ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

(SEC) SINGAPORE-ETH CENTRE 新加坡－ETH 研究中心

(FCL) FUTURE CITIES LABORATORY 未来 城市 实验室

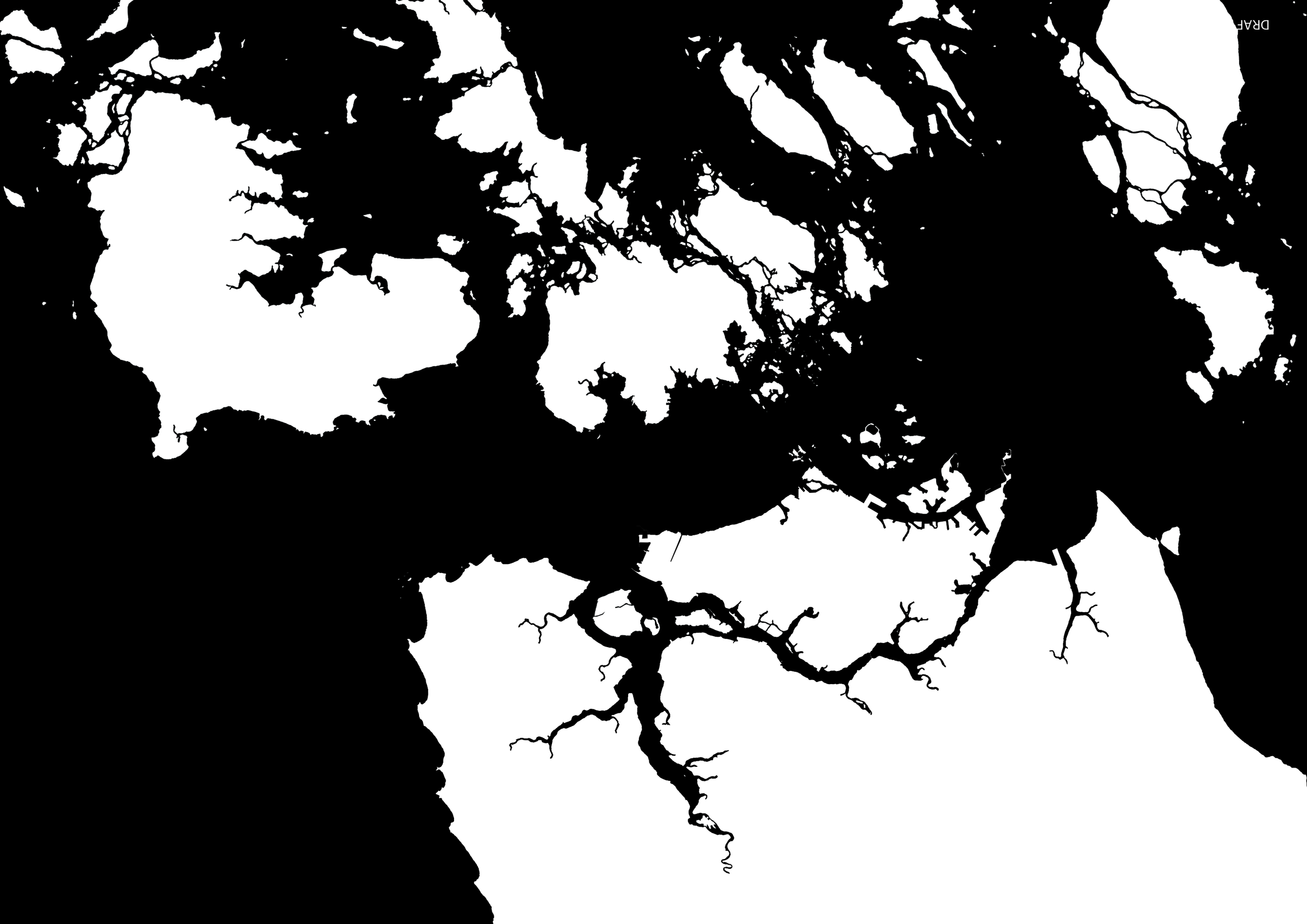
WELCOME
ARCHITECTURE OF TERRITORY

6th of May 2013

Martin Knüsel, Marcel Jäggi and Stefanie Krautzig
Assistant Professorship for Architecture and Territorial Planning
Ass. Prof. Milica Topalovic

© Architecture of Territory, 2013

DRAFT


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Johor Bahru
Changi
Tanah Merah
Harbourfront
MALAYSIA
INDONESIA
MALAYSIA
INDONESIA
SINGAPORE
INDONESIA
Singapore Straits
Teluk Mersodo
Karimun
Malarko
Rarit Rempak
Tajung Balai
Nongsa
Batu Ampar
Sekupang
Batam Center
Waterfront
Sagulung
Batam
Kabil
Tj. Uban
Punggur
Sri Ubama Lobam
Tj. Berakit
Bandar Bintan Telani
Bintan
Bandar Sri Bintan
Galang Batang
Tanjung Pinang
Kijang
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"THE HINTERLANDS" STUDIO

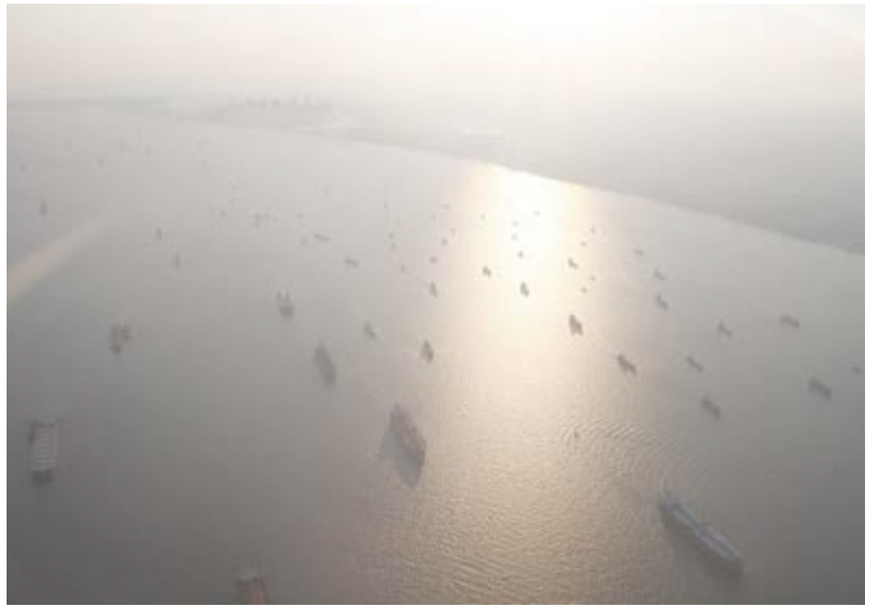
Part 1: "Productive Territories"
Part 2: "Resources"

