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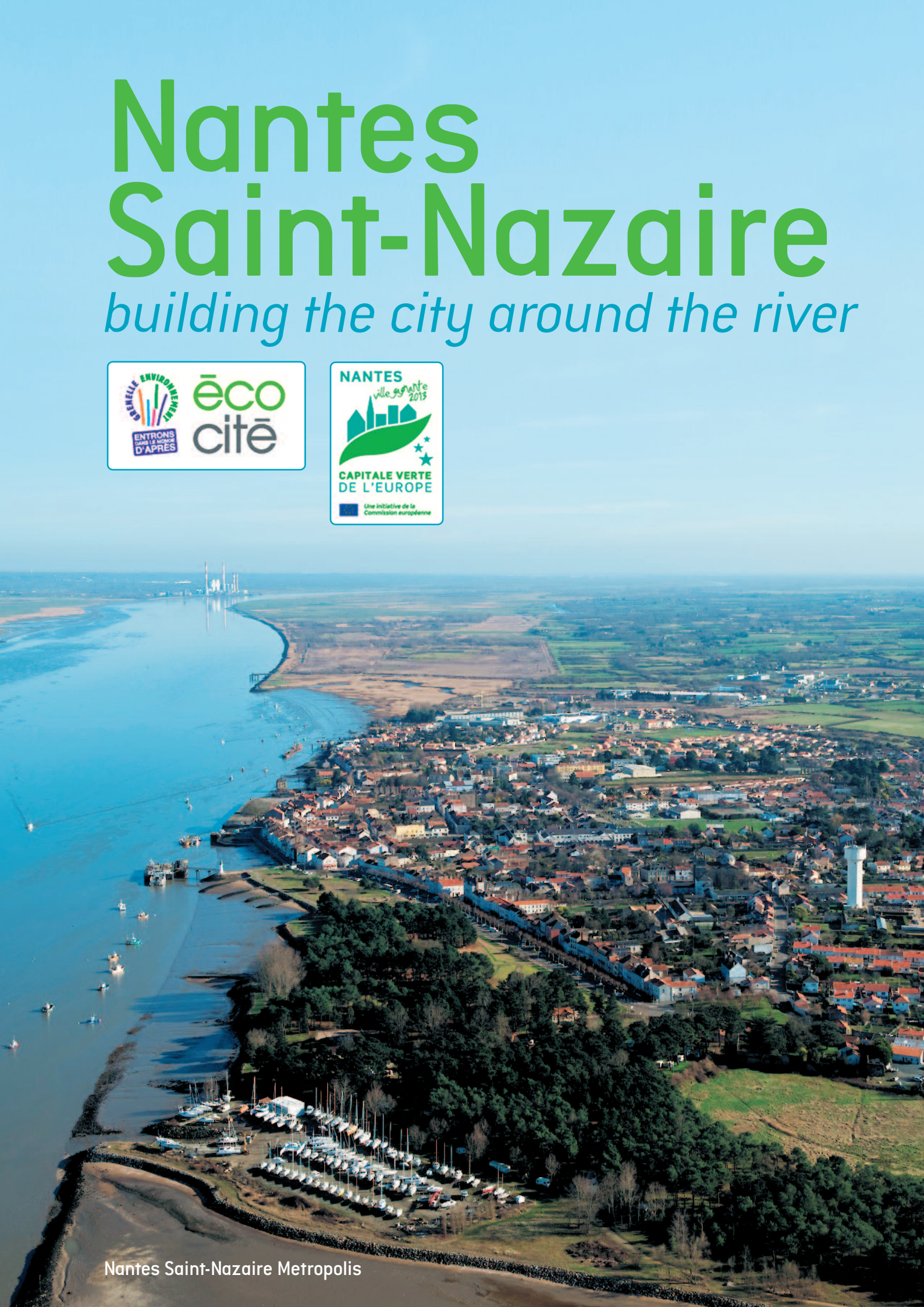
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Nantes Saint-Nazaire

building the city around the river



Nantes Saint-Nazaire Metropolis

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Nantes, European Green Capital 2013

In January 2013, Nantes will become **European Green Capital**, following in the footsteps of Stockholm, Hamburg and Vitoria-Gasteiz. This prize, initiated by the European Commission, is awarded in recognition of the willingness and ability of a city to curb and reduce its impact on the environment and also to improve the quality of life of its inhabitants.

Nantes, which is located on the banks of the Loire, is the sixth largest city in France, with 600,000 inhabitants in its conurbation. Its proximity to the estuary lends the landscapes of the region their green and blue hues. Quality of life in Nantes embraces three dimensions: a living environment conducive to well-being, creativity and social cohesion.

A committed metropolis

This European distinction pays tribute to Nantes Métropole's commitment to sustainable development over many years. By meeting the twelve environmental criteria scrutinised, Nantes stood out by virtue of its innovative and collaborative public policies. Its strengths include mobility, Sustainable energy action plan, and policies relating to water and natural spaces, which are always conceived through a dynamic process of dialogue with citizens.

Cities are the canvas for the solutions of tomorrow. Nantes Métropole demonstrates its commitment to the sustainable economic development of the region by supporting and developing research programmes. It is also investing in the emergence of new sustainable economic fields such as marine bio-resources and marine renewable energy technologies.

Le Jeu à la Nantaise: Nantes' approach involves everybody in designing a sustainable city for all. Dialogue with citizens informs structural public policies. In 2010, metropolitan elected representa-

tives launched the "My City Tomorrow" initiative, which will mobilise all stakeholders in the region (the local population, businesses, institutions, non-profit associations, etc.) until the end of 2012, with the aim of jointly producing a plan for the Nantes metropolis by 2030.

In 2013, come and take part

Institutional players, researchers, businesses, citizens, young people and many more from every continent will come together in 2013 in Nantes to share experiences and exchange ideas on the sustainable city. The focus will be on various professional gatherings and events such as the **World Green Roof Infrastructure Congress** from 9 to 11 September 2013 and the **conference of the International Association of Public Transport** from 10 to 12 March 2013.

People lie at the heart of sustainable development and from 22 to 25 May 2013, Nantes will host the **5th World Forum on Human Rights** on the theme *Sustainable Development – Human Rights: a common struggle?*

From 25 to 27 September 2013, Nantes will be the first European city to play host to the **Ecocity World Summit**, initiated by the NGO Ecocity Builders. This summit is a major event where institutional players, researchers and companies come together to focus on designing the sustainable city. By taking a spatial approach to the city (urban, natural and agricultural spaces, etc.) and through interactions with the living world, this forum aims to develop political, conceptual and educational tools in order to create the Ecocity of tomorrow. The 3rd meeting of Mexico City Pact signatories will be held in parallel.

The Nantes Saint-Nazaire Eco-Metropolis: building the city around the river

Nantes and Saint-Nazaire rose up on the banks of a great river and at the edge of the ocean, which kept them apart before bringing them together. Throughout history, thanks to exchanges with the rest of the country and the world, they drew their energy from the river and ocean, which shaped their port, industrial, social and cultural personalities. They turned away from the river during the 20th century, sprawling into areas not occupied by the water, developing new neighbourhoods and periphery areas with their backs to the river. They used the riverfront only for roads, factories, ship-building and port operations. Like many cities, they had been carried away by the boom in the service industry and the market for single family homes and cars. They had forgotten the original identity of this area, with an estuary as its heart, an ocean as its head, and as its lungs 40,000 hectares of marshlands and rivers, thriving hubs of biodiversity. Now, both cities have begun a major return to the water. And in doing so, they are building a common future as an Atlantic Metropolis.

The new development paradigm

The population of this two-headed metropolitan area is expected to grow sharply in the coming decades, increasing from 800,000 to 900,000. The area is also one of Europe's major environmental hubs, where the fish food chain and migratory birds

are highly protected. So global warming is not the only issue driving the construction of an Eco-Metropolis. Preserving the biodiversity by a creating a huge park as part of the urban landscape will also be a major challenge.

In Nantes and Saint-Nazaire, dealing with urban growth issues must go hand in hand with maintaining world class port and industrial activities, participating in global logistics, enjoying a strong tourism and residential economy without suffering the evils thereof, supporting sustainable agriculture and local consumption, and combating geographic and social exclusion. The sustainable development battle is particularly complex in this area.

Yet there is hope for the two cities, as they return to the basics of their early development. By going back to the source of their strength, which today is being jeopardized by growth, they can effectively innovate, experiment and invent their new development paradigm. Nantes and Saint-Nazaire comprised a major harbour and port of entry for the English industrial revolution in the 18th and 19th centuries. And for the same geographical and human reasons, they are slated to be a driving force in the environmental, economic and social revolution in the 21st century.



Quai François Mitterrand, Île de Nantes: live, work and study on the river

Compact, open cities

The urban projects of the Ile de Nantes and Ville-Port in Saint-Nazaire have set the tone. These two most emblematic sites of the cities, the cradle of their identities, once bustling with shipbuilding and port activity; then came the great social uprisings, WWII bombs and hasty reconstruction. Finally they became industrial wastelands, neglected and ignored. By successfully creating new economic and cultural activities, by building thousands of new apartments, by weaving a new urban fabric from the existing threads while creating new spaces, the Ile de Nantes and Ville-Port are designing new types of cities that are compact but open, and vibrant in their diversity. A host of public and private development projects have followed in their wake, all along the estuary, some large, some small, but all with the same desire to make the most of the Loire, economically and for the benefit of the community, while still protecting the river. When you think about it, this method of re-building the city with all its complexity and uncertainty, combining initiatives and creating new communities out of constraints, is a reflection of what the Loire estuary and the Nantes Saint-Nazaire metropolitan area are: a mosaic, a network, and a cradle of life and activities where people, cultures, and water co-exist in harmony and large spaces are ready and waiting for a creative force.

Innovation on fertile ground

This method has already been used in other development initiatives in Nantes and Saint-Nazaire. The competitive clusters EMC2, Génie Civil Écoconstruction, Images & Réseaux and Atlantic Biotherapies, where manufacturers, engineers and researchers from Nantes and Saint-Nazaire are highly invested, bring together large corporations and small enterprises, scientists and entrepreneurs to work on cross-functional topics such as

materials, the water cycle and the biopharmaceuticals of the future, without worrying about rivalry or business interests. And going back to the most plentiful source of energy available here, water, researchers at the Ecole Centrale de Nantes are working on producing electricity from the tide and submarine currents. Taking advantage of local assets and affinities makes it easy to innovate on fertile ground. This is at the heart of the Creative Arts District project on the Ile de Nantes. In this city where accessible culture is a way of life, with the Folle Journée, the Allumées Festival, the Lieu Unique, Royal de Luxe, etc., and that has showcased so many remarkable artists, such as François Delarozière and his Giant Machines, the goal is to take things even further by making creative arts a new economic force for the city and the entire region. The Creative Arts District will be housed on the site of the former shipyards on the Ile de Nantes, and will bring together higher education in creative arts (architecture, fine arts, graphic arts, communications), the lifelong university, creative arts businesses, artists, project incubators, exhibit spaces and cultural outreach centres.

Logistics and Mobility: a changing landscape

These networks, whether physical or human, need urban, economic, and of course, logistic centres. When it comes to logistics, Nantes, Saint-Nazaire and the river they share have a special role to play. The sea highways, which will soon be stopping at the docks of Montoir, and the development of barge transport between the two cities will ease pressure on the climate from road traffic. This will give the Nantes Saint-Nazaire Port Authority a great opportunity to drive overall performance for the area. The Notre-Dame-des-Landes airport project, in which preserving the environment and controlling urban



The Saint-Nazaire Bridge: connecting the shores

sprawl are a priority, will be the second pillar in this new era of mobility of people and goods. It will be connected to the rail system, creating the keystone in the metropolitan public transportation system that includes a variety of options including TGV high speed train, local trains, train + tram, buses, tramway, busway, express buses, carsharing and bike-sharing systems, etc. This is only natural in a city where the first public transportation line was developed, in the 19th century. The rail system that links the two main cities and connects them to the secondary urban centres must be put to better use.

Towards climate-sensitive housing

The improved relationship with the river and the variety of public transportation options reflect new thinking on lifestyles and quality of housing. Here again, innovative solutions must be found. Reconciling most people's desire for single-family detached homes with the urban density needed to provide effective public transportation will be one of the challenges of the future Eco-Metropolis. Nantes and Saint-Nazaire, which are cities with mid-level population density, are lucky in that so-called “maisons de ville” or detached homes, are already prevalent in certain neighbourhoods. This detached home offering must be developed and integrated with apartment buildings to combine privacy and urban living on a vaster scale. Housing quality will also depend on the development of “climate-sensitive architecture” that goes beyond the planned construction of eco-districts and HQE (high environmental quality) building standards. Given the moderate temperature ranges and sunlight levels in Nantes and Saint-Nazaire, it may be possible to develop “climate-sensitive housing” by making use of the urban composition and new building processes, both in new projects and renovations, in particular on post-war reconstructions.

The Nantes Saint-Nazaire Eco-Metropolis will develop its Urban Climate Plan based on all of these interrelated issues.

Governance tailored to different scales

The governance system must be able to experiment with the strategy on all levels, on a small and large scale, in emblematic or modest projects, with institutional, public and private partners. In this, the metropolis is the key player. The Association Communautaire de l'Estuaire de la Loire was a development agency formed in the 1980's on a site rehabilitated by the central government that brought together local government, the port and local businesses. The Communauté Urbaine Nantes Métropole and the Communauté d'Agglomération de la Région Nazairienne et de l'Estuaire (CARENE), the Syndicat Mixte du Schéma de Cohérence Territoriale de Nantes Saint-Nazaire, and the newly merged CCIs of Nantes and Saint-Nazaire carried on the work. And the metropolitan conference created in 2005 examines all the issues, shares expertise and insight, and works to design the future. This is part of the often-praised Nantes Saint-Nazaire culture that favours cooperation over confrontation. In keeping with this development and governance strategy, a series of eco-city projects are under way all along the Loire estuary, from Nantes to Saint-Nazaire.



1. Nantes Saint-Nazaire: *An Eco-Metropolis in motion*

1.1. A meaningful space

1.1.1. Water, water everywhere

At the mouth of France's largest river, Nantes Saint-Nazaire has a special place on the map of Europe, which explains the particular morphology of the metropolitan area. It was the river system that dictated the progressive urbanization of the area, both in the forming of the two major cities of Nantes and Saint-Nazaire, as well as all the smaller communities. Though the main city is located upriver at the head of the estuary, the salt production territories, the neighbouring marshes and the ports have always been part of a common system of exchange due to their shared geography. The area has been linked to the river and the ocean since the port of Nantes was created some 3000 years ago, demonstrating to what extent the city has developed in sync with its natural environment and the outside world.

The estuary, some 60 kilometres long and 3 kilometres wide at its mouth, is a key component of the river system. But there is water everywhere, even in inland areas. The 40,000 hectares of wet zones composed of marshes and grasslands, 20,000 hectares of marshland in Grande Brière, the 4,000 hectare Grand-lieu Lake, and the Erdre and Sèvre rivers, major tributaries of the Loire, are all branches of the river system, creating a blue network crisscrossing the area.

1.1.2. A vision in green

The metropolitan area is built on a web of natural spaces, in addition to the water. Despite steady urban development, the area still has more than 80% natural spaces. Many of the spectacular areas around the river are protected under the Natura 2000 initiative that covers one-quarter of the territory.

This natural biodiversity helps sustain the local economic balance. Farms and vineyards alone represent more than half the territory, and city and country life blend to increase the area's appeal and quality of life.

