



THE INTEGRATED GWADAR SMART PORT CITY MASTER PLAN REPORT

Developed by:



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lessons from the achievements of international standardization, but also closely integrate with the actual urban development needs, so as to ensure that the standards can be truly implemented with positive impacts.

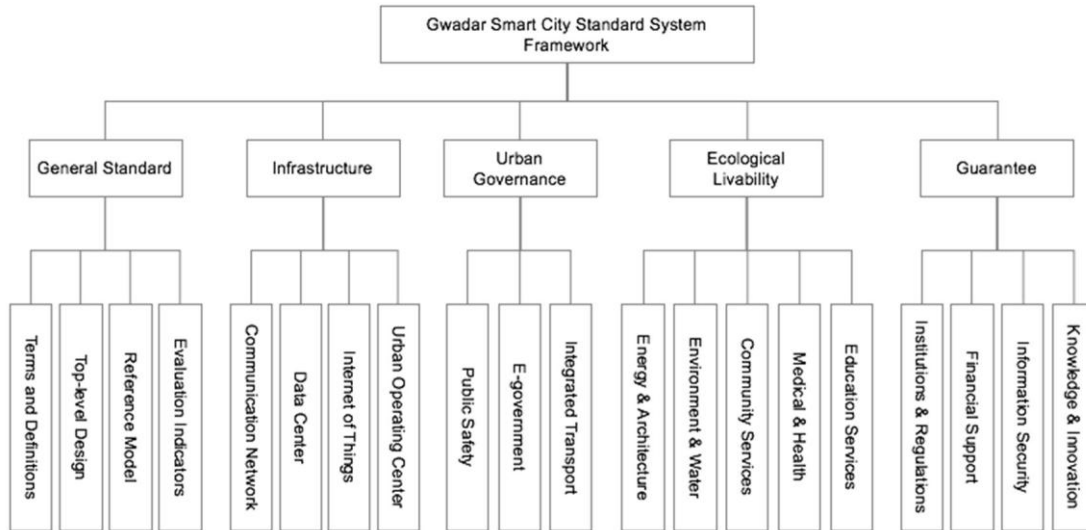
(1) Suggestions on follow-up work

It is suggested that a standardization working team (hereinafter referred to as “working team”) composed of relevant government departments, scientific research institutions, enterprises and experts should be set up under the guidance of Gwadar government and the competent authority to take charge of construction and implementation of Gwadar Smart City Standard System, draft relevant standards, conduct technical reviews and evaluate the performance of standardization construction.

It is suggested to initiate the research and establishment of standard system framework in a good time. In the process of standard formulation, existing standards should be selected with priority. Therefore, deep research on current international standards, national standards, industry standards, relevant local standards and enterprise standards applied in various fields in the framework shall be needed. Among existing standards, national standards and industry standards shall be preferred with priority, followed by international standards then and relevant local or enterprise standards finally. It should screen out vacant standards that need to be formulated, and make a promotion plan of standard formulation. In accordance with the principle of “common (standard) and urgent (standard) first”, standards to be formulated in the short term (before 2025) should be explicit.

(2) Suggestions on framework design

Drawing on experience of international pioneer smart cities and combining with construction needs of Gwadar Smart City, this report proposes a suggestive “Gwadar Smart City Standard System Framework” for reference. The framework consists of 5 categories and 20 fields (as shown in the figure below), including general standard, infrastructure, urban governance, ecological livability and guarantee. The general standard is the general and framework norms of other standards, and all kinds of



standards should meet the requirements of the general standard.

Fig. Gwadar Smart City Standard System Framework

3.2 Gwadar Smart City Evaluation System Framework

Smart City Evaluation System Framework (hereinafter referred to as “Evaluation System”) is one component of the “General Standard” in the smart city standard system. Promotion of the evaluation system construction can make the public and enterprises feel the benefits brought by construction of the smart city, encourage the society to participate in construction of the smart city, accelerate and improve construction and development level of the smart city.

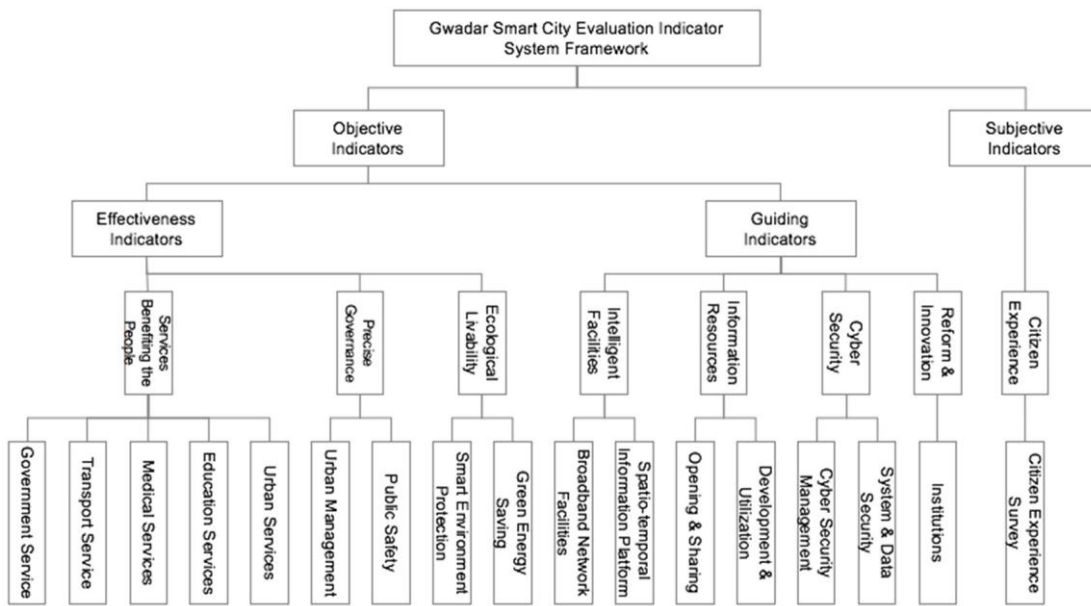
(1) Suggestions on follow-up work

It is suggested to start the research and formulation of evaluation system framework in a good time, determine the first-level and second-level evaluation indicators and allocate the weight of each indicator, design sub-items of the second-level indicators (i.e. scoring points) and determine scoring rules. The selection of evaluation indicators should be people-oriented and pay attention to people’s sense of gain and satisfaction; be effectiveness-oriented and not evaluate performance only according to “advanced technology, investment scale and project construction”; be objective and quantifiable by using objective data collection and citizen satisfaction survey for evaluation, and reducing section of subjective scoring; be highly measurable, noting that evaluation indicators shall not be considered in the fields with immature research, and will be gradually incorporated after the research becomes mature.

In the future, the evaluation system shall be regularly updated and improved in accordance with the changes of practice and needs of Gwadar Smart City.

(2) Suggestions on framework design

Drawing on experience of international pioneer smart cities and combining with construction needs of Gwadar Smart City, this report proposes a suggestive “Gwadar Smart City Evaluation Indicator System Framework” for reference (as shown in the figure below). The framework mainly includes 4 categories of indicators, 8 first-level



indicators and 17 second-level indicators.

Fig. Gwadar Smart City Evaluation Indicator System Framework

Appendix 4: Table of recommendation on phase-by-phase construction

Type		Status Quo	Short Term	Medium Term	Long Term
Population Characteristics	Total (in thousands)	138	300	600	2,000
	Immigrant Population ratio	—	At the initial stage, mainly local residents while the number of migrants gradually increases, accounting for about 30-40% of the total population.	The number of migrants continues to increase, accounting for about 50-60% of the population.	The number of migrants continues to increase, accounting for about 70-80% of the population.

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	Labour Force Ration (%)	—	30-40%	40-50%	50-60%
Economy	Development Goals	—	Achieve the agglomeration of the core space and industries.	Achieve economies of scale and coordinated development.	Grow into a new regional engine.
	Total (in billions USD)	—	0.6	2.4	30
	GDP/Per Capita (USD)	—	2000	4000	15000
	Employment (in thousands)	—	90-120	240-300	1000-1200
Port	Development Goal	—	the fulcrum of economic development in western Pakistan, the main port in western Pakistan, one of the westward sea routes in western China, the five Central Asian countries and the trade centers of Afghanistan, South Asia and the neighboring Middle East		
	Throughput (in 1 million tons)	0.055	44	83	192
Industry	Development Goal	—	Foster leading industries and form an industrial foundation as fast as possible	Achieve industrial scale effect	The industrial structure begins to extend to high-tech and high-end service industries
	Fishery	Fishing as the existing pillar industry	Pilots of fishing, trade, processing, fishery and aquaculture	Fishing, aquaculture, trade and deep processing	Further extend fishery industry chain, become regional characteristic fishery center, and build Pakistan's marine and economic demonstration zone.

Type	Status Quo	Short Term	Medium Term	Long Term
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Heavy industry	—	Assembling of oil storage, refining and transport equipment, shipbreaking, and building materials processing	Oil storage, trade and refining, automobile equipment processing, building materials processing, shipbuilding and ship repair	Promote chain and cluster-oriented development to develop a cluster of equipment manufacturing industry that focuses on energy and chemical engineering (such as oil refining), automobile processing, and shipbuilding and ship repair.
Light industry	A small portion of ice supply to upstream and downstream sectors of fishery, and grain and oil processing in the Free Zone	Processing of agricultural by-products such as date palms, grains and oils	Food processing, textile and garment industry, home appliances manufacturing, and electronics & information industry	Upgrade industrial level to develop an industrial cluster with high added value, with focus on grain and oil processing, home appliances manufacturing and electronics & information industry.
Trade logistics	MICE activities in the southern section of the Free Zone	Start with FMCG production to cater to the domestic market.	Trade with surrounding countries and regions.	Develop a comprehensive trade center oriented to South Asia and Middle East markets.
Tourism	—	Develop coastal travel & leisure oriented to local tourists.	Develop coastal travel & leisure to cover a wider range of tourists, with the construction of airports and urban transport centers for tourists.	Develop coastal travel & leisure and other tourist products and services, such as cruise and fisherman's wharf.

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	Other service industries	A small portion of consumer service industry	Production oriented service industry, such as shipping service and basic financial service, and livelihood-	Focus on production oriented service industry, including finance, insurance, commerce	Further enhance benefits of service industry and develop high end production oriented
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	Type	Status Quo	Short Term	Medium Term	Long Term
			oriented service industry, such as hospitality and catering	and trade service.	service industry such as R&D.
Housing	(Increment of Household)	26700 (含 Sanghar Housing Scheme)	15800	47,600	254,500
Large Public Service Facilities	Administrative Office Land	—	—	Industrial Service Center	Administrative Center
	Cultural Facility	—	—	City public library	International Exhibition Center, Cultural and Art Exchange Center, Planning exhibition hall, History museum, Youth Cultural Activity Center, Science and technology exchange center
	Education Facility	Vocational training centre, Gwadar college of teacher, Gwadar Institute of Technology, District and Provincial Office Complex/University	University of Turbat, Pak-China Technology and vocation institute	Vocational Training Institutes	University City
	Religious Land	—	Site location selected and construction conducted in line with urban construction needs		

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	Medical Facility (General Hospital and hospitals at lower levels to be constructed in line with actual needs)	DHQ Hospital (45 beds) 及 GDA Hospital (50beds)	GDA Hospital (300beds)	Teaching Hospital (500 beds)	Teaching Hospital (500 beds)
	Foreign Affairs Land	—	—	—	Office area of a foreign consulate and an international organization or institution
Recreation & Entertainment	Sports Facility	Stadium (in Sports Complex)	Sports Complex (Complete construction)	Industrial park Stadium	—
	Park / Green Land	GDA park	—	Industrial park	Gwadar park, Wetland Park
Other Transportation Facilities	Airport	Can only accommodate small class B aircraft	Build a new airport 4F branch airport	—	Study the feasibility of airport expansion

Type	Status Quo	Short Term	Medium Term	Long Term
				according to development needs
Railway	None	—	Try to start the construction of the Jacobabad (or Karachi)Gwadar Railway and railway terminals; try to start the construction of the railway linking Gwadar with its northern mining area (the Gwadar-PanjgurMashkhelNokundi railway)	—
Regional Road	N10	Build East Bay Expressway	Northern Bypass, Add intercity trunks to improve intercity transportation conditions	Study the feasibility of adding new trunks according to urban development needs

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Municipal infrastructure	Forecast water consumption (10,000 m3 per day)		7.5	18	70
	Water supply facilities (10,000 m3 per day)	---	Seawater desalination plant(east bay): 7.0 Seawater desalination plant(free zone) : 0.5	Seawater desalination plant(east bay): 18	Seawater desalination plant(east bay): 20; Seawater desalination plant(east bay west): 23; Seawater desalination plant(west bay): 20; Seawater desalination plant(free zone) : 7
	Forecast sewage volume (m3/person • day)	---	5.1	12.2	47.4
	Sewage treatment facilities (10,000m3 per day)	Wastewater Treatment Plant(port): 0.2	3#Wastewater Treatment Plant(east bay): 0.5; 1#Wastewater Treatment	3#Wastewater Treatment Plant(east bay): 3.0; 1#Wastewater Treatment	1#Wastewater Treatment Plant(west bay) : 5.0; 2#Wastewater Treatment Plant(west bay):4.0;

Type	Status Quo	Short Term	Medium Term	Long Term
		Plant(east bay): 2.0; Wastewater Treatment Plant(free zone): 1.0; 3#Wastewater Treatment Plant(west bay) : 2.0	Plant(east bay): 3.0; Wastewater Treatment Plant(free zone): 2.0; 3#Wastewater Treatment Plant(west bay) : 4.5	3#Wastewater Treatment Plant(west bay):9.0; Wastewater Treatment Plant(free zone):6.0; 1#Wastewater Treatment Plant(east bay):9.0; 2#Wastewater Treatment Plant(east bay):4.0; 3#Wastewater Treatment Plant(east bay):10.0
Forecast recycled water volume (10,000 m3 per day)	---	3.2	9.9	38.4

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	Recycled water facilities (10,000 m ³ per day)	---	1#Reclaimed Water Plant(east bay):1.5; Reclaimed Water Plant(free zone):0.7 3#Reclaimed Water Plant(west bay):1.5;	3#Reclaimed Water Plant(east bay):2.5; 1#Reclaimed Water Plant(east bay):2.5; Reclaimed Water Plant(free zone):1.5; 3#Reclaimed Water Plant(west bay):3.5	1#Reclaimed Water Plant(west bay):4.5; 2#Reclaimed Water Plant(west bay):3.6; 3#Reclaimed Water Plant(west bay):8.1; Reclaimed Water Plant(free zone):5.4; 1#Reclaimed Water Plant(east bay):8.1; 2#Reclaimed Water Plant(east bay):3.6; 3#Reclaimed Water Plant(east bay):9.0
	Waste volume (T/Day)	10	377	1078	5015
	Sanitary facilities	---	Refuse Landfill、22 Refuse Transfer Station	Waste Incineration Plant、Refuse Landfill、27 Refuse Transfer Station	Waste Incineration Plant、Refuse Landfill、65 Refuse Transfer Station
Security	Development objectives	—	To establish a full-scale security system in the core area	To develop a security system covering the whole planning area	To develop a weapon-free area and a fullscale, well-established security system
	Facilities to be constructed	—	To construct an urban	To build planning area	Establish various

Type	Status Quo	Short Term	Medium Term	Long Term
		emergency command sub-center, core area fence and check stations, important facility fence, security infrastructure and information network infrastructure. Make laws of population and vehicle management	fence, emergency command center and safety training base. Improve urban video monitoring and alarm network system, important facility fence. Establish urban security grid management system	security laws and regulations. Improve planning area fence, police management mechanism, and urban security mechanisms

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Smart energy	Development goals	—	To achieve self power supply for the region and enhance energy safety and reliability	To enhance energy use efficiency and meet development needs of heavy industry	To meet the region's need for fast growth of energy and establish a smart energy system
	Maximum power load	70.23 MW	150 MW	600 MW	3000 MW
	Power generation	The region has no comprehensive energy facilities and depend on Iran's energy network	To construct coal-fired power generation units and install distributed power generation units in the startup area of the Free Zone, along with the construction of power plant buildings	To construct 3*200MW gassteam combined cycle units in the central industrial area	To construct 3*200MW gassteam combined cycle units in the central area To construct 4*460MW gassteam combined cycle units in the eastern industrial area To construct 2*460MW gassteam combined cycle units east to the northern area of the Free Zone
	Power grid		To construct two 220KV transformer substations To construct nine 132KV transformer substations	To construct two 220KV transformer substations To construct seven 132KV transformer substations	To construct six 220KV transformer substations To construct fifteen 132KV transformer substations
	Annual total LNG consumption (in 100 million normal cubic meter)	-	0.32	3.65	22.17

Type	Status Quo	Short Term	Medium Term	Long Term
LNG facilities	To construct an LNG receiving station at the port in the south	LNG Receiving Station	1# LNG Gate Station & LNG Receiving Station、1# Regulator Station	2# Regulator Station、3# Regulator Station、4# Regulator Station、2# LNG Gate Station□

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Smart Port City	Development objectives	—	With the objective of achieving basic digitalization, to construct basic information and communication networks and data centers, arrange IoT facilities at several pilot locations to address urgent concerns about security, energy and environment, and to collect data in Gwadar	With the objective of achieving connectivity with internet and IoT, to promote the installation of IoT facilities and to achieve intelligent urban operation and management	With the objective of building a highlevel smart city, to make continued efforts to upgrade intelligent infrastructure and applications
	Fixed telecommunication (in 10,000 lines)	0.15	12	36	136
	Mobile telecommunication (in 10,000 lines)	0.05	28.5	63	250
	Cable TV (in 10,000 lines)		4.37	9.74	40
	Basic information and communication networks	Wired network equipped with cables only. 4G network basically covers the old part of Gwadar and the port, but with unstable service	To strive to complete the construction of the metropolitan area network and enable the optical network to cover the port, the Free Zone and the city's core area, to give priority to data transmission and telecommunication at checkpoints, important facilities and electronic fences; extend the coverage of 4G network and	To gradually upgrade and achieve full-scale coverage of optical network and mobile broadband network in the planning area	
Type	Status Quo	Short Term	Medium Term	Long Term	
			improve its service.		

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Data center	-	To construct the data center (located inside the command sub-center) and the intracity disaster recovery data center	To move the data center to the Administrative Center, and expand the capacity in line with growing needs.	To plan and construct another disaster recovery data center outside the planning area
Urban operation and management center	-	To be coestablished with the emergency command subcenter. To construct the data sharing and exchange platform and achieve sharing of data from core departments. To construct the public database and the urban operation and management gateway.	To be relocated to the emergency command center. All departments gradually achieve access to the data sharing and exchange platform. To construct the platform for big data access, mining and analysis. To improve the public database and the urban operation and management gateway.	
Internet of Things facilities	-	To select several pilot areas of urban management to install IoT sensors. To construct monitoring facilities for safety purposes.	Based on pilot operations, to gradually expand the scope of IoT applications. To expand the coverage of video monitoring and install monitoring points in a fullscale and scientific manner	Internet of Things facilities
Other telecommunications facilities	-	To construct a CATV building that covers an area of 0.5 ha.	To construct a communication building that covers an area of 0.5 ha.	Other telecommunications facilities

Appendix 5: Guidelines to Prepare Zoning Regulations

5.1 EXISTING AREA (EA):

This pertains to the existing historically developed, lawfully or unlawfully, planned or unplanned settlements. These should be allowed to retain / maintain within existing applicable building Regulations to avoid hardships to the owner(s) / occupant(s). However, In the existing built-up areas attempt should be made to regulate and promote a systematic relationship and interaction between various land uses/activities in respect of their approach and accessibility. The residential, commercial or industrial activities in the existing built up area of Gwadar should be carefully examined under prevalent rules to avoid / discontinue mixing of non-conforming uses.

For EXISTING AREA, land use planning and detailed zoning plan should be done by GDA. Pending completion of EA detailed zoning plan, application for new Construction of Shops/Houses in existing built-up area is not allowed, however NOC of improvement may be entertained. NOC of improvement means demolishing of existing house, shop or any other structure to rebuilt as per applicable laws of related land-use classification of new areas. It shall fulfill all requirements, i.e. FAR and other open space/ building bye-laws to maintain modern planning standards.

5.2 RESIDENTIAL ZONE (R):

This zone identifies four division of residential uses;

1.1.1 LOW DENSITY RESIDENTIAL ZONE

The population per hectare is relatively sparse, and there are about 100 people per hectare.

Normally Permissible Category

- i. Any residence including dwelling, detached, semi-detached, tenements or Subsidiary Apartment.
- ii. Professional consulting offices and incidental uses thereto occupying a floor area not exceeding 40sqm.
- iii. Family Home Child Care Service.
- iv. Petty shops dealing with daily essentials like retail sale of provisions, soft drinks, cigarettes, newspapers, etc., tea stalls, bakery, confectionary, retail shops, mutton stalls, milk kiosk, cycle repair shops, tailoring shops, internet/computer centers and ATMs etc. occupying a floor area not exceeding 40 sq.m.

- v. Nursery schools, Primary Schools, middle school, high schools, Libraries and reading rooms.
- vi. Parks play grounds, farms, gardens, nurseries, including incidental buildings thereon.
- vii. Cottage industries / small industries (home based).
- viii. Installation of Motor for pumping water, Air conditioning, Lifts, Solar Heaters, Dish Antennas, etc.
- ix. Regulations are intended to control density of population and to provide adequate open space around buildings and structures to accomplish these purposes.

Permissible with the special sanction of the GDA:

- i. Hostels, and dormitories not exceeding 500 sq.m in floor area.
- ii. Working women hostels, old age homes
- iii. Religious buildings, Welfare Institutions and Assembly Halls occupying floor area not exceeding 300 sq.m
- iv. Govt./Semi Govt. Offices, Banks, Pay Offices, Post Office, Offices of Electricity Board, etc. occupying a floor area not exceeding 300 sq.m.
- v. Public Utility Buildings like sewage pumping stations, water works, Fire stations, Telephone exchanges.
- vi. Swimming Pool attached to residential activity in a plot.
- vii. Daily or weekly markets serving local needs.
- viii. Transport depots, Bus Terminus and Railway Stations.
- ix. Burning, Burial grounds, crematoria and cemeteries.
- x. Higher Secondary Schools & Colleges
- xi. Restaurants not exceeding 300 sq.m in floor area provided the width of the abutting road is minimum 10 metres
- xii. Clinics, Nursing Homes, Dispensaries and other Health facilities not exceeding 300 sq.m in floor area provided the width of the abutting road is minimum 10 metres.
- xiii. Departmental stores with a floor area not exceeding 100 sq.m provided the width of the abutting road is minimum 10 metres.