ARCHITECTURE

Singapore, Indonesia and Malaysia
PROJECT 1

INFO SESSION — 6 December 2011
16.30–17.30 h, ETH HIL E 71

THE HINTERLANDS



ASSISTANT PROF — Milica Topalovic
TEAM — Martin Knüsel, Marcel Jäggi
PROGRAM — Design Research Studio, Thesis Elective and Seminar Week

WHERE — Semester FS 2012 at the Future Cities Laboratory in Singapore
WHEN — 20 February – 1 June 2012
PLACES — 6

APPLY BY — 23 December 2011
CONTACT — topalovic@arch.ethz.ch
www.topalovic.arch.ethz.ch
www.futurecities.ethz.ch

OF TERRITORY

ARCHITECTURE

Singapore, Indonesia and Malaysia
PROJECT 1, part 2

INFO SESSION — 24 May 2012
16.00–17.00 h, ETH HIL E 71

THE HINTERLANDS



ASSISTANT PROF — Milica Topalovic
TEAM — Martin Knüsel, Marcel Jäggi
PROGRAM — Design Research Studio with a Fieldtrip, and Thesis Elective

WHERE — Future Cities Lab, Singapore
WHEN — 17 September – 21 December 2012
PLACES — 8–10
APPLY BY — 29 June 2012

CONTACT — jaeggi@arch.ethz.ch
knuesel@arch.ethz.ch
www.topalovic.arch.ethz.ch
www.futurecities.ethz.ch

OF TERRITORY

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TERRITORY OF THE SEA: THE STRAITS OF SINGAPORE

Marcel Jäggi and Martin Knüsel

Assistant Professorship
Architecture of Territory
Prof. Milica Topalovic

Student Work FS 2012 by
Martin Garcia and Magnus Nickl

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TERRITORY OF THE SEA:
THE STRAITS OF SINGAPORE

1 Global Shipping Corridor
2 The Port and the City
3 The Straits as an Urban Territory?
4 The Border Zone

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Global Shipping Corridor



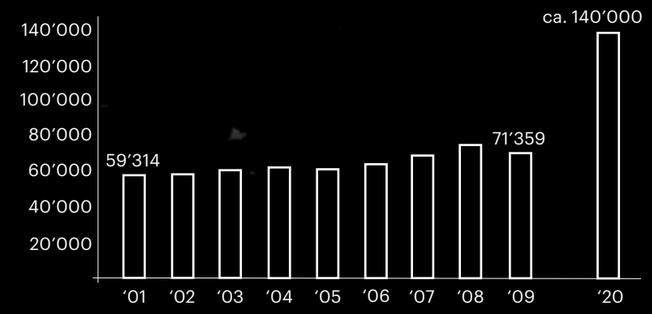
10.Rotterdam

9.Dubai

4.Busan
8.Qingdao
1.Shanghai
6.Ningbo-Zhoushan
3.Hong Kong
5.Shenzhen
7.Guangzhou

2.Singapore

Number of Ships in Singapore Straits per year



Sources: Global Map of Accessibility, World Bank / Wikipedia

Global Shipping Traffic and the Busiest Container Ports, 2010

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Johor (MALAYSIA)

SINGAPORE

South China Sea

Straits of Malacca

Sinki Fairway

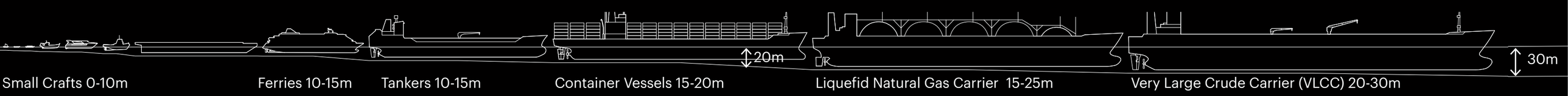
Straits of Singapore

Batam (INDONESIA)

Bintan (INDONESIA)

Karimun (INDONESIA)

Swamp Area | 0 - 10m | 10 - 15m | 15 - 20m | 20 - 30m | > 30m



Small Crafts 0-10m | Ferries 10-15m | Tankers 10-15m | Container Vessels 15-20m | Liquefid Natural Gas Carrier 15-25m | Very Large Crude Carrier (VLCC) 20-30m

Natural Conditions

Depth of the Sea

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Pasir Gudang

Tanjung Langsat

Tanjung Pelepas

Penggerang (2014)

Pasir Panjang

Tanjong Pagar

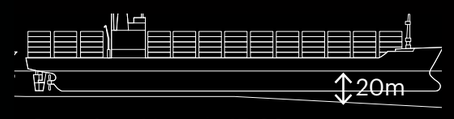
Keppel

Jurong Island

Kabil

Sauh (2005)