1.1.3. Bipolar metropolis

This green and blue setting is an integral component of the development of this bipolar metropolis, with Nantes and Saint-Nazaire as the two entry points.

Each of the cities grew up based on its rapport with the Loire. Nantes is a city born from its port, and its history, with its glorious and less glorious periods, is closely tied to the river. Saint Nazaire, born from a government decision to create a large Atlantic port in the mid 19th century, built itself on its own, sometimes painfully, and often in opposition to Nantes. The cities are linked by the estuary, which has helped them reconcile their differences.

In addition to these two major cities where 90% of the area's 800,000 inhabitants live, the secondary towns have gradually developed into a polycentric urban grid system.



Ville-Port, Saint-Nazaire: blending urban renewal and industrial activities

1.2. Strong development

Today, the coastal areas are experiencing the most significant development. Amenities such as a good climate, beautiful landscape, nature, and heritage are plentiful in Nantes Saint-Nazaire. They generate strong appeal and drive growth that respects the natural, economic and social balance of the area.

1.2.1. Steady demographic growth

With 60,000 new inhabitants in 10 years, Nantes Saint-Nazaire (population 780,000 in 2009) is experiencing strong demographic growth. According to the estimates of the SCOT Territorial Coherence Scheme, growth should continue, with 100,000 new inhabitants by 2020.

Population growth is being driven by the appeal of the urban areas of Nantes and Saint-Nazaire, the appeal of the coast, and the appeal of the estuary¹, which together have created a dynamic Nantes / Saint-Nazaire / Vannes² corridor. In Nantes, population growth is due almost exclusively to natural change, whereas in the coastal towns, it is due to migration³.

1.2.2. Economic performance that benefits everyone

In the 1980s, the economy slumped and the area experienced a change in image. In Saint-Nazaire, there was a serious mono-industry crisis (shipbuilding), massive unemployment and population drain. The city decided to invest in a global development project that addressed all the economic, social and urban issues at once. Once a “black hole” for tourists heading to La Baule, Saint-Nazaire was transformed by making the city an urban centre,

diversifying its economic base, regenerating retail business and creating tourist and residential appeal.

In Nantes, the closure of the shipyards in 1987 signalled the end of an era that had been marked by the strength of its port and industrial activities. The city gradually undertook an urban, economic and identity transformation. Traditionally a trading town, Nantes saw an opportunity to become part of the knowledge society by investing in research and the University. Cultural vitality and quality of life are the driving forces behind its appeal, and it continues to develop metropolitan functions based on tertiary activities.

The region comprising Nantes, Saint-Nazaire, La Baule and the Guérande peninsula operates as a closely integrated, complementary economic space, composed of a primarily public and tertiary urban area (Nantes), a more productive area (Saint-Nazaire)⁴ and a powerful tourist economy (Guérande peninsula). This balance of production, residential and public strengths is rare in France and generates an undeniable dynamic⁵: employment growth in the private sector, senior management jobs and private practice, public employment, tourist jobs and household jobs⁶. The economic equilibrium also explains the fact that the number of people living in poverty dropped faster here than elsewhere between 1990 and 1999.

The dynamic development driven by the urban cities of Nantes and Saint-Nazaire benefits the entire metropolitan area. All the cities in the metropolitan area are posting growth in production jobs, private sector jobs and household income, often at faster rates than in Nantes and Saint-Nazaire⁷.



The estuary, a mosaic linking nature, city (Paimboeuf) and business activities

1.3. A shared project for an Eco-Metropolis

1.3.1. A governed territory

The balanced development of Nantes Saint-Nazaire is not the product of a laissez-faire policy. The local government has undertaken a robust project based on shared values.

The governance of this large area has come a long way, thanks in part to the cooperative values shared by France's western cities. Nantes Saint-Nazaire is sociologically homogeneous, historically moderate area where differences between urban and rural cultures are less pronounced than elsewhere and notions of solidarity are more anchored in reality. The proximity to the river also generates a mindset sensitive to values of interchange, bonds, openness, creativity and change.

Nantes Saint-Nazaire was designated “Metropolis of Equilibrium” by the government in 1966, and in 1989 the mayors of Nantes and Saint-Nazaire, the local governments and local business representatives joined together under the ACEL⁸ to support the metropolis. As the notion of a metropolis took hold, “greater urban areas” were created, including the Urban Community of Nantes, and the CARENE conurbation in 2001. A single SCOT (Territorial Coherence Scheme) was formed after the municipal elections of 2001, as a key element of a shared strategy and a way to control urban development. The Joint Union of the SCOT, the first metropolitan institution, was formed for this purpose in 2003. The SCOT, created with the help of the Agence d'Urbanisme de la Région Nantaise (AURAN) and

the Agence de Développement Durable de la Région Nazairienne (ADDRN), two urban development agencies with authority throughout the greater territory, was approved in March 2007.

In 2008, the Société d'Aménagement de la Métropole Ouest Atlantique (SAMOA) was transformed into a Société Publique locale d'Aménagement (SPLA), with authority over the “river influence zone”, giving the metropolis a development agency specifically for the estuary.

All types of projects are considered from a solidarity-based, metropolitan perspective. Public transportation projects include Métrocéane and the Nantes Saint-Nazaire rail link established in 1999; cultural projects include Estuaire, a biannual contemporary art festival created in 2007, and the Place Publique magazine; scientific cultural projects include the GIP Loire Estuaire created in 2004; and economic projects include the gradual merger of the Chambers of Commerce and Industry of Nantes and Saint-Nazaire to be completed in 2010 and the GIE Atlantic Events in charge of promoting Nantes Saint-Nazaire La Baule as an international event destination.

These are joint metropolitan projects. While the SCOT was being drafted, numerous discussions and debates were held with civil society and public agencies (government services, Chambers of Commerce, Port, GIP Loire Estuaire, Development Councils, etc.). At the same time, the Metropolitan Conference, an interterritorial forum for dialogue created in 1999, was relaunched by the Joint Union of the SCOT in 2005 as a forum for debating major issues and metropolitan projects, open to neigh-

1. According to INSEE Pays de la Loire Etudes n°74 January 2009 “the population increase was sharper in the estuary zone than in the coastal communes”.
2. INSEE Pays de la Loire Etudes n°74 January 2009: “Among the seven urban cities of more than 50,000 inhabitants in Pays de la Loire, demographic growth was strongest in Nantes and Saint-Nazaire, +0.7% and +.06% per year between 1999 and 2006.” INSEE Première n° 1218 January 2009: “In the estuary, growth of more than 2 inhabitants per square kilometre per year along the Nantes Saint-Nazaire Vannes corridor.”
3. Migration in Saint-Nazaire is five times higher than the national rate.
4. In 1999, the number of industrial jobs is significantly higher in Nantes Métropole (37,000) than in the CARENE (13,000).

5. Study of L. Davezies Les moteurs du développement de la métropole Nantes Saint-Nazaire, April 2005, on behalf of the Metropolitan SCOT Joint Union.
6. Half of the 410,000 jobs in the metropolis involve activities relating to local demand of households. These jobs are not subject to global competition and are largely open to the least qualified workers.
7. However, 93% of industrial jobs and 96% of tertiary jobs are concentrated in Nantes Métropole and the CARENE.
8. ACEL: Association Communautaire de l'Estuaire de la Loire, formed in 1989 and composed of the Mayors of Nantes and Saint-Nazaire, the presidents of the Regional Council, the County Council, the CCI of Nantes and Saint-Nazaire, the Port Autonome of Nantes Saint-Nazaire, and the Union Maritime de la Basse-Loire.



Nantes: largest city in the Eco-Metropolis

bouring territories and stakeholders from civil society. At the 21 November 2008 meeting of the Conference “Projects and Governances for an Eco-Metropolis” the conditions for a dialogue between a panel of informed residents and local elected officials were defined, allowing the citizens to be even more involved in the process. These conferences, which have undeniably become the forum for governance of the metropolitan area, will be continued in a process set forth in the territorial project Eco-Metropolis 2030, organized similar to Inter-SCOT conferences, and will provide an opportunity to extend the dialog to all key members of civil society, including, first and foremost, the citizens. Metropolitan governance is part of a broader dialogue to be strengthened with the main cities in Western France. In this respect, the Loire-Brittany metropolitan network (Brest, Rennes, Nantes, Saint-Nazaire, Angers) is a forum conducive to developing joint projects. The Nantes Rennes link is a priority topic in this multilateral dialog.

1.3.2. The Eco-Metropolis Project

This attractive, fast-growing and economically dynamic area must now find a way to ensure balanced development that enhances quality of life, economic development and environmental protection.

Over the past twenty years, Nantes Saint-Nazaire has created a broad governance system under which it can now announce a joint strategic development project: the Eco-Metropolis project. They general outline of the project is set forth in the SCOT approved in 2007.

This strategy is based on a careful assessment of the territories’ strengths, including a bipolar structure, a special relationship with water, a solid rail system, a diversified economy that adapts well to change, dynamic periurban agriculture, a unique governance system and a strong shared culture of innovation.

Space-saving urban development: The bipolar Eco-Metropolis

By 2020, the metropolitan area population will have increased by 65,000 to 100,000. Faced with urban development that has resulted in periurbanization and artificialization of 470 hectares per year, the metropolis has decided on a development project that respects the local equilibrium and makes efficient use of energy and space.

It is based on strengthening the existing cities that are linked together and preserving the large natural centre of the area. The SCOT protects three-quarters of the metropolitan area from urban development while allowing for the construction of at least 62,000 housing units, primarily concentrated in existing urban renewal projects or controlled expansion.

Urban development in existing cities

The Eco-Metropolis is based on an urban organization built around the existing cities and connected by the rail system.

– The two large urban cities of Nantes and Saint-Nazaire constitute the pillars of the Eco-Metropolis. The project is based primarily on the ability of these two large cities to accommodate a large share of the urban growth (87% of housing units).

– In addition to these two major urban centres, four secondary cities will be development priorities, namely Savenay, Nort-sur-Erdre, Saint-Etienne-de-Montluc, and Treillères.

– Between these secondary cities, the other towns will be developed as local communities.



Saint-Nazaire: rebuilding the city

This grid structure built around two central hubs will create a metropolitan critical mass while emphasizing communities and neighbourhoods.

For each of these cities, and each on its own scale, the goal is to create a dense city rather than a sprawling city, by finding areas for urban renewal, in particular near train stations, controlling urban extensions, slowing outward expansion of villages and keeping industrial zones compact.

A non-specialized city where the primary urban functions can be found, (living, working learning, consuming, etc.). Although Nantes and Saint-Nazaire are naturally suited to provide large metropolitan functions, the secondary cities and towns must step up development, not only of housing but also in terms of jobs, retail businesses and services in their city centres.

A non-segregated city that can welcome diverse populations because of the variety of employment and housing options on offer as well as public spaces available. In this respect, each of the 57 communes of the SCOT will have to develop a social housing offering on its own scale. Nantes and Saint-Nazaire have a target of 25% social housing in all of their new projects.

Public Transportation

Public transportation is core feature of the Eco-Metropolis. Dense, compact cities must be accompanied by the ability to easily travel to work, home and recreation activities. This means moving away from cars towards development of public transportation and soft mobility options.

The metropolis has a solid rail system. The main Nantes Saint-Nazaire line is served by high speed trains and regional trains, and is supported by a number of recently reinforced local transportation options (tram, tram-train, commuter trains in Nantes).

Urban and economic development requires additional reinforcement of this system for the entire area. This means making better use of the 200 km of operational lines as well as extending the system, to make sure all the cities are served by a variety of transport options.

Three actions are called for:

- developing rail links by adding additional trains to existing lines (Nantes Saint-Nazaire, Nantes Vertou) and developing new lines to serve the future Notre-Dame-des-Landes airport and secondary cities (tram-train Nantes / Châteaubriant)
- conserving unused rail lines (35 kilometres) to eventually develop a new public transportation offering
- making train stations into multimodal transit hubs that are the key elements of the new “train station districts.”

In urban and secondary cities the public transportation and green transit offering will be improved to offer alternatives to the automobile.

Additional public transportation lines and improved connections between urban and periurban systems are being supported by Nantes and Saint-Nazaire in their Urban Transportation Plan. This includes developing the tram system in Nantes (connecting tramway lines 1 and 2 and adding a fifth tramway line) and creating a dedicated lane bus line in Saint-Nazaire⁹. These new services open up new possibilities and opportunities for mobility to all, in particular the most fragile citizens. In Nantes, the 4 lines of the tram system connect 5 of the 7 neighbourhoods listed in the Urban Social Cohesion Contract.

Many policies and development projects also encourage the use of soft mobility options (bicycle paths, carsharing and bike sharing services in Nantes, etc.) Finally, connections are provided among all transportation modes.

9. Responded to the call for projects “Transports Collectifs” of the MEDDAAT .



Canal de la Martinière: symbol of man's relationship with the estuary

Sustaining the green and blue landscape: Nature at the heart of the Eco-Metropolis

The Eco-Metropolis will create dense cities with an excellent public transportation grid, providing a balance between urbanization and protecting natural spaces. By controlling urban development, the metropolis will sustain the green landscape, which is a key element of the area's personality and appeal.

Protecting local biodiversity and emblematic sites

The metropolis contains a number of spaces that are valuable from an ecological and scenic point of view, thanks to the 1500 kilometres of waterways and lakes that provide a natural habitat for wildlife. The Brière marshes, the Grand-Lieu lake, and the Erdre and Sèvre rivers are natural spaces that will be protected under the sustainable development policy of the Eco-Metropolis.

Of these natural spaces, the estuary is obviously the first major site to tackle for the Eco-Metropolis. These natural spaces are home to rare species (Estuary Angelica¹⁰, Corn Crake) and there are concerted wildlife protection measures in place, in particular the estuary, with the extension of the Natura 2000 site classification (22,000 hectares).

Protect agricultural spaces, as vectors of sustainable development

The metropolis is aware of the central role played by agricultural spaces (45% of the territory) in preserving the equilibrium of its territories and its identity. Agricultural space is considered a non-renewable resource, and preserving it is a dynamic tool in the metropolis's sustainable development strategy. The multifunctional nature of agricultural

space is an advantage that must be preserved. Food production is extremely important in a global context of shortage and providing local food sources for a fast-growing population is essential. Dynamic periurban farming (vineyards, vegetable farms, livestock) as well as marine farming (fish, oysters) allows the Eco-Metropolis to be food independent. The increasing demand for local products holds out hope for developing short distance food supply systems and organic farming, both of which are important in light of rising transportation costs and the need to decrease greenhouse gas production. The metropolis will pay special attention to the accessibility of local products by supporting the distribution and consumption networks.

As a biodiversity reserve, agricultural space also plays a role in the green and blue framework of the territory. The hedges and wooded areas must be preserved, in particular as ecological corridors. It is also essential for produce and livestock farms to be able to continue caring for protected natural spaces such as the Loire meadows and the Brière. Agricultural use of these sensitive zones will be favoured by facilitating extensive farming techniques.

Finally, dynamic farming activity is a way to fight against urban sprawl. It is important to avoid speculation on vacant farmland around built-up spaces, which would undermine the credibility of a controlled urbanisation goal.

Agriculture is one of the essential tools for the development of the metropolitan area. This is why the metropolitan project actively supports agriculture by protecting the spaces specifically intended for agriculture via several actions:

- Designate long term agricultural production zones and support their role as economic drivers. In the metropolis, at least 70,000 hectares will be classified as long term agricultural zones.



