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PORT OF HASTINGS DEVELOPMENT PROJECT



DESIGN AND ENGINEERING
Port Precinct and Environs
Preliminary Planning Concepts

Document Ref: AGH-CEP0-EG-REP-0011

In May 2016 the Special Minister of State asked Infrastructure Victoria to provide advice on the future capacity of Victoria's commercial ports. Specifically, the Minister has asked for advice on when the need for a second container port is likely to arise and which variables may alter this timeline. The Minister has also asked for advice on where a second container port would ideally be located and under what conditions, including the suitability of, and barriers to investing in, sites at the Port of Hastings and the Bay West location.

In undertaking this task, Infrastructure Victoria reviewed work that was completed as part of the Port of Hastings development project before it was cancelled in 2014. This document forms part of the initial work undertaken for the proposed port development at Hastings. Infrastructure Victoria considers that much of the previous Hastings work, although preliminary in nature, is relevant and suitable for informing a strategic assessment. Therefore, Infrastructure Victoria has requested that preliminary and draft reports previously commissioned for the development project be reissued to form part of the evidence base on which Infrastructure Victoria will use in providing the Minister with advice.

The opinions, conclusions and any recommendations in this document are based on conditions encountered and information reviewed at the date of preparation of the document and for the purposes of the Port of Hastings Development Project.

Infrastructure Victoria and its consultants have used the information contained in these reports as an input but have not wholly relied on all the information presented in these reports.

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Port of Hastings Development Project – Design and Engineering

Port Precinct and Environs Preliminary Planning Concepts

Client: Infrastructure Victoria

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Quality Information

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Executive Summary

This report presents a number of high level concept plans for port related development in the SUZ1 zone adjacent to Long Island Point (LIP) based on a preliminary assessment of functional requirements, assumptions on the likely mix of land uses required within Port Hastings and the early findings of investigations into environmental constraints, terminal configurations and transport corridor alignments.

Existing port developments from around Australia were benchmarked in order to generate high level spatial estimates for land uses associated with the port. Functional requirements and planning principles were then developed and used in the generation of concept options.

The concept plans include alternative alignments for road and rail options and alternative terminal configurations, all or which effectively become the 'anchor points' for future development. The concept options demonstrate the interrelationships between these anchor points and the functional allocation of land uses within the SUZ1.

Development of these high level concepts will be used as a tool to progress and integrate ongoing technical investigations required to underpin the development of the Port of Hastings Master Plan.

1.0 Introduction

1.1 Background

The Victorian Government has identified the port of Hastings as the preferred site for the State's next major container port. This port is essential for the long –term economic growth of Victoria as container trades increase and the Port of Melbourne reaches capacity.

The Port of Hastings Development Authority (the Authority) is progressing staged planning of the Port of Hastings Development Project from 2013 to 2018, culminating in the development of a rigorous business case and a full environmental and social impact assessment.

The Authority has selected a team of specialists to undertake detailed environmental, social and economic studies that will form part of a strict approval process. Specialists will also plan the conceptual design of new port infrastructure including wharf facilities and a logistics precinct, with road and rail access to the Port. Involvement of community and industry will be a critical to the success of this project.

By the mid-2020s it is envisaged that a world-class sustainable container port facility will begin operations at Hastings, handling up to 3 million twenty foot equivalent units (TEUs) each year, increasing to a minimum of 9 million TEUs to support the demand.

1.2 Purpose of this Report

A number of specialist teams have commenced work on the planning for the port. The purpose of this report is to bring together the early findings of a number of high level wharf configuration, environmental, transport infrastructure and land use investigations in order to better understand the relationship between these investigations and the implications for the ongoing master planning of the SUZ1 at Long Island Point, including the Port Precinct and Port Environs. In this way, this report will assist in the coordination of many of the current specialist studies.

More specifically this report provides the following:

- A high level assessment of the broad activities and functional requirements to be accommodated in SUZ1, including land uses, functional relationships, transport options and various interface issues (e.g. with both the terminal and areas adjoining the SUZ1)
- A high level assessment of the desktop environmental investigations completed to date and the identification of the key opportunities and constraints that will influence the layout and development of activities within the SUZ1
- A set of planning principles or 'ground rules' based on policy, legislation and planning guidelines, functional requirements, opportunities and constraints and the findings of other desktop investigations (on the, transport corridors and wharf options) that will guide the development of master plan options for SUZ1
- A number of high level planning concepts for SUZ1 based on the early understanding of site constraints and opportunities, the above functional requirements and planning principles. These concepts help to define key parameters and "anchor points" fundamental to the ongoing master planning of the SUZ1.

2.0 Port Functional Requirements

The scope of the proposed Port of Hastings development of a minimum of 9 million TEU indicates the need for both direct port related functions and a range of broader supporting activities in the local area. In developing preliminary options for the area this leads us to two general areas of consideration:

- A port precinct which is close to the main container terminal(s) where direct port related activities reside and obtain best efficiency and flexibility in their operations.
- A port environs area which provides for broader industry and support functions which do not need to be close to the terminals. The land uses in this area are likely to be quite broad and may still contain some activities which are directly port related.

The two areas do not need to be definitive within plans at this stage however consideration of particular land uses in either area is an important focus for port efficiency.

A key aspect of the planning for the port precinct and environs is an understanding of the functional requirements which provide for the operational needs of the port and other land uses likely to support these activities. In addition, there are opportunities to generate business activity in the SUZ1 zone for which the port is a key driver and gateway to international markets for both import and export activities.

Initial consideration of functional activities and facilities which will form the ultimate port precinct and environs framework have been identified by the Design and Engineering team to progress the planning of SUZ1 planning layouts at a concept level with particular focus on the relativity and relationship of activities across the planning zone.

An initial size and scope of activities has been developed based on current activities in other ports and the general supply chains potentially respondent to the Port of Hastings operation. This information will provide a basis for initial investigations, however a more detailed scope and assessment of the functional needs will be provided from the project consultation and commercial investigations during early 2015.

A summary of initial functional requirements considered relevant to the port precinct and port environs areas are included at Table 2-1 and Table 2-2 below:

Table 2-1 Port Precinct Land use Initial Estimates

Port Precinct Land use	General purpose	Potential land area
Port Container Terminal	Ship load and unload transfer to land transport	300 ha
Warehousing	Import/export storage	150 Ha
Bonded warehousing	Import/export value add	50 Ha
Distribution Centers	Store and distribute imports	75 Ha
Trucking depots	Load consolidation and distribution locations	75 Ha
Customs and AQIS	Border security	26 Ha
Empty Container parks	IMEX supplies	270 Ha
Road corridor access	Road access	100 Ha
Rail corridor	Rail transport access	30 Ha
Retail and service areas	Include car parking /truck parking	5 Ha
Port Administration		5 Ha
Storm water/treatment, utilities, open space etc	10% allowance	109 Ha
Port Precinct Total Area		1195 Ha

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Table 2-2 Port Environs Land Use Initial Estimates

Port Environs Land use	General purpose	Potential land area
Warehousing	Import/export storage	150 Ha
Distribution centres	Store and distribute imports	75 Ha
Manufacturing	Broad Manufacturing facilities	150 Ha
Office Facilities – Port support services R & D	Office and commercial facilities	6 Ha
Accommodation	Commercial parties relevant to port transactions	8 Ha
Road corridor access	Road access	44 Ha
Retail and service areas	Include car parking /truck parking	5 Ha
Driver Rest and Trailer exchange facility		8 Ha
Highway Fuel and Food	Highway Truck stops	20 Ha
Industrial Land	General industrial	100 Ha
Storm water/treatment, utilities, open space etc	10% allowance	57 Ha
Port Environs Total Area		Approx. 623 Ha
Overall Port Total Area		Up to 1818 Ha

There are some activities including warehousing and distribution centres, trucking depots and associated facilities which are considered to benefit from close proximity to the port terminal, and are therefore included in the port precinct requirements. Over time it is recognised that these activities are also likely to be located further from the port in the port environs areas and based on this assumption the scope of operations for these functions have been split between the port precinct and the port environs.

The wharf and container terminals may extend beyond the current shoreline resulting in a land use which extends into the current western port bay area.

Further detail of the basis of estimation for these initial land areas is included in Appendix 1 to this report.

The main functional requirements are listed below with a general description of their functions and relativity to the port terminals:-

2.1 Container Terminals (Stevedore Operations)

The port container terminal(s) are the central point in the port precinct and origin or destination of all import export traffic. They provide the transfer point from shipping to landside logistics and the interface to local businesses that operate within the port zone.

The terminals are located directly behind the wharf with direct access from ship to shore cranes to move containers to and from storage stacks or directly to and from land transport.

At this stage of planning the make-up and alignment of the wharf and container terminal areas is still under investigation, however it is assumed they are located at or about the shoreline and the terminating point of land transport corridors for both road and rail transport.

DRAFT**2.2 Customs and AQIS facilities**

Customs and AQIS (quarantine) facilities are an essential part of border security arrangements and port operations. These facilities need to be in close proximity to the port with relevant security considerations for their location. Specific needs will be sought during the consultation phase of the project.

2.3 Port Administration

Port Administration facilities are included in the SUZ1 zone at this stage although these functions have the flexibility for location either close to the port or further removed in the port environs area (or beyond).

2.4 Transport and Logistics

Transport and Logistics facilities include a range of road transport facilities focussed on the transfer of containers to and from the port to commercial end users. They will include road transport depots and consolidation facilities to maximise the efficiency of the transport task.

The range of facilities will include direct transport depots and activities with some operators utilising warehousing and distribution centre activities inclusive of 3rd party logistics activities.

2.5 Warehousing and Distribution

Warehousing and distribution facilities provide for the consolidation and storage of products in a warehouse facility for a period of time prior to relocation for distribution to consumers or as inputs to manufacturing processes.

These facilities will also include the need for bonded warehousing opportunities where products are deemed to have not left the port zone relieving owners of duties or taxes/conditions for a period of time until distributed to consumers.

2.6 Manufacturing/Support industrial

Manufacturing facilities with a relationship to import/export operations are likely to be attracted to near port locations to improve the efficiency of their supply chains. This may include products with imported production inputs (such as component parts or materials) or substantial export products where a position near port reduces the cost to consumer.

2.7 Road and Rail Access Corridors

Road and rail corridors provide vital functions in providing sufficient access capacity to enable smooth operation of the port, its associated industry activities and ongoing public transport access through the SUZ1 zone to current north south and east west destinations.

There is a planning focus towards the separation of heavy vehicle port traffic in the SUZ1 from general traffic where possible, however the mix of both traffic types will utilise the main freeway transport corridor once traffic departs the port environs.

Planning for the rail corridor and rail terminal areas within the SUZ1 zone will continue under all scenarios to ensure rail access to the container terminals and associated port precinct warehousing areas is enabled. Implementation of rail facilities will however be the subject of connecting corridor works which are likely to delay their introduction until after the initial development stage of the port.

2.8 Empty Containers

Empty container storage and management form an essential part of the port operations with the return of import containers to the port for export. Although overall container movement patterns with a potential two port operation in Melbourne are not yet clear, it is assumed that there is a return of all import containers to the port as a key traffic flow.

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This will result in the need for substantial container park storage areas in the vicinity of the port supporting the efficient movement of returning containers for export. This traffic movement is typically a major peak traffic flow called to fill the export volumes after full containers are loaded to ships.

2.9 Office Facilities and Support services/R & D

Supporting industry and administration facilities based in office accommodation are anticipated within the SUZ1 zone after initial development stages. These facilities are more likely to be located towards the perimeter of the environs as there is no specific need to be in close proximity to terminals and operational areas.

2.10 Accommodation

Accommodation facilities are a likely need in the port environs (or beyond) to support increased business activity in the area and the need for visits by suppliers and supporting industries

2.11 Road Vehicle – Driver Rest and Service Areas

The provision of rest areas, road vehicle fuelling and food services for transport drivers in general proximity to the port area will be an important functional need to ensure the safe and efficient operation of the port.

2.12 Supporting Activities

Major employment nodes and industrial areas create significant demand for worker facilities and conveniences. Consideration will need to be given to the establishment of a local centre (or ultimately a number of small centres distributed across port development) to accommodate basic convenience functions, specialist retailers (e.g. food and beverage, banking, workwear, safety equipment, tools, etc.), offices for technical and professional services and basic community and health services (e.g. medical centre, limited allied health services). A seafarer's facility to provide general services in the overall vicinity of the port has also been suggested by shipping companies.

These facilities will support 24 X 7 operations in the port precinct and will eliminate the need for additional traffic flows to and from the precinct where workers would otherwise need to source these facilities outside the precinct.

Based on the preliminary assessment of functional requirements for the ultimate development there will be a significant number of employees generating demand for the establishment of appropriately scaled activity centres and support activities.¹

2.13 Port Gate

The Port gate provides a key functional element of the precinct and will be located close to Port terminals providing flexibility for direct movements to warehousing facilities and main road connections. Multiple port gates will be required for the ultimate development with an anticipated 2-3 stevedoring terminals. Significant traffic volumes are anticipated resulting in a need of multi-lane gates which may be up to 300 m in length for traffic management.

Gate alignments will be developed in conjunction with port terminal layout development and proposed connections to main road connections.

2.14 Port Security

Provision of port security services within the port precinct will also be a fundamental need to support operational functions and ensure integrity of the port gate and the precinct.

DRAFT**2.15 Maintenance & workshop facilities**

Maintenance and workshop facilities will largely form part of the stevedores operational facilities on the port with a need for a general port maintenance site to support common infrastructure.

2.16 Emergency Services – Fire, Police, Ambulance etc.

The scope and size of the port will drive a need for additional emergency services within the local area, this is likely to be located in the port environs or in a location with access to both port and the community to serve both purposes.

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3.0 Site Constraints and Opportunities

3.1 Introduction

This section draws on the findings of desktop investigations of site environmental and social constraints. While these findings are still very preliminary, they indicate a number of considerations that will need to be addressed in the development of master plan options for the precinct and the SUZ1.

3.2 Legislative and Policy Considerations

Development of the Port will be subject to numerous legislation and policy requirements at the Commonwealth, State and Local government level. At the Commonwealth level the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* and *Native Title Act (NT Act)* will outline the requirements for the protection of rare and endangered species and native title.

Also at the National level the National Ports Strategy was prepared by Infrastructure Australia and the National Transport Commission to improve the efficiency of port related freight movements across infrastructure networks and minimise the externalities associated with such freight movements.

