tips for sustainable tourism in the French Riviera area, as well as www.nice.fr/fr/transports-et-deplacements for Nice. There are also numerous info centres located in the main cities which will offer information about sustainable transports means in the region.

3.1.3. Prospective scenarios by the University Iuav of Venice

Methodology

Two scenarios based on projections of global greenhouse gas emissions were used, building on IPCC’s global reports and the Representative Concentration Pathways 4.5°C and 8.5°C (RCP4.5/SSP4 and RCP8.5/SSP5).

Figure 3.4: Description of scenarios used

<table>
<thead>
<tr>
<th>SSP</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSP1</td>
<td>Sustainability</td>
</tr>
<tr>
<td>This pathway represents a world making relatively good progress towards sustainability. Efforts are made to achieve global development goals as well as reduce energy and resource intensity and dependencies on fossil fuels, and the Millennium Development Goals are achieved within the next decade or two. Equality both between countries and within economies is decreased as low-income areas develop rapidly. Technology development is also rapid. Economies are globalized and open but strict environmental policies are implemented.</td>
<td></td>
</tr>
<tr>
<td>SSP2</td>
<td>Middle of the road/Curent trends continue</td>
</tr>
<tr>
<td>Current socio-economic trajectories are assumed to continue. Some progress towards global development is achieved. Some low-income countries manage to make relatively good progress, but many are also stuck with low-level development. The power of global institutions remains very limited and global economy is only partially open. Still most of the economies are politically stable, and the gap between high- and low-income countries slowly close.</td>
<td></td>
</tr>
<tr>
<td>SSP3</td>
<td>Fragmentation/Fragmented world</td>
</tr>
<tr>
<td>This pathway represents the greatest challenges for both adaptation and mitigation. The world is fragmented into a few pockets of moderate wealth, areas of extreme wealth and many countries struggling to maintain standards of living for their strongly growing populations. World trade and international cooperation are severely restricted. Policies are oriented towards security instead of sustainable development, and the world is failing to achieve global development goals.</td>
<td></td>
</tr>
<tr>
<td>SSP4</td>
<td>Inequality/Unequal world/Divided world</td>
</tr>
<tr>
<td>In this pathway, wealth is distributed very unequally both across and within countries. A small global elite produces most of the GHG emissions while the poorer population remains vulnerable to the impacts of climate change. Global institutions work well for the rich elite but provide little support for the development of the poor masses. However, mitigation challenges are low, due to limited overall economic activity and the capabilities of the wealthy players to invest in low-carbon development.</td>
<td></td>
</tr>
<tr>
<td>SSP5</td>
<td>Conventional development / Conventional development first</td>
</tr>
<tr>
<td>In this pathway, conventional fossil-fuel dominated economy is the solution to social and economic problems. This enables rapid economic growth across the world and helps in adapting to the impacts of climate change. This solution is largely incompatible with ambitious emission mitigation targets.</td>
<td></td>
</tr>
</tbody>
</table>

Table 2 Description of the five alternative SSPs proposed by the IIPCC model. Source: IIPCC (2012)

For each of these scenarios, three different sub-scenarios for "mobility" trends have been defined: Status-quo, Intermediate and Optimistic. These sub-scenarios are described as follows:

88 Full list available here: https://www.tripadvisor.fr/Hotels-g187234-Nice_French_Riviera_Cote_d_Azur_Provence_Alpes_Cote_d_Azur-Hotels.html
89 See [online] https://www.tripadvisor.fr/Hotels-g187216-French_Riviera_Cote_d_Azur_Provence_Alpes_Cote_d_Azur-Hotels.html
90 Full list available here by clicking on the “beach” option: https://www.tripadvisor.fr/Hotels-g187216-French_Riviera_Cote_d_Azur_Provence_Alpes_Cote_d_Azur-Hotels.html
Status quo: the current modal share of transport remains unchanged over the period;
Optimistic: significant modal shift towards sustainable modes of transport (including and in particular public, soft, electric and/or shared modes of transport), based upon local mobility plans or other existing policy documents (PDU, PLU...);
Intermediate: weaker modal shift to sustainable modes of transport, with values that correspond to the average between status quo and optimistic scenarios.

**Figure 3.5: Methodology used**

<table>
<thead>
<tr>
<th>FIRST STEP: Quantification of future tourism flows</th>
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<tbody>
<tr>
<td><strong>INPUT DATA</strong></td>
</tr>
<tr>
<td><strong>PROCESS</strong></td>
</tr>
<tr>
<td>Obtaining the growth rate of the tourism in selected areas. Source: TOURIST, 2015</td>
</tr>
<tr>
<td>Application of the growth rate to the data about arrivals and overnight stays</td>
</tr>
<tr>
<td><strong>OUTPUT</strong></td>
</tr>
<tr>
<td>Estimation of future tourist flows (variation in tourist arrivals and overnight stays expressed in percentage)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SECOND STEP: Definition of transport-related implications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INPUT DATA</strong></td>
</tr>
<tr>
<td>Current modal share to reach and to leave the destination area. Source: Questionnaire</td>
</tr>
<tr>
<td>Current modal share to move within the destination area. Source: Questionnaire</td>
</tr>
<tr>
<td><strong>PROCESS</strong></td>
</tr>
<tr>
<td>Defining future scenarios (status quo, intermediate, optimistic scenarios). Source: Mobility plans and scientific literature</td>
</tr>
<tr>
<td><strong>OUTPUT</strong></td>
</tr>
<tr>
<td>Estimation of future tourist modal share to reach and leave and move within the destination area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>THIRD STEP: Consequences in terms of CO₂ emissions</th>
</tr>
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<tbody>
<tr>
<td><strong>INPUT DATA</strong></td>
</tr>
<tr>
<td>Estimation of future tourist modal share. Source: Second step</td>
</tr>
<tr>
<td>Average distance run by tourists to reach and leave the destination area. Source: Questionnaire</td>
</tr>
<tr>
<td><strong>PROCESS</strong></td>
</tr>
<tr>
<td>Emission factors for each transport mode. Source: INFRAS, 2014</td>
</tr>
<tr>
<td><strong>OUTPUT</strong></td>
</tr>
<tr>
<td>Estimation of local tourism-related CO₂ emissions (total emissions produced by tourists to reach, leave and move within the destination area)</td>
</tr>
</tbody>
</table>

Figure 3.5 Summary of the scenario method applied in the framework of MOBILITAS

Extracts of analysis and projections are offered in the figure below.

---

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Figure 3.6: Extract of scenarios for pilot zone of Nice and Alpes Maritimes

The projections were made for each of the scenarios ("successful adaptation" corresponding to scenario RCP4.5, compared to RCP8.5 for "no adaptation"). The figures below represent the greenhouse gas emissions of the pilot area according to the different scenarios studied, by mode of transport and for two types of tourist mobility: to or from the area (departures and arrivals) and intra-zone (visits).
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Figure 3.7: Projected greenhouse gas emissions 2015-2035, arrivals and departures\textsuperscript{93}

<table>
<thead>
<tr>
<th>Scenario of status quo</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CO\textsubscript{2}</strong> emissions to move within Nice and their variation, years 2015-2035. Status quo – Successful adaptation strategy (SSP4). Source: Authors</td>
</tr>
</tbody>
</table>

Graphs show projections for greenhouse gas emissions for the years 2015 to 2035 under different scenarios: Status quo, Intermediate, and Optimistic. Each graph illustrates the trend of emissions reduction or increase under the same adaptation strategy. The vertical axis represents the percentage change in emissions, while the horizontal axis shows the years from 2015 to 2035.

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Figure 3.8: Projected greenhouse gas emissions 2015-2035, visits

Scenario status quo

Graph 41 Yearly CO₂ emissions to reach and to leave Nice and their variation, years 2015-2035. Status quo – Successful adaptation strategy RCP 4.5/SSP4. Source: Authors

Graph 42 Yearly CO₂ emissions to reach and to leave Nice and their variation, years 2015-2035. Status quo – No-adaptation strategy RCP 8.5/SSP5. Source: Authors

Intermediate

Graph 43 Yearly CO₂ emissions to reach and to leave Nice and their variation, years 2015-2035. Intermediate – Successful adaptation strategy RCP 4.5/SSP4. Source: Authors

Graph 44 Yearly CO₂ emissions to reach and to leave Nice and their variation, years 2015-2035. Intermediate – No-adaptation strategy RCP 8.5/SSP5. Source: Authors

Optimistic

Graph 45 Yearly CO₂ emissions to reach and to leave Nice and their variation, years 2015-2035. Optimistic – Successful adaptation strategy RCP 4.5/SSP4. Source: Authors

Graph 46 Yearly CO₂ emissions to reach and to leave Nice and their variation, years 2015-2035. Optimistic – No-adaptation strategy RCP 8.5/SSP5. Source: Authors

University Ivan of Venice
Conclusions of the analysis

The scenarios developed have resulted in a set of projections from which some recommendations can be drawn. The main conclusions are summarized as follows:

1. The pilot area is expected to experience an increase in the number of arrivals and overnight stays due to climate change in both RCP4.5/SSP4 and RCP 8.5/SSP5 scenarios;
2. In both cases, the variation in tourist arrivals is quite significant: by 2050, +4.57% in RCP8.5/SSP5; +3.61% in RCP 4.5/SSP4;
3. Compared to the status quo, in 2035, the intermediate and optimistic scenarios generate 15% and 48% less CO2 emissions, respectively;
4. A successful adaptation strategy would paradoxically attract fewer tourists than a non-adaptation strategy.

