BULJARICA INTERIM CONCEPT MASTER PLAN

BULJARICA
BAY

September 2013

Beirut

Verdun St. Dar Al-Handasah Bldg.
P.O. Box 11-7159
Beirut 1107 2230
Lebanon
Tel. +961 (0)1 790 002/3
Fax. +961 (0)1 869 011/26
beirut@dargroup.com

London

74 Wigmore Street
London
W1U 2SQ
Tel. 020 7962 1333
Fax. 020 7962 1321
london@dargroup.com

BULJARICA
BAY

CONTENTS

FIGURES

TABLES

PROJECT VISION

1.1. AIM OF THIS DOCUMENT

During early July 2013 a series of meetings were held with the Government of Montenegro to discuss the proposal by the Client to create a world class "Destination of Choice" at Buljarica Bay in Montenegro. One of the key issues discussed was the scale of the project and the capacity of the site to accommodate the 11.5 million sq m of built-up-area proposed by the Client.

Following these discussion it was agreed that the Client would prepare a report to clearly illustrate the scale of ambition for the project and the urban form and massing that would be required to accommodate the proposed 11.5m sq m of built up area (BUA).

This Interim Concept masterplan has therefore been prepared to address the above issues.

1.2. CONTENTS

Following this introductory chapter, this report comprises three further chapters as follows:

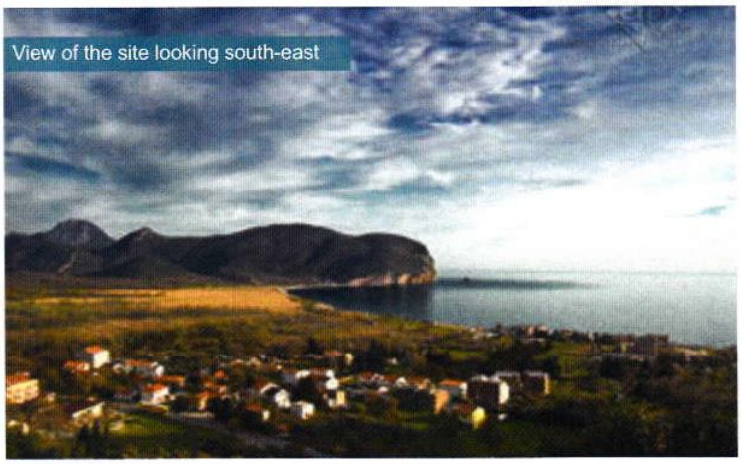
Chapter 2 provides an overview of the location and context of the site and describes the main characteristics of the site that have been identified to date and the key issues to be considered. This chapter also provides an overview of the current planning and environmental policy framework.

Chapter 3 presents a high level assessment of the economic context for the project and the potential economic benefits for Montenegro.

Chapter 4 presents the rationale for the project including a summary of the key opportunities and constraints identified to date, an assessment of the potential developable area. The latter part of Chapter 4 goes on to present the proposed spatial layout for the scheme and the key character areas and land use distribution as well as the massing and density required to accommodate 11.5 million sq m of BUA.

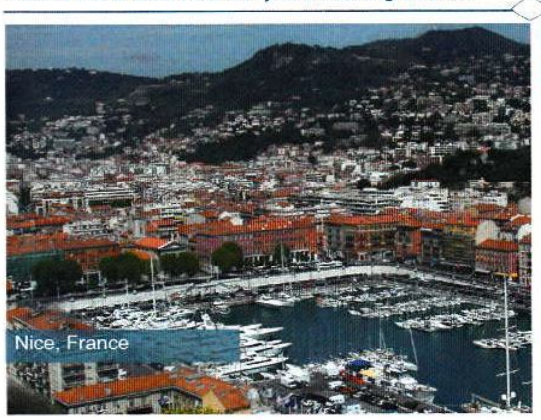
1.3. THE VISION

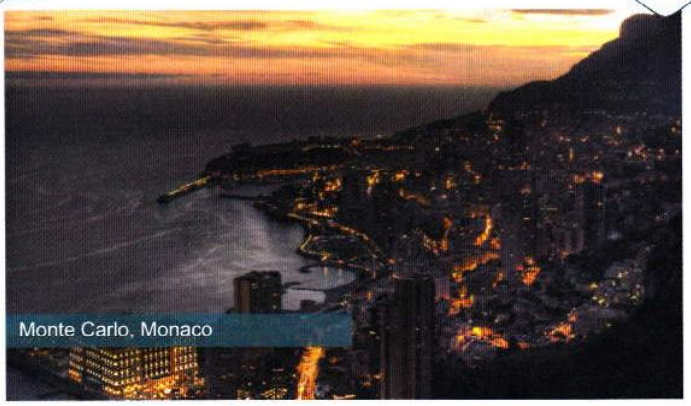
Utilising the site's natural features...


View of the site looking south-east

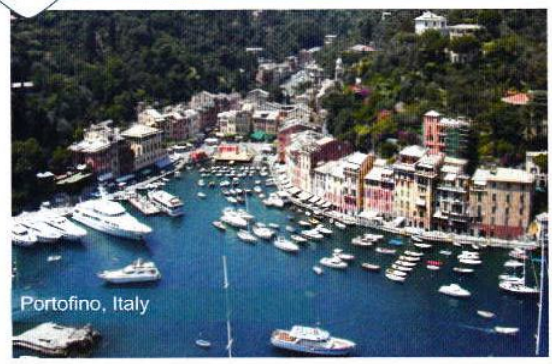
> *"The vision is to create world class destination of choice for the 21st century on the Adriatic coast of Montenegro."*

A vibrant new town on the bay in a stunning location.


Nice, France


Monte Carlo, Monaco

A landmark destination


Portofino, Italy


St Tropez, France

A summer destination in the Mediterranean sea.


Porto Arabia, Qatar


Cannes, France

Figure 1.1 The vision

PROJECT CONTEXT

2.1. SITE LOCATION AND WIDER CONTEXT

The site is located on the Adriatic coast in the littoral region of Montenegro, approximately 15km north of Bar, Montenegro's main port. It is 15km south of the major tourist centre of Budva as shown in Figure 2.2. Podgorica, the capital, lies about 35km inland to the north east (57km by road).

The smaller settlements of Petrovac and Sutomore lie on the coast 3km to the north and 8km to the south respectively. On the south-eastern boundary is the village of Čanj, part of which lies within the site boundary, as shown in Figure 2.3.

Bar, Budva, Sutomore and Petrovac form a series of coastal towns linked by a winding and relatively busy single carriageway road. This road provides the main means of access to Buljarica and eventually links to Ulcinj close to the Albanian border in the south and to the UNESCO World Heritage site of Kotor and Tivat further north.

The mountainous terrain of Pastrovska Gora with peaks rising up to 1500m separates the coastal strip from the capital Podgorica on the Zeta Plain and the environmentally important and beautiful Scutari Lake basin to the east.

The 4km long Sozina tunnel that opened in 2005 provides the main road link between the coastal zone and the capital. Two other winding roads that traverse the mountain range via Bar or Petrovac provide other links to the interior.

A single track railway connects the main port of Bar to Belgrade in Serbia via Podgorica and runs at its closest, about 8km to the south of Buljarica.

The nearest airport is at Tivat, approximately 37km to the north by road. Podgorica Airport is some 40km away by road to the east.

From Bar there are vehicle and passenger ferry services to Ancona and Bari in Italy.

The natural beauty of the coast line, its beaches and long hours of sunshine have combined to make the littoral region the most sought after part of the country and thus the region subject to the greatest development pressure.

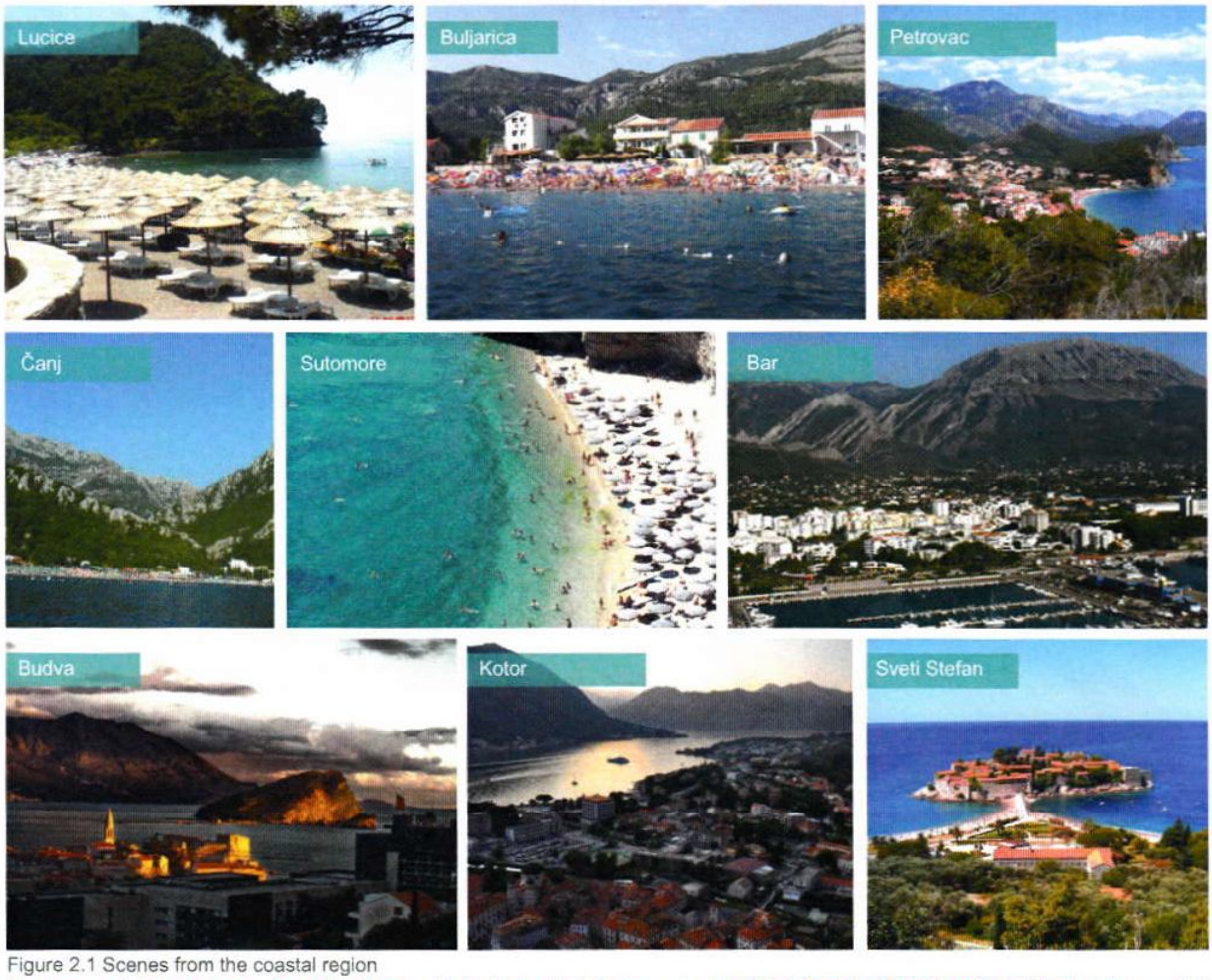


Figure 2.1 Scenes from the coastal region

Key (both Figures)

- Settlements
- Beach
- Mountains
- Sights of Interest
- Airport
- Port
- Marina
- Railway line (Bar to Belgrade)
- Site boundary
- Municipal boundary
- National Boundary

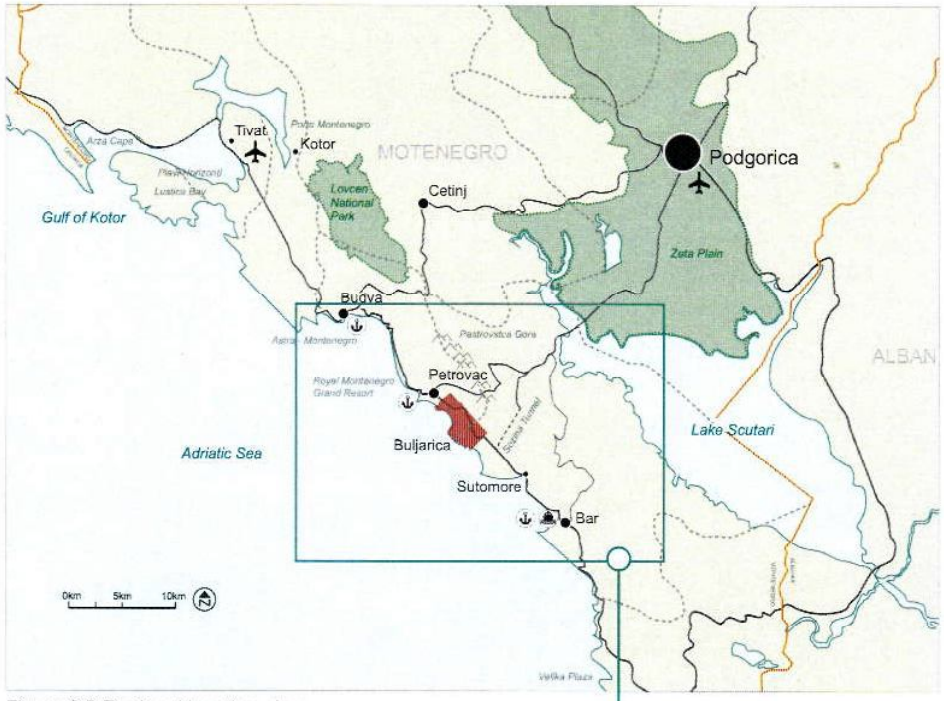


Figure 2.2 Regional location plan

Figure 2.3 Site location plan - wider context

2.2. SITE FACTS

2.2.1. Boundary and Area

The given boundary of the Buljarica site is shown in Figure 2.4. As measured it comprises 1179 hectares. The site is defined by the Adriatic Sea to the west, mountains to the east and lower hills to the north and south. The higher ground on three sides visually frames and contains the bay creating an attractive green coastal setting.

The beach at Buljarica is 2,400m in length, making it one of the longest beaches in Montenegro. Until recently there was little development along the beach, but the beach's popularity is growing as is development interest.

Key character zones within the site include:

01. Kaluderac and northern coast

Topography: Predominantly flat with the coastal hill to the north of the site acting as a natural boundary that separates the site from Lucice bay and the town of Petrovac.

Significant sites and locations include Kaluderac village (which offers small scale hotels and rooms to let), Gradiste Monastery.

02. Buljarica settlement, north-eastern mountain range and coastal flat land

Topography: Ranges from low coastal plains to gently sloping land to high mountains.

Significant sites and locations include the Buljarica settlement, the Maslina camping site, agricultural land and wetland.

03. Southern coast and hills

Topography: Predominantly hilly with dramatic landscape, including rugged cliffs and headlands with stunning views over the bay,

Significant sites and locations: Close proximity to popular beaches that can be accessed exclusively by boat, such as Queen's beach and Biela beach.

Key

1. Kaluderac
2. Buljarica
3. Maslina Camping Site
4. Gradiste Monastery

Popular Beaches

5. Lucice
6. Beila Beach
7. Queen's Beach

- Religious monument/ Monastery
- Panoramic view points
- Mountains
- Beach with facilities
- Hiking
- Camping
- Beach accessible only by boat
- Swimming
- Hotel

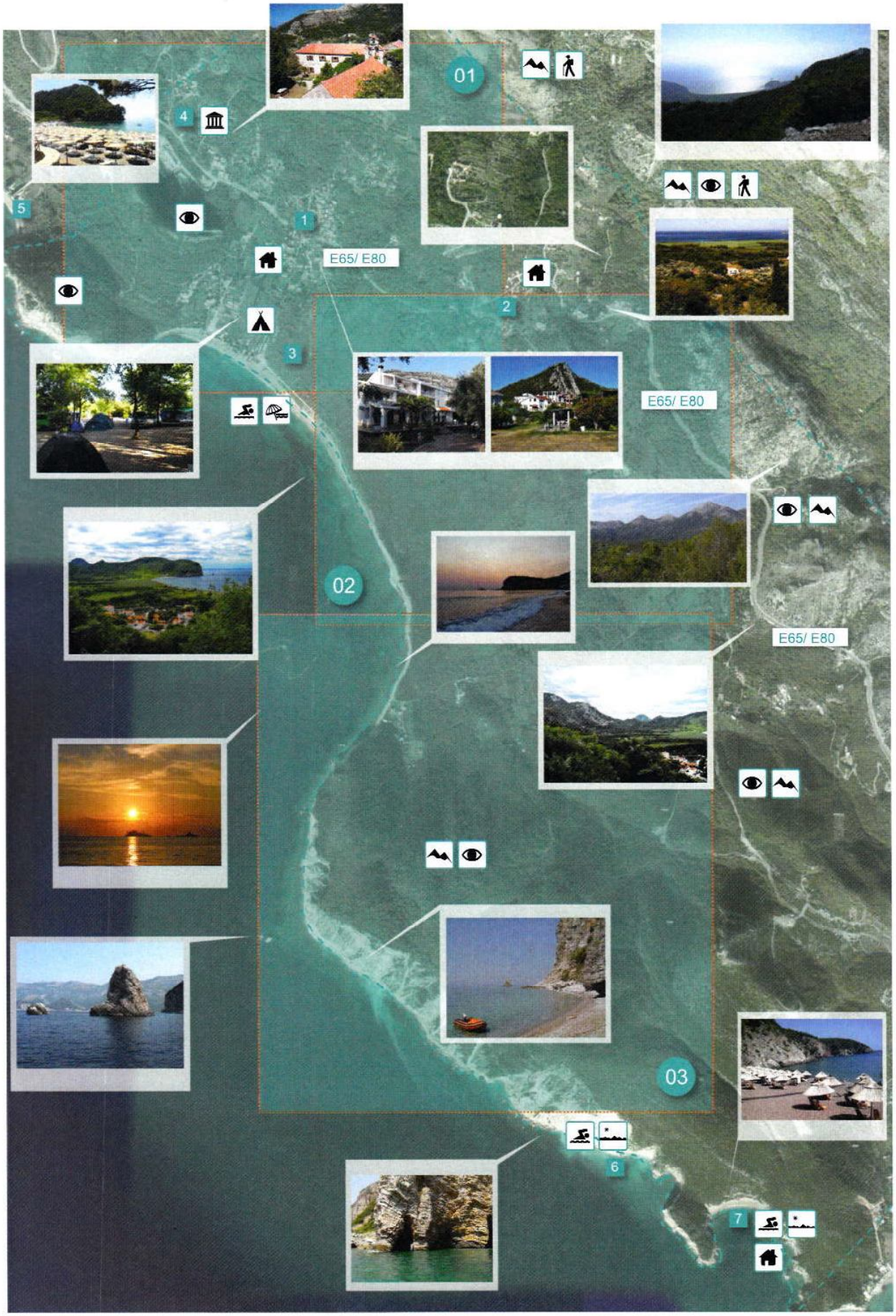


Figure 2.4 Significant Sites and Locations

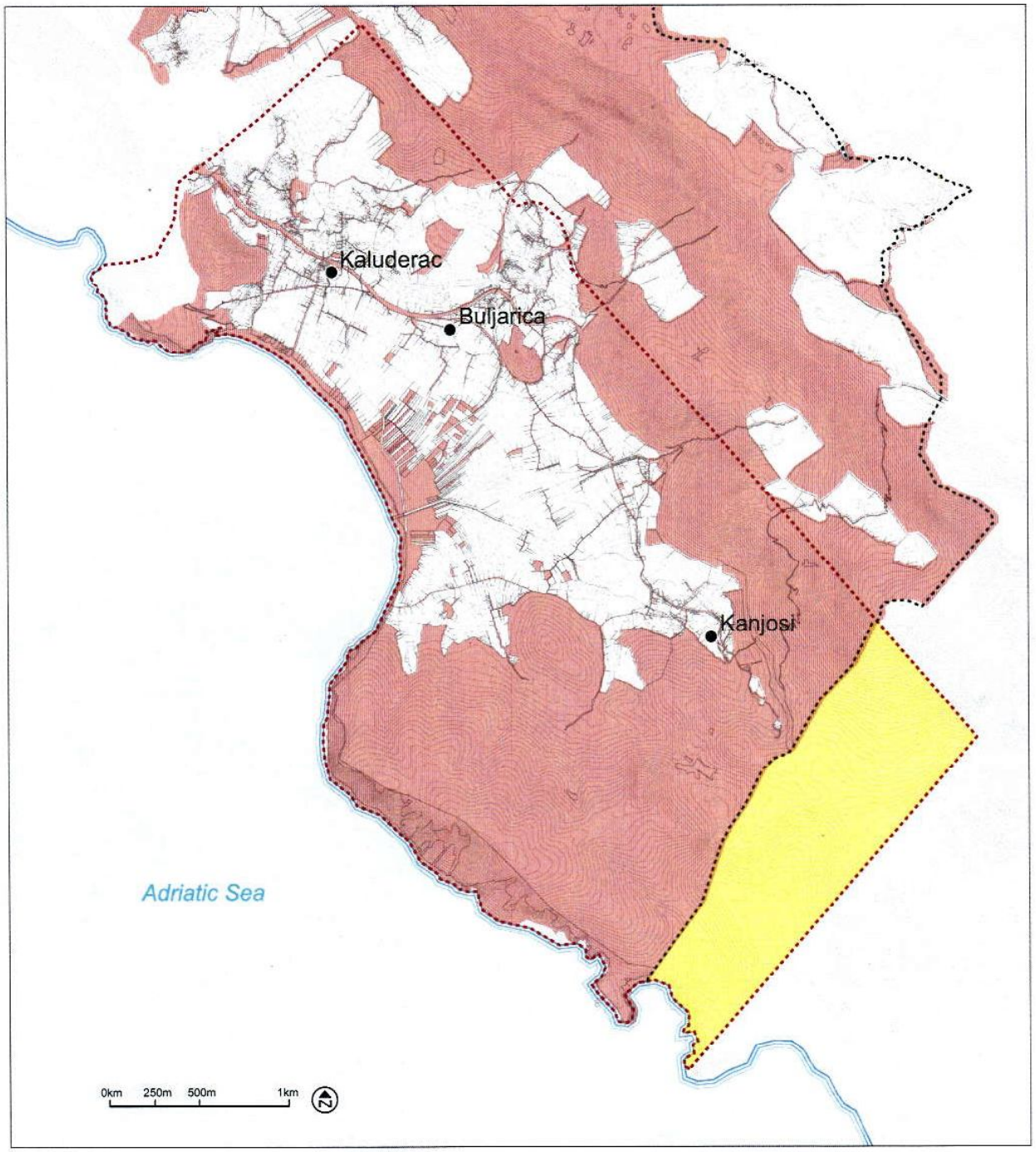


Figure 2.5 Cadastral map

Key

- Settlements
- Site boundary
- Private ownership
- Public ownership
- Ownership in Bar Municipality not known at present

The site is currently in a mix of public and private ownership as shown in Figure 2.5 above.

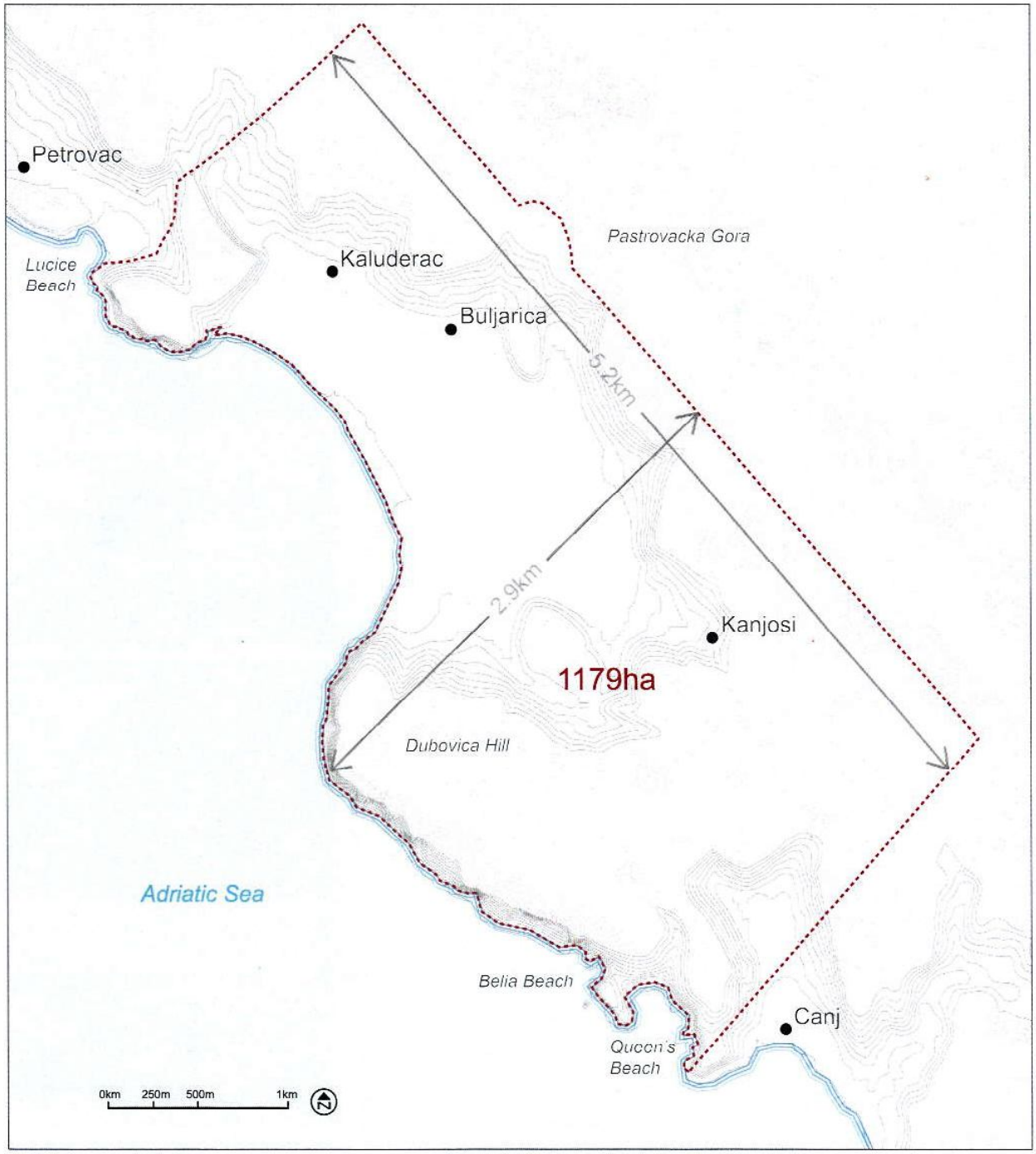


Figure 2.6 Site location plan

The site is 1179 ha in area and measures nearly 3km east to west and just over 5km north to south.

2.2.2 Current Land Use

Reedbeds and wetland occupy a large portion of the flat central part of the site close to the sea. A number of drainage ditches (now mostly silted up) traverse the site and connect back to watercourses flowing down from the mountains to the east. Around the reedbeds in the central portion of the site are small scale agricultural plots.

There are significant numbers of people living within the project boundary in the villages of Kaluderac, Buljarica and Čanj as well as scattered residential buildings outside the defined settlements. Existing buildings are low-rise.

The project site has been subject to widespread agricultural use as evidenced by the remaining field pattern, but it appears that agricultural use have mostly been all but abandoned.

Buljarica beach has become popular in recent years with tourists camping and caravaning in the area, with a small number of local cafes and restaurants. As the beach extends south-eastwards it becomes less busy and is more difficult to access.

Figure 2.7 Predominant uses across the site

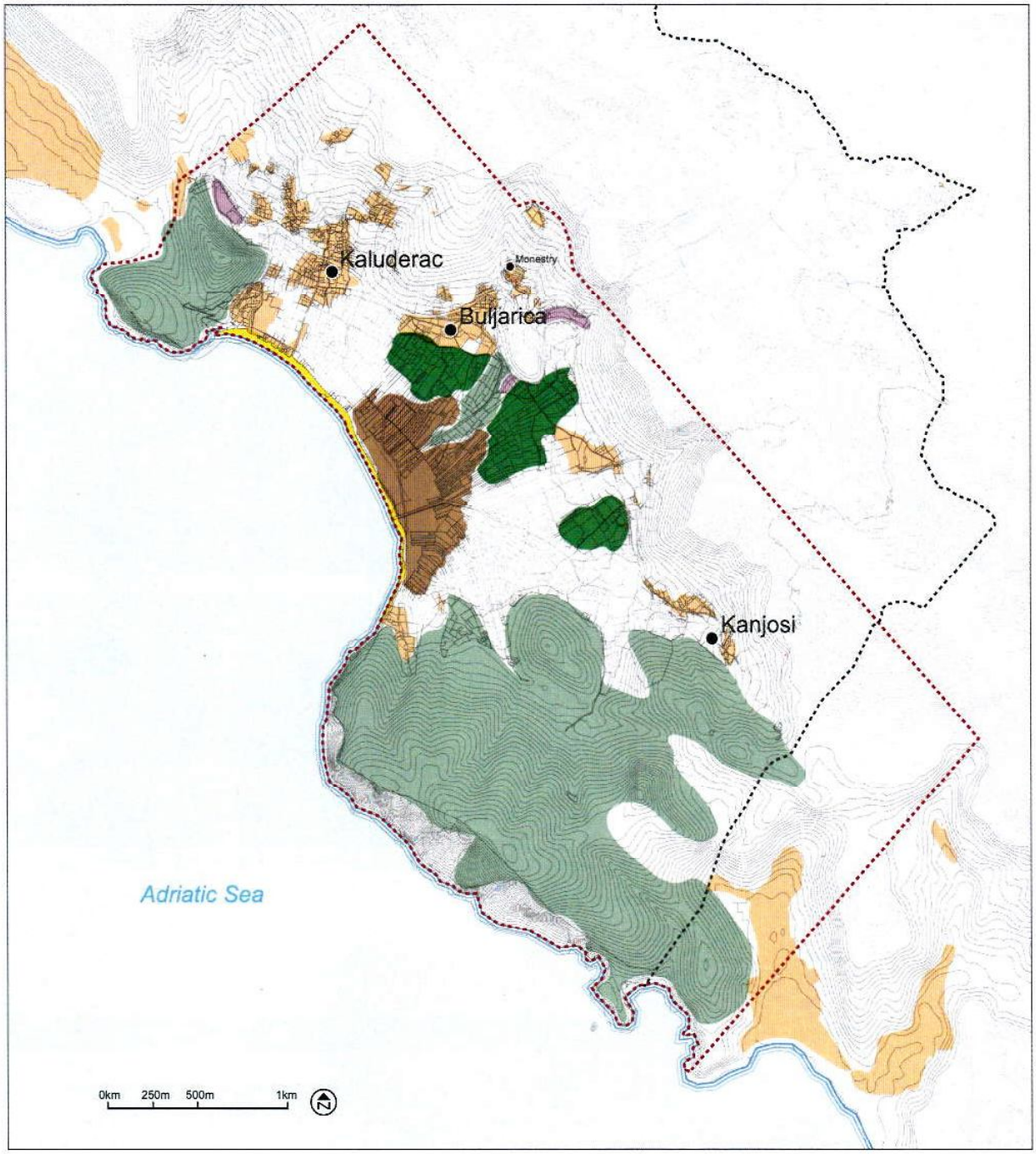


Figure 2.8 Existing land uses

Key

- Site boundary
- Municipality boundary
- Commercial Use
- Woodland
- Development
- Farmland
- Tourism Beach
- Wetland Area

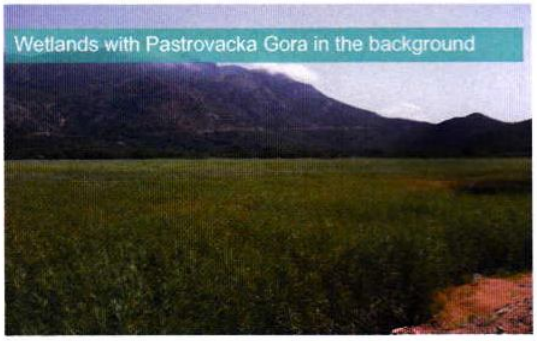
2.3. ENVIRONMENTAL CONTEXT

2.3.1 Topography

We have undertaken a slope analysis of the site to define what areas are too steep to develop. The results of the slope analysis are presented in Table 2 and Figure 2.10 to the right.

