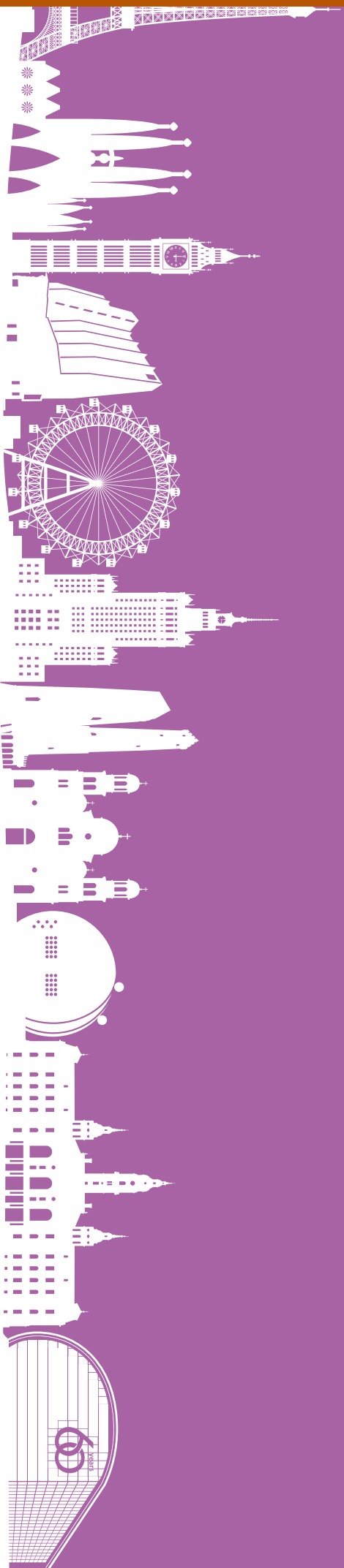


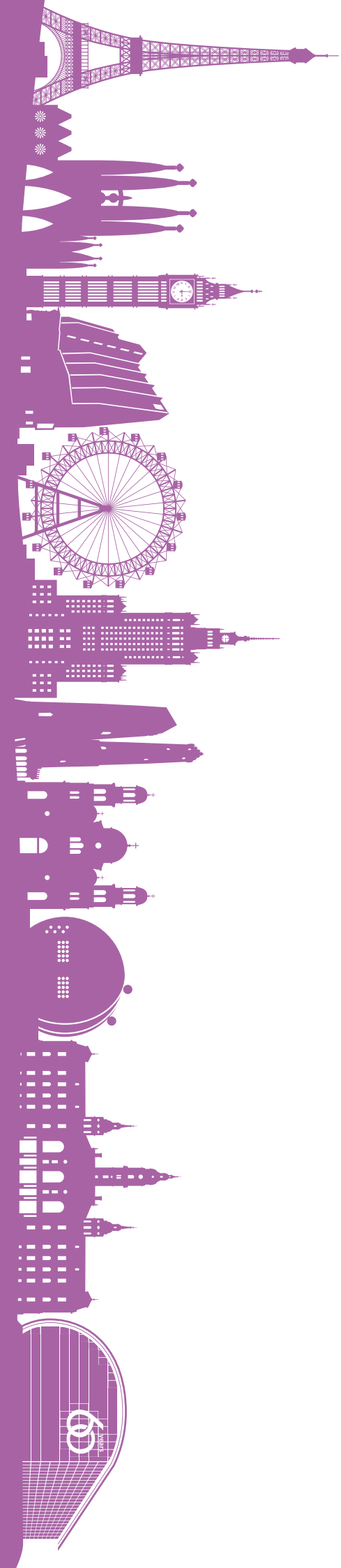
City, transformed

# BURGAS

Planning a Black Sea smart city

Brian Field





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2023

# BURGAS

Planning a Black Sea smart city

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Brian Field

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**Burgas regularly tops the list of best places to live in Bulgaria. Whether enjoying a walk through the resplendent Sea Garden, relaxing on the beautiful central city beach, or enjoying a drink and fresh grilled fish at one of the many outdoor bars and restaurants, it is easy to see why tourists like it so much. A key challenge for the city, however, is to extend this good feeling to the off-season, when tourists are few, the economy is less animated, and the central area is almost comatose after dark. The city aims to deliver this transformation with its smart city agenda.**

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## Introduction

With the signing in 2016 of the Amsterdam Pact<sup>1</sup>, the EU Member States committed to an Urban Agenda designed to encourage and promote integrated planning and development in pursuit of a more sustainable and equitable settlement pattern. The **Urban Agenda** acknowledges the significant role that cities have played in Europe's development following the industrial revolution. It also recognises the even more important part they must now play in the wake of de-industrialisation, the emergence and ubiquity of smart technologies, and the enormous challenges posed by climate change. Moreover, as social media increasingly highlights the economic opportunities afforded by globalisation, many European cities are now faced with demographic instability occasioned in the main by Europe's ageing population and declining birth rates, but often exacerbated by large inflows of economic migrants from Africa and elsewhere, with all of the attendant problems of assimilation and integration for the newcomers.

Europe's cities have come to challenge the traditional notion of spatial hierarchies and core/periphery regions, because of EU integration and its polycentric development strategy. Given the prevailing settlement pattern, this promotes the more equitable possibility of development of multiple dynamic growth zones across Europe. The result is a new European system of cities that is highly heterogeneous, featuring the established and conventional roles of the EU's 28 capitals, as well as a larger range of diverse cities seeking to exploit their comparative advantages with "best-fit" offerings that are perceived to be more appropriate and competitive for such a purpose. This is the backdrop to Burgas', "smart city" aspirations.