Two recommendations from this study were also used to better guide the project’s activities, namely:

1. The need to promote sustainable mobility alternatives, including soft and electric modes of transport (conformed with the optimistic scenario), in order to reduce emissions and negative impacts (air quality, traffic congestion, etc.);
2. The need to collect more detailed data on tourist mobility in the area in order to better inform policy design.

Table 3.1 Total CO2 emissions to move, reach and to leave Nice, year 2035. Source: Authors
3.2. State of the art of local sustainable mobility plans, actors, initiatives and climate plans

In order to strengthen knowledge of the territory’s specific challenges, ENERGIES 2050 has undertaken the production of state-of-the-art inventories of actors, initiatives and policies engaged at local and departmental but also regional levels in the field of sustainable tourism and mobility. More than a hundred thematic sheets have been produced in these different areas, which helped to better guide the project’s activities.

3.2.1. Best practices factsheets

Nearly 40 relevant good practices and initiatives at local and regional levels were identified and analysed. These concern both the promotion of public transports and the use of soft and shared modes of transport.

Figure 3.11: Best practice factsheets (illustrations)96

Bus Tram Antibes Sophia Antipolis

[Diagram and text explaining the benefits of the bus tram system, such as reduced traffic, energy savings, and improved quality of life.]
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Vélo Sophia

Description of leader organisation: Community of agglomerations Sophia Antipolis (CASA), association Vélo Sophia, association Transdev and Agency for the Environment and Energy Management (ADEME) have initiated the creation of a community that focuses on bicycle use including electric bike (with the emergence of the electric-assisted bike, the difference in attitude and distance are no longer restricted to everyday cycling) in Sophia Antipolis. CASA is launching a bicycle policy to address homework commuting issues, and in particular building on the development of the electrified bicycle. The CASA also works in the Mediterranean area to develop infrastructure for cycling. As such, CASA proposes to centralize the management of the bike policy on its territory, and to coordinate it in cooperation with its partners and municipalities.

Initiative presentation:
- Mail-in and interiorized map of cycling path made by association chaîne à vélo (continuous and secure for encouraging the practice of cycling);
- Assurances with the purchase of a VIG offered by CASA's partners;
- Organization of events to develop the multimodal transport;
- Activity of one day maintenance and repair of bicycles;
- Organization of events at the level of technology;
- Development of bicycle routes for travel during the lunch break.

Expected impacts:
- Developing and encouraging the use of bicycles for commuting;
- Collect and defend bicycle users around Sophia Antipolis;
- Improve the security of travel of the system.

Lesson learnt: Help to increase bicycle use in community Sophia by educating citizens on the use of bike as a public tool and promoting safety measures with the assistance of cycling programs.

Communication info:
- Communication tools among community members (web and mailing list are put in place and a collaborative social network is available to facilitate exchanges);
- Facebook to inform activities and share exchanges.

Carpooling Otto & co et train bleu

Description of leader organisation: The Provence-Alpes-Côte d'Azur region (RACA) has launched Otto&Co, a carpooling site specifically designed for commuting in the Côte d'Azur area. The operation was made in partnership with the two Urban Transport Organizing Authorities of this area that are the STP (syndicat intercommunal de transport public de Cézanne) and VILLAGES Конечно, le transport public de la Communauté de populations et collectivités)

Initiative presentation: Carpool Otto & Co has been conceived as a mobility tool that can help meet everyone's expectations. Carpooling is a complementary transport offer for public transport network, and bicycle trips. In this area with the urban public transport, it is even a real mobility alternative for people who are not or less than the longer journey travel, can offer a new form of freedom, mobility. The service can ensure the meeting between the one who needs a trip at a given time and the driver who has free places in his car and is ready to take someone on his way. It can also be used to facilitate the commuting between homes and workplaces or from one municipality to another.

Expected impacts: Carpool Otto & Co is therefore an offer for anyone seeking a way to practice a travel, but also a driver who want to drive smarter saving money and preserving the environment.
- Drive smarter by optimize way and preserving our environment,
- For stronger solidarity and social bond with others.

Lesson learnt: Through the establishment of a carpool platform to motivate people to travel in a more environmentally friendly and economical manner, not only sharing travel expenses, but also sharing travel experiences and contributing to the reduction of carbon dioxide emissions to create a more green lifestyle.
3.2.2. Factsheets on sustainable mobility policies

A review of existing mobility plans and strategies for sustainable mobility at local and regional levels was also carried out. The objective was to build the project’s activities on current dynamics. Over thirty policies were analysed, including sustainable mobility plans, territorial climate and energy plans and various other individual initiatives taken by local authorities.
Figure 3.12: Factsheets on sustainable mobility policies (illustrations) 97

**Sustainable mobility plans: Pays de Grasse, Avignon and Agglomération de Marseille**

1. **Urban Transport Plan of Communauté d’Agglomération du Pays de Grasse**
   - **Description:** The PDU was developed in 2011 and involves 25 municipalities in Communauté d’Agglomération du Pays de Grasse to optimize travel and traffic organization within its territory.
   - **Main features:**
     - **Objective:** Optimize the travel organization of Pays de Grasse in 23 cities.
     - **Main actions:**
       - Diversify travel in the city.
       - Embark on public transport.
     - **Improvements:**
       - Enhance the comfort of pedestrians and the quality of life for residents.

2. **Urban Transport Plan of Communauté d’Agglomération du Grand Avignon**
   - **Description:** The majority of Avignon’s Urban Travel Plan (PDU) focuses on reducing vehicle and organizing new moving methods in the territory of its 12 municipalities in the agglomeration community of Grand Avignon, providing safe and economical travel conditions and responsibility for the behavior of mobility of its 160,000 residents and employees.
   - **Main features:**
     - **Objective:**
       - Maximize car travel.
       - Realize a new travel concept.
     - **Main actions:**
       - Promote sustainable transport and respect the environment.

3. **Urban Transport Plan of the Marseille Provence Metropolis**
   - **Description:** The constitution of the Marseille Provence Metropolis urban transport plan takes the evaluation work done in the PACU approved in 2009, when the Urban Community had undertaken to realize and the preparation of a new document for the period 2013-2028.
   - **Main features:**
     - **Objective:**
       - To achieve a 5% reduction in the number of trips by car.
     - **Main actions:**
       - Develop networks and optimize public transport.

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Territorial climate plans (PCET)

14. Territorial Energy and Climate Plan of department of Alpes-de-Haute-Provence in transport aspect

Department of Alpes-de-Haute-Provence

Department of Alpes-de-Haute-Provence

2011

http://www.mrdepartmente.fr/energie-climat/climate.html

Description: Initiated in 2011, it is part of the continuity of the Department’s action (promoted in particular by Agenda 21). The Territorial Energy Climate Plan is localised for coping with climate changes led by the County Council. It involves several other communities and all inhabitants in a more widely aspect.

The objectives of PCET 04:
- Mitigate the impact of the climate change by reducing its greenhouse gas emissions on departmental territory
- Adjust the territory to climate change to reduce its vulnerability, taking into account the reality of changes in adapting longer-term decisions in urban planning, road protection, creation of solutions
- Respond to energy challenges by reducing the region’s vulnerability in facing rarefaction and rising prices of fossil fuels and actualise the green growth.

Main feature: The department of Alpes-de-Haute-Provence are particularly vulnerable to climate change and energy cost issues. Key problems are considered in the context of our PCET:
- The presentation of biodiversity
- The future of all risks
- Adjusting transport mode dependence on fossil fuels and rising petrol prices

To reach these objectives, a departamental action plan is defined. Local action plans are being finished with the six partner territories. They concern the energy efficiency of buildings, transport and travel, urban planning and awareness of the population, etc.

13. Territorial Energy and Climate Plan of Nice Côte d’Azur metropolis in transport aspect

Nice Côte d’Azur metropolis

Nice Côte d’Azur metropolis

2015

http://www.mrdepartmente.fr/nice-climate/climate.html

Description: The Metropolis adapted to Climate Territorial Energy Plan structured around an strategic objectives and 25 operational objectives during the Metropolitan Council on February 4, 2015. This First Climate Plan makes it possible to understand local energy and climate issues in their social, economic and environmental dimension. It connects with other important issues such as air quality and health. It sets short and longer-term goals. It prioritises public action by defining the main fields of intervention through a program of actions: the action plan is a quality management process for energy in the community the Oléagineux approach. The Metropolis obtained the Cap Oléagineux recognition in 2010. The Metropolis measures the extent of the challenge but also the opportunities for the development of the territory. In this report, it has the Covenant of Mayors, which aims to go beyond 20% reduction of greenhouse gas emissions per inhabitant by 2020.