At the State level, the *Planning and Environment Act* provides the principle framework for the preparation of local planning schemes which may provide an implementation option for elements of the port master plan. Other State legislation includes the *Port Management Act (1995)* which, among other things, provides for the establishment, management and operation of commercial trading ports and local ports. The *Transport Integration Act (2010)* establishes the Port of Hastings Development Authority and requires agencies to work toward integrated and sustainable transport strategies, and the *Major Transport Projects Facilitation Act (2009)* under which Port Hastings is a declared project.

A number of key strategic policies support the development of the Port of Hastings and provide high level guidance in respect to development of the port and SUZ1. *Plan Melbourne* regards the Port of Hastings as city shaping infrastructure and to become the state's primary container port by 2050. It also acknowledges the role of the Western Port Highway (WPH) in connecting the port to the metropolitan transport network. The *Victorian Freight and Logistics Plan (VFLP)* supplements *Plan Melbourne* by highlighting import and export needs and transport projects to support the Port of Hastings.

Other State policies include the *Green Wedge Management Plans* to protect the rural areas and contain the spread of development. Development in SUZ1 will be required to consider land use and management objectives for the adjacent green wedge areas. The *Port of Hastings Land Use and Transport Strategy* identifies the Long Island precinct as being the future centre of port development, the requirement for access to the port that avoids impacts on the Hastings urban area. This includes the potential use of McKirdys Road for access, and the need to retain the entire SUZ1 area for port and related development including buffering and interface treatments with adjoining land uses.

At the local level planning schemes include both *State Planning Policy Frameworks* and *Local Planning Policy Frameworks* which include State and local requirements related to catering for population and employment growth, managing development and protecting the natural environment. A number of local strategic plans and studies also have the potential to influence concept planning. The *Mornington Peninsula Localised Planning Statement (2014)* for example, requires the protection of important recreational, natural and tourism values, the physical separation of industrial (port related activities) and transport corridors from townships and residential areas by rural buffers and management of environmental and visual impacts associated with port development. Other relevant studies include the *Mornington Peninsula Access and Mobility Study (2007)* which supports the conversion of the WPH to a freeway to access the port and the *Frankston Integrated Transport Study* which supports the development of a rail corridor along the WPH.

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3.3 Environment and Social

Desktop studies identified key known assets, values and uses within the study area including:

- Areas of Aboriginal Cultural and Historic Heritage
- Land use planning
- Flora and fauna
- Social

Key implications of these early investigations for the preparation of high level concept plans for the SUZ1 are detailed below.

3.3.1 Aboriginal Cultural and Historic Heritage

Aboriginal Cultural Heritage

There are a number of registered aboriginal cultural heritage sites (middens, artifact scatters) within the SUZ1 and areas identified through predictive modeling likely to have potential for additional cultural heritage. Further investigations and traditional owner consultations are to be conducted in order to determine the extent of aboriginal cultural heritage across the site and implications for management and future site development.

Historical Cultural Heritage

The range of Historical and Cultural Heritage in the area is quite broad:

- There are no listed sites in the SUZ1 under the National Heritage List, Victorian Heritage List, the Victorian Heritage Register or the Victorian Heritage Inventory.
- There are a number of properties with Heritage Overlays both within the SUZ1 and in the nearby towns of Tyabb, Hastings and Pearcedale.
- There are several Victorian War Inventory places in these areas.

In addition, there are a number of sites both within the SUZ1 and nearby with potential heritage value or identified for further assessments including a number of farms, houses and conifer rows and the Orchid Landscape Precinct, Hastings and BlueScope steel works.

Further investigations will be carried out to determine the implications of heritage items for development within the SUZ1 and surrounding area. While it is acknowledged that the identification and management of heritage values will need to be incorporated in future detailed master planning, heritage has not been considered as a constraint to the early development of concept options.

3.3.2 Land Use Planning

Desktop land use assessments identified a number of land use planning opportunities and constraints relevant to the preparation of high level concept options.

Opportunities

Opportunities include the following:

- Public Acquisition Overlay for road widening along the WPH
- Green Wedge areas limit the potential for residential development further encroaching onto the SUZ1
- Strategic policy support for upgrading the WPH and provision of a rail corridor to support development of Port Hastings
- Designation of SUZ1 for the development of industrial and port related uses in the Mornington Peninsula Planning Scheme
- Relatively large holding size in much of the SUZ1

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Planning constraints include the following:

- Planning scheme policies for the protection of areas of productive agriculture value particularly to the north of the Dandenong–Hastings Road
- Western Port coastal protection areas along the coastline being of environmental, landscape and habitat significance
- Planning Scheme provisions for future residential expansion of Tyabb and Hastings (and Pearcedale to the north) all have the potential to exacerbate interface issues.
- Local policy requirements to maintain physical separation distances between existing settlements and industrial and port related activities in the SUZ1 and transport corridors and for development within the SUZ1 to minimize environmental and visual impacts on existing communities.
- The Tyabb airport, the runway of which ends at the northern boundary of the SUZ1 west of the Frankston Flinders Road. Obstacle limitation surfaces (OLS) radiate out from the runway and could affect the height and nature of land uses that can be developed in this part of the SUZ1. If the airport is to remain operational adjacent to activities would typically exclude the following:
 - Land uses requiring high intensity lighting (e.g. intermodal facilities requiring 24 hours operation)
 - Land uses with potential to attract birds (tips, ponds, water/ sewerage treatment plants, uses/ events attracting concentration of people etc.)
 - Uses generating exhaust emissions, plumes or dust
 - Uses that attract a concentration of people (e.g. places of worship, schools)
 - Noise sensitive land uses (residential, nursing home, hospitals, schools etc.)
 - Uses requiring tall structures (that have potential to penetrate the obstacle limitation surfaces)

3.3.3 Flora and Fauna

A desktop flora and fauna assessment recorded potential native vegetation and EPBC Act and Flora and Fauna Guarantee Act (FFG Act) listed flora, fauna and ecological communities in the SUZ1 and surrounding area. Key ecological values are depicted in Figure 3-1 and include:

- Areas of native vegetation including some large high quality intact patches in the coastal zone and around BlueScope Steel
- Areas of the EPBC Act listed ecological community Subtropical and Temperate Coastal Saltmarsh
- Presence or likely presence of EPBC Act and FFG Act listed fauna species previously recorded around BlueScope Steel
- High quality examples of coastal Ecological Vegetation Classes within the Western Port Ramsar site
- A large number of scattered trees.

Preliminary implications for the preparation of concept options include:

- Locating infrastructure in existing cleared areas as much as practicable
- Avoiding / minimizing impacts on the Western Port Ramsar site
- Avoiding or minimizing direct removal of native vegetation, particularly large areas of intact vegetation such as those within the BlueScope Steel site and further avoiding fragmentation of native vegetation.

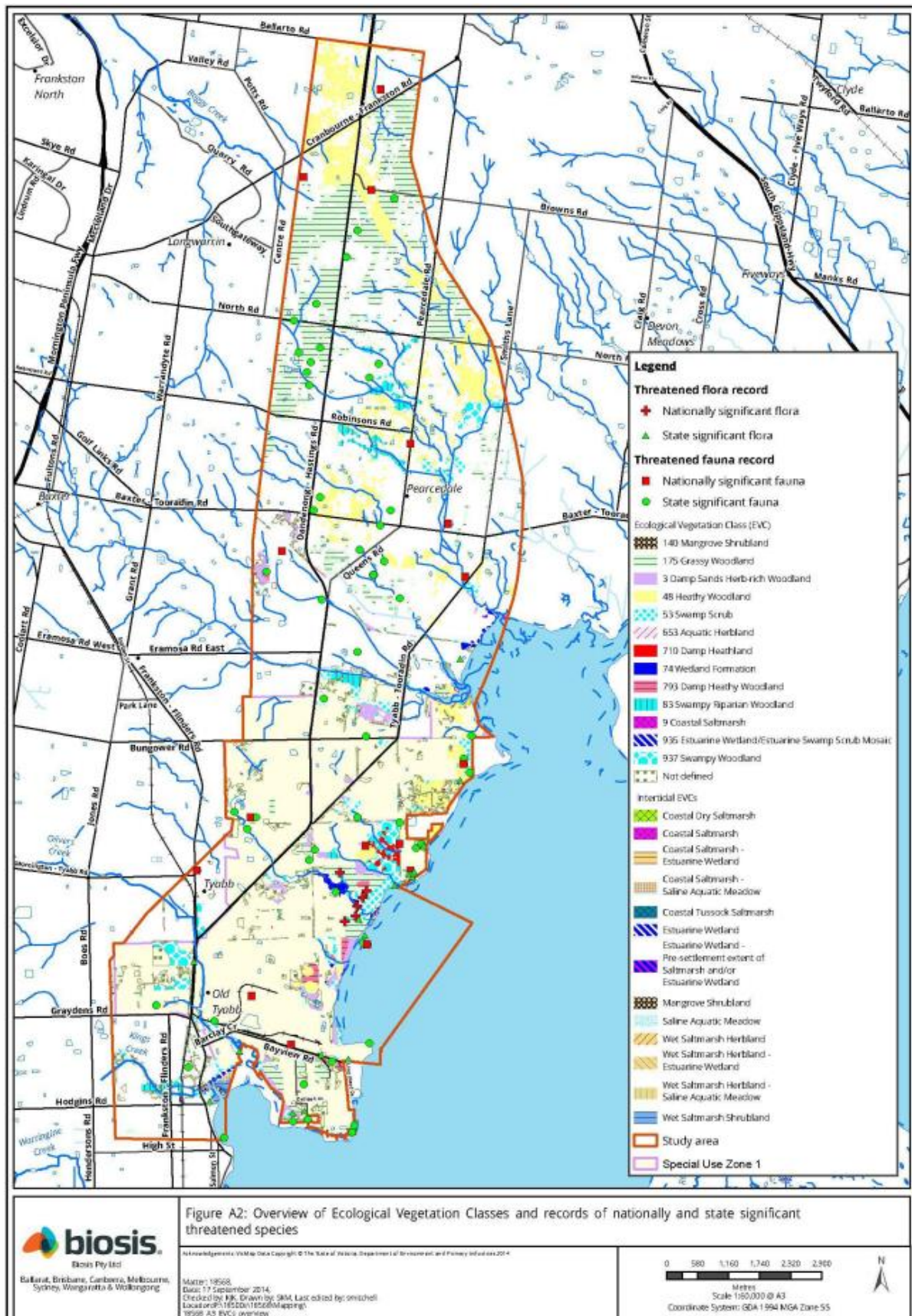


Figure 3-1 Flora, Fauna and Ecological Communities (Desktop results only)

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Significant areas of the SUZ1 and surrounds has been identified for more detailed flora and fauna investigations which will help identify those areas requiring protection or the need for compensatory planting. Indicative areas of ecological value to be protected have been shown in concept options. However, the requirement for, and extent of, these areas is yet to be determined through the findings of the further detailed investigations and the resolution of functional requirements.

3.3.4 Social

The desktop assessment also identified social issues associated with the location of transport corridor options to and within the SUZ1. These issues include:

- Reduced residential amenity
- Reduced accessibility due to severance from existing service clusters and community facilities
- Reduced accessibility to coastal recreation areas (e.g. the Yaringa Marina)
- Reduced inter settlement access

Use of existing transport corridors where possible was considered likely to generate comparatively fewer impacts on existing settlements, communities and access.

3.4 Topography

SUZ1 is very gently undulating although there is a distinct fall from west to east. Elevation ranges across the site from approximately 27 metres AHD in the north-west to 2 metres AHD along the southern and eastern stretch of coast. The eastern half of SUZ1 is generally lower and flatter than areas to the west, with the Hastings Dandenong Road and diagonal ridge running from the south east corner towards the western boundary near Tyabb defining the change in level, shown in Figure 3-2. As a result the eastern part of the site is more conducive to the location of rail infrastructure. The natural landform also suggests the north south orientation of any infrastructure is likely to result in significantly less earthworks than an east west orientation.

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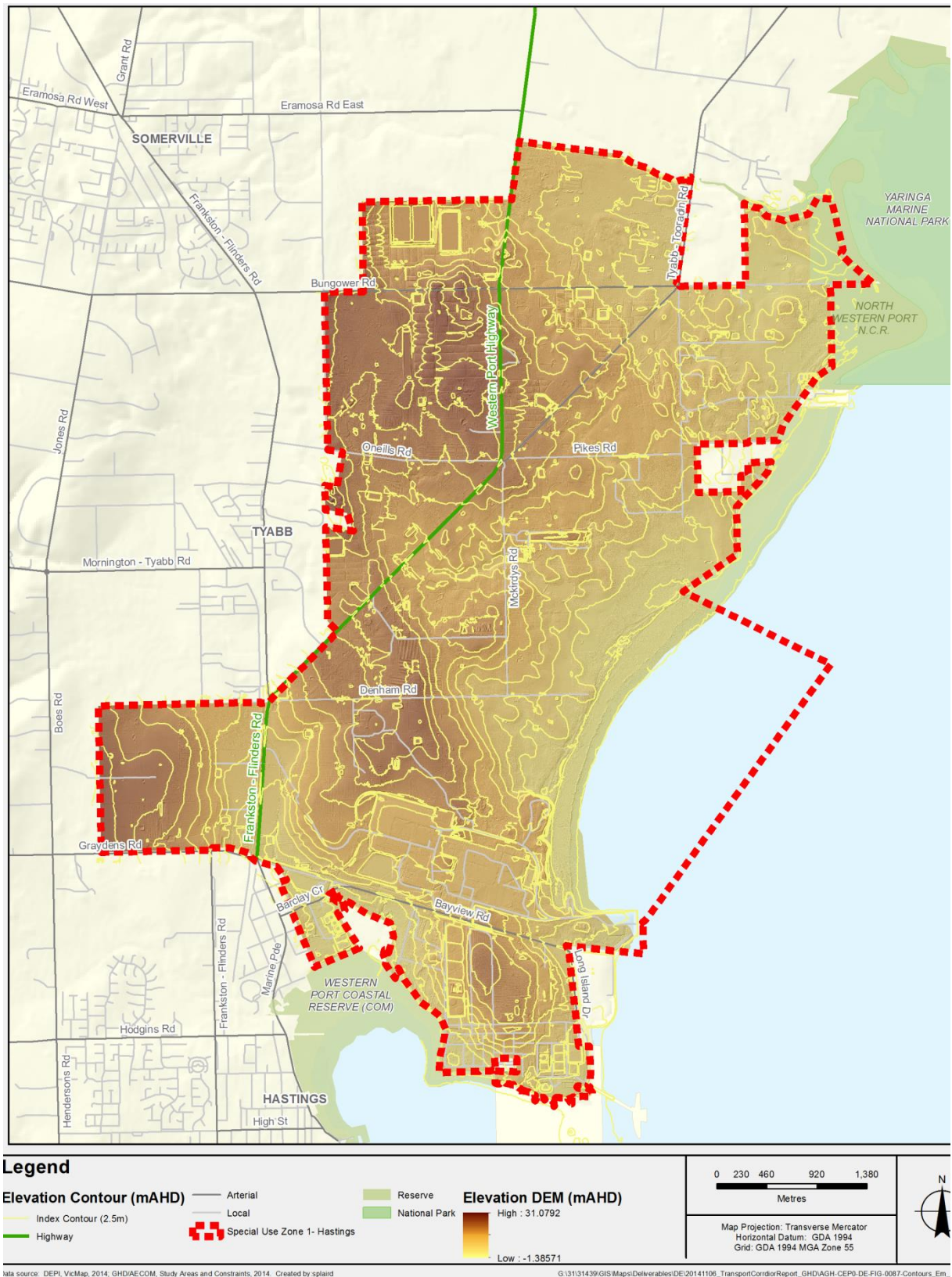


Figure 3-2 Land Topography - Contours in the SUZ1

3.5 Dredge Spoil Disposal Requirements

Preliminary advice indicates that while a number of factors will influence the land area required for the disposal of dredge material, e.g. port concept selected, staging, dredged material, method of dredging (hydraulic or mechanical), etc., it has been suggested that a significant area may be required for such use. The lower lying areas near the coast may be the best suited and most cost effective locations for disposal of the material depending on the depth of fill, suitability of the material for development and the lag time required before development could occur. Concept options will need to be progressively refined to reflect fill requirements and development staging scenarios as investigations proceed.