Land with a slope of up to 25% has generally been considered as developable. Land steeper than 40% has generally considered to be undevelopable due to abnormal infrastructure and building costs. Where land with a slope of between 25 and 40% falls within an area that is less steep or is contiguous with less steep areas, it has been assumed to have some development potential.

At this stage of the study we have not received any detailed information on soil or geological conditions so have not been able to access whether or not these issues might pose a constraint to development. Consequently at this stage and for the purposes of this interim concept master plan we have assumed there are no other technical constraints to development in terms of ground conditions.



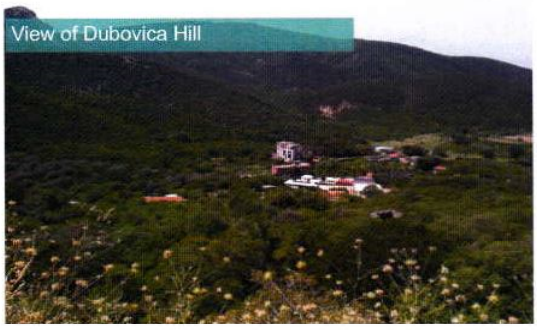


Figure 2.9 Examples of slopes within the site

2.3.2 Climate

The Montenegrin coast exhibits a typically Mediterranean climate with hot summers and moderately mild and rainy winters. The wettest month is November and the driest is July. Average annual precipitation is 1300-2500mm. In general, precipitation decreases from the north-west to the south-east and increases with altitude. June and July are the hottest months with temperatures averaging 19-30 °C, with January the coldest averaging 3-11°C,

Table1. Climate

	J	F	M	A	M	J	J	A	S	O	N	D
Max daytime temperature (°C)	11	12	15	18	23	27	30	30	27	22	16	12
Min night time temperature (°C)	3	4	6	9	13	17	19	19	16	12	8	5
Hours of Sunshine (Daily)	4	4	5	6	7	9	10	9	8	6	4	3
Hours of Daylight (Daily)	9	11	12	13	15	15	15	14	12	11	10	9
Days with some rainfall	13	13	13	14	11	10	7	7	8	11	14	13
Monthly rainfall (mm)	170	149	132	121	81	63	34	56	107	158	208	187
UV Index (max)	1	2	4	5	7	8	9	8	6	4	2	1
Sea Temperature (°C)	14	14	14	15	18	21	24	25	23	20	17	15

Data from: http://www.weather2travel.com/climate-guides/montenegro/petrovac.php

Table2. Site slope analysis

Percentage Slope (%)	Area (m2)	Hectares	As percentage of site area
0 - 14	3,015,714	301.57	28.8%
14 - 25	1,197,838	119.78	11.5%
25 - 40	2,267,854	226.79	21.7%
>40	3,967,199	396.72	37.9%
Total	10,448,606	1,044.86	100%

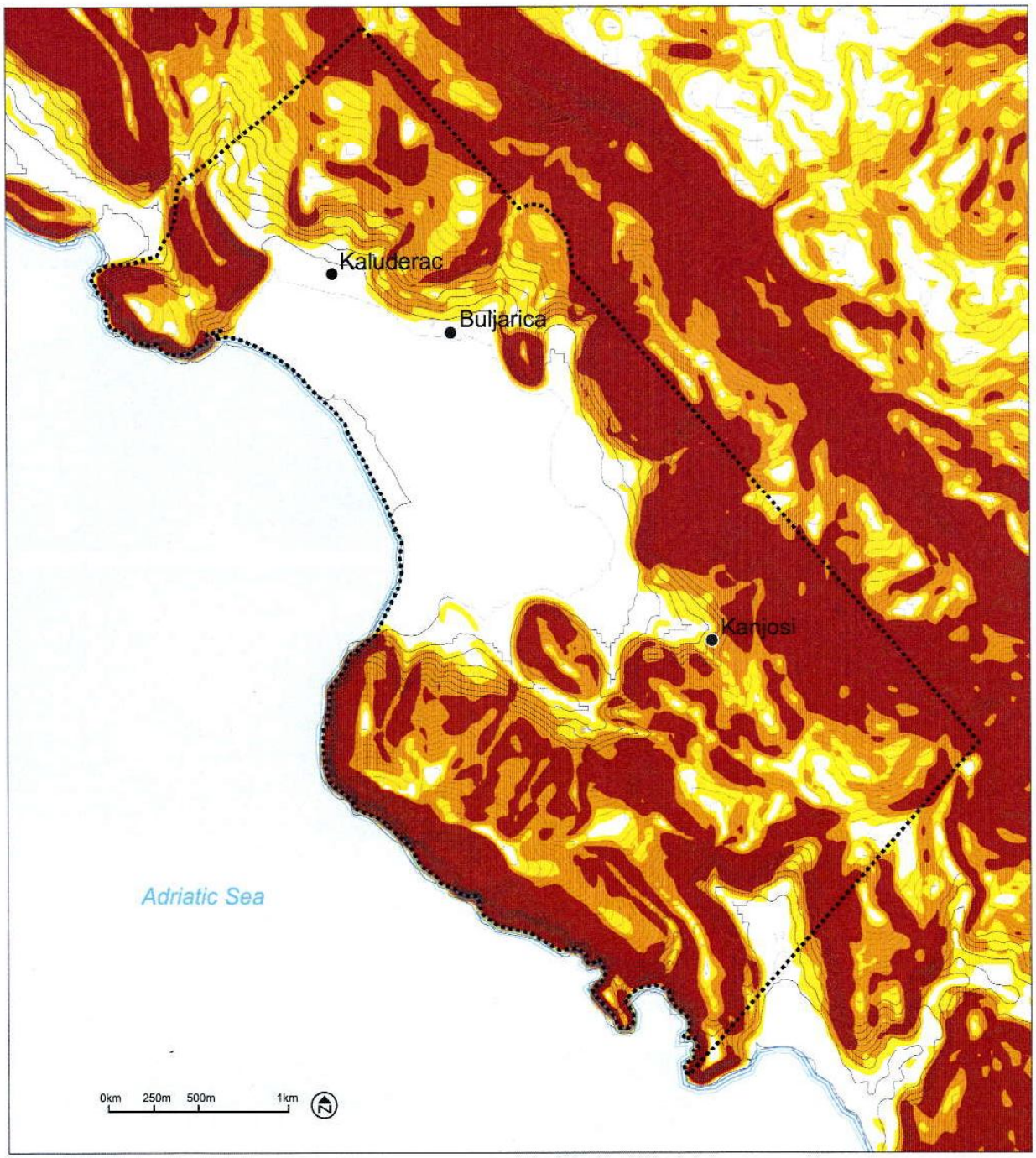


Figure 2.10 Slope analysis

2.3.3. Watercourses and Hydrology

The central part of the site is relatively flat with scattered vegetation and tree cover mainly following the watercourses across the site.

To the east, the land rises steeply from just below the coastal road up to a height of around 700m. To the south the headland at Dubovica rises to about 300m and to the north the extent of the site is defined by hills rising to 300m which meet the sea to the north of the village of Buljarica.

At the northern and southern ends of the project site there are drumlins, which add to the visual interest of the area.

There is a permanent wetland behind Buljarica beach.

More information is required to fully understand groundwater and hydrogeology issues.

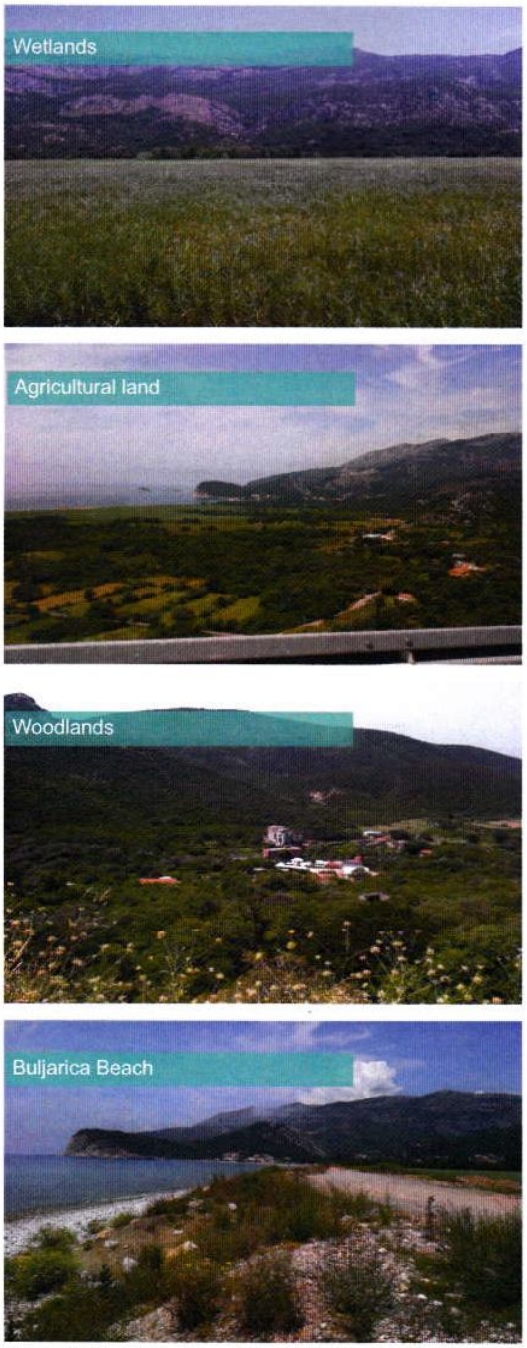


Figure 2.11 Different ground condition types within the site

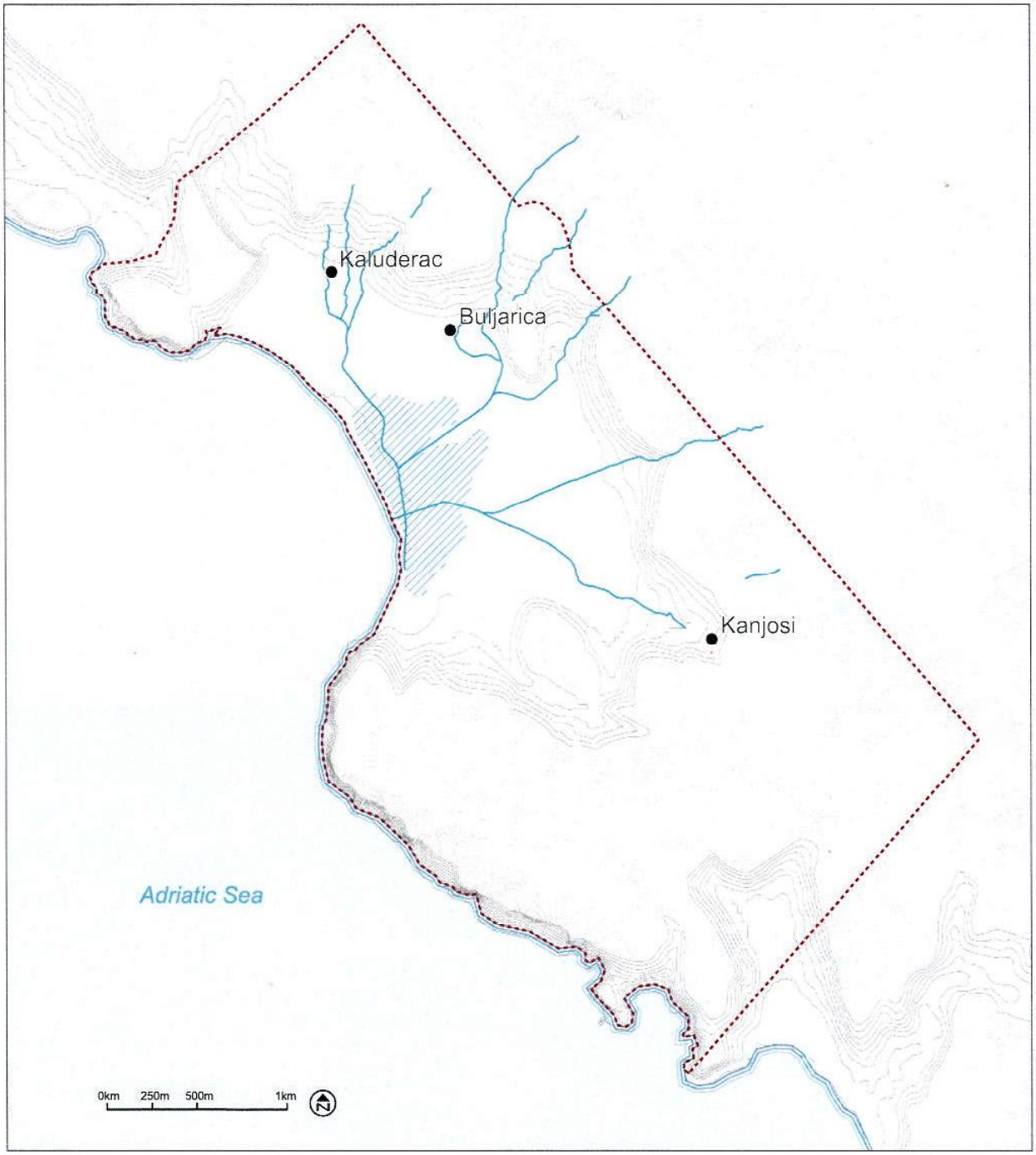


Figure 2.12 Water courses and hydrology

Key

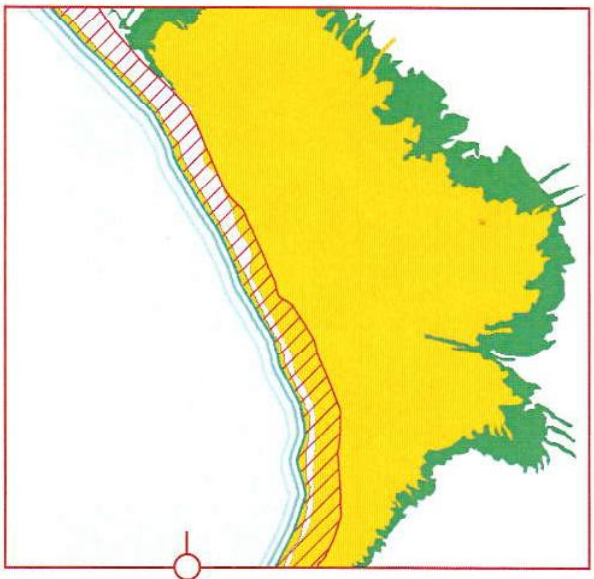
Wetland

Watercourses

Site boundary

2.3.4 Flood Risk

According to information received from the Government of Montenegro, Buljarica bay has a high vulnerability to storms, with the open shoreline and sand/gravel beach directly exposed to the effect of large south, south-west and west waves. Under climate change models a strong influence of sea level rise is expected on the bay, with the majority of the Buljarica plain anticipated to flood as a modelled sea level rise of between 0.96 m and 1.46 m (Figure 2.13). The cumulative impact of sea level rise, meteorological factors and oceanographic factors could lead to significant flooding in the area without defences – potential flooding is anticipated to cover 159,562 m² in Buljarica cove based on current ground levels.



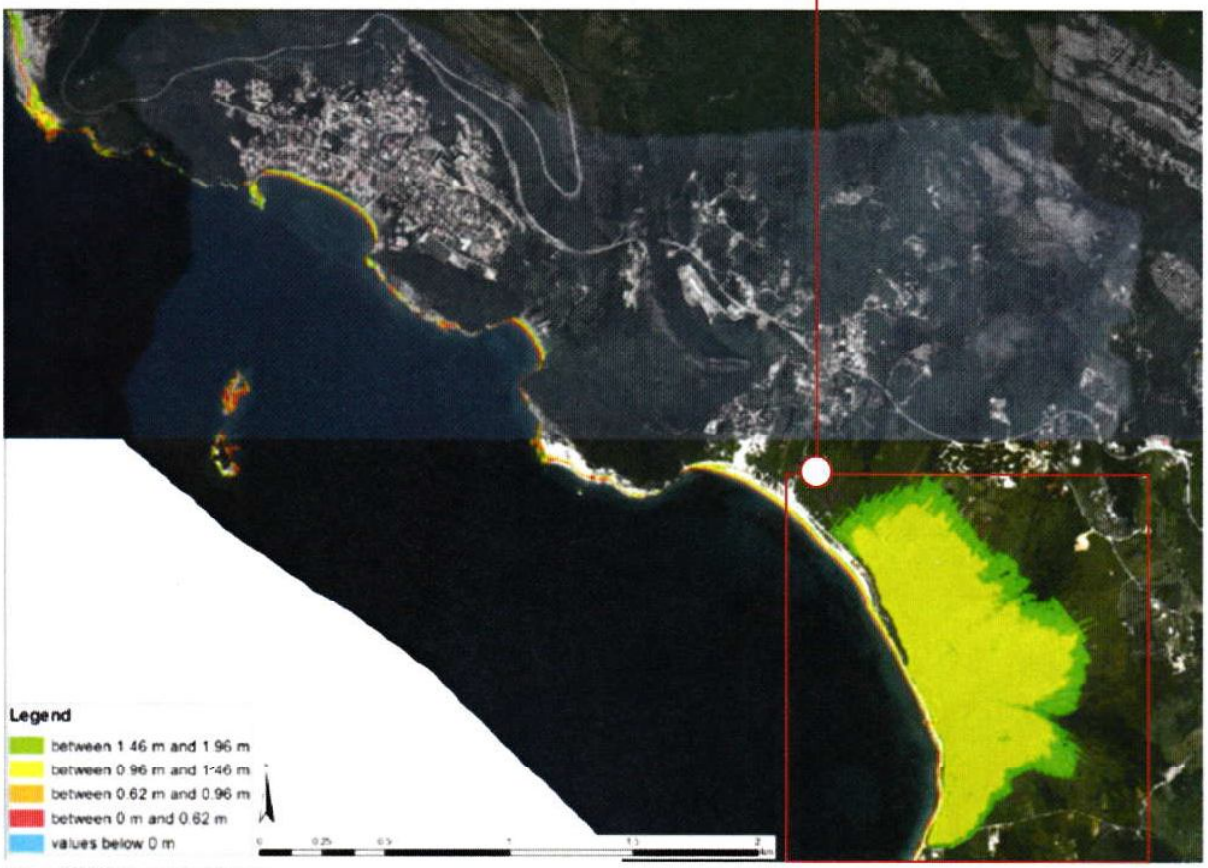


Figure 2.13 Flood Risk Zones

2.3.5 Geological Conditions

We have not received any information relating to the geology of the site. The following summary has therefore been prepared by reviewing publicly available data that we have been able to acquire.

Underlying geology

- The site is located within the Outer Dinarides region, characterised with great thickness of carbonate deposits, which form high-mountain areas with peaks over 2000 m. The mountainous regions are drained by strong karstic springs, with occasional syphonal circulation and resurgances below sea level[1].
- Further information is required on the geology of the project site. This may be a limiting design factor for example if karstic features are present within the site.

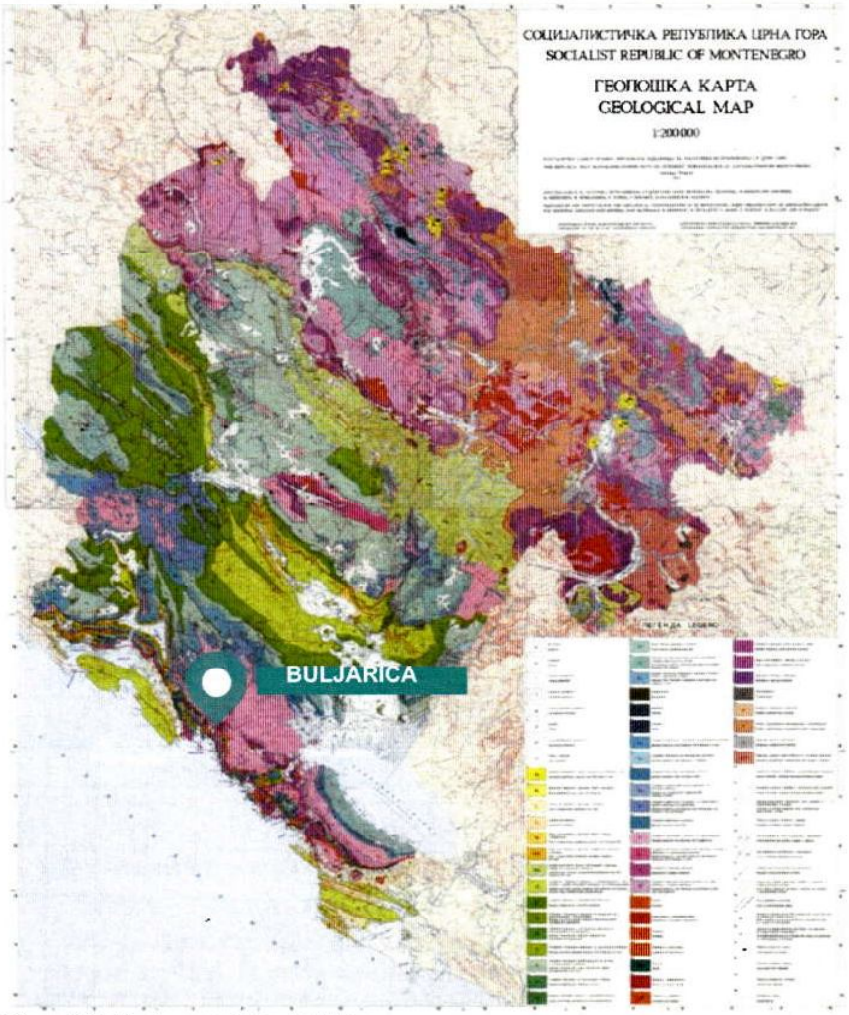


Figure 2.14 Montenegro Geological Map

[1]*Source: http://www.asak.org.rs/karst/yukarst1.html*

[2]*Del Bianco, F., Gasperini, L. Bortoluzzi, G., Giglio, F., D'Oriano, F., Polonia, A., Ravaioli, M., Kljajic, Z., and Bulatovic, A. (2010) The Montenegro-Northern Albanian Continental Margin: Morphotectonic Features in a Seismically Active Region. Rapp. Comm. int. Mer. Medit, 39.*

[3]*Rrapo, O., Edmond, D., Astrit, D., Adisa, D., Fatmir, B. (2013) Recent Seismic Activity of the Lezha-Ulqini Seismogenic Zone and its Associated Hazard . 2nd International Balkans Conference on Challenges of Civil Engineering, BCCCE, Epoka University, Tirana, Albania*

[4]*Alijaj, S., Adams, J., Halchuk, S., Sulstarova, E., Peci, V. and Muco, B. (2004) Probabilistic Seismic Hazard Maps for Albania. 13th World Conference on Earthquake Engineering, Vancouver, Canada, Paper 2469.*

Seismic risk

The Montenegro coastal region is characterized by intense seismicity and by the historic occurrence of large earthquakes. The Montenegro offshore and coastal area is included in the northern segment of the Ionian-Adriatic coastal earthquake belt and the project site falls within the Lezha-Ulqini (LU) seismic source zone[2] (Figure 2.16). Rrapo et al. (2013) has identified 112 earthquakes having occurred between the period 2001-2012 in the Lezha-Ulqini zone, with one recording a magnitude of 5 (Richter) in 2009[3]. The project area is considered to have a high seismic hazard[4] which should be further quantified and considered in the design and construction process.

Erosion

There is currently very little data available on coastal erosion in the vicinity of the project but this will need to be carefully considered especially with regard to the design of the beach and marina areas.

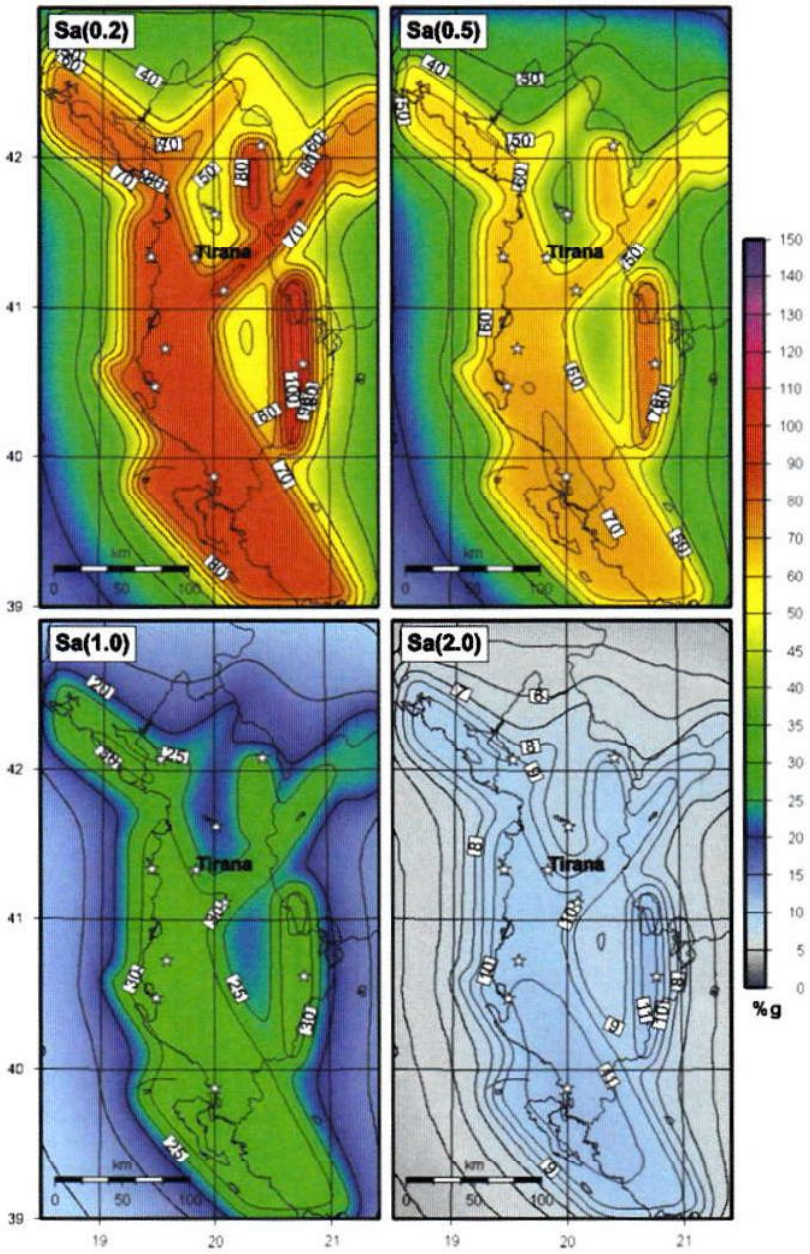
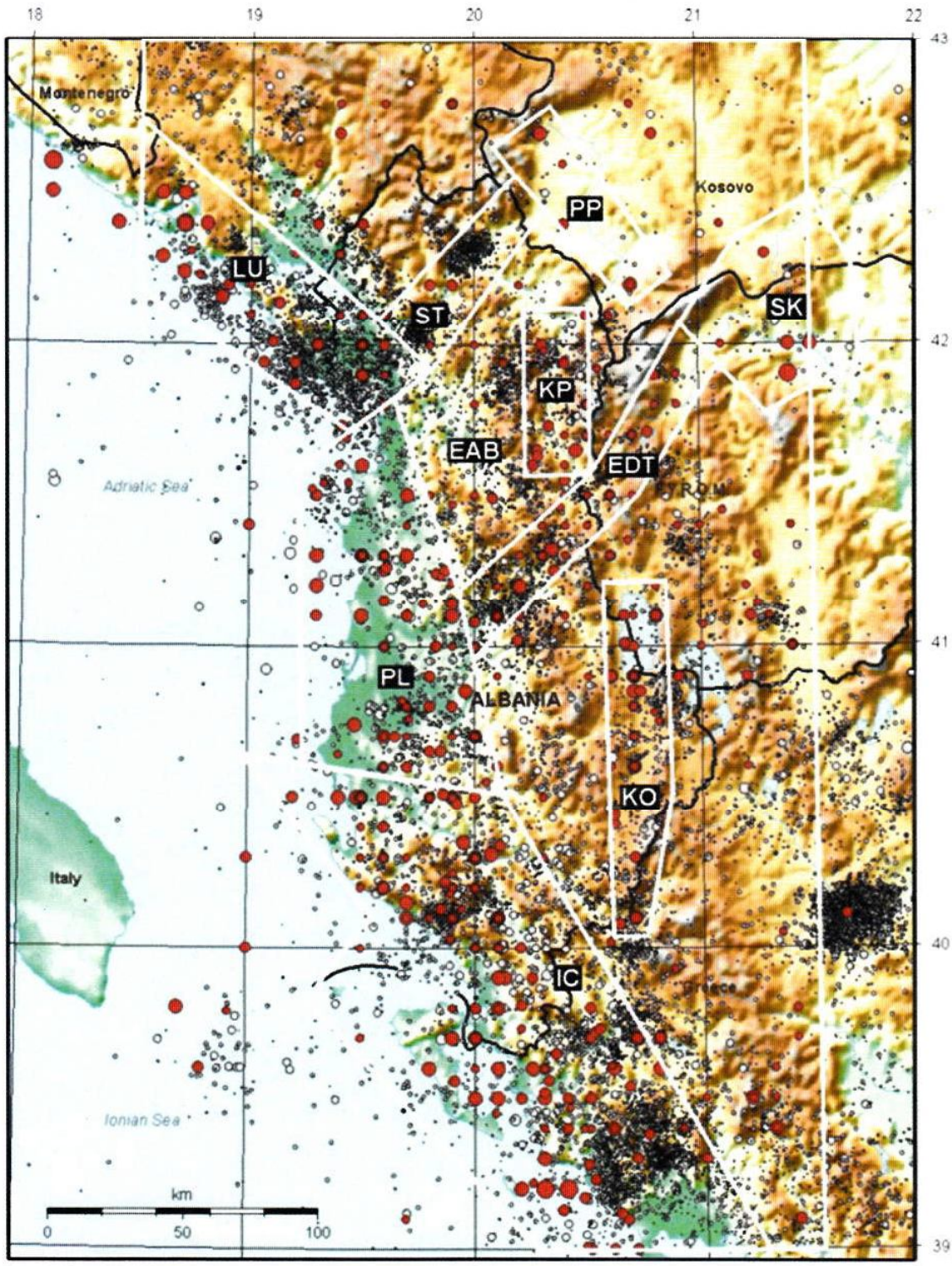


Figure 2.15 Seismic hazard on rock for Sa (0.2), Sa (0.5), Sa (1.0) and Sa (2.0), for a probability of 10%/ 50 years (units=%g).



Albanian Seismicity

Red - historical unified catalogue (used for hazard determination) Grey - recent catalogue

· M < 2.0 · M 2.0 - 2.9 · M 3.0 - 3.9 ○ M 4.0 - 4.9 ○ M 5.0 - 5.9 ○ M 6.0 - 6.9 ○ M 7.0+

Historical unified Catalogue - all earthquakes larger or equal to Ms 4.5 to the end of 2000

Recent Catalogue - all earthquakes for the period 1964-2000 inclusive

Figure 2.16 Seismicity of Albania. Red dots show earthquakes used for the estimation of hazard, gray dots represent other earthquakes.

2.4.EXISTING NATIONAL TRANSPORT INFRASTRUCTURE

The transport infrastructure in Montenegro reflects the historic trends of ambitious industrialisation followed by urbanisation where rural areas became depopulated and populations in the urban areas swelled. The increasing demand for tourism-based development resulted in significant development along the coast. The significant development of residential and tourism development was not matched however by transport infrastructure provision. The maintenance, upgrading and repair schedules for the existing transport infrastructure did not meet needs leading to limited accessibility and connectivity and poor connectivity between urban centres and the coast.