- xiv. Fuel filling stations and service stations with installations not exceeding 5 HP.

1.1.2 MEDIUM DENSITY RESIDENTIAL LAND

The population per hectare is dense and medium, and there are about 200 people per hectare.

Normally Permissible Category

- i. Single-family dwelling – attached ii. Single-family dwelling- detached iii. Multi-storey buildings (up to 24 units per building)
- iv. Schools (Primary Schools, middle school, High schools, libraries and reading rooms)& Colleges
- v. Houses of worship vi. Clubs vii. Hospitals (Community hospital and BHU) & Health Centres viii. Community Centres / Conventional Halls ix. Institutions
- x. Boarding Houses xi. Day Care Centres xii. Disabled Persons Residential facility xiii. Manufactured housing units 24 feet or wider on a permanent foundation.
- xiv. Nursery Schools xv. Mosque, Churches &Temples

Permissible with the special sanction of the GDA:

- i. Assisted and Residential Care Facility ii. Athletic Fields Bed and Breakfast Inn iii. Cemeteries Churches, Synagogues, Temples iv. Communications in accordance other applicable communications ordinances

- v. Dormitory Housing, Fraternity,
Sorority
- vi. Electricity Regulating
Substations
- vii. Golf Course
- viii. Golf
Course w/ Country Club
- ix. Home Business
regulated
- x. Big Hospitals
- xi. Ice Skating
- xii. Libraries
- xiii. Mobile Home
- xiv. Courts and Subdivisions
- xv. Other Utility and Public Facilities
- xvi. Parks
and Playgrounds
- Skate Parks
- xvii. Pools
- xviii.
Recreation Centers
- xix. Residential Facility for
Elderly Persons
- xx. Schools
- xxi.
Separate Parking Lots
- xxii.
Short Term Rental
- xxiii.
Tennis Courts

1.1.3 HIGH DENSITY RESIDENTIAL LAND

The population per hectare is relatively dense, and there are about 420 people per hectare. The housing form is mainly for apartments/high rise towers.

Normally Permissible Category

- i. Multiple dwellings
- ii. Community residences
- iii. Dwelling houses on small
plots
- iv. Short term
accommodation
- v. Residential care facilities
- vi. Mix of dwelling
types
- vii. Relocatable home parks
- viii. Neighbourhood centres
- ix. Standalone small scale
non-residential development

- x. Car washes xi. Child care centres xii. Health care services
 xiii. Food and drink outlets, Shops (other than a supermarket) xiv.
 Veterinary services xv. Community care centres xvi. Educational
 establishments xvii. Emergency services xviii. Places of worship
 xix. Indoor sport and recreation and Parking stations xx. Tourist-
 related development xxi. Tourist parks

1.1.4 Residential service land

It is a concentrated development space for serving residential communities, and is used to arrange community-level public facilities, including public transportation stations, schools, general hospitals, open spaces, commercial, religious facilities, post offices, telecommunications bureaus and other community facilities. It also provides some land for business office services. In addition to the above-mentioned land use, Community service land can also provide some family-style workshop employment areas, centrally arrange the development of small handicraft industry, solve the close employment problem for some residents, and facilitate the centralized management of waste brought by the industry. Services in the industrial community, such as office, business services, and vocational education.

Table 1 Requirements for public facilities at all levels of residential land

Residential Unit Classification		Mahalla	Neighbourhood	Community
Residential	Housing Population(person)	6,000-8,000	25,000	100,000
	Households(H.H)	900-1,200	3,800	15,200
Commercial 32	Level	mahallahcentre	neighbourhoodcentre	town centre
	Number of Shops	10--12	40-50	125-150
Public Facilities1	Education/Area(ha)	primary school/0.6-1.0	secondary school/2.1	-
	Medical care/Area(ha)	BHU/0.25	3bhu/0.25 perone	2Hospital/1.0 perone (25beds)

Religious Facilities/Area(ha)	Local Mosque/0.07	Jumma Mosque/0.2	Markazi Mosque/0.38
Open Space/Area(ha)	Mahalla park/1.6-3.6	neighbourhood park/3.25-4	Community park/4-5
Post Office(ha)	-	-	0.1
Telecommunication Bureau(ha)	-	-	0.3

Table 2: Suggested Regulations for Residential Zone (R)

Residential land		FAR	Plot Coverage(%)	Max Hight(floor)	Plot Area (m ²)
Low density	R-1	0.5-1.2	60-80	G+3	312-500, NOT MORE THAN 1000
Medium density	R-2	1.2-2.0	50-70	G+6	160-250
High density	R-3	2.0-3.0	60-85	G+11	72-105(This data does not include rental apartments, Plot Area for low-rent housing)
Community service land	R-S	2.0-2.5	60-70	G+6	-

Note: The Plot Area for rental apartments and low-rent housing should be determined with a detailed plan.

Subdivision of land in High density residential zone smaller than 100 sq. m. shall not

³²Source: “Pakistan National Reference Manual on Planning and Infrastructure Standards” be allowed.

5.3 BUSINESS & COMMERCIAL ZONE (B):

There are following 2 Major distributions in this zone.

1.1.1 Commercial Land (B-1)

Commercial land is mainly used to carry all kinds of commercial business activities and catering and other service industries, such as supermarkets, shopping mall, professional markets.

This zone means a commercial belt of buildings having a maximum height of 4 to 5 story buildings and no high rise towers are allowed in this zone. In this zone, buildings or premises shall be permitted only for the following purposes and accessory uses:

- i. All commercial and business uses including all shops, stores, markets, shopping centers and uses connected with the display and retail sale of merchandise but excluding explosives, obnoxious products and other materials likely to cause health hazards and danger to lives.
- ii. Fuel filling stations, automobile service stations and workshops with installation not exceeding 5 HP.
- iii. Goods Warehouses and other uses connected with storage of wholesale trade in commodities not notified under the Specified goods Act/law, but excluding storage of explosives or products which are either obnoxious or likely to cause health hazards.

1.1.2 Business Office Land (B-2)

Business office land is mainly used for office activities such as finance, insurance, securities, news publishing and literary and art groups.

This zone means a Business offices belt of buildings having high rise towers. The principal purpose of this zone is to accommodate major corporative sector's offices to communicate their business in efficient manners. The developments in this zone shall be in accordance with zoning regulation and building rules in force/recommended.

In this zone, buildings or premises shall be permitted only for the following purposes and accessory uses:

- i. Buildings for development of software and its associated computer technology applications, IT Parks.
- ii. Bio-informatics centres
- iii. High rise towers for Head offices of industries, corporative sectors, Broadcasting, telecasting and telecommunication stations.
- iv. Private helipads subject to clearance by Civil Aviation department, Directorate of Fire and Rescue Services and police department.

- v. Research, Experimental and testing laboratories not involving danger of fire, explosives or health hazards.

Table 3: Suggested Regulations for Business & Commercial Zone (B)

Business & Commercial Land (B)			FAR	Plot Coverage(%)	Max Hight(floor)	Plot Area (m ²)
Commercial land	B-1	store	1.0-2.0	50-80	G+3	80-1000
		Professional market	0.6-2.0	60-80	G+3	1000-10000
Business Land	B-2		2.0-4.0	50-80	G+10	500-1000

Note: Business & Commercial Land of downtown is determined in combination with urban design parameters. The professional market can determine the Plot Area according to actual needs.

5.4 BUSINESS & RESIDENTIAL MIXED LAND (B&R) ZONE:

The purpose of this zone is to provide land for combined uses of residential and commercial in areas of high-density development potential. This is more prevalent in developments along Mass Transit Corridors to promote transit oriented developments (TOD) and in City Centres along central main corridors within the urban core.

The main function of mixed retail commercial and commercial office, mixed land use function, the general residential building area does not exceed 50% of the total building area, the two types of land can be built separately or land consolidation construction. The housing construction form is mainly apartment style. Business & Residential Mixed Land is adjacent to the layout of the business office, providing residential services for the business district and complementing commercial and business events.

In this zone buildings or premises shall be permitted only for the following purposes and accessory uses.

- i. All activities that is permissible in Primary Residential and Mixed Residential Zones without restriction of floor area (except industries)
- ii. Banks and Safe Deposit Vaults, Business Office and other Commercial or Financial Institutions occupying floor area not exceeding

- 500 sq.m iii. Hotels, Restaurants occupying a floor area not exceeding 500 sq.m.
- iv. Hostels, Dormitories, Boarding and Lodging houses and Welfare Institutions occupying a floor area not exceeding 500 sq.m.
- v. Clinics, Hospitals, Dispensaries, Nursing Homes and other Health facilities occupying a floor area not exceeding 500 sq.m.
- vi. Departmental stores occupying floor area not exceeding 500 sq.m. or organized markets. vii. Religious buildings and welfare institutions occupying a floor area not exceeding 500 sq.m.
- viii. Assembly Halls, Community Halls and Cinema theatres, Multiplex complexes along roads of width min. 12m.

Table 4: Suggested Regulations for Business & Residential mixed Zone (B&R)

Business & Residential mixed land (B&R)		FAR	Plot Coverage(%)	Max Hight(floor)	Plot Area (m ²)
Business & Residential land	B&R	2.0-3.0	50-80	G+11	300-3000

5.5 ADMINISTRATIVE LAND (A):

The main purpose is to provide land for public and semi-public uses / activities serving the urban at large and towards improvement of quality of life through physical, mental and spiritual well-being of the individuals. There following categories of land-use in the administrative land.

1.1.3 Administrative Office Land (A-1)

This includes the administrative agencies, the offices of provincial & local government, and the offices other cities in Gwadar. The purpose of this zone is intended to establish area within the city that provides flexibility for the development of public structure and uses.

In this zone buildings or premises shall be permitted only for the following purposes and accessory uses:

- i. Govt. and semi Govt. offices and institutions ii. Professional and business offices, iii. Broadcasting, telecasting, installations and Weather stations.

- iv. Public utilities, municipal and community facilities.

1.1.4 Cultural Facility Land (A-2)

It is a venue for city-level libraries, conferences and exhibitions, cultural exchanges and expo.

In this zone buildings or premises shall be permitted only for the following purposes and accessory uses:

- i. Art galleries, Archives, Museums, Public Libraries, Social and Cultural Institutions and Religious buildings.
- ii. Public utilities, municipal and community facilities.
- iii. Social and Cultural Institutions.

1.1.5 Educational Facility Land (A-3)

It is a place for teaching and living in higher education schools such as universities, colleges, Vocational College, and degree colleges.

In this zone buildings or premises shall be permitted only for the following purposes and accessory uses:

- i. Educational institutions including colleges and institutions of higher education, research, technical and training in nature.
- ii. Art galleries, Archives, Museums, Public Libraries, Social and Cultural Institutions and Religious buildings within educational zone.
- iii. Affiliated Nursery, Primary and Secondary Schools.
- iv. Residential and commercial spaces incidental to the activities permissible in this use zone(higher education).

1.1.6 Religious Land (A-4)

It is a large-scale religious activity site in the city, and does not include religious facilities in the community, neighbourhood, and Mohalla.

In this zone premises shall be permitted only for the following purposes and accessory uses:

- i. All kind of religious buildings / open areas reserved for the requirement of large religious gathering i.e. Nimaz -e- Eid required a city level Eid Ground, funeral prayers, cemetery grounds where various religious group may perform funeral activities.
- ii. Burial Ground, Burning Ground, Cemeteries, crematoria.

1.1.7 Medical Facility Land (A-5)

It is a land for medical, health care, sanitation, epidemic prevention, and rehabilitation and first aid facilities in the city.

In this zone buildings or premises shall be permitted only for the following purposes and accessory uses:

- i. Hospitals, Clinics, and other medical and public health institutions.
- ii. Residential and commercial spaces incidental to the activities permissible in this use zone.

Few other building/uses permissible after with special grant of GDA

- i. Transport terminals, bus and railway stations, Airport, Harbour, and parking lots including multilevel parking lots for the purpose to facilitate medical related activities.

1.1.8 Foreign Affairs Land (A-6)

The office areas of foreign consulates and international organizations or institutions.

This will fall under the Administrative offices Land (A-1) and same rules may be applicable with special case consideration as (A-6).

Table 5: Suggested Regulations for Administrative Land (A)

Administrative Land (A)		FAR	Plot Coverage (%)	Max Height (floor)	Plot Area (m ²)
Administrative office land	A-1	1.0-2.0	50-80	G+3	80-1000
Cultural facilities land	A-2	1.0-2.0	50-80	G+3	80-1000
Education facilities land	A-3	1.5-2.5	40-60	G+4	-
Religious land	A-4	0.5 – 2.5	50-80	-	-

Medical Facility Land	A-5	1.0-2.0	50-80	-	-
Foreign Affairs	A-6	1.0-2.0	50-80	G+3	80-1000

Note: According to the construction requirements of various professional buildings approved by GDA.

5.6 RECREATIONAL & ENTERTAINMENT LAND (REC):

The site includes Sports Facility Land, Golf & Polo Field Land, Park / Green Land, Entertainment land and Resort Land.

The entire Recreational & Entertainment Land (REC) zone buildings or premises shall be permitted for the following purposes and accessory uses:

- i. All public and semi-public recreational uses and open spaces, parks and play grounds, zoological and botanical gardens, nurseries, waterfront developments, museums and memorials.
- ii. Installations that may be necessary for the uses mentioned above.
- iii. Theme parks and amusement parks
- iv. Open Air Theatre, Exhibitions, Circuses, Fairs and Festival grounds, public utilities
- v. Related residential uses for essential staff required to be maintained in the premises.
- vi. Related commercial uses
- vii. Hotels and restaurants not exceeding 500 sq.m
- viii. Beach cottages each not exceeding 100 sq.m in floor area and 7.5 m in height.
- ix. Sports grounds and recreational complexes.

There are following major subdivisions in the REC zone:

1.1.9 The Sports Facility Land (REC-1)

It is used for sports venues, sports training bases, etc. for football, basketball and cricket.

- i. Parks, Play fields, Swimming pools and other public and Semi-public open spaces.

1.1.10 Golf & Polo Filed Land (REC-2)

It is a separate golf driving range, racecourse, ice rink, skydiving, Motorcycle Park, shooting range and other places.

1.1.11 Park / Green Land (REC-3)

It refers to concentrated parkland, including community parks, urban central parks, botanical gardens, wetland parks, etc.

1.1.12 Entertainment Land (REC-4)

Land reserved for cinemas, theatres, opera houses, theme parks, etc.

1.1.13 Resort Land (REC-5)

Land reserved to a variety of entertainment, health, hotels and other facilities.

Table 6: Suggested Regulations for Recreational & Entertainment Land (REC)

Recreational & Entertainment Land (REC)		FAR	Plot Coverage(%)	Max Height(floor)	Plot Area (m ²)
Sports facilities land	REC-1	-	-	-	-
Golf & Polo Field	REC-2	-	-	-	-
Park / Green Land	REC-3	0.1-0.3	-	-	-
Entertainment	REC-4	-	-	-	-
Resort	REC-5	-	-	-	-

Note: Green coverage in Park / Green Land must exceed 50%;

In the rec-4, theme park is designed in the area enclosed by the urban roads, and the Plot Area is no longer separately specified;

In the rec-4, theatre is constructed with professional buildings requirements approved by GDA. The development conditions of Resort can be determined in combination with hotel form and star rating.

5.7 INDUSTRIAL LAND (M):

The purpose of industrial zone is to provide land for industrial purposes for manufacturing, processing, assembling, servicing, repairing and packaging of goods and machineries / equipment etc. The development has to in conformity with all standards in Force / recommended. The industrial standards / guidelines set by Industries Departments, Environment Departments or SED regulations shall also be observed. Existing Gwadar Industrial Estate and Free Zone should follow their established / approved Master Plans etc.

In this zone, buildings or premises shall be permitted only for the following purposes and accessory uses:

- i. Existing Gwadar Industrial Estate
- ii. Gwadar Free Zone
- iii. In approved layouts residential, commercial, and institutional and other activities as designated therein.
- iv. All industries but excluding industries of obnoxious and hazardous nature by reasons of effluent, dust, smoke, gas, vibration or otherwise likely to cause danger or nuisance to public health or amenity.
- v. Residential buildings for security and other essential staff required to be maintained in the premises.
- vi. Storage of petroleum timber and explosives and inflammable and dangerous materials
- vii. All industries (without restrictions of H.P or floor area or number of workers) not producing noxious and dangerous effluents or where sufficient precautions to the satisfaction of the Pollution Control Board have been taken to eliminate noxious or dangerous effluents.

Industrial Land (M) further divided to the following major zones:

1.1.14 High-tech Industrial land (M-0)

Refers to the use of innovative industrial functions such as R&D, creativity, design, pilot test, and pollution-free production, as well as related supporting service activities.

High-tech industrial land located near a type of industrial zone can support manufacturing R&D; high-tech industrial land located in the city's long-term development zone can provide development momentum for future urban transformation.

1.1.15 Type-1 Industrial Land (M-1)

Refers to industrial land that has no interference, pollution and safety hazards to the residential and public environment. Such as food, textile, electronics, fishery processing and other labor-intensive processing and manufacturing industries, located in the eastern side of the planning area, the area with better external traffic conditions.

1.1.16 Type-2 Industrial Land (M-2)

An industry that has an impact, pollution or danger in residential and public environments. Such as automotive, building materials and equipment manufacturing.

Table 7: Suggested Regulations for Industrial Land (M)

Industrial land (M)		FAR	Coverage (%)	Max Height (floor)	Plot Area (m ²)
High-tech industrial land	M-0	2.0-3.0	40-60	G+10	10000-20000
Type-I industrial land	M-1	1.0-2.0	50-80	-	-
Type-II industrial land	M-2	0.6-1.5	60-80	-	-

Note: The industrial standards / guidelines set by Industries Departments, Environment Departments or SED regulations shall also be observed.

5.8 WAREHOUSE LOGISTICS LAND (W) :

Refers to land for material reserves, transit, distribution, etc., including auxiliary roads, parking lots, and yards for freight company fleets, Warehouse for government & non government organizations.

Table 8: Suggested Regulations for Warehouse Logistic Land (W)

Logistics and Warehouse Land (W)	FAR	Plot Coverage (%)	Max Height (floor)	Plot Area (m ²)
W	0.5-1.2		G+3	3000-10000

5.9 TRANSPORT LAND (T):

Including ports, airports, railways and stations, roads and stations and urban roads. among them:

The port includes the land area of the seaport and river port, including the terminal operation area and auxiliary production area.

The airport includes civil and military-use airport sites, including flight areas, terminal areas, and airport services. Area around Airport/Aerodrome: The buildings/structures in the vicinity of aerodromes shall conform to the Civil Aviation Authority. However, latest rules, including amendments if any notified by the Directorate General of the Civil Aviation shall be followed in all such cases of building constructions in the

vicinity of aerodromes. If the site is located within 3 kms. from the aerodromes reference point, for constructions, which rise to 15 metres or more in height, no objection certificate shall be obtained from the Directorate General Civil Aviation.

Railways and station stations include railway marshalling stations, lines and other land. Plan the railway line along the East Bay Expressway; plan two freight yard stations, the east side is used to relieve urban freight; the west side freight yard station is used as a port cargo backup station. The railway station is a comprehensive station for both passengers and freights.

Roads and stations include land for passenger stations such as roads.

Urban road land includes urban expressways and land for major roads, including land for intersections.

Note: Buildings according to the construction requirements of various professional buildings approved by GDA within Sea Ports, Airports, Transportation Terminals, Railway stations, Parking spaces may observe related professional building- byelaws.

Additionally applicable laws are Pakistan Civil Aviation standards, Ports and harbor regulations, National Highway Authority Regulations, Pakistan Railways bye-laws as available.

5.10 MUNICIPAL UTILITIES LAND (U):

It refers to the land for water supply, drainage, power supply, communication, gas supply, environmental protection and safety facilities.

Water supply land includes urban water intake facilities, water plants and their associated structures.

The drainage land includes sewage treatment plants, sludge treatment plants and their associated structures, excluding the drainage channel.

The land for power supply includes land for substation.

The communication land includes land for broadcast television and broadcasting and receiving facilities of the communication system.

The gas supply land includes centralized heating boiler room, heat station and heat exchange station.

The environmental sanitation and environmental protection land includes collection and treatment facilities for household waste, medical waste and hazardous waste.

The safety land includes public facilities such as fire prevention and flood control that ensure urban safety and the land for their ancillary facilities.

Note: Municipal Buildings according to the construction requirements of various professional buildings; may observe related professional building- byelaws or approved by GDA.

5.11 TRAFFIC & UTILITIES BUFFER LAND (TB) :

It is reserved for future urban road expansion, large public transportation corridors, motor vehicle parking and municipal facilities pipeline construction, and urban interchanges. It is mainly located on both the urban expressway and Primary-1 Road. The specific scheme can be combined with the stage of urban development. Demand construction.

Green Belt along Northern Bye pass and any Highway pass the city:

As per National Highways standards, green belts on either side to a depth of 30 metres along any Bye pass Road and any Highway road have been reserved. In this green belt area forming part of plots/sites, no development except gate pillars and watchman booth is permissible.

Landscape greening is possible, but construction is not allowed.

5.12 WHITE LAND (WL):

White Site is a new concept proposed and piloted by the Urban Redevelopment Authority of Singapore (URA) in 1995 to increase the flexibility of land use and the flexibility of planning changes. This project stipulates that White Land is the land for temporary land use in the planning. After the construction of the surrounding land is mature, the land for land use function can be determined according to the actual development needs, and the government preferentially enjoys the right to plan and use. Facilities or open spaces are development spaces in the city that can be flexibly changed according to actual market demand.

Table 9: Suggested Regulations for White Land (WL)

White Land (WL)		FAR	Plot Coverage (%)	Max Height (floor)	Plot Area (m ²)
White Land	WL	-	-	-	-

Guidelines: All related byelaws are applicable.