3.6 Transport Network and Access Corridors

Transport network connections and corridors have a focus toward the Westernport highway and northern approaches to the SUZ1 zone. Several alignments are being considered along this alignment.

Once the corridors reach the area south of Pearcedale the land flattens and options for alternative alignments through the SUZ1 zone are available. The rail corridor and rail terminal functional needs generally push this toward flatter areas east of the Westernport highway to avoid major earthworks, however road corridors can transverse several alignments across the SUZ1 zone.

3.7 Utilities

The existing utility corridors through SUZ1 and surrounding areas are shown on Figure 3-3.

Four major pipelines run through the site west of the Hastings Dandenong Road, carrying gas, LPG, ethane, liquid and gaseous hydrocarbons. There are also pipelines the purpose of which are currently unknown and will be subject to further investigation. Planning for corridor alignments will need to consider both minimisation of interaction with this infrastructure and the potential for relocations where appropriate.

East of the Hastings Dandenong Road SUZ1 is bisected by further pipeline corridors (including crude oil, unknown and water) and a major high voltage electrical transmission line runs parallel to the road and continues to follow the Tyabb Tooradin Road alignment to the north east. Again the opportunity and benefits of co-locating these utilities warrants further investigation as concept planning progresses.

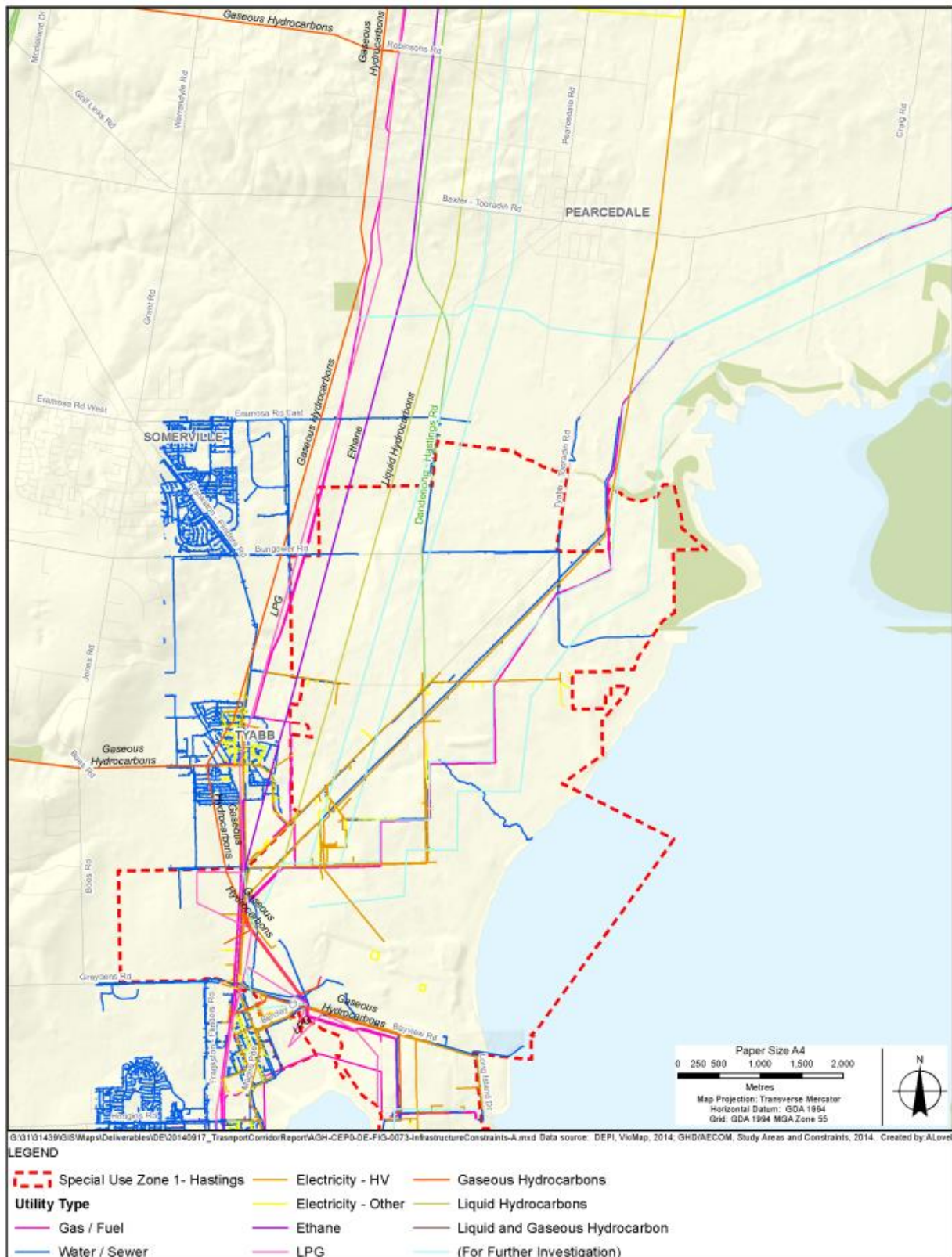


Figure 3-3 Utilities (Subject to further investigation)

3.8 Synthesis

The key considerations from the above review of site constraints and opportunities that influence this initial high level allocation of land uses and functional requirements are depicted in Figure 3-5. They include the following:

- The site landform including site elevations, lines and topography
- Land uses surrounding SUZ1 that will determine the nature and scale of impact in adjoining areas of the port development
- The need to protect the integrity and functions of the land zoning
- The need to protect areas of high ecological value
- The existing utility corridors
- The existing road and rail corridors and requirement to consider segregation of port traffic from local traffic
- Significant onsite land uses and infrastructure including the existing port operations, the Bluescope Steel operational footprint, the Esso tank farm and associated operations.

The above are just the initial considerations for high level concept development. It is acknowledged there will be many more opportunities, constraints and considerations to be addressed in the ongoing development and refinement of these concept options.

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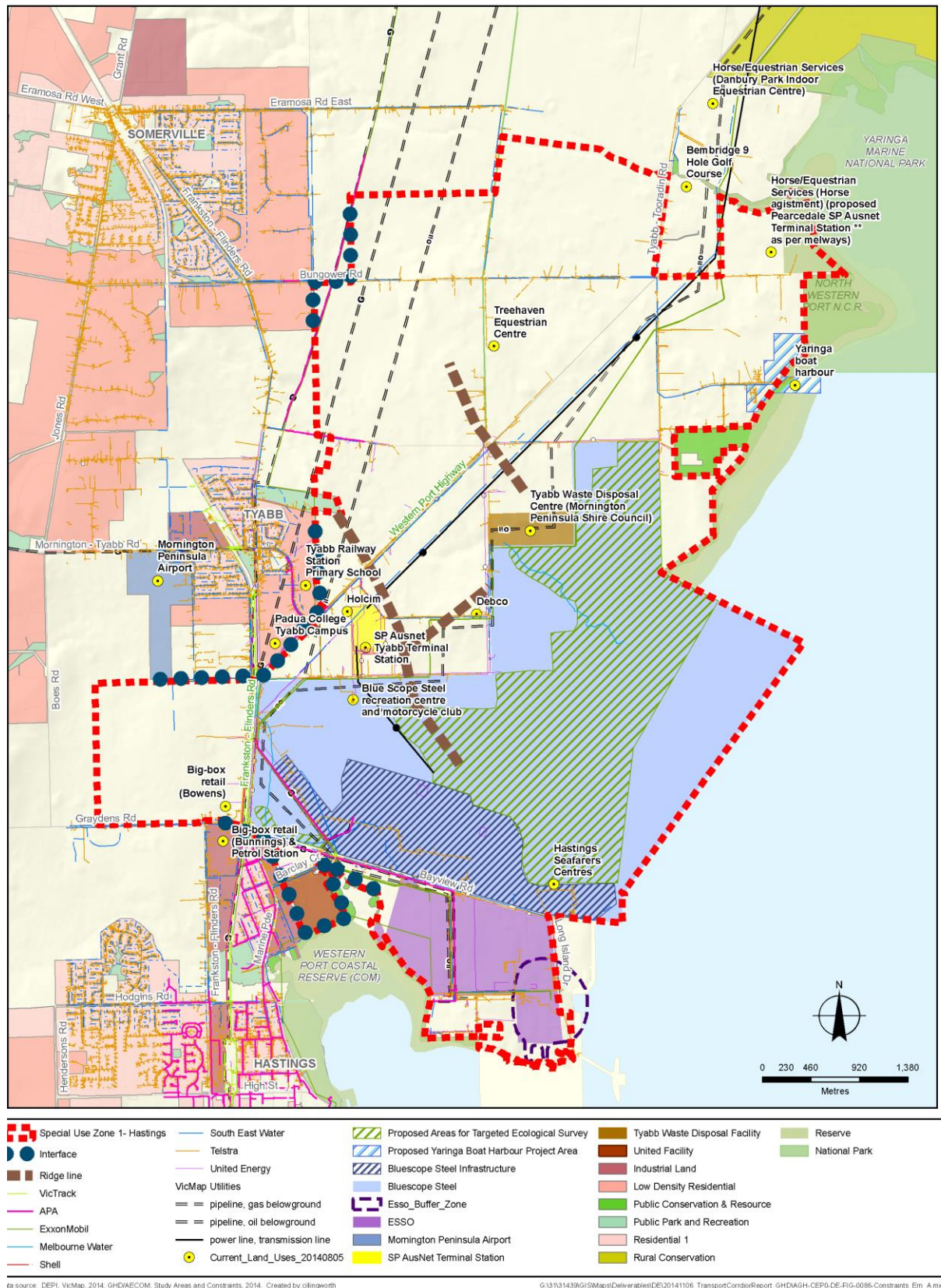


Figure 3-5 Preliminary Constraints and Land Form Map

4.0 Development of Key Port Planning Principles (and Options Assessment Criteria)

4.1 Key Planning Principles

Based on the initial understanding of functional requirements, together with site opportunities and constraints, planning principles have been prepared for use in the ongoing development and evaluation of concept planning options for the activities within SUZ1. These principles outlined in Table 4-1 below.

As indicated in Table 3 these principles have also been translated into more measureable assessment criteria which can be used in the evaluation of alternative concept options.

Table 4-1 Port of Hastings Key Planning Principles

Key Issue/Element	Design Principles	Assessment Criteria
Wharf and Container Terminal	<ul style="list-style-type: none"> Protect waterfront areas from non-essential functions Promote efficient and flexible access options to wharf areas Provide capacity for long term growth and expansion Provide for capability to cater for future rail corridor 	<ul style="list-style-type: none"> Only uses requiring direct access to port along terminal interface Amount of land provided for each function Rail corridor with access to terminal is provided
Transport and Logistics	<ul style="list-style-type: none"> Provide for efficient transport access Provide sufficient land for long term expansion Provide opportunity for direct terminal access for high volume movements Make provision for workplace requirements Locate in areas suitable for 24/7 operations without impacting sensitive land uses 	<ul style="list-style-type: none"> Areas for transport and logistics located with immediate access to primary road network Amount of land provided for each function Area allocated with direct frontage to terminal Suitable areas identified to accommodate facilities to meet workplace requirements (i.e. sleeping quarters/ amenities) Designated areas separated or topographically buffered from sensitive areas
Warehousing and Distribution	<ul style="list-style-type: none"> Opportunities are provided for a range of importing and exporting operations including bonded stores Provide sufficient room for long term development Make provision for workplace requirements Locate in areas suitable for 24/7 operations without impacting sensitive land uses 	<ul style="list-style-type: none"> Area for warehousing and distribution provided immediately adjacent to terminal (for bonded stores) Amount of land provided for each function Suitable areas identified to accommodate facilities to meet workplace requirements (i.e. sleeping quarters/ amenities) Designated areas separated or topographically buffered from sensitive areas

Key Issue/Element	Design Principles	Assessment Criteria
Manufacturing	<ul style="list-style-type: none"> Provide suitable areas for a diversity of industries and businesses that can benefit from proximity to port functions and activities Provide opportunities for the establishment of industry clusters and colocation of supply chain activities Allow for the separation of incompatible activities 	<ul style="list-style-type: none"> Provision of additional land associated with each function to cater for supporting industries/ supply chain activities Amount of land provided for each function Land identified for low, medium and high impact activities
Supporting Activities	<ul style="list-style-type: none"> Provide areas throughout the precinct for supporting activities (eg fuelling and servicing of trucks) Provide for the location of activity centres containing a range of retail and commercial activities and supporting facilities to cater principally for the needs of employees 	<ul style="list-style-type: none"> Provision of additional land associated with each function to cater for supporting industries/ supply chain activities Provision of activity centres or nodes with good transport links
Road Access	<ul style="list-style-type: none"> Provide for the efficient and safe movement of goods and labour to support the operation of the Port precinct Provide redundancy for major freight access to and from the precinct The road network is designed to minimise potential conflicts between freight traffic and local traffic Conflicts between road and rail corridors are avoided 	<ul style="list-style-type: none"> Precinct has links to the regional road network through a an internal primary road network The primary road network provides multiple access points from the precinct to the regional road network Freight routes are segregated from the local road network Provide for the grade separation of interfaces with the rail corridor (subject to efficient operations)
Rail Access	<ul style="list-style-type: none"> Rail corridor is located to minimise impact on the ability to develop the precinct (corridors to be located towards the boundaries of the SUZ precinct Rail corridor should be sited to minimise potential for off-site impacts (i.e. noise in sensitive areas) Rail marshalling terminal to be located to minimise constraints to port precinct development 	<ul style="list-style-type: none"> Proximity of rail to perimeter of precinct Separation distance between rail corridor and residential areas Area of land within the SUZ 1 precinct consumed by rail marshalling terminal
Port Infrastructure	<ul style="list-style-type: none"> Co-locate utility infrastructure to minimise impact on development Infrastructure is designed to provide capacity and redundancy to ensure the continued and efficient operation of the port and associated businesses 	<ul style="list-style-type: none"> Infrastructure corridor designated Infrastructure networks provide for redundancy