Swamp Area | 0 - 10m | 10 - 15m | 15 - 20m | 20 - 30m | > 30m

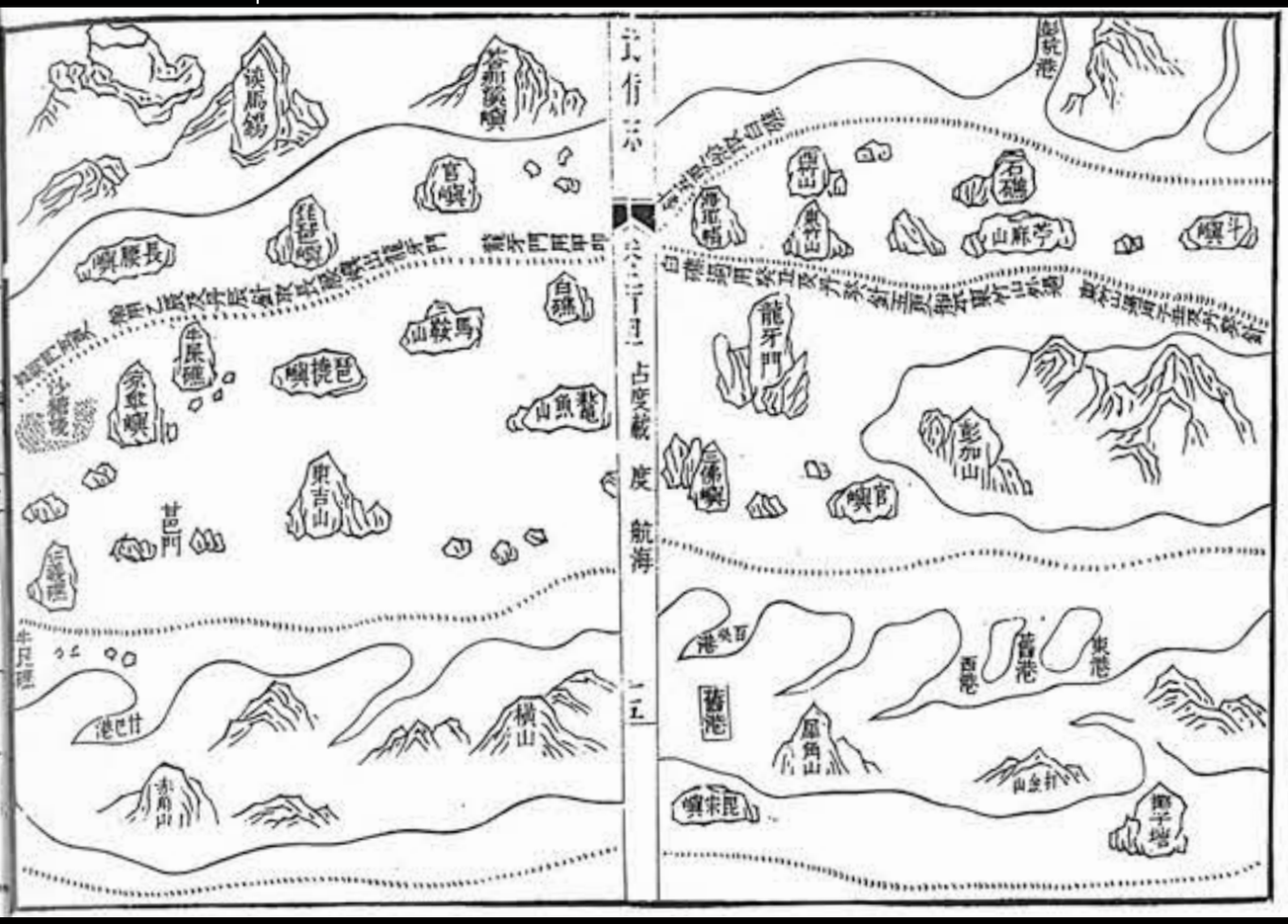


Container Vessels 15-20m

Natural Conditions
Accessible Area for Container Vessels

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Singapore



Wubei Zhi Chart, China, 1621

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Singapore

Dutch
Portuguese
French
English
Spanish

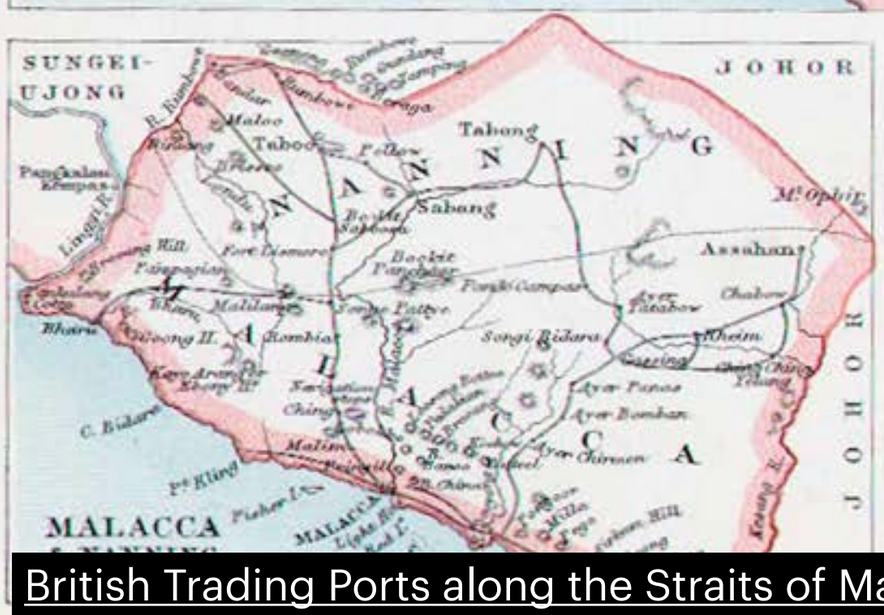
Routes of Colonial Trade
XVI - XIX Century

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STRAITS SETTLEMENTS











British Trading Ports along the Straits of Malacca

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The Royal Geographical Institute

Copyright - John Bartholomew & Co.