The topography of Montenegro, with valleys and mountains leads to winding roads with low average speeds. The fact that approximately two-thirds of the regional and main roads are more than 25 years old also decreases average speeds across the network.

The scale of development proposed at Buljarica will require significant new transport infrastructure to accommodate future growth in vehicle trips if it is to be successful.

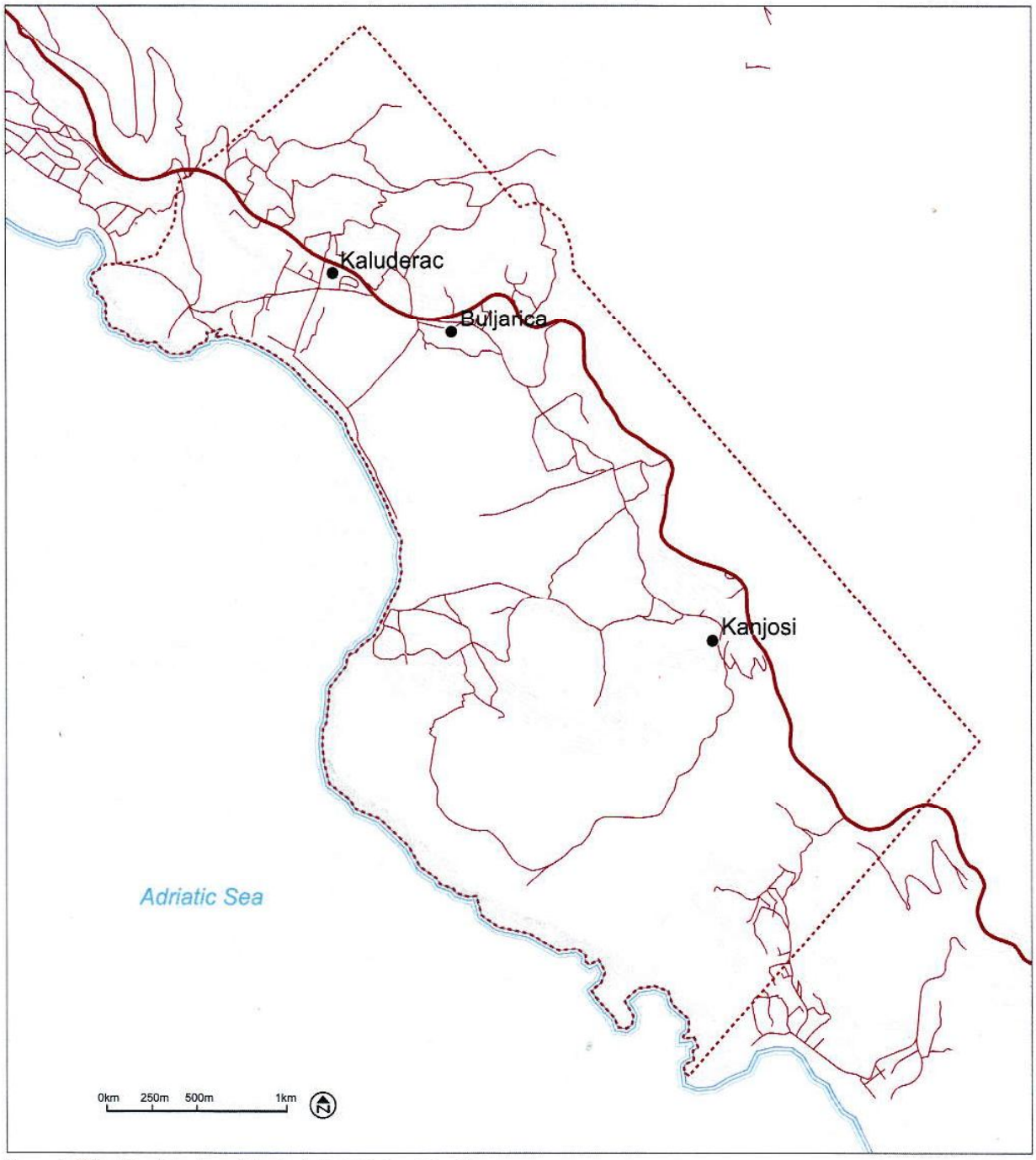


Figure 2.17 Existing Roads and Tracks in the Vicinity of the Site.

Key

Site Boundary

Existing Roads and Tracks

2.5 TOURISM AND ACCESSIBILITY

2.5.1 Accessibility by Road

Since 2007 the total number of tourist arrivals has increased by an average of 5% per year. In 2011, 13% of the total tourist arrivals were of domestic origin with the remaining 87% being foreign tourists arriving from outside Montenegro.

Of the 87% total foreign tourists, 37% came from the four countries sharing their borders with Montenegro and a further 20% originated in the Russian Federation. This would suggest that a large number of visitors arrive in Montenegro by car and that future transport networks must be planned accordingly.

2.5.2 Accessibility by Sea

There are seven passenger and cargo ports in Montenegro. The most important port is the Bar with a 95% share of passenger and freight transport. Its capacity is between 14 and 20 boats depending on the type and size of vessel. Since 2007 there has been an average yearly increase of about 11% in the number of tourists arriving via boat, though the total number of water borne visitors still only represents about 1% of total visitors.

2.5.3 Accessibility via Air

Montenegro has two airports at Podgorica and at Tivat. Podgorica airport was fully rebuilt in 2006 and this modernisation has improved the quality of the services for passengers as well as the level of security and safety. The government has adopted an Airport Development Master Plan to 2030. This plan defines a strategy for infrastructure development in Podgorica and Tivat airports for the period from 2011 to 2030 with the aim of improving capacity and quality of service in line with forecast traffic. The plan proposes a series of projects to increase the capacity and quality of the airports including the extension of runways at both airports, increasing passenger terminal space, expanding gates and providing new parking slots.

Since 2005 there has been an average yearly increase of about 10% in the amount of passengers travelling through both airports, with the summer months being significantly higher reflecting the continuing expansion of the tourism industry in Montenegro.

2.5.4 Local Accessibility via the Road Network

Within the site the existing road infrastructure is very limited, as seen in Figure 2.19. A single track surfaced road provides access to the northern end of the beach from the coastal road. Elsewhere there is a limited network of winding mostly un-surfaced tracks.

Given that the majority of residents and visitors travelling to and from the site will be originating from or destined for zones within Montenegro, providing an efficient and road network is an essential element of a future access strategy for the development.

Currently the transport in the coastal region relies almost exclusively on the Adriatic Highway, a significant portion of which is carried on traditional city streets. The relative isolation of the coast from the inland part of Montenegro due to the coastal chain of mountains is partly overcome by the two transversal highways: from Bar and Budva to Podgorica and Cetinje. The Risan-Niksic-Herceg Novi-Trebinje highway which is currently under construction will improve the situation further. The construction of the Sozina tunnel on the Bar to Podgorica road and the construction of sections of 3-lane highway has also delivered significant improvements in the highway network in recent years.

2.5.5 Coastal Road (M2 & M2.4 East-West)

Bar, Budva, Sutomore and Petrovac form a series of coastal towns linked by a winding and relatively busy single carriageway road (1 lane in each direction) that widens to 3 lanes for overtaking in some sections. This coastal road provides the main means of access to Buljarica and eventually links to Ulcinj close to the Albanian border in the south and to the UNESCO World Heritage site of Kotor and Tivat further north.

It is recommended that the coastal road is designated as a Scenic Coastal Route (under objective O1.3.2.3-9 in the Spatial Plan of Montenegro Until 2020) similar to Route 1 in California.

2.5.6 Boljare-Podgorica–Bar Link (M2 & M21 North-South)

This road link provides access from Serbia in the north all the way down to Bar on the southern coast via Podgorica. The 4km long Sozina tunnel that opened in 2005 provides the main road link between the coastal zone and Podgorica. Two other winding roads that transverse the mountain range via either Bar or Petrovac provide other links to the interior.

2.6 EXISTING TRANSPORT INFRASTRUCTURE

2.6.1 Background

A number of main and regional roads are proposed for upgrading or reconstruction within the Spatial Plan of Montenegro Until 2020. Considering the profile of visitors mentioned above, both foreign and domestic, the main points of origin were identified (large population-heavy trip generators, centres of touristic or economic significance, areas of geographic importance and border crossing points) as the important nodes to be considered from a connectivity point of view.

Highways and regional roads and corridors that need to improved are identified.

They are listed below in order of classification.

Highway and Main Roads

• M2; Debeli Brijeg (border with Croatia)- H.Novi (entrance) – Petrovac – Podgorica – Kolašin – Mojkovac – Bijelo Polje – Berane – Rožaje – Špilijani (border with Serbia).

This is the existing coastal road and the main means of access into the project site. It is recommended that with the potential introduction of the two parallel corridors, the 'New Coastal Highway' and the 'Adriatic-Ionic' Highway, this road is downgraded into scenic, tourist-friendly, stretch of road. Nevertheless it will need to be maintained and the surface improved.

• M2.3; Zavala – Cetinje – Podgorica.

• M2.4; Petrovac – Sutomore – Sukobin (border with Albania).

• M6; Vilusi (border with Bosnia) – Nikšić

• M8; Gradac – Pljevlja – Border with Serbia

• M9; Kolašin – Mateševo – Andrijevica – Murino – Bjeluha (border with Serbia).

• M18; Šćepan Polje (border with Bosnia) – Nikšić – Podgorica – Božaj

• M21; Dobrakovo (border with Serbia) – Bijelo Polje – Ribarevina

• New Coastal Highway;

The new coastal highway will potentially run on the higher ground to the east of the site and may join with the existing coastal road immediately to the south of Buljarica. This would provide much improved accessibility to Buljarica from the National highway network

• Adriatic-Ionian Highway (East West Corridor);

The Government of Montenegro is planning to develop the necessary documentation for the Adriatic-Ionian Highway (Eat-West Corridor) around 105 km long, that should connect the Croatian and Albanian sides of the same highway .

Regional Roads

• R1; Cetinje - Čekanje - Kotor –Trojica - Radanovići

• R3; Pljevlja - Metaljka (border with Bosnia) and Dajevića Han - Čemerno (border with Serbia)

• R4; Pljevlja - Durnevića Tara - Mojkovac

• R6; Vir - Krstac (border with Bosnia)

• R11; Risan-Grahovo-Vilusi

• R12; Vilusi - Deleuša (border with Bosnia)

• R13; Cetinje – Lovćen - Krstac

• R16; Virpazar – Ostros - Vladimir

• R17; Ulcinj - Ada

• R18; Mioska - Tušina (Boan)

• R19; Bioče - Lijeva Rijeka - Mateševo

• R21; Gradac - Poros - Šula (border with Bosnia)

• R22; Kotor – Trojica - Radanovići

• R23; Danilovgrad – Markovina - Čevo Resna - Grahovo-Nudo (border with Bosnia)

Key - Figure 2.18

- Border Crossing
- Major Node
- Existing Road
- National Border
- Water Body

Key - Figure 2.19

- Proposed Motorway
- Proposed Highway
- Highway Alternative
- Railway
- Proposed Railway
- Project Site
- Existing Road
- National Border
- Water Body

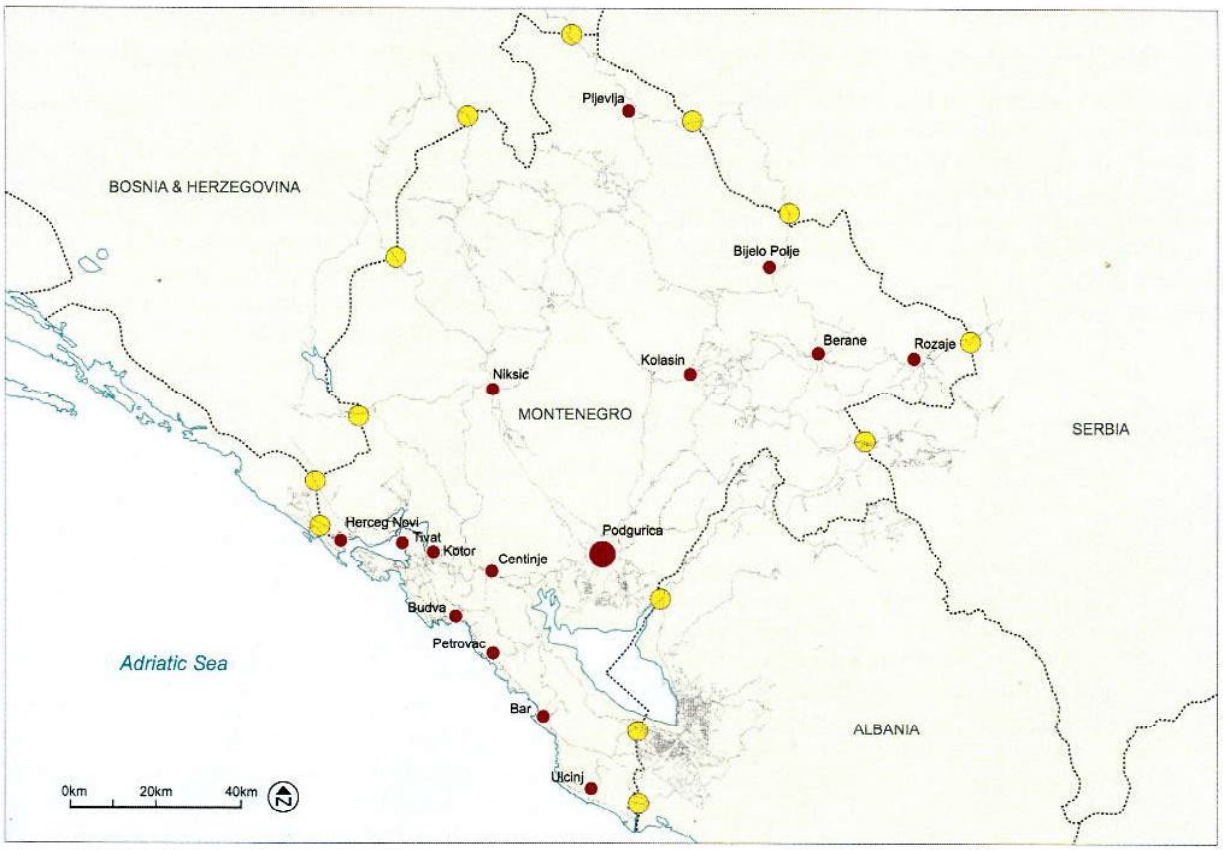


Figure 2.18 Main Nodes and Border Crossings

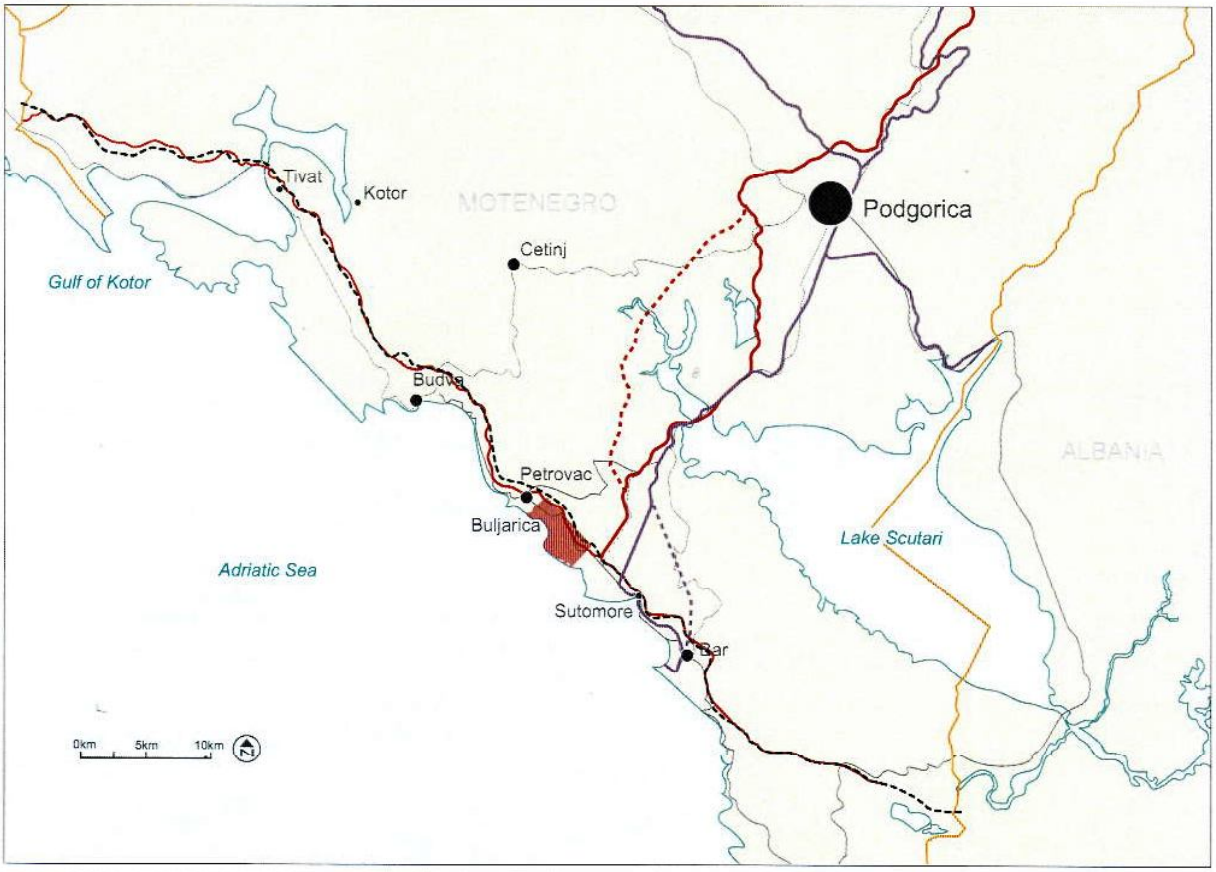


Figure 2.19 Future Proposed Transport Links (Road and Rail)

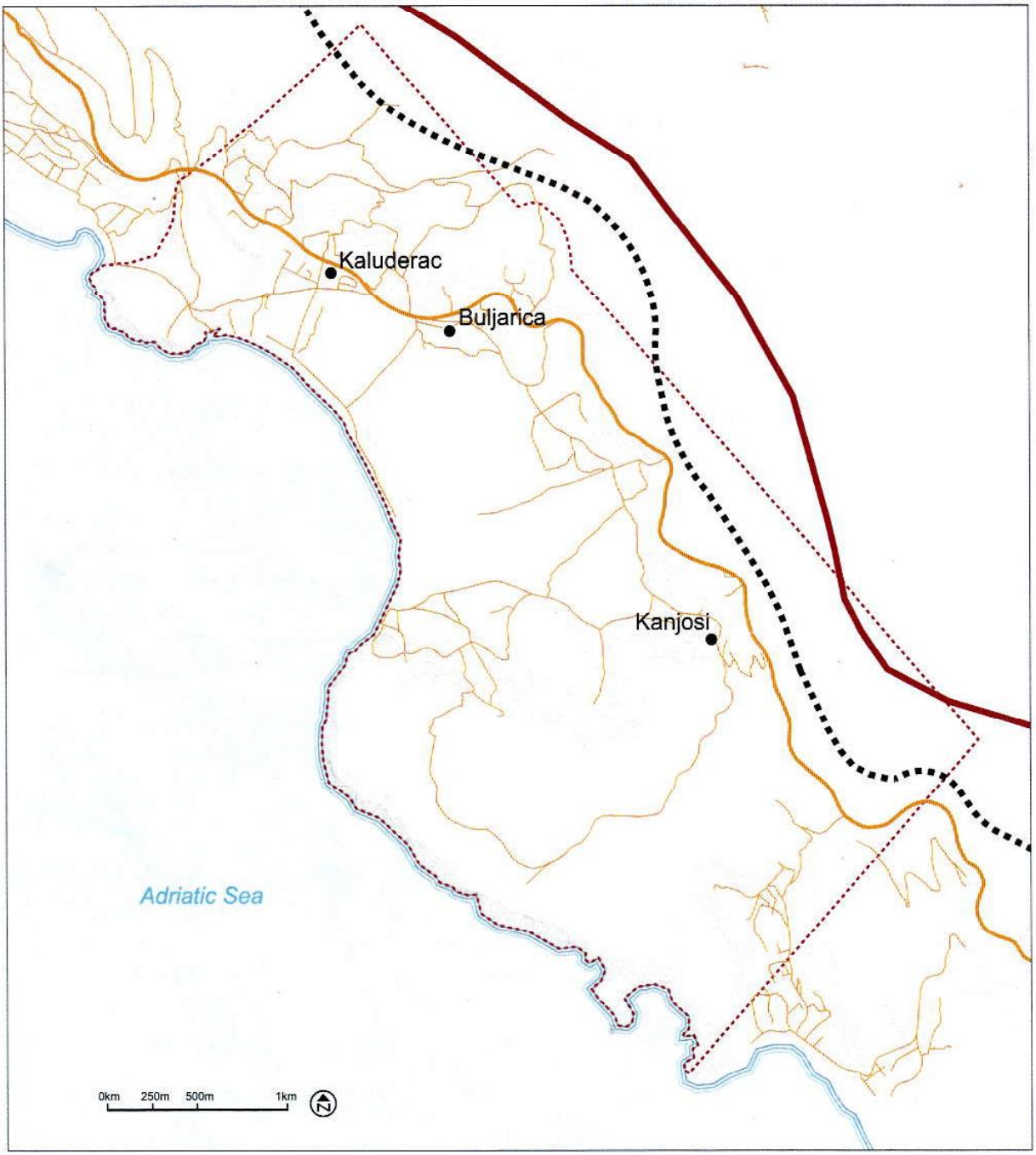


Figure 2.20 Proposed Roads within Buljarica Area

Key

- Proposed Motorway
- Proposed Highway
- Main Coastal Road
- Existing Roads/ Tracks
- Site Boundary
- Water Body

2.6.1 Future Internal Connectivity

Road Access

A fine grained movement network based on an informal grid is proposed. A main spine route runs through the heart of the development linking to the existing coastal road at its northern and southern ends. A secondary spine runs closer to the waterfront providing access to the main hotel zone. Where this road crosses the marina entrance there is the opportunity for an iconic bridge to signpost the heart of this new destination of choice.

Additional links to the existing coastal road are proposed, though the precise location of these junctions and their nature will be subject to further detailed study when more detailed study of the topography and geology of the site and existing highway geometry has been undertaken. Access to the developable areas higher up on the surrounding slopes and hills will be via smaller winding lanes that climb the slopes following the natural contours wherever possible.

Public Transport

A high quality public transport network will be an essential element of a fully integrated transport strategy. This should be integrated with external public transport services to discourage car dependency and encourage use of public transport and other modes.

Walking and Cycling

A fine grained network of footpaths and cycle routes will be embedded within the landscape and movement framework to encourage non-car modes of travel within the site as much as possible. We also recommend the setting up a of communal bicycle hire scheme along the lines of those found in many European Cities such as London, Paris or Madrid whereby cyclists can pick-up and drop-off bicycles at automated cycle racks across the development using pre-paid cards.

The beachfront and many other routes within the development will be car free, with hotels fronting directly onto landscaped gardens and the boardwalk. Access to the beach will be uninterrupted by motor vehicles.

Goods Vehicles

Heavy goods vehicles will be strictly controlled within the development and only allowed within the site when absolutely necessary. There is a potential to include a goods-handling logistics centre whereby light goods vehicles can collect disaggregated cargo and packages and deliver to specific locations. This will help limit unsightly large trucks going through the site as well as limiting the associated congestion and pollution

2.6.2 Potential Future Traffic

We have undertaken a high level assessment of potential future traffic flows arising from the Buljarica Bay development to begin to understand future demands on the internal and external road network.

At this stage, this assessment is based on a notional breakdown of the 11.5m sq m of development floorspace between hotel, apartment, residential and employment generating uses and average occupancy and estimated number of jobs and assuming that the development is complete and fully operational.

Duration of Stay

The average duration of stay for Montenegrin tourists is 3.6 nights for hotels, 4.2 nights for hotel apartments and 6.8 nights for houses and villas.

For foreign tourists the average duration of stay is 4.9, 7.5 and 7.6 days for hotels, hotel apartments and house and villa rentals respectively.

In keeping with the national average, we have assumed that 87% of visitors to the site will be foreign, with the remaining 13% being domestic tourists form within Montenegro.

Hotels

It is assumed that there will be a total of 21,033 hotel rooms, holding around 52,582 beds available for visitors. Taking a peak, high season day with an assumed occupancy of 90%, a total of 47,324 beds will be occupied with the foreign take-up being 41,385 and the domestic take-up being 5,939.

Using the aforementioned average durations of stay, that will translate to a total of 10,613 visitors, of which 8,513 are foreign and the remaining 1,650 are domestic.

Assuming the peak hour of arrival to be approximately 10% of the total daily arrivals, this translates to 1,017 visitors per peak hour of a high-season, summer day.

Apartments

It is assumed that there will be 10,516 apartment hotel units, holding 29,025 beds. Using the same arrival profile as above and the same occupancy rate, a daily arrival of 3,836 visitors and a peak hour arrival of 384 visitors is expected.

With regards to visitors staying in residential units, differing in size and average occupancy from 5 to 3.2 persons per unit, it is expected that a total of 43,357 units will house up to 139,505 visitors. We have assumed that 30% of these units are inhabited permanently, with the remained being 90% occupied at peak season. Assuming a similar 90% occupancy rate, the peak hour arrivals of visitors, local and foreign, destined for these residences will be 1,173 persons.

Total Visitor Arrivals

Based on the above, we therefore estimate that a total of 3,087 visitors will arrive at the peak hour in the high season, with their departure time and magnitude expected to be reversed in the PM peak.

Employees

We estimate that there could be up to 50,000 jobs generated by the development in the retail, administrative and commercial sectors with a further 12,410 jobs in the hotel and hotel apartment sectors.

We have made assumptions regarding shift patterns, mainly that 80% of general employees would arrive in the primary AM shift, and a further 20% arriving in the secondary PM shift. In the hotel sector however, there are two clear shift changes per day. Employees will arrive over a two hour peak period in both AM and PM peaks, with the first hour representing 60% of arrivals and the remaining 40% arriving an hour later.

We have assumed that 85% of the development's workforce would be housed externally with the remainder, mainly higher management and office workers housed on site.

On this basis, the first, AM peak shift will have a total of 46,205 employees, 23,565 of which will be arriving from outside the site in the first arrival hour, with 15,710 will be arriving in the second hour. The remaining 6,931 will commute from site-internal origins.

The second, PM shift, will have a total of 16,205 employees, 8,265 of which will be arriving from outside the site in the first arrival hour, and 5,510 will be arriving in the second hour. The remaining 2,431 will commute from site-internal origins.

The magnitude of trips of employees departing is the same as those arriving.

Modal Split and Total Vehicles

Based on our experience of similar developments, we have estimated the modal split and total number of vehicle trips that the above visitors and employees will generate.

A notional modal split, based on our previous experience is shown in Table 3.

Based on these assumptions we estimate that the AM peak hour flow generated by the development will be 2828 vehicles or 3838 PCUs on the basis that the employee arrival peak will not coincide with the visitor arrival peak, nor their departures.

Network Capacity

The development will be able to deliver a high quality internal road network for the site as part of an integrated masterplan. However the success of Buljarica Bay is dependent upon a high level of accessibility and connectivity to external destinations across wider Montenegro including the coastal area, airports, ports and as well as adjoin countries. Developing an appropriate off-site access strategy for the development is therefore a key ingredient for its success.

We have not received any data on the current external highway network or traffic flows so are unable to make any detailed judgement at this stage on the capacity of the existing off-site infrastructure to accommodate potential future demand.

For comparison however we estimate that the maximum hourly 2 way capacity of the existing coastal road which currently provides access to the site, is in the region of 1000 vehicles per hour. Given that existing background traffic already accounts for perhaps 50% of this capacity, we could estimate that the coastal road currently has spare capacity for a two way flow in the region of 500 vehicles per hour or less than 20% of the traffic that could be generated by Buljarica Bay.

This emphasises the importance of creating new off-site highway infrastructure such as the proposed north-south and east-west motorways that will be critical to ensure the success of the Buljarica Bay Project.

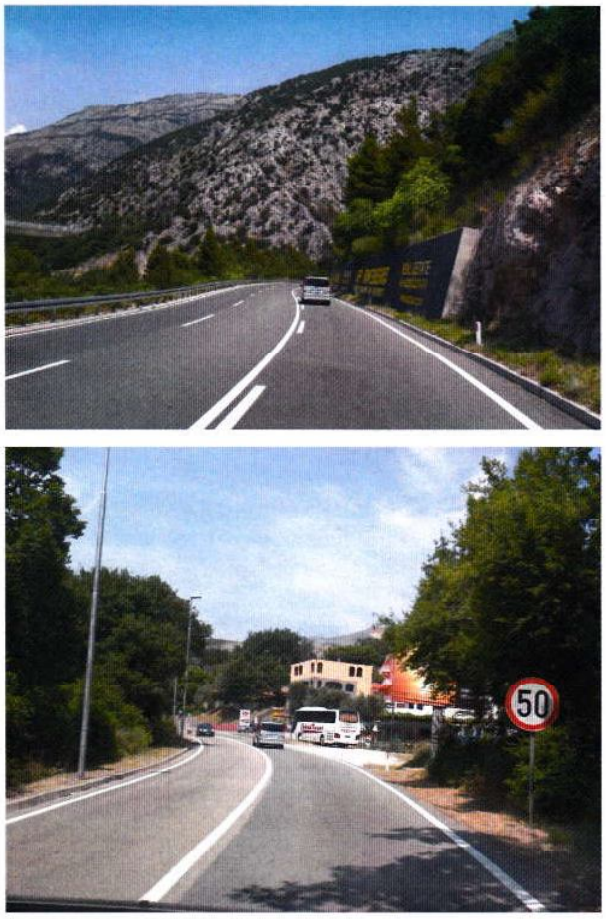


Figure 2.21 Existing highway

Table3. Modal Split and Total Vehicles

	Capacity Person per vehicle	& Occupancy	Actual Occupancy	PCU (Equivalent passenger car units)	Modal Split Visitors	Modal Split Employees
Private Cars	5	50%	2.5	1.0	50%	20%
Mini-Bus	16	60%	9.6	1.5	5%	15%
Public Buses	25	70%	17.5	2.0	5%	5%
Tourist Coaches	40	70%	28	2.5	40%	60%

2.7 ENERGY AND INFRASTRUCTURE

The energy and infrastructure networks for the development will include: power supply; telecommunications, wet Infrastructure and solid waste management.

2.7.1 Collected Data

We have undertaken a desk top review of data received to date, to identify any potential constraints or issues that will need to be addressed in future more detailed design stages of the project.

The following chapter presents an initial summary of data received and any issues that we have been able to identify so far. During the master planning study, we will need to meet with appropriate officers and technical staff from service providers in Montenegro to understand in more detail the existing networks and consider future needs based on the proposed project floorspace.

2.7.2 Power Supply

According to the received data a 35/10 kV sub-station housing two transformers of 8 and 4 MVA with a total capacity of 12MVA exists within the site. This is capable of being upgraded to 16MVA with the replacement of the 4MVA transformer with a new of 8MVA transformer. We understand that this sub-station is 40 years old and suffers building structural issues as well as issues with the 35kV and 10kV transformers.

This substation is connected to remote 35/10 kV sub-stations through long distance 35kV power lines and is planned to be connected to the Petrovac sub-station which is in its final stage of construction. The Petrovac sub-station will provide additional capacity to relieve the Buljarica sub-station and resolve power supply issues in Petrovac.

There are other 10/0.4 kV sub-stations within the area with limited capacity of maximum 2 x 630 kVA transformers.

There do not appear to be any major sub-stations of 110/35 kV in the vicinity of the site.

We understand that there is an existing overhead 110 kV line running though the site and we also understand that there are plans to extend these power lines to a planned major sub-station 110/35kV within the site.