Key Issue/Element	Design Principles	Assessment Criteria
Sustainability	<ul style="list-style-type: none"> Eco-industrial measures to achieve more efficient production, reduce reliance on finite resources and respond to climate change are to be adopted throughout the precinct. (Examples include integrated water management, energy efficiency measures and technologies, industrial/supply chain synergies etc) 	<ul style="list-style-type: none"> Comparison to current sustainability scenarios Comparison with best practice sustainability options
Existing Land Use/ Social	<ul style="list-style-type: none"> Planning accommodates existing compatible land uses on site Development within the precinct occurs in a manner which minimises impact on surrounding development Impact on communities and access / severance – provision of opportunities for employees and wider community 	<ul style="list-style-type: none"> On site uses (such as BlueScope Steel) integrated into internal circulation network Separation distances between higher impact activities and residential areas are provided Development provides appropriate connectivity, services and facilities to the community
Topography	<ul style="list-style-type: none"> Opportunities to use topographic features for visual and amenity screening should be maximised Where possible port planning should respect existing topographic features to minimise earthworks and retain existing drainage catchments 	<ul style="list-style-type: none"> Visually intrusive elements are located in lower lying parts of precinct Earthworks are minimised
Geophysical (dredge material – other constraints to be determined)	<ul style="list-style-type: none"> Opportunities for the use of dredge material will be considered as part of Port planning reduce earthworks and dredge material disposal costs 	<ul style="list-style-type: none"> Area identified for possible reclamation by dredge material
Environment	<ul style="list-style-type: none"> Where necessary, areas of high ecological/environmental significance will be protected Development will be designed to provide resilience against potential natural hazards (flooding, sea level rise, climate extremes) 	<ul style="list-style-type: none"> Areas of environmental significance protected Development avoids areas subject to tidal inundation and flooding
Cultural Heritage	<ul style="list-style-type: none"> Development to minimise impact on places or items of European or Indigenous cultural heritage significance 	<ul style="list-style-type: none"> Areas or places of European or Indigenous cultural heritage significance will be identified and protected where required

5.0 Major Interface Considerations

The planning for the SUZ1 zone includes the general configuration of functional requirements and activities within the zone. Among these activities there a number of anchor elements indicated below which form both essential parts of the plan which interface and impact the siting and layout options in the SUZ1 zone.

5.1 Port Container Terminal(s)

The port container terminals are the central point in port operations and the hub of activities in the movement of containers. The container terminals' configuration will impact the efficiency of stevedoring operations from wharf to landside transport, however the relationship between the "back of terminal" access corridors and port related warehousing and logistics operations in particular can provide significant drivers of efficiency and opportunities for major warehousing operators.

The transport connections and links between the port terminal, the road and rail corridors and alternative "on port" private access roads create key elements of landside and precinct efficiencies which add to the competitiveness of the port.

A port container terminal with constrained access corridor, limited alternative access options and remote associated logistics facilities does not provide the efficiency of a more open precinct access with multiple access options and potential direct "on port" private connections to logistics facilities.

5.2 Road Corridors

Road corridors provide the principal means of access to and from the port container terminal and the general port precinct and environs. The corridor from the north is proposed to be a freeway standard connection which supports heavy vehicle operations to and from the port.

This corridor will continue to carry a significant traffic load of private vehicles and through traffic not related to port operations. These vehicles currently use the Westernport Highway for access to the south and west of Hastings. Other existing road corridors through SUZ1 zone carry traffic east west linking Hastings, Tyabb and Somerville areas with Tooradin to the east.

The general functionality and access provided by these corridors remains of importance in the staging of the port development, although some options may require alternative routing to be implemented to provide access.

Within the SUZ1 zone access to different port areas will be provided by local port roadways with specific heavy vehicle capabilities. The configuration of these roads needs to cater for:-

- Major heavy vehicle access corridors to the port terminal, with consideration of separating this traffic from local general traffic in the precinct.
- Potential access connections to port facilities minimising interactions with local car traffic (e.g. port connections from the Freeway are east of Frankston Flinders road)
- Employee access roads with potential parking facilities located away from heavy vehicle connections.
- Some public roadways providing connections through the SUZ1 zone to provide east west access to and from the freeway corridor.

5.3 Rail Terminal and Corridor

The rail connections to the port are not anticipated to be operational in the early port development however planning for their needs and understanding the interfaces with surrounding land use is critical to port layouts

The rail terminal proposed to the north of the SUZ1 zone requires a continuous operating area up to 5 km long and 250 metres wide with any direct interfaces to be grade separated across the width of the terminal or diverted around its perimeter. This creates a substantial barrier for lateral access and the siting position of the terminal in the SUZ1 zone is therefore critical to minimise interface impacts.

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Alternative options for terminal alignments are being investigated to meet the functional needs of flat land and assess impacts on nearby land uses.

Planning the rail corridor and connection to the port container terminal and warehousing areas is also critical as all road interfaces and crossing points will require grade separation. The rail corridor alignments in the SUZ1 zone will form a barrier and grade separated crossing points are likely to be limited. . In addition, the curve radius requirements of the rail corridor can impact large areas of the precinct minimisation of bends will be critical. Accordingly the corridor alignment (at approximately 40-50 metres wide) and the connection points to the container terminal need careful consideration to assess interface impacts on surrounding land uses.

5.4 Surrounding Land Use

All port environs planning and layout options will consider the interface to surrounding land uses outside of the SUZ1 zone. Development options on the perimeter of the port developments will be particularly sensitive to external needs although it is recognised that there is the potential for activities removed from the perimeter to also have some impact.

Buffering and protection alternatives will be considered to alleviate potential impacts at the interface with surrounding land use and planning.

5.5 Existing Port Operations

Port layouts and planning will be cognisant of the needs of the current port operations including the connectivity of road, pipeline and services infrastructure based on current and potential future requirements.

Provision of transport access options in conjunction with the port planning may also provide potential amenity improvements by linking some activities directly to northbound transport corridors. Administration activities will also consider the broader port operational needs.

6.0 Port Precinct and Environs Land Use Options

6.1 Assumptions

High level land use and indicative functional layout options have been prepared for the entire SUZ1. At this level of planning no distinction has been made between the Port Precinct and the wider Port Environs, the purpose being to explore broad land use interactions and functional relationships across the entire SUZ1. It is recognised that there will ultimately need to be differing master planning requirements for the two precincts in terms of level of detail, extent of stakeholder engagement and to reflect differing administration and management requirements, and this will occur as more detailed investigations are completed.

The assumptions underpinning the following concept options are as follows:

- The land use requirements are loosely based on the functional and spatial requirements identified in Section 2
- The scenarios represent ultimate development of the entire SUZ1 including the Port Precinct and Port Environs
- The current utility corridors can be accommodated in as yet to be defined infrastructure corridors and/or integrated within developable areas and are not a significant constraint to land use
- The current BlueScope Steel operational footprint is fixed
- A rail terminal and corridor are to be accommodated although these may not be required for the initial stages of port development
- Options are to be provided for alternative road access to Esso and BlueScope Steel in order to enable associated traffic to avoid Hastings
- The rail corridor should be capable of connecting to the BlueScope Steel rail
- There are no known absolute environmental, heritage or topographic constraints at this time
- Provision for overland flow paths and stormwater management can be incorporated with development areas

No constraints on utilities or services

- Land uses adjoining the SUZ1 will remain and access arrangements will need to be provided.

6.2 Features Common to Options

The following features are common to all the following options

- Primary road access is provided off the current Dandenong Hastings Road with a possible alternative alignment for the WPH in the west of SUZ1 which could accommodate both non port related through traffic and port related traffic from the southern part of SUZ1 (indicated as a dotted line providing an alternative alignment to the WPH)
- A new connection between the Frankston –Flinders Road and Dandenong- Hastings Road has been provided to improve the alignment for north-south through traffic.
- That part of SUZ1 west of the Frankston-Flinders Road and under the flight path of the Tyabb airport has been identified for future undefined uses compatible with airport operational requirements
- The areas west of the indicated alignment of the WPH are to be retained for low impact commercial or industrial uses as a buffer to nearby residential communities. Some of this area may also need to be landscaped or otherwise managed to maintain a physical separation between residential communities and the port development.
- The southern part of SUZ1 and the Esso and BlueScope Steel sites are provided with an alternative access road that enables destination traffic to avoid Hastings.

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- Substantial areas of warehousing and distribution activities are located as close as possible to the terminal area for transport efficiencies and to maximise separation from surrounding residential communities. Limited opportunity for some manufacturing or supporting industrial activities is also provided east of the Dandenong Hastings Road to support earlier stages of development.
- Low lying areas to the east of SUZ1 have been identified as potential dredge disposal areas subject to confirmation of the suitability of the material for compacted fill and associated lag times.
- A notional separation distance has been retained between development and the northern coast line of SUZ1 to provide a buffer from areas of potentially high ecological and recreational value. This area is notional only and the requirement for such buffering is subject to further investigation

6.3 Option 1 – Off Shore Terminal and Rail Corridor along the East Side of WPH

6.3.1 Description

Option 1 is shown in Figure 6-1 and assumes the establishment of a terminal orientated along the existing coastline. Principal road access is provided off the Dandenong- Hastings Road which could either be upgraded as part of the WPH or maintained as a lower order arterial road servicing the port area. A primary road network feeds off the Dandenong- Hastings Road (or WPH) to service SUZ1.

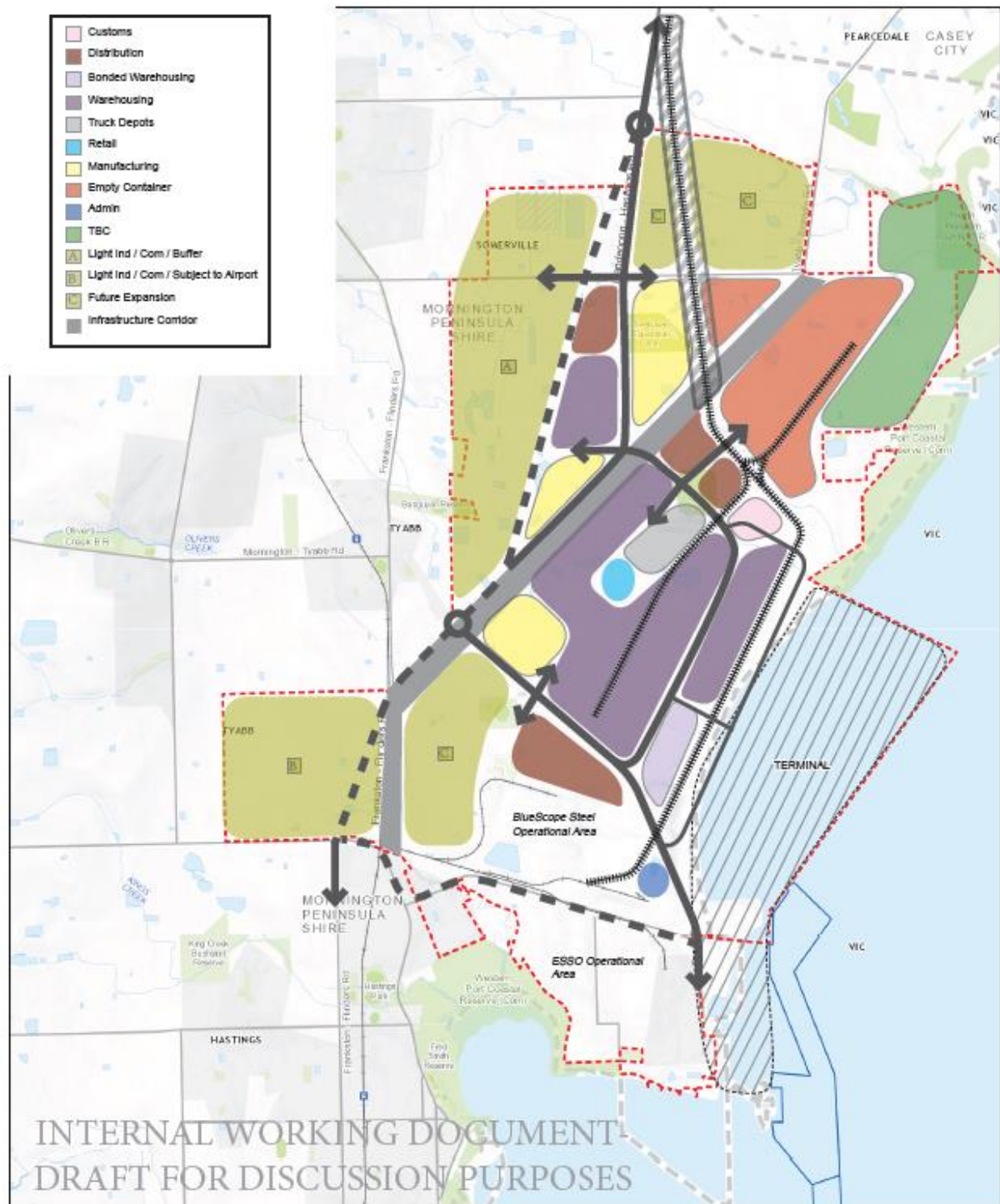
The rail corridor and associated marshalling area is located in the flatter areas to the east of the WPH and continues towards and along the coast to service the terminal area. Spur lines are provided to service supporting warehousing and container storage areas.