## Burgas in brief

Burgas (sometimes transliterated as Bourgas) is the fourth largest city in Bulgaria after Sofia, Plovdiv and Varna. It is located on the Black Sea coast at the eastern border of the EU and is the capital of the province that bears the same name. The municipality is the largest in south-eastern Bulgaria, with a population of 212,902<sup>2</sup> and an area of 488.6 km<sup>2</sup>, and comprises 14 settlements—the city of Burgas, a smaller town and 12 villages. About 94% of the population (some 200,271) is concentrated in the city itself, which is located at the western point of the large Burgas Bay. On its other boundaries, the city is surrounded by protected natural areas (Natura 2000)<sup>3</sup> and wetlands of varying saltiness, including the following (in north to south order):

- Pomorie, an ultrasaline lagoon
- Atanasovsko, a nature reserve and important Ramsar Site<sup>4</sup>

- Burgasko (Vaya), the largest natural lake in the country by area
- Poda, often regarded as a part of Lake Mandrensko
- Lake Mandrensko, now a fresh water reservoir and the largest of the group.

The wetlands cover an area of some 95 km<sup>2</sup> (about 20% of the municipality's land area), of which almost a third is protected (either declared or proposed) because of its impressive biodiversity and as a sanctuary for endangered species of birds, fish and mammals. They are also traversed by Via Pontika, one of the main migratory routes for European birds. There is no other large municipality in Bulgaria with so great a proportion of protected area within its territory, which from an economic development perspective creates both problems and opportunities for the municipality<sup>5</sup> (see Figure 1).



**Figure 1. Settlement pattern in Burgas municipality**

The city is an important industrial<sup>6</sup>, cultural, and administrative centre of the south-east region of Bulgaria. It also serves as an important commercial and transport hub. Most significantly, Burgas is the fastest developing city in the country and second only to the capital Sofia in terms of economic potential. It has the country's largest cargo port and one of the biggest ports on the Black Sea coast. Its airport is the country's second largest, handling 2.5 million passengers a year including most of the region's tourist traffic in the peak summer season. There is significant investment in transport and other infrastructure to support both local and regional economic activity. So it is hardly surprising that commentators and investors are impressed by the city's recent and relatively rapid development and optimistic about its future economic possibilities.

With two universities, a business school, three technical colleges and a student population of about 12,000, Burgas is also a university town and a centre of science and art of national importance. The city has evident academic and research potential, as well as opportunities for changing its economic profile from traditional industries to more high-tech and knowledge-intensive activities associated with the digital economy. But this has yet to be advantageously exploited. Pursuit of innovative industries, energy saving, increasing productivity and developing the relationship between science and business are at the forefront of the municipality's ambitions.

Burgas is not known as a beach resort. For most visitors, it is no more than a transit point to the big Black Sea resorts (Sunny Beach, Sozopol, Nesebar, etc.) and other historic towns further up and down the coast. But it is not unattractive for tourists, with a neat and generously pedestrianised town centre, adjacent to which there is a beautiful, long and uncrowded sandy beach. It is, however, the Sea Garden that is the city's biggest recreational asset and most attractive feature. This amazing stretch of parkland (some 72 km<sup>2</sup>) along the entire seafront is

sandwiched between the beach and the built environment. It includes playgrounds, a summer open air theatre, a large cultural centre, a sculpture park, a swimming pool, tennis courts, a mini train, and the usual plethora of eateries and ice-cream stands, all set within beautiful, well-kept gardens. Many of the city's cultural events and festivals take place in these magnificent settings<sup>7</sup>.

Across the city, there are also several interesting museums and galleries, a vibrant music and arts scene<sup>8</sup>, and some of the best restaurants in this part of the country. Add a subtropical and temperately continental climate characterised by plentiful summer sunshine and temperatures that average 24°C (with similar summertime sea water temperatures), and relatively mild winters with only very occasional snowfall compared with inland areas<sup>9</sup>, and Burgas clearly has much more to offer as a tourist destination than is currently being exploited. Once again, the municipality has ambitions to address such oversight by marketing Burgas not just as a charming and attractive destination, but also as a base from which to explore regional attractions because of its excellent transport links<sup>10</sup>.

The external accessibility of Burgas by car is good, with two highways connecting the city to Sofia and to other cities on the Black Sea coast. However, because of its location between the sea and the Burgas lakes, and the proximity of these bodies of water, the city is constructed and orientated longitudinally in a north-south direction. This essentially linear pattern of development has resulted in a relatively dispersed and neighbourhood-based settlement structure, due to the limited territorial resources available for more circumferential and concentrated urban expansion (see Figure 2). Meanwhile, the watersheds have also impeded the construction of a ring road to facilitate the separation of transit and local traffic. Internal accessibility has been compromised accordingly, with transit traffic flows running close to residential neighbourhoods and the city centre. The development of transport infrastructure is therefore a priority for the city and a proposed new bypass together with improved public transport and smarter traffic management should bring significant relief.