As the targeted built-up area is around 11.5 million sq. m, the anticipated power demand loads will significantly exceed the available spare capacity of the existing 35/10kV sub-station. In addition the anticipated power demand will require a new 110/35 kV sub-station to be provided as part of the development.

This new sub-station would be the central node of a new power supply network for the development with 35kV loops feeding secondary distribution sub-stations throughout the development.

Meetings with the appropriate service providers will be required in the next master planning stage to understand more fully existing networks and how a new supply for Buljarica needs to be planned and delivered to fit with the regional and national electricity network.

2.7.3 Telecommunications

Our review of data received to date shows that basic connectivity is provided to the site. Seven service providers having jurisdiction in the area though services for landlines, mobile networks, broadband, TV, and radio are fragmented amongst five of these operators.

We understand that broadband ADSL lines provided by Crnogorski Telekom are connected to the exchange located in Petrovac, via a fibre optic backhaul connection. The other connectivity technology available to is via mobile wireless networks, providing 3G services to the area from Crnogorski Telekom, Telenor and M:Tel.

Television services in the area are provided by Crnogorski Telekom through their "Extra TV" service, which is run over an IPTV platform, and by TotalTV Montenegro through a DTH platform via satellite. Fibre optic TV infrastructure has not been deployed in the area, however connectivity is possible via the existing fibre optic backhaul connected to the Petrovac exchange.

The proposed built-up area for the site of 11.5 m sq. m, implies a need for at least 55,000 end-user connections. This will require the need for new fibre optic infrastructure to provide state of the art triple-play services within a new "metropolitan" scale network.

From the data received to date, we understand that the telecom network in the area is part of the telecom network of Budva Municipality.

With the very limited number of Digital Subscriber lines at Budva from the AXE switch exchange (obsolete and phased out product from Ericsson) compared to the expected requirement of a minimum number of 55,000 telecom connections for full IP triple services, the future infrastructure for Telecom shall be based on the following concept:

- The new development will have its own Network Operating Centre(s) with distribution points throughout the built up area. This will include telecom civil infrastructure of ducts and manholes.
- The telecom network will be carried over fibre-optic network within all buildings and plots.
- In addition to voice and data services, the proposed platform will deliver TV services, so called IPTV, shall be considered to offer additional services and enhanced entertainment.
- Integration of the network for the development with the national telecom network provided from the licensed Telecom Operators.

At the next design stage, discussion will be required with service operators and providers to establish:

- To what extent, the developer will be licensed to build, own, sell and operate the telecom network within the new development.
- We understand that at least 3 telecom Operators are delivering services to end users in the country and the end user shall be given the facilities to be connected to any of these three operators. At what level the three operators are sharing the network, for both space (duct banks, duct conduits, rooms, cables containment, etc.) and equipment? This will have an impact on the infrastructure design, space requirements, network typology, selection of material, etc.
- Any installation or regulation telecom guidelines that the developer needs to comply with for the construction of telecom network for full compatibility with the national telecom networks provided by the different telecom Operators.

2.7.4 Water Supply

Based on a review of the data we have received, the water supply system allowing for the delivery of 100 l/s of water has been extended in the vicinity of the site to serve new development.

The proposed strategy for water supply will be based on connecting to existing supply mains and we do not envisage that there will be a need for any water treatment works within the development.

In the future stages of the project a thorough review of the status and condition of the existing system will be required to confirm that there is sufficient supply to meet the demands from the development.

2.7.5 Wastewater

We understand that about 95% of Budva Municipality is connected to the existing wastewater collection network.

The proposed strategy for the new development will be to install a new wastewater collection system to ensure that all buildings are connected to a wastewater collection network. The new network will discharge into a trunk main that will convey the collected wastewater from the new development to a wastewater treatment plant (WWTP).

In the next stages of the project, further assessment of the capacity of the proposed WWTP will be required to confirm that it is has the capacity to handle the wastewater that will be generated from the new development. Off-site works for conveying the collected wastewater from the development to the WWTP will need to be considered.

PROJECT BENEFITS

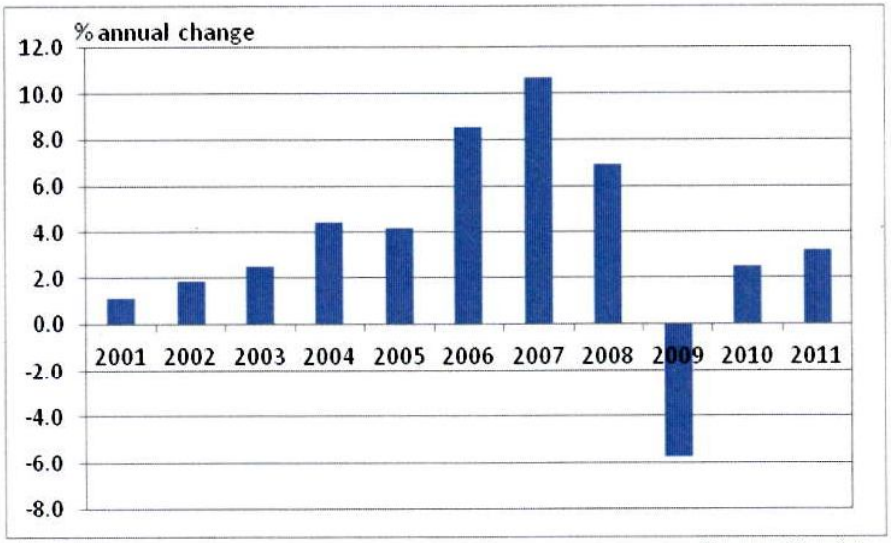
3.1 THE ECONOMY: A BRIEF OVERVIEW

Gross Domestic Product (GDP)

The last decade witnessed an acceleration in economic growth prior to the global financial crisis which was followed by a sharp though relatively brief downturn. Growth has recovered slowly but steadily since 2010 and emerging data for 2013 suggests this trend continued with annual GDP growth to June at 4.3%.

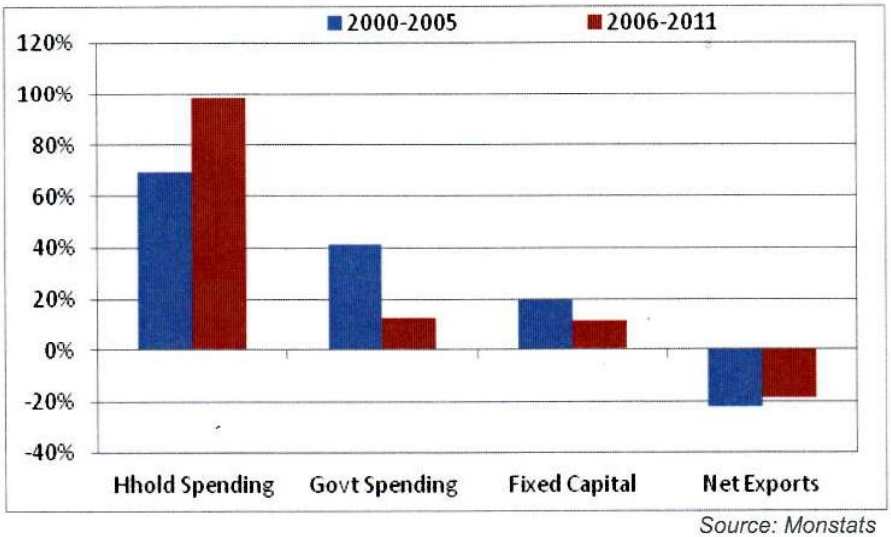
Composition of Growth

Household spending has been the principal driver of economic growth over the last decade, accounting for 91% of the total gain in output between 2000 and 2011. Since 2006 it has accounted for almost all of economic growth as government spending grew more slowly and investment in fixed capital fell. A large part of the capital spending boom has been directed towards property and particularly the residential construction market. Although this has dropped since the global recession, investment levels are still running at approximately three times that recorded in the first half of the last decade, supported by ongoing foreign investor interest.



Source: Monstats

Figure 3.1 Montenegro Annual GDP growth 2001-2011

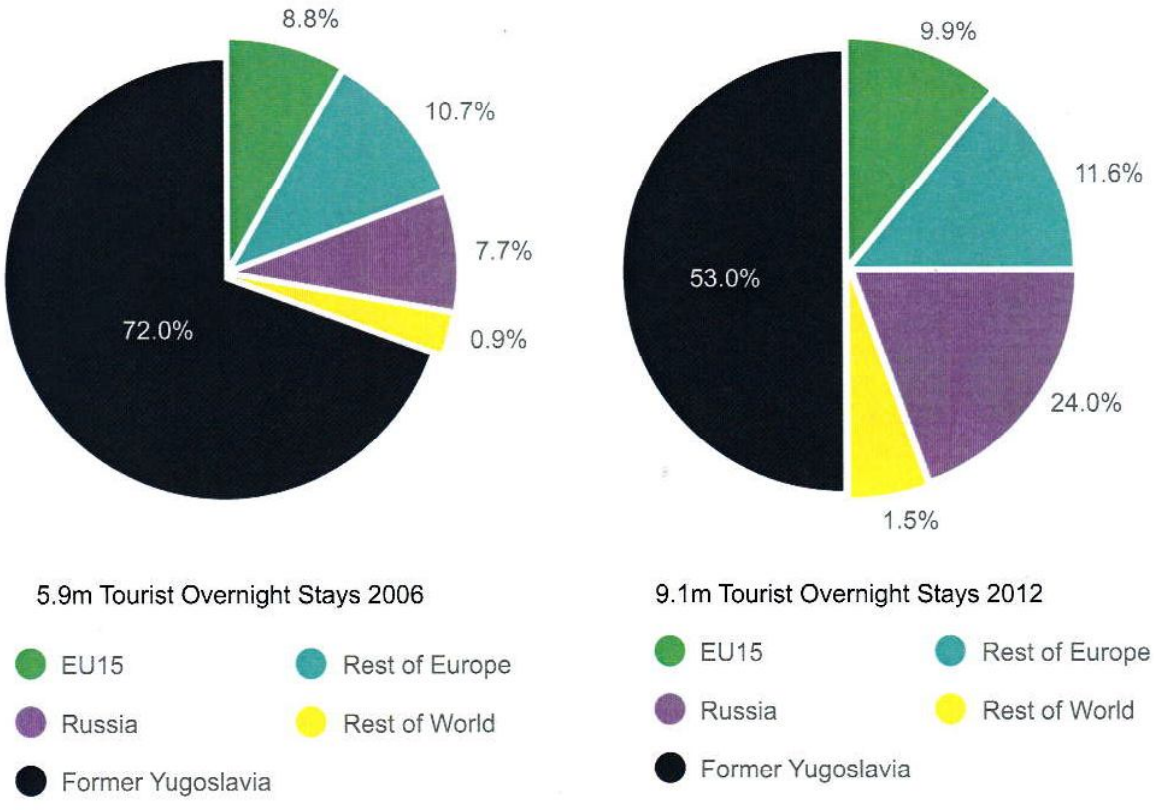


Source: Monstats

Figure 3.2 Composition of Economic Growth by Expenditure Category 2000-2005/6-2011

Trends in tourist visits

The tourist market has experienced rapid expansion since the gaining of Independence in 2006, with total overnight stays increasing from 5.9m in 2006 to 9.1m in 2012 thus helping to boost domestic spending. Growth has been mainly fuelled by Russians which now accounts for a quarter of the market – 2 million annual stays from less than 0.5m in 2006. There has also been significant increases in Western European visitors by 300,000 between 2006 and 2012 and a similar magnitude of increase for new the EU (Eastern Europe). The market remains largely dominated by tourists from the former Yugoslav states although there is a clear upward trend in the arrivals of relatively wealthier EU and Russian visitors.



Source: Monstats

Figure 3.3 Composition of Overnight Tourist Stays by Country/ Country Grouping 2006 & 2012

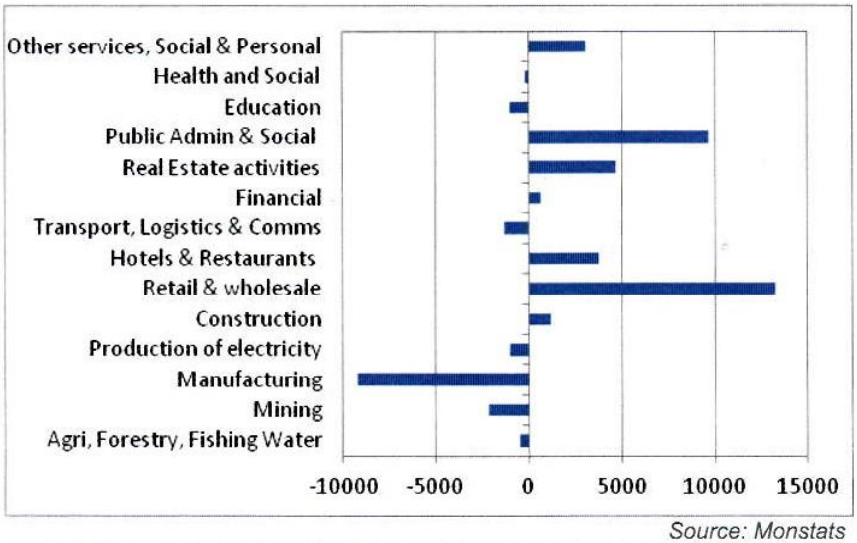
Trends in Employment Growth

Employment dropped during the global recession but has since recovered to surpass its 2009 peak of 174,152. Growth has been strongest in consumer-led sectors such as retail, hotels and restaurants and the real estate and construction sectors, reflecting the earlier property market boom. Manufacturing, on the other hand, experienced a sharp decline with employment approximately halving between 2002 and 2010. In general terms Montenegro experiences a relatively low level of labour market participation and there is scope for active labour programmes to encourage entry into the workforce among working-age adults, possibly tied to the implementation of large capital investment projects.

Construction Sector

The construction industry in Montenegro presently employs approximately 8,000 people (latest figures for 2010) or 5% of total employment. It will be the sector of the economy that will directly benefit most from a major development project such as that proposed at Buljarica. The sector expanded strongly between 2002 and 2009 adding around 3,800 jobs amounting to growth of 56%. A large part of the growth has been fuelled by foreign direct investment (FDI) projects centred around residential and tourism development. Although FDI has cooled since the global financial crisis with knock-on impacts for construction employment, in-flows have since stabilised at a healthy level, helping to maintain construction activity particularly for residential building.

The mining sector in Montenegro is another industry that could also be significantly affected by the Buljarica project due to the need for raw materials for building products. It presently employs around 2,300 workers although it has seen a significant decline since 2003 when it employed 5,450 workers. Output of building materials has declined sharply since 2009 and more severely than the downturn in construction output, suggesting that an increasing proportion of materials for construction are being imported rather than sourced domestically.



Source: Monstats

Figure 3.4 Composition of Economic Growth by Expenditure Category 2001-2011

3.2 THE PROJECT

Context to the Project

The proposal to create a major new European destination of Choice at Buljarica setting is a major opportunity to strengthen Montenegro's position as a tourism, leisure and residential destination through the delivery of an internationally renowned luxury development.

The project proposes a total of 11.5 million square metres (sqm) of built-up area (BUA) to be constructed on a scale never before seen in Montenegro that will provide a significant number of job opportunities. The development will comprise residential apartments and villas making up the overwhelming proportion of the proposed BUA as well as hotels, retail and leisure uses including a casino and a marina. At present a precise breakdown of the BUA uses is not available, although a broad composition of the intended uses is provided in Table4 below.

Table4.Land Use Breakdown

Land Use	BUA (sqm)	%
Residential	7,740,000	67%
Commercial	1,674,750	15%
Other	57,750	1%
Hotels & Leisure Clubs	577,500	5%
Hotel Branded Residences	1,500,000	13%
Marina		
500 berths		
TOTAL SQM	11,550,000	100%

Source: Developer

3.3 PROJECT CONSIDERATIONS

The Property Market

The 11.5 million sqm proposed BUA means that Buljarica will be the largest single development project ever constructed in Montenegro. The residential segment alone accounts for approximately one-third of all of Montenegro's existing residential built space. Over the last decade the construction market has added around 500,000m sqm of residential BUA per year. This partly reflects the upsurge in building activity following the declaration of independence in 2006 and government measures to attract foreign direct investment. Although the global economic downturn has led to residential construction stabilising, the average outturn of 350,000 sqm per annum remains high by historical standards.

There is a lack of reliable market-wide data regarding annual take-up and rates of absorption of new development in Montenegro. Using the average total construction volume observed over the last decade of 0.5 million BUA per annum, and taking the broad assumption that this represents demand (ie is 100% absorbed) this would imply that the residential segment of the Buljarica project would require a development duration of approximately 20 years in the current market. However, this assumption excludes the impact of other developments in the pipeline so 20 years development programme may be a conservative estimate, especially as there are several significant and similar projects planned for Montenegro's coastal and Riviera locations. A selection of high profile ones are shown in Table5.

The above projects are considerably smaller in scale to Buljarica, although are aimed at a similar target market of international and high net worth buyers. The relatively small size of the domestic property market means that the current flow and profile of demand is likely to be insufficient to absorb a project of this size. Buljarica is intended to tap the burgeoning global property investment market by delivering a high quality and transformative development and achieving this will be critical to the project's long-term viability.

Table5.High profile projects along Montenegro's coastal riviera

Project	Municipality	Description
Porto Montenegro	Tivat	Residential/ Leisure/ Hotel Marina
Lusticia Bay	Tivat	Residential / Hotel / Leisure
Aquavista	Herceg Novi	Luxury Residential
Tre Cannes	Budva	Hotel/ Apartments
Adriatic Project	Budva	Hotel / Conference / Residential

Project Phasing

In order to consider the potential economic impacts of the Buljarica project, it is necessary to consider the development timescale. The indicative phasing of the development outlined below is a broad assumption based on a combination of spatial planning principles and developer aspirations. It is not intended to represent the developer's plan as this as yet has not been finalised. It is set-out purely to assist in understanding the scale and evolution of the annual economic impact of the project. The development is assumed to be built in 8 phases sequenced over a period of 20 years, with 4 of the phases overlapping in the first half of the construction period. A significant proportion of the commercial and hotel segments of the BUA will be completed in the first 5 phases to anchor the location and build the brand alongside the residential portion.

Table 6 outlines out the indicative phasing for the total 11.5m BUA by type of land use, phase and construction duration. This will set the basis for calculating the economic impact of the project over a 20-year horizon. For the benefit of the economic analysis and in projecting the chronology of impacts, construction is assumed to begin in 2015 and finish in 2034.

Table6.Proposed Indicative Phasing of the Buljarica Project

Land Use	BUA (sqm)	Phases	No.Years
Residential	4,850,000	1-4	10
Commercial	1,674,750	1-5	12
Hotel/Leisure	577,500	1-3	7
Other	57,750	1-3	5
Residential	2,890,000	5-8	10
Branded Hotel	1,500,000	4-5	3

Note: This is Indicative Phasing in the absence of guidance from the Developer

3.4 ECONOMIC IMPACT ANALYSIS

Analysis of the economic and social benefits covers both the development phase and the operational phase of the project over the specified 20-year time period. The scale of the development means there are several phases with operation and development impacts overlapping following completion of the first phase.

Scope of impacts

An assessment of the impact of the project over a 20 year time horizon is undertaken for the following:

- GDP
- Employment - direct and indirect effects
- Perception Impact - Branding effect

This will be an outline assessment due to the lack of more precise information regarding the BUA breakdown, investment value, proposed staffing levels and limitations to the availability of economic statistics. A more detailed economic analysis can be undertaken in the future when more data is available.

Catchment Area

The catchment area of the project impacts given its scale, is assumed to be country-wide – i.e. the whole of Montenegro. The key economic and social benefits will be the additional employment, wages and output, plus the potential long-term impact of attracting future inward investment. These are assessed at the level of the whole economy using national accounts, sectoral employment, construction data and other relevant statistics.

Development Phase: Impact on GDP

Due to a lack of information regarding the estimated value of the project investment, a fully computable assessment of its impact on output, the government's budgetary position and external trade balance is not possible at this stage. However, by reviewing the current statistics of average construction costs in Montenegro this can enable an "order of magnitude" estimate in terms of the potential benefit accruing to the national economy, as follows.

The project will be by far the largest single capital investment ever made in Montenegro, and the value of the construction works (excluding infrastructure and remedial works) would potentially be 60% higher than the total annual investment made in construction nationally over the recent period. Based on the indicative phasing set out, using current prices, the annual capital investment of the project could represent the equivalent of 8% to 14% of annual GDP in the first 10 years of the project's construction.

This would have a significant impact on the national economy particularly in terms of the demand for construction materials, equipment and skilled labour and as such could significantly affect the national trade balance during the development phase. Effective preparatory planning to ensure there is additional and sufficient capacity in the domestic construction and materials industry will enable the government to maximise the economic and social benefits of the construction and limit the risk of overheating.

Development Phase: Trade effect

Montenegro has a persistently high trade deficit, which hit a peak of 55% of GDP in 2008 due to a surge in imports. This has since reduced to approximately 25% of output, however the small size of the domestic economy means that Montenegro experiences a continued high level of import penetration, in excess of 60% of total domestic demand. A major construction project such as Buljarica, while boosting the domestic mining, construction materials and services industries would draw in a much higher volume of imports in the course of development and, given the prevailing extent of import penetration, is therefore expected to have a major impact on the existing goods and services trade balance.

Development Phase: Impact on Employment

The amount of employment expected to be directly generated by the project is based on a combined assessment of recent construction volumes, employment levels and average salaries in construction, as well as the proportion of national construction output dedicated to labour costs. The project will also support a number of jobs indirectly through inter-industry linkages - i.e the downstream supply-chain impact of the investment spending on goods and services supporting the development phase. This has been calculated from a review of employment multipliers applied in similar projects, taking into account the small size of Montenegro's economy (meaning a higher than average proportion of demand will suffer external leakage and will be dependent on imported goods and services).

On the basis of this calculation the project is expected to support an average 10,350 jobs each year during the 20 year development phase, of which 8,500 are directly created from the construction and a further 1,850 indirectly created through supply-chain effects. Employment impacts will reach a peak of 23,150 in year 10 of the development when construction volumes are assumed to be highest of which 19,000 will be directly created and a further 4,150 indirectly. In the latter phases of the development the construction is expected to support 2,500 jobs per year of which 2,050 jobs will be direct and a further 450 indirect jobs. The evolution of the direct and indirect employment impacts over the whole development phase is shown in Figure 3.5.

The annual required construction manpower of 8,500 workers required to execute the development phase is equivalent to the total persons currently employed in the construction sector in the whole of Montenegro. This is likely to result in overheating of the construction industry and significant skills bottlenecks unless these are addressed by a large scale recruitment and training programmes and/or the importation of foreign labour.

Operational Phase: GDP Impact

The main driver of economic growth during the operational phase of the project will be from the additional wages earned from the employment opportunities created. This will be from the operation of the commercial uses including the hotels and the servicing of the residential units and supporting infrastructure. As there is no detailed breakdown of the BUA uses at this stage the impact to annual GDP is again an order of magnitude estimate based on general benchmarks for employment densities and recent average salary data for Montenegro. It is assumed that the employment generating land-uses are fully utilised from the first year following completion which is assumed to be the beginning of year 4 of the development (assumed to be 2018).

It is therefore estimated that the total salary income directly generated by the operational phase of the project could directly account for 2.5% to 3.5% of annual GDP and a further 0.8% to 1.1% of annual GDP through downstream multiplier effects. Once fully operational (assumed to be 2034-2035) the project could account for around 6.6% of GDP from direct wages income and a further 2.1% through multiplier effects. This is assuming a trend in real GDP growth rate of 3% per annum with salaries rising in line with inflation.

It should be noted that the above GDP impact calculation is primarily based on the wages generated by the proposed commercial BUA uses. At this stage it excludes the potential impact of the hotel and hotel-branded apartments as there is no detailed breakdown of the BUA for these uses at present. The analysis also excludes the benefit to GDP resulting from the sale of the residential units which will be sold at a mark-up to the construction cost.

Operational Phase: Employment Impact

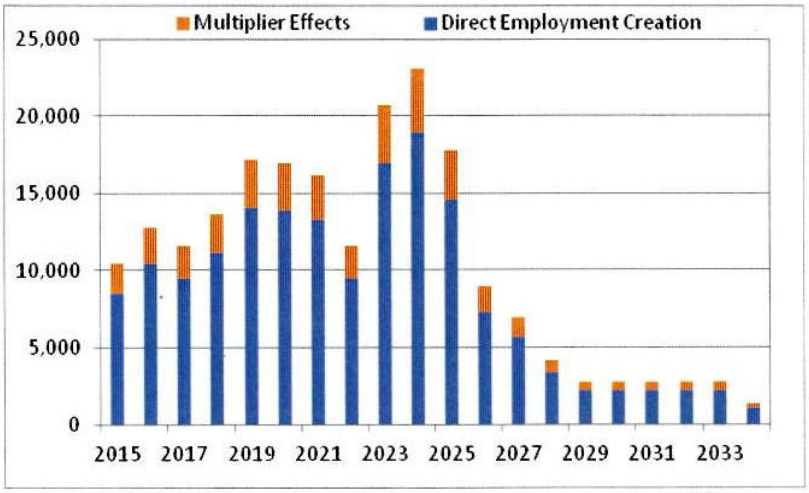
Once fully operational, the project, could directly create up to 50,000 jobs with a further 16,000 jobs throughout the rest of the economy via multiplier effects. Based on the indicative phasing, approximately 10,000 to 12,000 permanent jobs are expected to be directly created following completion of the first development phase, and 3,000 to 4,000 indirectly through multiplier effects. The project is expected to generate an additional 3,750 permanent jobs per year for the next 8 years of operation as the development phase is progressed (and an average 1,200 multiplier jobs per year) before declining to approximately 950 direct permanent jobs and 300 indirect jobs per year in the final phases of development (i.e. year 20).

The above calculation is based on the proposed commercial BUA using accepted parameters for the average employment densities. It excludes the potential impact of the proposed hotel/leisure and branded-hotel residences as this requires greater detail on the size and nature of these uses. In general, more detail on the precise nature of the proposed BUA uses would enable a more robust analysis of the employment impacts and the downstream multiplier effects on the domestic economy to be undertaken.

In terms of the impact of the employment demand on the wider economy, the unemployment rate in Montenegro is currently above 20% of the labour force, amounting to just under 50,000 persons. Hence there is considerable slack in the labour market that, theoretically, is able to absorb the job requirements of the project's operation at least in the early stages. This is, however, discounting the construction labour needs (which are likely to require certain skill sets) in addition to that of the operational requirements as individual phases are completed.

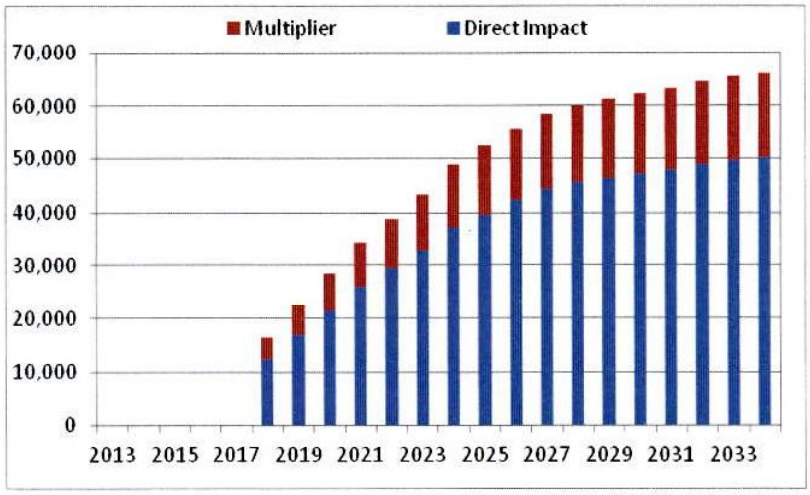
Moreover, in view of the slow rate of Montenegro's population growth, at current trends the growth rate of the labour force is unlikely to be sufficient to service the operational manpower requirements of approximately 50,000 workers (plus 16,000 in multiplier effects) if the project vision is fully implemented.

Figure 3.7 summarises the size and timeline of the employment impact of both the development and operational phases of the project, with the first full year of operation assumed to be 2035.



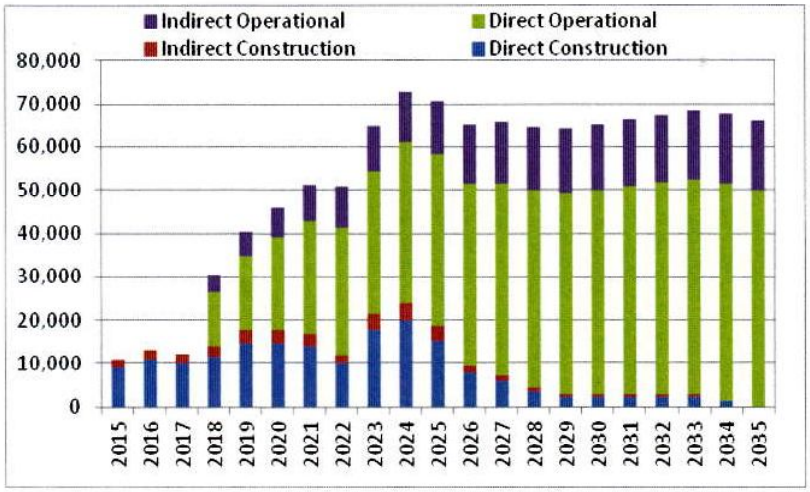
Source: Consultant's calculations

Figure 3.5 Direct and Indirect Employment Impact over the whole Development Phase



Source: Consultant's calculations

Figure 3.6 Direct and Indirect Employment Impact during Operational Phase through to first fully operational year



Source: Consultant's calculations

Figure 3.7 Summary of All Employment Impacts by year (to end development phase / start of full operation)

Perception Impact: Branding and Promotion

A potentially major beneficial impact to Montenegro resulting from the Buljarica project relates to the increased international exposure from the developer's own marketing and promotion of the project. At present there is no information regarding the planned spending and strategy for marketing the development to enable a quantification of the economic benefit. However, a project on such a large scale is likely to be heavily promoted and this will have knock-on effects in raising the profile of Montenegro as a tourism, leisure and residential location, and in turn attracting additional external (tourism) income and possibly foreign investment.

3.5 PRINCIPAL CONCLUSIONS

The potential impact of the proposed Buljarica development project has been considered over a notional 20 year development timescale to construct the full project, taking into account current development rates in the country. The project is assumed to be fully operational after 20 years with parts of the proposed uses becoming operational after each development phase of which there are assumed to be 8 in total. Parts of the project are assumed to be operating after three years of development (assumed to be 2018).

The capital investment is expected to add an average of 6.8% to GDP per year over the lifetime of the development phase, reaching a peak of 14% of GDP in year 10 of the development phase. Once fully operational the project is expected to add around 6.5% of GDP per year and between 2.5% to 3.5% in the initial operating years.

In view of the relatively small size of the Montenegro economy and high levels of import penetration, an investment on this scale is likely to experience a significant level of leakage from the domestic economy through attracting imported construction materials, equipment and services. A strategy to boost the capacity of the mining and construction materials industry and other supply chains will be required to fully maximise the income-generating potential of the development to the domestic economy.

The development phase is expected to create on average 8,500 construction jobs per year over the 20 year construction period with a further 1,850 created through multiplier effects. Employment demand will reach a peak of 19,000 direct construction jobs in year 10 of development with a further 4,500 created indirectly through multiplier effects.

Once fully operational the project is expected to directly employ approximately 50,000 workers and a further 16,000 via multiplier effects. Approximately 10,000 to 12,000 jobs are expected to be created following completion of the first development phase, and 3,000 to 4,000 indirectly through multiplier effects. Operational employment creation will then build up steadily with the completion of each individual development phase.