5.13 MILITARY LAND (ML):

Military Lands and Cantonments is an attached department of Ministry of Defence. Directorate of Military Lands and Cantonments provides advisory input on defence lands and local government matters in cantonments to the Federal Government (Ministry of Defence) and all related stakeholders i.e. Service Headquarters and other organizations under Ministry of Defence.

Guidelines: Lands to a depth of 10 m around the boundary of the Military Area, Civil Aviation, Navy, cantonments or for any other defence or strategic areas prohibited for development as per the Government of Pakistan.

Development within military land (ML) shall observe all applicable byelaws by Military engineering Services.

5.14 RESERVED LAND (RL)

Reserved land is the land reserved for future development. The reserved land can be used as any function according to the real demand of urban development.

If the scale of urban development exceeds expectations during the planning period, its development can be started. In the future development reserve land area, except for the NOC project, other land needs to be used after the land use property is determined by the land use plan.

Reserved land-1 refers to the area in which the development of the reserve is prioritized and Reserved land-2 refers to the area where the sub-optimal construction is carried out. The purpose of distinguishing the two types of land is to allow the urban land to be concentrated and developed in stages.

5.15 WATER BODY& BASIN/NULLAH(WB&BA):

Water body refers to the area where water is maintained throughout the year. An artificial lake is planned in the center of downtown. In the future, it will connect the ocean. Artificial water storage is needed to maintain a certain water level.

Basin/Nullah refers to river waters and may have seasonal dryness.

Guidelines: Must be protected to maintain their actual position. Disturbing such natural lines will create/enhance the chances of hazards.

5.16 BEACH (BE):

Land alongside a body of water which consists of loose particles. The particles composing a beach are typically made from rock, such as sand, gravel, shingle, pebbles.

It includes lifeguard posts, changing rooms, showers, shacks and bars. They may also have hospitality venues (such as resorts, camps, hotels, and restaurants) nearby. Wild beaches, also known as undeveloped or undiscovered beaches, are not developed in this manner. Wild beaches can be valued for their untouched beauty and preserved nature.

Guideline for BEACH LAND (BE) are as follow:

Construction of beach resorts/hotels with prior approval of GDA in the designated areas of COASTAL ZONE for temporary occupation of tourists/visitors shall be subject to the following conditions:

- i. The project proponents shall not undertake any construction (including temporary constructions and fencing or such other barriers) within 100 meters (in the inland wide) from the High Tide Line and within the area between the Low Tide and High Tide Line. If the width of 100 m is not enough in the existing area, the restrictions can be appropriately relaxed.
- ii. live fencing and barbed wire fencing with vegetative cover may be allowed around private properties subject to the condition that such fencing shall in no way hamper public access to the beach;
- iii. no flattening of sand dunes shall be carried out;
- iv. no permanent structures for sports facilities shall be permitted except construction of goal posts, net posts and lamp posts.

Construction of basements may be allowed subject to the condition that no objection certificate is obtained from the Competent Authority to the effect that such construction will not adversely affect free flow

5.17 ECOLOGICAL CORRIDOR AND MOUNTAIN (BC):

EC is a buffer zone for ecological development, mainly located around the Basin & Nullah land, and MC refers to the mountain range. These zones may follow the following guidelines:

Areas that are ecologically sensitive and important, such as national parks/marine parks, sanctuaries, reserve forests, wildlife habitats, mangroves, corals/coral reefs, areas close to breeding and spawning grounds of fish and other marine life, areas of outstanding natural beauty/historically/heritage areas, areas rich in genetic diversity, areas likely to

be inundated due to rise in sea level consequent upon global warming. Area between Low Tide Line and the high Tide Line. Area of the mountains in the north of the free zone, as well as mountains locate in the northeast and west of the planning area.

In addition, areas likely to have (i) moderate to very high damage risk zone of earth quakes, or (ii) moderate to very high damage by cyclones, or (iii) significant flood flow or inundation, or (iv) landslides proneness or potential, or (v) tsunami proneness, or (vi) one or more of this hazards, have been declared as natural hazard prone areas.

Whole of Gwadar Smart Port City Area falls in this natural hazard prone areas classification. Structural design and aspects of the building constructions in the Gwadar City, Towns, and District Councils shall also take into account of the special provisions contained in the Building Rules/By Laws under the Smart Port City Gwadar Building By Laws / Act respectively relating the regulations for natural hazard prone areas.

Appendix 6: Improvement of Building Regulations 2005

After detailed review of the of Existing GDA Building Regulations 2005 following Chapter wise and Para wise changes are suggested for the improvement of regulations.

The words that underline “_____” with italics means need to be updated.

CHAPTER 1 – JURISDICTION

1.1. These Regulations may be called the Gwadar Building Planning and Regulations 2019.

CHAPTER 2 – DEFINITIONS

2-87. “PEC” means Pakistan Engineering Council established under PEC Act, 1976.

Also include the following abbreviations in the list

"BCP" means Building code of Pakistan

"NFPA" means National Fire Protection Association

2-95. "Professional" means an individual or firm registered as such under the PCATP ordinance – 1983 and PEC Act-1976.

CHAPTER 3. PERMITS AND PROCEDURES

Table 3.1 – Categories of Development Works

Include following Category in the table 3.1

CATEGORY-VI	Industrial Land (M)
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Table 3.2 Procedure for Approval

Include following Categories in the table 3.2

6.	VI	Industrial Experts	
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Table 3.3 Maximum Authorization of Professionals

Include following Categories in the table 3.3

S.No	Professional	Category-I	Category-II	Category-III	Category-IV	Category-V	<u>Category -VI</u>
1-	Building Supervisor	Supervision with 2 years experience	Supervision with 10 years experience	.....	.....	.....	<u>.....</u>
2-	Building Designer	Design & Supervision	Supervision	.....	.....	.....	<u>.....</u>
3-	Architect	Architectural Design & Supervision	Architectural Design & Supervision	Architectural Design & Supervision	Architectural Design & Supervision	.....	<u>.....</u>
4-	Professional Engineer (Civil)	Design & Supervision	Supervision	Supervision with 5 years experience	Supervision with 5 years experience	Supervision	
5-	Structural Engineer	Structure Design & Supervision	Structure Design & Supervision	Structure Design & Supervision	Structure Design & Supervision	Structure Design & Supervision	

6-	Proof Engineer	.....	.....	Structure vetting	Structure vetting	.....
7-	Town Planner	.....	.....	.....	.....	Supervision with 10 year experience	
8-							***

CHAPTER 8- SPACE REQUIREMENTS IN AND ABOUT BUILDINGS

8-6 Residential Buildings

8-6.1 No Habitable room shall have a floor area of less than 120 Sq.ft. (11.15Sq.m)

Min. Area	Min. Width	
W.C	<u>20sq.ft. (1.85sq.m)</u>	3.5ft. (1.07m)
Shower	<u>20sq.ft. (1.85Sq.m)</u>	3.5ft. (1.7m)
Combined W.C and	35sq.ft. (3.25Sq.m)	5.0ft. (1.52m)

Bathroom

The minimum clear height or rooms under any structure member shall be except in the cases when central air conditioning provides are applicable as purchase No.9-8-1:

Habitable rooms 9.5 ft. (2.65m) Kitchens

9.5 ft. (2.65m)

Bathrooms W.C.'s Latrine 8.0 ft. (2.43m)

Garages and Car porch 8.0 ft. (2.43m)

Passages, galleries, corridors 8.0 ft. (2.43m)

Dress Room 8.0 ft. (2.43m)

8-7 Commercial Buildings

8-7.2 The minimum ceiling height of an arcade shall be 8.5 ft. (2.59m).

8-7.3 The minimum ceiling height of an arcade shall be 8.5 ft. (2.59m).

8-7.6 Clear width of Arcade between inner surface of the outer column and shop shall be minimum of 6.0 ft and width from outer column and shop shall be 8'-0".

8-8.1 Staircases

For all buildings and bungalows, the minimum width of staircases single flight shall be 4ft. (1.2 m). The distance from any point to the nearest staircase shall not exceed 100ft. (30m). The minimum clear head room under beams and stair landing shall be 7.5 ft. (2.13m).

Lifts

8-9.1 No lift will be of capacity less than 6 person, and lifts shall conform to the technical provisions of EN-81 and or BS5655 with respect to all safety devices, procedures of examination and annual testing/certification of lifts by a professional engineer of concerned disciplines.

Number of lifts to be provided by the designer professional keeping in view the NFPA requirements, size, space, speed and brand of lift, type and height of buildings etc.

CHAPTER 10-BUILDING STRUCTURE DESIGN AND CONSTRUCTION REQUIREMENTS.

10-1. Loads and Design

Structure analysis, design, detailing and loading shall be in accordance with the requirements of Uniform Building Code 1997 (UBC), Building Code of Pakistan (BCP) 2007 and American Code. Structure shall however be designed by only one approved Code.

Seismic Design.

Seismic Risk Zone for Gwadar will be '3' (with reference to BCP 2007) which is equivalent to Peak Ground Acceleration (PGA) of 24% g to 32% g.

Sub Soil Investigation

In view of the structural design in Seismic hazard zone, type of Sub-Soil for foundation soil is thoroughly ascertained by geo-technical investigation under the director supervision of qualified and experienced geo-technical engineers. The Soil Report should correlate the sub-soil type with BCP 2007 and UBC-97 (or current) Sub-Soil list. Special Consideration should be given to liquefaction potential and swelling potential of soils.

10-4 Wind Load

Wind Load should be based on the velocity and gust factors data from local Meteorological Department and should not be less than as specified in BCP 2007.

CHAPTER 11 – WATER SUPPLY, DRAINAGE & SANITATION

11-1. Water Service Pipe

All provision shall be made as per following requirements or as per International Plumbing Code. Whichever is stringent.

11.2. Minimum Storage Capacity for Category “IV” buildings

Fire water storage should be kept as per the requirements of fire fighting system provided for fire suppression, and the system should be designed and provided as per the National Fire Protection Association (NFPA) requirements.

11-2.3 Distribution of Water within the Premises

All provision shall be made as per following requirements or as per International Plumbing Code, whichever is more stringent.

11-3. Recycling Plant and Treatment of Effluent/sewage

Wastewater/recycling/effluent treatment plant shall be, designed, constructed and maintained as per the local and International standards. The treated effluent shall meet the local /National Environmental Quality standards(NEQS) and International standards for recycling or disposal to natural streams.

11-4. Sanitation and Solid Waste

All provision shall be made as per following requirements or as per International Plumbing Code. Whichever is more stringent

All industrial waste shall be treated in accordance with the Local applicable /National Environmental Quality standards (NEQS) and international standards.

All hospitals shall provide the disposal of medical waste as per Local applicable */National Environmental Quality standards (NEQS) and international standards*

In all public sale projects the central waste disposal system should be provided by the developer in all publically held sales i.e. auctions etc.

11-6. Soil Pipes, Waste Pipes and Ventilating Pipes

All provision shall be made as per following requirements or as per International Plumbing Code. whichever is more stringent .

Joints shall be made water tight by using suitable rubber gasket or other seating material appropriate for specific type of pipe.

Ventilating pipe shall be provided in all stacks carrying wastewater or sewage, in accordance with the plumbing code.

11-7. Sanitary Provisions

All provision shall be made as per following requirements or as per International Plumbing Code whichever is more stringent.

11-9. Storm Water Drains

It should be designed and installed as per International Plumbing Code. whichever is more stringent.

CHAPTER 12– FIRE RESISTANCE AND FIRE PRECAUTIONS

12.1 General

Every building shall comply with the provisions laid down in Chapters 13 and 14 of *Gawadar Regulations* in respect of fire resistance and fire precautions, unless noted otherwise.

12-2 Stand Pipes System

All building fire system shall be designed and installed as per following requirement or as per National Fire Protection Association (NFPA), whichever is more stringent Stand pipe system shall be designed and installed as per NFPA 14's latest edition.

d) Fire department connection i.e. Siamese connection shall be provided outside building accessible to fire tender as per NFPA.

f) The Stand pipes shall be fed by an over head water tank reserved solely for this purpose. A pumping system should be installed with an underground tank of required capacity fulfilling NFPA's required of pressure and flow at outlet.

12.3 Automatic Sprinkler System

Sprinkler system should be designed and installed as per following requirement or as per latest NFPA 13 standard, whichever is more stringent.

12-4. Sprinkler System construction

All construction of sprinklers should be as per following requirements or as per latest NFPA 13 standard, whichever is more stringent.

12-4.1.3 Automatic Sprinkler System shall be fed by an overhead water tank reserved solely for this purpose. The tanks shall be capable of supplying 25% of the Sprinkler heads for 20 minutes but the minimum capacity of any tank shall be 5000gallons (18,925 Lit). There shall be a minimum head of 15Lbs. /Sq.ft. (1.02Kg/cm²) above the highest discharge point. An underground tank with pumping system to be provided to meet pressure and flow requirement of sprinkler as per latest NFPA13 standards.

12-4.1.4 Automatic Sprinkler System shall be arranged to set off automatic outside valve to control all sources of water supply. (Automatic Sprinkler system shall be provided as per NFPA 13 latest edition.)

12-5 Manual Fire Extinguishing Equipment

All extinguishers shall be provided as per following requirements or as per latest NFPA10 standards, whichever is more stringent.

CHAPTER 13- FIRE RESISTIVE STRUCTURAL REQUIREMENTS

13-1. Fire Resistance

13-1.2 Every element of structure shall be required to have fire resistance for not less than the relevant period specified in TABLE 13.1 with regard to the building of which it forms part and or as per the National Fire Protection Association (NFPA) Standards.

CHAPTER 16- PARKING REQUIREMENTS

16-4. Application of Parking Requirements

16-4.1.6 Every 550 Sq.ft (51Sq.m) of floor area of space for retail shopping;

16-4.1.8. Every 775 Sq.ft (72 Sqm.m) of business office;

16-6. Standards for Parking spaces.

16-6.1. Configuration of parking space under these Regulations shall conform to the minimum standards given in the table below.

Table -16-1.

DESCRIPTION	FOR CAR	FOR MOTORCYCLE
Bay width	8 ft.(2.43m)	2.5ft.(0.75m)
Bay length	16ft (4.86m)	6 ft. (1.8m)
Gradient of ramp*	<u>1:12</u>	<u>1:12</u>
Straight Turning radius (outer)	<u>26.5 ft. (8.0m)</u>	--
Helical length Turning radius	<u>35.5 ft. (10.75m)</u>	
Lot Turning radius.	17.5 ft. 5.3 m)	

Minimum Ramp and Driveway width		
Two way traffic.	<u>20 ft. (6.0m)</u>	--
One way traffic.	11 ft. (3.4m) <u>as per table 16.2</u>	--

CHAPTER 17- ZONING REGULATIONS/AREA STANDARDS

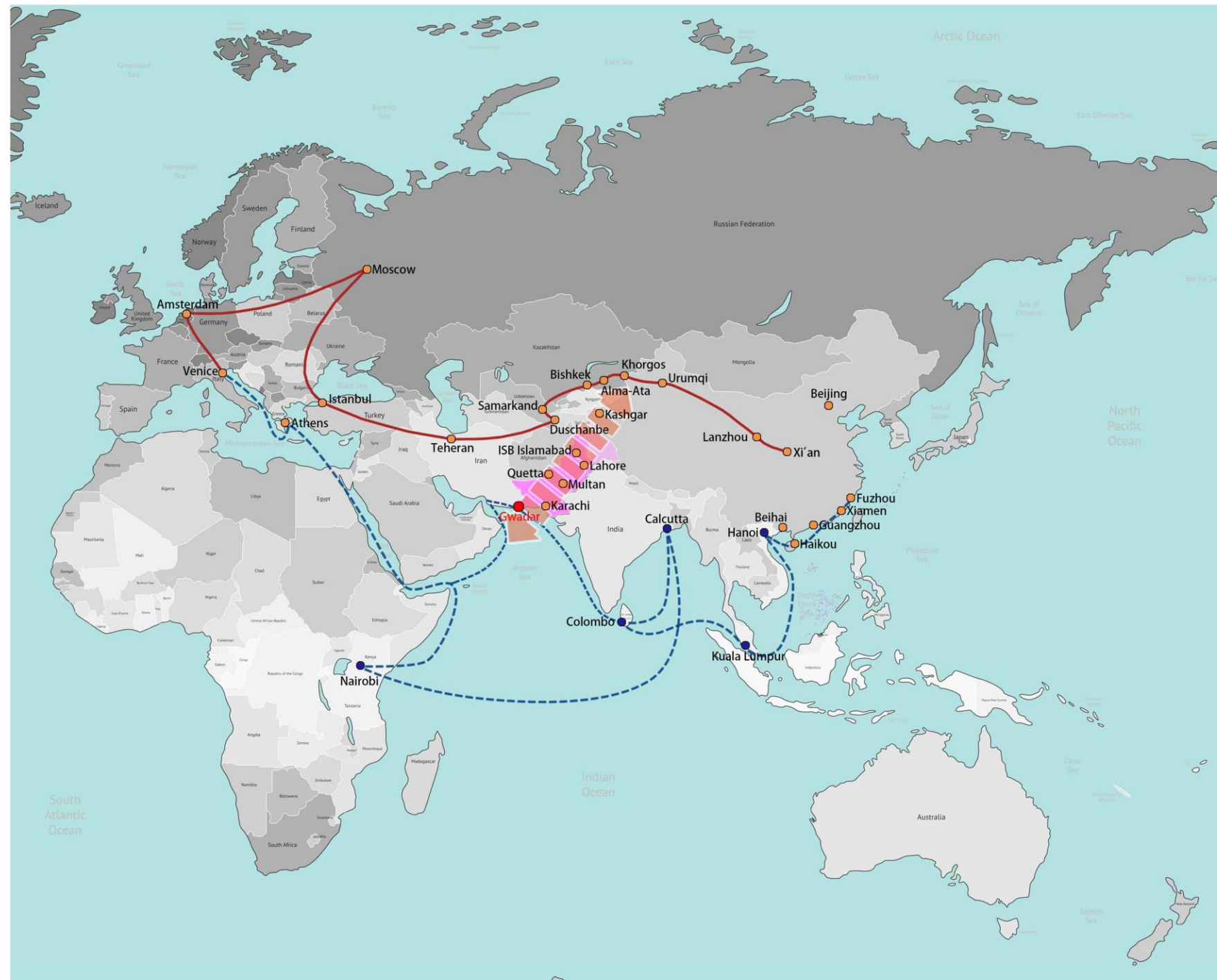
This part refers to GUIDELINES TO PREPARE ZONING REGULATIONS in the Appendix 5.

Atlas

- 1 location
- 2 planning area
- 3 existing landuse
- 4 N.O.C. distribution
- 5—1 landuse of gwadar master plan (2004)
- 5—2 landuse future expansion of gwadar master plan
- 5—3 LANDUSE OF GWADAR PORT MASTER PLAN (2006)
- 6 STRUCTURE AND FUNCTION ZONE PLANNING
- 7 LANDUSE PLANNING
- 8 RESIDENTIAL LAND AND DENSITY ZONE PLANNING
- 9 PUBLIC SERVICE FACILITY LAND PLANNING
- 10 RECREATION & ENTERTAINMENT LAND PLANNING
- 11 ECOLOGICAL FUNCTION AND OPEN SPACE PLANNING
- 12 INDUSTRIAL AREAS LAYOUT PLANNING
- 13 COASTLINE UTILIZATION PLANING
- 14 COMPREHENSIVE TRAFFIC PLANNING
- 15 ROAD SYSTEM PLANNING
- 16 PUBLIC TRANSPORTATION PLANNING
- 17 WATER SUPPLY PLANNING
- 18 RECLAIMED WATER SUPPLY PLANNING
- 19 SEWAGE PLANNING
- 20 STORMWATER DRAINAGE PLANNING
- 21 ELECTRIC POWER ENGINEERING PLANNING

22	COMMUNICATION ENGINEERING PLANNING
23	GAS ENGINEERING PLANNING
24	ENVIRONMENTAL SANITATION ENGINEERING PLANNING
25—1	SECURITY FACILITIES PLANNING
25—2	DISASTER PREVENTION PLANNING
26—1	PHASED CONSTRUCTION PLANNING
26—2	SHORT-TERM MUNICIPAL ENGINEERING PLANNING
26—3	MID-TERM MUNICIPAL ENGINEERING PLANNING
27	URBAN DESIGN OF DOWNTOWN

GWADAR SMART PORT CITY MASTER PLAN (2017-2050)