**Figure 2. Burgas's longitudinal orientation and development**



## Development constraints

Despite being one of the most economically and socially developed municipalities in Bulgaria, Burgas has ambitious plans for continued development. Thus far, local industry has not detracted unduly from the natural beauty surrounding the city, or indeed from the charm of the city centre. However, because of territorial and environmental constraints, there is limited scope for significant growth of traditional industrial activity.

Urban development in coastal cities is always problematic, given the sensitivity and vulnerability of many immediate coastal areas to anthropogenic impacts. For example, in their study of the impact of human interaction at the interface of land and sea, Margarita Stancheva et al analysed conflicts and synergies between different land and sea uses along the Burgas coast and prepared a matrix that flags problematic human-induced impacts and their severity<sup>11</sup>, as illustrated in Figure 3 (Stancheva, 2017).

Coastal land uses	Sea spatial uses																					
	Bathing waters	Coastal fishing	Open sea fishing	Pound nets	Underwater cables	Shipping routes and navigation	Dumping sites	Dredging	Anchorage sites	Yachting tourism	Water sports (windsurfing, etc.)	Engine water sports	Diving	Underwater cultural heritage	Military practice areas	Intake waters	Waste water discharges	Bottom trawling	Protected areas	Concession areas	Research monitoring stations	Research hydrographic equipment
Beaches and dunes																						
Tourism activities																						
Residential areas																						
Industrial areas																						
Port terrestrial areas																						
Waste water discharges																						
Roads and railways																						
Electrical grid																						
Airport																						
Natural gas pipelines																						
Oil pipelines																						
Tailings dams																						
Fish boat landing sites																						
Coastal protection/nourishment																						
Nationally protected areas and NATURA 2000 areas																						
Cultural historical sites and landscape																						

Figure 3. Land-sea interactions matrix for Burgas study area

Key	16 different coastal land uses and 22 sea uses were specified. Interactions without conflicts and compatibilities between land and sea activities and the environment were coded in <b>green</b> . Weak conflicts between land and sea uses and with coastal and marine environments were indicated in <b>yellow</b> . Interactions where conflicts are most likely to occur and are environmentally problematic were coloured in <b>red</b> . Empty boxes denote that no interactions were identified.
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Detrimental environmental impacts from uncontrolled and ill-considered urbanisation can be severe and are often irreparable. So the need for sensitive intervention adjacent to the Burgas coastline is already a major development constraint. In this instance, the juxtaposition and proximity of the Burgas lakes on the city's other borders adds another dimension and makes increased and/or more intense physical development particularly difficult, not least because of the limited scope for circumferential territorial expansion.

In the wake of such development constraints and cognizant of the need for a more environmentally sensitive approach to its development, the city would therefore like to develop the local innovation ecosystem by both



investing in and encouraging others to invest more in clean, green and innovative technologies. This would necessarily require the development of human<sup>12</sup> and social capital, and the promotion of more active collaboration between key public and private sectors. The planning agenda is therefore to embrace more smart policies and technologies under a “smart city” umbrella that integrates technology with critical infrastructure components and services to make urban development more intelligent, interconnected and efficient.

## The planning framework

Burgas’s plans for continued development are grounded in an understanding of the need for more sustainable and balanced regional development that is consistent with its own economic, social and environmental goals and objectives. A smart city agenda and associated smart city disciplines can assist in achieving these. To do this, the city needs to be organisationally and physically ready to support smart city planning and development.

Although there is no particularly well-defined or recognisably unified approach to planning for smart cities, a collection of diverse notions and interpretations of what a smart city should be and/or might comprise is beginning to emerge. Burgas has responded by implementing a series of ad hoc and essentially opportunistic smart initiatives, often with the help of European funding. The city is now keen to lend structure to its ambitions and is developing a Smart City Roadmap that will refine its strategic intent and prioritise future investment intentions accordingly. This is not to suggest that previous policies have not been planning-led. Rather it recognises that there is now a necessity for more overt integration of existing urban plans with the proposed roadmap, with the former providing a strategic framework for the intent of the roadmap and subsequent implementation of the city’s smart policies.

Before reviewing what is proposed and has been achieved thus far, it is necessary to consider the status, goals and objectives of the key spatial and economic development plans that currently prevail.

The legal context of the Bulgarian planning system is enshrined in the following acts (excluding supplements and amendments):

- *The Spatial Development Act (Promulgated, State Gazette No. 1/2.01.2001, effective 31.03.2001)*
- *The Regional Development Act (Promulgated, State Gazette No. 50/2008, effective 31.08.2008)<sup>13</sup>*

The resulting planning system addresses all spatial scales (national, regional and local) and, from a purely public administration point of view, appears quite comprehensive. Professor Vesselina Troeva has prepared a neat schematic description of the system as illustrated in Figure 4 (Troeva, 2017).