Main feature: Strategic Objective in transport sector “Facing the challenge of sustainable mobility in the metropolitan area, it is broken down into 7 operational objectives, with a total of 20 actions”

Objective:
- Public transport network and multimodal transport organisation
- Streamlining and alternative modes
- Optimise the operation and maintenance of road network
- Adjust parking with considering the need
- Mechanical and procurement transport
- New technologies in mobility practices
- Policies to reduce the impact of mobility on air quality and the environment
- Certain actions involved in plan
- Implement the VQUs on metropolitan territory

Strategies for sustainable and low-carbon mobility in Mediterranean tourist destinations – MOBILITAS Project
### Strategies for sustainable and low-carbon mobility in Mediterranean tourist destinations – MOBILITAS Project

<table>
<thead>
<tr>
<th>Description</th>
<th>Sustainable mobility additional actions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main features:</strong></td>
<td>- Optimize the parcel changes in the behavior of mobility of residents and tourists in the Ligurian and French-Catalan Costa del Azur border area.</td>
</tr>
<tr>
<td></td>
<td>- Training and education on sustainable transport to promote the substitution of diesel school, family work, daily and leisure trips with the use of cycling and electric vehicles.</td>
</tr>
<tr>
<td></td>
<td>- Pilot activities for the development of sustainable mobility tools in the territory.</td>
</tr>
<tr>
<td></td>
<td>- The use and construction of the pathway for cyclists.</td>
</tr>
</tbody>
</table>

#### The project EduMob

**Title:** The project EduMob

**Description:** Promotion of cross-border cooperation between Liguria region and the department of Alpes-Maritimes for infrastructure planning and sustainable traffic design projects, development of transportation and sustainable transport planning, cross-border united master planning for connecting territories with cycling bicycle routes.

**Main features:**
- Training and education on sustainable transport to promote the substitution of diesel school, family work, daily and leisure trips with the use of cycling and electric vehicles.
- Pilot activities for the development of sustainable mobility tools in the territory.
- The use and construction of the pathway for cyclists.

## Clean Energy Planet

<table>
<thead>
<tr>
<th>Description</th>
<th>Clean Energy Planet (CEP) and Ridgy, the project implemented by Sercotec, aims to support the development of clean mobility, with the integration of the cycling and self-service bike in a seamless application. Through this partnership with Sercotec, the Conteleti Company can develop digital innovation projects with social and environmental impact such as Ridgy, the real-time carsharing service for everyday journeys, including carsharing to the company or to events. Clean Energy Planet offers to integrate its self-service electric bike service in program Ridgy to allow employees of companies to choose the most suitable transport mode to meet their needs and expectations.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main features:</strong></td>
<td>- The aim is to provide innovative mobility solutions and facilitate the deployment of Clean Energy Planet’s (CEP) electric bikes in companies, especially those in the Sophia-Antipolis territory. By using the Ridgy app (Cycling in real time for the immediate transport), company employees will be able to easily get in touch with the company or choose to use an electric bike for their trips.</td>
</tr>
<tr>
<td></td>
<td>- Bikes dedicated to fast and public mobility and transport. By connecting the Clean Energy Planet (CEP) electric bike with the Ridgy app, employees will have the opportunity to choose different modes of transportation, whether they are commuting during business time or any other time.</td>
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</table>

## The project Wiliiz

<table>
<thead>
<tr>
<th>Description</th>
<th>The project Wiliiz aims to develop a concrete answer to the objectives of a more sustainable mobility and a better control of energy. The Agglomeration Communities of Sophia Antipolis (ASA), the Pau de Grasse (CADOS), and Grasse Pau de Lanne (CADPL) have joined forces to install the first Electric Vehicle Charging Infrastructure Public Network (RVEP) on their territory. As a result of the first joint strategic flagship initiatives in this territory as part of the energy climate plan that they implemented jointly in order to concentrate resources on building a durable project serving as a model for living areas.</th>
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<tbody>
<tr>
<td><strong>Main features:</strong></td>
<td>- Training and education on sustainable transport to promote the substitution of diesel school, family work, daily and leisure trips with the use of cycling and electric vehicles.</td>
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<td>- The use and construction of the pathway for cyclists.</td>
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</table>

## The project 24/7

<table>
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<td>- The use and construction of the pathway for cyclists.</td>
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</tbody>
</table>
3.2.3. Factsheets of actors engaged in sustainable mobility

The objective of this non-exhaustive review of actors involved in sustainable mobility was to promote synergies, avoid duplication of actions and rely on a network of relevant organisations. More than thirty of the actors identified were closely reviewed.

Figure 3.13: Factsheets of actors engaged in sustainable mobility (illustrations) 

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3.3. Roads experimentation and mapping of points of interests

The activities described so far in this report helped to identify a priority objective for the MOBILITAS project in the area: the promotion of electric bicycles in accordance with the optimistic scenario and the various local political strategies. The area from Antibes in the West to Villeneuve Loubet in the East and Biot in the North has been the subject of particular focus, for several reasons:

- It is home to many popular tourist attractions of the French Riviera, including the coastline between Antibes and Villeneuve Loubet, Biot’s glassware, Antibes Land and Marine Land;
- The area is very busy during rush hour, being a gateway to the employment centres of Nice and Sophia Antipolis;
- Unlike the Nice Côte d’Azur metropolis (auto bleue et vélo bleu for example), this area is poorly equipped in shared and self-service vehicle rental systems;
- The current infrastructures do not favour cycling or walking;
- ENERGIES 2050’s head office being located in Biot, its team has a good knowledge and experience of this area.

3.3.1. Methodology adopted

The initial analysis enhanced some of characteristics regarding mobility, particularly touristic mobility, in the pilot area:

- The topography makes it difficult to use classic bicycles, with rather steep climbs as one moves further from the coast towards the village of Biot or the heights of Antibes;
- Infrastructure for bicycle use is relatively good on coastal roads (seaside road, RN7) between Villeneuve Loubet and Antibes, but is almost non-existent as one moves away from the coastline;
- Most touristic sites outside of the coastal zone are poorly linked, which undermines their attractiveness and encourages the use of private vehicles. Attractions located in Biot, among the most visited on the French Riviera, are particularly concerned: glassware, church, the old town, Fernand Léger National Museum, etc.
In order to propose adapted and concrete solutions, ENERGIES 2050 has tested the feasibility and relevance of using electric bicycles in this zone (better adapted than traditional bicycles to the specific topography).

To this end, the NGO invested in two assist-electric bicycles (AEB), which were used by its staff, members and volunteers to experience roads at different times of the day and under different temperatures/weather. All lessons learned were then documented to inform the mobile application and recommendations for local decision-makers (see following sections).

100 Google maps
3.3.2. Equipment used

The two EAB used for experimenting the pilot area’s roads were selected according to several criteria, including price, range, strength, weight and practicality. The Plimoa N3 model of neo-move, a bike foldable and with a solid autonomy, was finally selected.

![Figure 3.16: EAB used for experimentation](image)

The technical characteristics of this bike are presented below, for information purposes:

![Figure 3.17: Technical characteristics of equipment used](image)

<table>
<thead>
<tr>
<th>Mechanics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHARGE MAXIMALE:</strong></td>
</tr>
<tr>
<td><strong>ROUES:</strong></td>
</tr>
<tr>
<td><strong>PNEUS:</strong></td>
</tr>
<tr>
<td><strong>FREINS:</strong></td>
</tr>
<tr>
<td><strong>TRANSMISSION:</strong></td>
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<tr>
<td><strong>COMMANDE:</strong></td>
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<td><strong>PÉDALE:</strong></td>
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<tr>
<td><strong>PÉDALES:</strong></td>
</tr>
<tr>
<td><strong>CHAÎNE:</strong></td>
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<td><strong>FOURCHE:</strong></td>
</tr>
<tr>
<td><strong>TIGE DE SELLE:</strong></td>
</tr>
<tr>
<td><strong>POTENCE:</strong></td>
</tr>
</tbody>
</table>

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101 ©ENERGIES 2050 (left) and Néomouv (right)
102 See [online](https://neomouv.com/fr/bike/plimoa-fr/)
3.3.3. Main lessons

The following lessons were drawn from this experiment.