The Port and The City

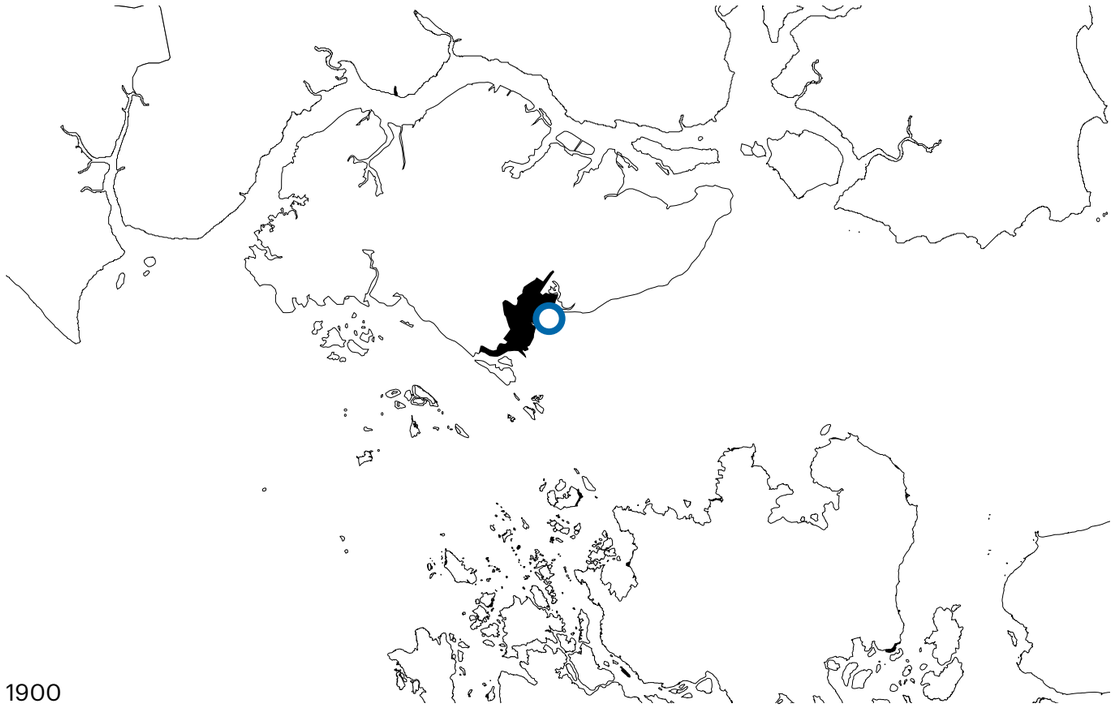
Singapore River, 1910

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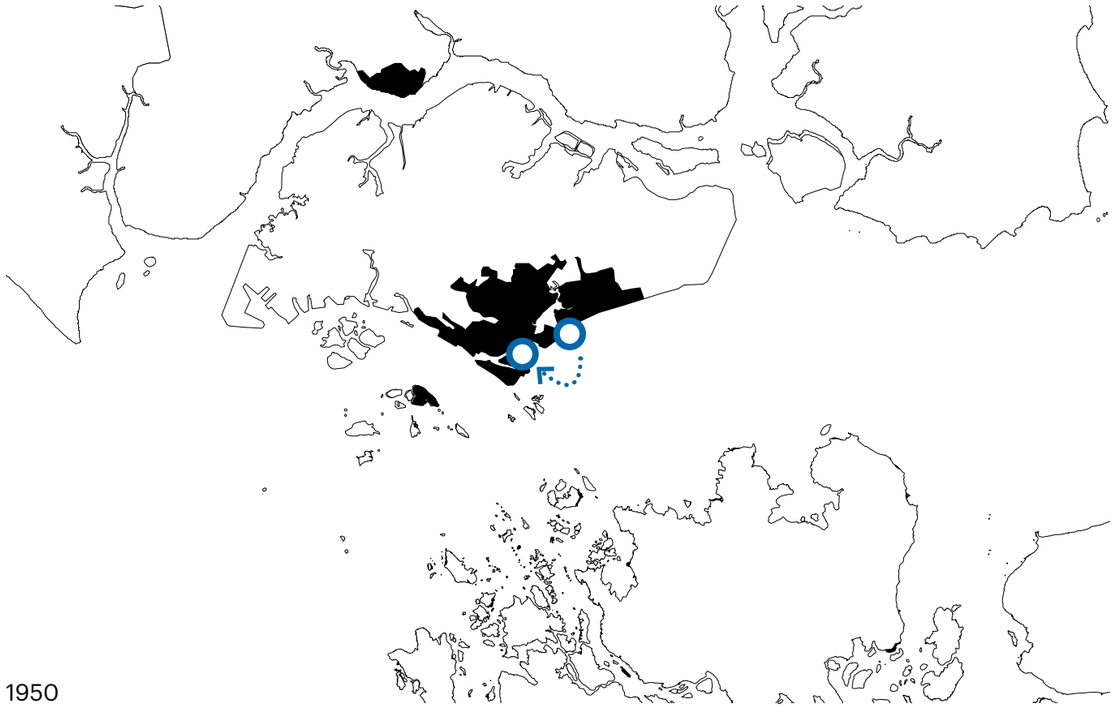