The project will require a construction workforce equivalent to the total number of construction workers employed in the country, hence placing considerable demands on Montenegro's construction and building materials industry. This is likely to create overheating and bottlenecks in the availability of the necessary labour and resources resulting in the dependence on external migrant workers to service the development phase. The introduction of skills and recruitment programmes in advance of the construction will be required to ensure the job opportunities can be fully accessed by the domestic labour force and particularly the unemployed.

Similarly, the employment required to operate the project will be significant and create a wide-range of job opportunities for the domestic population. The presently high unemployment rate in Montenegro with up to 50,000 persons without permanent work means that the labour market is well placed to maximise the job-creating benefits offered by the project. This would be assisted by the creation of training and skills programmes in parallel with the project's implementation to smooth potential skills bottlenecks and ensure the unemployed can fully access the new job opportunities.

MASTER PLAN CONCEPT

4.1. SITE POTENTIAL

4.2. PRELIMINARY CONCEPT DEVELOPMENT

4.4. INTERIM CONCEPT MASTER PLAN

4.5. CHARACTER ZONES

4.6. LAND USE

4.1.SITE POTENTIAL

4.1.1 Opportunities and Constraints

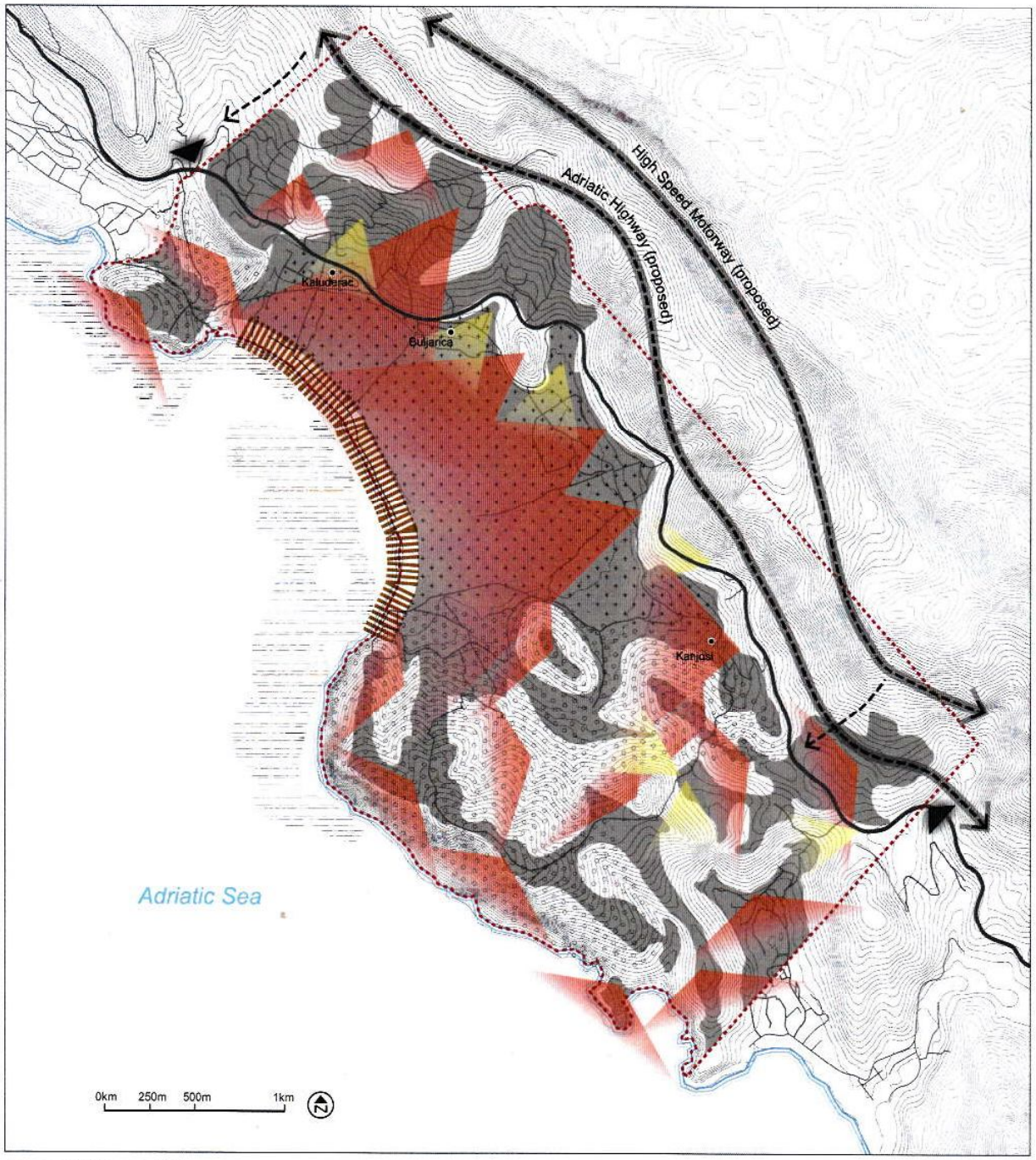


Figure 4.1 Opportunities

Legend

- Site Boundary
- Developable Area
- Contour Lines
- Existing Roads
- Proposed Highways
- Existing 'Gateway' Entrances to the site
- Panaoramic Views to the Adriatic Sea
- Spot Views to the Adriatic Sea
- Potential Connections
- Beachfront
- Flat Land
- Forested Areas

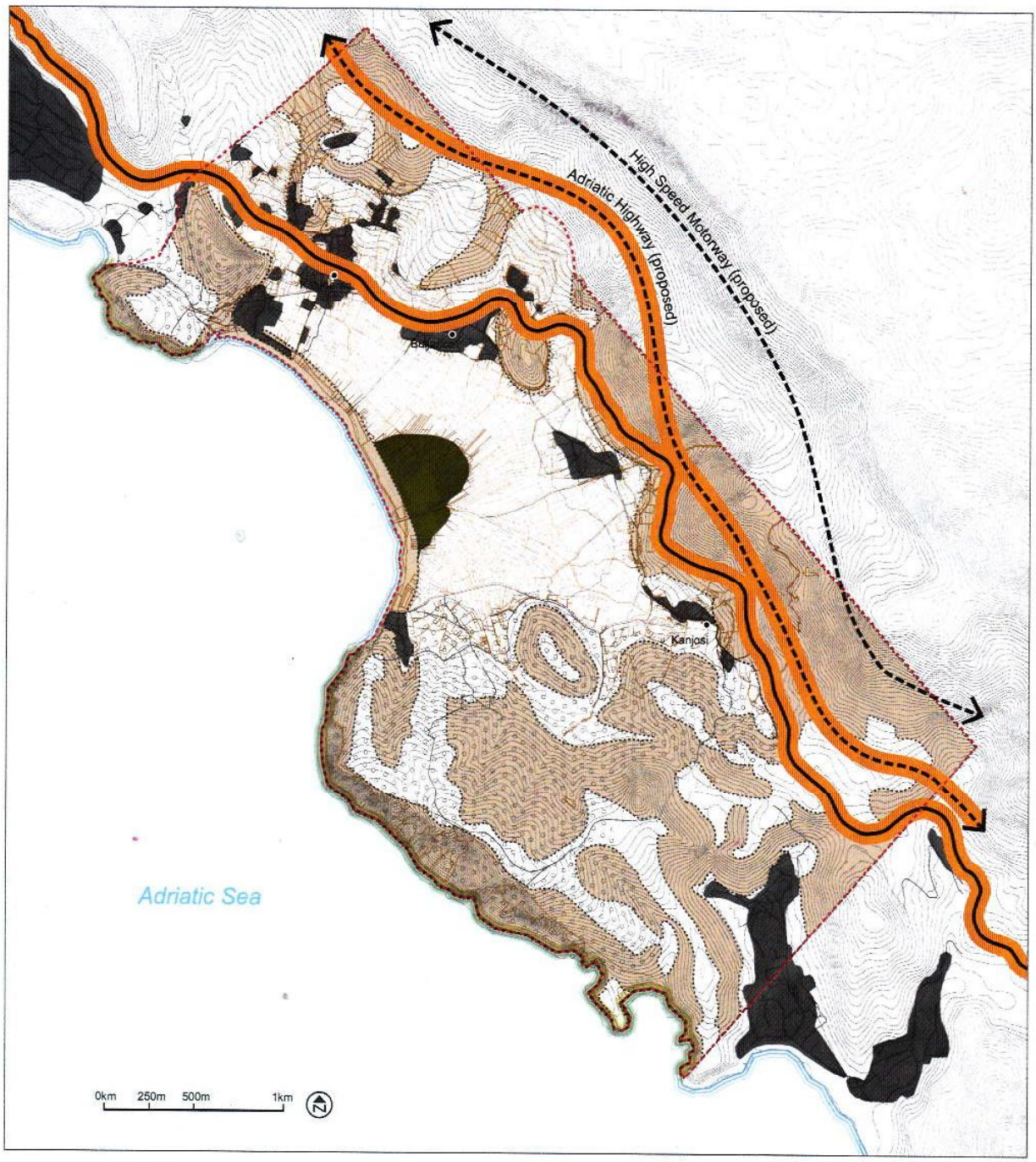


Figure 4.2 Constraints

Legend

- Site Boundary
- Proposed Highways
- Contour Lines
- Existing Roads
- Existing Settlements
- Wetlands
- Noise Pollution Risk
- Non-Developable Land
- Coastline At Risk of Erosion
- Forested Areas

4.1.2. Developable Area

Figure 4.3 shows the extent of land identified at this stage as developable. This has been based on the analysis of slopes and topography described in Chapter 2 combined with the desire to protect the landscape quality of the site by limiting significant visual impacts of development on higher ground overlooking Buljarica Bay.

Of the total site area of 1179 hectares as measured, 560.4 ha was identified as 'developable.' This provides the gross developable area for the Buljarica development which in line with the client's current land use budget will be split 70/30 between sellable and non-sellable land.

Based on the client's target gross BUA figure of 11.5million sq m this produces a BUA target of 30,900 sq m per hectare.

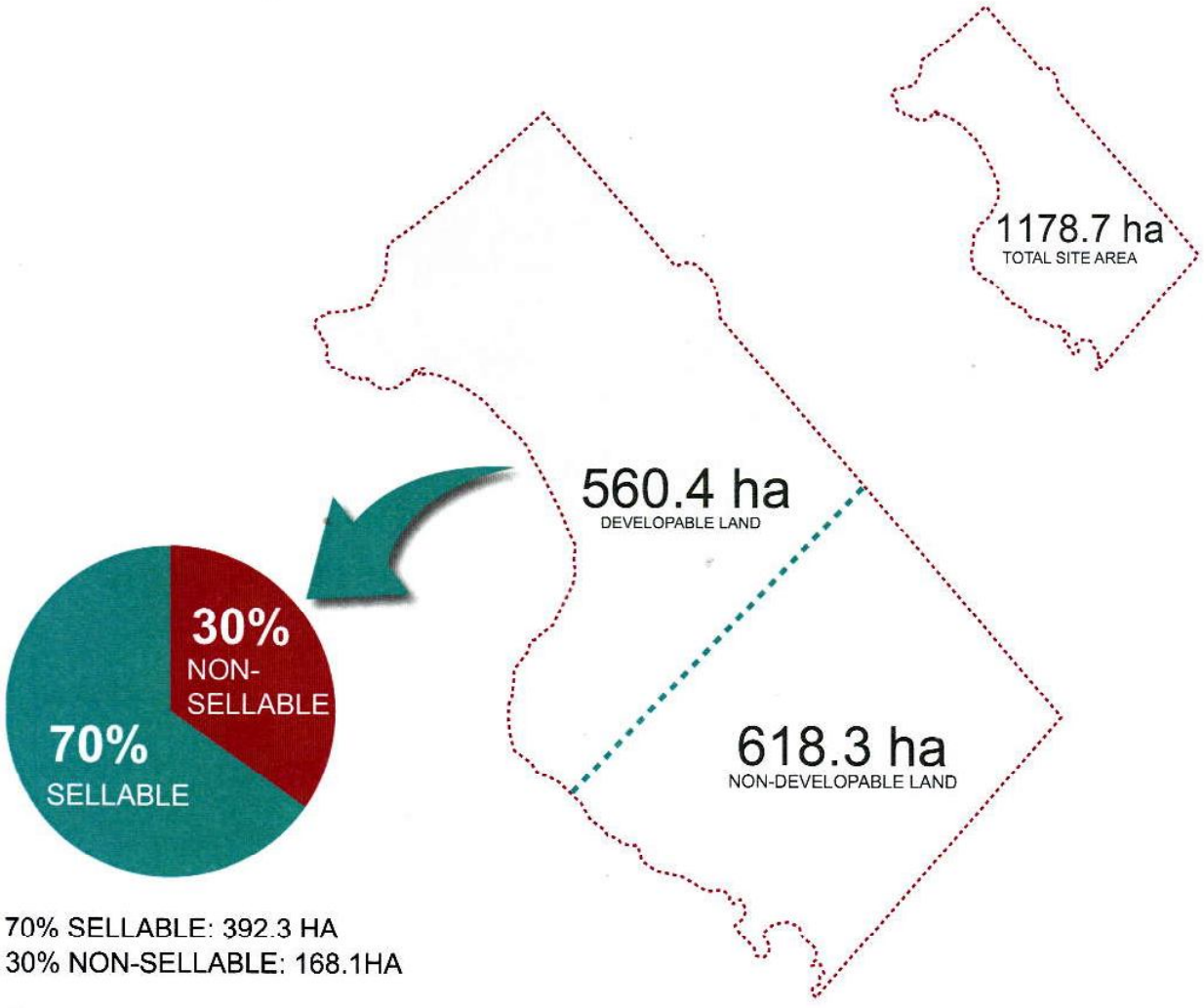


Figure 4.3 Developable and sellable land areas

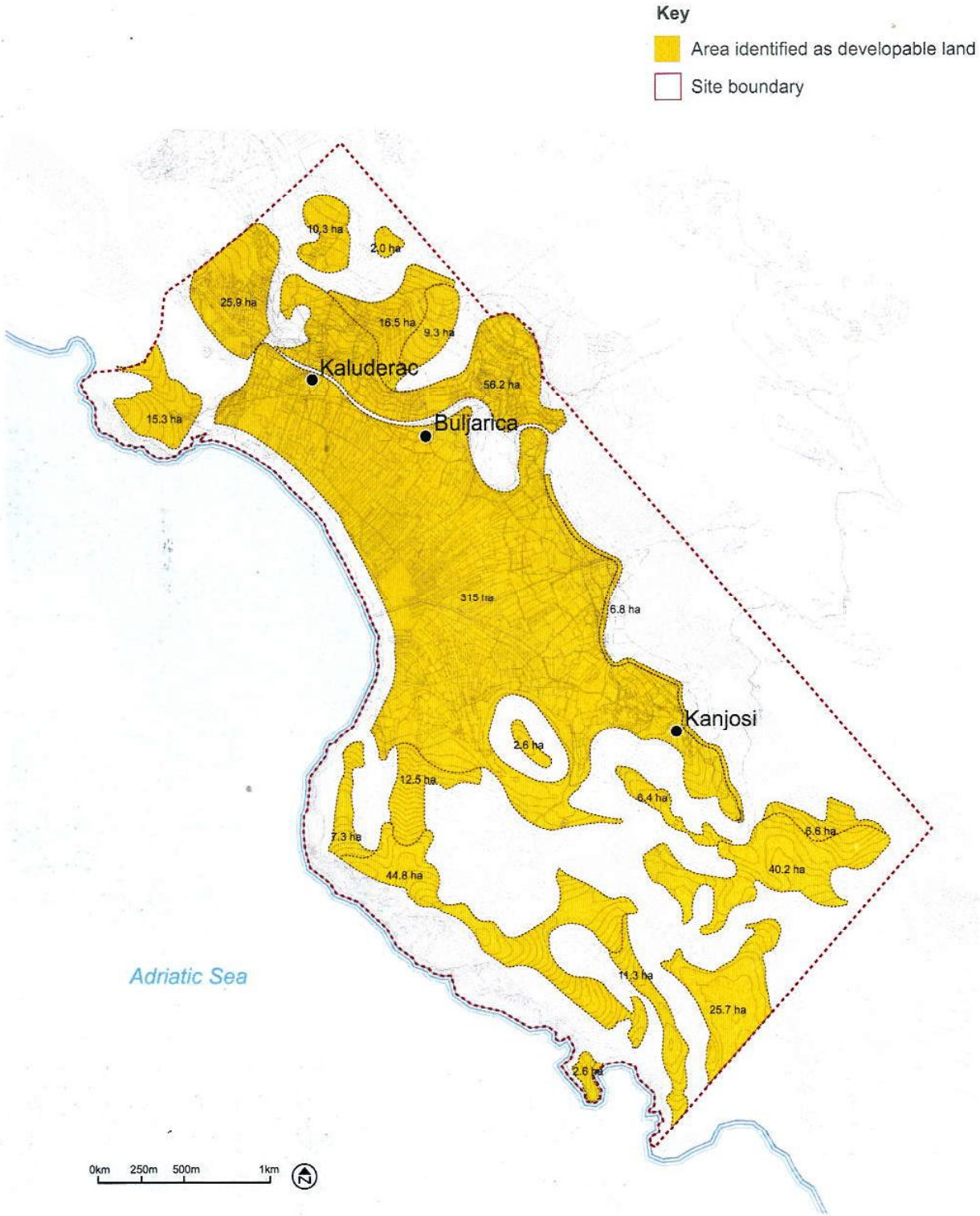


Figure 4.4 Developable land area

4.2. PRELIMINARY CONCEPT DEVELOPMENT

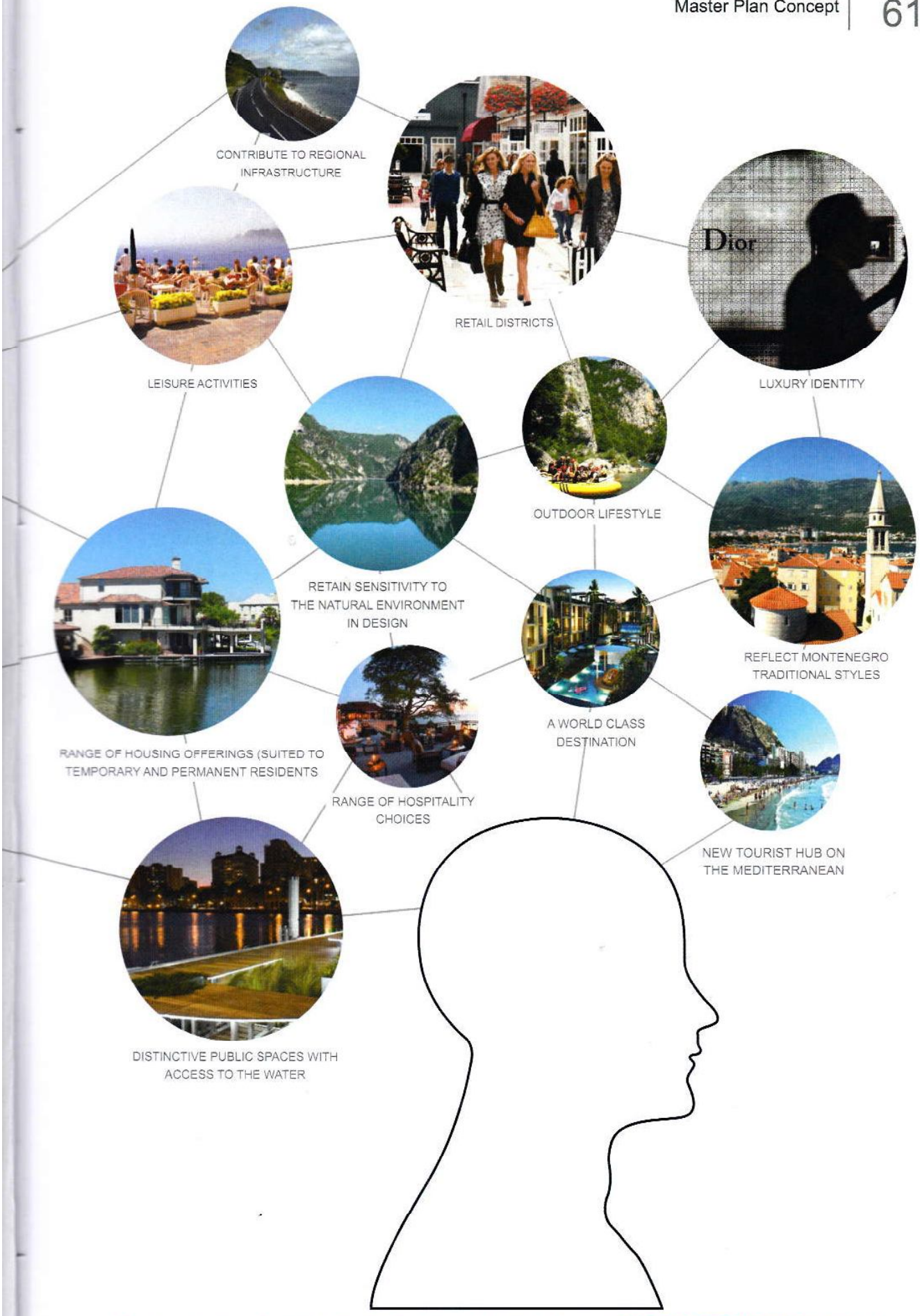
4.2.1. A Destination of Choice

In line wth the brief for 11.55 mil sq m of BUA, the master planning team identified a series of design principles that should underpin the spatial plan for Buljarica:

1. Create a new tourist hub on the Mediterranean
2. Incorporate Montenegro's traditional styles and heritage in the master plan concept
3. Promote a luxury identity for Buljarica
4. Brand Buljarica as the first modern resort town in Montenegro
5. Contribute to the improvement of regional infrastructure
6. Create a development that offers diverse urban characters
7. Offer a range of housing styles and typologies, ranging from apartments to condominiums to villas and terraces
8. Offer a range of hospitality choices, serving year round and temporary visitors
9. Retain sensitivity to the natural environment in the design, including environmental policy where possible
10. Provide a palette of leisure activities linked to the natural environment
11. Promote an outdoor lifestyle with activities such as trekking, hiking, nature trails, etc.
12. Provide a minimum of two active retail districts in addition to a retail/service zone linked to the motorway
13. Create distinctive public spaces with access to the water
14. Promote the marina and beachfront as focal points of Buljarica Bay
15. Utilise the site's topography to plan neighbourhoods, enhancing views and real estate value longevity
16. Promote best practice in urban design and landscape architecture

OFFER DIVERSE URBAN CHARACTERS

MARINA AND BEACHFRONT



4.2.2 Landuse Approach

Based on the development vision outlined by the client, a draft spatial framework was prepared and presented to the client in July 2013.

Following a workshop on the vision for the master plan, the client supplied the following 'fixes' to inform the Interim Concept Master Plan:

Fixes

- An Old Town
- A Canal Quarter
- A Signature Marina District and Marina with berthing capacity for at least 400 medium vessels and 60 large vessels
- A Casino and Entertainment Zone, including the option of a casino on the promontory
- Hill towns wilth terraced housing, resembling Italian or Greek coastal hill towns
- A selection of resort areas
- A minimum of two retail hubs, one with a traditional market area
- Sellable land to be 70% of developable area
- Hotel development along the beachfront

Additional design fixes identified by the master planning team included:

- Utilisation of existing natural watercourses in the routing of the future canal network
- Set character zone densities based on topography

Figure 4.5 Draft Spatial Framework July 2013

Table7. Land Use Concepts

Land Use Concept - Summary Table
Approach:
• Mixed use neighbourhoods
• Canal Quarter residential is a primary feature
• Secluded Old Town
• Casino in Duovica Heights
• Leisure activities to north of scheme

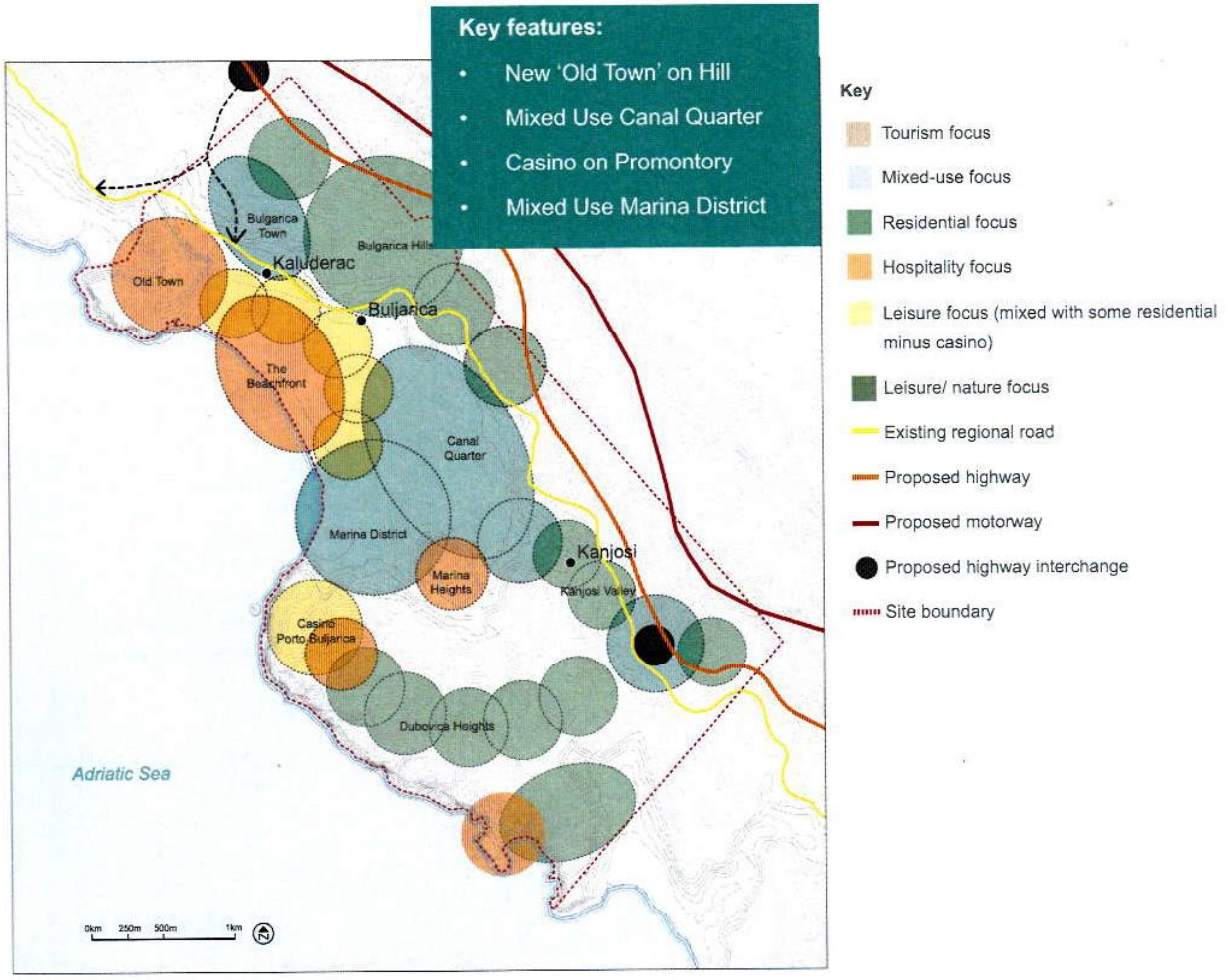


Figure 4.6 Land Use Approach

4.3 MASTER PLAN SPATIAL FRAMEWORK

4.3.1Accessibility and Road Hierarchy

At 11.5 mil sq m of BUA, the development will require a minimum of two access points to the existing regional highway (the Coastal Road) and proposed Adriatic

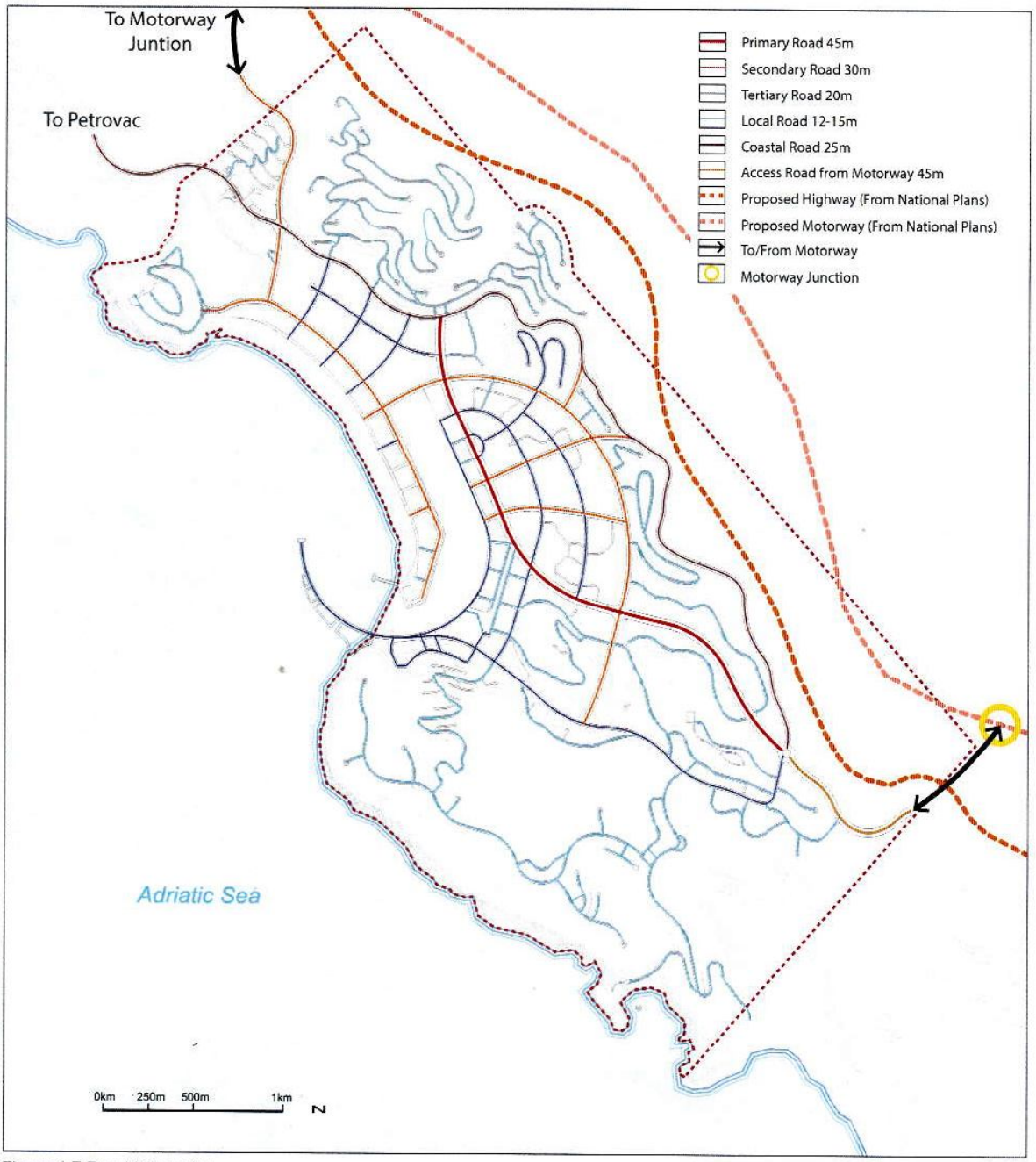


Figure 4.7 Road Hierarchy

highway.

It is anticipated that the Coastal Road will be downgraded to a scenic tourist route, and used for secondary access to the development and hillside residential areas.

4.3.2 Connecting Infrastructure to the Motorway/Highway

Regional infrastructure plans show a future motorway junction to the south of the site. Kanj junction will be the main point of access to the site from the South. Additionally, a junction serving both Petrovac and Buljarica North is recommended (leaving approximately 4km between motorway exits). The access road from the motorway will be routed as so to discourage sprawl development between Buljarica and Petrovac as has been drawn in the interim framework plan.

Flat and low lying areas devoid of views at site's northern and southern motorway fringes are recommended for service stations, big box retail, etc.