# Spatial Planning System

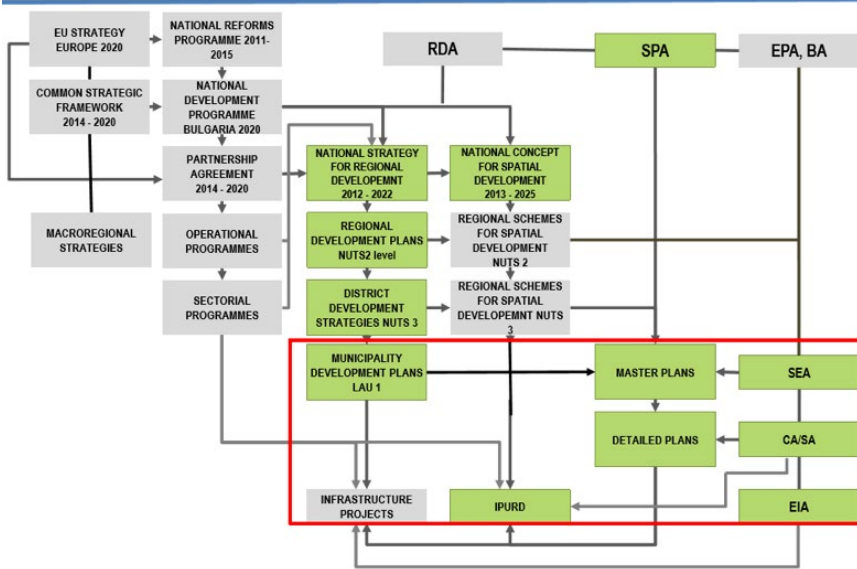


Figure 4. Bulgarian regional and local spatial planning system

From a national and economic development perspective, the National Strategy for Regional Development (2012-2022) and the National Concept for Spatial Development (2013-2025) are pivotal. These ensure spatial coordination of a new and more integrated system of strategic planning and programming of state policies with territorial dimensions, rather than the sectorial emphasis of previous strategies. The Strategy and the Concept then inform Regional Development Plans and Regional Schemes for Spatial Development, which in turn inform Targeted Investment Programmes for the country's regions.

The emphasis in these higher-level strategic policy documents is on economic development and job creation, albeit with targeted spatial dimensions. For the South Planning Region in which Burgas is located, the key objective is therefore somewhat predictable: to develop and modernise regional and local infrastructure that will create favourable conditions for existing business and new ventures, thus achieving economic growth that is higher than the national average. The translation of the infrastructure component into a regional development strategy for Burgas is the most interesting element.

The local economy has in the past been characterised by a preponderance of low-tech firms with low levels of added value, a relative lack of diversification in the manufacturing sector, little by way of innovation activities, and a rapidly ageing population. The strategy therefore aims to address these problems by the more considered deployment of local resources and financial endowments, as well as the directing of domestic and European funding into developing new businesses — including more innovative enterprises. The need for more aggressive marketing of the Burgas offer is also highlighted. Such conditions are clearly favourable to the development of Burgas as a smart city.

In the context of local planning, the key documents are the Municipal Master Plan, the Municipal Development Plan and the Integrated Urban Regeneration & Development Plan<sup>14</sup>.

The Master Plan is a traditional land-use development plan, and affords a long-term, comprehensive and strategic vision for the municipality. It is therefore essentially aspirational.

The Development Plan is a mid-term programming document covering social and economic development goals, objectives and priority projects, and includes an indicative budget. The plan aims to create conditions for the conversion of Burgas Municipality into a strategic economic, service and cultural centre in the Black Sea basin,

and to provide an attractive living environment in which its population can enjoy the benefits of the anticipated economic progress. To achieve such an ambition, the following development priorities have been identified: building a competitive municipal economy; development of a more diversified local economy; development and modernisation of urban infrastructure; restoring and protecting the natural environment; improving the quality of the built and living environment; and development of human capital. It is immediately apparent that there is a clear and more explicit commitment to the creation of economic and environmental conditions favourable to smart city development.

The application of the European Structural and Investment Funds<sup>15</sup> regulatory framework, in particular Article 7 of the European Regional Development Fund Regulation, has added an additional planning document, the Integrated Urban Regeneration and Development Plan for deploying Development Fund resources through integrated actions supporting more sustainable urban development. The Integrated Plan links the vision of the Master Plan to delivery of the objectives and priorities of the Municipal Development Plan in defined intervention zones. In short, it is a mid-term programming document for specified actions and interventions in defined areas, where significant change is anticipated. It ensures a more integrated development and provides links between the Master Plan and the Development Plan for achieving sustainability goals. Whereas the Development Plan therefore covers the whole territory of the municipality, the Integrated Plan focuses on “action areas” within Burgas highlighting three specific intervention zones: a public administration and mixed-use zone at the urban core, a zone with significant potential for economic development, and a zone that is predominantly social in character<sup>16</sup> (see Figure 5).