Location of Gwadar in Belt And Road Initiative



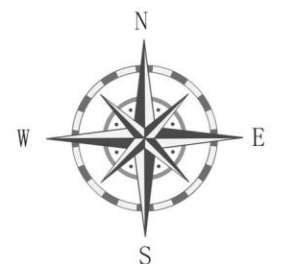
Peripheral Area Analysis



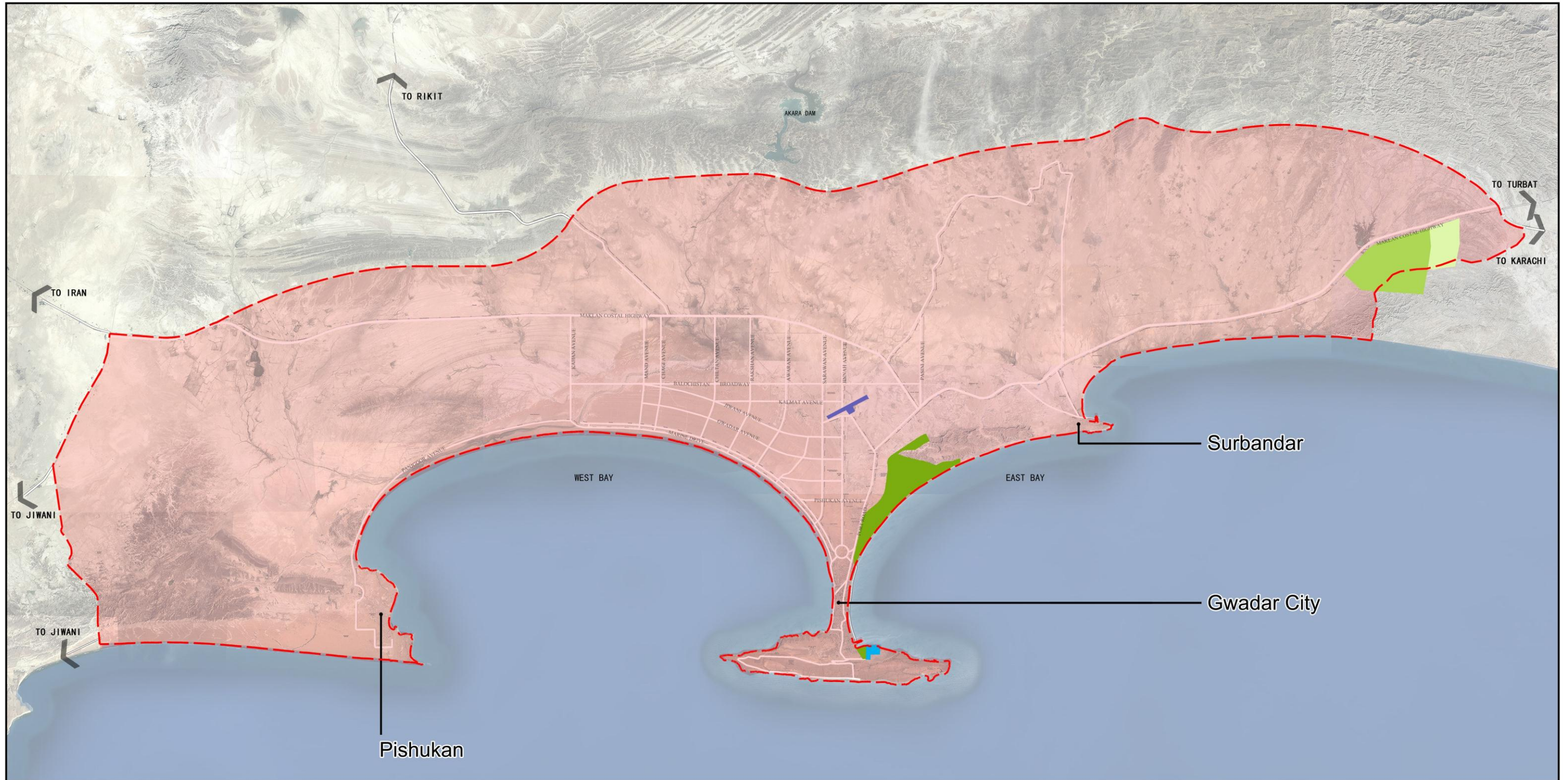
Administrative Zoning of Gwadar District

Legend

- Maritime Silk Road
- Land Silk Road
- China-Pakistan Economic Corridor
- Pakistan
- Planning Area

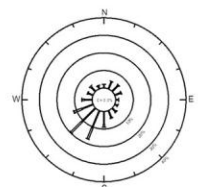


GWADAR SMART PORT CITY MASTER PLAN (2017-2050)

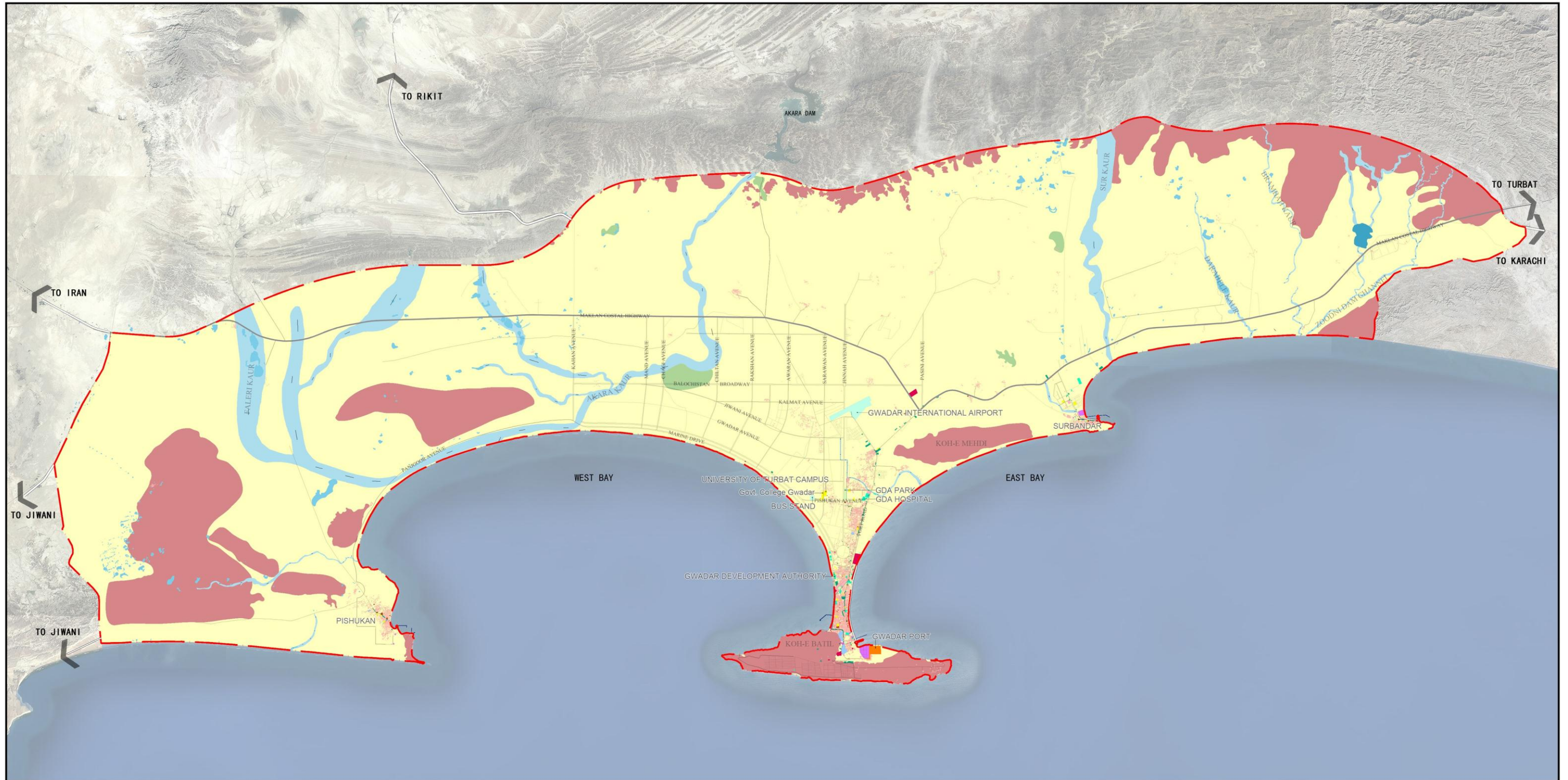


Legend

- International Airport
- Free Zone
- GIEDA
- GEPZ
- Port
- Major Road
- Planning Area

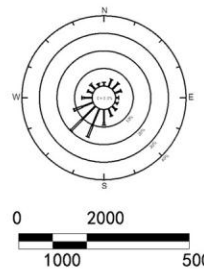


GWADAR SMART PORT CITY MASTER PLAN (2017-202050)

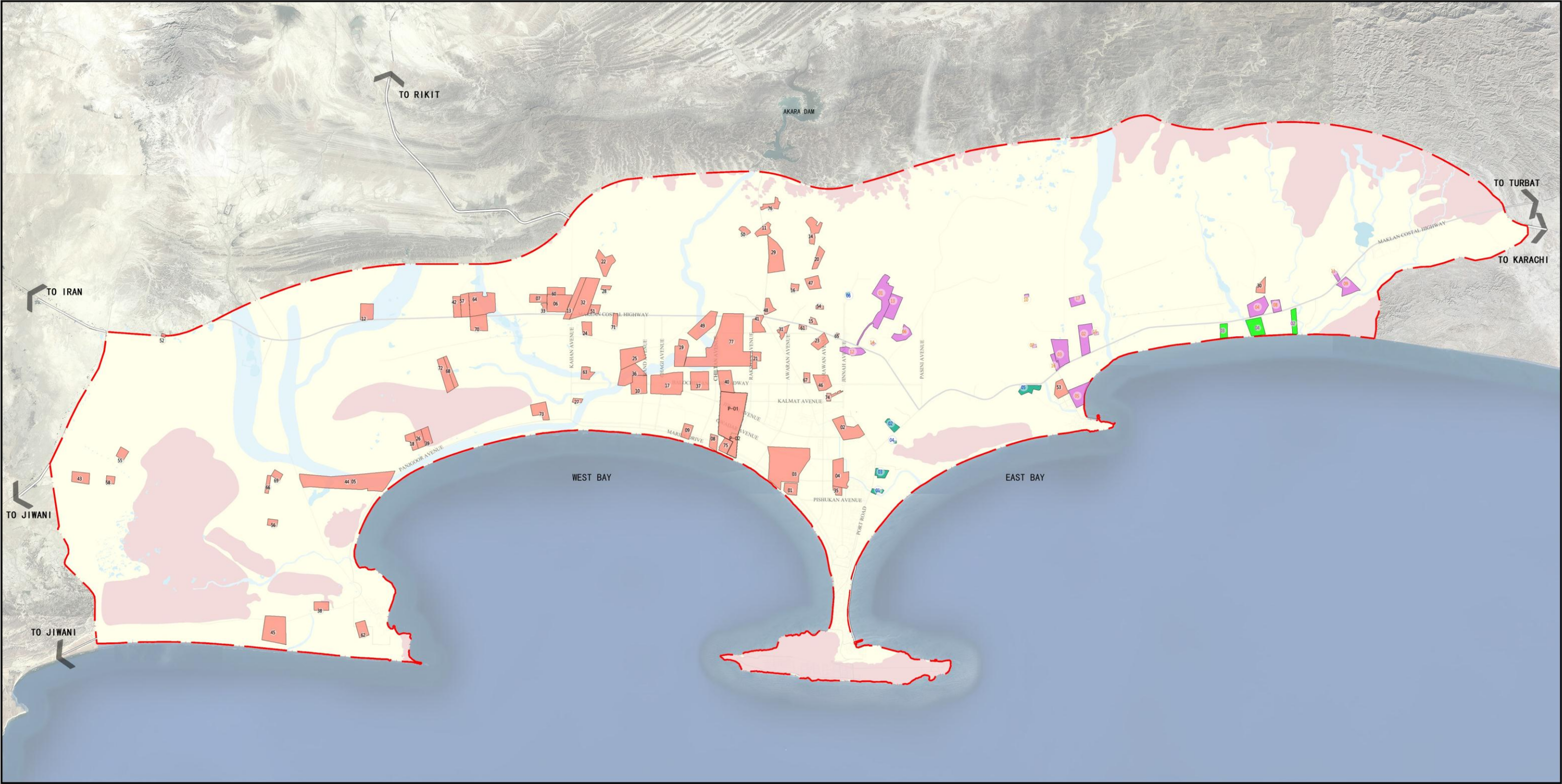


Legend

- | | | | | |
|----------------------|-------------------------------|------------------|------------------------|---------------|
| Gwadar Port Area | Health Facility | Utilities | Mountainous Area | Planning Area |
| Army/Security Area | Industrial/Manufacturing Area | Agriculture Land | Arabian Sea | |
| Commercial Area | Religious Building | River/Nullah | Major Road | |
| Educational Facility | Park/Recreational Facility | Water Ponds | Track | |
| Govt. Building | Residential Area | Jetty Weir | Makran Coastal Highway | |
| Graveyard | Transport Terminal | Water Reservoir | Open Area/Barren Land | |

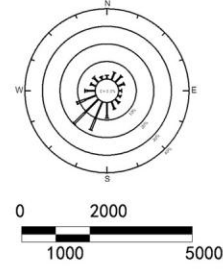


GWADAR SMART PORT CITY MASTER PLAN (2017-202050)



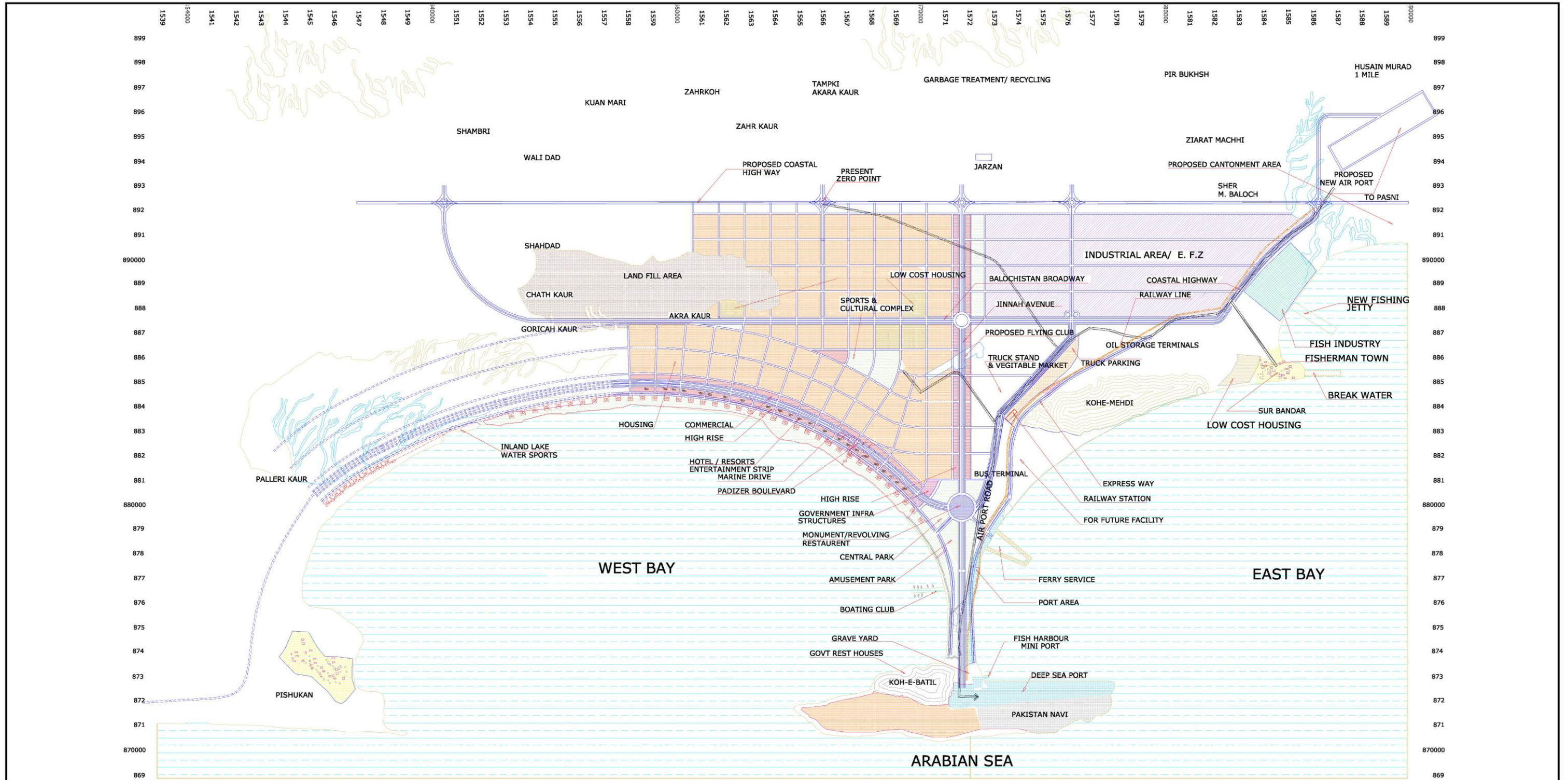
Legend

- Housing/Residential
- Industrial
- Recreational
- Commercial
- (01) Housing/Residential Scheme Number
- (01) Industrial Scheme Number
- (01) Recreational Scheme Number
- (01) Commercial Scheme Number
- Planning Area



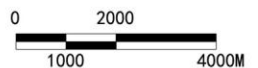
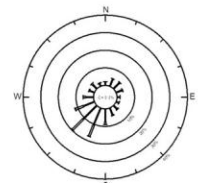
GWADAR SMART PORT CITY MASTER PLAN (2017-2050)

LANDUSE OF GWADAR MASTER PLAN (2004) 05-1



Legend

- | | | | | | | | |
|----------------------------|--|-----------------------------|--|---------------------------|--|--------------------------|--|
| EXISTING HOUSING | | AIR & SEA PORT | | FISHERMAN TOWN/FISH INDUS | | CONTAINER / RAILWAY YARD | |
| HILLS / MOUNTAIN | | AIR PORT (EXISTING) | | NEW RESIDENTIAL AREAS | | | |
| STREAMS / RIVER BEDS | | COMMERCIAL | | PORT AREA | | | |
| CLIFFS | | GOVT INFRASTRUCTURE | | INDUSTRIAL USE | | | |
| PROPOSED ROAD | | GREEN/OPEN AREA/SPORTS COMP | | TOURISM DEVELOPMENT | | | |
| EXISTING ROAD | | | | | | | |
| COASTAL HIGHWAY (PROPOSED) | | | | | | | |



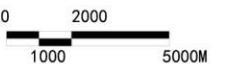
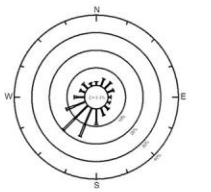
GWADAR SMART PORT CITY MASTER PLAN (2017-2050)

LANDUSE FUTURE EXPANSION OF GWADAR MASTER PLAN (2004) 05-2



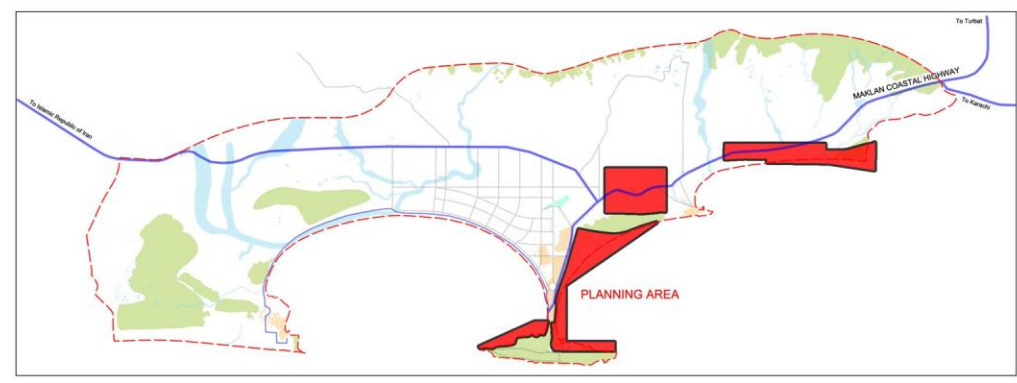
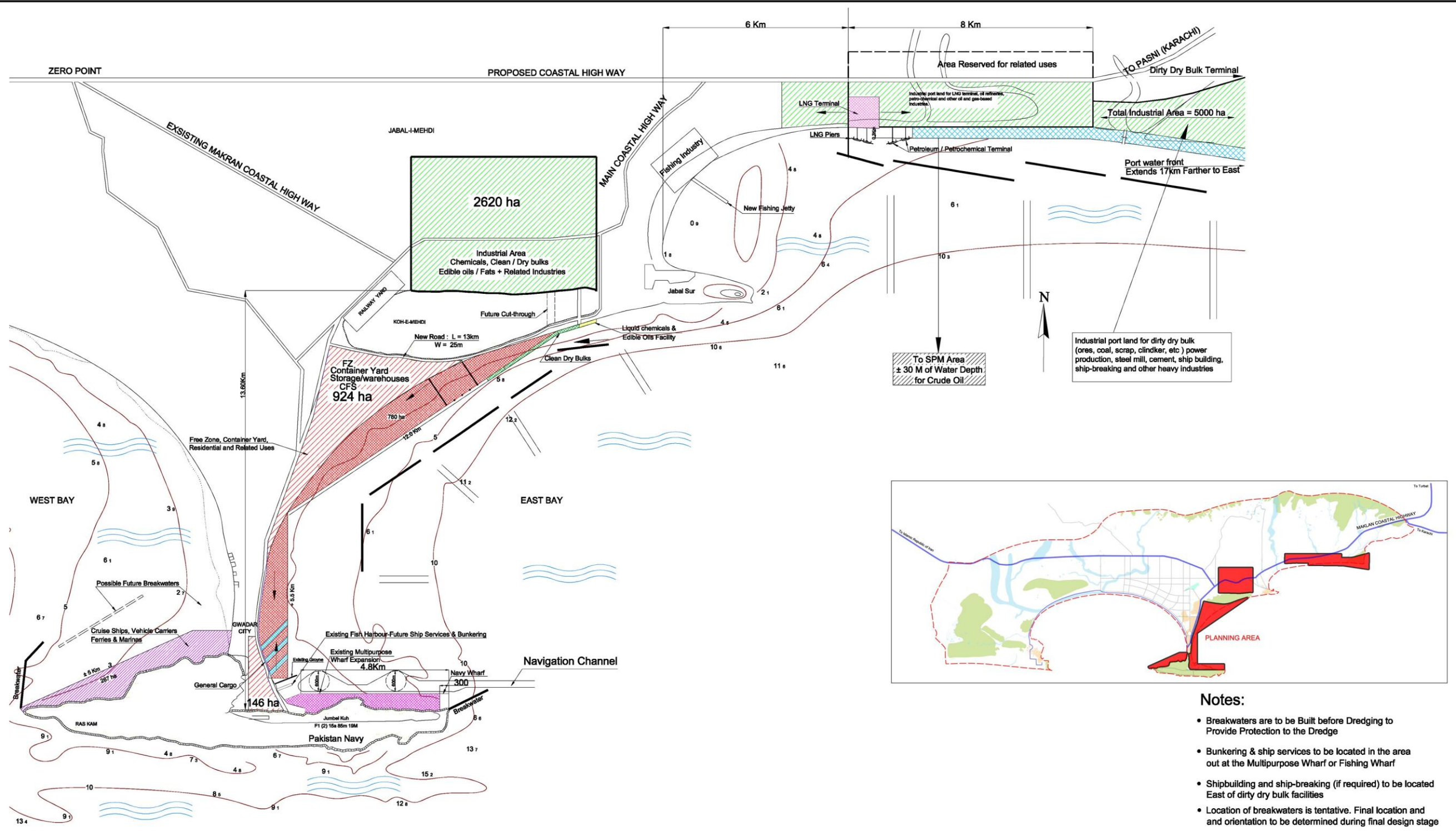
Legend