The splendour of the hydraulic network of the estuary

- Preserve green breaks and agricultural areas to prevent continuous urban zones between Nantes and Saint-Nazaire, around the future Notre-Dames-des-Landes airport, between the town centres of the communes, between business districts and along major thoroughfares.

- In addition to protected agricultural spaces, develop forest spaces, in particular via the project for creating three urban forests in Nantes.

Qualify everyday spaces, promote nature within the city

The scenery of the Eco-Metropolis is not composed only of remarkable agricultural and natural spaces. The everyday natural and urban landscapes are also part of the green framework of the metropolis and help create a balance between city and nature.

It is especially important to ensure quality scenery in heavily travelled areas, which is why Eco-Metropolis projects emphasize protecting landscapes along major thoroughfares¹¹, at entrances to cities and in business districts.

In the cities and towns, development should be the urban reflection of wide open natural spaces. Bringing more nature into the city greatly improves quality of life. And paradoxically, the city is a good place for preserving and exhibiting biodiversity. The Eco-Metropolis has acquired expertise in integrating nature and biodiversity into the city through major projects such as the Ile de Nantes, and GPV Malakoff (La Petite Amazonie Reserve). A series of operations to restore the valleys of the waterways in Nantes Métropole have been initiated under the Neptune programme, to allow these natural spaces in the city to play their role as scenery, water purification systems and recreation areas.

Improve the water quality

The nature restoration programs also help meet the water quality improvement goal of the Eco-Metropolis, in addition to the major water treatment centres built in the 80's and 90's (Tougas and Petite Californie treatment centres in Nantes).

In Saint-Nazaire, the Sanitation Guideline calls for optimization of the entire water treatment sector, with the creation of two new wastewater treatment centres.

Water quality improvement is a strategic goal for this metropolis located at the mouth of the Loire basin, which has a population of 10 million.

The issue of rainwater is key in improving water quality. Measures include setting up rainwater zoning studies and preventing soil impermeabilization.

11. The EPCI of the SCOT have signed partnership charters in which they commit to defining landscaping requirements for the integration of the major road system.



The Saint-Nazaire Shipyards: major industrial activity

Strengthen the appeal of Eco-Metropolis on a European scale

“There is no break. There are only two possibilities: development or decline. There is no third option.” Bernard Boucault, Prefect of Loire Atlantique and Prefect of the Pays de la Loire Region, Metropolitan Conference, *Quelle métropole voulons-nous ?*, 10 June 2005.

This call to action is even more meaningful in the current economic recession than it was in 2005. The past twenty years have seen a booming new development phase, in which tertiarization, progress in higher education and the appeal of a coastal area have resulted in strong growth. The Eco-Metropolis continues to pursue its economic ambition, supported by the dynamism of Nantes and Saint-Nazaire, without limiting the development in these two major centres.

Supporting economic performance for the territories

Development must meet two goals, namely identify economic drivers for development and implement measures to spread this development throughout the greater territory.

The economic structure of the metropolis has a rare equilibrium, balancing wealth creation through production, residential revenues and public revenues. This equilibrium generates social and territorial cohesion, which is the area's primary strength for achieving equitable and sustainable development. The European ambition of the Eco-Metropolis requires more than just this equilibrium, however.

Continued development means combining economic excellence and the performance of local economies. This ambition is built around four major goals:

– **Strengthen the competitive clusters and centres of excellence in the estuary.** Each of the major centres of excellence is engaged in upgrade processes that will enable them to act as economic drivers: The EMC2 competitive cluster for shipbuilding and aeronautics; the Grand Port Maritime Nantes Saint-Nazaire for the port and energy sector; and the Health and Biotech cluster through its future University Hospital on the Ile de Nantes and the Cité Sanitaire in Saint-Nazaire.

– **Develop new centres of excellence:** The Eco-Metropolis is planning to develop major new centres: the logistics sector, with the future logistics platforms (Grand Blottereau, rail/river); tertiary excellence in the major urban projects in Nantes and Saint-Nazaire, and tourism with the appeal of Nantes Saint-Nazaire La Baule. On the Ile de Nantes, with the support of the Central Government, the CCI, the Region and the University, a new creative arts district will become a European centre for research, artistic creation, economic performance and science outreach.

– **Strengthen local and residential economies.** Household employment sectors, which help unskilled workers become socially integrated, are one of the pillars of the economic equilibrium in the metropolis. Densifying the secondary cities to provide the market conditions needed for the development of this type of employment, creating trade and service business districts in the secondary cities and towns and promoting tourism will ensure that development occurs throughout the territory.

– **Work together to ensure employment for all.** The Nantes Métropole CARENE charter calls for a number of actions to promote employment:

– Reduce inequality in terms of access to jobs and



The Saint-Nazaire Port: Atlantic port of the entry to the Eco-Metropolis

fight job discrimination by actively assisting job-seekers, or at least setting up specialized job assistance programs (MDE, PLIE and MLI); setting up a Second Chance School.

– Find a balance between economic development, employment and insertion, anticipate and accompany economic changes by promoting the initiative 6000 Skills for Industry in the Estuary¹²; helping develop emerging sectors in terms of occupations and employment; hosting a biannual conference on Education, Training and Employment.

– Support social innovation by supporting initiatives to improve the job environment (reducing barriers to employment, Métrocéane area-wide transit passes) and promoting new forms of work (flex time, telecommuting); sharing experiences in the field of social and solidarity economy.

Rethink the gateways to the Eco-Metropolis

The economic performance objectives will be achieved by creating or upgrading major infrastructure and facilities:

– a study is underway to expand the two main train stations in Nantes and Saint-Nazaire to double their capacity; on a smaller scale, tertiary districts will be created around the train stations in secondary cities (urban planning studies in progress).

– the planned transfer of the airport to Notre-Dames-Landes is key to Nantes' appeal and international accessibility. The new airport is not intended to become a third urban centre to compete with Nantes and Saint-Nazaire. It will be part of the territorial development strategy for environmental and scenic integration. The closure of the Nantes Atlantique airport will eliminate a major source of nuisance in the urban area. And the space freed up

will provide an opportunity for new development on land that is already developed.

The new airport will be built in an environmentally sound manner. The airport operator must comply with government requirements in terms of High Environmental Quality construction, and the airport authority, along with the local government, has made a commitment to comply with the Grenelle Environmental Summit recommendations. This includes conservation of the meadowlands, impact study on plant and wildlife, agro-environmental management plan, air quality monitoring system, and landscaping and traffic calming systems. The Territorial Coherence Scheme calls on the intercommunalities to integrate the airport into the territory and limit the urbanization of nearby rural areas by implementing the PEB 2050 Noise Exposure Plan, preserving a green break between the conurbation and the airport and keeping economic spaces within certain perimeters. The metropolis is supporting sustainable development and intermodal transportation by planning public transit service to the centre of the conurbation and a high speed rail line to Rennes.

– The strategic project of the Grand Port Maritime Nantes Saint-Nazaire changes the port from public port authority to a full partner in the territory and in the Eco-Metropolis project. In the medium term, this project will increase the Port's capacity for container traffic, with development occurring as far downstream the estuary as possible, and will see the Port of Nantes become a river port.

12. Assistance from the Employment Centre in Nantes Métropole, the PLIE and MLI, development of services to accommodate new businesses and their employees, promotion of industry trades, etc.



The River at the heart of Nantes

Increase appeal through urban development

In a context of increasing competition among territories, the appeal of the Eco-Metropolis plays out on multiple levels. Top quality infrastructure facilities, wildlife corridors and quality of life are key attributes.

Nantes and Saint-Nazaire have made the innovative decision to use urban quality as a way to increase appeal and promote development. This strategy has been quite successful. Saint-Nazaire, a city in crisis 25 years ago, decided to use urban quality to make the city more economically appealing and solve its social problems. Today, it is the central city in an area with a population of 200,000 and attracts working people and investors. For the past 20 years, Nantes has made urban planning the basis for development. Areas that were once neglected and disaffected, like Madeleine-Champ de Mars, Pré-Gauchet/Malakoff and Ile de Nantes, are now undergoing urban renewal and increasing the territory's appeal. This strategy has stimulated renewal throughout the area, generating projects in large cities and in smaller towns.

By virtue of its strong political choices and ambitious projects, the territory has proven its ability to implement large scale urban projects thanks to its project structures and its ability to attract top level designers.

Another major priority is culture and the arts, which are an important part of the area's development strategy. Culture helps foster a robust urban environment and also showcases the beauty of nature in the *Estuaire* event. Culture helps boost the tourist appeal of the Eco-Metropolis.

Stimulate the energy performance of the Eco-Metropolis

One of the main sustainable development objectives of the metropolis is decreasing energy consumption and greenhouse gas emissions. This means meeting the requirements of the Kyoto Protocol.

To do this, the metropolis has decided to create compact urban areas to halt urban sprawl, provide transit alternatives to private cars, and design the layout of the Eco-Metropolis to improve energy performance.

The metropolis also plans to encourage the use of renewable energy by promoting it in Local Urban Plans. In addition to these basic choices, the metropolis has undertaken strategic and operational projects.

A Global Strategic Tool: Agenda 21 and Territorial Climate Plan

The Agenda 21 of Nantes Métropole, approved in 2006, and the Territorial Climate Plan, adopted in 2007, are the basis for an ambitious, territory-wide climate policy that respects the Kyoto Protocol.

It targets decreasing emissions by a factor of 4 by 2050, with a significant milestone in 2025 of reducing CO2 emission by 1 million tonnes in the area¹³. All of the public authorities are committed to pursuing this objective, keeping in mind potential CO2 savings per sector¹⁴. The first step is to limit the growth in greenhouse gas emissions.



Quai F. Mitterrand: example of the quality of architecture and energy use on the Ile de Nantes

The pluriannual plan for energy, the urban transit plan (extension of the transit system, car-sharing and bike-sharing systems, 100,000 employees covered by company transit plans, etc.) and urban planning orientations have already helped lower emissions. These plans seek to create a denser city, develop the public transit system and build more energy-efficient buildings.

Improving the performance of residential and tertiary buildings and using renewable energy represent nearly 60% of the potential savings in CO2 emissions. Nantes Métropole has identified three actions: Develop energy efficient buildings and neighbourhoods (European Concerto Initiative); promote renewable energy sources (develop district heating systems, solar power plants); conduct a study on how to renovate the heating systems in older buildings using aerial infrared thermography on 2/3 of the territory and identifying the most energy-hungry buildings. Action will be taken not just by the local government, but in partnership with all stakeholders in the area.

This has already inspired actions at the greater territorial level, since the SCOT has decided to draw up a carbon report for the metropolis, to assist the EPCI's (Public Establishments for Intercommunal Cooperation) in drafting their territorial and community climate plans.

Likewise, the Agenda 21 of Nantes Métropole and the sustainable development charter of CARENE will promote similar commitments by the other EPCI's of the SCOT.

Develop climate-sensitive housing

The metropolis is lucky enough to enjoy 2000 hours of sunlight per year and a small temperature range, which together create favourable conditions for climate-sensitive architecture. This has already been taken into account in HQE operations and eco-district projects. The next step is to popularize "climate-sensitive housing" through several actions:

- Construction processes that include bioclimatic components at a "moderate additional cost";
- Urban planning that optimizes "access to the sun";
- Rehabilitation of existing housing stock (housing built during post-war reconstruction in Saint-Nazaire);
- The use of spaces such as balconies and loggias to capture solar energy (Climate rehabilitation of the social housing stock in Saint-Nazaire by Lacaton Vassal);
- Natural air conditioning thanks to moderate day/night temperature changes;
- The use of traditional construction materials whenever possible.

To this end, the studies and tools developed by the CERMA, the research lab of the Nantes School of Architecture, will be very valuable.

Moreover, the metropolis will promote ties with the Civil Engineering and Eco-Construction cluster to help create a sustainable city through research and innovation, which is a dynamic sector in the area. Nantes Saint-Nazaire is the second region in France after Paris when it comes to potential for education and research in civil engineering.

13. Reference: 1 January 2007: 2.6 million tonnes of CO2 emitted in the Nantes conurbation. Source: Plan Climat de Nantes Métropole, 26 Oct. 2007.

14. Breakdown of emissions per sector as of 1 January 2007: Industry: 19 % / Transportation: 29 % / Residential: 31 % / Tertiary: 21%. Source: Plan Climat de Nantes Métropole, 26 October 2007.



EuroNantes Tripode: Collect and naturally treat rainwater

Build experimental spaces: Eco-districts

Compact cities and climate-sensitive architecture are two major concerns for the Eco-district projects selected under the MEEDAT call for bids: Bottière-Chênaie, Ile de Nantes-Prairie au-Duc, in Nantes, La Jaguère in Rezé, les Perrières in La Chapelle-sur-Erdre, La Vecquerie in Saint-Nazaire.

Since 2007, the Ile de Nantes-Prairie au Duc and La Vecquerie projects have been participating in an initiative headed by the Pays de La Loire Region to industrialize construction processes for climate-sensitive housing. In these two projects, the social dimension (accessible to first time homebuyers) was a priority. In La Vecquerie, the goal is to offer climate-sensitive housing at the same price as standard housing, by combining several factors such as construction systems, joint project ownership (public + private), and reduced rate VAT applicable in urban renovation (ANRU).



The Rehabilitated Warehouses: emblem of the cultural appeal of the metropolis

2. The River: the focus of Nantes Saint-Nazaire Eco-Metropolis projects

The Eco-Metropolis defined by the SCOT is the fruit of a 20-year cooperation and sets forth the major guidelines for sustainable metropolitan development through 2030.

It promotes a new type of city: around a large green core, dense urban cities linked by a public transit network.

In this project, the river is an emblematic physical and symbolic space that is the cornerstone and driver of the metropolitan ambition. As a remarkable natural space, the estuary is a main asset in the emergence of this new type of city.

For many years, the estuary was considered only as a waterway for transport between Nantes Saint-Nazaire and the sea, and for shipbuilding and industrial purposes.

In this respect, the 20th century has been marked by a combination of massive industrialization, steady growth in port facilities resulting in artificialization of the river and unprecedented urban deve-

lopment, transforming this vast natural space into an exploited, damaged and polluted estuary. The cities of Nantes and Saint-Nazaire gradually turned away from the river.

The 1990's saw a change in paradigm. The evolution of port activities, increasing environmental concerns and initiatives to reclaim the river in Nantes and Saint-Nazaire through two major urban projects affirm a common vision: the remarkable space of the estuary is the main environmental concern when it comes to the development of the city. Preserved from mass urbanization, it is an extraordinary reserve for the Eco-Metropolis project.

The challenge of climate change, so important in the 21st century, has compelled Nantes Saint-Nazaire to adopt an ambitious development strategy based on the rich biodiversity of its estuary, a strategy tailored to the personality of this metropolis. The goal is to develop the advantages and stimulate innovation in creating compact, well-designed cities that preserve natural spaces,



Saint-Nazaire harbour: focus of urban and economic development of the city

provide a comprehensive public transit grid, ensure economic excellence, address climate change and include art and culture in the urban projects.

This development strategy will take shape through a series of projects that all focus on rediscovering and integrating the river into the city:

- urban projects that provide structure to the compact city and renew the desire to live and work along the river's edge;
- environmental projects that enhance the appeal of the natural spaces of the estuary, including restoration, protection and promotion of the river and related natural spaces.
- economic projects that use the river to support economic excellence;
- transit projects on or around the river;
- cultural, tourist and recreational projects to showcase the river and estuary and encourage people to explore these areas..