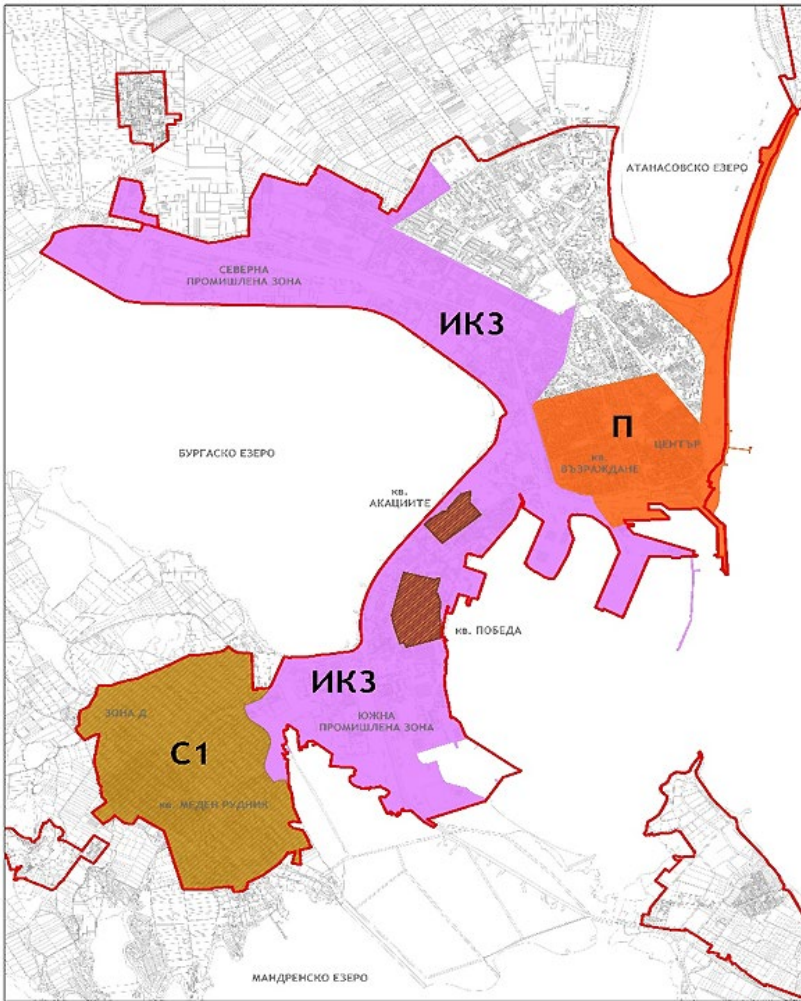


Figure 5. IURDP Intervention

Key	<b>Red</b> – the administrative and mixed-use commercial zone at the urban core; <b>mauve</b> – the zone with significant potential for economic development; and <b>brown</b> – the zone that is predominantly social in character.
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At the time of writing, there is no approved smart city plan for Burgas. What is currently being deployed to inform policy is an embryonic strategy implicitly embodied in a relatively ill-defined roadmap. The latter is no more than an eclectic concept based on a loose coalition of projects and ideas only tangentially linked to the goals and objectives of the Development Plan and Integrated Plan. The municipality's smart development team would now like to refine and consolidate this roadmap, and transform it into a high-level strategic framework and place-based ambition for the city that can inform future smart investment priorities. To this end, the team has enlisted the help of JASPERS (Joint Assistance to Support Projects in European Regions) and specifically its Smart Development Division<sup>17</sup>.

The intention is to prepare a formal, considered and robust Smart City Roadmap that aligns more explicitly with the city's long-term vision as embodied in the Municipal Plan and the specific goals and objectives contained in the Development Plan and the Integrated Plan. It also identifies and evaluates relevant projects and programmes that would deliver the most beneficial impact.

## A smart city in the making

Burgas's smart city aspirations are long-standing. However, the catalyst for more studied and expeditious action was undoubtedly the Sharing Cities "Lighthouse" programme, launched as an EU Horizon 2020<sup>18</sup> initiative in 2016. By fostering international collaboration between industry and cities, this five-year programme affords a testing ground for a better and common approach to making smart cities a reality. Drawing on €25 million in EU funding<sup>19</sup>, it seeks through demonstration projects in so-called Lighthouse cities to develop affordable, integrated, replicable and commercial-scale smart city solutions with significant market potential.

The Lighthouse cities are Lisbon, London and Milan, where demonstration districts have been selected to showcase the effectiveness of digitally enabled urban solutions and business models, especially collaborative models, for improving urban mobility, increasing the energy efficiency of buildings and reducing carbon emissions. More specifically, the Royal Borough of Greenwich in London, Porta Romana/Vettabbia in Milan and downtown Lisbon are retrofitting buildings, introducing shared electric mobility services, and installing energy management systems, smart lampposts and urban sharing platforms to facilitate more meaningful engagement with citizens. With Lighthouse cities in the lead, so-called "Fellow" cities have been selected to co-develop, validate and/or implement the piloted solutions. Burgas is one of the three Fellow cities, along with Bordeaux and Warsaw. This is the origin of the municipality's Smart City Roadmap in its initial incarnation. However, Burgas is not only using the available Horizon 2020 budget to assess the local applicability of the smart solutions tried and tested in the Lighthouse cities. It also sees this as part of a much wider endeavour to build a more comprehensive smart investment strategy in pursuit of its smart city ambitions<sup>20</sup>.

Burgas is a relatively cautious municipality that is rarely profligate in spending. It ranks as one of the most financially sound municipalities in Bulgaria, where the approval and implementation of municipal budgets is subject to certain legal limitations related to prevailing economic eligibility and cost efficiency protocols. For example, according to the country's Public Finance Act, the growth rate in any one year of annual municipal expenditure may not exceed the average annual growth rate over the previous four years. Furthermore, with respect to debt financing, annual disbursements to service debt may not exceed 15% of the amount of own revenues. Such conditions aim to ensure sensible housekeeping, by linking the annual amount of municipal expenditure with the anticipated revenues to the municipal budget. Another important ramification is mitigation of the risk of a sharp increase in the indebtedness of municipalities and the resulting negative impact on public finances. Given such restrictions, any investments drawing on a municipality's own resources must necessarily focus on the implementation of long-term objectives that lead to sustainable growth of future municipal revenues.