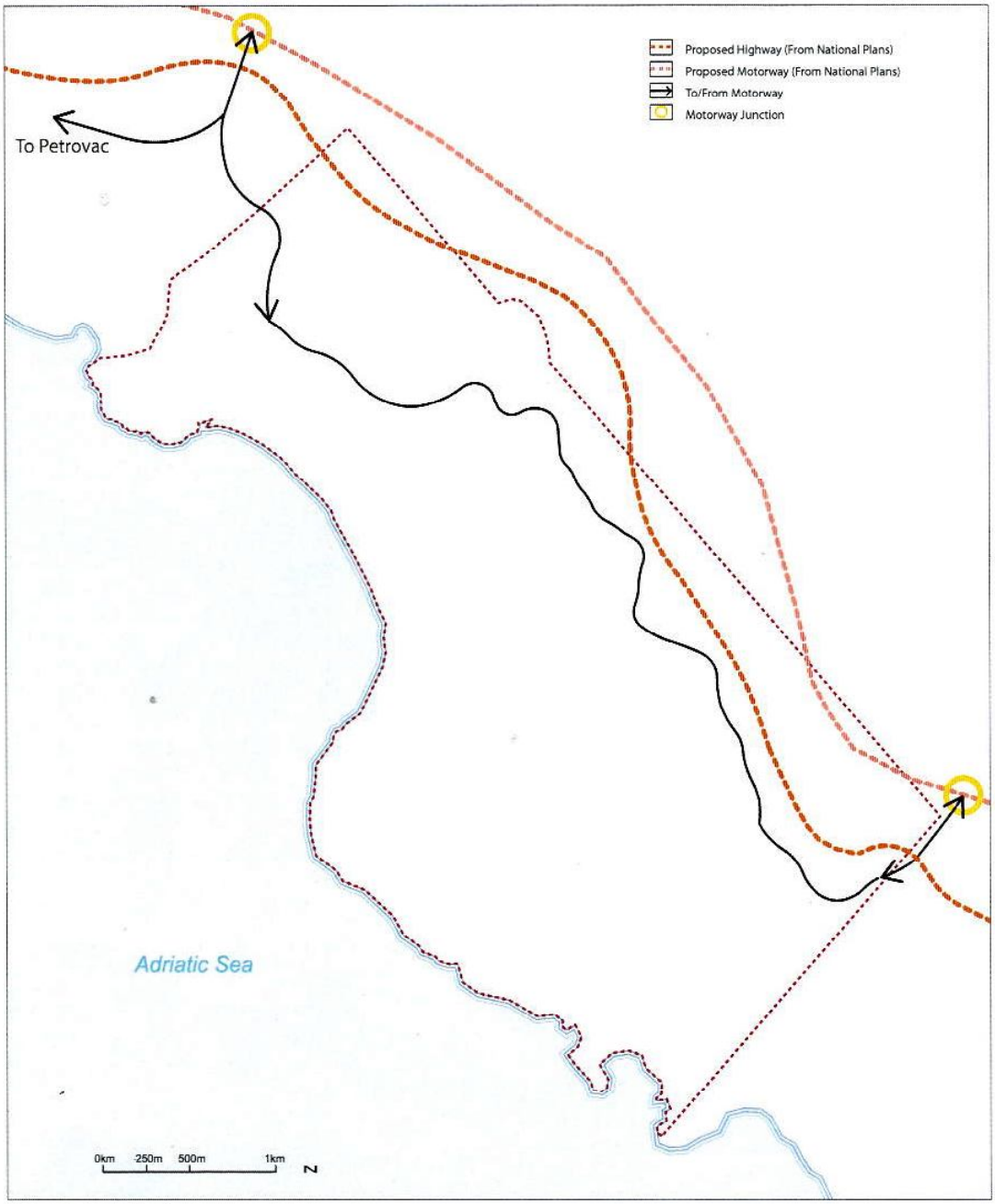


Figure 4.8 Access Strategy

4.3.3 Land Use Strategy

The potential land use strategy for Buljarica is shown below.

Key Features

- Rectangular marina
- Casino on Dubovica Heights becomes a prominent feature and visual focal point
- Old town to North-East on headland
- Formal/rectangular plots for hotels/resorts along the Beachfront
- Artificial canals form organic Canal Quarter

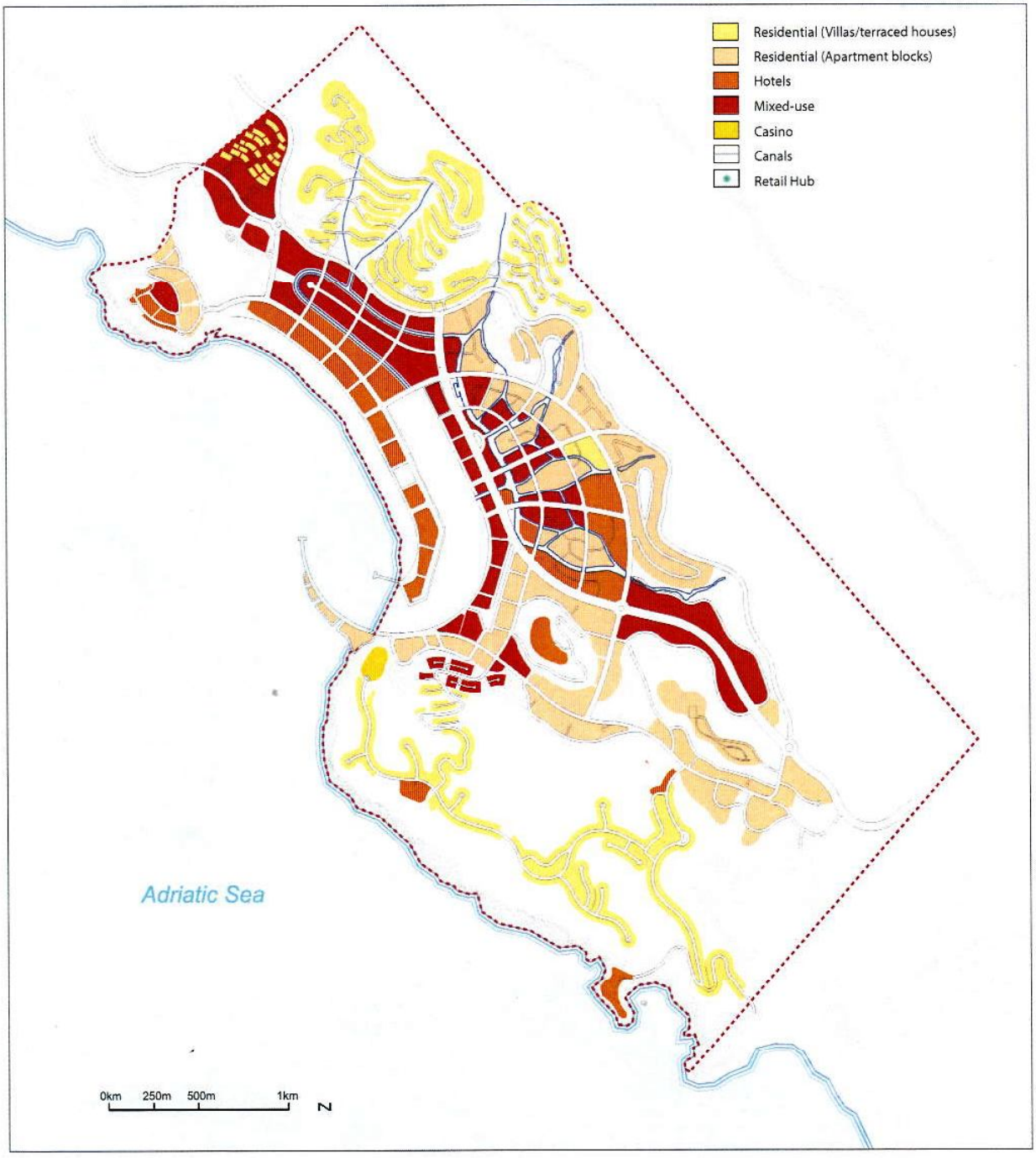


Figure 4.9 Land Use Strategy

4.3.4 Character Zones

To help define and articulate the wider Buljarica development, a series of initial character zones that reflect the topography and setting of the site and the nature of the proposed development within each zone have been developed.

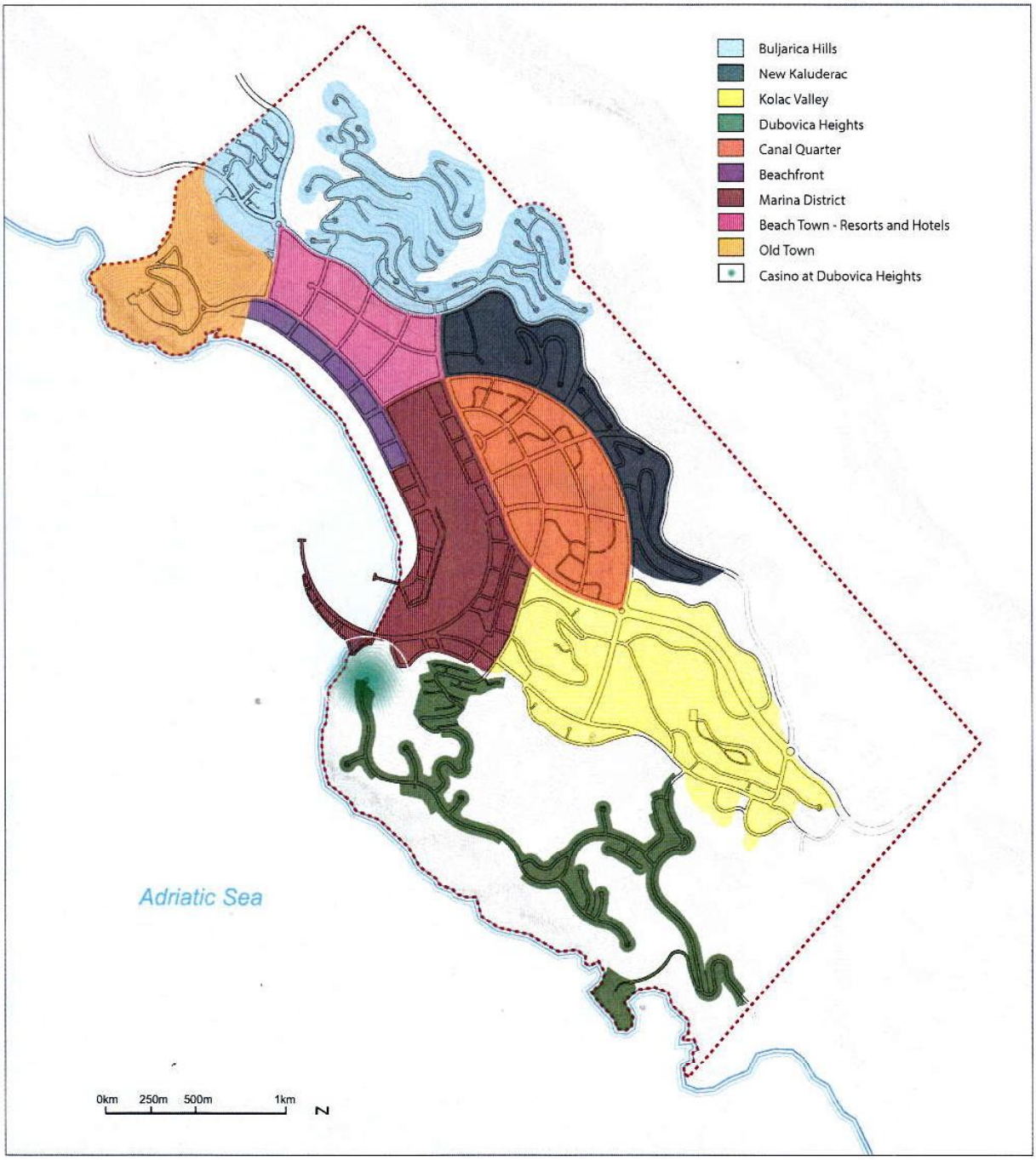


Figure 4.10 Character Zones

4.3.5 Landscape Strategy

Native species shall be specified for the new Buljarica development planting palette. The preservation of flora and fauna are key to the development's success.

A large beach waterfront maximising the coastline is a feature of the open strategy for the Spatial Framework Plan.

Organic water body typologies with a contrasting orthogonal marina identify the form of this development with promenades creating a large public realm.

Landscape Approach - Key Features

- Preservation of Natural Landscape
- Maximised Beach Waterfront
- Organic Canal Typologies
- Primary Green Link
- Maximised Waterfront Promenades

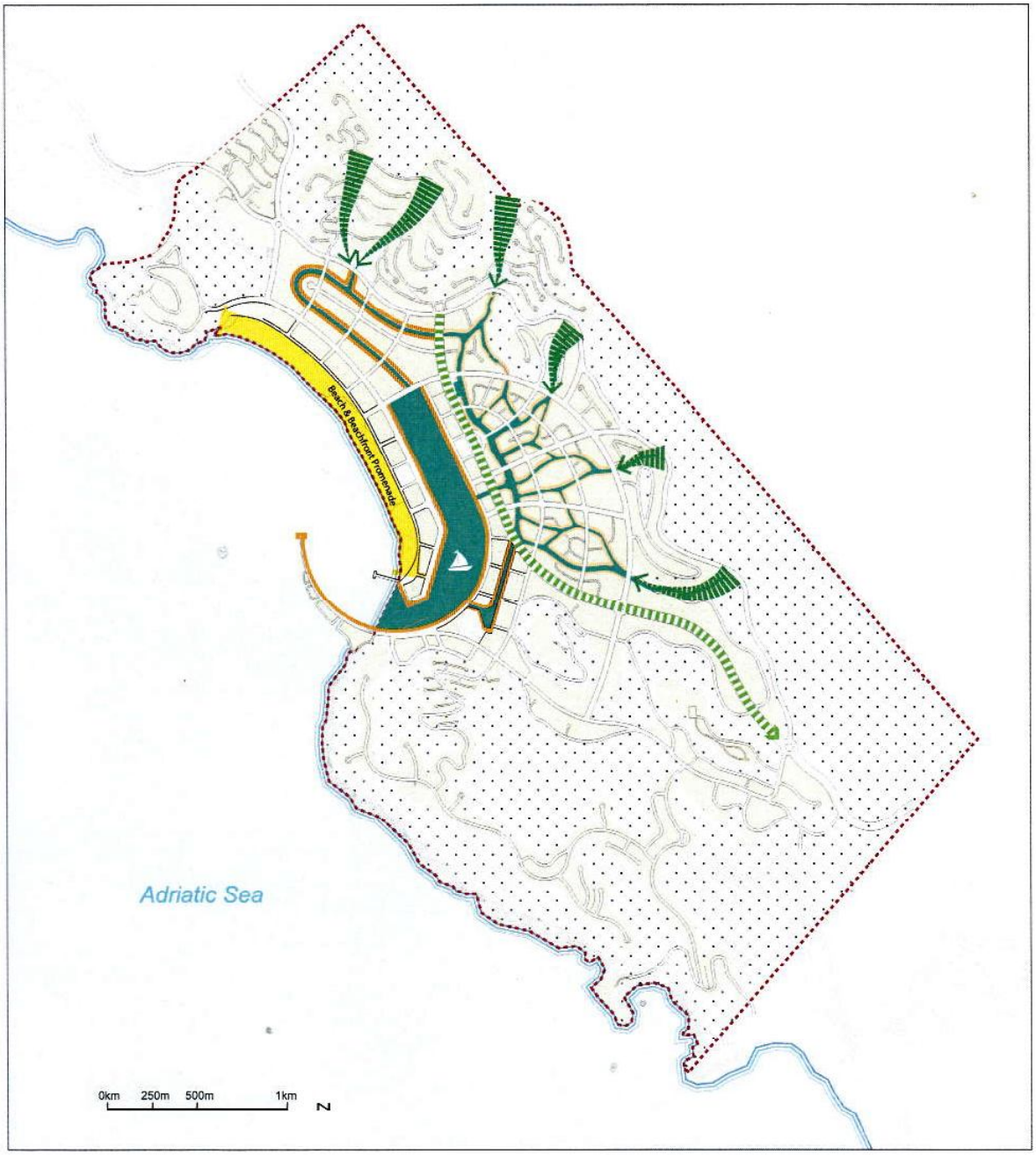


Figure 4.11 Landscape Strategy Plan

- Beach and Beachfront Promenade
- Water Bodies
- Plots
- Marina
- Waterfront Promenade
- Residential Waterfront Promenade
- Green Park Link
- Green Median Link
- Valley Parks
- Woodland and Trails

4.4. INTERIM CONCEPT MASTER PLAN

The basic design approach has been worked up into the Interim Concept Master Plan, which is presented and explained in the remainder of the document. Figures 4.12 to 4.19 illustrate graphically in more detail the density, building height and massing required in order to deliver 11.5mil sq m of built up area as well as the design intent within the character areas.

The centrepiece for the scheme is the large iconic marina with circular breakwaters and piers in the sea, which are overlooked by the casino sitting on the Dubovica headland. From this core the canals fan out taking with them the other land uses.

LEGEND

A. OLD TOWN	F. CANAL QUARTER
1. Residential	18. Residential Apartments
2. Market Square	19. Canal Network
3. Mixed Use Services	20. Neighbourhood Centre
B. BULJARICA HILLS	21. Community Facilities
4. Residential	G. NEW KALUDERAC
5. Retail Facilities	22. Apartments
6. Neighbourhood Park	23. Neighbourhood Park
7. School / Sports Pitch	24. Community Park
8. Visitor Car Parking	H. KOLAC VALLEY
9. Residential Villas	25. Mixed Use
C. BEACH TOWN	26. Residential Apartments
10. Commercial Centre	27. 5* Hotel
11. Retail Promenade	28. Hotel Resort
12. Mixed Use / Retail	29. Retail Facilities
13. Retail Courtyard	I. DUBOVICA HEIGHTS
D. BEACHFRONT	30. Casino
14. Hotels	31. Mixed Use
E. MARINA QUARTER	32. Walking Trails
15. Central Park	33. Community Facilities
16. Marina Promenade	34. Residential Apartments
17. Marina	35. Hotel / Exclusive Residencies

Figure 4.12 Illustrative Rendered Plan of Buljarica Bay at 11.55 mil m^2 of BUA

4.4.1 Massing Views

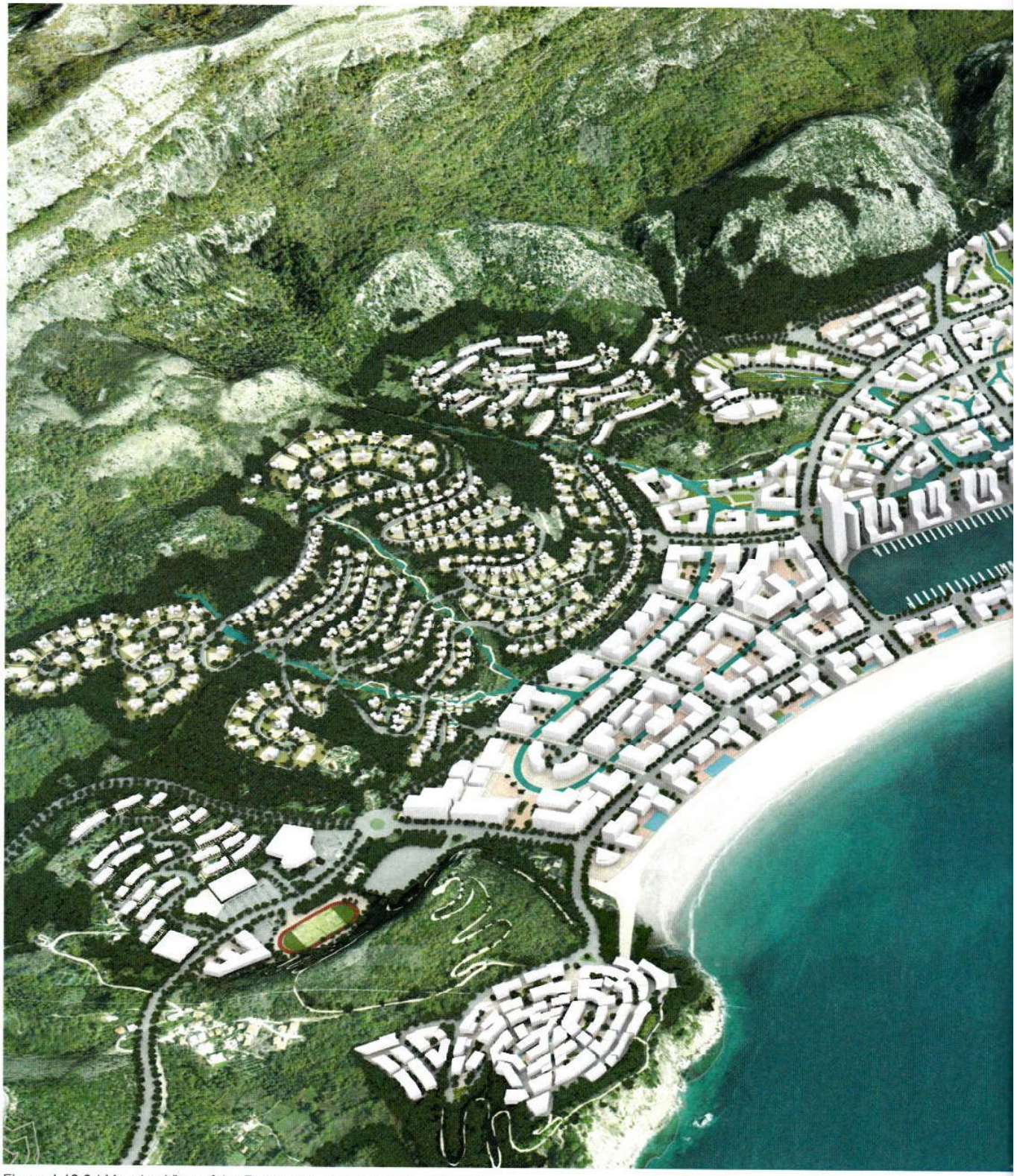
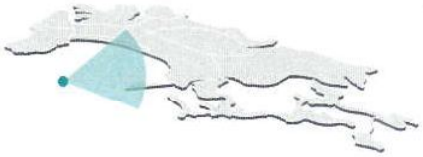
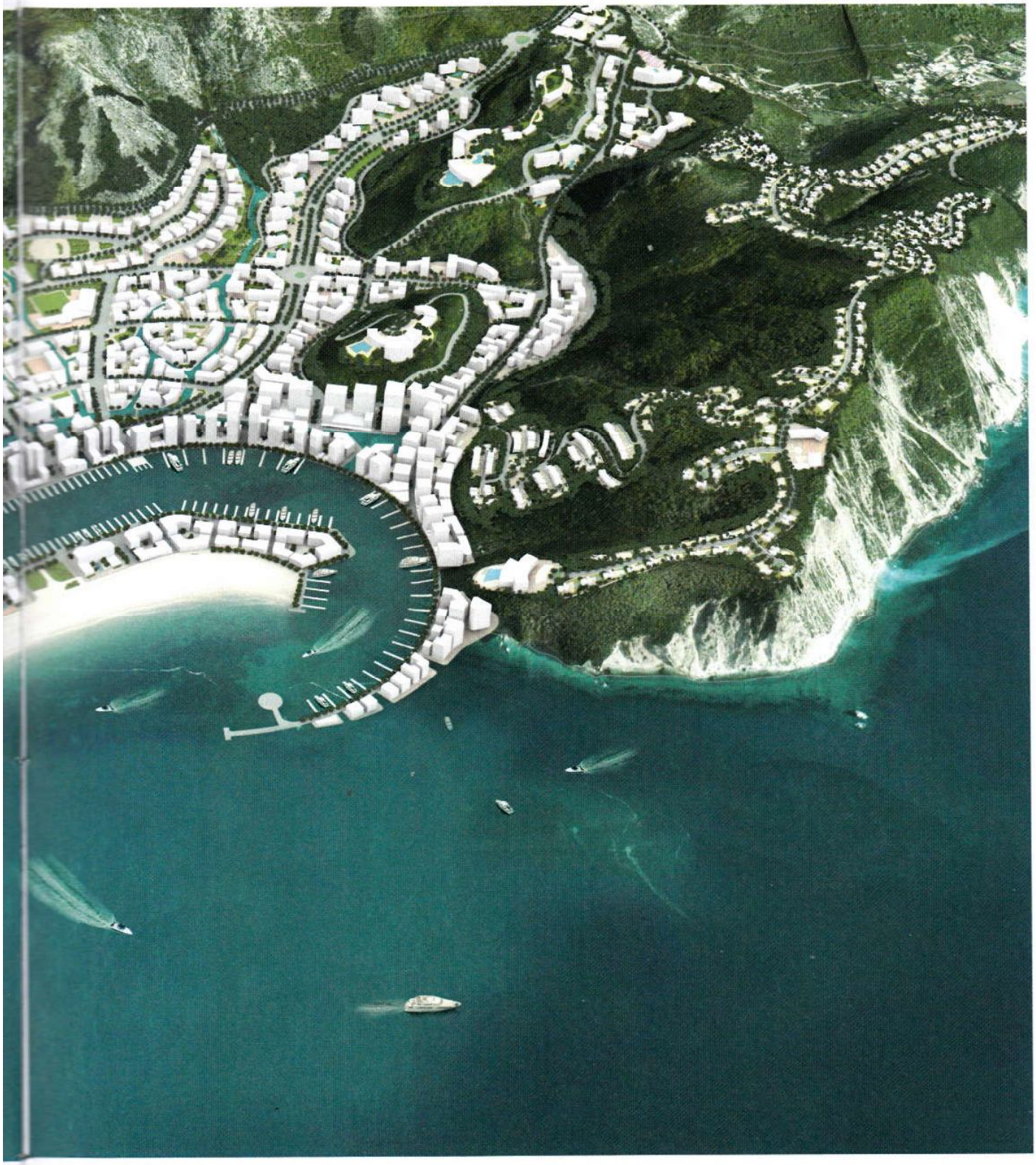


Figure 4.13 3d Massing View of the Framework Plan from the northwest





4.4.2 Massing Views

Figure 4.14 3d Massing View of the Framework Plan from the northwest

4.4.3 Massing Views

Figure 4.15 3d Massing View of the Framework Plan from the west

4.4.6 Character Zoom In Shots

View of Old Town and Buljarica Hills Character Zones

Figure 4.16 Detailed Views of the Illustrative Framework Plan

View of Beachfront, Beach Town and Marina District Character Zones

Central Park

View of Canal Quarter and New Kaluderac Character Zones

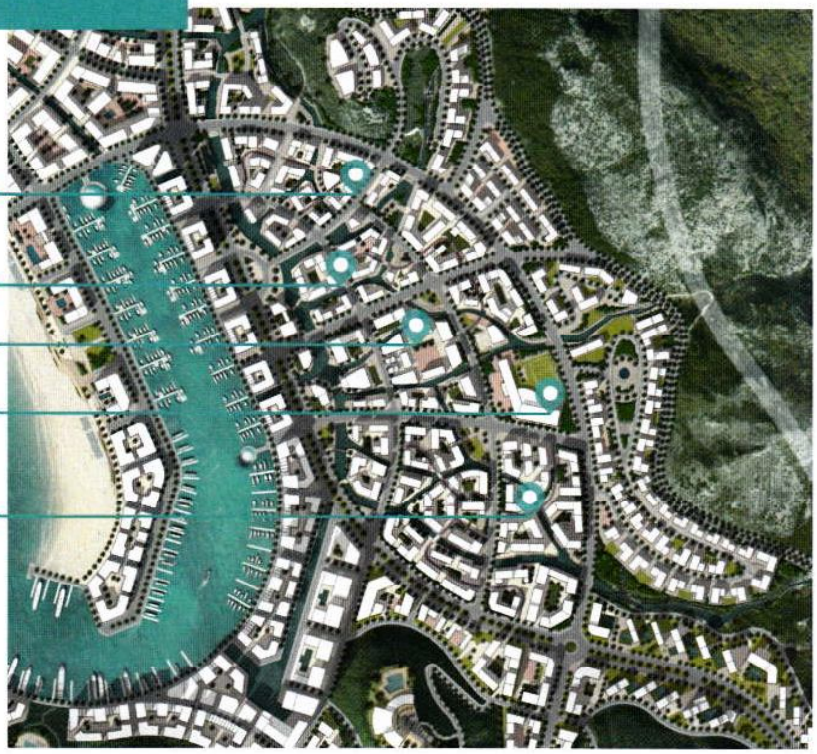
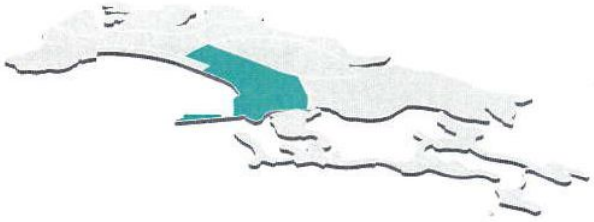


Figure 4.17 Detailed Views of the Illustrative Framework Plan

View of Kolac Valley and Dubovica Heights Character Zones

4.5 CHARACTER ZONES

4.5.1 Marina District



The Marina District will be a stunning new urban environment set around the new marina. Ground floor space will provide the opportunity for cafés, bars and restaurants with high quality apartments above. The District will have a high density vibrant urban character with constant visual interest and activity. The marina will be designed to accommodate a wide range of craft from small dinghies and sailing boats to large megayachts.

Features

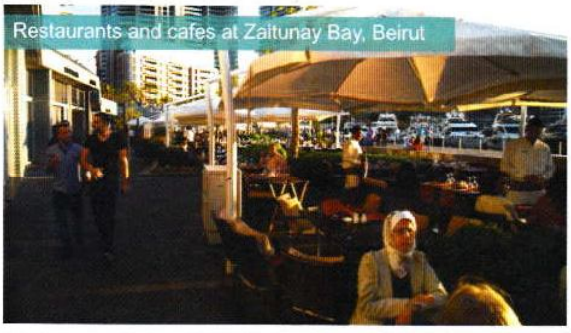
- High rise contemporary towers
- Marina
- Cafes, bars and restaurants with high quality apartments above
- Parks and view corridors
- Promenade

The landscape character for the Marina District will provide extensive hard standing areas, using high quality materials to provide a grand approach to the Marina. It will be heavily used by pedestrians and feature tree planting will assist in providing a comfortable shaded environment. The trees will also soften the space. Hard wearing recreation areas will be integrated, providing relaxing places to sit.

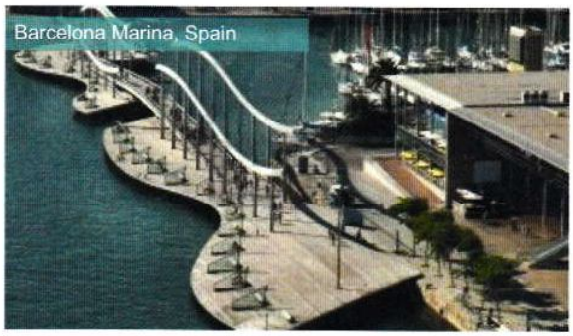
Urban Themes


Hafen City, Hamburg

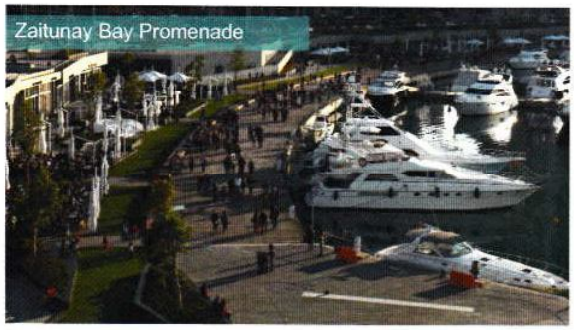

Marina at night, Porto Cervo, Sardinia


Restaurants and cafes at Zaitunay Bay, Beirut

Landscape Themes


Barcelona Marina, Spain

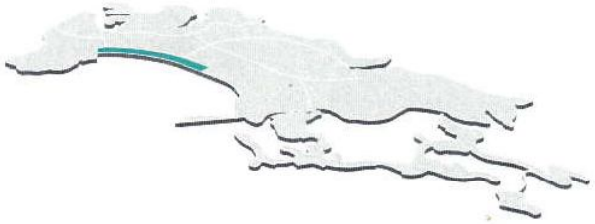

Promenade at night, Porto Arabia, Qatar


Zaitunay Bay Promenade

Perspective view of the marina

Architectural impressions of marina

4.5.2 The Beachfront



The Beachfront District will host a series of stunning set-piece hotels each designed by a world-renowned architect that clearly identifies Buljarica as a world class Destination of Choice. The boardwalk and high quality landscape will unite the hotels so that together they create a thriving new and exciting destination with high quality cafes, bars and shops for a modern clientele.