Though certain major urban projects arising from the Rives de Loire¹⁵ initiative in Nantes (Ile de Nantes, “de la Gare à la Loire” project) and Saint-Nazaire (Ville-Port 3 and 4; Ville-Ouest; Ville-Gare) undeniably act as drivers for the area, other projects of lesser magnitude (in terms of population and employment potential) actively participate in the ambition of the estuary Eco-Metropolis due to their philosophy, their quality in terms of sustainable development and their focus of reclaiming the river.

Together, these projects can build the new design of the metropolis. The goal is to undertake a series of projects that will come together as a whole.

The Eco-Cities initiative is also a new way for the estuary Eco-Metropolis to develop a global strategy of reclaiming the river¹⁶ and, more generally, designing a new city model that preserves the equilibrium between urban growth and natural spaces and reduces the vulnerability to flooding.

2.1. Building the city around the water: the urban projects around the river

The estuary has always been a strategic link between the two cities. But it has always been thought of in terms of shipbuilding and port activities, and not for housing or businesses. Today, development projects are focusing on creating truly sustainable “micro-cities” that encourage people to live and work at the water's edge (sea, estuary, the Brière, Grand Lieu lake, the Erdre, the Sèvre, etc.).

This movement is already particularly apparent in Nantes and Saint-Nazaire. The two major urban projects – Ile de Nantes and Ville-Port – have a common goal: bring disaffected areas back into the city centre, by designing them to accommodate all uses and all users, though a sustainable development initiative. And the common identifier is the renewed rapport with the river in both cities.

Based on the Ville-Port and the Ile de Nantes projects, a number of new projects are springing up that reflect the dynamic of these two groundbreaking initiatives. Likewise, many of the estuary communes have undertaken urban development projects that focus on the river.



Nantes, Bras de Pirmil: changes in industrial spaces on the riverfront

Together they reflect a common model: a city supported by compact, interconnected communities where the riverfront provides structure for the city and prevents sprawl, protecting natural spaces from urban infringement. This city model makes efficient use of space, energy and natural resources.

To do this, each space in the dense urban fabric will be gradually reclaimed. The industrial and port brownfield sites¹⁷ will be brought into the city: Ville-Port in Saint-Nazaire; Ile de Nantes, Bas Chantenay in Nantes, brownfield sites in Indre and Couëron. Neighbourhoods with large housing estates will receive a new social and functional mix: Malakoff, les Dervallières, and Bellevue in Nantes; Trignac, Ville-Ouest in Saint-Nazaire. Old neighbourhoods will be rehabilitated: Bouffay / Decré, Chantenay, Madeleine Champ de Mars in Nantes, Républiques-Ponts in Nantes and Saint-Nazaire city centre, etc.

These projects are first and foremost city projects. They do not create specialized enclaves, but gradually reintegrate these neighbourhoods into the city. As part of the urban system, they are connected by transit networks, both in the greater metropolitan area and within the cities themselves.

In the cities, the projects reflect the ambition of the Eco-Metropolis in term of urban ecology:

- by reducing energy consumption through energy efficient processes in new constructions (up to a BBC [low energy rating] target for current projects), exemplary energy efficiency in new public buildings and rehabilitating energy-hungry older buildings;
- by promoting new sources of energy: district heating, solar or thermal power plants in the urban projects, power production facilities included in buildings, wind farms, generating green energy and reducing the energy dependency of the Eco-Metropolis;
- by promoting reasonable management of water resources, limiting the development of networks, using reclaimed water, alternative water treatment techniques (lagooning), reducing soil impermeabilization (grass strips, porous soil, drainage trenches);

In all cases, the projects address the requirement that cities built along the water must be designed to be compatible with an environment at risk for flooding¹⁸.

- by reducing waste¹⁹ and promoting recycling at the source, to cut the cost of outsourcing.

Together, these projects are building the urban framework of the Eco-Metropolis, in a city model that aims for a new balance between city and nature, reducing its ecological footprint and its impact on climate change.

15. Undertaken following the *Projet 2005*, a strategic document drafted by the Nantes Conurbation in 1995, the Rives de Loire project calls for the development of the 110 km of Loire Riverfront in Nantes Metropole. It aims to provide consistency among the existing development projects with a view to reclaiming the river and revitalizing the territory.

16. Riverfront recapture was announced by Jean Marc Ayrault at the Metropolitan Conference 2008 as a priority project for the metropolis. At the same conference, the President of the SCOT Joint Union also announced a call for projects “Reconquête de l'eau” that could be launched in autumn 2009 by the SCOT. This call for projects will involve not just development projects, but all projects seeking to recapture the river, including economic, tourist, educational, recreational, and cultural projects. These may be large operations or smaller projects. The call for projects will finance only the engineering of the projects.

17. Closure of military sites in Nantes and Saint-Nazaire may also provide an opportunity for the development of urban projects in the city centre.

18. On the downstream portion of the estuary, the Flood Prevention Plan is being written based on the Atlas of Flood Zones published in 2006.

19. In the Eco-Metropolis, the SCOT gives priority to local waste treatment, which requires the development of treatment facilities and new recycling industries near the production sites.



Ile de Nantes, at the heart of the contemporary centre

Two major projects that are emblematic of the riverfront recapture

The estuary already has two major urban projects underway at either end of the estuary: Ville-Port in Saint-Nazaire and the Ile de Nantes. They are each exemplary in terms of renewing the city rather than demolishing and rebuilding, with a focus on history and the compact design that addresses today's lifestyles and promotes a social equilibrium.

1

The Ile de Nantes project (2000/2025)

Create a sustainable city in the heart of the metropolis: 15,000 new residents, 15,000 new jobs, Nantes Métropole
Currently in progress

The Ile de Nantes project is a huge urban renewal project that aims to transform a diverse territory into a true heart of the conurbation by developing all the functions of an urban centre, including quality housing, businesses, retail shops, public transit, socio-cultural facilities and recreational facilities.

Initiated in 2000, it has been underway since 2003 under the direction of the SAMOA, under a 20-year public development agreement with Nantes Métropole. The Atelier de l'Ile de Nantes, headed by Alexandre Chemetoff, has a long term assignment as prime contractor.

Ile de Nantes is seen as an alternative to urban sprawl, aiming to create a compact city served by public transit and promoting soft mobility options. The transformation is gradual, respectful of the existing structures, attentive to natural resource mana-

gement and concerned with environmental issues. Public spaces play a key role: developed streets, plazas, and riverfront areas offer new locations for housing and businesses in a magnificent setting on the Loire riverfront and just across from the historic town centre. They support a certain type of urban ecology that emphasizes:

- reusing existing materials and footprints
- using green spaces and specially designed ponds to collect and naturally treat rainwater.
- promoting the place of nature in the city to reveal the area's biodiversity (Estuary Angelica protection initiative).

In addition to requalifying or creating nearly 170 hectares of public space, the project also calls for building 1,000,000 sq. m of new construction in the Ile de Nantes area.

Eventually, more than 7,500 additional housing units are planned (550,000 sq. m) which will increase the population by 15,000, effectively doubling the current population of the Ile. New businesses (offices, retail shops, production facilities) will be accommodated in more than 350,000 sq. m, which will create 15,000 new jobs. The project also calls for building new public infrastructure facilities representing 100,000 sq. m.

To date more than 350,000 sq. m have been completed or are under construction on the Ile. Nearly 2,300 housing units have been built or are under construction along the river, including 23% social rent apartments, 22% affordable apartments and 45% apartments available for individual purchase. New economic activities are moving into the area, including biotech, media, research, education and business services. In the last 5 years, the Ile de Nantes has become a new central location Nantes. The transformation of the former shipyards site has breathed new life into this formerly abandoned area, with the creation of a large 13-hectare public park, the Machines de l'Ile exhibit, the rehabilitation of the Warehouses, the creation of the Banana



Saint-Nazaire: a gateway to the Ocean

Hangar, a new arts, entertainment and nightlife spot on the tip of the Ile. Thousands of people are rediscovering this part of the city along the banks of the river, from the Quai François Mitterrand with its new pedestrian and bike path all the way to the western tip of the island.

The operations Ville-Port 1 and 2, initiated in 1995, opened Saint-Nazaire up to its port once again (see appendix) and created a new city centre. A 20-hectare brownfield site composed of a former submarine base was rehabilitated to create a full scale city centre for 200,000 residents. Five cultural facilities, a shopping centre, hotel restaurants, a cinema and 1,000 new housing units were all built. Urban architects Manuel de Sola Morales, Bernardo Secchi, Bernard Reichen and Finn Geipel helped make this bold operation a success.

2

Ville-Port 1 (1995 / 2001)

Connect the city and the port with the submarine base
Rehabilitation of a 15-hectare brownfield site
CARENE
Completed

Objectives:

- Reorient the city centre towards the port
- The submarine base is the primary link;
- Rehabilitate the port site by bringing in a mix of urban, economic, tourist and arts functions.

Achievements: The emergence of a port neighbourhood

- Urban: urban renewal of 15 hectares; requalification of 30,000 sq. m of public space; rehabilitation of the submarine base; renovation of brownfield sites.
- Economy: creation of the recreation, tourist and cultural destination (Escal'Atlantic, Cinéville, industrial tours, festivals). Creation of 200 jobs.

- Social: creation of 350 private and social housing units. 800 new residents.

One million visitors / Destination Portuaire in 2001.

Ville-Port 2 (2002 / 2011)

CARENE
Currently in progress

Objectives:

Continue the metamorphosis with 5 new goals:

- Become the heart of a conurbation with 250,000 residents;
- Link the two main attractions of the city centre (the shopping district and the port destination) in one central area running all the way to the harbour.
- Increase the appeal of the city centre by diversifying its offering of shops and services, and enhance the port destination with new cultural and tourist activities;
- Continue bringing residents into the new port neighbourhood by creating new housing and promoting the lifestyle and recreational opportunities that come with living near the water;
- Continue rehabilitating port brownfield sites..

Program: a cultural centre for the conurbation 4 new cultural facilities:

Agora 1901 (2006), the VIP and the LiFE (2007), the Grand Café, the Municipal Theatre (2011),

– A program of economic activities (2008): The Ruban Bleu, shopping centre and 3-star hotel

– A program of 835 housing units, including 23% social rent apartments (2008/2011)

– A program to requalify 60,000 sq. m of public spaces (2005/2008)

This amounts to 29 public and private operations, of which 10 have been completed, one is under construction and 6 are in the pre-operational study phase.



The Saint-Nazaire Bridge

A series of urban projects stemming from these two spearhead projects

Ile de Nantes and Ville-Port are key anchor points in the drive to reclaim the river in the two principal conurbations. These two spearhead projects have given rise to a series of urban projects that act as drivers for the contemporary urban strategy, in terms of the relationship with the water and the compact design of cities.

Compact urban design

Nantes and Saint-Nazaire are cities of medium density (5,000 to 7,000 resident per square kilometre in the central areas), which makes it possible to use soft mobility options and provide effective public transportation. In the Eco-Metropolis, the compact design will revolve around additional urbanization along the river, renovation of the social housing stock, and reinvention of individual homes and townhouses.

The proximity to the river is the key selling point for offering more compact urban layouts. In the large urban projects of note (Ile de Nantes, Ville-Port), the density per parcel is around 150 to 200 housing units per hectare, which is not overwhelming. A significant portion of the land available was allocated to public and green spaces.

The social housing stock, which represents some 30% of the total housing stock both in Nantes and Saint-Nazaire, is another possible way to increase density. The ANRU urban renovation operations Ville-Ouest in Saint-Nazaire (800 housing units rebuilt from 600 demolished) and Malakoff / Pré-Gauchet in Nantes (1,300 housing units built) demonstrate that it is possible to increase density (which is often quite low despite the presence of apartment blocks and towers) while still improving urban quality.

But collective housing cannot be the only alternative to periurban housing. One of the challenges is to reconcile the “desire for an individual house” with the minimum urban density required for economical transportation modes. Many cities are trying to reinvent the “individual home in the city” concept, which is part of the architectural heritage in Nantes and Saint-Nazaire. By combining individual homes with small apartment complexes and organizing them around protected collective spaces (blocks, cul-de-sacs), the two cities have succeeded in reconciling urban living and privacy. The urban layout, in immediate proximity to the centre, is quite similar to benchmark eco-neighbourhoods such as Vaunan in Fribourg. By revisiting this model of townhome, we can offer credible alternatives to the periurban model of a individual detached home surrounded by a private garden. Finally, various experiments involving small condominium complexes that feel like private homes have been undertaken in Nantes and in Saint-Nazaire.

The Eco-Metropolis takes a fine-tuned and non-dogmatic approach to urban density that takes into account the desire for space and privacy traditionally provided by individual homes.

In Saint-Nazaire: The westernmost city in Eco-Metropolis

Saint-Nazaire, the westernmost urban centre in the metropolis, is a city with enormous potential. This includes economic potential (dynamic industry, port, tertiary and residential sectors), demographic potential (the appeal of coastal living), urban, land use and environmental potential.



Ville-Port / Petit-Maroc: continue the dynamic of the urban project

Designed during the post-war reconstruction period to accommodate 100,000 residents, the city's population never exceeded 70,000. Today, its urban framework and public infrastructure are oversized.

Making the city part of the Eco-City initiative will help accelerate an urban dynamic that has proved its worth and is today based on three major project areas.

3

The project Ville-Port 3

6,000 residents, 3,000 housing units

CARENE

Pre-operational studies

Ville-Port is entering its third phase. The first two phases transformed a port brownfield site isolated by a submarine base into a vibrant cultural, retail and residential neighbourhood that attracts people from all the nearby cities.

The next phase, “Ville-Port 3” will extend the new centre to accommodate a population of some 6,000 residents. The available land will represent 40 hectares (reconversion of industrial and rail spaces), linking the Ville-Port neighbourhood with the Villes-Gare tertiary district, the future economic centre of the conurbation. The key to the project collective housing. The proximity to the centre will justify densities higher than 100 housing units per hectare, with orientations favourable to the use of renewable energies.

4

Ville-Ouest Océanis

ANRU urban development operation in progress: 1,600 housing units rehabilitated, 600 demolished, 800 rebuilt. An eco-neighbourhood with 400 housing units is under construction. In the end, there will be 5,000 to 10,000 housing units near the beaches and the university.

CARENE: preliminary studies underway

In the western part of the city, Saint-Nazaire has outstanding land available overlooking the estuary and linking the sea to the Bois Joalland pond, which is connected to the hydraulic system of La Brière. This land is being used in three operations currently underway: The construction of the Cité Sanitaire health centre, the renovation of a social housing district with 2,000 housing units (ANRU urban development operation), and the construction of an experimental eco-neighbourhood, La Vecquerie. The eco-neighbourhood (response to the MEEDAT call for projects) will be a pilot operation to support architectural, technical and societal innovations.

The area will be multifunctional, with an average density of 80 housing units per hectare on constructed parcels. It will be organized around a rapid urban transit system and a green framework connecting the sea to La Brière.

5

Villes-Gare

100,000 sq. m of offices + housing units

CARENE

Preliminary studies

Saint-Nazaire is fortunate to have available land that can accommodate 100,000 sq. m of offices near a high-speed TGV train station on the edge of the La Brière Natural Park. The offices will have a panoramic view of the port and the estuary. This



Nantes, quai de la Fosse: extend the central corridor “De la Gare à la Loire”

operation, created with urban architect Christian Devillers, is already underway (first phase of 5,000 sq. m delivered in 2009). The goal is to develop the neighbourhood at a pace of 5,000 sq. m per year. It will be an example of integration in a space of high environmental value, preserved under the Natura 2000 plan.