PLANNED INDUSTRIAL AREA 93143 Acres 12397 Acres 16097 Acres TOTAL 121637 Acres	PLANNED RESIDENTIAL AREA 46464 Acres 125016 Acres TOTAL 171480 Acres	PLANNED INDUSTRIAL + RESIDENTIAL AREA TOTAL 293117 Acres Hills	TOTAL TEHSIL AREA 652821 Acres TOTAL PLANNED IND+RES AREA 293117 Acres	TOTAL UNPLANNED AREA 359704 Acres
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GWADAR SMART PORT CITY MASTER PLAN (2017-2020)

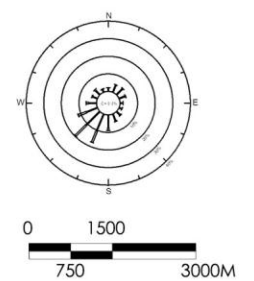
LANDUSE OF GWADAR PORT MASTER PLAN (2006) 05-3



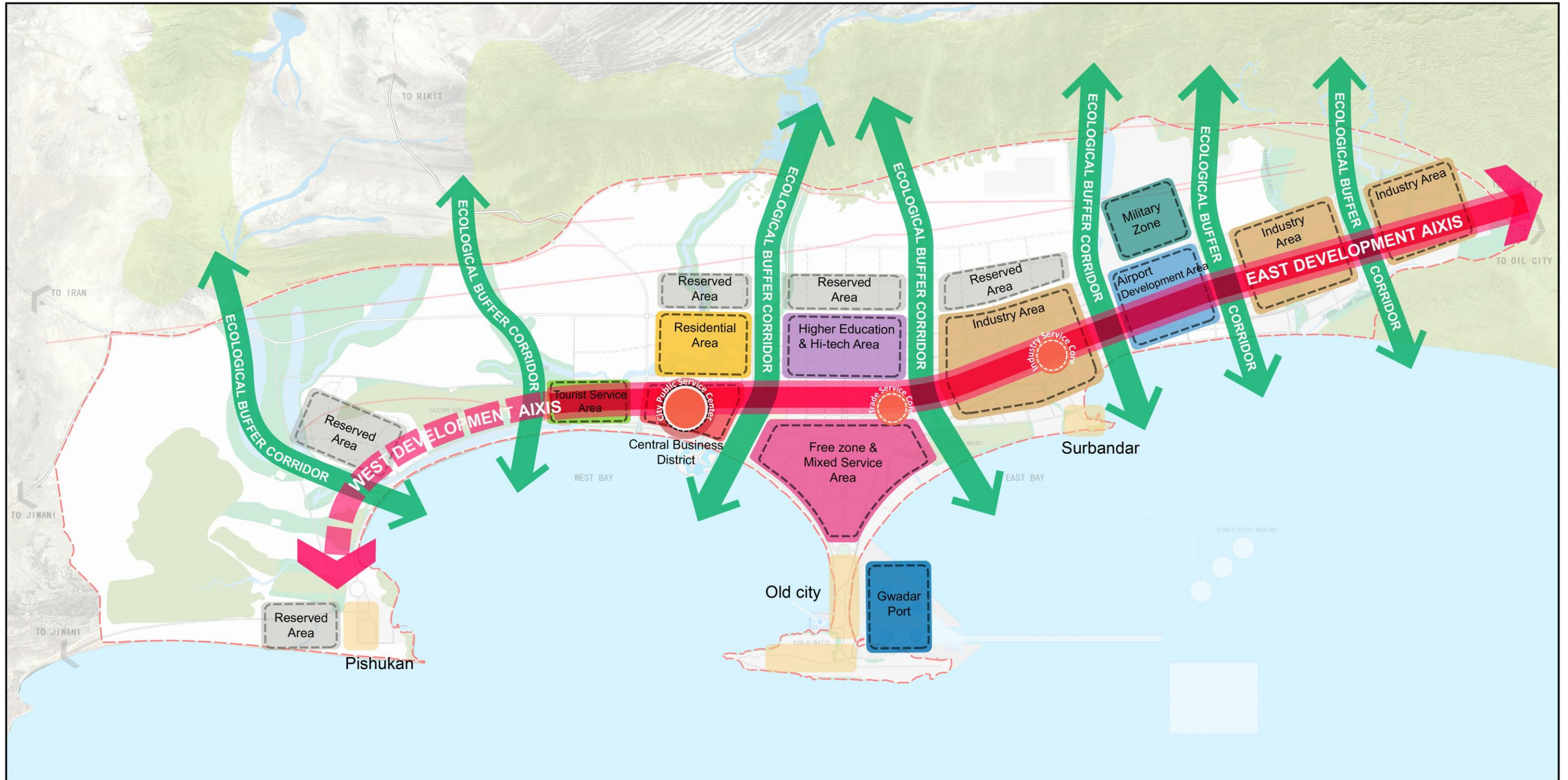
- Notes:**
- Breakwaters are to be Built before Dredging to Provide Protection to the Dredge
 - Bunkering & ship services to be located in the area out at the Multipurpose Wharf or Fishing Wharf
 - Shipbuilding and ship-breaking (if required) to be located East of dirty dry bulk facilities
 - Location of breakwaters is tentative. Final location and orientation to be determined during final design stage

Legend

Containers & General Cargo	LNG Terminal	Free Zone, Container Yard, Residential and Related Uses
Containers	Liquid Chemicals & Edible Oils Facility	Heavy Industries
Various Cargoes	Multipurpose Wharf	Eccess Channels
Clean Bulk (Grains, Fertilizers, Urea & others)	Navy Wharf	Direction of Proposed Development
Crude Oil	Cruise Ships, Vehicle Carriers, Ferries & Marinas	Breakwater

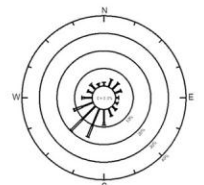


GWADAR SMART PORT CITY MASTER PLAN (2017-2050)

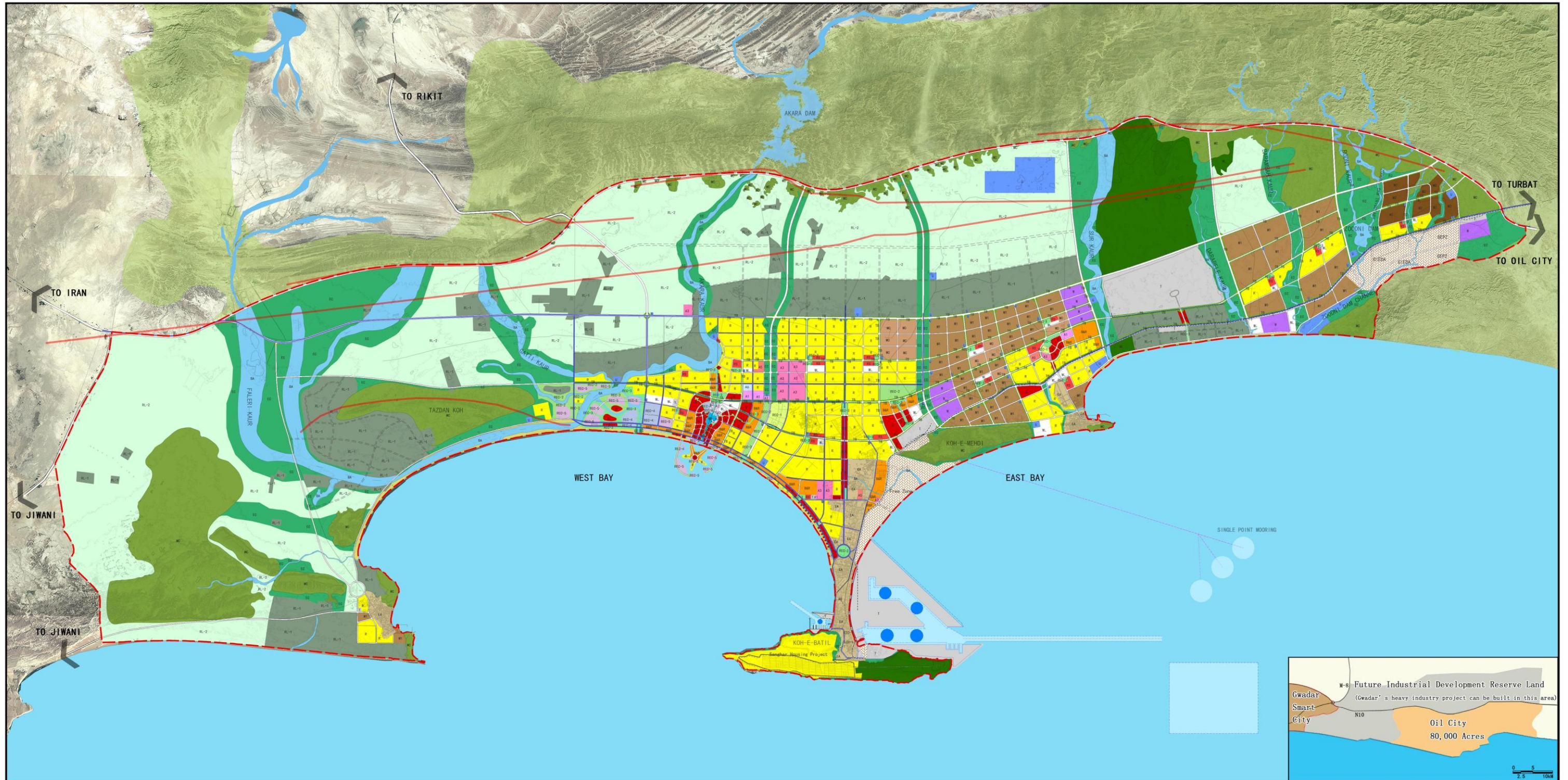


Legend

- | | | |
|----------------------------|---------------------------------|----------------------|
| East Development Axis | Central Business District | Tourist Service Area |
| West Development Axis | Free zone & Mixed Service Area | Military Zone |
| Ecological Buffer Corridor | Residential Area | Reserved Area |
| City Public Service Center | Higher Education & Hi-tech Area | Planning Area |
| Trade Service Core | Industry Area | |
| Industry Service Core | Airport Development Area | |

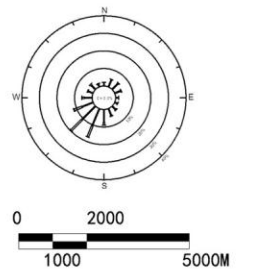


GWADAR SMART PORT CITY MASTER PLAN (2017-202050)



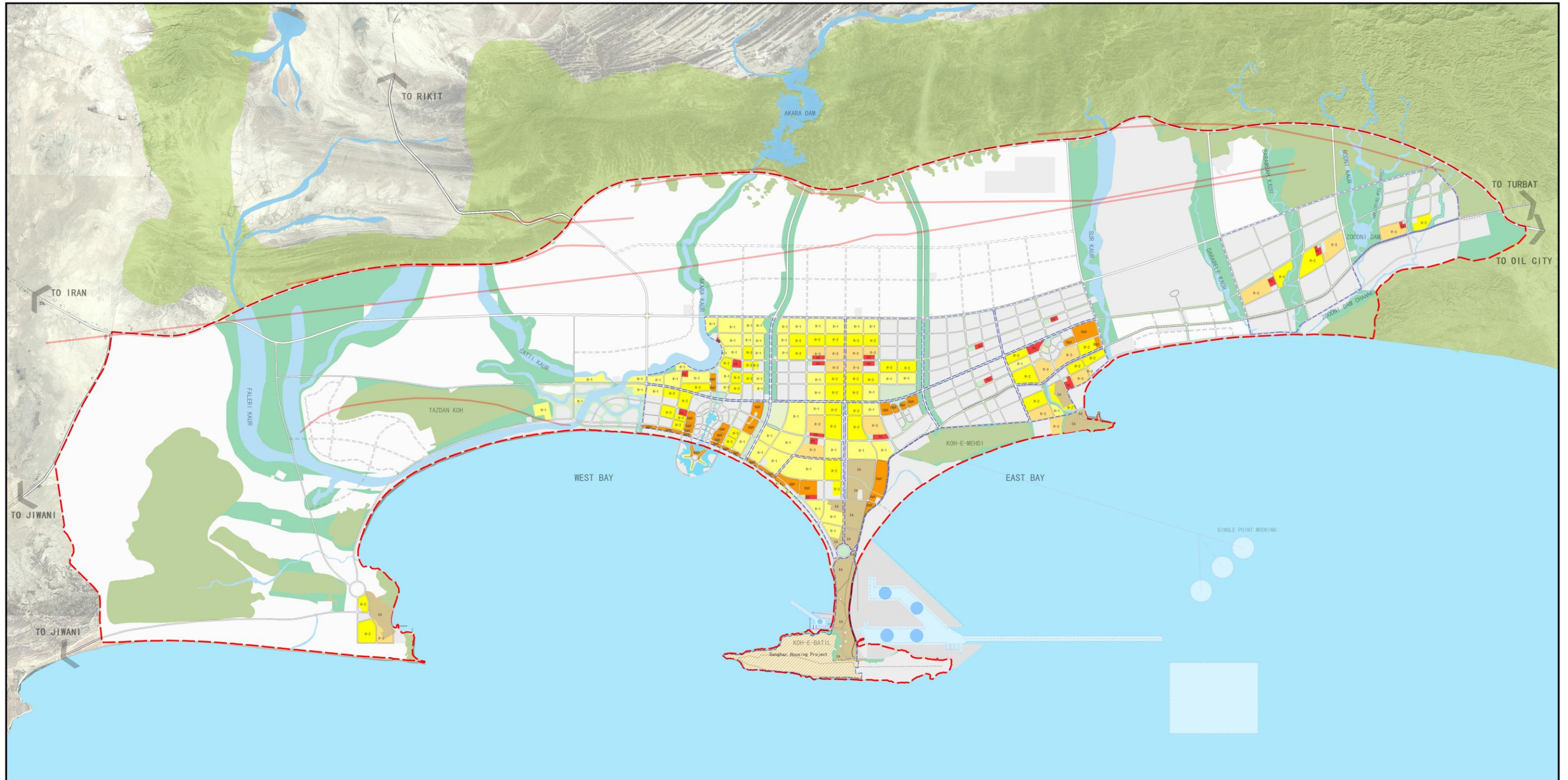
Legend

EA Existing Area	Free Zone & GIEDA & GEPZ	A3 Education Facility Land	REC-3 Park / Green Land	WL White Land	BE Beach	Major Road
R Residential Land	W Logistics and Warehouse Land	A4 Religious Land	REC-4 Entertainment Land	WM Military Land	EC Ecological Corridor	Conditional Road
RS Residential Service Land	B Business & Commercial Land	A5 Medical Facility Land	REC-5 Resort Land	RL-1 Reserved Land 1	MC Mountain	Planning Area
MO High-tech Industrial Land	B&R Business & Residential Mixed Land	A6 Foreign Affairs Land	T Transport Land	RL-2 Reserved Land 2	Earthquake Fault Zone	
M1 Type-I Industrial Land	A1 Administrative Office Land	REC-1 Sports Facility Land	TB Traffic & Utilities Buffer Land	WB Water Body	Railway	
M2 Type-II Industrial Land	A2 Cultural Facility Land	REC-2 Golf & Polo Field Land	U Municipal Utilities Land	BA Basin/Nullah	Reserved Road	



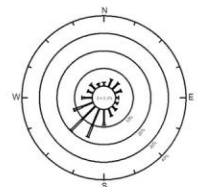
GWADAR SMART PORT CITY MASTER PLAN (2017-202050)

RESIDENTIAL LAND AND DENSITY ZONE PLANNING 08



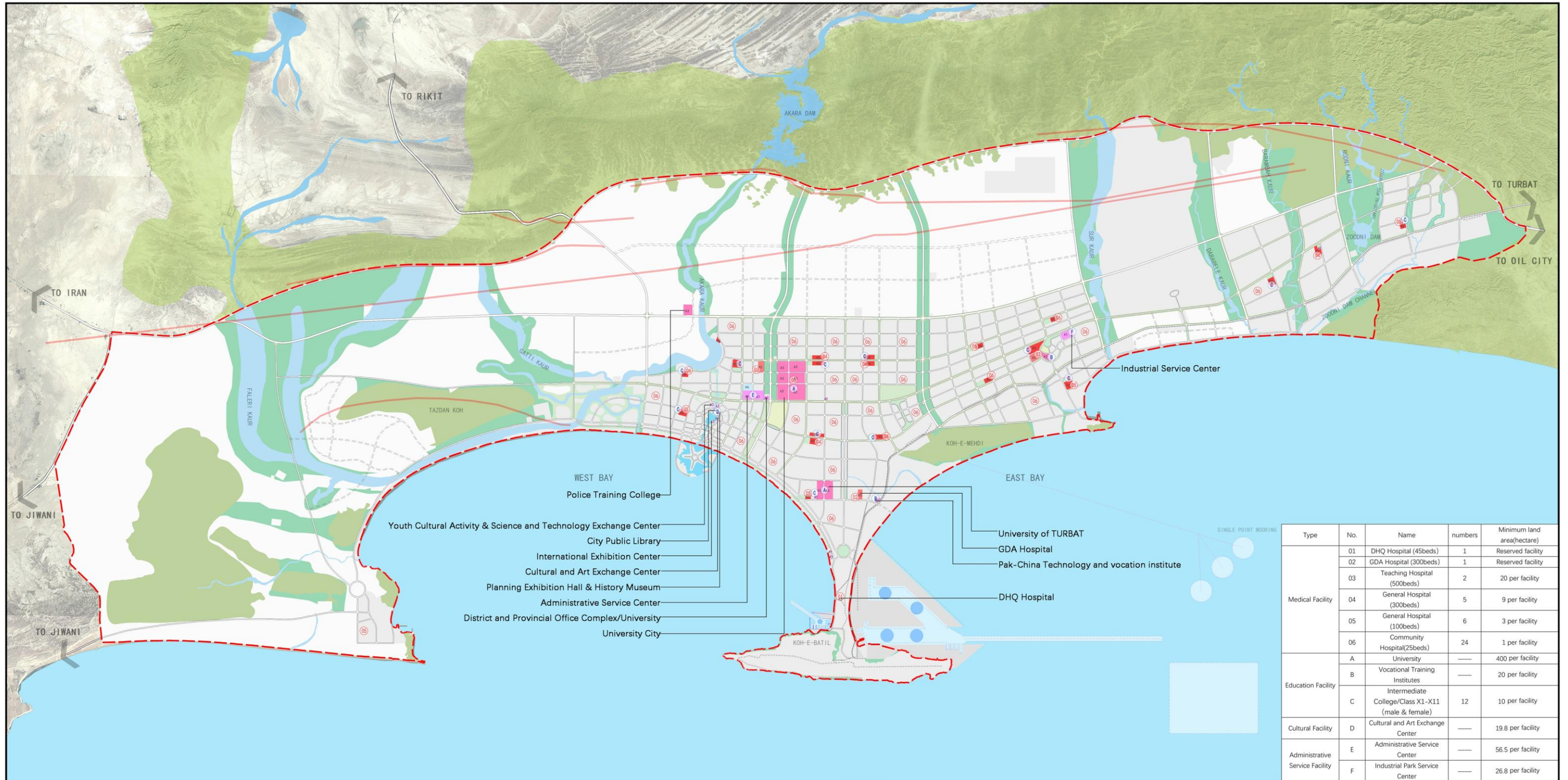
Legend

- | | |
|---|--|
|  EA Existing Area |  Sanghar Housing Project |
|  R-1 Low-density Residential land |  Cluster |
|  R-2 Middle-density Residential land |  Planning Area |
|  R-3 High-density Residential land | |
|  B&R Business & Residential Mixed Land | |
|  RS Residential Service Land | |



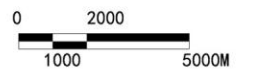
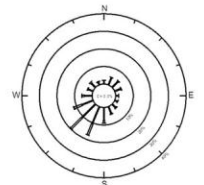
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GWADAR SMART PORT CITY MASTER PLAN (2017-2050)



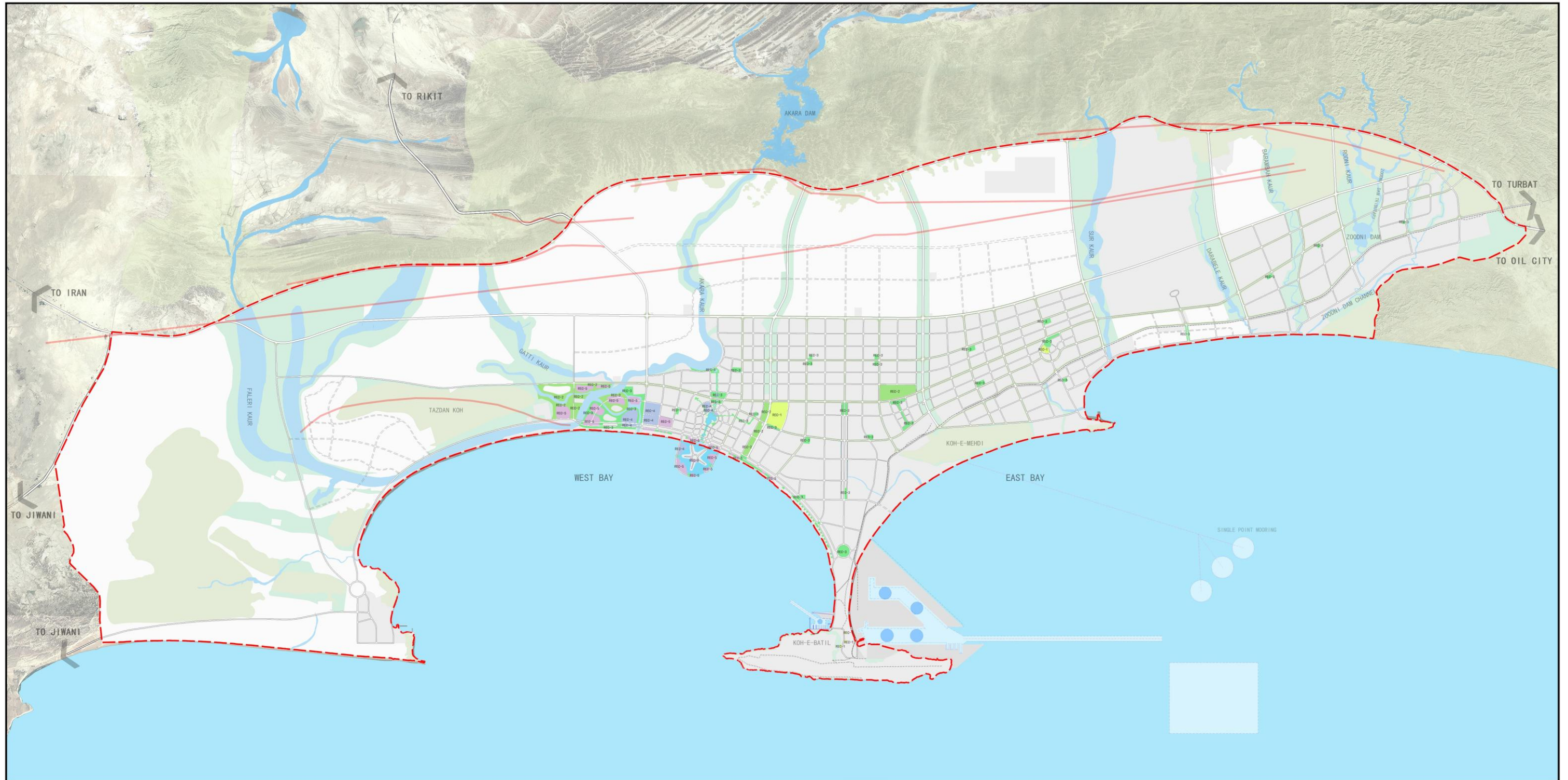
Legend

- A1 Administrative Office Land
- A2 Cultural Facility Land
- A3 Education Facility Land
- A5 Medical Facility Land
- A6 Foreign Affairs Land
- RS Residential Service Land
- Planning Area