The Beachfront will be a car free zone with pedestrians and cyclists taking precedence.

Features

- Luxury resorts/hotels
- Private/public beaches
- Cafes, bars, restaurants
- Promenade
- Car free zone

The landscape will have a high end design influenced by the adjacent hotels with materials chosen to work in harmony. The integration of public and private space will be key, including a promenade that carries pedestrians along the beachfront. It will be designed using native trees to provide shade and integrated seating. Play elements and kiosks will become part of the promenade making an active and bustling beachfront.

Urban Themes

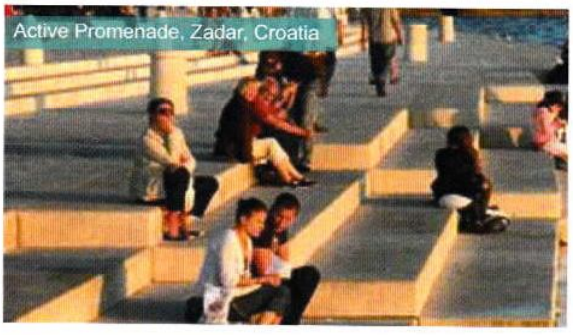

Boutique hotel Monte Mulini, Istra

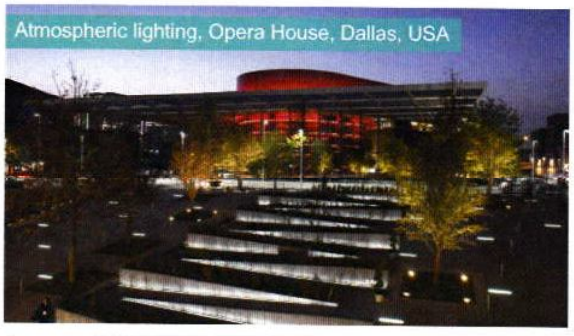

Private courtyard and pool, Bulgari Resort, Bali

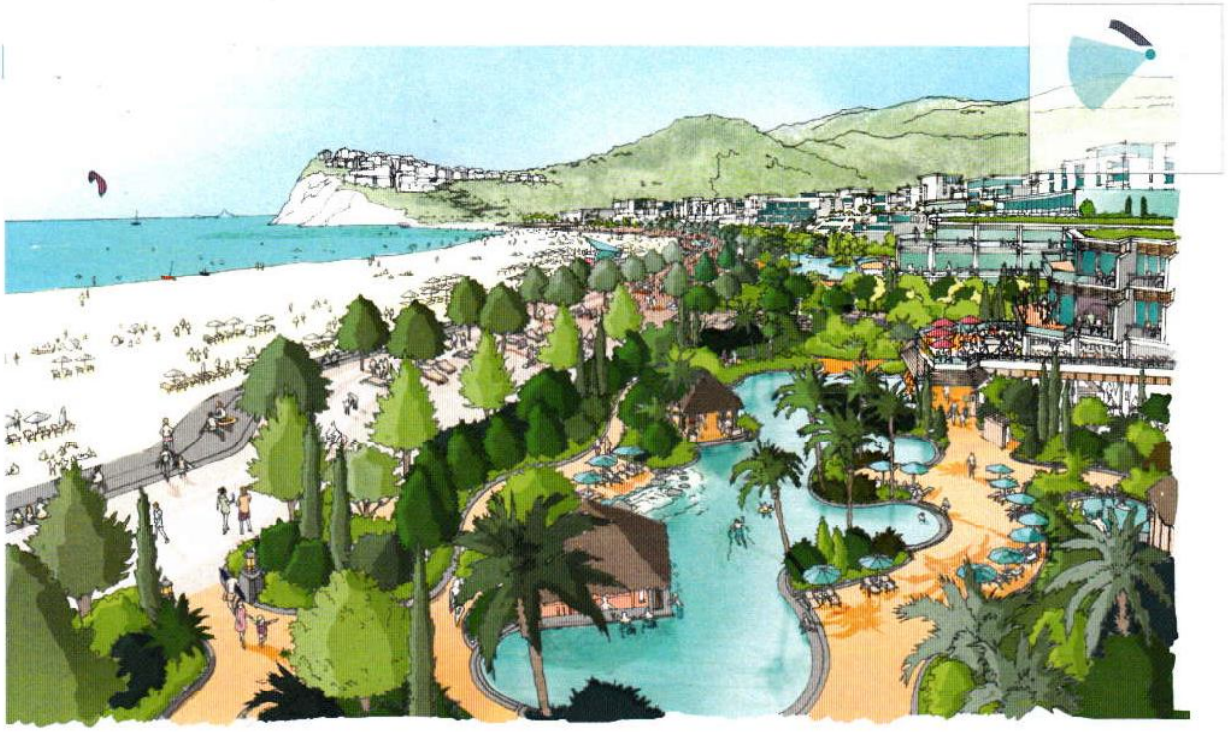

Busy public beach, San Sebastian, Cantabria

Landscape Themes

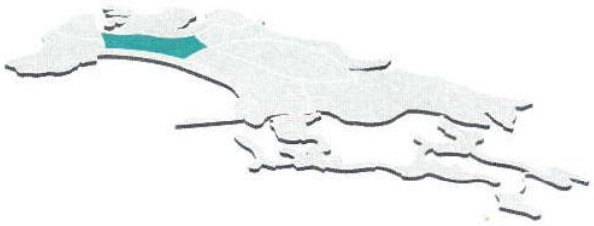

Public Square, Tivat, Montenegro


Active Promenade, Zadar, Croatia


Atmospheric lighting, Opera House, Dallas, USA



4.5.3 Beach Town



Beachtown will be the new City Centre at Buljarica adjoining the The Beachfront to the west and the Marina District to the south. It will house a full range of local services and shops. The ultra high quality public realm will feature a series of urban squares and spaces providing opportunities for events and festivals. It will be the premier shopping destination in Montenegro with a broad shopping offer including all the high-end brands that will establish Buljarica as an essential destination within Montenegro and the wider Adriatic region.

Features

- Canal
- Public courtyards/urban squares
- Local services and shops
- High end brands
- Promenade

Heavily pedestrianised and active public spaces will require shade using native trees, canopies or building frontages such as arcades. The canal promenades will provide a main pedestrian through-way. Additional landscape features such as water features may appear in public squares, providing nodal points, interest and passive cooling.

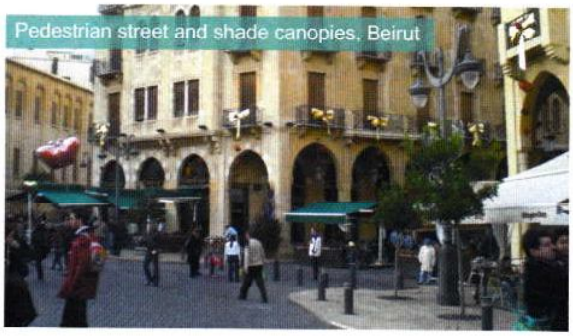
Urban Themes

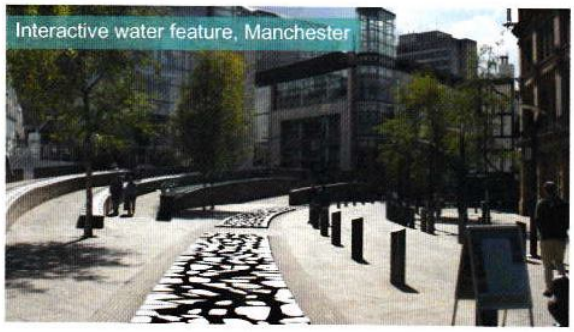

Songdo Canal Walk, Songdo IBD

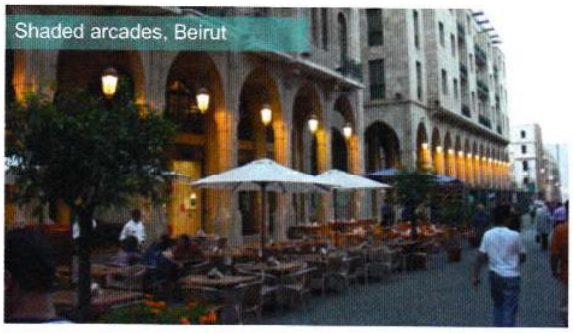

Public courtyard, Plaça Reial, Barcelona

High-end brands

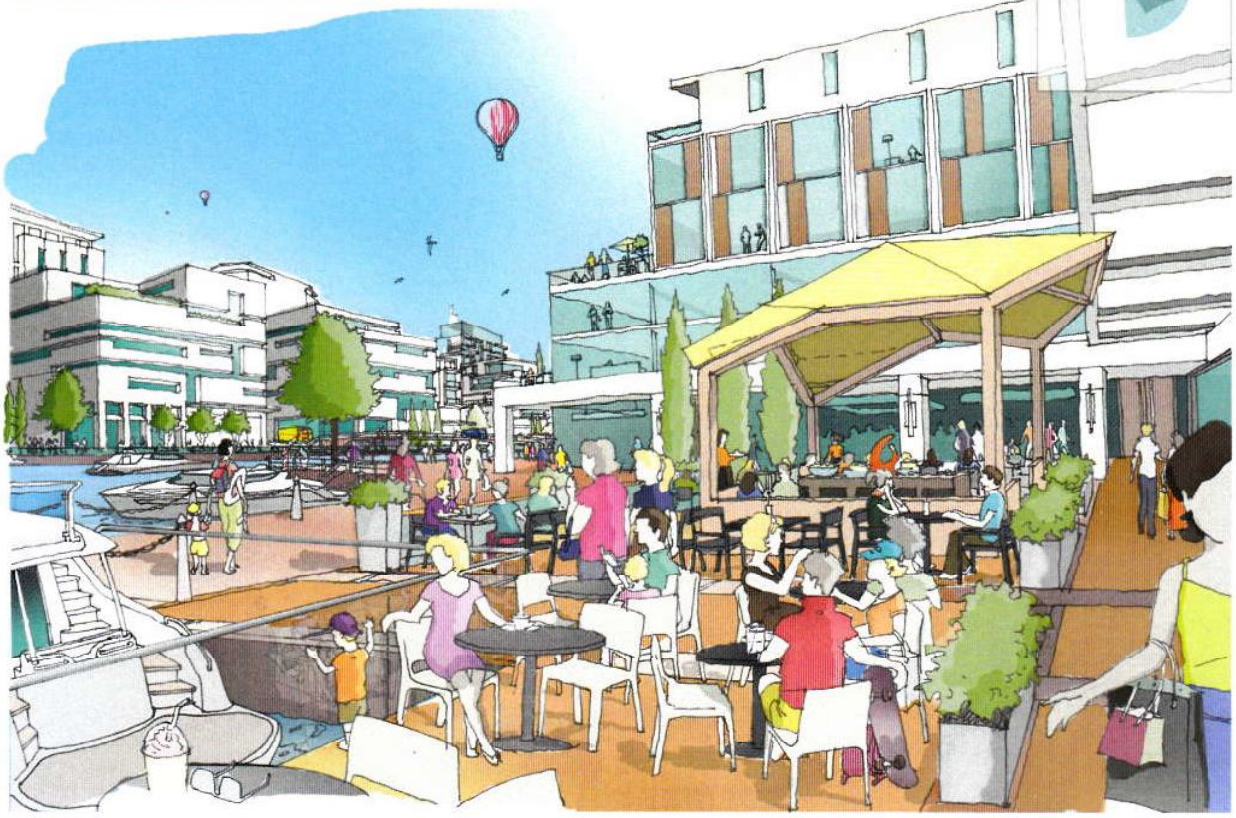
Landscape Themes


Pedestrian street and shade canopies, Beirut


Interactive water feature, Manchester

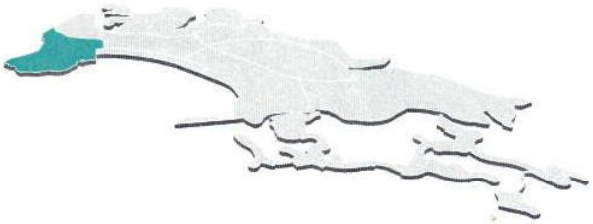

Shaded arcades, Beirut

Perspective view of the Beach Town



Beach Town impressions

4.5.4 Old Town



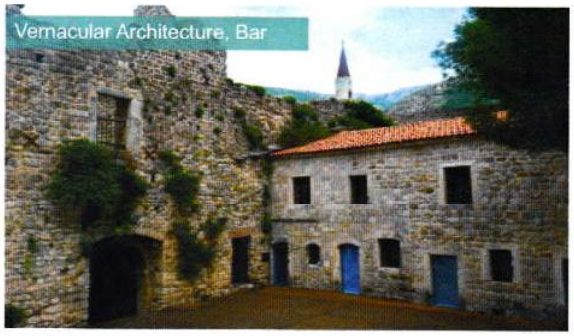
Taking its design clues from beloved and historic towns such as Kotor and Budva, Buljarica Old Town will hark back to the medieval history and tradition of the Adriatic coast. As a modern interpretation of historic vernacular styles, Old Town will provide a unique living and visitor experience with cool narrow lanes and alleys linking small intimate squares and spaces for fine dining and relaxing. The tight knit community will provide a range of residential accommodation in townhouses and apartments as well as local services and shopping.

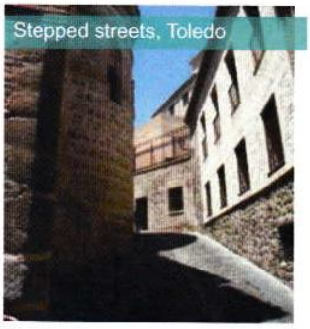
Features

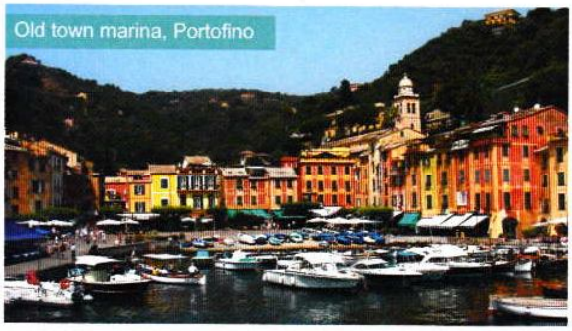
- Vernacular architecture
- Winding roads/Stepped streets
- Old town Marina
- Plazas/small squares
- Restaurants and cafes

Landscaped areas will try to adhere with traditional and locally sourced materials, such as cobbled streets. This will help provide a traditional old town character. Soft landscaping should be integrated with building facades, using climbing plants and pot planting. Space for tree planting and shrub beds will be restricted to public squares, where space allows.

Urban Themes


Vernacular Architecture, Bar


Stepped streets, Toledo


Old town marina, Portofino

Landscape Themes


Old Piazza, Italy


Cobbled pedestrian street, Dubrovnik, Croatia

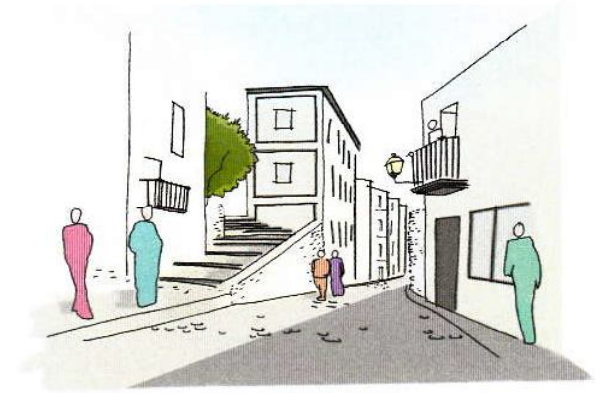

Soft landscaping, Old town, Ibiza

Architecture of the Old Town

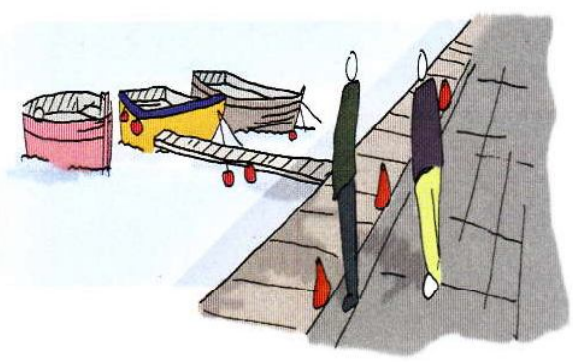
Old Town vignettes

Level Changes

Central Piazza

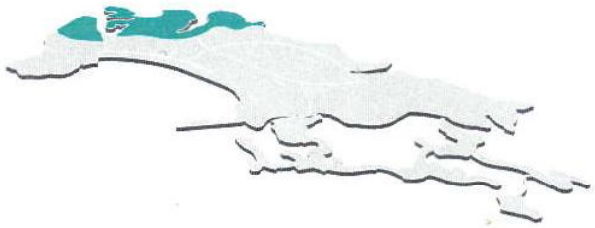


Cobbled, Narrow Streets



Local Pier

4.5.6 Buljarica Hills



Buljarica Hills to the east of the coastal road will be a new residential community clinging to the hillside with stunning views out across the bay. It will combine lower density large plots set within a rich landscape punctuated by small clusters of village style town houses. The topography will be utilised to create well defined communities and neighbourhoods providing a sense of belonging and clear character.

Features

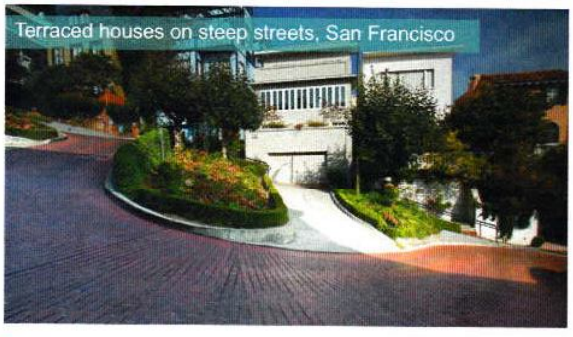
- Villas
- Terraced homes
- Steep streets
- Stunning views

Linear parks will become the main focus of the landscape within the area. These parks will follow the natural drainage channels, designed to cope with an ever changing flow of water running from the mountains. Elements of play will be set within the parks and the landscape will run from a more naturalistic approach to a well maintained landscape in dense urban areas.

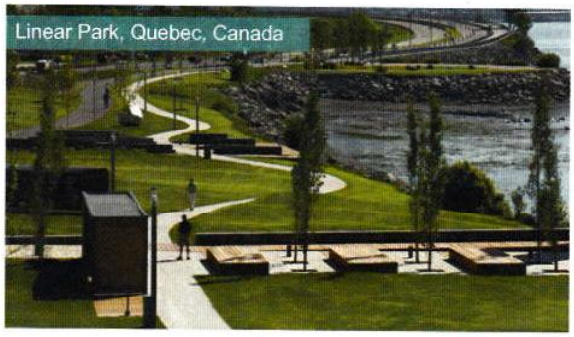
Urban Themes

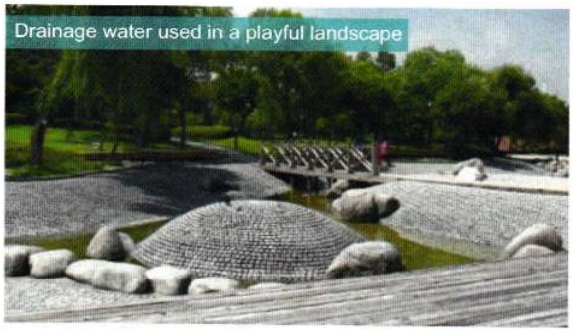

Villa nestled in hill, Costa Rica


Coltman townhouses, USA


Terraced houses on steep streets, San Francisco

Landscape Themes

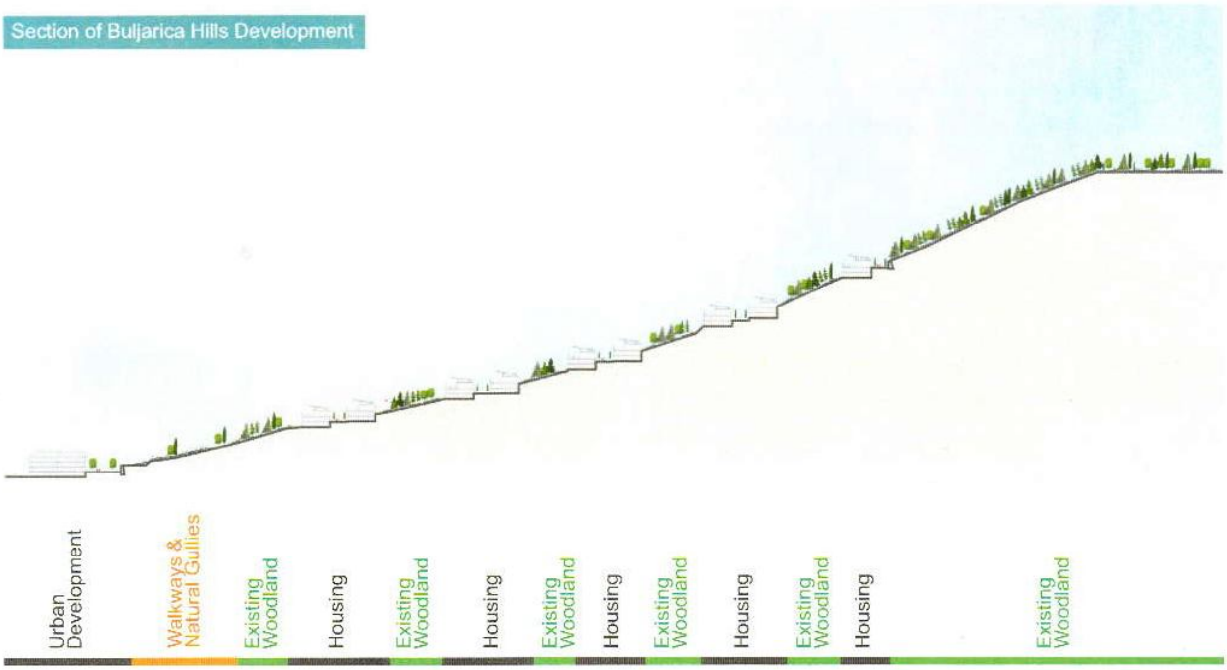

Linear Park, Quebec, Canada


Drainage water used in a playful landscape

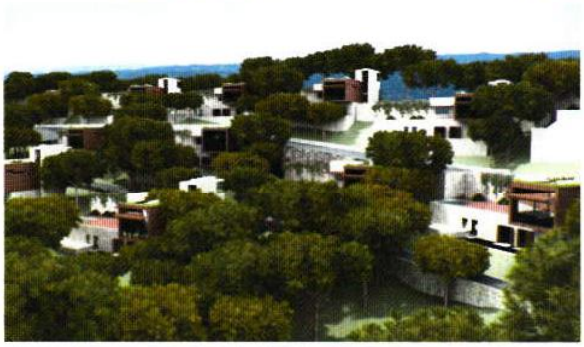

Low intervention landscaping

Section through green corridors

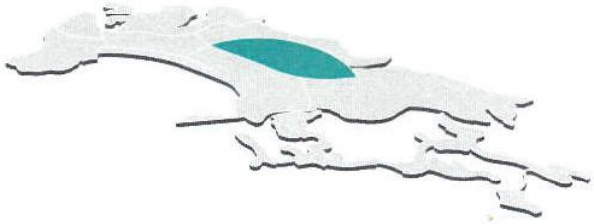
Section of Buljarica Hills Development



Sample villa typologies



4.5.7 Canal Quarter



Reflecting the Venetian tradition the canal quarter will be home to a large proportion of Buljarica's permanent residents. Waterbuses will link this quarter with the Marina and Beachtown districts. A mix of housing types will provide a range of accommodation from townhouses through to high quality apartments. The public realm will be high quality with meeting places and civic spaces focussed on canal junctions and crossings.

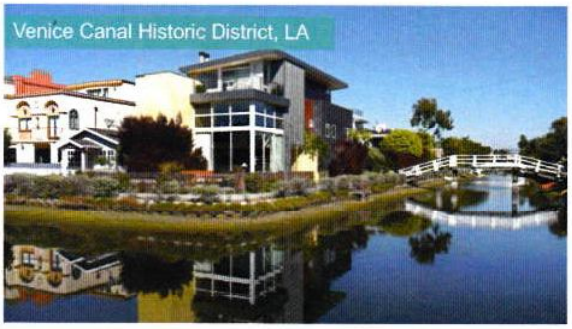
Pedestrians and cyclists will be given priority and car parking will be carefully designed and managed to ensure that the Quarter remains a haven of peace and tranquillity with water at its heart.

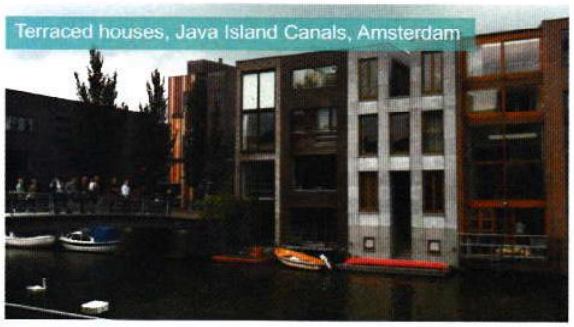
Features

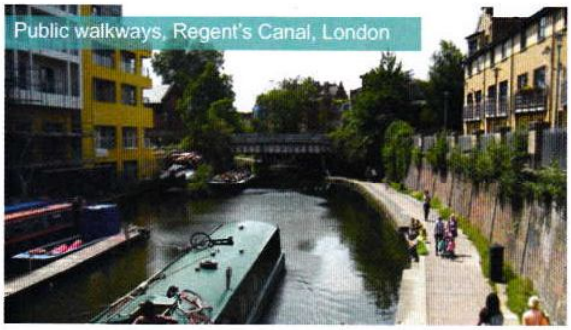
- Town houses and high quality apartments
- Canals
- Public walkways and bridges (public access)
- Public spaces and seating areas

Waterways will provide an amenity to the public, other areas of public space are limited and all must be well designed to fully utilise the space. Most of the canals will have promenades for pedestrian access. Landscaping will suit the hierarchy of each canal, whether they have tree planting, waterside amenity, seating or shrub planting.

Urban Themes


Venice Canal Historic District, LA


Terraced houses, Java Island Canals, Amsterdam


Public walkways, Regent's Canal, London

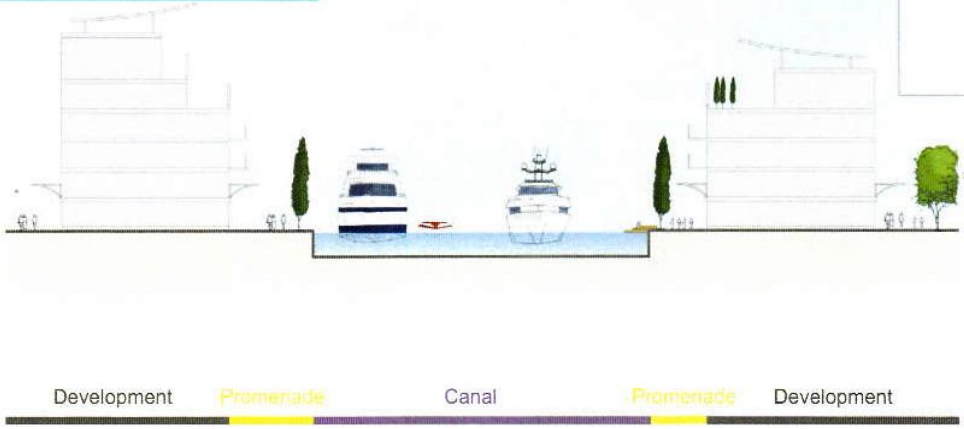
Landscape Themes


Canal promenade, Venice, Italy


Water side tree planting, Oxford, UK

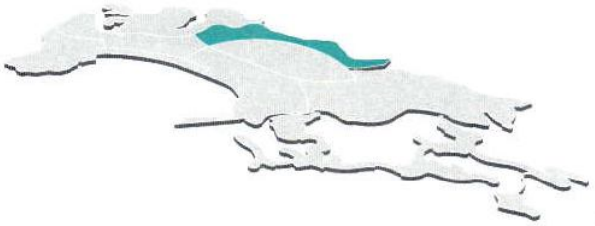

Public square on canal, Murano, Italy

Sections showing canal treatment and hierarchy



Canal Quarter sketches

4.5.8 New Kaluderac



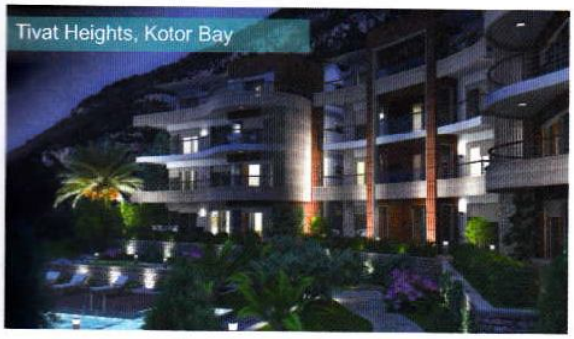
New Kaluderac is a residential area nestled into the foothills of the Coastal Road at the fringe of the site, opposite the Canal Quarter. Nature and green are the main landscape themes. Housing typologies include mid-rise apartment blocks, terraced apartments and long, linear configurations divided by green pockets and strip parks— 'pedestrian corridors' leading to the main canals to the Marina District and Beachtown. This is a quiet, family oriented district that may contain year-round or timeshare residential housing.

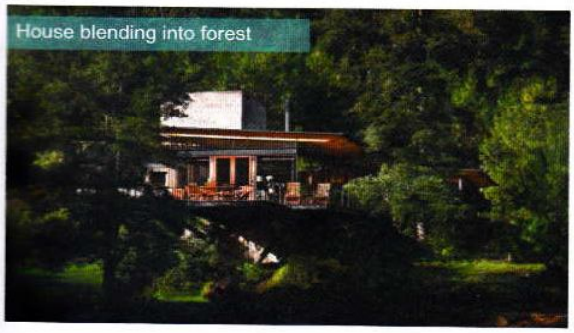
Features

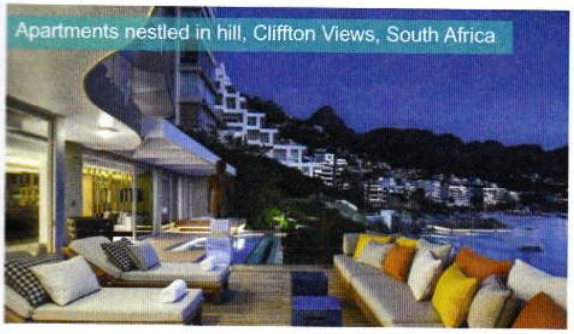
- Mid-rise apartment blocks nestled into the hills
- Green pockets
- Private courtyards

Landscaped waterways will be the start of the canal systems. The landscape approach will be for them to provide amenity value by integrating playful elements and using native flora for various habitat types. A mixture of formal and natural looking landscape will characterise this area.

Urban Themes


Tivat Heights, Kotor Bay


House blending into forest


Apartments nestled in hill, Cliffton Views, South Africa

Landscape Themes


Accessible wetlands with reed planting


Playful water elements


Vegetated canal embankment

Open spaces vignette

Pedestrian Corridors:
Provide visual links to the primary development and the valley parks.