Plans also call for the renovation of the train station and the multimodal transport centre. Housing operations will also be initiated.

Horizon Certé in Trignac

*ANRU urban development operation in progress:
216 housing units demolished, 620 new housing units*

In this neighbourhood of 278 social housing apartments, cut off from the rest of the city by several major roads and railway lines, an urban renewal plan calls for the demolition of most of the existing apartments and rehabilitation of the others, allowing for the construction of new energy efficient housing on an industrial brownfield site (after depollution pursuant to the Adème agreement) and on an undeveloped vacant site.

6

Post-war reconstruction renovated

20,000 housing units to be rehabilitated

The Eco-City initiative will also provide an opportunity to rehabilitate and renovate an area of post-war reconstruction that has an interesting architectural heritage (City Hall, Soucoupe) and an urban layout that embraces the tenets of sustainable cities: average density, spacious blocks, wide avenues, generous sunlight, pedestrian walkways. Several initiatives have been launched, notably by the City of Saint-Nazaire, to assist the thermal rehabilitation of these buildings.

The project areas will be interconnected by dedicated lane public transit connected to Métrocéane,

the major rail system serving the Eco-Metropolis. Soft mobility lanes linking the main public places and natural spaces will also be developed (Bicycle Plan underway).

In Nantes: the river, at the heart of the contemporary central corridor “de la Gare à la Loire” [from the train station to the Loire]

In Nantes, the Ile de Nantes inaugurated an initiative to reclaim the river, and the population quickly integrated the Quai F. Mitterrand, the Quai des Antilles, and the redeveloped shipyards site into their everyday lives. The river is once again at the heart of urban life in the city.

This has reawakened the desire for more ways to recapture the riverfront, along both shores. The Rives de Loire initiative undertaken by the Nantes District in 1995, confirmed in 2001 upon the creation of the Urban Community, is becoming more and more concrete. Like the Ile de Nantes, the GPV Malakoff / Pré-Gauchet / Euronantes projects reflect this ambition to rediscover the river. They are the new phases in the foundation project “*de la Gare à la Loire*”, which makes the former riverbed the spinal column for a new urban central corridor.

The ingredients for the contemporary centre include a series of projects that renew the relationship with the river, at the heart of the city. The projects are linked by the public transit system (Tramway, Busway, Navibus), which has been developed to connect these dense neighbourhoods around the river.



Malakoff / Pré-Gauchet: a major urban renewal projects supported by the ANRU urban renewal agency

7

The Train Station, *Euronantes* *Around a new train station, a business district in the city centre open to the river.*

*A train station to serve 20 million passengers, 80,000 sq. m of businesses, office space and services (new train station), 200,000 sq. m of office space (Euronantes)
Nantes Métropole // Currently in progress*

The Nantes train station currently serves 10 million passengers. Today's two-entrance layout is inadequate for a train station that will be accommodating twice that many people by 2030, according to current estimates.

The project to transform the train station will create a major transit centre open to the city and the river, and a major infrastructure for the Eco-Metropolis, which is investing heavily in public transportation. The train station will be part of an urban corridor between the chateau, the Saint Felix canal and the Loire, and will no longer constitute an urban barrier. To the south of the train station, directly connected to the historic centre, Euronantes will increase the ranking of the metropolis among the major European cities. Since 2007, Euronantes has provided investors, French and European businesses with an ongoing supply of office space in the city centre, which will reach a total of 200,000 sq. m when fully completed. With the redevelopment of public spaces focusing on the water (St Felix Canal, Loire, new Tripode pond) the Atlantic Business Centre project is being built on an area covering the Nouveau Malakoff, part of the Champ de Mars district and the Tripode district on the Ile de Nantes. The *Institut des Etudes Avancées* (IEA), located on the site of the former Saupin stadium on the north shore, and the Tripode operation, on the south shore, are the first projects in the riverfront recapture effort.

8

The Malakoff – Pré Gauchet project *Re-open to the city and the river*

*1,000 housing units rehabilitated
1,300 new housing units
Nantes Métropole // Currently in progress*

On the banks of the Loire, Malakoff – Pré Gauchet is one of the key urban renewal operations in the metropolis. The project is supported by the central government under its national action in favour of urban renewal, headed by the ANRU.

The requalification of Malakoff, a social housing district built during the 1970's urbanization period, along with the creation on the Pré Gauchet site of a new real estate complex (1,300 new housing units, 200,000 sq. m of business space) has resulted in a 150-hectare diversified project including housing and business facilities.

On this site, which was long isolated from the city by railway lines, the diversified operations, the quality public space, and new links with the city centre to the west and the Loire and Ile de Nantes to the south, have created a genuine multifunctional city neighbourhood open to all that is once again part of the city centre. A large portion of the area is devoted to nature and biodiversity, with the upgrade of the Petite Amazonie, a remarkable natural space.

This project also aims to reduce the digital divide. An experiment is underway here to equip the buildings with high speed internet using power line communication (PLC) technology. The goal for Nantes Métropole is to provide low cost telephone and internet access (15 euros) in this socially marginalized neighbourhood. Rather than financing high speed fibre optic cable installation, Nantes Métropole, in partnership with the operator Effineo, decided to use the existing power system. The services is now available in 1350 apartments. Based on the results of the experiment, it may be extended to other neighbourhoods.



Feydeau, a former island at the heart of the project “de la Gare à la Loire”

Nantes Métropole is also implementing an energy efficiency project in Malakoff with the Effineo. The principle is to use the network to transmit energy data (water, electricity, temperature, etc.). This will enable residents and building managers to measure and compare average consumption per household, and thereby regulate their energy consumption. If this project of using information and communication technologies for sustainable development purposes proves effective, it may be extended to a number of other large housing estates in Nantes.

9

Feydeau – Petite Hollande

The heart of the “de la Gare à la Loire” central corridor

Nantes Métropole

Currently in progress / Study phase

To the west of the new train station there are a series of vast public spaces around the Ile Feydeau, cut off on the south by the railway lines and bordered on the north by the Chateau des Ducs de Bretagne and the city centre.

These spaces are former arms of the river, and can constitute the heart of the new Nantes centre, which is strongly linked to the river and connected to the historic centre.

These public spaces need to be requalified – this has already been done on the south shore of the Ile de Feydeau – and a new urban layout that integrates diversified projects and generates new appeal for the city centre must be created.

At either end of the Ile Feydeau, the Neptune project – consisting of a large-scale operation combining housing, retail and offices – and the vacant space of La Petite Hollande that may accommodate a number of operations to the west – can provide the opportunity to do just that. The central area will be extended towards the sea by development projects targeting former port quaysides (Quai de la Fosse,

Slavery Abolition Memorial, Quai de l’Aiguillon] and towards the Ile de Nantes by the Schoelcher pedestrian bridge.

Once the new University Hospital is built on the Ile de Nantes, the 9 hectares currently occupied by the Hospital on the shores of the Loire could accommodate a series of operations completing the new central area.

1

Ile de Nantess

Continue this major project in the south-western part of the island,

5,000 new housing units, 150,000 sq. m of business facilities and city infrastructure

Nantes Métropole / Study phase

The continuation of the Ile de Nantes project after 2010 involves a number of major projects. These include developing the south-western part of the island, moving the Nantes Etat train station (combined transport) to the Grand Blottereau, building the University Hospital, possibly relocating the MIN wholesale market, and creating a new dedicated lane public transit line running from the train station and the Malakoff Pré-Gauchet district in the east to Chantenay in the west. This will require the active support of the central government.

The south-western part of the island presents the greatest potential for development, estimated at more than 300,000 sq. m. It is a genuine neighbourhood, strongly marked by its relationship to the water (quai Wilson and quai des Antilles, on either side, and a large body of water in the middle). And beyond the visual appeal of the river, the area will use water as a key element, both in the urban and architectural design and in the scheduling of the operations. The creation of the eco-neighbourhood on the site of the Prairie au Duc is the first brick in the foundation.



Bas Chantenay, Nantes, reclaiming an industrial suburb on the Loire riverfront

10

Le Bas Chantenay

Reconversion of an industrial site on the shores of the Loire

2,500 new housing units, 350,000 sq. m of businesses, retail shops, cultural programs
City of Nantes / Preliminary studies

Bas Chantenay is an area historically linked to the river, located between the Butte Saint-Anne and the Loire. It is an industrial, working class neighbourhood with remarkable features along the Loire and extending up the Sainte-Anne promontory. It is one of the projects in the urban effort “de la Gare à la Loire” to recapture the city centre around river.

The City of Nantes has assigned the initial 62-hectare project to Pierre Gautier, a Dutch urban architect. Opening onto the river, the planned project calls for strong integration of nature and city (recapturing the Loire riverfront, urban continuity for soft mobility along the corniche, around the former Oblates Convent and Maurice Schwob Square). Several projects are laying the foundation for a global approach based on a balance between current and future uses in this neighbourhood: preservation and new functions for the Armor plant, Programmed Housing Improvement Operation in the Chantenay district.

A new public transit offering (dedicated lane system, Navibus) would help connect this area to the dense urban centre.

11

The Iles de Rezé

Recapture the south riverfront

1,000 new housing units, 25,000 sq. m of business facilities and public infrastructure
Nantes Métropole / Pre-operational study phase

On the southern shore of the river, the redevelopment project of the Iles de Rezé extends this series of urban projects in Nantes. Near the river in an area made up of a number of connected islands, the project plans to redevelop land primarily occupied by businesses and industrial brownfield sites into a shopping district. The area features small pockets of housing typical of older Loire villages (Trentemoult, Basse-Ile, Haute-Ile). Trentemoult also has a sailing marina on the Loire.

The first phase is currently underway on 30 hectares, designated a Comprehensive Planning Area (ZAC) by Nantes Métropole in 2007, in a project combining renewal of the shopping zone, construction of nearly 1000 housing units, as well as 25,000 sq. m of new tertiary and retail space and new public infrastructure.

The entire project covers nearly 150 hectares from the Pirmil Bridge to the timber port of Cheviré. This southern riverfront recapture operation will set an example by creating a true city neighbourhood on the river, in an area in close proximity to the river that is subject to flooding.

Like Bas Chantenay on the north shore, this area could benefit from new public transit lines linking it to the city centre.



Indre: Example of the rediscovery of the river

Between the two largest estuary cities, efforts to recapture the riverfront abound

In addition to the projects in Nantes and Saint-Nazaire, the Loire riverfront is benefiting from a number of environmentally sensitive housing and business projects that feature top quality urban design and landscaping.

Riverfront recapture is the focus of projects throughout the metropolitan area.

The reasons for this are three-fold:

- a general trend toward creating waterfronts in most European cities built on the water;
- the biannual contemporary art event Estuaire has helped many communes rediscover the river and has made them want to revitalize the riverfront.
- the projects in Nantes and Saint-Nazaire have encouraged other communes to develop similar initiatives.

Many of the riverfront and estuary communes in the metropolis are launching projects that place the water and urban ecology at the heart of their development.

12

Indre

*Develop the Loire riverfront quaysides
Requalify the SOFERTI brownfield site
Nantes Métropole
Under construction / Preliminary studies*

On the riverfront, Indre is composed of several islands: Basse-Indre, the principal town; Haute-Indre, mostly residential, with a fishing port; Indret, mostly industrial; Ile de la Motte, entirely natural.

Indre is part of the Rives de Loire program (1995) that aims to revitalize the riverfront. A major project to restore the quaysides of Basse-Indre and Haute-Indre is underway. This includes redeveloping the riverfront, enhancing the town's relationship with the river and the riverfront, and creating additional pedestrian pathways. Work began in 2008 to create a primarily pedestrian esplanade that will also accommodate cultural events, and to develop ferry access, gardens and the farmers market. This will extend the urban fabric from central Nantes toward Couëron.

Another project in direct relation to the river is the requalification of 24 hectares of the Soferti plant, which closed in 2007. The goal is to develop a consistent urban plan between Haute and Basse Indre.

13

Couëron

*Rives de Loire initiative and rehabilitation
of the Tréfinétaux brownfield sites
City of Couëron
Complete / Pre-operational studies*

This Loire riverfront commune enjoys a number of natural sites (the Audubon Marshes, Beaulieu Lake and the Loire riverfront, redeveloped in 2003).



Couëron, Tréfinétaux plant: discovering new usages on the Loire riverfront

Couëron has undertaken several projects to successfully accommodate new residents and revitalize the city centre.

The Rives de Loire initiative calls for the requalification of the current artisan zone into a residential zone. 200 housing units will be built, including 20% social rent apartments. The program also calls for the development of quality public spaces along the redeveloped riverfront, new retail shops, as well as the rehabilitation of the Tréfinétaux brownfield sites into cultural facilities (cultural space, media library, community hall, Lead Tower). Like in Indre, these projects near the river must address flood risk issues.

The Ouest-Centre-Ville project uses a sustainable urban development approach, with exemplary environmental requirements. Located on a 70-hectare site currently composed of scrub and grasslands, the project will also provide housing, business space and public infrastructure.

14

Erdre-Porterie

*An eco-neighbourhood on the Erdre
1,400 new housing units
City of Nantes
Currently in progress*

In the eastern part of Nantes on the right bank of the Erdre, the 45-hectare Erdre-Porterie project has been initiated in 5 locations. This development project calls for the creation of an eco-neighbourhood. There are plans for some 1,400 new housing units combining apartments for rent and for sale, with 25% social rent apartments, to accommodate 3,500 people in the coming years. There will also be cultural and sports facilities, including a school expansion, a multisports gym, and the Hansel and Gretel day-care centre.

The project will also promote the ecological diversity and scenery of the riverfront and develop quality public spaces, such as community squares, green spaces and soft mobility options, including the Allée de l'Erdre and the City Tour path, with heritage preservation and ecological management of public spaces.

15

Bottière-Chénaie

*Build an eco-neighbourhood
in the heart of Nantes
1,600 new housing units
on 35 hectares of vacant fields in the city centre.
City of Nantes, currently in progress*

The goal is to house 3500 people in an area connected by two tramway stations. The housing will be compact and diverse (25% social rent apartments and 50% cost controlled for first-time home-buyers). It will also feature urban villas and small complexes with interior patios. The operation will also rehabilitate nature in the city centre, by reopening the Les Gohards stream, creating a new site for family gardens, and implementing a natural rainwater management system. Finally, the Floresca-Guépin Media Library as well as other future cultural facilities are enhancing the centralizing effects of this new section of the city inside the ring road by attracting people from outside the immediate area.



Le Pellerin: entrance to the Canal de la Martinière

16

Paimbœuf

Develop the Loire riverfront and quaysides

Create a fishing port and sailing marina

City of Paimbœuf / Preliminary studies

Paimbœuf is a city at the heart of the estuary and former outer harbour of Nantes that has a rich marine heritage. It is part of the Sud Estuaire community of communes. The riverfront and other areas are enhanced by promenades and recreational areas. A global development project for the Loire riverfront and quaysides is underway. This involves requalifying the public spaces, the existing city park and the accesses to the Loire riverfront (development of a pedestrian continuity along the Loire with requalification of the quaysides and the main street and construction of a floating dock), adding green spaces, landscaping and creating walking and biking paths (Loire à Vélo, Allées de la Loire, green space and pedestrian trail) and transforming the old port into a vibrant and attractive central area.