1. Use of electric bike in the pilot zone

The use of electric-assisted bicycles is perfectly adapted to the local topography, especially compared to conventional bicycles. It allows one to reach (within the limits of the battery's capacity) the main sites of interest, the village of Biot, the heights of Antibes, etc. without effort and at speeds of up to 25km/h, even uphill. Its use is suitable for leisure and tourism activities as well as for commuting to work or other business trips.
2. The Plimoa N3

There is a wide range of different electric bicycle models on the market. The Plimoa N3 model has many positive features, including:

- Its autonomy: 50 to 60km at a maximum speed of 25km, when used on hilly ground. The charging time (from empty to full) observed was 6 hours on average, on a conventional power supply;
- Ease of use: this model is very easy to handle and its LCD screen provides real-time information on battery levels, speed, etc. Shifting gears and assistance levels is really straightforward;
- The possibility of folding the bike is a plus, making it possible to store it in a vehicle’s trunk (by lowering the rear seats) or stock it more easily in an apartment/garage.

On the other hand, it should be noted that this model remains quite heavy and ultimately difficult to fold and transport. ENERGIES 2050’s team also found out that after about a year of use and 500 to 700 km, the brakes tended to worn prematurely. Finally, the front lighting is not very powerful, making a use at night and on unlit roads sometimes dangerous.

3. Roads’ infrastructures

One of the conclusions of the experiment is that the use of electric bicycles is made difficult by inadequate infrastructure, with a lack of cycling lanes, roads that are sometimes very narrow, without sidewalks/roadsides and poorly lit, danger zones caused by fast traffic, a lack of dedicated and secure parking lots, etc. Drivers’ behaviours are also not conducive to the use of soft modes of transport in general (fast driving, vehicles parked on the roadside and cycle lanes, lack of attention to 2-wheelers and little respect for regulations). Bad weather, although rare in the area, is also a factor that can increase the dangerousness of using electric bicycles.
Figure 3.19: Insight on local roads104

104 © ENERGIES 2050
3.4. Use of ITs: development of the mobile application « ethiCycle »

As part of its pilot activities, ENERGIES 2050 undertook the development of a mobile application whose aim is to promote the use of soft transport modes on a very local scale (while making this application extensible to other territories) but also to contribute to improving the territory’s attractiveness to tourists and residents alike. To do this, at first, a mapping of existing applications was carried out in order to be able to draw inspiration from them and avoid any duplication.

3.4.1. State of the art: mobile applications for sustainable mobility

Research on mobile applications for sustainable mobility at both the territorial and international levels led to the discovery of a number of exemplary initiatives, some of which are highlighted below. These applications were analysed with regards to their objectives, functionalities, innovations and potential lessons/inspirations for the development of the MOBILITAS application. Over twenty applications have been the subject of particular attention, from the most global (for example Waze) to the local ones (for example Auto Bleue de Nice).

Figure 3.20: Analysed applications

Examples for each types are provided below.

© ENERGIES2050
Figure 3.21: Factsheets of mobile application (illustrations)

**Shared mobility - icalolutis**

<table>
<thead>
<tr>
<th>Description</th>
<th>CASAdans mopoché (Android/iOS)</th>
<th>FREE</th>
<th><a href="http://www.icteloots.org">http://www.icteloots.org</a></th>
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</thead>
</table>

**Description:** The mobile application icalolutis (also known as the mobile application Ecololutis) is available for Android and iOS devices. It enables users to access real-time information about public transportation in the city of Marseille, including the locations of buses and trains, their schedules, and any delays. The application also provides useful information about parking options, including available spaces and their prices. It aims to support sustainable mobility by encouraging the use of public transport and carpooling, thereby reducing traffic congestion and improving air quality.

**Innovations:**
- Proposes spare or carpooling events or different means of transport on the go.
- Regular updates on the city's public mobility network.

**Things to avoid in our app:**
- Lack of updates or updated data.
- tracking users' positions without their consent or explicit permission.

**Sustainable mobility - CASA dans ma poche**

<table>
<thead>
<tr>
<th>Application CASA dans ma poche</th>
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<tbody>
<tr>
<td>CASA dans ma poche (Android/iOS)</td>
</tr>
</tbody>
</table>

**Description:** A mobile application that provides information and services, in particular to facilitate trip and daily life within the Agglomeration Community. CASA dans ma poche offers information that suits everyone’s needs. Whether the user is a resident or a visitor, the application can help you locate the useful places (public services, culture, health, education, transport, businesses, etc.). Easily find restaurants, hotels, cinemas and join as a favorite option. This application allows users to be notified of the upcoming events in the community and can also obtain the real-time warnings of weather risks, traffic conditions, etc.

**Innovations:**
- View upcoming events.
- Be warned in real time of weather risks, traffic conditions, and geographical useful places.
- Interesting function

**Things to avoid in our app:**
- Missing route guidance for items such as points of interest and surrounding events.

The data involved:
- The weather information is provided by Météo France.
- Traffic information is provided by HERE.
- Other information is provided by the Sophia Antipolis Agglomeration Community.

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Soft mobility – open rider

Openrider

PLATEFORM: (Android/IOS) Free

https://www.openrider.net

Description: As the Google Fit Developer Challenge grand prize winner, Openrider is an application that combines cycling and healthy exercise. Users can monitor their heart rate in real time while riding to adjust their own situation on the trip. There is also an application that can compete with friends or other users for the cycle experience, and rank the user by the distance traveled, the maximum or average speed and riding time used on the leaderboard, which is a combination of sports and fun in one applications.

Innovations:
- Simple and intuitive interface
- Analyze your bike record with different charts on the map.
- Rank and level competition with your friends.
- Sensor: Connect to your Bluetooth heart rate monitor, speed and cadence sensor.
- Share: Share your record with your social media.

Things to avoid in our app:
- Lack of completeness of itinerary information
- ...

Interesting function

Public transports: moovit

Moovit

Description: Moovit is a free application that allows public transport users to know the traffic conditions. Via Apps, Moovit also wants to participate in the participatory management of cities by helping to reduce traffic congestion. You can also access real-time information from public transport operators. You can see the time of your stop, which line is the most convenient, how many stops you have to make, a summary of your trip and how much time you will save. The user experience is integrated with Google Maps, allowing you to save your stop and track all stops in real time.

Innovations:
- Display bus, train and subway schedules.
- Calculate arrival and departure times.
- Share information to other users.
- All possible routes taking the account the state of the network.

Things to avoid in our app:
- No response to other soft transport requests such as walking and cycling pattern.

Interesting function
3.4.2. Development of the MOBILITAS application ethiCycle

The development of MOBILITAS application was intended to help mitigate mobility issues, focusing on a reduced experimental area so that it could have a real added value. This area extends from Antibes in the West, Villeneuve Loubet Plage in the West, and Biot in the North.

Several objectives were defined in the development of this application, mainly:

- Promote soft mobility, especially cycling and more particularly electric cycling, in the experimental area;
- Promote the attractiveness of the territory by enhancing its points of interest;
- Contribute to reducing the use of private vehicles, thus reducing pollution (traffic jams, noise and air pollution) and promoting a greener tourism;
- Enable data collection through a collaborative process, directly involving users of the application. The lack of some data was indeed highlighted as an obstacle to the implementation of more sustainable mobility policies.

3.4.3. Functions of the app

The mobile application called "ethiCycle" was developed in 2018 and tested by about 100 volunteers, tourists and members/staffs of ENERGIES 2050 throughout this period. Drawing on the applications previously analysed, it contains several functionalities including a mapping of roads with regard to their "cyclability", of danger zones, of areas of interest in the form of "cards" to be collected, as well as a number of other functions as explained below.
Function 1: Mapping the « cyclability » of roads in the experimental area

One of the application’s main function is to map roads in the pilot area according to their practicality for cyclists. This classification is based on the test carried out by ENERGIES 2050 (as explained above), combined with a classification system that includes the presence or not of bicycle lanes, roads’ width, traffic’s level and speed (experimentation at various times of the day), presence of lighting at night, topography, etc.

The scale includes 5 bands ranging from red (for road sections not suitable for cycling) to green (sections of roads that are easy to use for cyclists). It is expected that users will enrich this map by providing their own feedback on roads’ conditions, following a collaborative approach inspired by applications such as Waze and GeoVélo.
The application offers a visual mapping of areas of danger for cyclists, which should contribute to reduce the risk of accidents, enhance alternative routes if necessary and raise awareness of these dangers among users and decision-makers alike.

Examples of risks identified include ruptures in bicycle lanes, narrow and poorly lit road sections, vehicles parked regularly on bicycle lanes or roadsides, etc.
Figure 3.24: Mapping of danger zones

Véhicules souvent garés sur la voie cyclable.

Bas côté étroit et inégal, non sécurisé et peu éclairé.

109 © ENERGIES2050
Function 3: mapping sites of interests

One of the objectives of this application is to combine on a local scale the promotion of sustainable modes of transport, in particular electric bicycles, with promoting the territory’s attractiveness. With this in mind, the application thus highlights the different sites of interest in the area through four types of "cards": shops, activities, points of interest and infrastructures.

Figure 3.25: Types of cards

© ENERGIES2050
All these sites can be mapped in the application, combined or not with the "cyclability" of roads and danger zones, thus making it easy to identify access roads to sites that are the most suitable for cyclists.