Pedestrian Corridors

Pocket Parks
Situated intermittently throughout the character area providing small green pockets to the community.

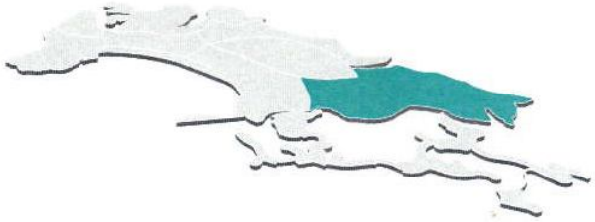
Pocket Parks

Valley Park:
Primary green space of the character area. Utilising the natural valley formation to provide key recreational space to the residents in the area.

Valley Park

4.5.9 Kolac Valley

Kolac Valley nestles in the distinct valley that leads into the development from the south. The emphasis here will be on high quality mixed residential development with more of a community than a resort character. The isolated hilltops to the west of the valley provide opportunities for exclusive boutique hotels and terrace time share apartments with stunning panoramic views of the bay.

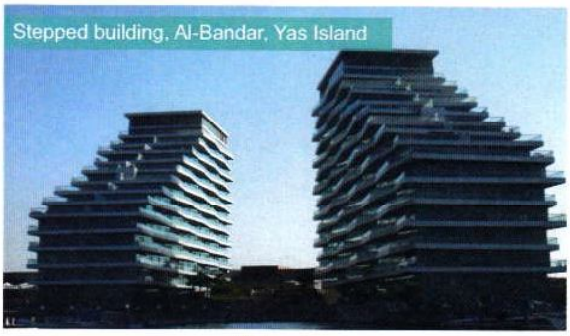


Features

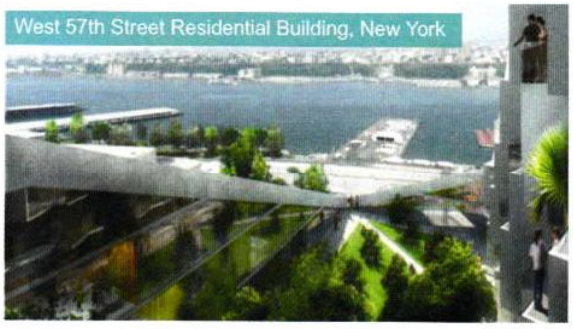
- Stepped building (views)
- Luxury apartments and hotels
- Green facades and green roofs
- Panoramic views of the whole site

A network of landscaped mountainous footpaths will lead pedestrians down to the development. Tall urban developments will provide opportunity to provide green roofs and terraces helping harmonise development into the mountains and maximise views.

Urban Themes


Stepped building, Al-Bandar, Yas Island


KHNP-Headquarters, South Korea


West 57th Street Residential Building, New York

Landscape Themes

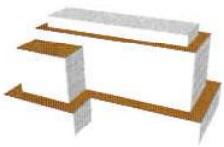

Woodland trail


Green boulevard


Green roof terrace, London, UK

Panorama of Buljarica Bay

Green Roofs



An important part of this character area is to maximise the use of views using a combination of green roof techniques.

Two main types of green roofs are:

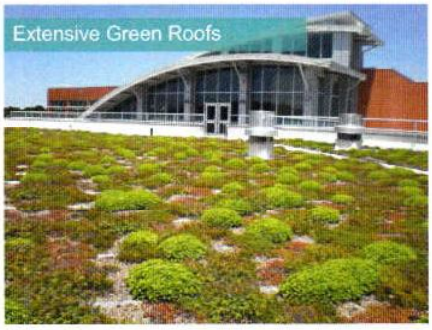
Extensive

Lightweight, comprising mainly of sedum and hardy planting. Requires minimal maintenance and provides strong ecological benefits. Not intended for leisure use.

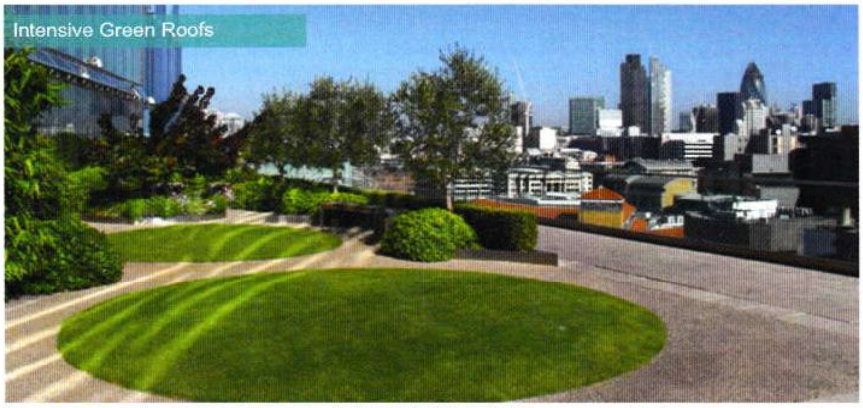
Intensive

Providing access for recreational use, offering opportunity for a well designed landscape using a wide range of planting, including some tree species. Regular maintenance would be required.

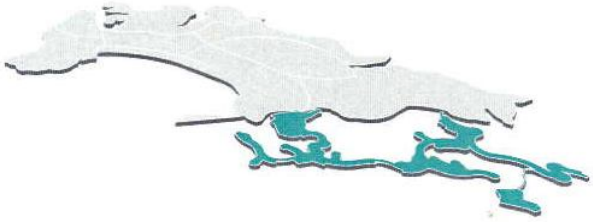
Extensive Green Roofs



Intensive Green Roofs



4.5.10 Dubovica Heights



Dubovia Heights will provide stunning views across Buljarica to the mountains and the seas for those lucky enough to be living there. The terrain here is steep, so the emphasis will be on exclusive villas set in large landscape grounds on the higher slopes and ridge lines. Access will be via winding country lanes following the natural contours.

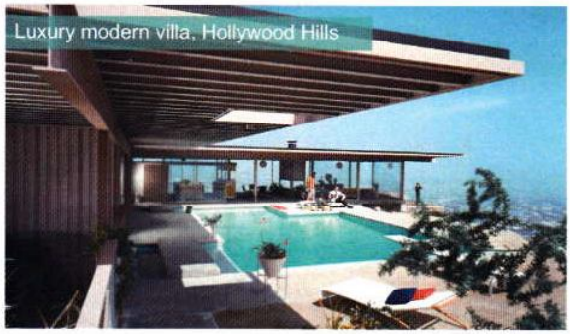
Local nature trails and hillside walks will link this community with the Beachfront District and Old Town.

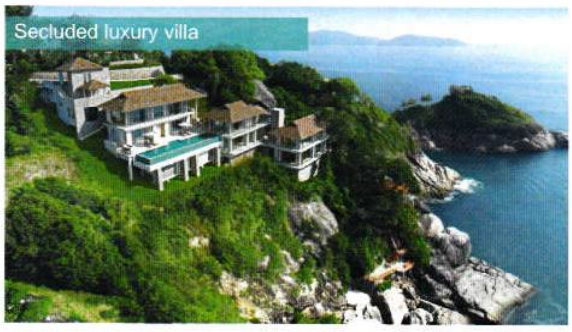
Features

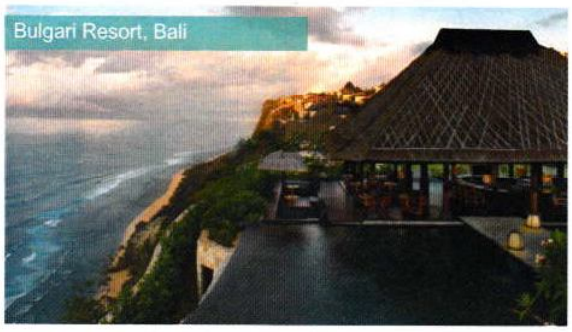
- Custom design luxury villas
- Luxury resorts
- Nature paths/walks
- Stunning views

Much of the existing woodlands will be retained and blended with development. Existing hillside walks enhanced and signposted for the community. Pedestrian networks will connect the area for pleasant walking routes. Any additional areas of planting will be native as to be sensitive to the current habitat.

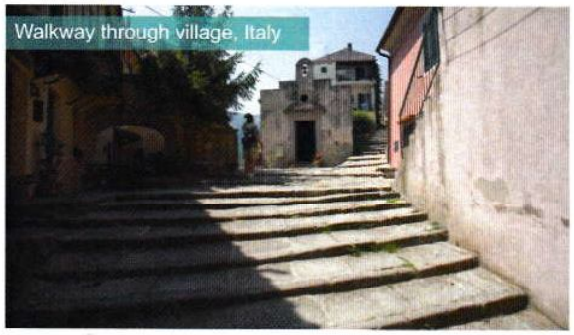
Urban Themes


Luxury modern villa, Hollywood Hills


Secluded luxury villa


Bulgari Resort, Bali

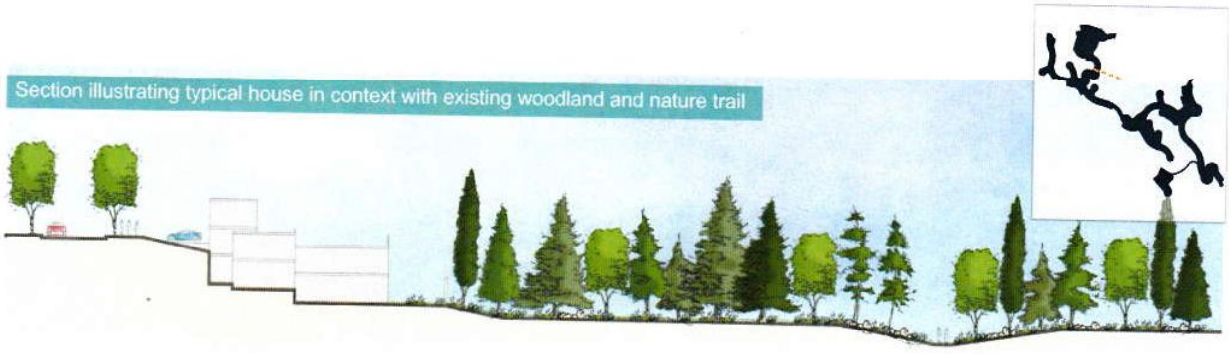
Landscape Themes


Walkway through village, Italy


Hillside park and pedestrian network


Sensitive material choices

Section illustrating typical house in context with existing woodland and nature trail

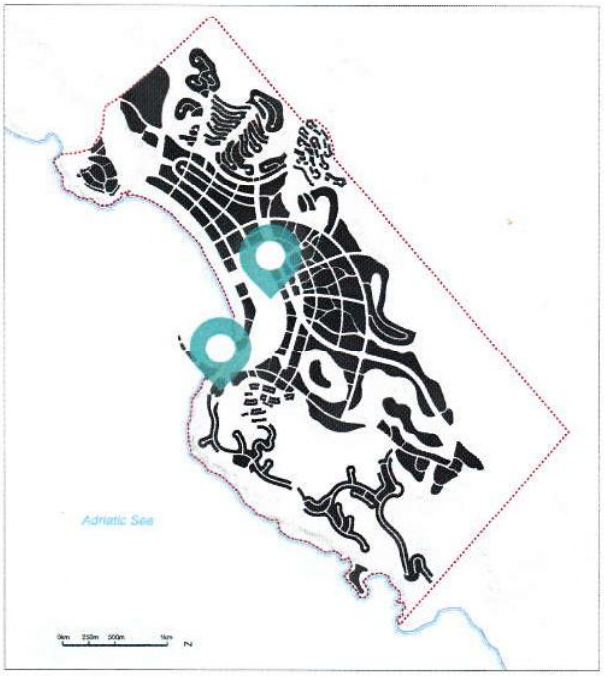


Development | Existing Woodland | Woodland Trail | Existing Woodland

Architectural typologies

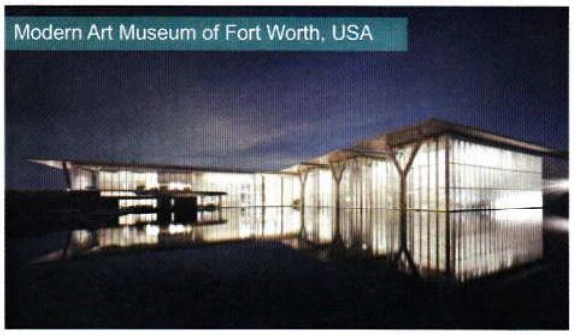
4.5.11 Casino (Special Feature)

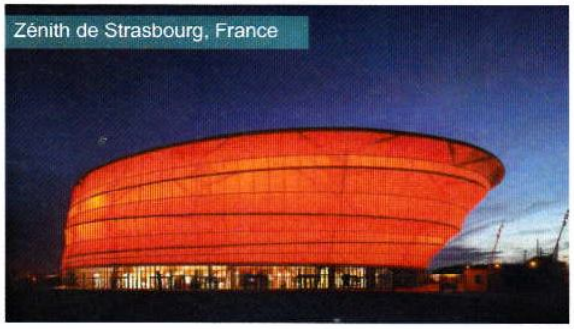
The casino will be a key iconic element at Buljarica Bay. Its character will set the mood for either a vibrant waterfront leisure district location or a secluded, luxurious resort with services at the Dubovica Heights promontory.

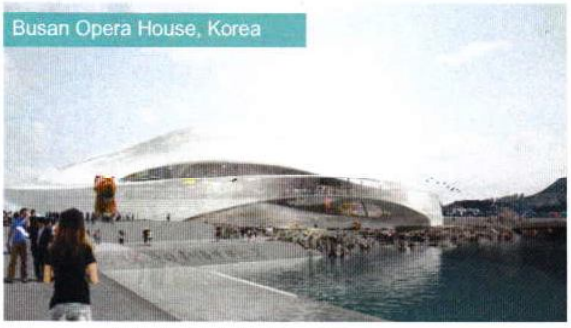


Features

- Contemporary architecture
- Distinctive lighting
- Visibility from most areas of the development
- Easy access to waterfront and Marina berths

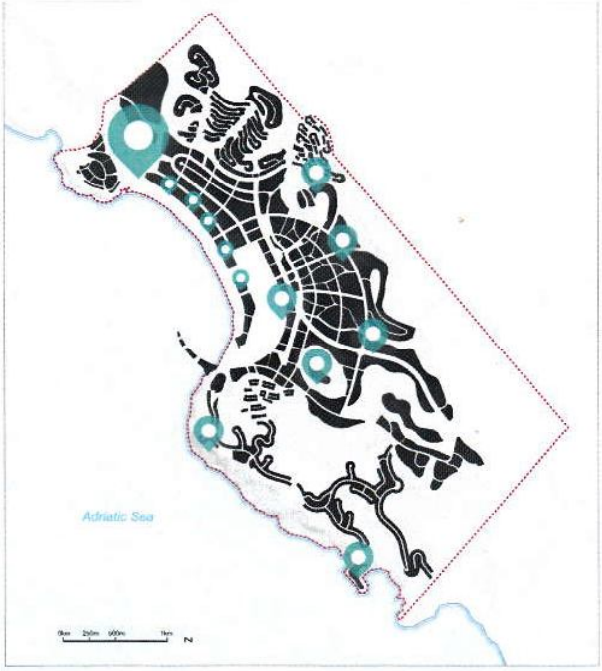






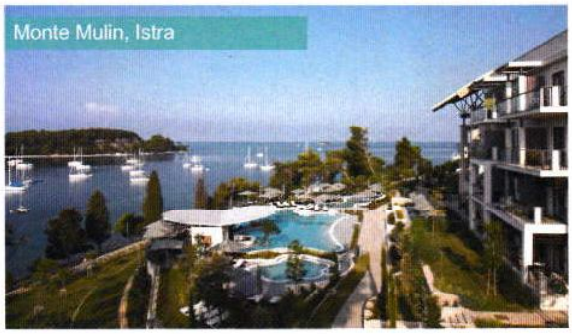
4.5.12 Hotels/Resorts (Special Feature)

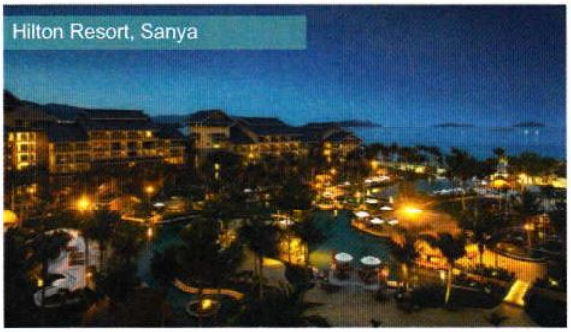
The scale of the site justifies several hotel typologies.



Types of hotels

- Urban resorts in the Beachfront Distrct
- Hillside resorts
- Hotel / residential branded residence communities
- Resorts emphasising nature and outdoor activity themes





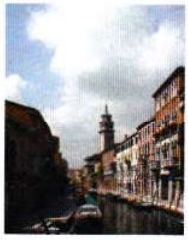
4.5.13 Canals (Special Feature)

Canals will define the urban form and character of both the Canal Quarter and the Beach Town. They will vary in width according to their function and importance. Examples of different canal treatments are shown below.

Venice, Italy

Venice is a city of small islands. The resulting canals encouraged the flourishing of a nautical culture which proved central to the economy of the city. Today those canals still provide the means for transport of goods and people within the city.

The maze of canals requires the use of more than 400 bridges to permit the flow of foot traffic. Public transport is provided by water buses and private water taxis.



1. Grand Canal

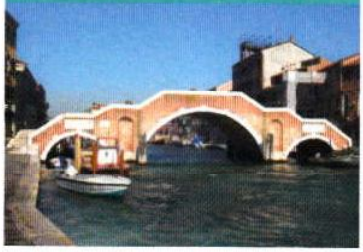
Main waterway running through Venice

- Average width of water 62m
- Average pedestrian widths (if occurring) 5m

2. Cannaregio Canal

Medium sized canal with wide pedestrian walkways

- Average width of water 24m
- Average pedestrian widths 10m



3. Santa Margherita Canal

Small canal with a high number of small boat berths

- Average width of water 8m
- Average pedestrian widths 1-3m

Amsterdam, Holland

1. Amstel Canal

- Average width of water 80m
- Average pedestrian widths 4m

2. Kostverlorenvaart

- Average width of water 30m
- Average pedestrian widths 3m (13m including road/ trees/parking)

3. Herengracht

- Average width of water 25m
- Average pedestrian widths 3m (8-10m including road/ trees/parking)

Copenhagen, Denmark

1. Frederiksholms Canal

- Average width of water 28m
- Average pedestrian widths 5m

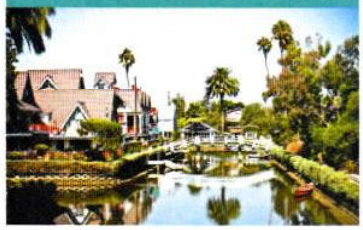
2. Ved Canal

- Average width of water 18m
- Average pedestrian widths 5m

Los Angeles, USA

1. Venice Canals

- Average width of water 16m
- Average pedestrian widths 3m



4.6 LAND USE

4.6.1 Land Use Breakdown

This section sets out the breakdown of land uses in the master plan. The information is presented as a series of tables, firstly for the whole project area and then for each of the none character areas.

Table8. Master plan development parameters

Master plan statistics			
Total site area	1178.7		
Developable area (ha)	560		
Total GFA (SqM)	11,580,500		
Built (sellable) area	392ha (70% of developable area)		
Non-sellable area	168ha (30% of developable area)		
Land use budget for Buljarica Bay			
Land use type	%	**GFA (sqm)**	
Residential	67	7,812,127	
Commercial	14.5	1,756,802	
Other	0.5	59,248	
Hotel & Leisure Clubs	5	611,422	
Hotel Branded Residences	13	1,588,398	
Totals	100	11,827,998	
Residential Breakdown	GFA	No. Units	
Super Luxury Villa (3000sqm)	68,014	23	
Luxury Villa (1500sqm)	306,669	204	
Mid Range Villa (900sqm)	508,977	566	
Terrace (250sqm)	182,721	731	
Apartments (average 160sqm)	6,676,449	42,161	
Totals	7,742,830	43,684	

4.6.2 Character areas

The development parameters for the character areas are summarised below with the detailed parameters, land uses and the mix of residential types for each character area set out in the subsequent tables.

Table9. Summary of Character areas

Character area	Gross developable area (ha)	Sellable (ha)	Non-sellable (ha)	% sellable
Marina Quarter	85	34	51	40
Beach Town	43	28	15	65
Beachfront*	15	29	5	193
Buljarica Hills	112	71	41	63
Canal Quarter	75	49	26	65
New Kaluderac	49	34	15	69
Kolac Valley	96	80	16	83
Dubovica Heights	70	53	17	76
Old Town	13	9	4	69
Totals	**560**	**394**	**180**	**70**

*The beach is not included as developable land because it cannot be built on, but is included as sellable land

Table10. Marina Quarter land uses and development parameters

Marina Quarter

Parameters		Land use category	%	GFA
Total Land Area (ha)	85	Residential	28	865,168
Total Developed Plot Area (ha)	34.1	Commercial	33	1,007,092
Average Plot Coverage (%)	60	Other	0.4	12,360
Average Building Height (floors)	15	Hotel & Leisure Clubs	13	388,382
F.A.R.	9.1	Hotel/Branded Residences	26	816,995
Non-sellable area (ha)	51	Totals	100	3,089,998
Non-sellable area (%)	60			
Sellable area (%)	40			
Total GFA	3,089,998			
as a % of project total	27			

Residential Breakdown			
	% of housing type	sqm	No. units
Super Luxury Villa (3000sqm)			
Luxury Villa (1500sqm)			
Mid Range Villa (900sqm)			
Terrace (250sqm)			
Apartments (average 160sqm)	100%	865,168	5,407

- Non-sellable area includes the marina
- Highest buildings located within this character area
- Principal retail commercial location

Table11. Beach Town land uses and development parameters

Beach Town

Parameters		Land use category	%	GFA
Total Land Area (ha)	43.4	Residential	68	673,540
Total Developed Plot Area (ha)	28.3	Commercial	13	131,737
Average Plot Coverage (floors)	50	Other	0.6	5,963
Average Building Height	7	Hotel & Leisure Clubs	2	15,838
F.A.R.	3.5	Hotel/Branded Residences	16	163,423
Non-sellable area (ha)	15.1	Totals	100	990,500
Non-sellable area (%)	34.8			
Sellable area (%)	65			
Total GFA	990,500			
as a % of project total	9			

Residential Breakdown			
	% of housing type	sqm	No. units
Super Luxury Villa (3000sqm)			
Luxury Villa (1500sqm)			
Mid Range Villa (900sqm)			
Terrace (250sqm)			
Apartments (average 160sqm)	100%	673,540	4,210

- Predominantly residential area with significant percentage of commercial and hotel floor space

Table12. Beachfront (hotel) District land uses and development parameters

Beachfront (hotel) District

Parameters		Land use category	%	GFA
Total Land Area (ha)	15	Residential	0	0
Total Developed Plot Area (ha)	10	Commercial	0	0
Average Plot Coverage	50	Other	0	0
Average Building Height (floors)	5	Hotel & Leisure Clubs	30	75,000
F.A.R.	2.5	Hotel/Branded Residences	70	175,000
Non-sellable area (ha)	4.6	Totals	100	250,000
Non-sellable area (%)	13			
Sellable area (%)	193			
Total GFA	250,000			
as a % of project total	2			

Residential Breakdown			
	% of housing type	sqm	No. units
Super Luxury Villa (3000sqm)	0		
Luxury Villa (1500sqm)	0		
Mid Range Villa (900sqm)	0		
Terrace (250sqm)	0		
Apartments (average 160sqm)	0		

- Saleable are is greater than developed area because the beach is considered sellable but not developable
- No permanent residential accommodation but includes aparthotels and serviced apartments

Table13. Buljarica Hills land uses and development parameters

Buljarica Hills

Parameters		Land use category	%	GFA
Total Land Area (ha)	112.3	Residential	91	678,405
Total Developed Plot Area (ha)	71	Commercial	8	59,640
Average Plot Coverage	35	Other	1.0	7,455
Average Building Height (floors)	3	Hotel & Leisure Clubs	0	0
F.A.R.	1.05	Hotel/Branded Residences	0	0
Non-sellable area (ha)	41.3	Totals	100	745,500
Non-sellable area (%)	36.8			
Sellable area (%)	63			
Total GFA	745,500			
as a % of project total	6			

Residential Breakdown			
	% of housing type	sqm	No. units
Super Luxury Villa (3000sqm)	5%	33,920	11
Luxury Villa (1500sqm)	5%	33,920	23
Mid Range Villa (900sqm)	70%	474,884	528
Terrace (250sqm)	20%	135,681	543
Apartments (average 160sqm)			

- Topography results in high percentage of non-sellable land
- Commercial floor space comprises large floor plan units such as supermarket and furniture stores

Table14. Canal Quarter land uses and development parameters

Canal Quarter

Parameters		Land use category	%	GFA
Total Land Area (ha)	75.4	Residential	64	940,800
Total Developed Plot Area (ha)	49	Commercial	10	147,000
Average Plot Coverage	50	Other	0.4	5,880
Average Building Height (floors)	6	Hotel & Leisure Clubs	4	66,135
F.A.R.	3	Hotel/Branded Residences	21	310,185
Non-sellable area (ha)	26.4	Totals	100	1,470,000
Non-sellable area (%)	35.0			
Sellable area (%)	65			
Total GFA	1,470,000			
as a % of project total	13			

Residential Breakdown			
	% of housing type	sqm	No. units
Super Luxury Villa (3000sqm)			
Luxury Villa (1500sqm)			
Mid Range Villa (900sqm)			
Terrace (250sqm)	5	47,040	188
Apartments (average 160sqm)	95	893,760	5,586

- Mixed use area of residential commercial and hotel uses

Table15. New Kaluderac land uses and development parameters

New Kaluderac

Parameters		Land use category	%	GFA
Total Land Area (ha)	49.4	Residential	97	659,600
Total Developed Plot Area (ha)	34	Commercial	2	12,002
Average Plot Coverage	50	Other	1	8,398
Average Building Height (floors)	4	Hotel & Leisure Clubs	0	0
F.A.R.	2	Hotel/Branded Residences	0	0
Non-sellable area (ha)	15.4	Totals	100	680,000
Non-sellable area (%)	31.2			
Sellable area (%)	69			
Total GFA	680,000			
as a % of project total	6			

Residential Breakdown			
	% of housing type	sqm	No. units
Super Luxury Villa (3000sqm)			
Luxury Villa (1500sqm)			
Mid Range Villa (900sqm)			
Terrace (250sqm)			
Apartments (average 160sqm)	100%	659,600	4,123

Table16. Kolac Valley land uses and development parameters

Kolac Valley

Parameters		Land use category	%	GFA
Total Land Area (ha)	96.4	Residential	90	3,436,800
Total Developed Plot Area (ha)	80	Commercial	9	345,600
Average Plot Coverage	60	Other	0.4	15,360
Average Building Height (floors)	8	Hotel & Leisure Clubs	0	0
F.A.R.	4.8	Hotel/Branded Residences	1	42,240
Non-sellable area (ha)	16.4	Totals	100	3,840,000
Non-sellable area (%)	17.0			
Sellable area (%)	83			
Total GFA	3,840,000			
as a % of project total	33			

Residential Breakdown			
	% of housing type	sqm	No. units
Super Luxury Villa (3000sqm)			
Luxury Villa (1500sqm)			
Mid Range Villa (900sqm)			
Terrace (250sqm)			
Apartments (average 160sqm)	100%	3,436,800	21,480

Table17. Dubovica Heights land uses and development parameters

Dubovica Heights

Parameters		Land use category	%	GFA
Total Land Area (ha)	70.24	Residential	86	340,936
Total Developed Plot Area (ha)	53	Commercial	1	1,988
Average Plot Coverage (%)	30	Other	1	1,995
Average Building Height (floors)	2.5	Hotel & Leisure Clubs	2	9,934
F.A.R.	0.75	Hotel/Branded Residences	11	42,648
Non-sellable area (ha)	17.24	Totals	100	397,500
Non-sellable area (%)	24.5			
Sellable area (%)	75			
Total GFA	397,500			
as a % of project total	3			

Residential Breakdown			
	% of housing type	sqm	No. units
Super Luxury Villa (3000sqm)	10%	34,094	11
Luxury Villa (1500sqm)	80%	272,749	182
Mid Range Villa (900sqm)	10%	34,094	38
Terrace (250sqm)			
Apartments (average 160sqm)			

- Casino located in this area and forms its focal point

Table18. Old Town land uses and development parameters

Old Town

Parameters		Land use category	%	GFA
Total Land Area (ha)	13.4	Residential	60	216,878
Total Developed Plot Area (ha)	9	Commercial	14	51,744
Average Plot Coverage (%)	90	Other	0.5	1,837
Average Building Height (floors)	4.5	Hotel & Leisure Clubs	15	56,133
F.A.R.	4.05	Hotel/Branded Residences	10	37,908
Non-sellable area (ha)	4.4	Totals	100	364,500
Non-sellable area (%)	32.8			
Sellable area (%)	69			
Total GFA	364,500			
as a % of project total	3			

Residential Breakdown			
	% of housing type	sqm	No. units
Super Luxury Villa (3000sqm)			
Luxury Villa (1500sqm)			
Mid Range Villa (900sqm)			
Terrace (250sqm)			
Apartments (average 160sqm)	100%	216,878	1,355

- Mixed use area of residential commercial and hotel uses
- Very dense development designed on historic Adriatic city layout

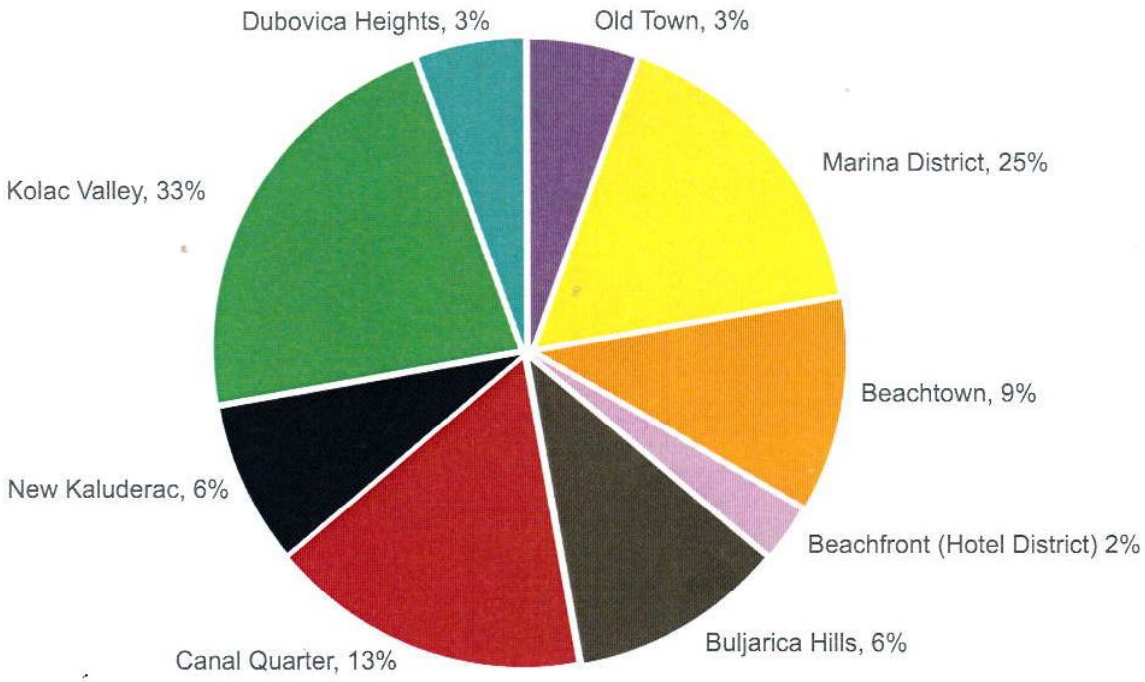


Figure 4.18 BUA Distribution by Character Zone