The planned fishing port and 500-boat marina and the requalification of the lighthouse and jetty will expand the existing marina offering in the estuary in an environmentally sound manner.

17

Nort-sur-Erdre

The train station and the Erdre riverfront

at the heart of the city project

2,000 new housing units

17,000 sq. m of business space

Located 25 kilometres north of the Nantes urban area, Nort-sur-Erdre has an ambitious urban project based on the arrival in 2011 of Tram-Train service that will connect it to central Nantes in 25 minutes. This projects calls for building more than 2,000

housing units and creating a new neighbourhood around the train station (1,500 housing units, 12,000 sq. m of business space). Another focus is recapturing the Erdre riverfront through urban renewal (500 housing units, 5,000 sq. m of business space), preserving the wetlands and developing tourism by expanding the sailing marina. By 2025, this commune of 7,000 residents should see its population increase by nearly 75%.

2.2. Protect, preserve and promote the estuary: the environmental projects

The Loire estuary is the natural heart of the Eco-Metropolis, marked by the immense richness of its green and blue heritage, including exceptional but fragile plant and wildlife. This green heart is one of the singularities of the Nantes Saint-Nazaire bipolar metropolis, and greatly explains the appeal of this area that so perfectly blends city and nature. As a temple of biodiversity, the estuary ecosystem must become the driving force behind a new approach to development where protection and repair of nature are combined with creativity, innovation and development.

The development of the city around the river is part of an integrated approach to preserve and promote natural sites. It is important to promote local production and new environmental management systems to stem the development of derelict landscapes and confirm the place of this great green lung within the metropolis. The preservation and promotion of the great natural space is one of



Protecting the estuary ecosystem

the major aims of the Eco-Metropolis project, for several reasons:

- environmental: The value of the estuary and the related natural spaces is clear to everyone. It is a fragile environment. The restoration of estuary function and recapture of the environments is one of the key objectives shared by the major stakeholders in the metropolitan area. Therefore, the restoration and recapture work is the primary lever for promoting this remarkable space.

- quality of life: Nantes Saint-Nazaire offers a model of development where city and countryside intermingle, and the natural space around the estuary is a key component of this urban/nature blend. It can represent a breathing space on a nearly unprecedented scale, as a huge park for the metropolis.

- farming economy: agricultural space is strongly connected to the natural spaces of the estuary. The development of long term farming activity that respects the biodiversity and quality of the scenery must be supported by and above all contribute to the promotion of nature.

The challenge today is to set the stage for discussions among all the partners to achieve optimal and balanced development of this area.

Restore the balance of the river

For the past ten years, the analyses conducted on the ecological quality of the estuary and the damage due to the long exploitation of the river have led stakeholders to make restoration and recapture of the estuary a priority in the development project. In 1998, in the Plan Loire, the Prefect of the Region and the President of the ACEL created a Measurements and Reports committee, which in 2004 became the Loire Estuary Public Interest Group. The observation and prospecting work it

conducts is a decision making tool helping define a global vision for recapturing the estuary (sedimentary function to improve usages and ecology).

River restoration requires a number of actions:

- Re-establish the sedimentary function of the river. The estuary dynamic (saline intrusion, sludge deposits, currents) has an impact on usages (water, urban, port, farming) and ecological functions. Estuary function will be re-established by giving more space to the river. The creation of mudflats will ease the flow and moderate the dynamic. It will also re-establish key ecological functions associated with mudflats (nursery grounds, migratory bird habitat).

- Wet zone management must address a number of issues: ecological recapture, extensive farming to ensure ecological function, moderate development, promotion of areas that enhance quality of life.

Various projects are underway:

- Preserve the Port Lavigne valley in partnership with the Port and the City of Bouguenais.

- Support the marshland unions in upgrade work (locks, estuary marshes).

- Set up an experimental system for remodelling jetties to raise the waterline.

- Much of this work on the estuary and wetlands has been conducted in Nantes Métropole under the Neptune program, developed in 1994 to improve the quality of water and related environments.



400,000 hectares of wet zones in the Eco-Metropolis

1

Restoration of the estuary function

Stakeholders in the estuary have been working since the 1990's to develop an estuary function restoration scenario that is more favourable in terms of environmental, economic, urban and social components. This involves creating mudflats to control tidal intrusion. Mudflats also help restore the estuary's major ecological function as nursery grounds for flat fish and migratory bird habitat. The scenario also includes re-establishing the riverbed morphology, to respond to changes in the Nantes port.

This pilot operation to open 100 hectares of mudflats on the right shore of the estuary near Lavau is part of the Plan Loire 2007-2013. This first phase in the restoration will validate the principle and confirm the feasibility of the project.

2

Restoration of estuary marshes

As a coastal plain estuary, the Loire estuary features a complex wetland area. These primarily agricultural areas are composed of marshes with a dense hydraulic network that permits exchanges with the Loire. Hydraulic management is essential for maintaining the ecological functions of these wetlands. However, difficulties are increasing due to aging structures, ineffective management systems, stricter environmental regulations, etc.

Today, estuary stakeholders are committed to supporting ecologically-friendly practices for hydraulic management and extensive agricultural of the wetlands. The Plan Loire Grandeur Nature 2007-2013 calls for upgrading structures, using ecological management practices and implementing a program for restoring and maintaining the hydraulic network.

Preserving the river and natural spaces as part of the industrial port project

The development policy of the Grand Port Maritime de Nantes Saint-Nazaire calls for promoting the Loire in terms of its environmental, urban, social and logistical functions.

As an "Eco-Port", its commitment to the Donges Est project includes:

- Restoration of natural spaces (creation of mudflats) under the Plan Loire, as well as reclamation of the Donges Est site.
- Global plan for environmental safeguard and restoration: 1600 hectares to the east of Donges Est placed under the management of the Conservatoire du Littoral coastal conservancy.

An Estuary Scientific Council was created to help preserve the estuary and ensure that environmental issues are addressed in port development projects.

Generally speaking, industrial hazard prevention and management (in particular estuary pollution) must be addressed in a concerted fashion by all the stakeholders (manufacturers, local government, central government).



Nantes, Schœlcher pedestrian bridge: developing nature in the city

Protect the natural spaces that benefit the territory and block urban sprawl

In addition to the estuary, the natural spaces include marshlands, farmland and forest land.

The Eco-Metropolis project supports the maintenance of these spaces through committed projects that promote their biodiversity.

3

Ensure long term periurban agriculture

The vision of a compact city is accompanied by a robust green grid that plays an economic, ecological and social role.

Since 2000, when a partnership protocol was implemented between Nantes Métropole and the Chamber of Agriculture, the partners have been committed to promoting farming through a series of land measures, support for farms and development of natural periurban zones.

The SCOT of the metropolis extended these measures, with the goal of ensuring at least a 20-year outlook for 70,000 hectares of agricultural space. It identifies areas of major concern to be designated long term agricultural spaces. There are also a number of initiatives for maintaining and developing agricultural infrastructure (farm buildings, etc.).

Actions also include setting up land protection perimeters (PAEN) initiated by the Loire Atlantique County Council to prevent farmland purchases for speculative purposes.

Finally, there are agro-environmental measures (MAE) initiated by the central government to promote innovative, environmentally-friendly agricultural practices, including organic farming,

protection of endangered species, and improvement of domestic bee pollinating potential.

Under the territorialized agro-environmental measures (MAET), the perimeter selected is that of Natura 2000, with a few extensions into nearby zones. Priority actions include delayed mowing, encouragement not to fertilize, extensive agricultural practices, and planting grassy strips along waterways.

4

Create urban forests

In its sustainable development charter, Nantes Métropole calls for integrating nature in the city with a green and blue grid that is now promoted at a national level. Since 2005, the creation of urban forests has been a priority, with the following aims:

- figure out how to deal with former crop fields and maintain a green belt around the metropolis
- protect certain plant and wildlife areas from development
- use urban forests to trap carbon dioxide, to help achieve Nantes Métropole's target of reducing emissions four-fold by 2050.
- create a new type of public recreation area near urban zones for future generations.

Three important sites, located over 9 communes, have been studied and reserved for a net creation of 900 hectares of forest, adding to a global volume of 1,500 hectares. These projects are located in the north west beyond the Parc de la Chézine, in the south west between the Loire and the Grand-Lieu Lake, and in the south east around the Ilette spring, a tributary of the Sèvre. Since 2007, 20 hectares of forest have been planted per year.



The Estuary: cradle of biodiversity

5 Preserve and promote the biodiversity of the estuary

85% of the natural spaces in the Eco-Metropolis are home to extraordinary plant and wildlife species.

In particular, the green spaces directly connected to the river network host a unique biodiversity that is part of the ecological balance of the estuary ecosystem. Preservation of this biodiversity is a key aim of the Eco-Metropolis project, which seeks to reconcile environmental protection and urban development.

By 2014, Nantes will have created a “biodiversity pathway”, or ecological corridor running west to east through the city along the Loire, connecting public parks and natural spaces, including Parc des Oblates, Square Maurice Schwob, Berges de Loire, Jardin des Plantes, Petite Amazonie (Natura 2000 site in the city centre, unique in France), Grand Blottereau Park, and Prairie de Mauves (Natura 2000 site).

The project, designed by landscape engineer Gilles Clément on the section Jardin des Plantes/Grand Blottereau/Prairie de Mauves, will be supported by the Botanical Gardens of Nantes, one of the five most famous botanical gardens in France for the quality of its scientific experiments.

This biodiversity pathway linking a number of sites in the urban ecosystem may eventually be extended to the greater metropolitan area. In this respect, the Loire has reclaimed its function as a natural vehicle for people and plants.

The Eco-Metropolis can use the experience acquired during the Estuary Angelica preservation program in Nantes Métropole. In 2004, with the support of the National Botanical Conservatory of Brest and the Botanical Gardens of Nantes, Nantes Métropole drew up a conservation plan to preserve and protect the habitat of Estuary Angelica during any development projects located nearby.

In Nantes, the Ile de Nantes urban renewal project was a test ground for developing a working method

in an area with a high concentration of Angelica. The experience on preserving Estuary Angelica will be written up and shared in a guide.

6 Brière Estuary Corridor

The Brivet and the Canal du Priory are fragile ecological corridors that connect the estuary to the Brière Marsh. In partnership with the Grand Port Maritime de Nantes Saint-Nazaire, initiatives must be taken to restore, promote and maintain the biodiversity in the ecological corridors protected by the Sector Scheme of the Carene. In the longer term, the nearby industrial brownfield sites of Forges de Trignac may also be rehabilitated.

7 The Camp de la Torpille

New uses and facilities must be found for this vacant former military camp, located in the centre of the green break between Saint-Nazaire and Pornichet, near the Lande de Cavarro woods and less than 100 metres from the ocean. Innovative management methods will be implemented to ensure success.



Grand Port Maritime Nantes Saint-Nazaire: develop container traffic

2.3. Renew the economic dynamics of the river: economic projects

1 2 Economic projects

related to the development strategy of the Grand Port Maritime Nantes Saint-Nazaire: Formerly the only stakeholder of the Loire estuary, the Port de Nantes Saint-Nazaire is now a special partner in implementing a strategic, share vision of the estuary.

The Grand Port Maritime de Nantes Saint-Nazaire is transitioning from “port zone” status to “full stakeholder” status in the economic, eco-compatible, social and societal performance of the territory.

Its strategic project entails a two-fold challenge:

- upstream: Change the Port of Nantes into a river port optimizing urban multimodal connections
- downstream: Move facilities closer to the ocean and improve container traffic conditions.

The aim is to retain its status as largest port on the French Atlantic coast by strengthening its ties to the world and organizing its hinterland connections.

– Maritime highways to the Iberian Peninsula. The Port de Nantes Saint-Nazaire must become the Atlantic port of entry for the maritime highways. The first phase is the maritime highway to Vigo and Gijón, to be followed by the development of routes to Bilbao or Santander.

– Use waterways to transport freight via barges, with a possible connection with the Grand Blottereau multimodal platform.

– Upgrade the Montoir multimodal platform and create synergies with inland multimodal platforms connected by efficient road systems.

– Create a European scale container terminal upstream of Montoir and a Ro-Ro terminal.

– Potentially relocate the current Ro-Ro terminal to the Méan mudflat site to help develop the maritime traffic of the Airbus plants. This project should set forth the conditions for integrating the terminal in a space protected under Natura 2000.

– Potentially create a logistics platform connected to the railway system (Savenay, Donges).

3 New sectors

for economic development based on renewable energy

– Create renewable energy sites (Loire-Atlantique County Council wind farm, biomass and biofuels in Montoir)

– Potentially develop an “environment / renewable energy” science park²⁰ and a solar power plant²¹ on 100 hectares at the Le Carnet site.

– Develop the “Microalgae Valley” In the field of microalgae, the estuary has an emerging cluster of research laboratories (Ifremer, CNRC, École des Mines) and businesses. Microalgae can be used to develop biofuels and absorb and recycle carbon dioxide.

20. Centre for testing, production, services and logistics support to industries involved in energy from the sea, in particular.

21. Under the State plan “Une Centrale par Région en 2011” Nantes Métropole is building an 1800 sq. m solar power plant on the roof of the Beaulieu shopping centre. Delivery: April 2009



Saint-Félix marina, Nantes: at the heart of the EuroNantes business district

Business districts on the water

– **Villes-Gare** will be the first high speed rail business district overlooking a natural park, the Brière Natural Park. It will accommodate 12,000 sq. m of office space by 2011, with a target of 100,000 sq. m.

– **Euronantes**, a business district on both sides of the Loire, is part of the train station, Pré-Gauchet / Malakoff and Ile de Nantes renewal projects. Euronantes aims to be a business district with 200,000 sq. m of world class office space by 2025, thereby bringing the Malakoff neighbourhood back into the historical town centre and improving its standing. (Malakoff is a large, disadvantaged urban district).

– On a more modest scale, the « **Plein Sud** » project (expected completion 2009) in Saint-Herblain (Cormerais site) is a high environmental quality business district on the Loire riverfront.

2.4. Transit options: transportation projects

Waterways are an option with significant potential for transporting people and goods throughout the greater metropolitan area, with minor environmental impact.

The metropolis must provide easy access and public transportation between the cities via ambitious transit projects that emphasize intermodal options. With this in mind, creating compact urban centres such as Nantes Saint-Nazaire and secondary cities encourages the design of a city with competitive public transportation service.

Improve the public transit offering

1

In the metropolitan area:

Use the experience of Métrocéane to develop an efficient multimodal offering

Since 1999, Métrocéane has provided an integrated fare option on the Nantes Saint-Nazaire Le Croisic line, combining the different public transit options. As the estuary rail line, Métrocéane could become more competitive by improving the quality of service, including upgrades to rolling stock, better fare options, improved frequency and connections, RFID transit cards, and extended service.

Improving passenger safety is a crucial issue on this line that runs through the Chantenay tunnel, where freight and hazardous materials transit, as



Nantes, the Busway: new type of dedicated lane transit

well as through the Donges refinery. The Eco-Metropolis²² and the central government²³ are both fully committed to improving safety conditions.

Offshoots of the main rail line, including the TER regional train system and the Nantes-Châteaubriant tram-train line, will ensure connections between the cities of the metropolis.

The train station requalification projects are key in providing multimodal transit opportunities and ensuring that public transit is an attractive option. The new train station projects in Nantes and Saint-Nazaire are being designed with this in mind.

2

In the two major urban centres:

Ambitious public transit projects

As a continuation of the rail lines, the ongoing projects for new dedicated lane public transit lines in the two largest cities will provide even greater coverage.