Against this backdrop, Burgas has been particularly prudent in balancing its budget. Borrowing and the associated debt financing rarely exceed the 15% threshold, and often are as low as 5%. The net result is that the municipality is not burdened by unsustainable debt. Given its innate caution, it is also reluctant to borrow to move forward with its investment plans if doing so involves, in the main, use of its own funds. With subventions from central government also failing to keep pace with local needs, the municipality has relied increasingly on European funding and other external sources of finance to fulfil its ambitions. By way of illustration, during the process of preparation of the Development Plan the possible sources of funding that were considered outside of the budget of the municipality were: the European Structural and Investment Funds, financial instruments, other national and international funds and programmes, and private funding including public-private partnerships. Despite this impressive catalogue of potential funding sources, it is instructive that more than 65% of the monies required to fulfil the aspirations of the plan are expected to come from structural funds and only approximately 6% from the municipal budget and local public funds. The municipality's reliance on European funding is evident.

Although it is clear that Burgas recognises the importance of an integrated and planning-led approach as it seeks to develop as a smart city, in implementation this actually manifests itself as an incremental and essentially pragmatic approach to the delivery of smart projects, and is reflected in what has been achieved thus far.

Whilst the Master Plan and Development Plan provide the planning framework for significant policy interventions such as land allocations, infrastructure development, and major policy interventions, the Integrated Plan focuses on localities and areas where significant change is anticipated and European funding will be concentrated. A plethora of policies and proposals fall within this “strategic goals” category:

- A commitment to more concentrated urban development by regenerating and repurposing the city’s old industrial zones and unused residential buildings in order to strengthen its central area, stop the process of outward expansion and contain urban sprawl.
- Completion of development of a major industrial and logistics park on the outskirts of the city, to facilitate decanting and restructuring of more centrally located industrial areas as “cleaner” creative innovation clusters for new start-ups.
- Commitment to a low carbon economy and a Sustainable Energy Development Strategy that includes the retrofitting of the very significant stock of panel block housing, as well as all public administration buildings, to improve their energy performance and reduce carbon emissions.
- Commitment to more sustainable mobility, including preparation and implementation of a Sustainable Urban Mobility Plan that will contribute to the economic development of the city and improvements in the quality of life and the environment, as well as facilitating a more efficient and intelligent use of resources and energy.
- A port development strategy that focuses on modernisation of the “commercial” port (about two thirds of the harbour area) and regeneration of the now relatively redundant area (the remaining third of the harbour area). This would transform the area into a multi-functional recreational and cultural zone and a major tourism asset that is more open to the city and better connected with its other attractions<sup>21</sup>.
- Construction of a city railway to connect the central area with the main airport.

These are just selected examples from a strategic planning agenda that is ambitious, realistic and achievable. It provides the framework for the municipality’s smart interventions as embodied in the emerging Smart City Roadmap.

The main characteristics of a smart city are the development of digitally enabled infrastructure and the intelligent mining and deployment of big data. Without wishing to dwell unduly on the minutiae by anticipating what is therefore likely to emerge in the Burgas Smart City Roadmap, it is worth highlighting some recent and relatively simple examples of interventions that the municipality has made to address these two imperatives<sup>22</sup>.

### Interactive smart mobility terminals

Burgas has developed an interactive terminal system and mobile application to make travelling easier and more convenient. Transport users can access the interactive terminals at various transport hubs and intermodal terminals around the city. These can be used to access bus timetables and real time information about all of the city’s various transport modes, details of events in the city, and even the weather. The development of these terminals is intended to facilitate more sustainable urban mobility in the city and is part of Burgas’ Sustainable Urban Mobility Plan.

### Smart lampposts

The city is installing solar-powered lampposts fitted with LED bulbs and a reactive dimming system that will save over half of Burgas’s energy used for street lighting. In addition to offering solutions for energy savings, sensors installed on smart lampposts can gather data on noise and pollution levels and traffic, sharing this information with the city to inform future urban developments based on Burgas’s needs. In a novel development, some lampposts in the tourist area are fitted with sprinklers that release a modest and mist-like water-spray to cool pedestrians in high summer.

### Intelligent public transport

The city has created an intelligent system to make its public transport safer, more efficient and convenient. Financed by the municipality, the European Regional Development Fund and the European Bank for Reconstruction and



Development, the project increases the attractiveness and comfort of the current system, provides real-time information for passengers, introduces integrated ticketing, and includes video surveillance to increase passenger safety and reduce ticket fraud.

### Bicycle sharing service

The city started the implementation of a bike-sharing service as long ago as 2012 and was the first Bulgarian city to include the practice as part of an integrated urban mobility policy. The initial project, “Cycling City – a Model of Modern Urban Mobility”, was financed by the Global Environmental Fund and aimed to increase infrastructure for and access to non-motorised transport. Since its introduction, the system has been extended and constantly upgraded, with e-bikes envisaged for the near future.

### Business incubator

A listed building in a prime location has been refurbished and re-modelled as a business incubator for innovative, high-tech and digitally enabled projects that, once sufficiently developed and ready for up-scaling and/or production, can be transferred to a more appropriate location in an innovation cluster in one of the new industrial zones.

### Urban dashboard

The initiative draws on two European Regional Development Fund projects<sup>23</sup> that focus on building knowledge and capabilities in the field of information and communications technology, as prioritised in Bulgaria’s Innovation Strategy for Smart Specialisation. In pursuit of the project’s objectives, Burgas has been identified as an ideal test-bed. To this end, the city is creating a so-called urban dashboard. The latter builds on new and existing digital infrastructure and seeks to integrate disparate data sets from municipality and other city partners to monitor, evaluate and optimise public investment plans and service delivery. By affording opportunity for significant improvement in communication and information flows between dispersed organisations and activities, the dashboard should also facilitate the introduction of new ways of organising shared work and co-operative enterprise, strengthening Burgas’s competitive advantage as part of its wider smart city endeavour.