**Figure 3.26: Combined mapping**

In order to increase the interest of users, it may be offered in the app the opportunity to "collect" the different cards, a kind of "Pokemon go" like treasure hunt.

In the long term, the ambition would be to involve local offices of tourism and companies and offer rewards to users who collect the most cards (by bicycle/soft transportation modes).

At the time of writing this report, the application contained 43 cards “commerce”, 13 cards “points of interest”, 18 cards “Activities” and 12 cards “infrastructure”, so a deck of 86 cards. This number is expected to increase during the next development phase of the application.

© ENERGIES2050
Figure 3.27: Sample of cards

Commerces
(Hôtel, Gîtes, Restaurants, bar, boîte de nuit, …)

43 carte(s)

Points d’intérêts
(vieux villages, rues, monuments, panoramas naturels, rivieres, bord du loup)

13 carte(s)

© ENERGIES2050
Strategies for sustainable and low-carbon mobility in Mediterranean tourist destinations – MOBILITAS Project

Musée du Bonsai

Dans le cadre d’un jardin japonais (1000 m²), découvrez une collection exceptionnelle de Bonsai du monde entier travaillé de père en fils par Jean et Karol OKONEK.

Ajoutée le 04/10/2018

Musée Picasso

Château-musée exposant des œuvres de Picasso, qui y a vécu et travaillé en 1946.

Ajoutée le 04/10/2018

Canyon Forest

Parfait endroit pour vivre des moments de sport et de détente.

Ajoutée le 04/10/2018

Antibes Land

Parc saisonnier offrant depuis 1981 manèges à sensations, attractions à thème et jeux de style carnavalesque.

Ajoutée le 04/10/2018
Function 5: Explore the area

Still with the aim of promoting the pilot area’s attractiveness, the application offers a pre-set of cycle and pedestrian routes to discover its natural or cultural heritage. The user also has the possibility to design his own route according to what he wants to visit, or simply to find routes between two geographical points. Finally, the application allows to search for nearby points of interest.

For each route, a set of data is provided by the application including a map, difficulty, mileage, time required to complete the route (cycling based), the topography/level difference as well as photos of illustrations to help users choose the route best suited to their wishes and tastes.

© ENERGIES2050
Figure 3.29: Cycling routes predefined in the app\textsuperscript{114}

\textsuperscript{114} © ENERGIES2050
Figure 3.30: Functions « Create your route », « Itinerary » and « Explore surroundings »

© ENERGIES2050
A sixth function of the application is to collect data on users' mobility habits, which can then be used to refine mobility plans and analysis of transports used in the pilot area. This data is collected through a questionnaire integrated into the application but future developments may also allow the management of user accounts, from which more data could be collected.

### Function 6: data collection

![CONTRIBUTION](image)

A sixth function of the application is to collect data on users' mobility habits, which can then be used to refine mobility plans and analysis of transports used in the pilot area. This data is collected through a questionnaire integrated into the application but future developments may also allow the management of user accounts, from which more data could be collected.

**Figure 3.31: Function « contribution » and data collection**

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<thead>
<tr>
<th></th>
<th>Km</th>
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<tbody>
<tr>
<td>Véhicule personnel</td>
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<tr>
<td>Vélo</td>
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**En moyenne, combien de km avez-vous effectué par jour ? (estimations)**

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<thead>
<tr>
<th></th>
<th>Km</th>
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<tbody>
<tr>
<td>Transport en commun</td>
<td></td>
</tr>
<tr>
<td>Véhicule personnel</td>
<td></td>
</tr>
<tr>
<td>Vélo</td>
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</table>

**Avez-vous des recommandations pour améliorer l’usage des transports en commun et du vélo dans votre région ?**

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<td>Informations personnelles (facultatif)</td>
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<tr>
<th>Prénom</th>
<th>Nom de famille</th>
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<th>Departement</th>
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**Participer à l’étude**

### 3.4.4. Some thoughts about the app

Some elements of reflection associated with the development of the ethiCycle application are mentioned below. These concern in particular the aspects of innovation, collaborative approach and thoughts on further developments.

- **Innovation**

The analysis of existing applications (most of which are available free of charge) has shown a great wealth of initiatives and tools that can help territories implement their sustainable mobility plans. An example is the geo-vélo application, which is based on users’ collaboration, on a model similar to Waze. It was difficult, given this and the costs of developing these applications, to provide a real added value within the frame of MOBILITAS.

116 © ENERGIES2050
The ethiCycle application is nevertheless innovative in the sense that it combines the promotion of cycling (classification of roads in the pilot area according to their practicality for bicycles, with a playful aspect), the promotion of the territory's tourist assets (maps of sites of interest, proposals for tourist routes) and the collection of data to feed a continuous improvement process. With a very local focus, it allows richer functionalities that are fully adapted to the specificities of the territory.

- **Collaborative approach**

An important aspect that should be highlighted here and that will be highlighted again in a later section of this report is the importance of a collaborative approach, particularly in data collection. These data may include danger zones, points of interest, etc.

At a local level, the collection of data does not need to be done by the sole local authority but can build on the participation of citizens, whether they are tourists, inhabitants of the area, or even regular cyclists wishing to report on certain constraints, dangers, or routes of interest. With regard to ethiCycle, ENERGIES 2050 collected a large amount of data by surveying the pilot area, but was also able to rely on a certain amount of existing information and also on the willingness of users who had tested the application and who were able to provide significant and valuable feedbacks.

- **Thoughts for improvements**

ENERGIES 2050 aims to create or extend functionalities, including for example the possibility of creating users’ accounts that could then be used to collect aggregated mobility data. A carbon footprint assessment (cycling versus other modes of transport) could also allow users to learn more about the CO₂ emission savings achieved through their new habits. ENERGIES 2050 would also like, with the support of potential partners, to extend the development of this application to other pilot territories, and to strengthen its recreational aspect, particularly for card collection.
4. Recommendations of actions

Based on the experimental work carried out as part of the MOBILITAS project, a set of recommendations and potential actions aimed at promoting sustainable mobility was established for the pilot area. These recommendations are divided here into 5 components:

1. Promote soft mobility, especially electric;
2. Strengthen the use of public and shared transports;
3. Rethink the organization of the territory;
4. Continue existing dynamics of cooperation;
5. Use digital tools as levers for the energy transition.

4.1. Promote soft and electric mobility

In view of the specific challenges of the pilot area and its characteristics, a large part of the work carried out focused on the use of electric bicycles. This mode of travel has proved to be very relevant, and some actions could be taken to enable a wider development of its use among residents and tourists.

4.1.1. Action 1.1: develop adequate infrastructures

Figure 4.1: Bridge crossing the A8 towards Biot village, a particularly dangerous path for cyclist

©Google map
The experimental work carried out in the area has highlighted the lack of infrastructures suitable for cycling (electric or not), particularly as one moves away from the coast.

Access to the village of Biot, its church, its glassware, etc. is made complicated not only by the hilly ground but also by roads that are not adapted to this practice. As highlighted in the mobile application, several types of hazards could be geo-located, including narrow roads sometimes without sidewalks, lack of visibility and/or lighting at night, vehicles parked on the roadsides, very dense and fast traffic, etc.

To promote soft mobility it is therefore recommended to:

- Create, where feasible and depending on the width of roads, secured bicycle lanes (separated from the road), with a particular focus on access to the main tourist attractions;

Figure 4.2: Cycling infrastructures in the area\textsuperscript{118}

\textsuperscript{118} Source Géovélo
Where the creation of cycling lanes is not possible in view of existing conditions, alternative routes should be offered. A focus should be brought to ensure that at least one access route to the main sites of interest is suitable for cycling.

Create, in particular near points of interest, secured parking slots for bikes.
Figure 4.5: Various access roads to Biot’s glassware from Antibes La Fontonne

Parked vehicles on the roadside and on cycle lanes represent a danger for cyclists who have to ride back on the road. Increased awareness among drivers, combined with verbalization in the event of non-compliance, could help mitigate these risks.

Figure 4.6: Parking of vehicles on roadsides
4.1.2. Action 1.2: promote green tourism

The pilot area and more generally the French Riviera have very important cultural and natural heritages that contribute to their attractiveness for tourism. Organisations involved in promoting local tourism should focus on green cycling routes that allow visitors to explore the area safely and at a slower pace than with an individual vehicle. The ethiCycle application offers to this regards a large number of options, from the simplest to the most difficult. Other applications offer the same type of service, such as Mountpass (for the more sportive types) or Bike map (see capture below).

Figure 4.7: Preselected routes in ethiCycle

© ENERGIES2050
The Alpes Maritimes department also offers bike tour guidebooks, whether for sports, tourism or simple family outings. It should be noted, however, that despite its attractiveness, the experimental area of MOBILITAS hosts very few of the itineraries recommended in these guides. Efforts can thus be made in connection with these tools and initiatives to promote the recreational use of bicycles and enhance the richness of the territory.