As in all options the warehousing and distribution functions are as close as possible to the terminal. An activity center comprising a number of retail and commercial supporting activities is located central to the warehousing precincts and in proximity to the truck depot location. Trucking depots/DCs are located near the main access road and could be a secondary option for areas adjacent to the port terminal (warehouses first priority). Additional activity centers will also be ultimately needed in the manufacturing areas which typically exhibit higher employment densities. Empty container storage areas are located in the lower areas to the north east of SUZ1 and accessed by both road and rail.

The administration center is located to east of the Bluescope Steel facility where initial development stages are anticipated. The customs area is strategically located between the road and rail northern “gateways” to the terminal. Alternative more secure locations could also be considered away from the primary road network.

An infrastructure corridor has been provided along the existing high voltage transmission corridor which could provide opportunity for rationalizing existing pipeline infrastructure east of the Dandenong-Hastings Road.

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FUNCTIONAL REQUIREMENTS
LAYOUT CONCEPTS

Figure 6.1
Option 1



Figure 6-1 Option 1 Concept Plan

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6.3.2 Advantages and Disadvantages

Advantages

The advantages of Option 1 are as follows:

Road Network

- The primary road network enables segregation of non-port traffic through the provision of a western alignment for the WPH
- The western alignment of the WPH provides a “line in the sand” between port related activities and lower impact activities
- Multiple access points to the Dandenong-Hastings Road and WPH provide redundancy for port traffic.
- The primary road network provides an alternative access to the southern end of the terminal (and early stages) and to the Esso and BlueScope Steel sites that enables heavy traffic to avoid Hastings.

Rail Corridor

- The rail corridor and associated marshalling facilities are well separated from residential areas
- The rail corridor follows the natural landform and resulting in minimal earthworks
- The rail corridor skirts around the site resulting in minimal grade separated road crossings and corridor bends.
- Access is provided to the container storage and warehouse areas by rail.

Land Use

- Warehousing, distribution and other uses requiring 24 hour operation are concentrated east of Dandenong-Hastings Road away from residential communities
- Warehousing, and in particular bonded warehousing, could be located near direct port zone. This potentially provides warehousing with terminal access at the rear of these facilities and road access in front
- Container storage area capable of being screened (or partially screened) from public areas
- Trucking depots within the area close to the port container terminal reduces local traffic movements in the port precinct
- Administration area is well located for the early stages of development from the southern end of the terminal
- Retail location centrally accessible and handy location to service truck parking area.

Disadvantages

The disadvantages of Option 1 are as follows:

Road Network

- Potential duplication of a significant length of the Dandenong–Hastings Road with the western alignment of the WPH Alternative
- The western alignment of WPH bisects the western part of precinct

Rail Corridor

- The rail corridor and associated marshalling area bisects useable land east of the WPH and creates another infrastructure corridor
- The rail corridor requires current east west road traffic to the Tooradin area to be diverted via the WPH

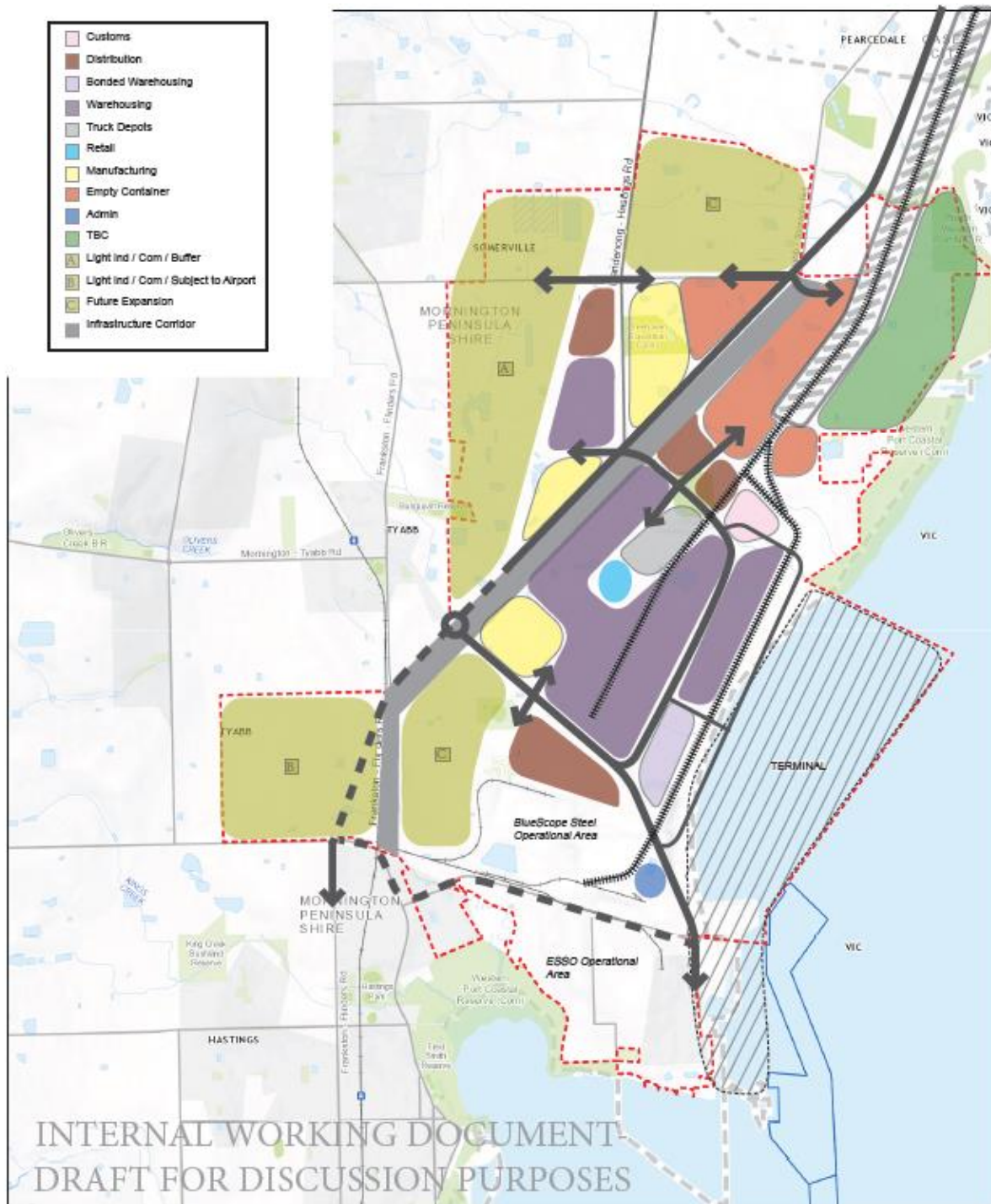
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- The infrastructure corridor may act as barrier to the western part of SUZ1 precinct
- A grade separated crossing of the rail corridor is required to access the container storage area by road from the terminal

6.4 Option 2 - Off Shore Terminal and Rail Corridor East of Pearcedale**6.4.1 Description**

Option 2 is similar to Option 1 apart the main road and rail corridors entering from the north east corner of the SUZ1 having past to the east of Pearcedale, as shown in Figure 6-2. The Tyabb –Tooradin Road becomes the main road into SUZ1 from the north and the rail corridor and an associated marshalling area is parallel to and east of this road. The Dandenong – Hastings Road effectively becomes the north–south bypass route.

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FUNCTIONAL REQUIREMENTS LAYOUT CONCEPTS

Figure 6.2 Option 2



Figure 6-2 Option 2 Concept Plan

DRAFT**6.4.2 Advantages and Disadvantages*****Advantages***

The advantages of Option 2 differ from Option 1 as follows:

Road Network

- Primary road access makes use of the existing Tyabb-Tooradin Road corridor and the infrastructure corridor
- Land west of the Dandenong-Hastings remains unencumbered by additional road corridors
- Road (and rail alignments) have significantly reduced interface with existing infrastructure (pipelines etc.)

Rail Corridor

- The rail corridor and associated marshalling facilities have maximum separation from residential areas
- That section of the rail corridor north of SUZ1 appears to directly impact on fewer properties
- The rail corridor and marshalling area requires minimal crossing points and curves and its location on the periphery of the site is least disruptive to land uses

Land Use

- Land use options north of the main road corridor on Tyabb-Tooradin Road are provided with greater flexibility

Disadvantages

The disadvantages of Option 2 differ from Option 1 as follows:

Road Corridor

- The road corridor is longer than the WPH alignment potentially increasing construction cost.

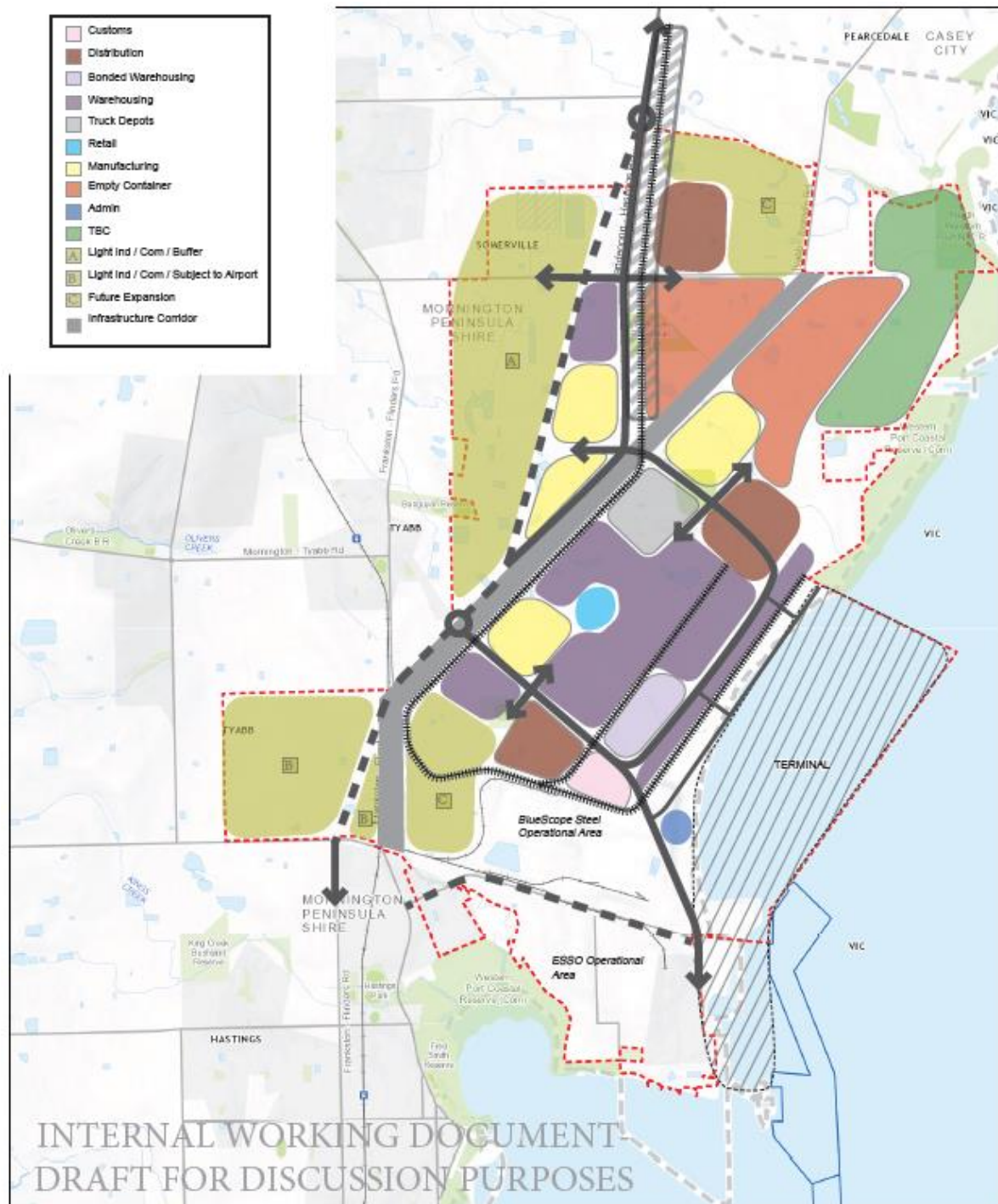
Rail Corridor

- Rail corridor and marshalling area severs access to Yaringa Boat Harbour and Western Port Caravan Park. Any alternative access would need to cross the rail marshalling area or access along the eastern boundary of the rail alignment from the north.

6.5 Option 3 - Off Shore Terminal and Rail Corridor around Perimeter of Site**6.5.1 Description**

Option 3 is shown on Figure 6-3 and is again similar to Option 1 with the difference being that the rail corridor and marshalling area follows the eastern side of the Dandenong Hastings Road south to the BlueScope Steel site and then entering the terminal area from the south.

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FUNCTIONAL REQUIREMENTS
LAYOUT CONCEPTS

Figure 6.3
Option 3

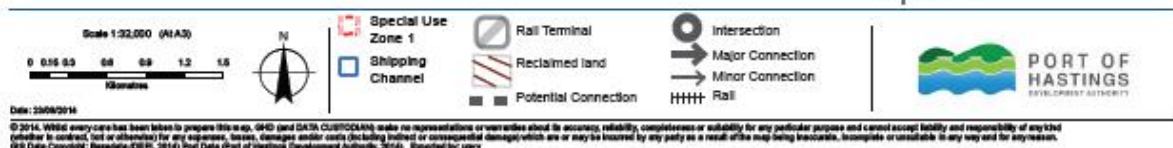


Figure 6-3 Option 3 Concept Plan

DRAFT**6.5.2 Advantages and Disadvantages*****Advantages***

The advantages of Option 3 differ from Option 1 as follows:

Rail Corridor

- Rail corridor helps to provide a barrier around port precinct
- The rail corridor can be co-located in the common infrastructure corridor, although land- take savings are partially negated by the longer route

Disadvantages

The disadvantages of Option 3 differ from Option 1 as follows:

Road Network

- Grade separated rail crossings would be required for primary road access to the port terminal and warehousing areas

Rail Corridor

- The rail corridor in this location is least sympathetic to natural landform
- The rail corridor and marshalling area are closer to residential areas and devoid of any topographic shielding
- The rail corridor requires greater land-take
- The marshalling area acts as a barrier to access between the Dandenong-Hastings Road and land to the east.

6.6 Option 4 – Excavated Quay Line and Terminal**6.6.1 Description**

Option 4 is shown in Figure 6-4 and features an excavated wharf perpendicular to the coast line and associated terminal(s) to the south. The terminal in this configuration would consume approximately 250 hectares of the site. As in Option 1, the principal road access is provided off the Dandenong- Hastings Road which could either be upgraded as part of the WPH or maintained as a lower order arterial road servicing the port area.