Nantes Métropole plans to develop new bus or tram lines to serve the areas with the greatest density.

This includes a project for a new tram line in the city centre to provide more service to the south and to connect many areas where renewal projects are currently underway. This line would run from Pré-Gauchet / Malakoff to the Ile de Nantes, serving the key areas of the urban project “De la Gare à la Loire”: the new train station, Euronantes / Tripode, Beaulieu, the new University Hospital, Shipyards Park, the Quai de la Fosse and the Quai de l'Aiguillon. This line would be part of an efficient intermodal system with connections to the existing

tramway and busway lines, as well as to the rail system (at the Nantes train station) and the tram-train project on the Ile de Nantes.

In Saint-Nazaire, a dedicated lane bus project is under construction (response to the call for projects of the MEEDAT). The bus line will be connected via a Multimodal Exchange Centre (underway) to the Métrocéane system. It will offer quality service on a par with Nantes and will connect the main development projects in central Saint-Nazaire.

For the longer term, the possibility of reactivating the former rail system in Saint-Nazaire using the Tram Train mode is currently being studied. This system could link to the future Notre Dame des Landes airport. It is important to improve the capacities of the metropolitan rail system to develop efficient interurban and periurban rail links (Nantes/Rennes, Nantes/Angers) as well as rail freight.

22. The SCOT of the Metropolis has ordered a study on relocating the rail line.
23. A study on the Technological Risk Prevention Plan (PPRT) is underway.



Nantes, Navibus: public transit on the water

Develop alternatives to road transport for goods

3

Use the river to transport goods

The Loire presents a potential new method of transporting goods to ease traffic on road and rail infrastructures. Now is the time to develop river barging, as part of the strategic project of the Grand Port Maritime Nantes Saint-Nazaire.

The first experiment will be a river link between the Montoir terminal and the Cheviré terminal near Nantes, using a 70-metre barge with a 2.5 m draft that can transport 70 containers.

This barge traffic could tie in to the Grand Blottereau multimodal platform, providing ambitious rail – road – port prospects that would ease freight traffic in the rail tunnel.

A number of river logistics platforms may develop all along the estuary from the downstream port upstream to Nantes, and perhaps in time all the way to Angers. These platforms would be served by barges capable of navigating on the estuary and the river.

Connecting the shores

4

Develop ferries and river shuttles

Waterways like the Loire, the Erdre and the Sèvre can provide public transit opportunities, not just as a way to discover the rivers, but as a true transportation mode, especially as a way to cross the Loire and to serve the new neighbourhoods along the riverfront.

The possibilities are numerous. Studies are underway by the Loire-Atlantique County Council to define the feasibility of a ferry service between Saint-Nazaire and Saint-Brévin by 2011. A Paimbœuf-Donges crossing is another possibility.

In Nantes, the Loire Navibus between Trentemoult and the Gare Maritime in Nantes is another solution for crossing the Loire, serving nearly 400,000 passengers per year since 2005. Another crossing may be added to serve the western tip of the Ile de Nantes (Banana Hangar).

Nantes Métropole is currently conducting feasibility studies on a number of crossings Le Pellerin/ Couëron/ Indre/ Nantes that would use the Loire as a new public transit option linking the cities along the river.



Buren's Rings, a permanent art installation from the Estuaire 2007

5

Improve river crossings

Now that the last Nantes – Lyon motorway section has been completed, Nantes is served by a good quality motorway system and needs no new major highways to speak of.

However, within the metropolis, it is important to improve the river crossing options. Nine out of ten Loire crossings in the Loire-Atlantique department are done in the Nantes conurbation.

By building new bridges inside the Nantes ring road, Nantes Métropole will ease traffic on the large bridges on the periphery of Nantes.

The effect of the cultural events Estuaire and Rencontres du Fleuve

Cultural events undeniably help promote urban projects in Nantes and Saint-Nazaire. Promotion of the arts is a key element throughout the Eco-Metropolis in urban projects, as well as in tourism and recreation projects.

The first Estuaire event in 2007, during which some 30 temporary or permanent works by international artists were installed in Nantes, Saint-Nazaire and along the riverfront, enabled local residents to discover the estuary in a whole new light.

Estuaire and the biannual travelling exhibit *Les Rencontres du Fleuve*, sponsored since 2006 by the Loire-Atlantique County Council, showcased the estuary and revealed its potential as a cultural, tourist and recreational resource. These events were a driving force behind projects for new recreational facilities on the estuary.

2.5. Explore and showcase the estuary: cultural, tourist and recreational projects

The estuary, located between the two large cities in the metropolis, is ideal for developing uses related to leisure activities. It can be considered a “local exotic destination”.

Metropolitan stakeholders are inventing ways to encourage discovery (cruises, hikes, and industrial, urban and nature tours), promoting local production and reclaiming abandoned spaces. These activities obviously comply with the current and future estuary protection program.



Paimbœuf, "Starry Garden" by Kinja Maruyama, *Estuaire 2007*: new ways to discover the estuary

Cultural, tourist and recreational projects

1

Discover the river

The estuary is largely unknown to the general public. It is difficult to access, and the shores are used mainly for industry, port activities and farming.

It is important to rediscover the river. This includes requalifying the quaysides, creating public spaces, providing good views and building nature discovery areas.

Access to the Loire

– *Mauves-sur-Loire*: requalification of the quaysides / Ile Ripoché development project / La Droitière (hotel and conference centre)

– *Lavau-sur-Loire*: creation of a walkway (for *Estuaire 2009*) from the Tadashi Kawamata Observatory (*Estuaire 2007*), with its incredible view of the estuary, to the village centre.

– *Cordemais*: creation of the belvedere in the shape of a boat prow to provide an unobstructed view of the Loire, with an orientation table identifying the points of interest.

– *La Montagne*: development of public spaces in the village centre and creation of vista points overlooking the Loire valley.

Development of nature discovery zones in the estuary

– *Frossay* : creation of a plant and wildlife discovery zone (Conservatoire du Littoral project) in conjunction with the Le Massereau bird sanctuary.

– *Corsept* : the estuary project includes: three traditional fisheries / bird watching site / observatory of industrial sites and group fishing activities.

– *Saint-Julien-de-Concelles* : pre-emption and acquisition by the County Council of the Ile de la Chênaie.

2

Create cultural and educational sites on the estuary

The estuary is largely unknown to the general public. It is difficult to access, and the shores are used mainly for industry, port activities and farming.

In addition to walking trails and recreational areas, there are educational projects designed to help people discover the biodiversity and fragility of the estuary.

The primary project is the creation of a Loire estuary interpretive centre in Cordemais (ESTUARIA), scheduled for the 3rd edition of the Estuaire event in 2011. ESTUARIA will be built using high environmental quality construction techniques, and will be a showcase for the estuary to help develop tourism in the area. It will be designed for the metropolitan population, in particular families and school groups. The association Estuarium, which has been working since 1994 on a research and initiative program supported by the central government, will be in charge of managing the interpretive centre.

Other actions, such as the renovation and conversion of the Rohars Chapel into an exhibit space in Bouée, are also part of the estuary outreach initiative.



Le Pellerin: explore the Loire riverfront on bikes

3

Promote recreational use of the river

It is important for the local residents (and tourists) to rediscover the joys of playing in and on the river. This is achieved by building docks and water recreation areas.

– *Cordemais* : creation of a shipyard near the Estuaria interpretive centre.

– *Lavau-sur-Loire* : development of a recreation area at "Le Trou Bleu"; swimming areas in former quarries, par course, campground.

– *Frossay* : development of the watersports facility.

– *Mauves-sur-Loire* : creation of a dock to accommodate cruise boats on the Loire. And the development of Ile Ripoché into a recreational space to attract tourists.

– *Saint-Julien-de-Concelles* : development of a dock, La Chebuet boat ramp, fine dining.

4

Provide continuous trails for discovering the river

It is important to provide soft mobility options such as biking and walking paths to link the educational and cultural projects on the estuary, thereby encouraging people to (re)discover the river.

The Pedestrian Continuity Master Plan in Nantes Métropole

60% of the territory of the conurbation is occupied by natural spaces, and there are 150 km of waterways. Pedestrian continuities along the waterways are a unique way to bring the residents into close contact with a rich but fragile natural environment. Nantes Métropole continues to develop public walking paths under its Pedestrian Continuity Master Plan "Au Fil de l'Eau", with a target of 350 km in all. Nearly 250 km of pathways have been developed in conjunction with projects to promote rare natural spaces (Ile Forget, La Caillière spring).

Loire à Vélo / Vélocéan: a continuous bike path from the river to the sea

The last section in the Loire à Vélo project, the 100 km bike path along the Loire between Nantes and Saint-Nazaire climbs gently upward toward the mouth of the estuary, providing beautiful views of nature, heritage, and art as well, with the Estuaire arts discovery trail.

The paths have been operational on both shores since 2005, and it is possible to cross the river by ferry in Indre and Le Pellerin.

On the south shore, the last 40 km complete the 800 km Loire à Vélo trail, bringing it to the ocean. To the north of the estuary, the Vélocéan trail continues on for over 100 km on small roads and trails perfect for family bike rides along the coast.



Governance in the greater territory

An open territory

In the past twenty years a progressive governance system has been set up based on informal initiatives and projects (Association Communautaire de L'estuaire de la Loire, Conférence Métropolitaine, Estuaire), as well as institutions (Intercommunalities, SCOT joint union, Chambers of Commerce and Industry in Nantes and Saint-Nazaire). This has led to the Eco-Metropolis, a project that combines ambitious economic and urban development with promotion and protection of the exceptional environmental resources in the area from Nantes to Saint-Nazaire.

The goal is to promote a development model for cities throughout the estuary area. This involves not just the Nantes Saint-Nazaire SCOT, but also other estuary territories, in particular those on the south shore, including the SCOTs of the Nantes winegrowing area, the Pays de Retz and the Guérande Peninsula.

The Eco-City iterative construction phase will help identify the compatibilities and orientations to implement in all of these territories to develop a common strategy for the greater territory.

The formulation of this global development project is a key phase in sustainable development and social cohesion, and in making the area attractive Europe-wide. It is important to define the governance structure, taking into account the strategic level of the greater territory, the central role of the conurbations, and the local community level. The social, economic and environmental performance of the project depends on a successful interterritorial and multi-stakeholder structure. And at the top of the list, the citizens are key to the Eco-Metropolis project.

Two-level project leadership

The project was defined as part of a group project bringing together Nantes Métropole, Urban Planning Agencies in Nantes (AURAN) and Saint Nazaire, (ADDRN) the Public Interest Group Loire Estuaire, the Joint Union of the Nantes Saint-Nazaire SCOT and the SAMOA, coordinator of the candidacy.

During subsequent phases of the Eco-City initiative, this group project will continue its work in defining the Eco-City project for the territory, under the supervision of the local authorities, in association with all the partners in the candidacy. This means designing a system for conducting projects on two levels:

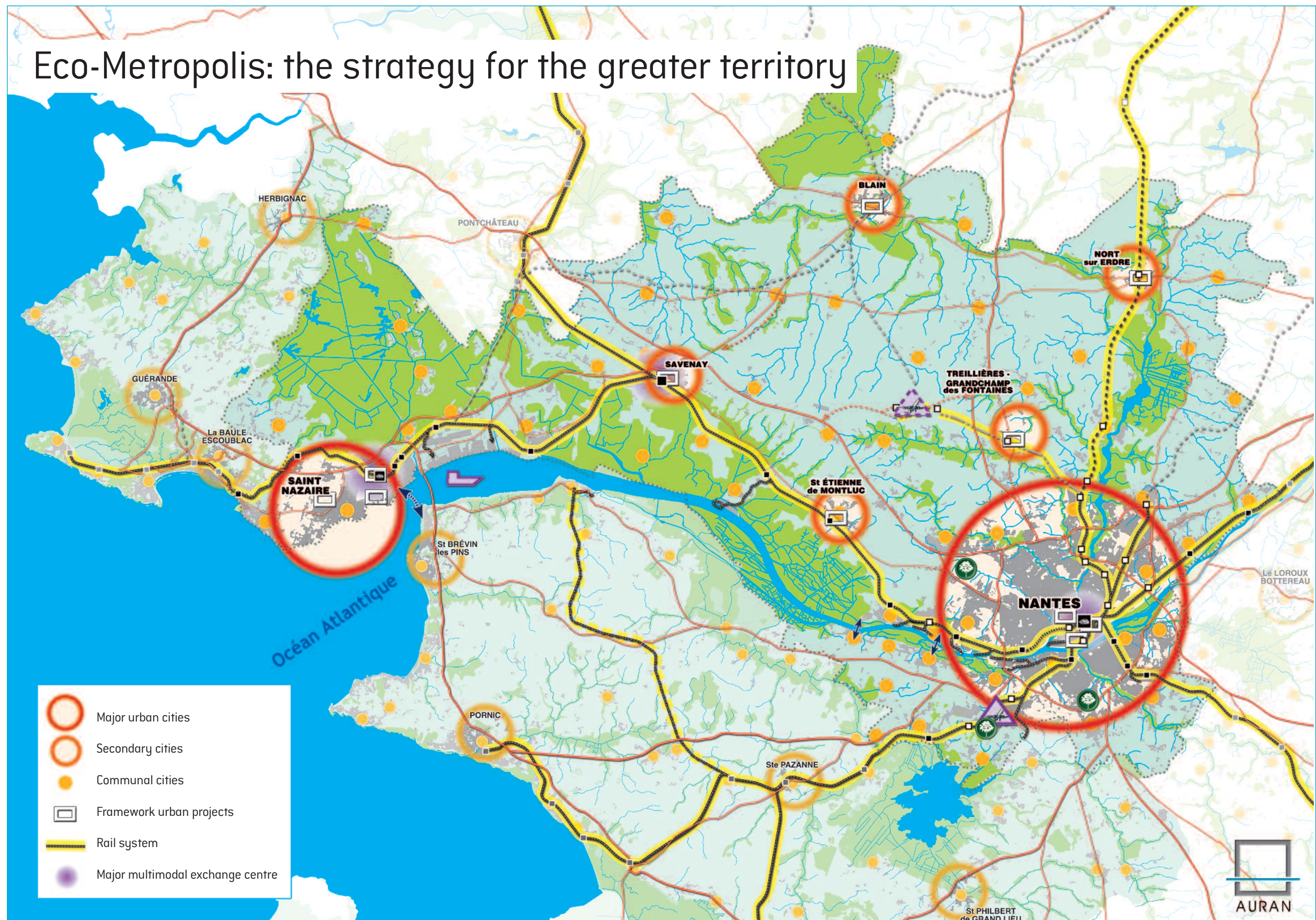
- For each particular project, define the ownership conditions, the stakeholders, the schedule and the financing.
- While also keeping track of the overall project, interactions among the stakeholders and relevance of the project in the larger metropolitan scheme.

At that time, it will be important to define the appropriate governance structure for the project, with respect to the central government, through the association of the local authorities (EPCI, SCOT, County Council, Regional Council) and major economic stakeholders – Nantes Saint-Nazaire Chamber of Commerce and Industry and the Grand Port Maritime de Nantes Saint-Nazaire – which are already actively supporting the project in the candidacy phase, as well as all the key members of civil society (University, businesses, Chamber of Trades, etc.).