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123 See [online] https://www.mountnpass.com
4.1.3. Action 1.3: develop a self-service e-bike sharing system

As part of its activities, ENERGIES 2050 also studied the opportunity to set up an electric-assisted bicycle rental system in the pilot area. This type of system, self-serviced or not, is already widely used for conventional bicycles (e. g. vélo bleu in Nice) and is spreading for electric bicycles, as for example recently in Grasse or since 2010 in Monaco which has a system composed of 18 stations and 107 electric bikes. On a European scale, cities such as Copenhagen, for example, are also equipped with these.
The pilot area would be very well adapted to the implementation of such initiatives, further benefiting from lessons and feedbacks from existing systems (e.g. in terms of safety, cost-effectiveness, etc.).

Electric bicycles’ charging stations could be located at strategic points and multimodal hubs, as well as near major tourist attractions, including:
- Marina Baie des Anges in Villeneuve Loubet (West);
- Antibes’ train station (East), which already represents an important hub for switching between trains and buses operating in the area;
- Near Biot’s railway station and Marineland (Center);
- To the north and in the heights, additional stations could be located in the village of Biot, the glassware, Saint-Philippe roundabout in Antibes (convergence point towards Sophia Antipolis), Carrefour d’Antibes (Chemin de Saint Claude), or others.

Companies such as clean energy Planet, which manages several parks in France and in particular the one in Monaco, are specialized in the implementation of this type of systems. To go further, stations powered by photovoltaic energy are also an option, such as the SUNPOD® cyclo from Advansolar, a company located in Nice. This SUNPOD® can be adjusted according to needs and operates 100% on solar energy.

Figure 4.11: Sunpod solar charging station for self-service rental of e-bikes

4.2. Public and shared modes of transports

For all journeys that cannot be made by bicycle or on foot, the transition to sustainable mobility necessarily involves a change in the modal distribution of traffic, from thermal powered and individual vehicles to shared, electric and/or public transport modes (tram, bus, train, etc.). The development of

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a bus-tram between Antibes centre and Sophia Antipolis is a good step, but many other opportunities exist to increase the share of public transport.

4.2.1. Action 2.1: adapt public transport offer to the needs

The area is relatively well covered in terms of network, but consultations with citizens (for example, the one carried out in Biot as part of the PLU’s update, already mentioned in this report), and the experience of ENERGIES 2050 lead to the identify certain opportunities especially regarding:

- Bus schedules: the coastal strip is fairly well connected (bus 200 in particular going from Cannes to Nice, coupled with the TER train), but the ascent to the hinterland is often more complicated with a relatively low frequency of bus outside peak hours and no train (except for Grasse);

- Connecting to Nice Côte d’Azur airport by public transport can be particularly difficult, and in any case requires getting off at first towards the coast to take either the direct bus 250 (stopping at Antibes, Biot and Villeneuve Loubet train stations in particular), the bus 200 (longer but more economical) or the train to Nice Saint Augustin station. Access to the airport then required a ten-minute walk but a new tram line passing near the station and connecting the two airport terminals recently opened. It should be noted that after 8.30 pm, it is almost impossible to reach the pilot area from the airport by public transport, which often forces passengers on flights arriving late to use taxis/Uber/individual vehicles. The same applies to passengers with a late departure from the airport.

Figure 4.12: Timetable of bus 250 to the airport and bus 10 to Biot
- Buses’ size: the buses (excluding the 200 bus) often seems oversized, especially outside peak hours, which represents a significant economic but also ecological cost.

**To this regard, it would be beneficial to:**
1. Increase the frequency of buses, particularly to Biot village and the “hinterland”;
2. Extend buses’ schedules to/from Nice airport until 11pm;
3. Adapt the size of buses with more shuttle/minibus formats during off-peak times.

Nevertheless, among the positive dynamics can be highlighted the creation of new lines (for example the Antibes Sophia Antipolis tram bus, or more to the east the extension of the Nice’s tramway lines) or the provision of free shuttles to Biot village during summer periods: [http://www.biot.fr/cadre-de-vie/les-transports/navette-ete/](http://www.biot.fr/cadre-de-vie/les-transports/navette-ete/).

**Figure 4.13: Summer shuttle Biot**

### 4.2.2. Action 2.2: increase the attractiveness of public transports – GPS monitoring and multimodal hubs

Whereas **PACA Mobilité** and other mobile applications make it easier to calculate multimodal routes, bus schedules remain dependant on traffic conditions, making it difficult to really plan a journey if it involves several changes of transportation modes. In this context, the possibility to monitor on these app or others the position of buses in real time, using on-board GPS trackers, could be beneficial and increase users’ interest towards these modes of transport.

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In addition, the creation of multimodal exchange hubs (train, bus, electric bicycle) at Biot, Juan-les-Pins and Villeneuve Loubet train stations, similar to the one in Antibes, could increase the use of public transports. This requires, on the one hand, coordination of timetables between trains and buses, for example, and on the other hand, the provision of parking spaces so that people can easily drop off their vehicles.

**Figure 4.14: Multimodal hub of Antibes train station opened in 2014**

4.2.3. **Action 2.3: disincentive the use of individual cars**

Another possibility would be to limit access to certain areas, for example around the old town of Antibes and the village of Biot, to authorised vehicles only (residents, professionals, delivery), and to offer an alternative transport service (coupled with adapted car park), among which shuttles/bus and electric bicycles, to other users. A free summer shuttle bus runs for example on Cagnes sur Mer’s beach, an initiative that could be applied to the coastal strip between Villeneuve Loubet and Antibes.

**Figure 4.15: Beach shuttle Cagnes sur Mer**

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130 See [online] http://www.bustramcasa.fr/intermodalite.html
Making car parks on the sea front not free or limiting them to a certain number of hours would encourage tourists to use these alternatives, and would also reduce congestion at the beaches’ exit periods, which often correspond to traditional peak hours.

4.2.4. Action 2.4: Self-service renting systems.

The provision of self-service vehicles is an interesting option that has already been introduced in several cities, whether for bicycles (e.g. Vélos bleu in Nice), electric bicycles (Monaco), electric cars (auto bleue) and scooters (cityscoot, still in Nice). The case of electric bicycles has already been discussed in this report but this system could be combined with the provision of cars, scooters or others also powered by solar energy.

![Figure 4.16: Auto Bleue (Nice)](http://www.avem.fr/actualite-auto-bleue-le-bilan-de-5-annees-d-exploitation-avec-son-nouveau-directeur-6127.html)

4.3. Rethink urban planning

The previous courses of action aimed to change the transport mix (modal share) towards more sustainable modes of transport. Other actions can also be taken to reduce the need for transport upstream, or to better spread these needs over time thus limiting congestion issues.

4.3.1. Action 3.1: enhance economic and functional diversity

At present, the majority of employments are located in Nice and Sophia Antipolis, creating major congestion during peak hours (in particular RN7 from Biot to Villeneuve Loubet, particularly when the seaside road is closed, A8 from Cannes to Nice, roads leading to Valbonne and Sophia Antipolis, etc.). It would be possible to limit transport needs or better distribute these needs throughout the territory by "relocating" certain companies outside these two areas, in particular Sophia Antipolis which brings together a very large number of companies. For example, AMADEUS has opened a new work centre in the heights of Villeneuve Loubet, thus limiting the need for more than 1000 employees to travel to Sophia Antipolis. The advantage is even greater when the relocation of these employment-providing companies takes place close to leisure, retails and residential areas (possibility of living close to the workplace).

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4.3.2. Action 3.2: enhance teleworking

In partnership with local businesses, initiatives to promote teleworking could be put in place, especially since recent regulatory provisions encourage this type of initiative. At the scale of an employment centre such as Sophia Antipolis, this could considerably reduce travel, congestion and therefore local pollution and carbon emissions from transport. The Sophia Club Entreprises, for example, could be an interesting actor for the implementation of this type of action, as could the Villeneuve Loubet Business Club, which has already committed itself to sustainable mobility actions.\(^\text{133}\)

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**Box 7: teleworking in French regulation\(^\text{134}\)**

Telework is regulated by law, which imposes obligations on both the employee and the employer. An update on the legislation applicable to a mode of work organisation that is developing more and more in France. The legal regime for teleworking is enshrined in the Labour Code, which defines the status and rights of the teleworker and the conditions for setting up telework in a company. Here is a presentation of the telework system, the content of which has been substantially modified by the reform of the 2017 Labour Code and Ordinance No. 2017-1387 of 22 September 2017 on the predictability and security of labour relations.

**Definition**
Teleworking is defined by the Labour Code as any form of work organisation in which work which could also have been carried out on the employer's premises is carried out by an employee outside those premises on a regular and voluntary basis using information and communication technologies as part of an employment contract or an amendment thereto.

**Criteria**
Teleworking therefore requires the following conditions to be met:
- the work is carried out away from the employer's premises, in particular through the use of means such as the Internet or telephone;
- the work is carried out under these conditions on a regular basis, with work occasionally carried out at the employee’s home not conferring teleworker status;
- the employee has given his or her consent to this form of work organisation by signing his or her employment contract or an amendment to it.