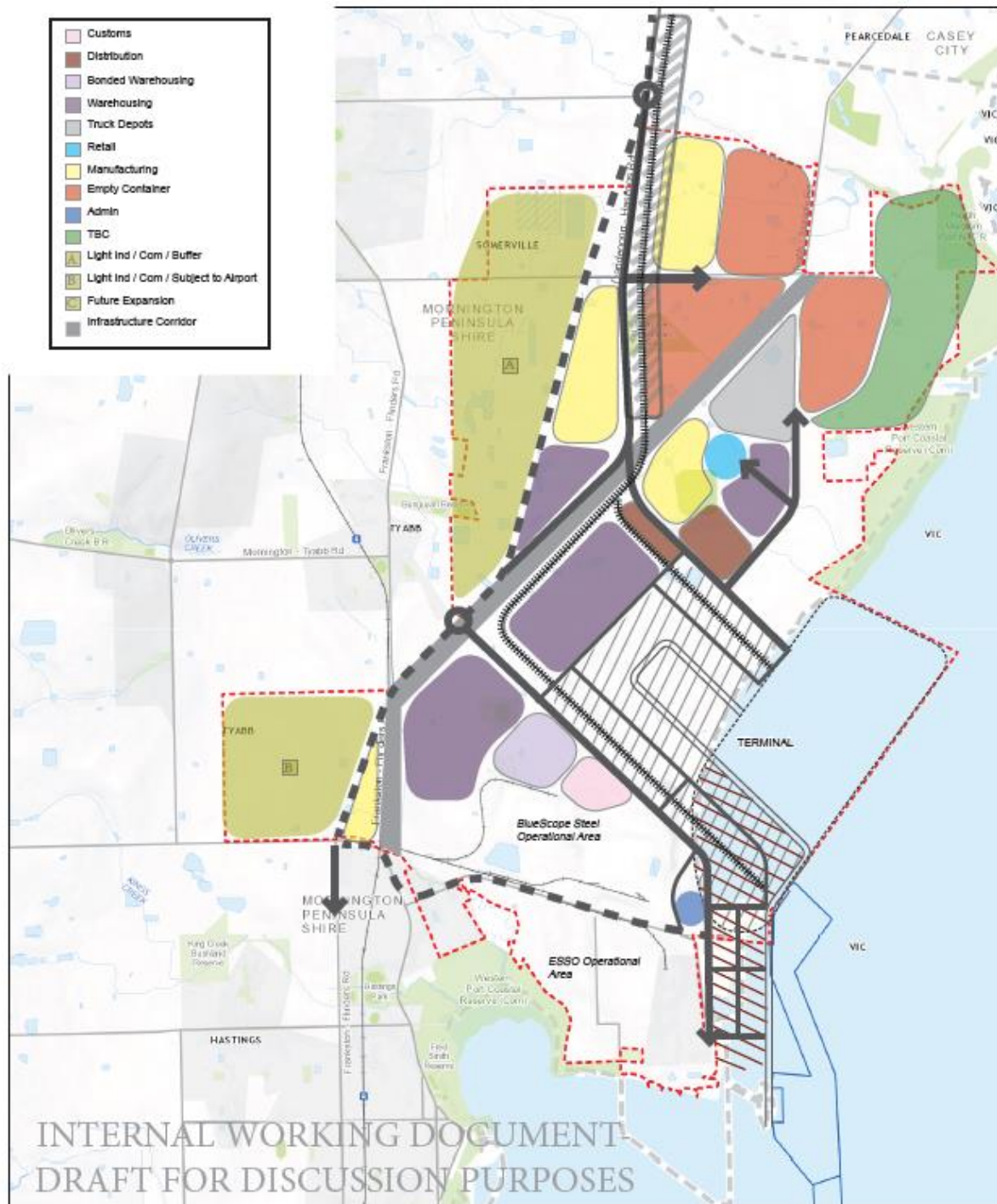
The rail corridor and associated marshalling area is similar to Option 3 but considerably shorter due to the location of the terminal further inland.

As in all options the warehousing and distribution functions are as close as possible to the terminal but terminal frontage is considerable constrained by the existing BlueScope Steel footprint. This together with the area of land occupied by the terminal limits the amount of warehousing and distribution activity that can be accommodated in this part of SUZ1 and pushes much of this activity to the north. While an activity centre has been located north of the terminal, and the more elongated configuration of activities suggests a number of centres are likely to be required to adequately service employees. Empty container storage areas are pushed to the northern limits of SUZ1 along with some of the supporting manufacturing activities.

The administration centre remains to the east of the Bluescope Steel facility where initial development stages are anticipated. The customs area is located on the primary road network between the terminal and BlueScope Steel. There are fewer opportunities in this option for alternative more secure locations away from the primary road system. Alternative more secure locations could also be considered away from the primary road network.

An infrastructure corridor has been provided along the existing high voltage transmission corridor which could provide opportunity for rationalizing existing pipeline infrastructure east of the Dandenong Hastings Road, a more critical requirement with the terminal and wharf in this location.

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FUNCTIONAL REQUIREMENTS LAYOUT CONCEPTS

Figure 6.4 Option 4

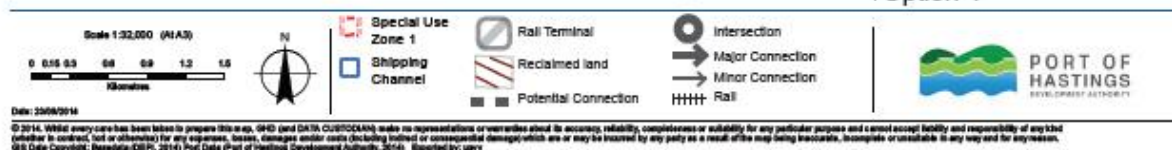


Figure 6-4 Option 4 Concept Plan

DRAFT**6.6.2 Advantages and Disadvantages*****Advantages***

The advantages of Option 4 differ from Option 1 as follows:

Rail Corridor

- Corridor partially uses common infrastructure corridor (although longer route leads to additional land take)

Disadvantages

The disadvantages of Option 4 differ from Option 1 as follows:

Road Network

- The terminal creates a barrier to north south traffic movements in SUZ1 east of the Dandenong-Hastings Road
- Circuitous route from southern side of port terminal to container storage area and limited opportunities for low visibility container storage areas in southern part of SUZ1

Rail Corridor

- Rail corridor least sympathetic to natural landform with significant change in levels along that segment of the railway within the terminal.

Land Use

- Infrastructure corridor may act as barrier to western part of SUZ1 precinct
- Loss of available land areas, reduces opportunity to safeguard terrestrial areas of higher biodiversity value.
- Majority of supporting land uses would be pushed to the north of the precinct
- The terminal is not well aligned to landform and significant changes in natural level occur along the length of the terminal
- Significant land is consumed by terminal reducing flat land near the shore line and reducing options for other activities and provision of buffers
- Customs is located in a high traffic area and may prefer to be in a lower traffic area for security
- Limited area to enable staging from south

6.7 Staging Considerations

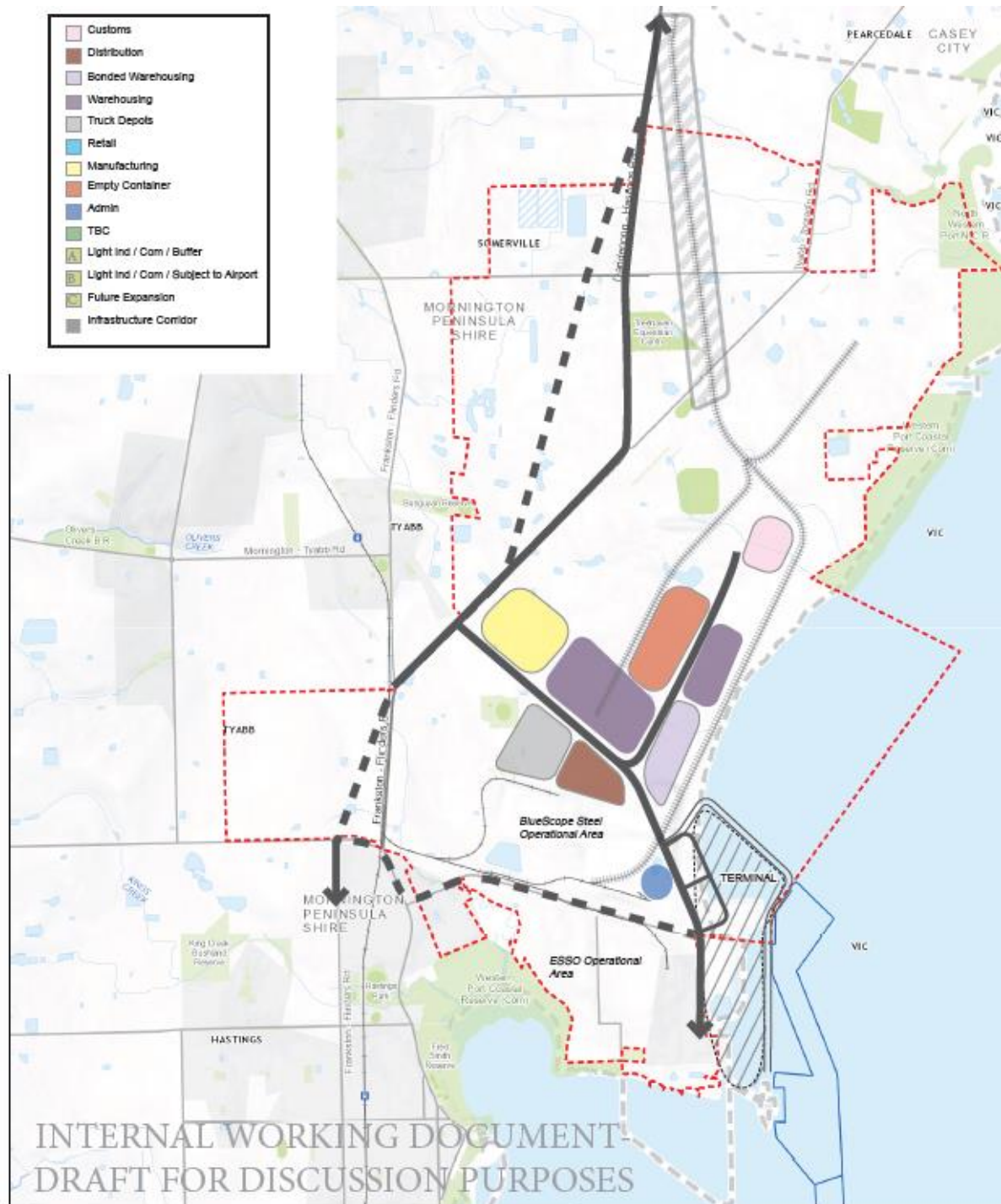
The potential staging of development for Options 1 and 2 are considered together as they are similar with different corridor connections and depicted in Figure 6-5. Staging for options 3 and 4 are depicted as Figure 6-6 and Figure 6-7. Key features of the initial stages would be as follows:

- Phase 1 of the terminal near the in the south of SUZ1 east of the BlueScope Steel plant.
- Initial primary road access to the stage 1 terminal by a new corridor running north of the BlueScope Steel plant and intersecting with the Dandenong Hastings Road. This road could also provide an alternative access the Esso and BlueScope Steel operations and enable heavy traffic avoid using Marine Parade in Hastings.
- Initial functional elements including the administration centre, warehousing, distribution centres etc. can be developed along the new road corridor.
- Other areas close to the initial stages of the terminal could be temporarily used for empty container storage and truck depots. These would have minimal infrastructure requirements and could be progressively moved to alternative locations as activities around the port expand.

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- An area for early supply chain supporting activities (such as packaging plants, truck maintenance and repairs) or specialised manufacturing could also be provided in the initial stages of development in a convenient location that is not prime port land.
- Provision will for the rail corridor will need to be made although it is unlikely to be required in the early stages of development.
- Areas identified for the disposal of dredge material would need to be located well north of the initial development front, the location being determined by the suitability of the material for future development and the lag time required before it becomes suitable for development.

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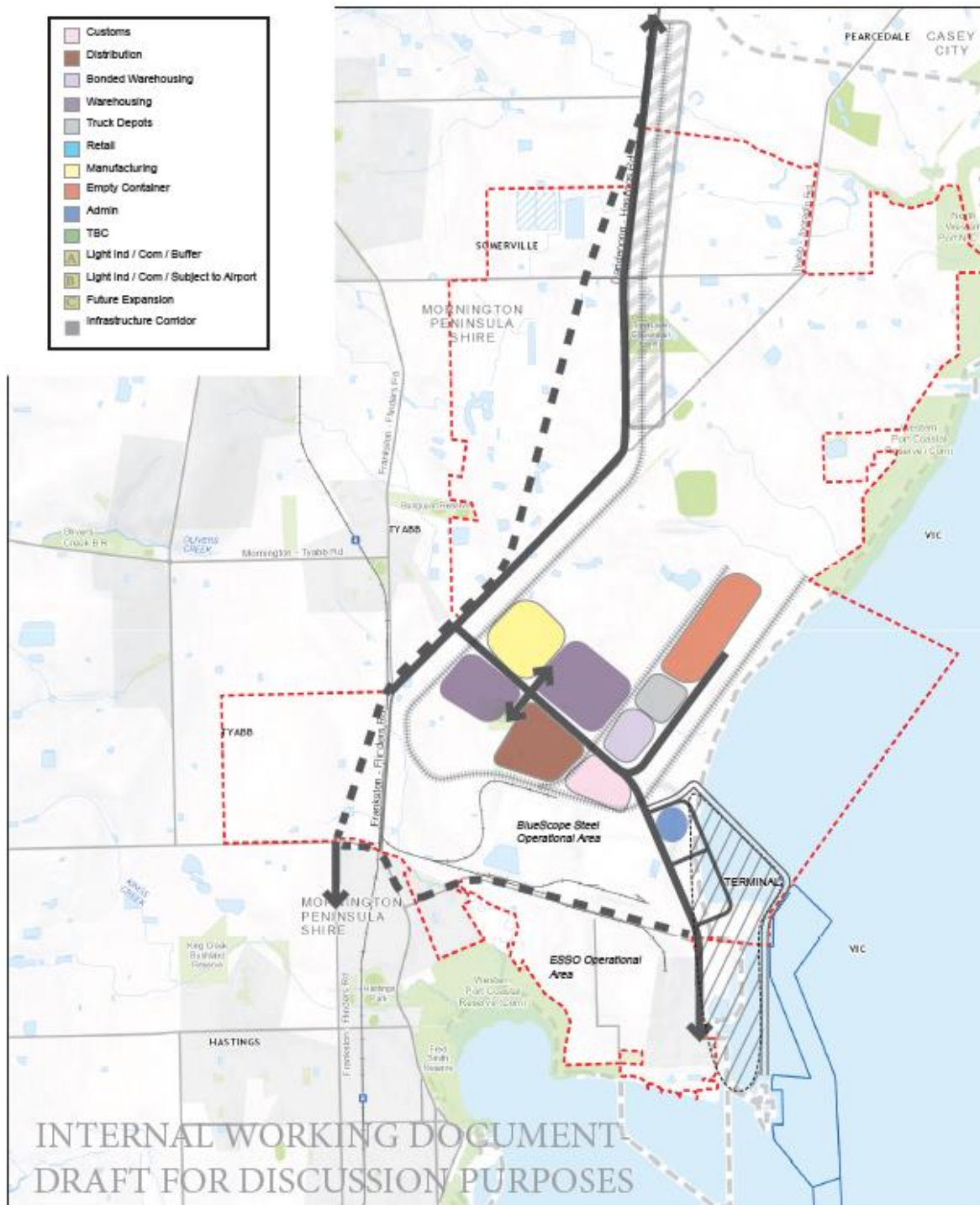
FUNCTIONAL REQUIREMENTS
LAYOUT CONCEPTS