Kampong Kallang, Singapore, 1908

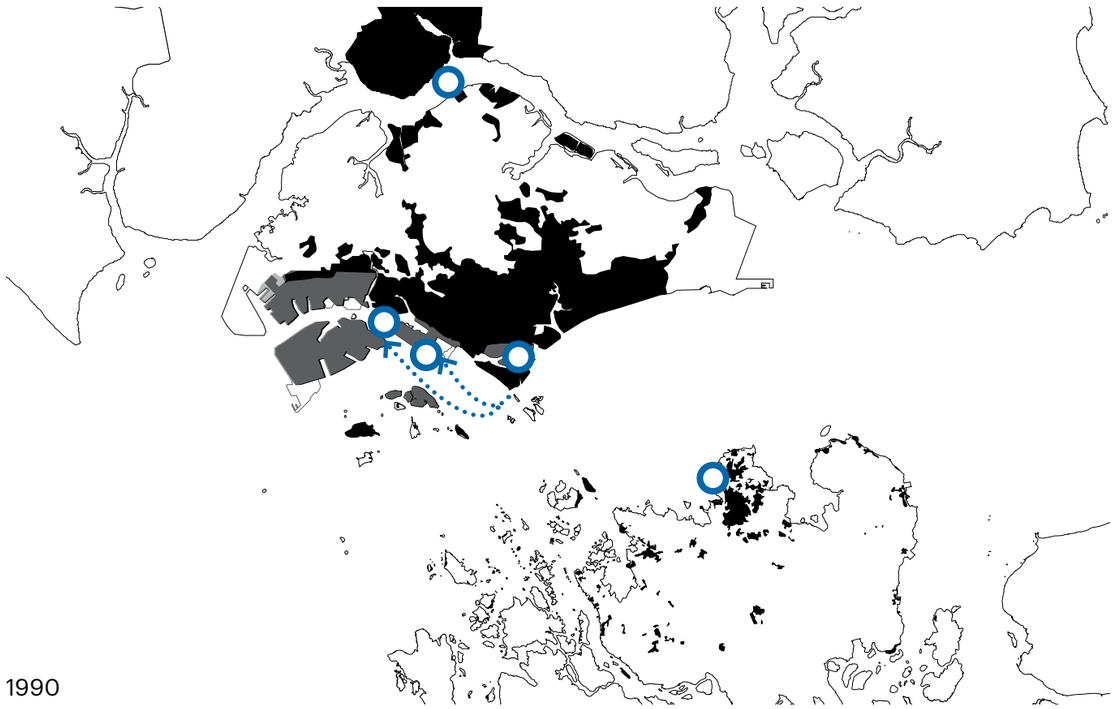
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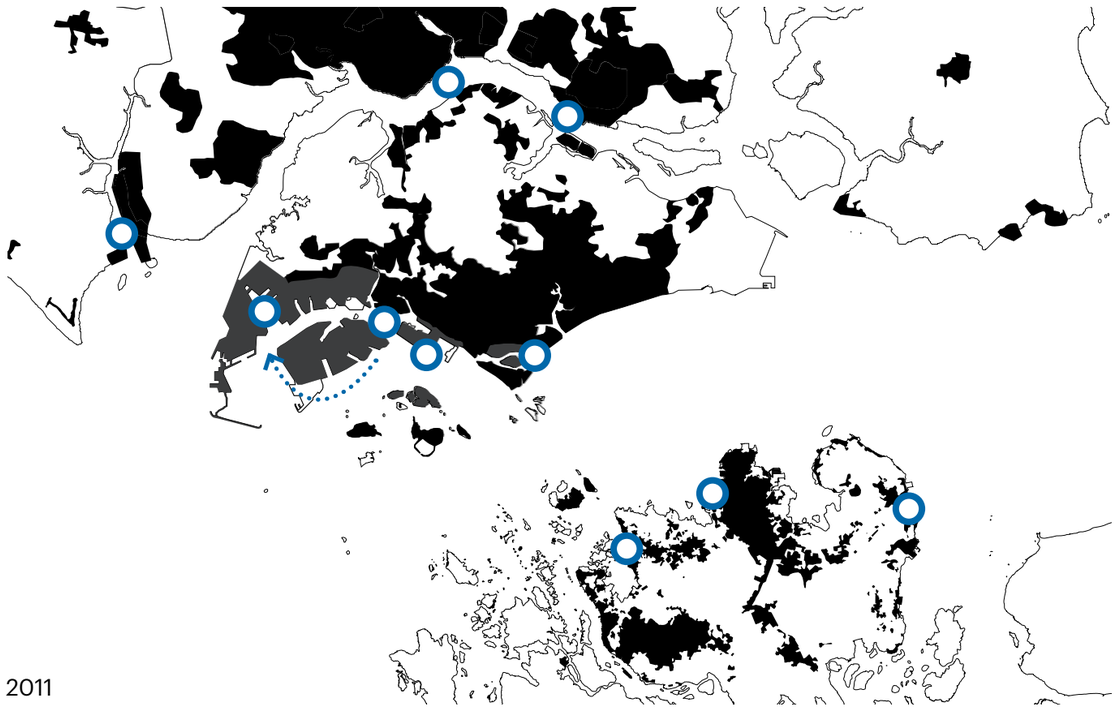
1900



1950



1990



2011

Harbour Industrial Area

Urban Development of Singapore
Increasing Disconnection between City and Port

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Singapore Harbour and Singapore River, 1970

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Singapore River, 2012

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Tanjong Pagar Terminal, 2012

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One-Day Study of the Straits of Singapore, 15.2.2012, 7:00am

DRAFT

8:30 am

DRAFT



DRAFT

11:30 am

DRAFT

1:00 pm

DRAFT

2:30 pm

DRAFT

4:00 pm

DRAFT

6:30 pm

DRAFT

7:15 pm

DRAFT

7:45 pm

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City in front of a city?

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Reconstruction of the Map

Navigation Maps Maritime Port Authority

DRAFT



Reconstruction of the Map
Digitalized Navigation Maps

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Pontian

MDP
(Majlis Daerah Pontian)

Johor Bahru

MBJB
(Majilis Bandar Johor Bahru)

MPPG
(Majilis Perbandaran Pasir Gudang)

MPJBT
(Majilis Perbandaran Johor Bahru Tengah)

Singapore

MALAYSIA
INDONESIA

SINGAPORE
INDONESIA

MALAYSIA
INDONESIA

Karimun

Pemerintah
Kabupaten Karimun

Batam

Pemerintah
Kota Batam

Border Regimes
Political Borders

DRAFT

Pontian

MDP
(Majlis Daerah Pontian)

Johor Bahru

MBJB
(Majilis Bandar Johor Bahru)

MPPG
(Majilis Perbandaran Pasir Gudang)

MPJBT
(Majilis Perbandaran Johor Bahru Tengah)