**Place of work**
Teleworking must simply be carried out outside the employer's premises. It can therefore be carried out both at the employee's home and in another place (in a tele-centre, a café, etc.).

**Labour Code**
Teleworking is governed by Articles L. 1222-9, L. 1222-10 and L. 1222-11 of the Labour Code.

**Advantages**
For the employee, the main advantage of teleworking is the notion of time. This mode of organization allows it to:
- save travel time to work (car or public transport);
- to organize his working time with a certain freedom.

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\(^{133}\) See [online] http://www.cevi.fr/mobilite/
\(^{134}\) See [online] https://droit-finances.commentcamarche.com/contents/1526-teletravail-definition-loi-et-droits-du-salari
For the company, one of the main advantages of teleworking is that it saves office’s rental costs. But this mode of organization also has certain disadvantages that may encourage the employee to return to the company’s premises.

Setting up
Before the reform of the Labour Code, teleworking had to be provided for in the employment contract or implemented by signing an amendment. Since the reform, teleworking has been introduced by collective agreement or by means of a memorandum drawn up by the employer (after obtaining the opinion of the Social and Economic Committee if there is one). This text sets out in particular the conditions for switching to teleworking, the procedures for monitoring working time or the setting of times during which the employer may contact his employees (while respecting the right to disconnect). But even in the absence of a collective agreement or memorandum in the company, the employee and employer can agree to use telework. This is particularly the case when teleworking is used occasionally (examples: a transport strike, an employee has to keep his sick child at home...). The employer and employee must then formalize their agreement by all means. For example, it may be a simple exchange of emails.

Request and refusal
An employee may request to work from home. But the employer is free to accept or refuse. If the employer refuses to telework an employee while the position held by the latter is eligible for teleworking under the conditions provided for by collective agreement or, failing that, by the charter, he must provide the employee with the reasons for his decision. On the other hand, an employer cannot impose telework on his employee. The latter must give his consent. An employee who refuses a teleworker position cannot be dismissed because of this refusal (article L. 1222-9 of the Labour Code).

4.3.3. Action 3.3: shift working hours and encourage carpooling

Also in coordination with companies located in the area, a shift in working hours between and within companies could also limit excessive congestion, and allow employees (when their core business allows it) to have greater flexibility in their working hours. In particular, it would be wise to avoid as much as possible the usual hours to leave the office in summer (17:30-18:30), which often correspond to tourists returning back from beaches.

In addition, carpooling initiatives can be set up at the community’s and company’s levels. These include the Otto and Co initiatives led by CASA and the Maritime Alps department, as well as Ridygo for the Antibes and Grasse employment areas.
4.4. Reinforce existing cooperation dynamics

The implementation of an integrated approach toward sustainable mobility at the scale of the area cannot be achieved without extensive consultation between local authorities and stakeholders at different levels, such as cycling associations, companies, various transport and tourism organisations, etc. This dynamic must be built around a coherent territorial strategy.

4.4.1. Action 4.1: integrate at best the issue of sustainable mobility into a new air, climate and energy plan for Ouest 06

While the development of the new PCAET is underway for the Sophia Antipolis Urban Community (CASA) and the city of Antibes, adopting an integrated multi-territorial approach in the transport sector could bring significant benefits, making it possible to better manage traffic flows, including related to tourism. The Ouest 06 approach, which includes CASA, the city of Antibes, the Communauté d’Agglomération du Pays de Grasse, the city of Cannes, the city of Grasse and the Communauté d’Agglomération des Pays de Lérins, is consistent with this dynamic and could itself be implemented in coordination with other territories, notably the Nice Côte d’Azur metropolis.

See [online] https://www.ridygo.fr/
4.4.2. Action 4.2: reinforce participation

While involving local stakeholders over the long term\textsuperscript{138}, particularly businesses and citizens, can be difficult, some initiatives implemented in the area can serve as references. The PCET Ouest 06 enabled citizens to express their opinion and thoughts via a dedicated web page, leading to the publication of a white paper of consultation\textsuperscript{139}. Identified as the second major step of the plan (after the inventory of emissions and vulnerabilities), this consultation mobilized initially the internal departments of each local authority to work directly on their public policy. It also endeavoured to mobilise the territory’s strategic actors and partners: economic actors, housing and construction actors, planning and environmental actors, to bring out proposals for complementary actions\textsuperscript{140}.

This consultation took place in several forms and steps:

- Forum to launch the PCET Ouest 06 in December 2012, bringing together 100 to 150 stakeholders at which the approach was presented. Thematic round tables were organized on this occasion;
- Workshops targeting public policies and bringing together the authorities concerned, as well as actors from the territories involved: economic partners, housing and construction and environment and development actors.

A questionnaire was also sent to stakeholders to collect their contributions on 3 main issues: visions of the energy/climate issues on the territory, key actions to prepare the transition and finally new actions to be carried out with the Ouest 06’s local authorities.

The 18 contributions received, from various stakeholders such as the Nice Côte d’Azur Chamber of Commerce, GRDF, AIR PACA and Véolia Eau, are all listed in the published white paper.

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\textsuperscript{137} © ENERGIES2050


\textsuperscript{140} See [online] http://www.planclimatouest06.fr/wp-content/uploads/2014/03/Livre_Blanc_Concertation_PCETOuest06-2013.pdf
4.4.3. **Action 4.3: reinforce transparency and coordination in transports**

To date, very little information is publicly available on, for example, the evolution of key indicators or the reorientation of actions according to results of climate and sustainable development policies. Similarly, there is little data on the coordination of monitoring and evaluation of results between the different territorial levels, which would be critical to see how each territory contributes to the achievement of the objectives set at local (PCEAT), regional (SRADDET, SRCAE), national (SB) and European (Climate Energy Package) levels. An important work in this field could thus be carried out, coordinated at a regional level under the aegis of SRADDET. This transparency process would furthermore be an essential element that could:

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**Box 8: The trophies climate energy**

Initiatives aiming to involve stakeholders in the implementation of climate plans in the region SUD can also be highlighted. These include the Climate-Energy Trophies, which are part of the Alpes-Maritimes’ PCET and reward the most active players in the field of technological and energy innovation related to the climate issue. These trophies are composed of different categories, with winners from different backgrounds, as shown in the table of 2017 winners:

<table>
<thead>
<tr>
<th>Category</th>
<th>Winners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raising public awareness</td>
<td>CASA, SICASIL, PNR des Préalpes d’Azur, collège CESAR, ECO CO2 (entreprise), Azzura lights (association)</td>
</tr>
<tr>
<td>Developing renewable energy</td>
<td>Commune de Séranon, EPA Eco Vallée, SOLAIS et VEOLIA EAU (entreprises)</td>
</tr>
<tr>
<td>Innovation</td>
<td>ECO Responsible science, Observatoire de Nice, MOBEE et OVEZIA (entreprises)</td>
</tr>
<tr>
<td>Development and creativity</td>
<td>Communes de Massoins, Utelle, Isola, Sospel et Cannes, SMED, entreprises AIR Action environnement, Tetris, Watinyao, Air France, Terrazur, S.A.P, Scity, Thales, La Poste,</td>
</tr>
<tr>
<td>Trophies encouragingDevelopment and creativity</td>
<td>Communes de Fontain, Saorge, La croix sur Roudoule, St Jeannet, St Martin Vésubie, Villeneuve Loubet, Menton, collège Canteperdrix,</td>
</tr>
<tr>
<td>Encouragement</td>
<td>BIM Manager Heams&amp; Michel, ESSTRA, Hôtel Grand Hyatt, Martinez Cannes, Association SKEMA,</td>
</tr>
<tr>
<td>Biodiversity</td>
<td>Commune de Belvédère, Association G.I.E.F.S.,</td>
</tr>
<tr>
<td>Transport</td>
<td>CA Cannes Pays de Lérins, partenariat de collectivités, Entreprise Clean Energy Planet,</td>
</tr>
<tr>
<td>Bronze</td>
<td>Communes Eze, Cagnes sur mer, CNRS, Entreprise ECCITY, Association Choisir initiative vélo,</td>
</tr>
<tr>
<td>Silver</td>
<td>Communes de Roquesteron, Tourrettes sur Loup, Mandelieu, CC des Alpes d’Azur, ENEDIS, Association Vie initiative environnement,</td>
</tr>
<tr>
<td>Gold</td>
<td>Communes de Guillaumes, Chateauneuf de Grasse, CA Pays de Grasse, Grasse, Arkopharma, smart grids,</td>
</tr>
</tbody>
</table>

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142 See [online] https://www.departement06.fr/en/plan-climat/trophees-climat-energie-5356.html
• Encourage the involvement of all stakeholders;
• Draw lessons from the actions implemented in order to develop new strategies and improve their efficiency;
• Limit the risks of a policy that appears to be too focused on communication, ultimately impacting the credibility of the territory and its citizens’ mobilization;
• Limit the risks of decisions that are inconsistent with the ambitions set.