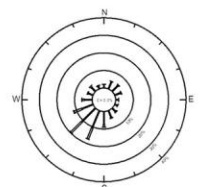
GWADAR SMART PORT CITY MASTER PLAN (2017-202050)

RECREATION & ENTERTAINMENT LAND PLANNING 10



Legend

- REC-1 Sports Facility Land
- REC-2 Golf & Polo Field Land
- REC-3 Park / Green Land
- REC-4 Entertainment Land
- REC-5 Resort Land
- Planning Area



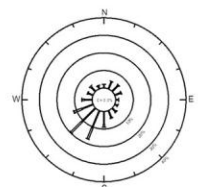
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GWADAR SMART PORT CITY MASTER PLAN (2017-202050)



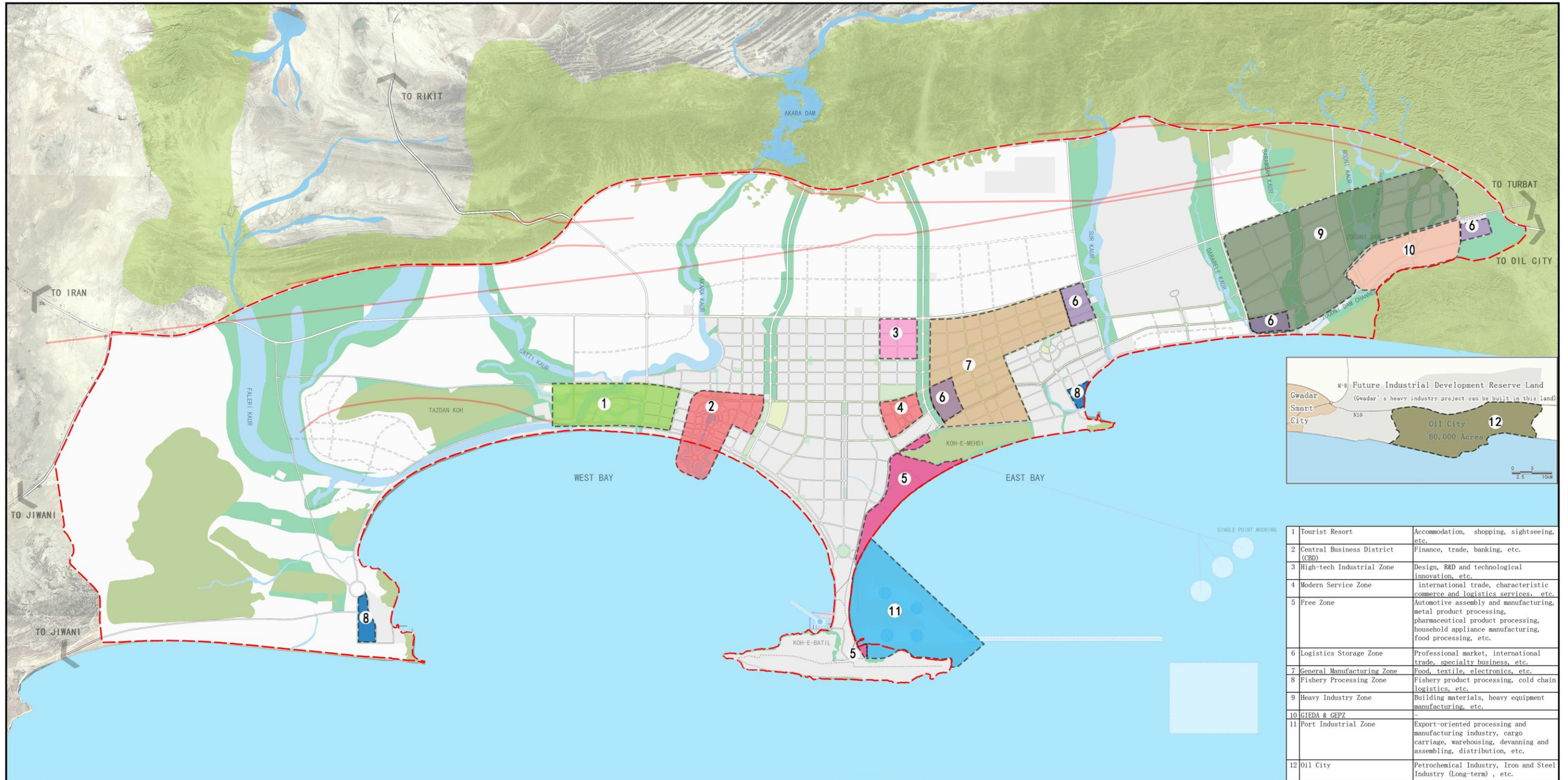
Legend

- | | |
|---|--|
| REC-1 Sports Facility Land | BE Beach |
| REC-2 Golf & Polo Field Land | EC Original Ecological Corridor |
| REC-3 Park / Green Land | AS Arabian Sea |
| MC Mountain | Planning Area |
| WB Water Body | |
| BA Basin/Nullah | |



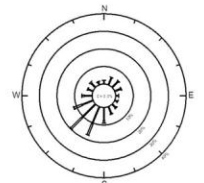
GWADAR SMART PORT CITY MASTER PLAN (2017-202050)

INDUSTRIAL AREAS LAYOUT PLANNING 12



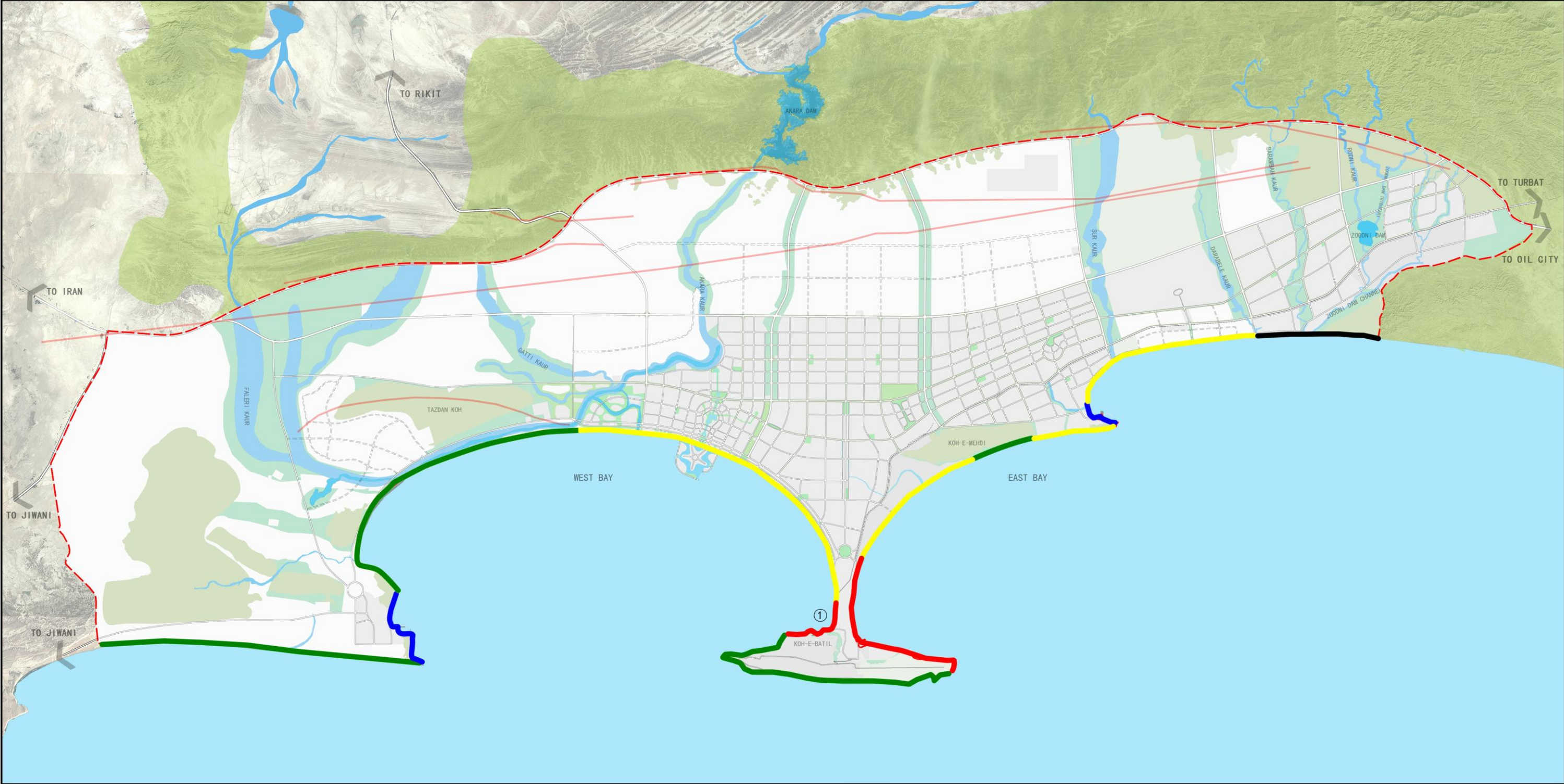
Legend

- Tourist Resort
- Central Business District (CBD)
- High-tech Industrial Zone
- Modern Service Zone
- Free Zone
- Logistics Storage Zone
- General Manufacturing Zone
- Fishery Processing Zone
- Heavy Industry Zone
- GIEDA & GEPZ
- Port Industrial Zone
- Oil City
- Planning Area



0 1000 2000 5000M

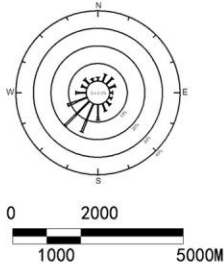
GWADAR SMART PORT CITY MASTER PLAN (2017-2050)



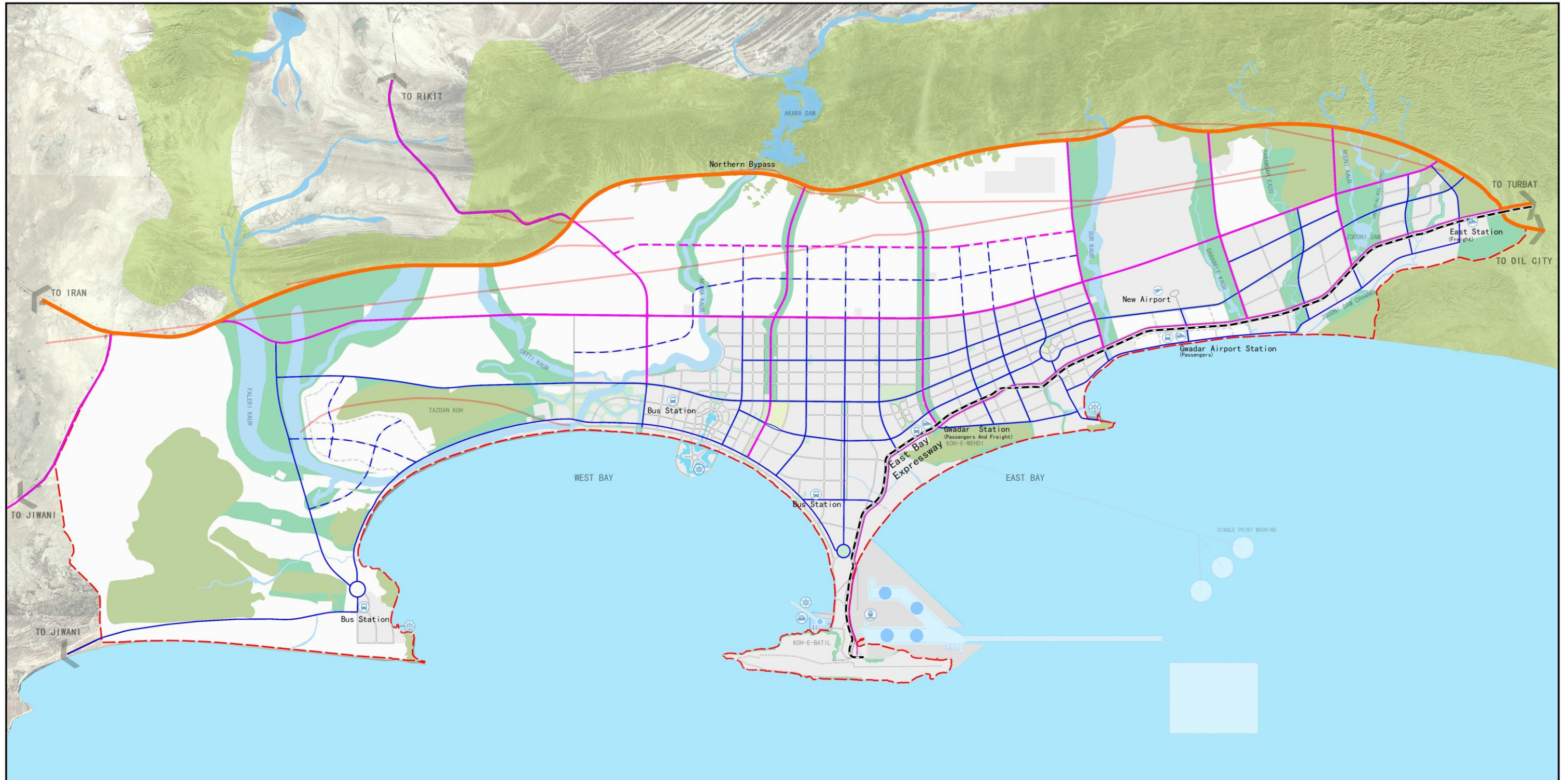
Legend

- Port coastline
- Life coastline
- Fishery coastline
- Reserved coastline for port development
- Ecological coastline

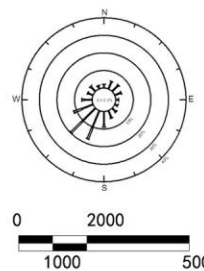
① Note: The area marked with 1 at the east side of West Bay is currently a haven and planned to be a fishing port coastline in the short and middle term and a port coastline for Cruise and Yacht Port in the long term



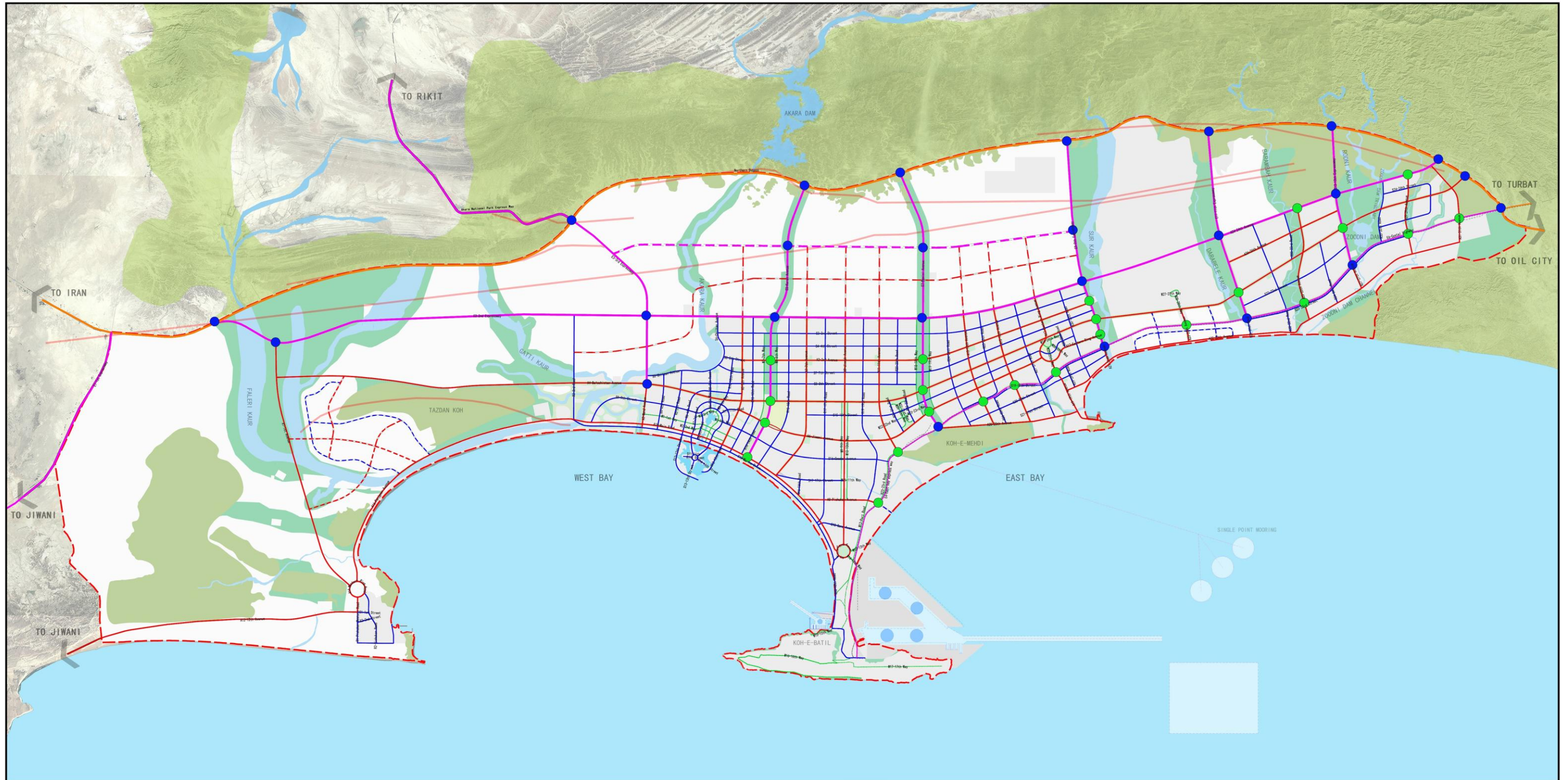
GWADAR SMART PORT CITY MASTER PLAN (2017-2050)












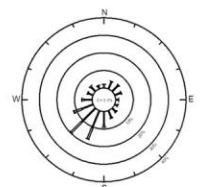
- | | |
|------------------|------------------|
| Highway | Airport |
| Expressway | Railway Stations |
| Primary-1 Road | Bus Station |
| Railway | Port |
| Conditional Road | Fishing Port |
| Planning Area | Cruise Terminal |
| | Marina |



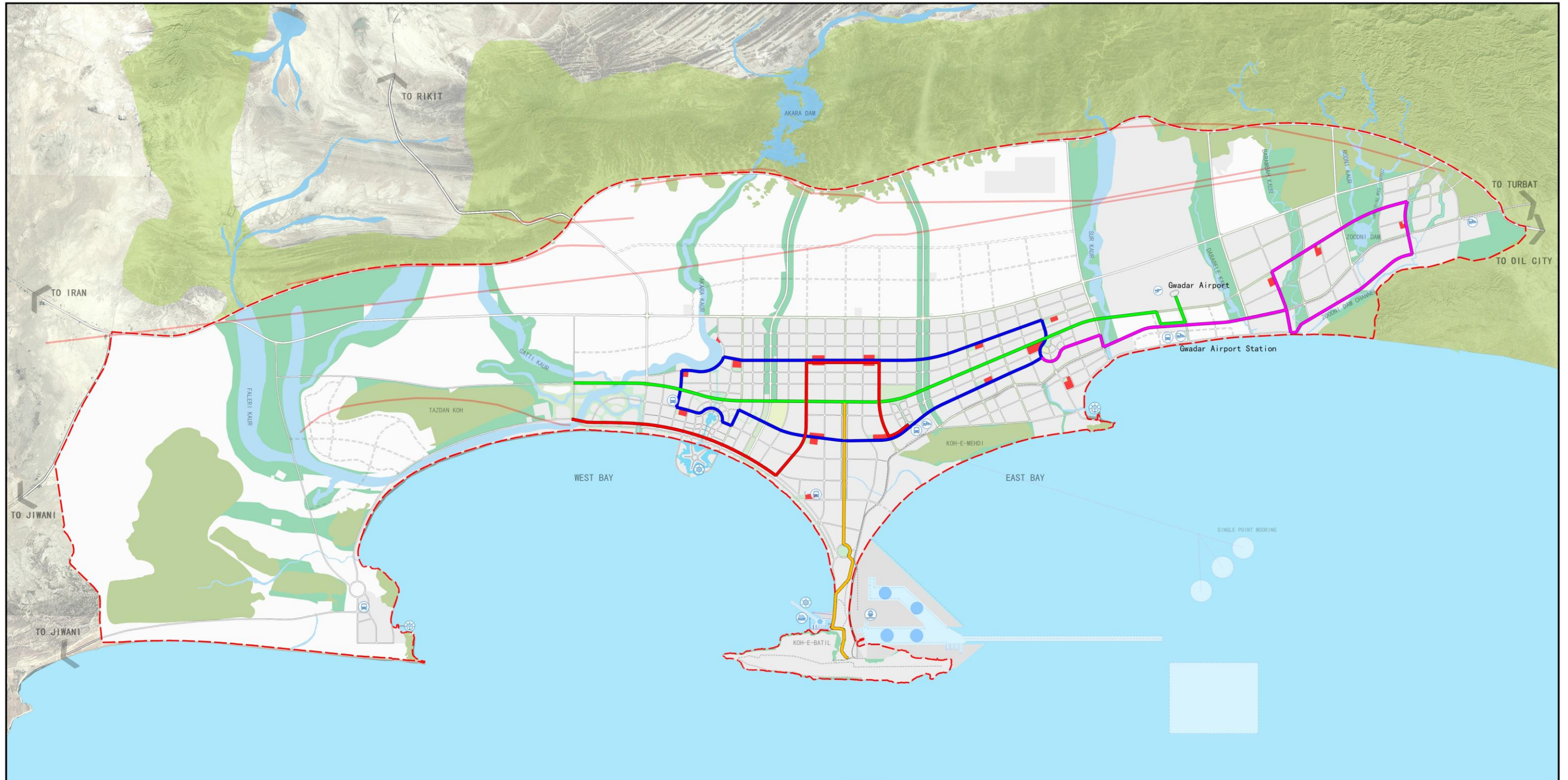
GWADAR SMART PORT CITY MASTER PLAN (2017-2050)