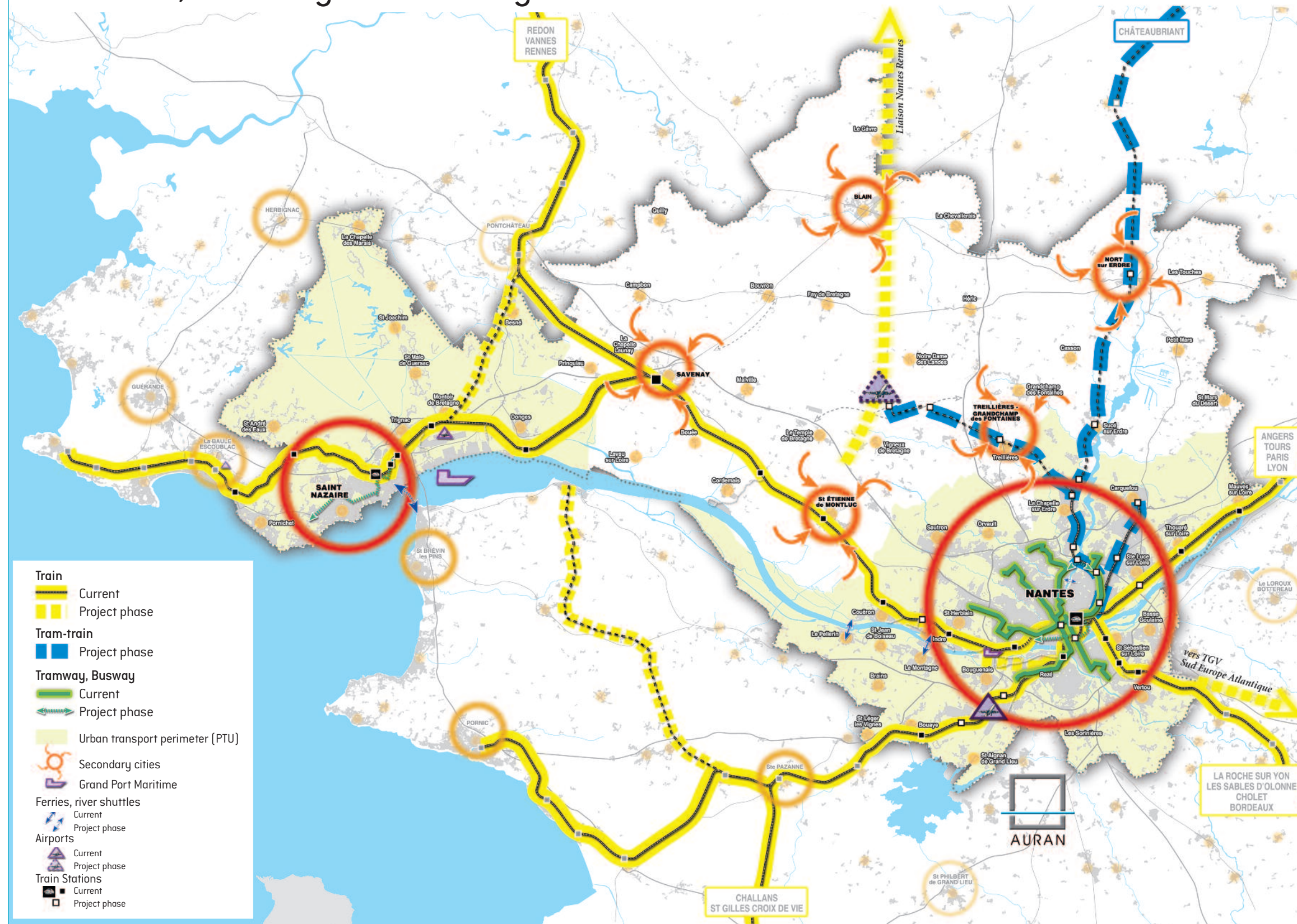
Cartographic references

1. Eco-Metropolis: the strategy for the greater territory
2. Eco-Metropolis: a public transit grid including train, tram-train, tramway and busway
3. Eco-Metropolis: a series of projects around the river
4. Nantes and Saint-Nazaire, emblematic projects of riverfront renewal

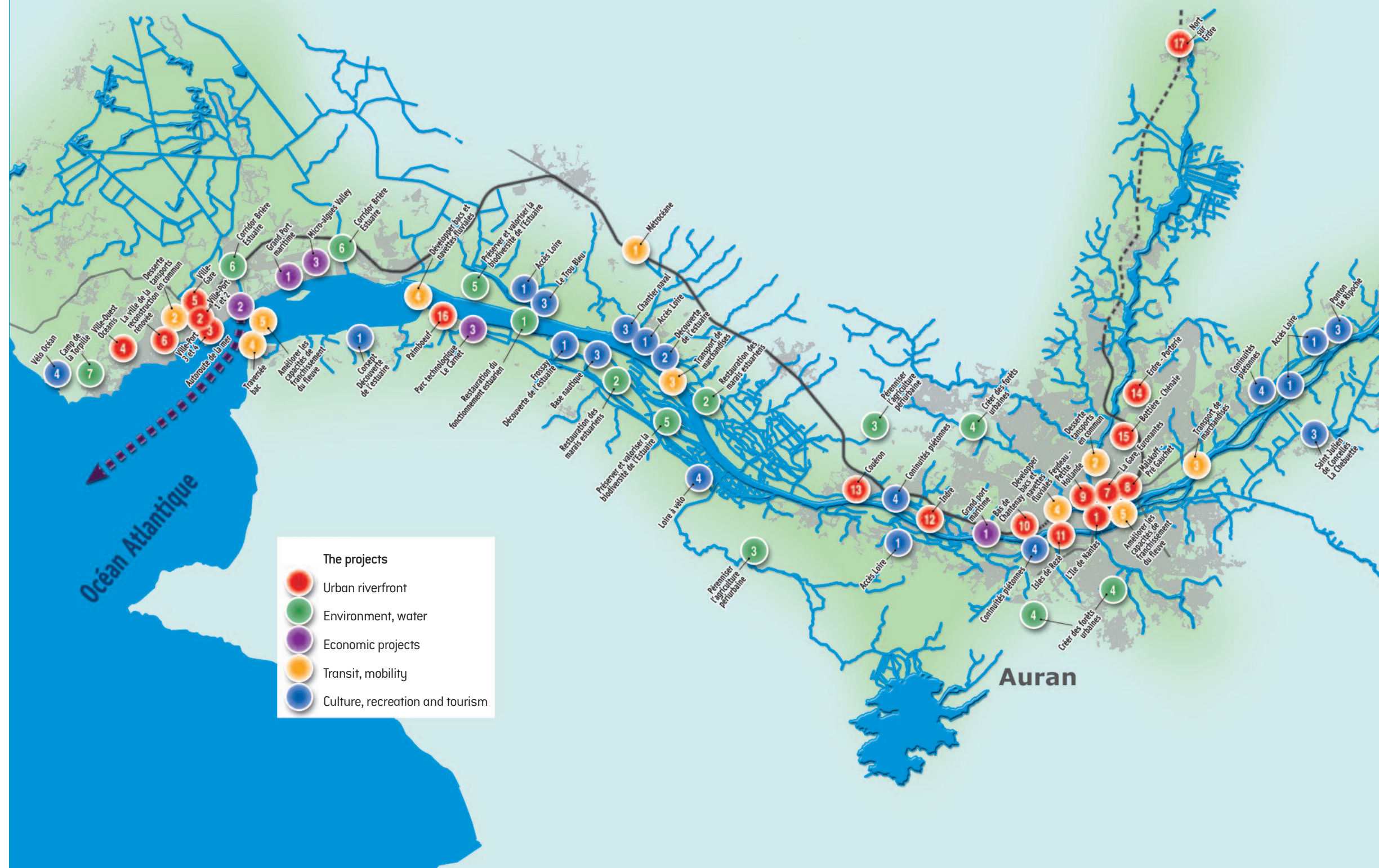
Eco-Metropolis: the strategy for the greater territory



Eco-Metropolis: a public transit grid including train, tram-train, tramway and busway



Eco-Metropolis: a series of projects around the river



Nantes and Saint-Nazaire,
emblematic projects of riverfront renewal

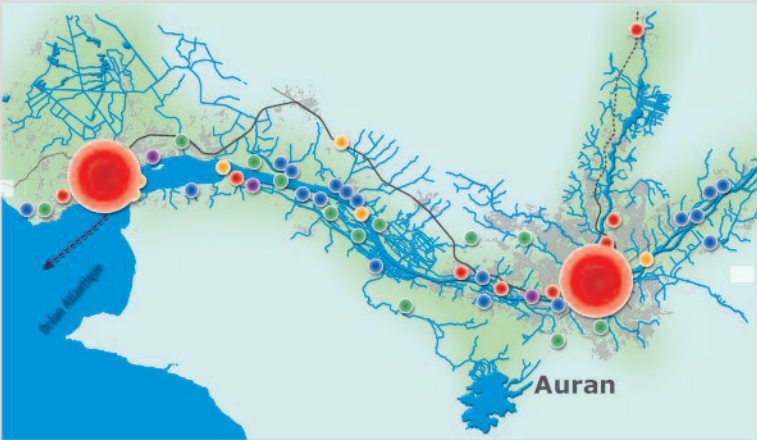
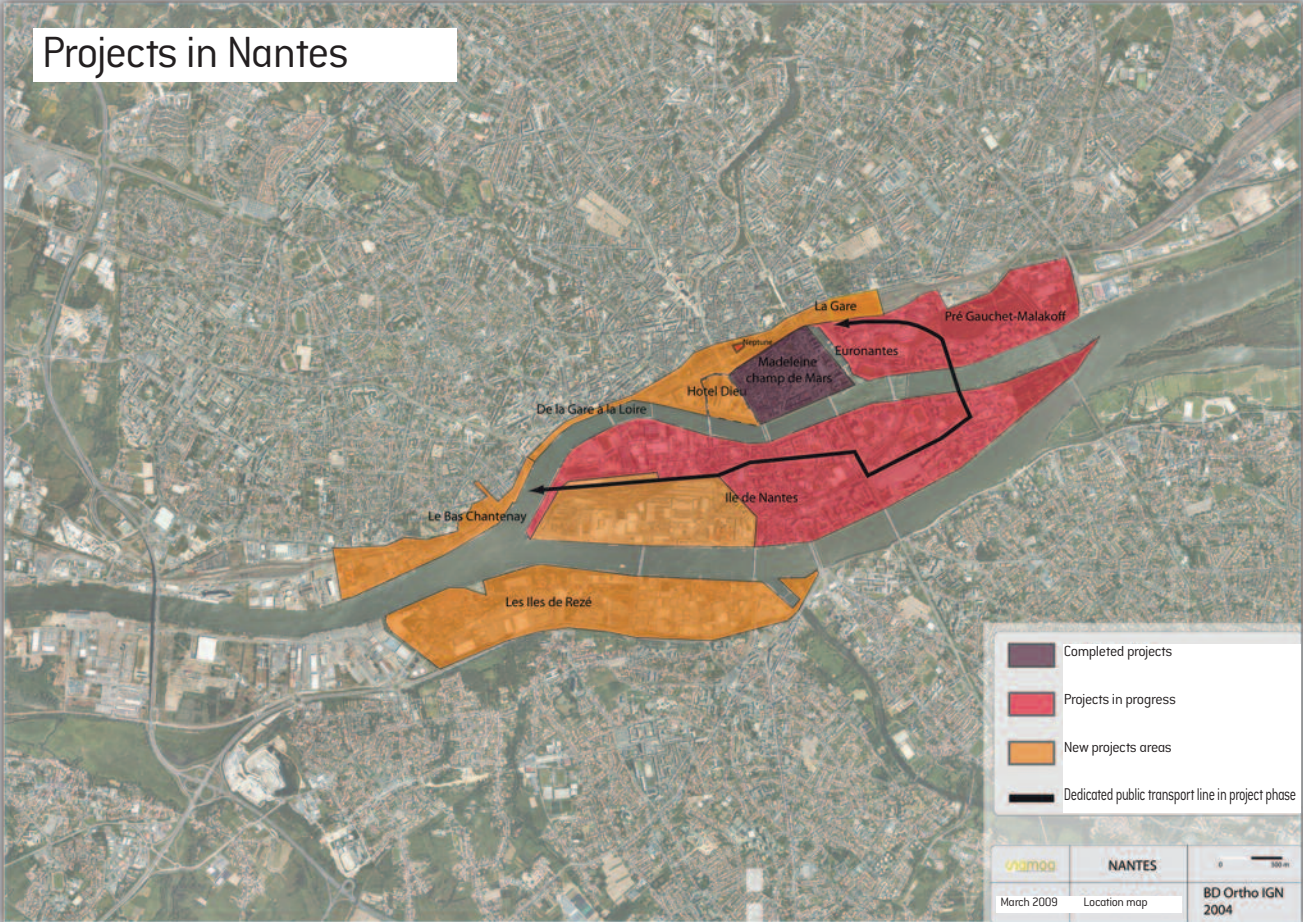
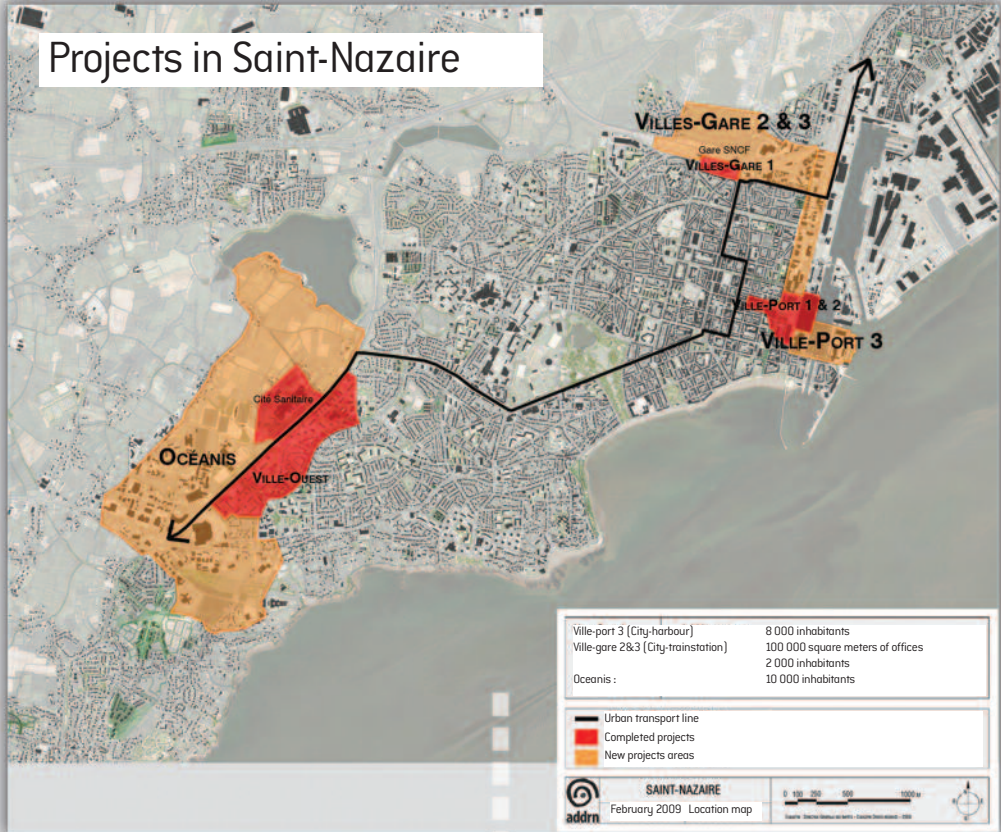


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