Smart cities promise more efficient use of scarce urban resources and improved services for citizens. They integrate technology with infrastructure to enable urban development that is more intelligent, interconnected, and efficient. The intention is to facilitate the creation of new business models and the advancement of local innovation ecosystems in pursuit of more environmentally and economically sustainable opportunities for growth and development. Burgas appears to be delivering on this promise. Because of its manageable size and other endowments, Burgas is the perfect “urban laboratory” in which to test smart applications in a relatively controlled environment. On a recent visit to the city, albeit in the very agreeable summer season, it was clear to me that it is successfully doing so and is already quite smart. The municipality’s commitment to a considered programme of further interventions that will form the mosaic of its proposed Smart City Roadmap will only make it smarter.



## References

- 1 The Pact of Amsterdam was agreed and adopted at the informal meeting of EU ministers responsible for urban matters on 30 May 2016 in Amsterdam, during the Dutch Presidency of the Council of the European Union. It formally established the Urban Agenda for the EU and marked an important milestone towards the reinforcement of the urban dimension in EU policy. Through its multi-level governance framework, the Urban Agenda aims to carry out a series of actions whose long-term goal is to improve the effectiveness and efficiency of EU policies in urban areas.
- 2 This is the figure according to the last official census in 2011. In the period 2011-2014, there was a significant contraction in the country's population of -0.26% per annum which, when applied to Burgas city, yielded a population estimate of 198,700. If similar rates of decline had persisted until 2018, then the city's population today would be 196,682. However, these estimates are based on a shift-share analysis of national projections in which it is assumed that Burgas's share of the national total has been relatively stable over recent years at 2.76%. Such an assumption is somewhat fanciful given the city's economic potential, and it is reasonable to assume that the population is currently nearer 220,000 than 200,000, with some commentators even suggesting that it could be approaching 230,000. Meanwhile, the population within the wider urban area (the city's immediate sphere of influence) is approaching 280,000.
- 3 Natura 2000 is a network of nature protection areas in the territory of the EU. It is made up of Special Areas of Conservation and Special Protection Areas designated respectively under the Habitats Directive and Birds Directive. The network includes both terrestrial and marine sites.
- 4 A Ramsar Site is a wetland site designated to be of international importance under the Ramsar Convention. The Convention on Wetlands, which was signed in the Iranian city of Ramsar in 1971, is an intergovernmental environmental treaty established by UNESCO, that came into force in 1975.
- 5 The wetlands are a significant attraction to eco-tourists and an important source of natural resources such as fish, game, sea salt, mud and other products with perceived therapeutic properties that are important to the local economy. Nevertheless, and notwithstanding their beauty and exceptional biodiversity, they impose severe territorial constraints on the city's physical expansion.
- 6 Most industries that are characteristic for Burgas are also of structural importance for the country as a whole, such as chemical and oil production, air ventilation and purifying equipment, manufacture of goods wagons, shipbuilding and fish processing.
- 7 Although the first of the huge shade-giving trees in the park were planted by the soldiers of the 24<sup>th</sup> Infantry Regiment in 1889, it was not until 1910 that a young architect, Georgi Duhtev, was formally commissioned by the municipality to design and construct a Sea Garden. Given the opportunity to take advantage of his passion for trees and exotic plants, Duhtev turned the then swamp between the city and the sea into one of the most beautiful parks in Bulgaria. Today there are hundreds of plants from every continent in this botanical garden and recreational space. The original quarter of the Sea Garden is a monument to the art of landscape design and gardening. Fittingly, Duhtev's small house has been preserved and is still in the grounds.
- 8 That Burgas is the cultural centre of the region is evident in the prominence of the Burgas State Opera, the city's "Adriana Budevka" Theatre, and the State Puppet Theatre.
- 9 Average temperature during high season is 24 °C. Summertime sea temperatures stay around 23 °C-24 °C at sunrise and rise to 29°C-30°C at dawn, averaging 26 °C. Winters are milder than those inland, with average temperatures of 4 °C-5 °C and sometimes below freezing during the night. The highest temperature of 42.8 °C was recorded in August 2003, and the lowest, -17.8 °C, in January 1952.
- 10 As a holiday base, Burgas has plentiful and diverse tourism options locally and regionally, including: beach and marine tourism, cultural tourism with multiple museums and historic sites and venues, health farms and a plethora of spas, ornithological and ecotourism, food and wine degustation, etc.
- 11 The study was carried out within the DG MARE MARSPLAN-BS Project and is compliant with Directive 2014/89/EU on maritime spatial planning and existing international guidelines, e.g. UNESCO Marine Spatial Planning: a step-by-step approach toward ecosystem-based management (2009).
- 12 In terms of new growth opportunities, Burgas is well aware of the need to upgrade its labour force and in particular of the need for skills development around ICT, as an important contributor to an emergent IT ecosystem, an essential pre-requisite in pursuit of its smart city ambitions.
- 13 The Act anticipated and therefore reflects the subsequent Toledo Declaration. The latter was agreed and adopted at the informal meeting of EU ministers responsible for urban matters on 22 June 2010 in Toledo, during the Spanish Presidency of the Council of the European Union. It sets out the European Union's political commitment to defining and applying integrated urban regeneration as one of the key tools for implementing the EU's 2020 Strategy for "Smart, Sustainable and Inclusive Growth".
- 14 Updating and deployment of an additional policy document, the "Municipal Spatial Concept", was discontinued in 2016.
- 15 European Structural and Investment Funds consist of five funds including the European Regional Development Fund, the European Social Fund, the Cohesion Fund, the European Agricultural Fund for Rural Development, and the European Maritime and Fisheries Fund. Over half of EU funding is channelled through these funds, which are jointly managed by the European Commission and the EU Member States on a decentralised basis.
- 16 Both the Development Plan and the Integrated Plan are valid until 2020 and will shortly need to be updated.
- 17 JASPERS is a technical assistance partnership between the European Commission and the EIB that provides independent advice free of charge to beneficiary countries that qualify for support, to help them prepare high-quality projects to be co-financed by structural funds. The initiative was launched in 2005 initially to help the new Member States that joined the EU in 2004 and 2007, and focused on major projects. This was expanded to include all Member States (upon request) and Instrument for Pre-Accession Assistance (IPA) countries and to address all programmes. After some ten years of successful intervention, and to reflect changing priorities as a consequence of the EU's 2020 strategy and emerging Urban Agenda, the JASPERS brief was extended to include smart development. To this end, a JASPERS Smart Development Division was created, addressing place-based and territorially-specific programmes of development, and not just single projects.
- 18 Horizon 2020 is the financial instrument for implementing the so-called Innovation Union, a Europe 2020 flagship initiative aimed at securing Europe's global competitiveness. First mooted in 2011 and launched in 2014, it brings together all EU research and innovation funding under a single umbrella. It is the biggest ever EU research and innovation programme, with nearly €80 billion of funding available in the current financial perspective (2014-2020), in addition to the significant private investment that this money will leverage. It aims to generate great ideas and new discoveries. Perhaps more importantly, it also seeks to take these from the lab to the market much more quickly than in the past.
- 19 It is anticipated that the €25 million in EU funding will trigger €500 million in investment and engage over 100 municipalities across Europe.
- 20 The municipality used some of the funding it received from the Sharing Cities programme to employ consultants to review the performance of smart projects that had already been implemented, and to take stock of other smart investments in the pipeline. JASPERS was invited a little later, recommending refinement and further development of the roadmap and, most importantly, its explicit alignment with the existing suite of approved spatial plans, i.e. Master Plan, Development Plan and Integrated Plan. It could then be used, or so JASPERS argued, to inform policy and, given budget constraints, to determine actual investment priorities.
- 21 The harbour is owned by the National Ports Authority, but is effectively under the jurisdiction of the municipality when it comes to planning and development. Work on regeneration of the multi-functional zone has started and work on a new hotel and a conference centre is underway.
- 22 The examples given are those that the municipality itself chose to showcase when I recently visited the city.
- 23 Led by Sofia's St. Kliment Ohridski University in partnership with Burgas-based Prof. Assen Zlatarov University, the two projects include: i) a Centre of Excellence project "Universities for Science, Informatics and Technologies in e-society", which focuses on ICT; and ii) a Centre of Competence project, "Clean Technologies and Sustainable