- | | |
|--|---|
|  Highway |  Interchange |
|  Expressway |  Interchange or Separate Interchange |
|  Primary-1 Road |  Planning Area |
|  Primary-2 Road | |
|  Secondary Road | |
|  Conditional Road | |

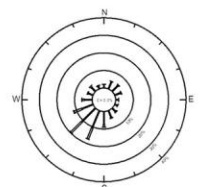


GWADAR SMART PORT CITY MASTER PLAN (2017-2050)

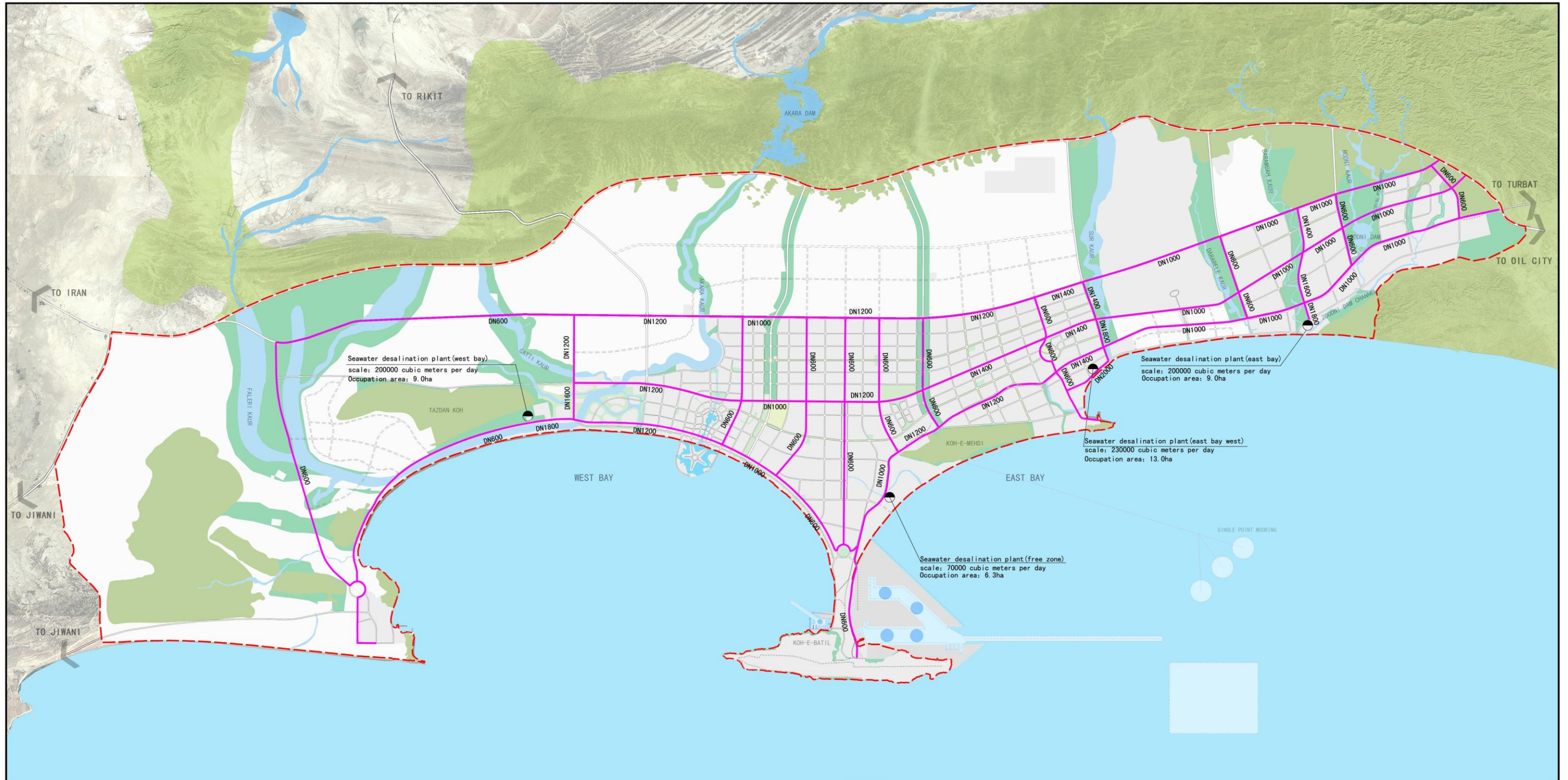


Legend

- | | | |
|--------------------------------|---------------|------------------|
| Public Transportation Access 1 | Planning Area | Airport |
| Public Transportation Access 2 | | Railway Stations |
| Public Transportation Access 3 | | Bus Station |
| Public Transportation Access 4 | | Port |
| Public Transportation Access 5 | | Fishing Port |
| RS Residential Service Land | | Cruise Terminal |
| | | Marina |

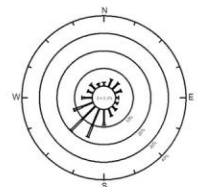


GWADAR SMART PORT CITY MASTER PLAN (2017-2050)



Legend

- Water Supply Pipe
- Seawater Desalination Plant
- Pipe Diameter
- Planning Area

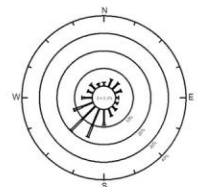


GWADAR SMART PORT CITY MASTER PLAN (2017-2050)



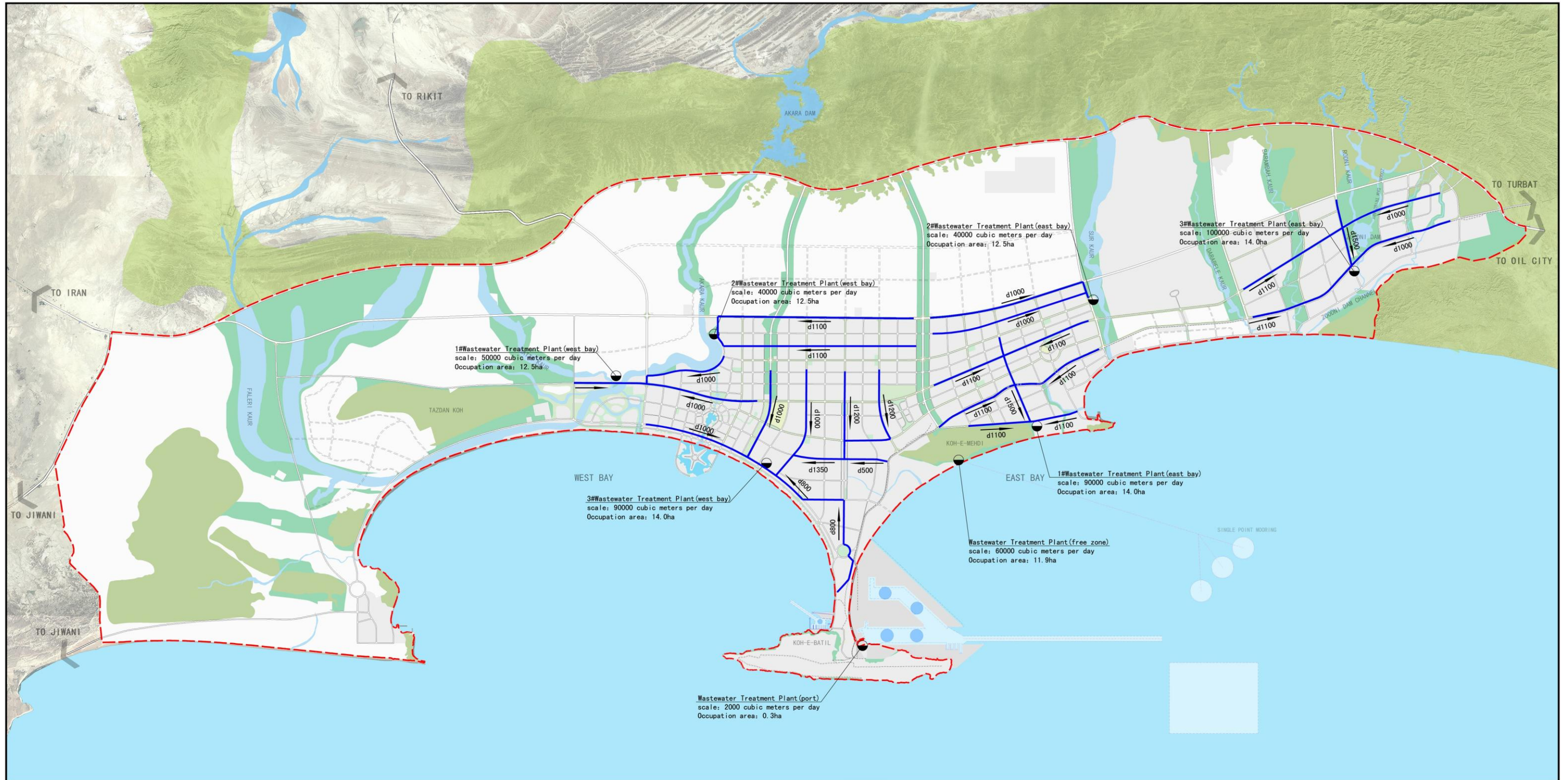
Legend

- Reclaimed Water Supply Pipe
- Reclaimed Water Plant
- DN600 Pipe Diameter
- Planning Area








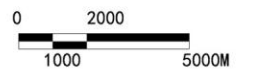
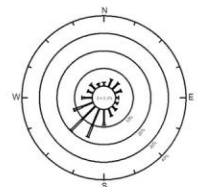
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GWADAR SMART PORT CITY MASTER PLAN (2017-2050)

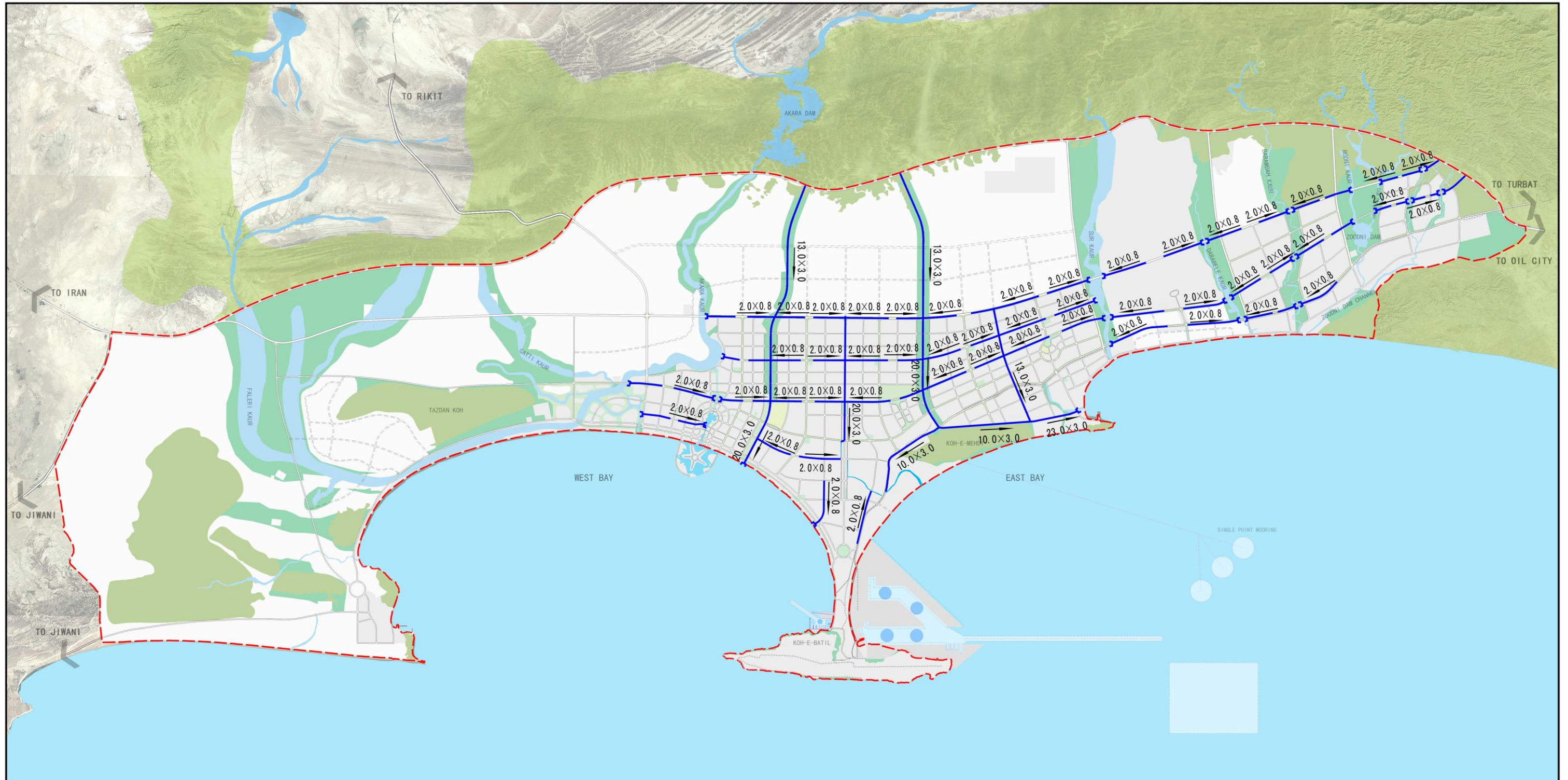


Legend

-  Sewage Pipe
-  Sewage Treatment Plant
-  Flow Direction
-  Pipe Diameter
-  Planning Area

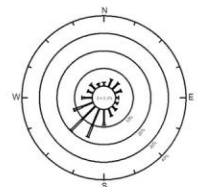


GWADAR SMART PORT CITY MASTER PLAN (2017-2050)

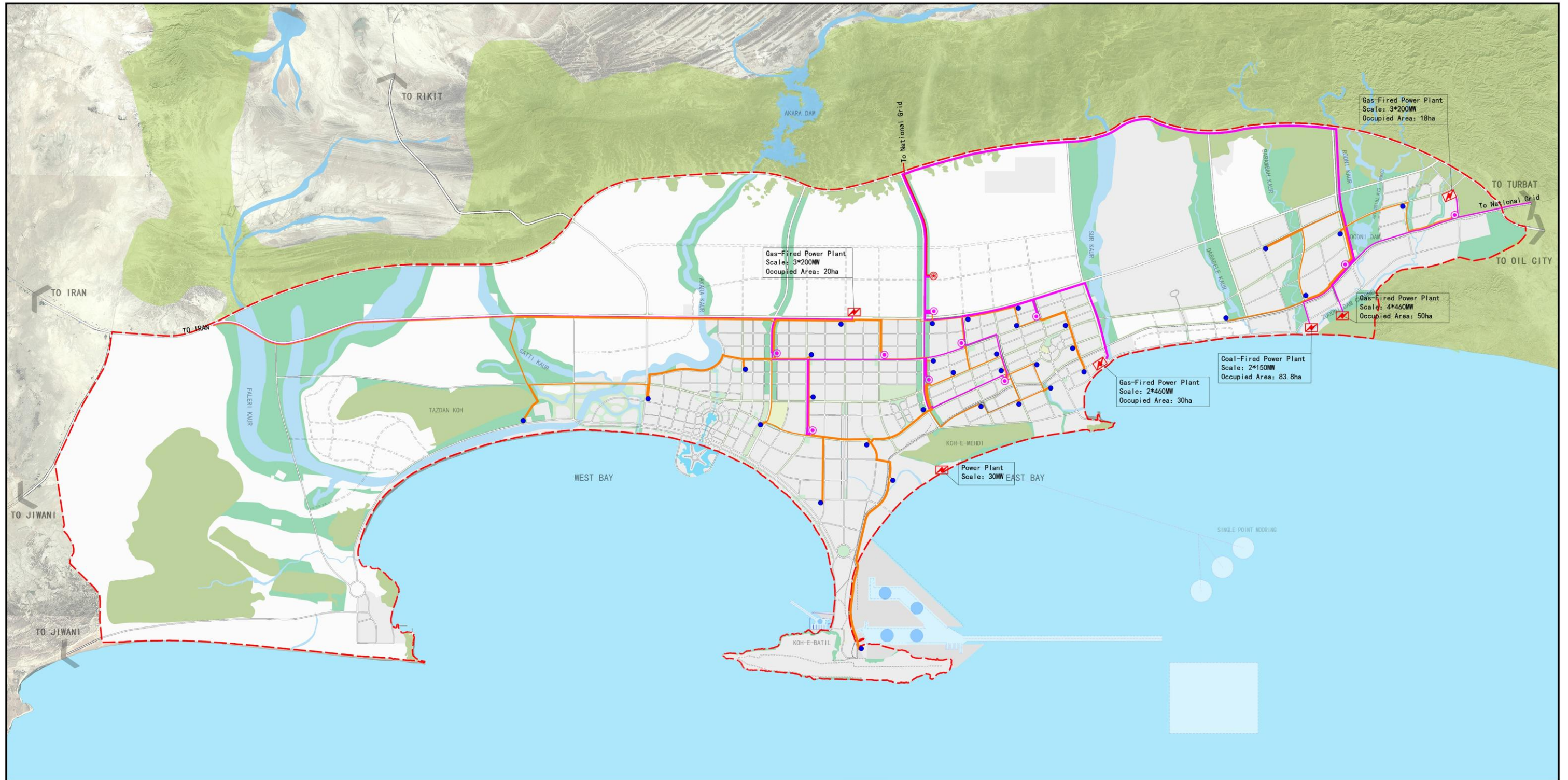


Legend

- Storm Drainage System
- Flow Direction
- Discharge into water bodies
- Section Size
- Planning Area

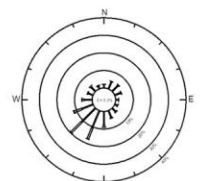


GWADAR SMART PORT CITY MASTER PLAN (2017-2050)



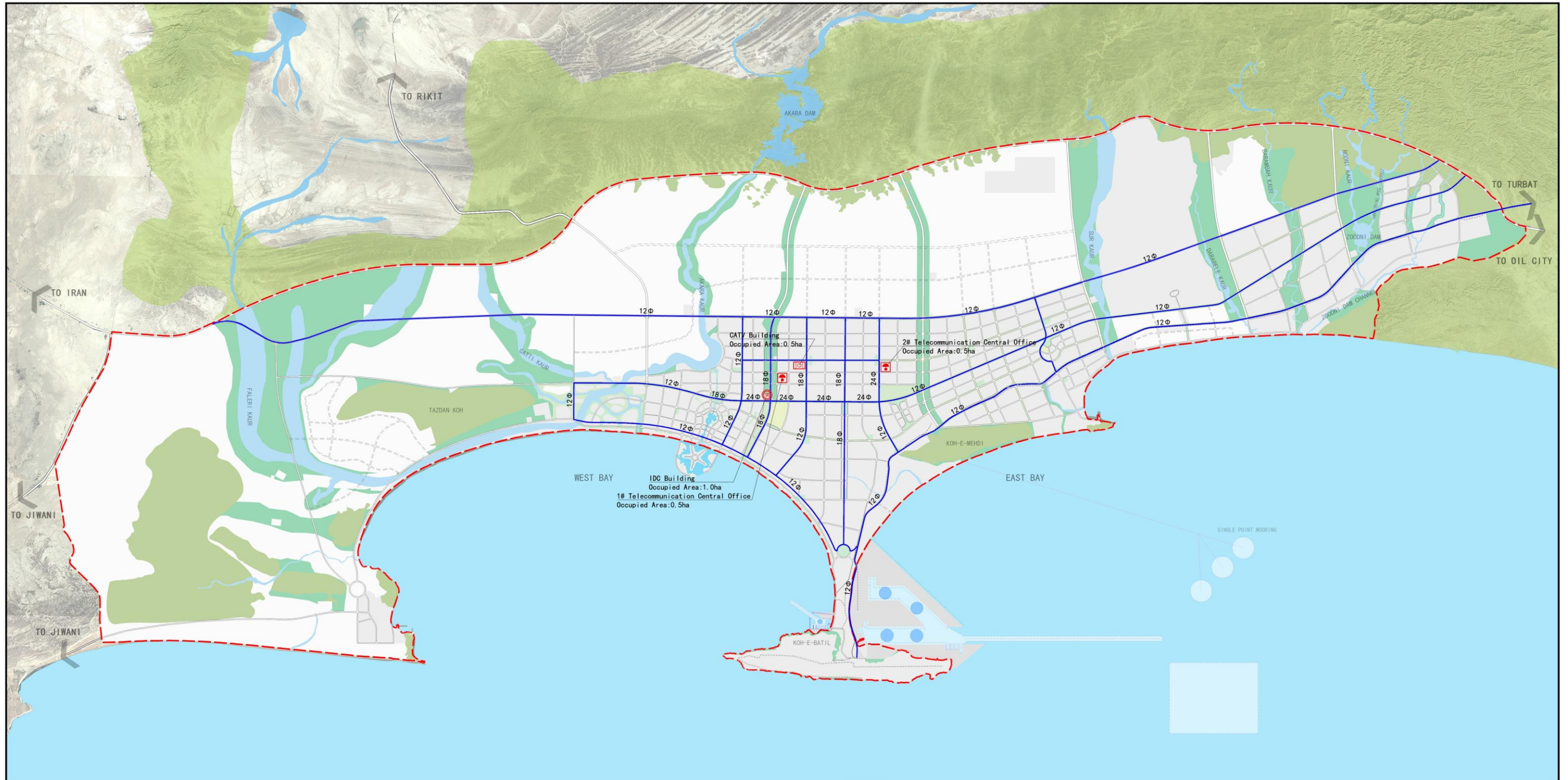
Legend

- | | |
|------------------------------|-----------------------|
| Power Plant | 220kV line |
| 500kV Substation (2*1000MVA) | 132kV line |
| 220kV Substation (3*240MVA) | High Tension Corridor |
| 132kV Substation (3*63KVA) | Planning Area |
| 500kV line | |