Singapore

Pedra Branca

MALAYSIA
INDONESIA

SINGAPORE
INDONESIA

MALAYSIA
INDONESIA

Nipah Island

Karimun

Pemerintah
Kabupaten Karimun

Batam

Pemerintah
Kota Batam

Border Regimes
Political Borders

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Border Regimes

Border Dispute Nipah Island, Indonesia

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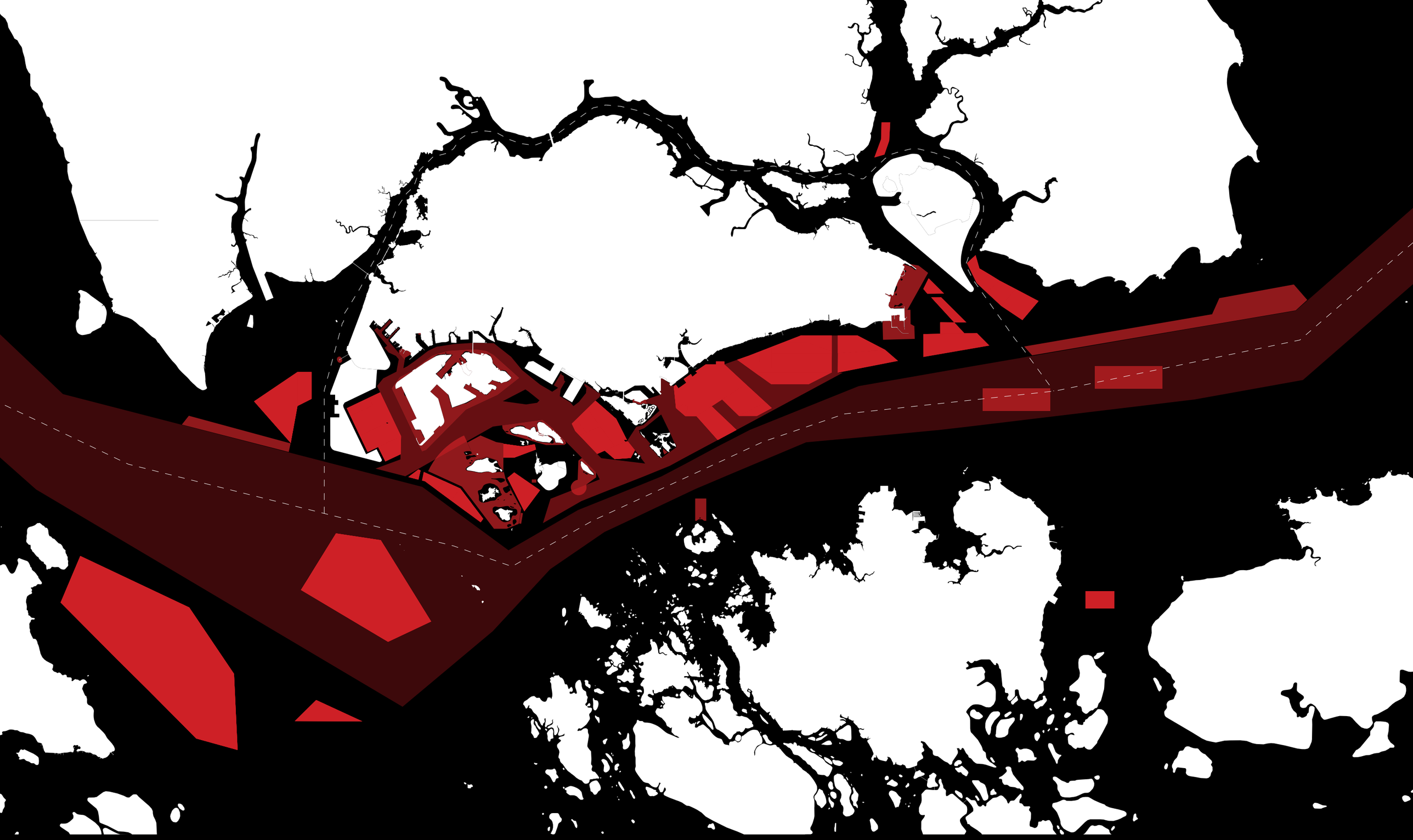


Border Regimes
Responsible Authorities

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Zoning and Regulations of the Shipping Space

Waiting Areas for Different Kind of Vessels (overview)

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Zoning and Regulations of the Shipping Space

Shipping Access Corridors

DRAFT



Zoning and Regulations of the Shipping Space

Anchorage VLCC (Very Large Crude Carrier)

DRAFT



Zoning and Regulations of the Shipping Space
Anchorage Tankers

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Zoning and Regulations of the Shipping Space

Bunkering Areas

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Zoning and Regulations of the Shipping Space