Environment”, which focuses on water, waste and energy to build a circular economy.

## Bibliography

### Burgas Municipality

“**The Municipal Master Plan**”, most recent iteration (no dates specified), Planning Department, Municipality of Burgas, Bulgaria.

“**The Municipal Development Plan 2014-2020**”, Planning Department, Municipality of Burgas, Bulgaria.

“**Integrated Plan for Urban Regeneration and Development of Burgas 2014-2020**”, Planning Department, Municipality of Burgas, Bulgaria.

“**Actions for Smart City Transition and Innovation**”, PowerPoint presentation by the Smart Development Team at a meeting with the JASPERS Smart Development Division, Municipality of Burgas, Bulgaria, 18 July 2018.

“**Development of Industrial Zones of a New Type**”, PowerPoint presentation by the Smart Development Team at a JASPERS-Committee of the Regions Dialogue on the Implementation of the EU Urban Agenda, Sofia, Bulgaria, 13 September 2017.

“**Sustainable Urban Mobility Plan of Burgas 2014-2020**”, Economic Development Department, Municipality of Burgas, Bulgaria, 12 March 2014.

### P. Danco

“**Determinants of Choosing Sources of Financing for Municipal Projects**”, International Journal VALLIS AUREA, Vol.1, No.1, Croatia, June 2015.

### M. Stancheva et al

“**Burgas: Land-Sea Interactions**”, Report on WP1, Activity 1.1, Component 1.1.2, Cross-border maritime spatial planning in the Black sea – Romania and Bulgaria (MARSPLAN–BS) Project, June 2017.

### V. Troeva

“**The Bulgarian Planning System in the Changing Environment**”, presented at a symposium on *The Role of the Public Sector in Local Economic and Territorial Development in Central, Eastern and South Eastern Europe*, National Centre for Regional Development, Sofia, Bulgaria, September 2017.

### S. Zygiaris et al

“**Urban Planning for Smart Cities: Policy Recommendations for Sustainable Innovation Ecosystems across the Black Sea Region**”, Urban and Regional Research Unit, Aristotle University of Thessaloniki, 2012.



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