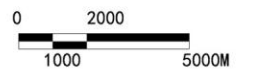
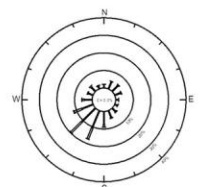
0 2000
1000 5000M

GWADAR SMART PORT CITY MASTER PLAN (2017-2050)



Legend

- Communication Building
- IDC Building
- CATV Building
- Communication Main Pipeline
- Planning Area

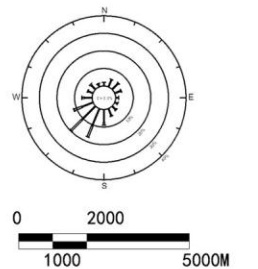


GWADAR SMART PORT CITY MASTER PLAN (2017-2050)



Legend





- Power Plant
- Gas Gate Station
- Gas Receiving Station
- Regulator Station
- High-Pressure Gas Pipeline
- Subhigh-Pressure Gas Pipeline
- Planning Area

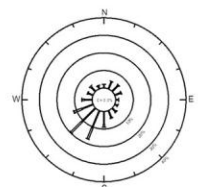


GWADAR SMART PORT CITY MASTER PLAN (2017-2050)



Legend

-  Refuse Landfill
-  Waste Incineration Plant
-  Refuse Transfer Station
-  Planning Area



0 2000
1000 5000M

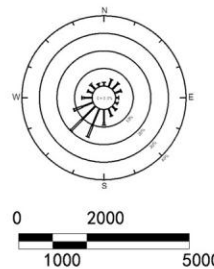
GWADAR SMART PORT CITY MASTER PLAN (2017-202050)

SECURITY FACILITIES PLANNING 25-1



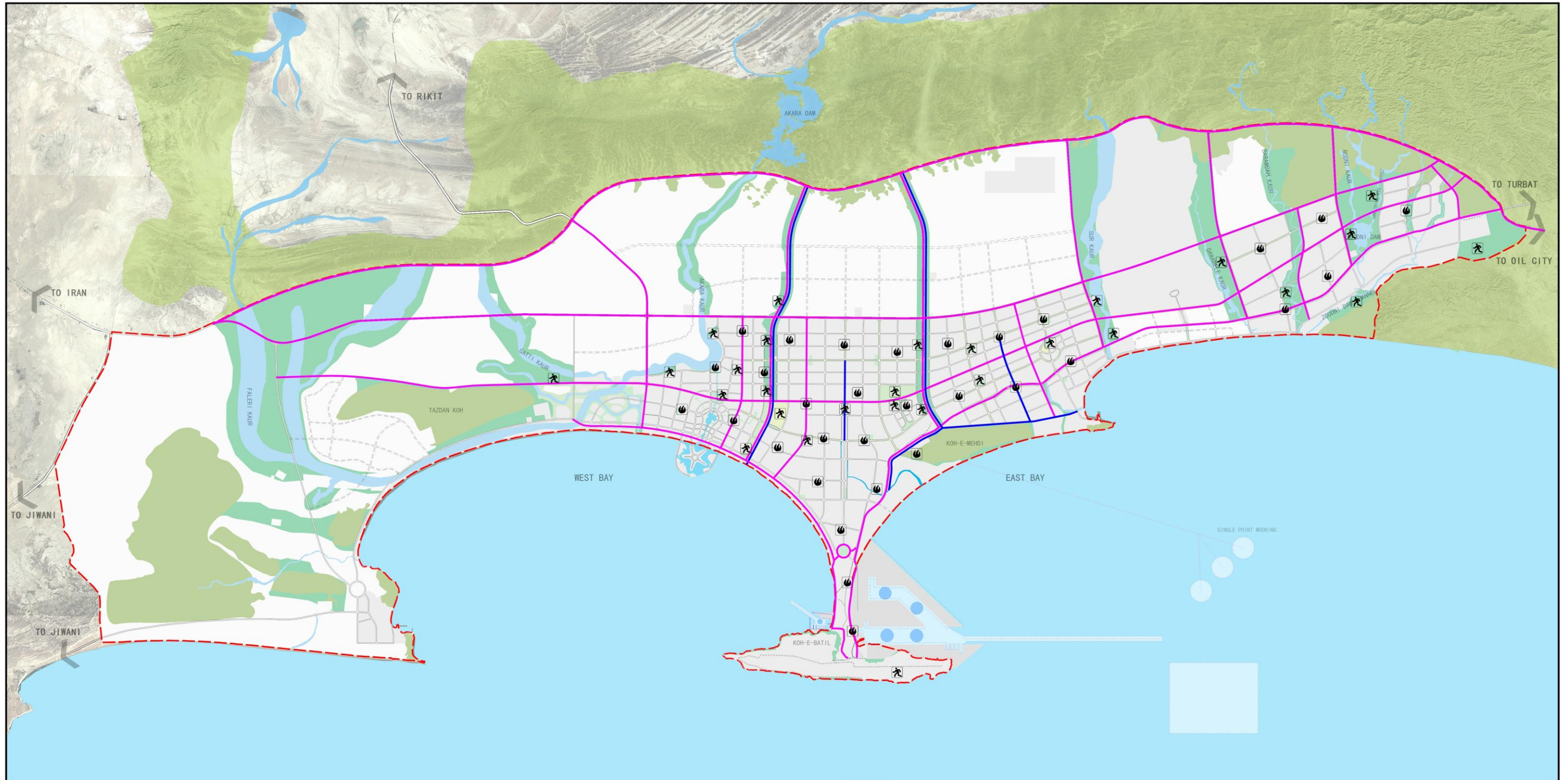
Legend

- Military Land
- - - Fence of Planning Area
- - - Fence of Core Area
- Fence of Major Facilities
- H Checkpoint
- ★ Urban Emergency Command Center
- Safety Training Bases (Police Training Academy)
- H Police Department / Branch of Police Department



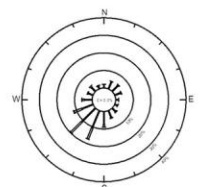
GWADAR SMART PORT CITY MASTER PLAN (2017-202050)

DISASTER PREVENTION PLANNING 25-2



Legend

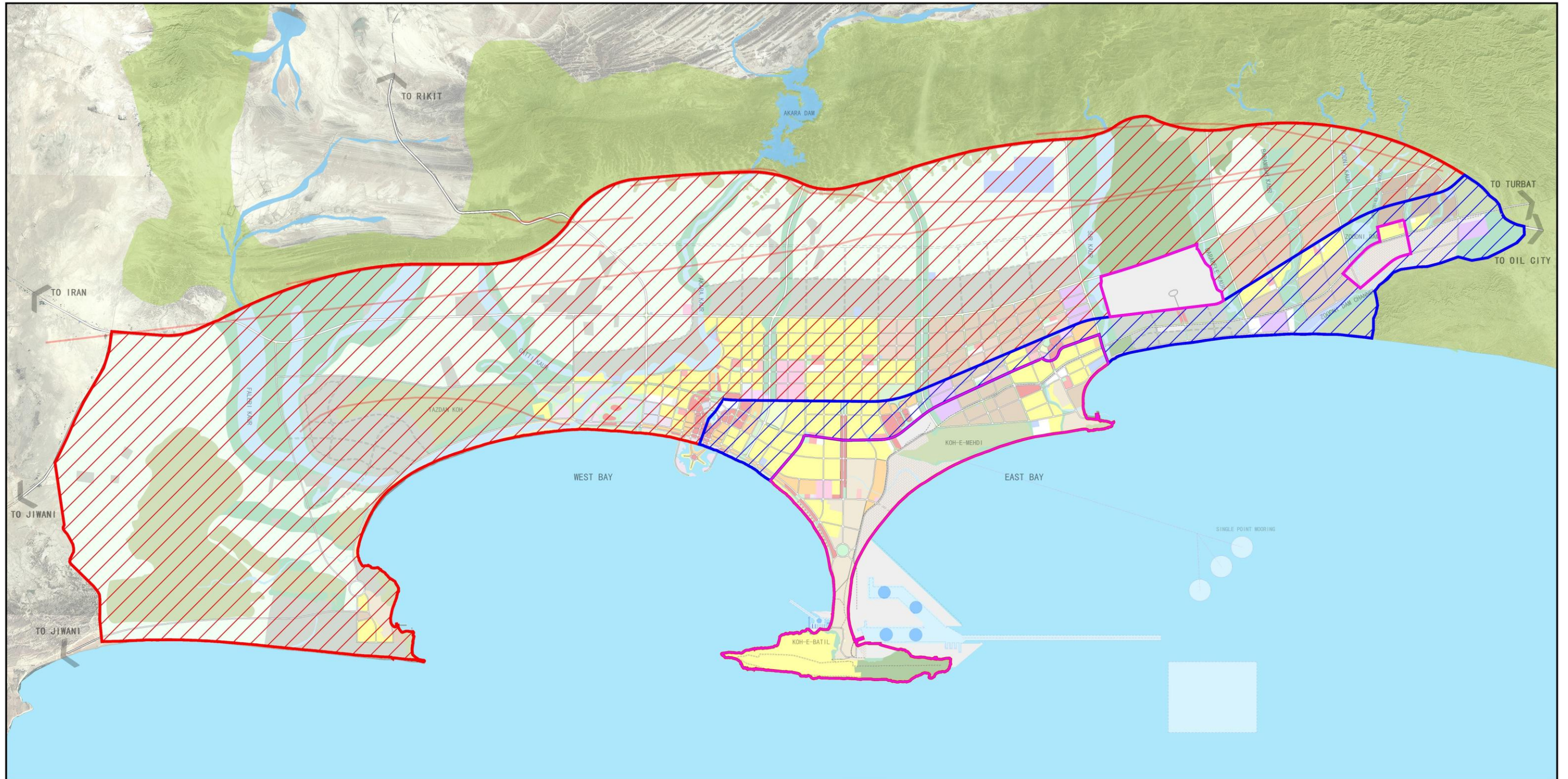
-  Storm Drainage System
-  Evacuation Road
-  Refuge Site
-  Fire Station
-  Planning Area



0 2000
1000 5000M

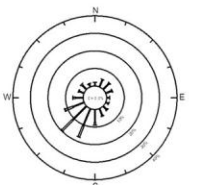
GWADAR SMART PORT CITY MASTER PLAN (2017-2050)

PHASED CONSTRUCTION PLANNING 26-1



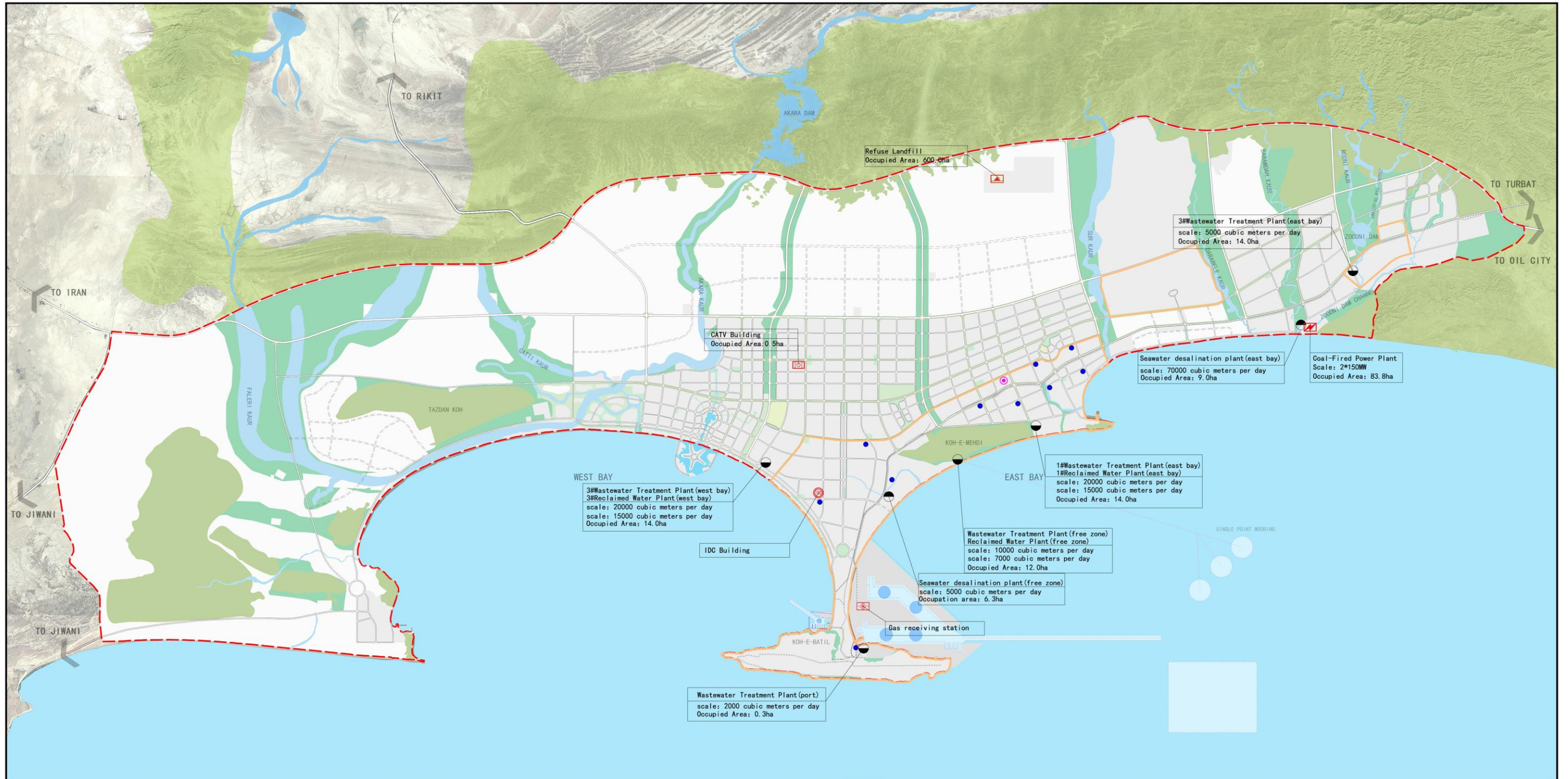
Legend

- Short-term Development Area
- Middle-term Development Area
- Long-term Development Area
- Planning Area



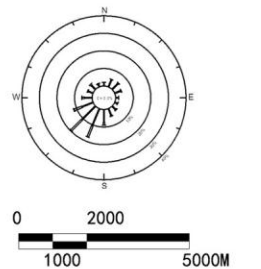
GWADAR SMART PORT CITY MASTER PLAN (2017-2050)

SHORT-TERM MUNICIPAL ENGINEERING PLANNING 26-2



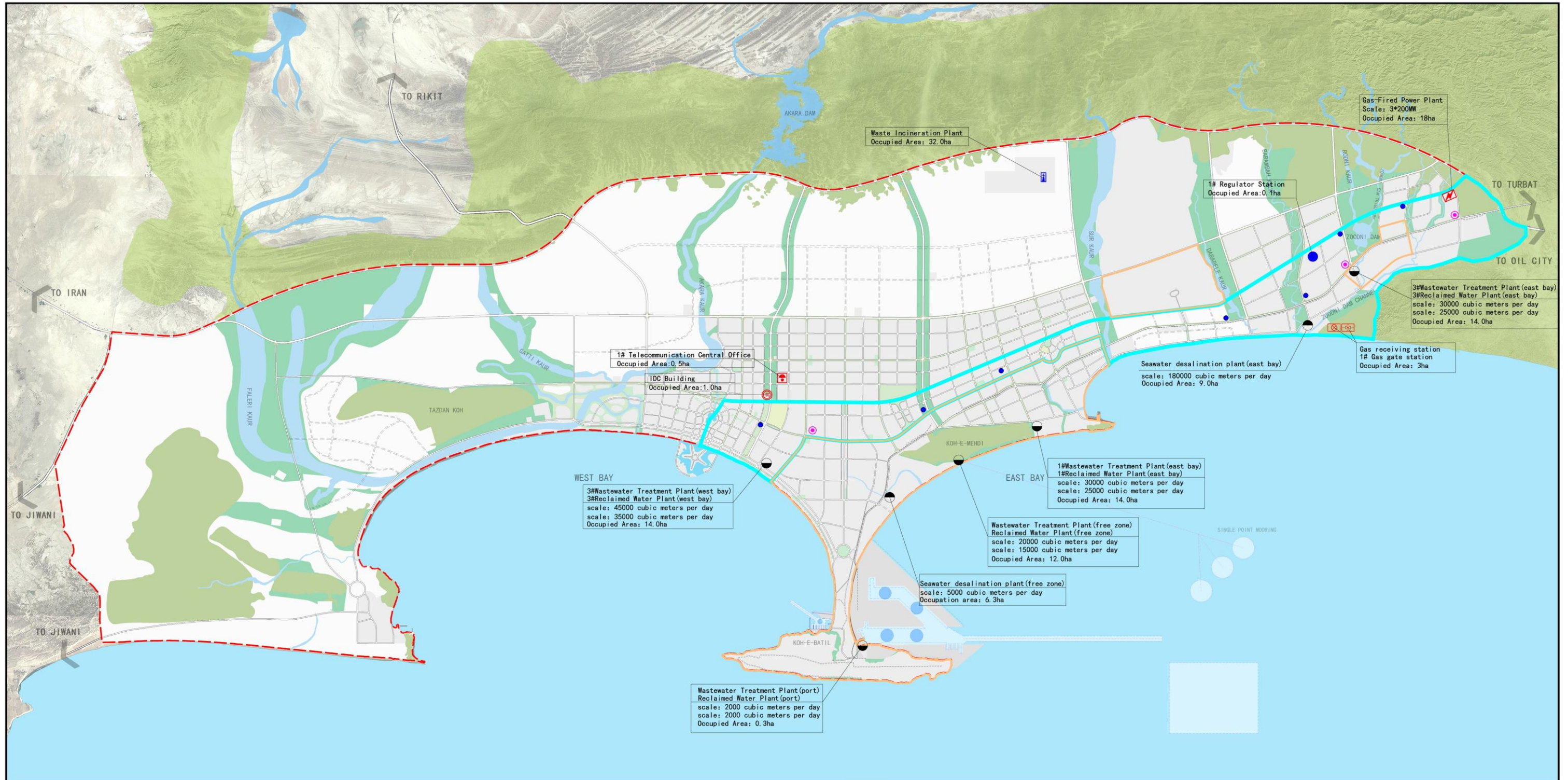
Legend

- | | | | |
|--|------------------------------|--|--------------------------|
| | Seawater Desalination Plant | | IDC Building |
| | Wastewater Treatment Plant | | CATV Building |
| | Power Plant | | Refuse Landfill |
| | 500kV Substation (2*1000MVA) | | Waste Incineration Plant |
| | 220kV Substation (3*240MVA) | | SHORT-TERM |
| | 110kV Substation (3*63KVA) | | Planning Area |



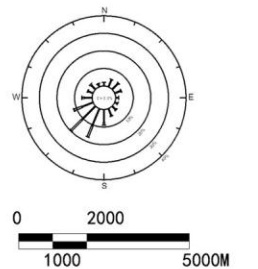
GWADAR SMART PORT CITY MASTER PLAN (2017-2050)

MID-TERM MUNICIPAL ENGINEERING PLANNING 26-3



Legend

- | | | | | | |
|--|------------------------------|--|------------------------|--|---------------|
| | Seawater Desalination Plant | | Communication Building | | Planning Area |
| | Wastewater Treatment Plant | | Gas Gate Station | | |
| | Power Plant | | Gas Receiving Station | | |
| | 500kV Substation (2*1000MVA) | | Regulator Station | | |
| | 220kV Substation (3*240MVA) | | SHORT-TERM | | |
| | 110kV Substation (3*63KVA) | | Planning Area | | |



GWADAR SMART PORT CITY MASTER PLAN (2017-2050)



Legend	
1 Amusement Park	13 Gwadar Walk
2 Art and Culture Museum	14 Gwadar Park
3 Urban Planning Exhibition Gallery & History Museum	15 Lakeside Office Area
4 Public Library	16 Gwadar Botanical Garden
5 Grand Theater	17 Sports Park(Whiteland)
6 Concert Hall	18 Youth Cultural Activities & Science and Technology Exchange Centre
7 Gwadar Tower	19 Riverside Commercial Street
8 International Expo Center	20 Sculpture Park
9 Cultural Exchange Center	21 Liberty Park
10 Lakeside Shopping Center	22 Plants Beach
11 Gwadar Mall	23 Technology Theme Hotel
12 Seaside Resort Hotel	24 Moon Resort Hotel
25 Ocean Theme Park	26 Crescent Beach Park
27 Sailing Hotel	28 Street Park
29 Gwadar Harbour Resort Hotel	30 Harbour Shopping Centre
31 Lakeside Business/Commercial Town	