Anchorage Small Crafts

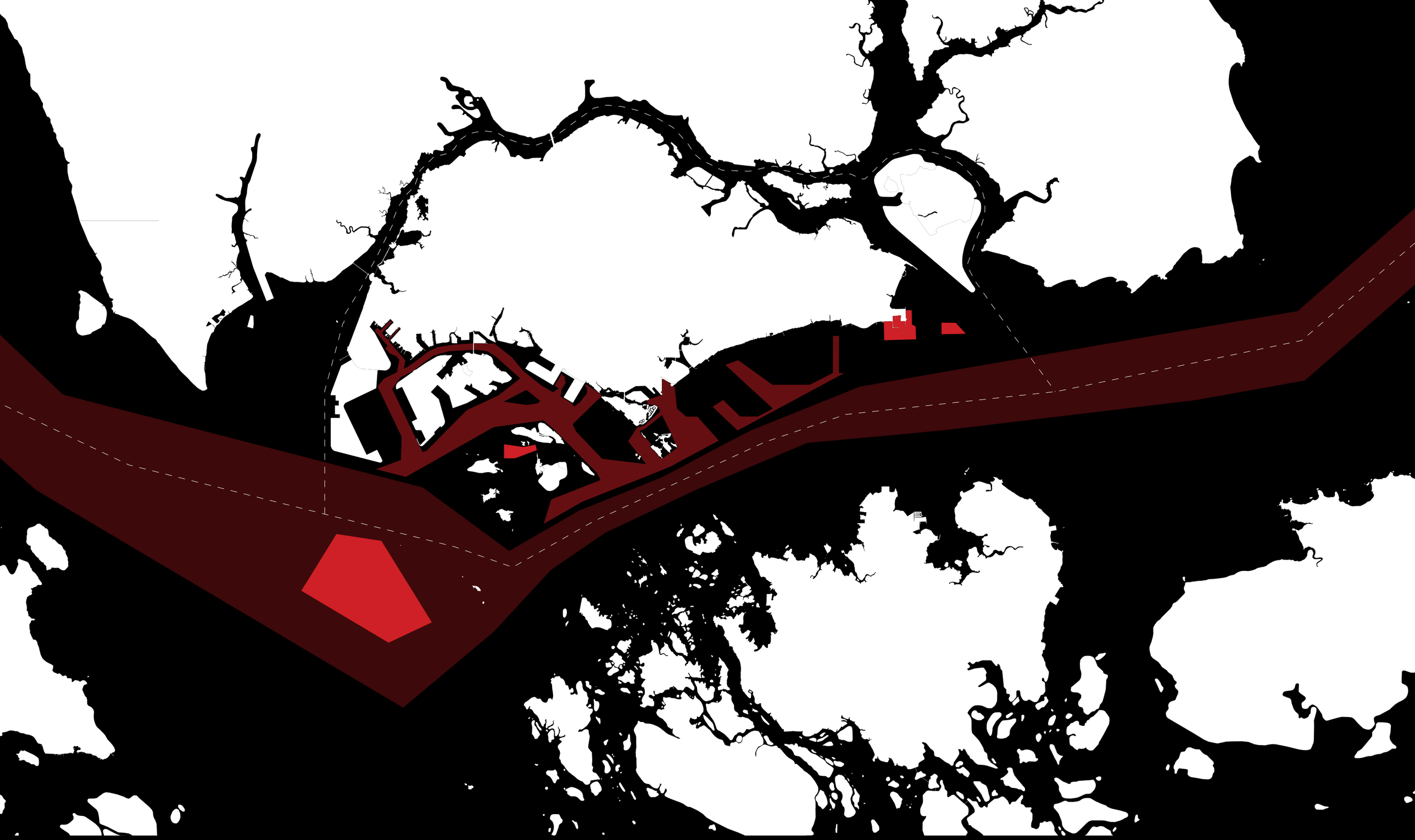
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Zoning and Regulations of the Shipping Space

Holding Areas

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Zoning and Regulations of the Shipping Space

Military Zones

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Zoning and Regulations of the Shipping Space
Quarantine

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Zoning and Regulations of the Shipping Space
Explosives

DRAFT



Zoning and Regulations of the Shipping Space

Special Purpose Areas

DRAFT



Zoning and Regulations of the Shipping Space

Restricted Areas

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The Straits as an Urban Territory?



Urban Flows and Activities

Kampungs

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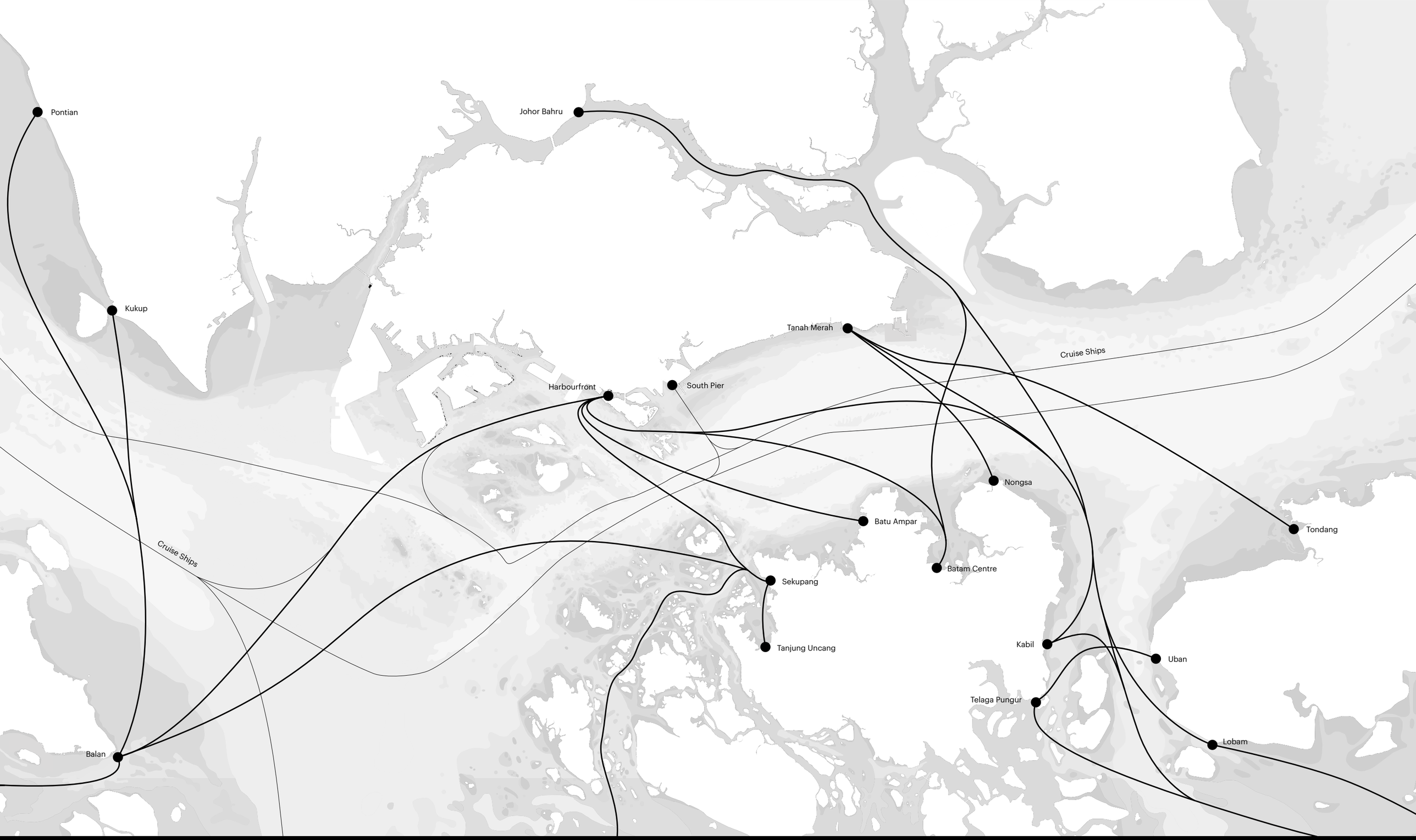