Figure 6.5
Options 1 & 2 Stage 1



Figure 6-5 Option 1/2 Stage 1

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FUNCTIONAL REQUIREMENTS
LAYOUT CONCEPTS

Figure 6.6
Option 3 Stage 1



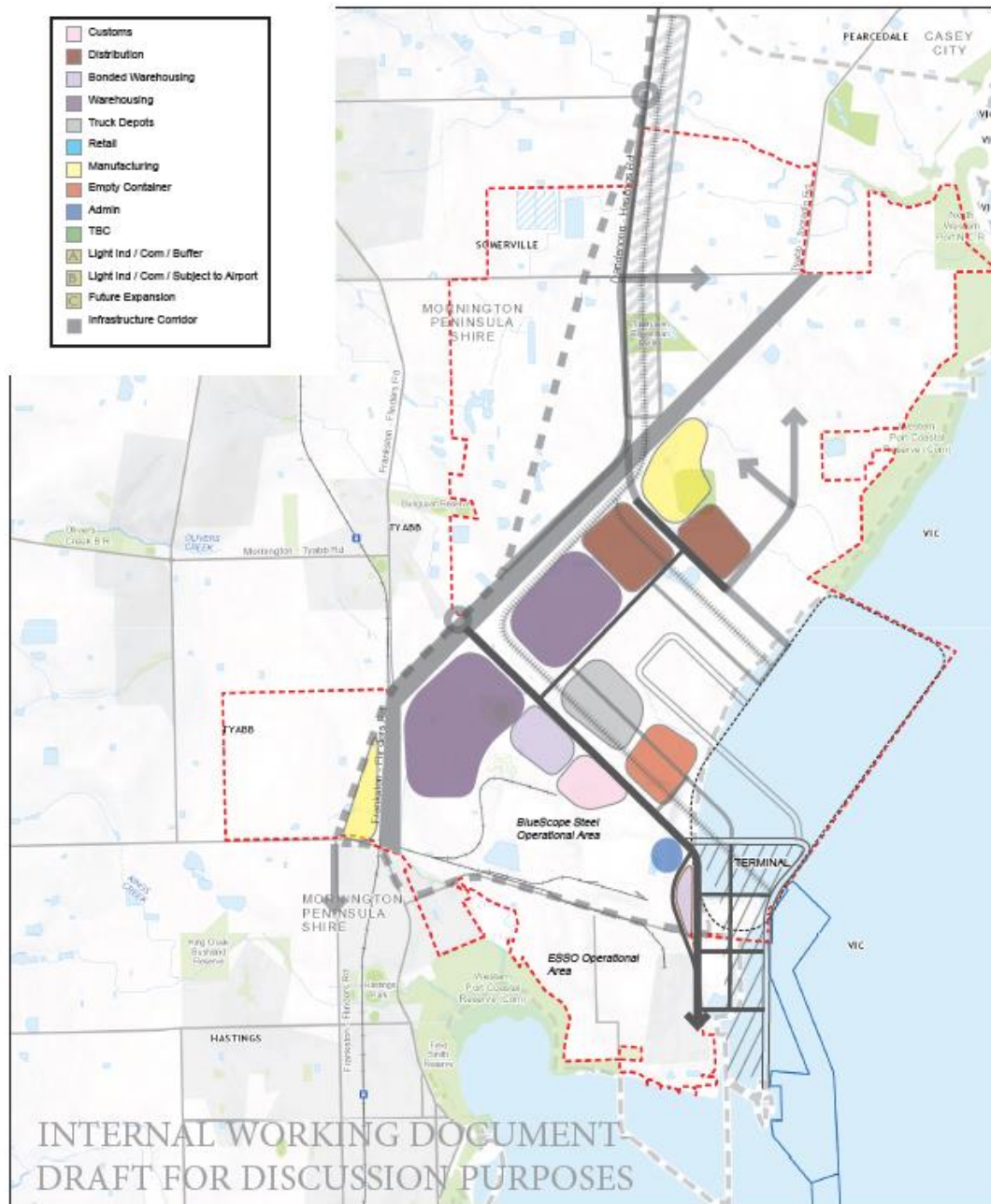
Figure 6-6 Option 3 Stage 1

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In Option 4, depicted in Figure 6-7, staging of permanent facilities is more complicated. The excavated wharf and terminal area will ultimately occupy a significant proportion of the land in SUZ1 east of the Dandenong – Hastings Road. As a result the area required for these works would not be suitable for the location of any permanent activities, although could be used for the temporary location of empty container terminal and truck depots. Also, the BlueScope Steel footprint would occupy prime port land in this option. As a result, the ‘centre of gravity’ of the future port related activities will be forced further to the west and north of SUZ1, reducing the developable area within SUZ1 and / or the potential to achieve separation distances from surround residential communities or buffers to ecologically sensitive areas.

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**FUNCTIONAL REQUIREMENTS
LAYOUT CONCEPTS**

Figure 6.7
Option 4 Stage 1

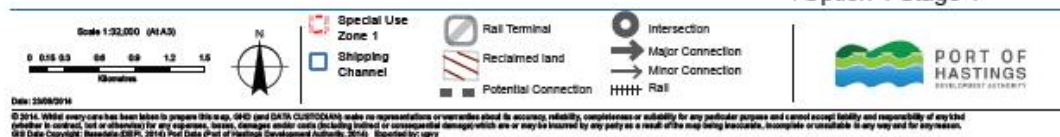


Figure 6-7 Option 4 Stage 1

7.0 Key Issues / Next Steps

7.1 Key Issues

The process of preparing alternative concept layouts for the anticipated land uses and functional elements has helped to bring into focus a broad range of issues as indicated below. A number of these issues are dependent on inputs from associated investigations at this stage:

- The importance of an integrated approach to progressing the key anchor points in the port precinct and environs. Providing options which progressively refine SUZ1 layouts, road corridor alignment, rail terminal and port terminal directions.
- The need to identify and protect long term land use and access requirements to ensure future road and rail networks minimize severance impacts. In particular, the severance effect of the rail marshalling area needs to be carefully considered in road network planning.
- The need to understand the implications of the existing utility corridors and easements, including buffer requirements, potential for, and feasibility of, collocating to reduce land-take and development constraints.
- The need to better understand the terminal interface issues for both the rail and port container terminals and the general operational parameters in which they will operate.
- The need to determine dredge disposal options and how these can be integrated into the concept layout options and staging of development.
- The need to understand potential employment numbers and characteristics and possible implications for the provision and composition of activity centers (which do not compete with those in the surrounding communities).
- The need to understand the potential scale of port facilities and functions so that strategies to reduce impacts on surrounding communities can be explored.

In addition, there are several items which can continue to be progressed in conjunction with relevant planning groups:

- The potential for achieving additional benefits and early 'wins' in the provision of infrastructure, such as improving access arrangements to existing facilities (Esso and Bluescope Steel), by providing alternative routes that enable heavy (port related) traffic to be segregated from local traffic.
- Understanding the land use planning port operational implications or the different road and rail corridor options and using this to help identify preferred options.
- Opportunities for integrating the port road network with the local road network.
- The importance of establishing key 'anchor points' around which the land uses and functions can be allocated. These include the road and rail corridors and access points, terminal and any other fixed constraints (e.g. the BlueScope Steel footprint, potentially environmentally sensitive areas).
- The significant land take associated with the excavated terminal option exacerbated by the presence of the BlueScope Steel footprint.
- The need to determine minimum buffer requirements associated with different land uses and potential uses that could be acceptable in these buffers.
- Planning concepts for early stages of development while reducing future redundancy of assets.

7.2 Findings / Next Steps

The outcomes from this preliminary concept planning suggest that the next steps should be as follows:

- Continue to communicate and exchange ideas and the implications of scenarios between the port environs planning, the port and rail terminal planning directions and progress of the transport corridor planning. Each of these issues needs to be progressed with regular updates to concepts and directions to ensure all parties are aware of implications of their planning directions.
- Continue to review and refine concepts as additional information becomes available on site constraints and opportunities, road and rail corridors and rail terminal concepts of operations are developed. Provide a refinement of SUZ1 planning concepts once this information is progressed (approximately February 2015) to include these updates and create updated options across the precinct.
- Engage with AQIS and Customs to confirm spatial and location requirements for their facilities.
- Review statutory planning requirements and implications for option development, especially in the Port Environs area.
- Review options to reflect existing port operations and explore how these can be integrated with early stages of development
- Engage with the Commercial and Economic team to review the alignment of the concept planning requirements with the expected outcomes of the current economic research.
- Investigate typical buffer requirements associated with different land uses.
- Understanding the scope and needs of the rail terminal and rail corridor.
- Understanding the proposed operating need and parameters for the container terminal(s).
- Plan options for Integration of public road access options through and around the SUZ1 zone in conjunction with VicRoads. This may form the basis of a framework where road management responsibilities are clarified in relation to development staging and planned integration with local government.
- Continue to engage with other team members to explore dredge disposal requirements, and implications for the allocation and activities and staging of development within SUZ1.
- Plan a resizing and further refinement of SUZ1 options in April/May 2015 once Commercial and Economic inputs on size and scope of commercial operations are provided.
- Refine options through relevant options comparison and assessment against the key principles to develop 2-3 key layouts as a basis for ultimate options assessment.
- Consider staging development options across the precinct and prepare 2-3 options for staged development of the precinct.



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Appendix A Further Detail of Port Functional Requirements

Further detail of the port precinct functional requirements and the basis of indicative estimates is included in the tables below.

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Port Precinct Land use	General purpose	Potential Land area	Basis of indicative estimate
Port Container Terminal	Ship load and unload transfer to land transport	300 ha	Indicative wharf and container terminals based on global port developments
Warehousing	Import/export storage	150 Ha	Largest warehouses are 25-30 Ha but many are < 5 Ha – allows for 20-30 general warehouses plus DC's and others below
Bonded warehousing	Import/export value add	50 Ha	Limited market but an opportunity on site – 10-15 warehouses in this market
Distribution Centres	Store and distribute imports	75 Ha	7-10 larger distribution centers (Coles Eastern creek 25 Ha, others smaller)
Trucking depots	Load consolidation and distribution locations	75 Ha	15 - 20 trucking depots/consolidation facilities (Toll /K&S 5-15 Ha with warehousing – depots only are smaller)
Customs and AQIS	Border security	26 Ha	PoMC customs area X 4
Empty Container parks	IMEX supplies	270 Ha	Patrick Coode + CC container=20Ha=20,000 empty capacity
Road corridor access	Road access	100 Ha	70 m X 12 km = 840,000 = 84 Ha 50 m X12 km = 600,000 = 60 Ha
Rail corridor	Rail transport access	30 Ha	50 m X 6.0 km = 300,000 =30 Ha
Retail and service areas	Include car parking /truck parking	5 Ha	Chadstone shopping centre 25 ha
Port Administration		5 Ha	General Offices and parking etc
Storm water/treatment, utilities, open space etc		109 Ha	10% allowance on overall area.
Port Precinct Total		1195 Ha	

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Port Environs Land use	General purpose	Potential land area	Basis of Indicative estimate
Warehousing	Import/export storage	150 Ha	Largest warehouses are 25-30 Ha but many are < 5 Ha – allows for 20-30 general warehouses plus DC's and others below
Distribution centres	Store and distribute imports	75 Ha	7-10 larger distribution centres (Coles Eastern creek 25 Ha, others smaller)
Manufacturing	Broad Manufacturing facilities	150 Ha	4 – 5 large manufacturing sites (McCains Ballarat, 20 Ha ,Ford Geelong 30 Ha Toyota Altona 43 Ha)
Office Facilities – Port support services R & D	Office and commercial facilities	6 Ha	1.5 Melbourne city blocks
Accommodation	Commercial parties relevant to port transactions	8 Ha	Eg 200 beds in 4 facilities @ Ha per site
Road corridor access	***Road access	44 Ha	70 m X 12 km = 840,000 = 84 Ha 50 m X 12 km = 600,000 = 60 Ha
Retail and service areas	Include car parking /truck parking	5 Ha	Chadstone shopping centre 25 ha
Driver Rest and Trailer exchange facility		8 Ha	Wodonga Logix - Hume rest and trailer exchange facility
Highway Fuel and Food	Highway Truck stops	20 Ha	6 X equivalent Princes Highway truck stops
Industrial Land	General industrial	100 Ha	Potential further development
Storm water/treatment, utilities, open space etc		57 Ha	10% allowance on overall area
Port Environs total		Approx. 623 Ha	
Overall Port Total		Up to 1818 Ha	(includes wharf areas potentially offshore)