In addition, the creation of a "Mobility" coordination desk within the framework of the Ouest 06 climate plan, with a dedicated team, would make it possible to better monitor actions in this field and work towards the constant involvement of stakeholders in the implementation of actions.

4.5. Use of ITs

4.5.1. Action 5.1: enhance the use of mobile application

As mentioned earlier in this report, there are a multitude of mobile applications that can be used to promote more sustainable modes of transport, such as public transport (PACA Mobility, Moovit), shared vehicles (vélo and auto bleu), carpooling, etc.

These mobile applications are tools on which sustainable mobility and tourism policies can be developed. In this context, it would be interesting to:
• Create links with managers of relevant applications, so that these can be adapted to the specificities of the territory and its needs;
• Use the information provided by these applications to better guide the actions to be carried out by local authorities and civil society organisations;
• Promote the use of these applications in sustainable mobility plans.

To this extent, the ethiCycle application could be extended to other territories and promoted by offices of tourism, with more advanced functions; it would thus contribute, at lower costs than under the development of a new application, to strengthening the attractiveness of the territories and the use of bicycles by tourists and inhabitants.
4.5.2. Action 5.2: use ITs to raise awareness on energy issues

In order to strengthen the transition, it remains important to raise awareness among citizens (tourists and local residents) on energy and climate issues, including on sustainable mobility policies.

As such, the Citizens For energy transition project (funded by the European Commission’s Erasmus Plus programme) offers a set of 30 educational tools and games that can be used by local authorities and companies in the implementation of "recreational" awareness activities.\(^\text{143}\)

All games are freely available online at http://www.citizens4energytransition.org/.

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\(^\text{143}\) See [online] http://www.citizens4energytransition.org/
5. Lessons drawn and conclusions

The work carried out as part of MOBILITAS project highlighted that, as for now, the territorial’s organisation and infrastructures do not globally fit the use of soft transportation modes. More generally, the experimental area is weakly linked with public transports when moving inland or during off-peak hours, even though a number of important touristic sites are located there. Finally, the area is poorly linked to (and from) the airport, which further increases the use of private vehicles, including by tourists.

To overcome these various constraints, a set of action could be taken, in coordination with different stakeholders and neighbouring territories. The approaches proposed in this report cannot, of course, constitute an exhaustive list; the main purpose here is to enrich the debate on sustainable mobility, with a very local focus and recommendations resulting from daily practice of the “experimental field”. The challenges are complex but it seems clear that a change in transport modal shares is possible and would bring many benefits in terms of CO2 emissions (as shown by the different scenarios developed), but not only.

Figure 5.1: Summary of recommended actions

| SOFT AND ELECTRIC MOBILITY | Design adequate infrastructures  
| Enhance green tourism  
| Set up an e-bike renting system |
| SHARED AND PUBLIC TRANSPORTS | Adapt the offer to needs  
| Enhance attractiveness through GPS monitoring and multimodal hubs  
| Discourage the use of individual vehicles  
| Develop self-serviced vehicles’ rental systems |
| TERRITORIAL AND WORK ORGANISATION | Enhance functional diversity  
| Promote teleworking  
| Develop carpooling and shift working hours |
| COOPERATION AND COORDINATION | Integrate the issue of tourist mobility into PCAET Ouest 06  
| Increase participation  
| Enhance transparency and governance |
| iTs | Use mobile applications  
| Raise awareness with new tools |

The purpose of this paper was also to document as much as possible the activities carried out within the framework of MOBILITAS project, so that they could serve to enrich the state of knowledge and really contribute to sustainable mobility practices in the Mediterranean basin. The approach adopted, combining field experimentation, data research, scientific work, users’ awareness and recommendations, has proved particularly relevant and could be replicated on a larger scale.
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CASA infos Agglos. See [online]: https://casa-infos.agglo-casa.fr

Consultation d’Inventaires Géolocalisés Air Climat Energie. See [online] https://cigale.atmosud.org/


Observatoire Régional des Transports. See [online] https://www.ort-paca.fr/

Observatoire Régional Air Energie Climat. See [online] http://oreca.maregionsud.fr/


Tourisme PACA. See [online] http://tourismepaca.fr/pros/chiffres/
ENERGIES 2050 was born with the certainty that the development trajectories of our societies are not inevitable. As an informal network since 2007, and as a French non-profit and non-governmental organisation working exclusively in the general interest since 2011, ENERGIES 2050 contributes relentlessly to the transformation of our societies for a more humane and sustainable future.

Bringing together members and partners from more than sixty nationalities, ENERGIES 2050 works internationally to set up a new, positive and inclusive development model to transform constraints into opportunities for action. As a collective adventure in the quest for better ways of living together, ENERGIES 2050 has committed to the Great Transition, including energy transition, sustainable cities and regions, and the shift towards a more humane, plural and united society, bringing peace and respecting the common goods of humanity.

ENERGIES 2050 organises its activities according to five complementary areas:

- Executing demonstrative and repeatable projects accompanied by technical studies and research actions to demonstrate the possibilities.
- Organising or attending meetings and conferences in order to expand the opportunities for exchanges and discussions.
- Publishing research results to pool and share knowledge.
- Educating, training and building capacities so that each individual can understand, know and act.
- Communicating to the greatest number to inform, mobilise and rally the willingness to act.

ENERGIES 2050 implements projects in more than forty countries. ENERGIES 2050 is active in the following areas: eco-development and sustainable development, climate, environmental and energy policies, energy transition, development of renewable energy sources, responsible and sustainable tourism, buildings and the construction sector, challenges and opportunities for action in rural and urban territories, sustainable cities, natural resources and the common goods of humanity, ecological and environmental economics, responsible business dynamics and corporate performance, low-carbon development strategies, gender, environmental education, social dynamics, behaviour change and citizen action and the social solidarity economy.

ENERGIES 2050 is a recognised player in climate change negotiations and in preparing and setting up national and international strategies and action programmes. ENERGIES 2050 is also known for successfully introducing concrete mitigation and adaptation projects with huge innovation potential and for deploying essential capacity-building programmes to encourage ownership and boost national excellence. ENERGIES 2050 has especially been privileged to support several African countries in preparing their Intended Nationally Determined Contributions (INDC) and in producing briefing files for submission to the Green Climate Fund. The association is also working, in partnership with United Cities and Local Governments of Africa (UCLGA), on the territorialisation of Nationally Determined Contributions for effective implementation as close as possible to the realities of the territories, which will eventually allow African cities and territories to gain access to climate finance instruments, including the Green Climate Fund (GCF).
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Strategies for sustainable and low-carbon mobility in Mediterranean tourist destinations – MOBILITAS Project
The project MOBILITAS (Mobility for nearly-zero CO2 in Mediterranean tourism destinations) is co-financed by the European Regional Development Fund (ERDF) under the Interreg-MED programme. It aims to provide concrete solutions to mobility issues faced by tourist destinations in the Mediterranean, and by this means to increase these territories’ attractiveness, to reduce their pollutions and traffic and to mitigate greenhouse gas emissions from the transport sector.

MOBILITAS is coordinated by the Regional Development Centre of Koper in Slovenia and involves nine other partners from a total of seven Euro-Mediterranean countries, including ENERGIES 2050 (France) but also the cities of Dubrovnik (Croatia), Misano (Italy), Platres (Cyprus) and Piraeus (Greece), Zadra’s Development Agency (Croatia), the Rimini Strategic Planning Agency (Italy), Paragone Europe (Malta) and the University of Venice (Italy).

In France, MOBILITAS’ experimental work was carried out in the Alpes-Maritimes department (Region SUD) with a specific focus on the cities of Biot, Antibes and Villeneuve Loubet. Four types of activities were implemented: (i) collection of data and statistics, which were notably used in the development of greenhouse gas emissions prospective scenarios; (ii) state of the art of local actors, initiatives and policies linked to sustainable mobility and tourism; (iii) experimentation of roads with electric bicycles and (iv) development of a mobile application, ethiCycle, to promote this mode of transport.

Through these activities, a set of concrete recommendations was designed, as summarised in this report. These recommendations aim to increase the modal shares of electric soft mobility and public transports, to reduce travel needs, to promote a collaborative approach around the issues of tourist mobility and finally to make a better and higher use of digital tools when designing and implementing local public policies.

Ultimately, and beyond its area of focus, this report aims to share the experience of MOBILITAS project in order to stimulate reflection on sustainable transports in the Mediterranean basin and to inspire other similar initiatives.

As an informal network since 2007, and as a French non-profit and non-governmental organisation working exclusively in the general interest since 2011, ENERGIES 2050 contributes relentlessly to the transformation of our societies for a more humane and sustainable future. ENERGIES 2050 operates in France and abroad on issues related to sustainable development, climate change, and environmental and energy challenges. The association brings together citizens and experts of more than 60 nationalities for the implementation of innovative, concrete, demonstrable and replicable projects in more than 40 countries.