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Fish Farms
Commercial Grounds
Traditional Fishing
Tribal Fishing
Prohibitions

Urban Flows and Activities
Fishing Grounds

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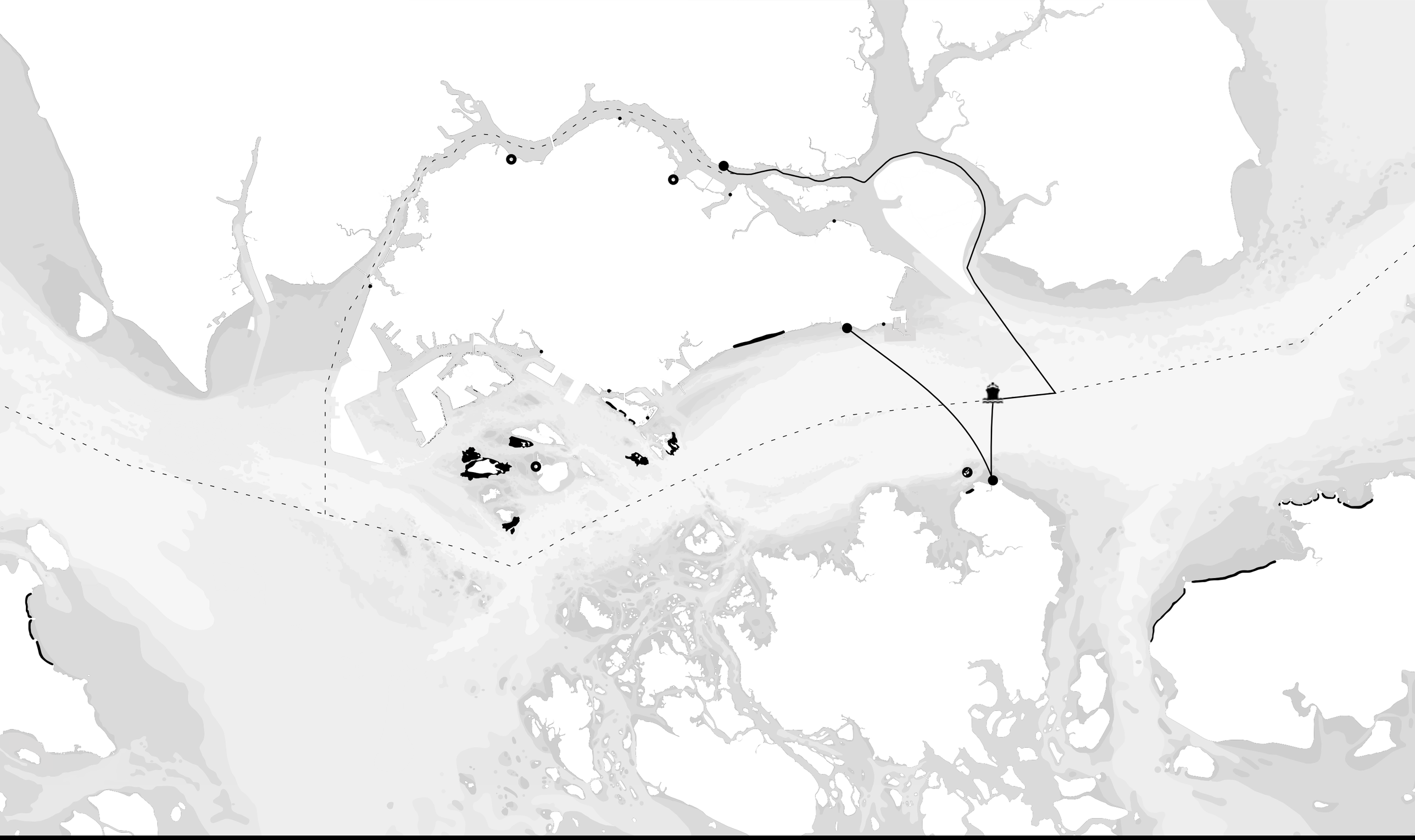
Ferries

Cruise Ships

Urban Flows and Activities

Passenger Transportation

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Entertainment Ships
(Cruise to Nowhere)

Yacht Harbour

Sport Fishing Sites

Diving Sites / Beaches

Urban Flows and Activities
Leisure Activities

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● Pirate Attacks

Urban Flows and Activities

Piracy in the Straits of Singapore 2001-2010

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source: National Geographic, October 2007

Urban Flows and Activities

Piracy in the Malacca Strait 2002-2007

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port starboard lights

Infrastructures
Martitime Navigation Lights
DRAFT

Submarine Oil and Gas

Submarine Cables

Anchorage and Fishing Prohibition

Infrastructures
Underwater Pipelines and Cables

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The Urban Plan of the Straits of Singapore

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The Border Zone



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Borderline between the Sea and the City

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Land Reclamation between 1957 and 2008: ca. 200km^2

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CHECKPOINT
JURONG ISLAND

TUAS

PORT PASIR
PANJANG

MARINA BAY
SANDS

EAST COAST
PARK

CHANGI
NAVAL BASE

Land Reclamation between 1957 and 2008: ca. 200km^2

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Tuas Industrial Area (under construction)

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DRAFT



Jurong Industrial Area

DRAFT



DRAFT



Pasir Panjang Container Terminal

DRAFT


APL
COSCO
EVERGREEN
MAERSK
AERSK



Marina Bay Area (under construction)

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East Coast Park

DRAFT

DRAFT

Changi Naval Base

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BORDER ZONE



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