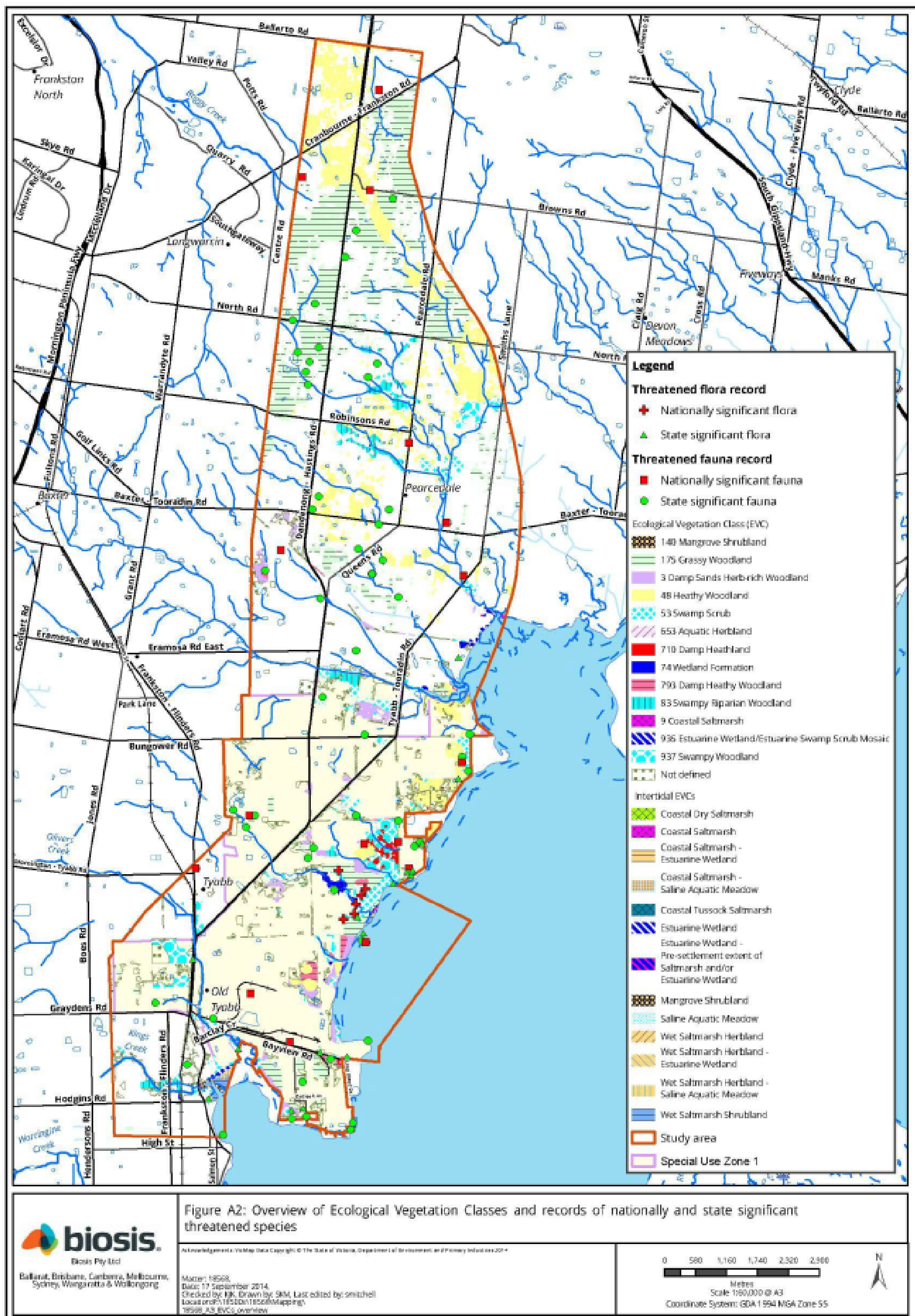


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Appendix B A3 Maps

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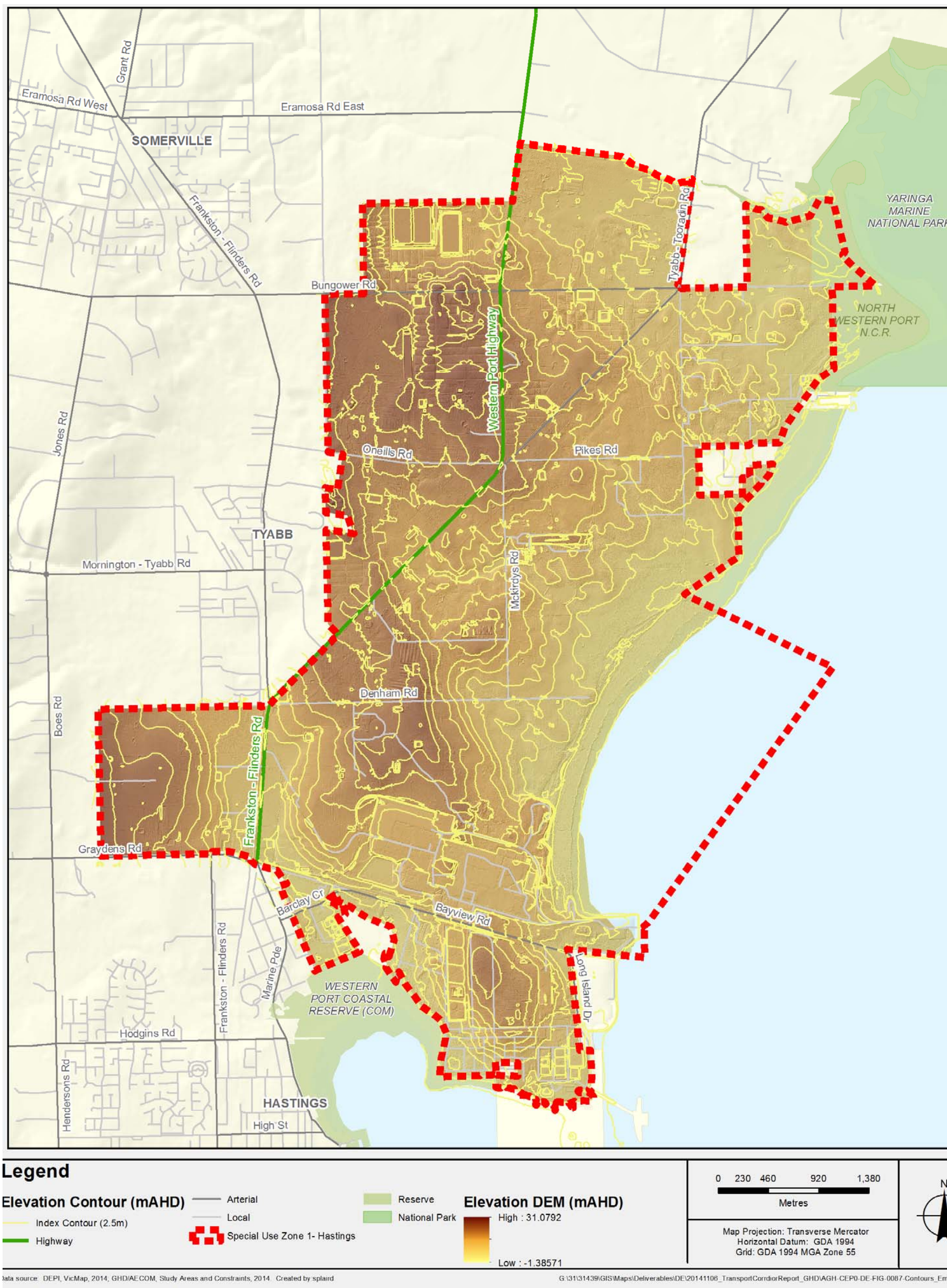


Figure 3-2 Land Topography - Contours in the SUZ1

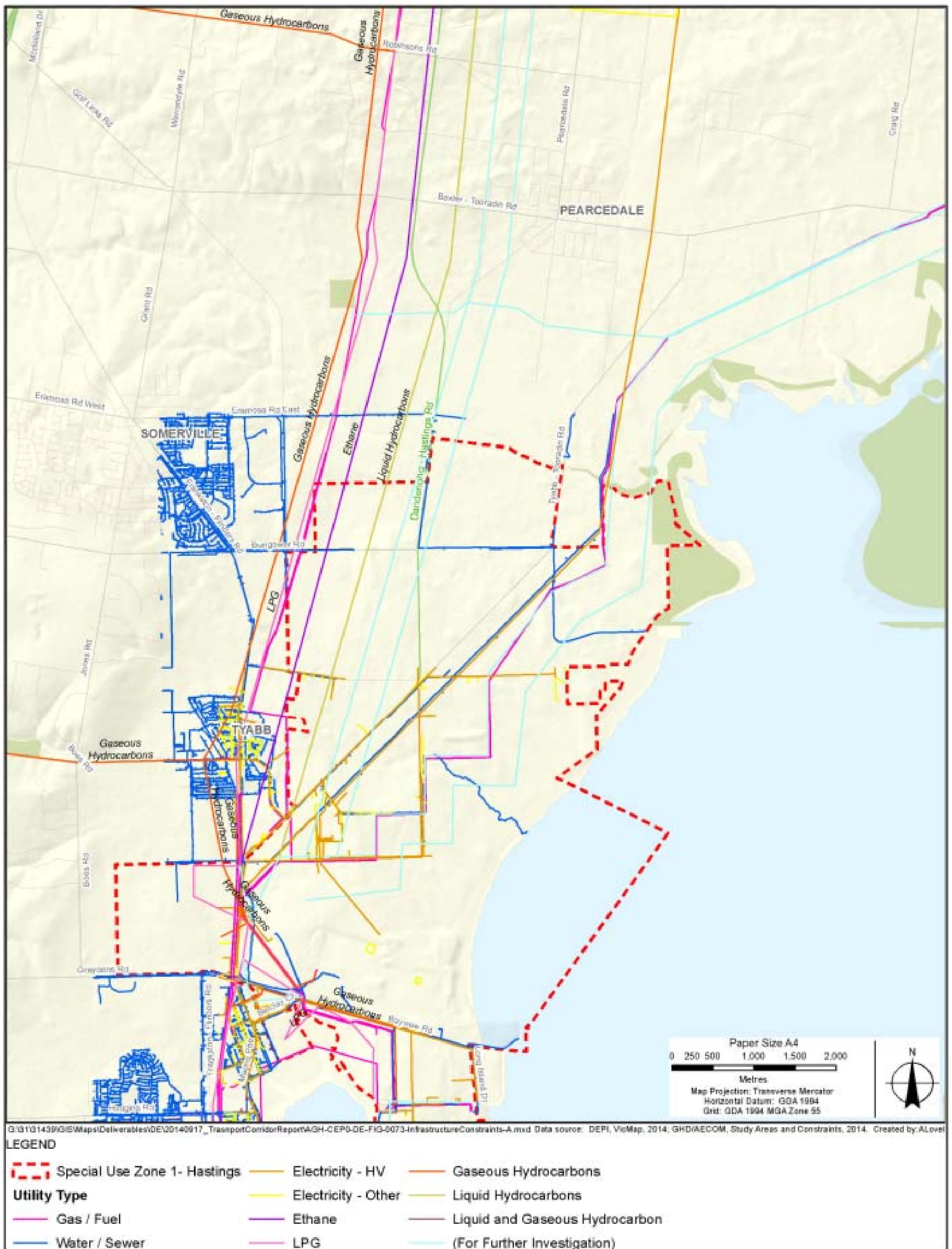


Figure 3-4 Utilities (Subject to further investigation)

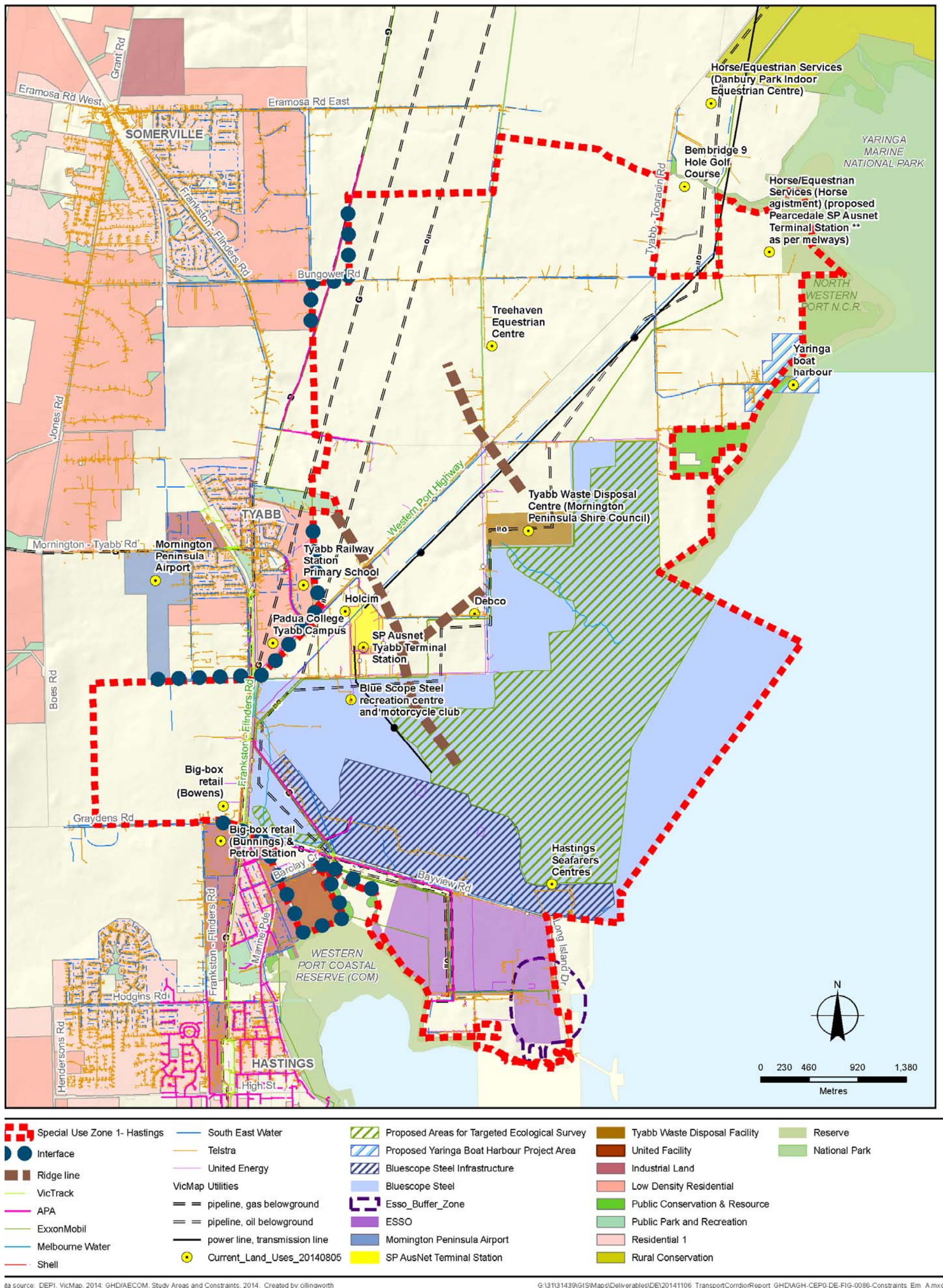
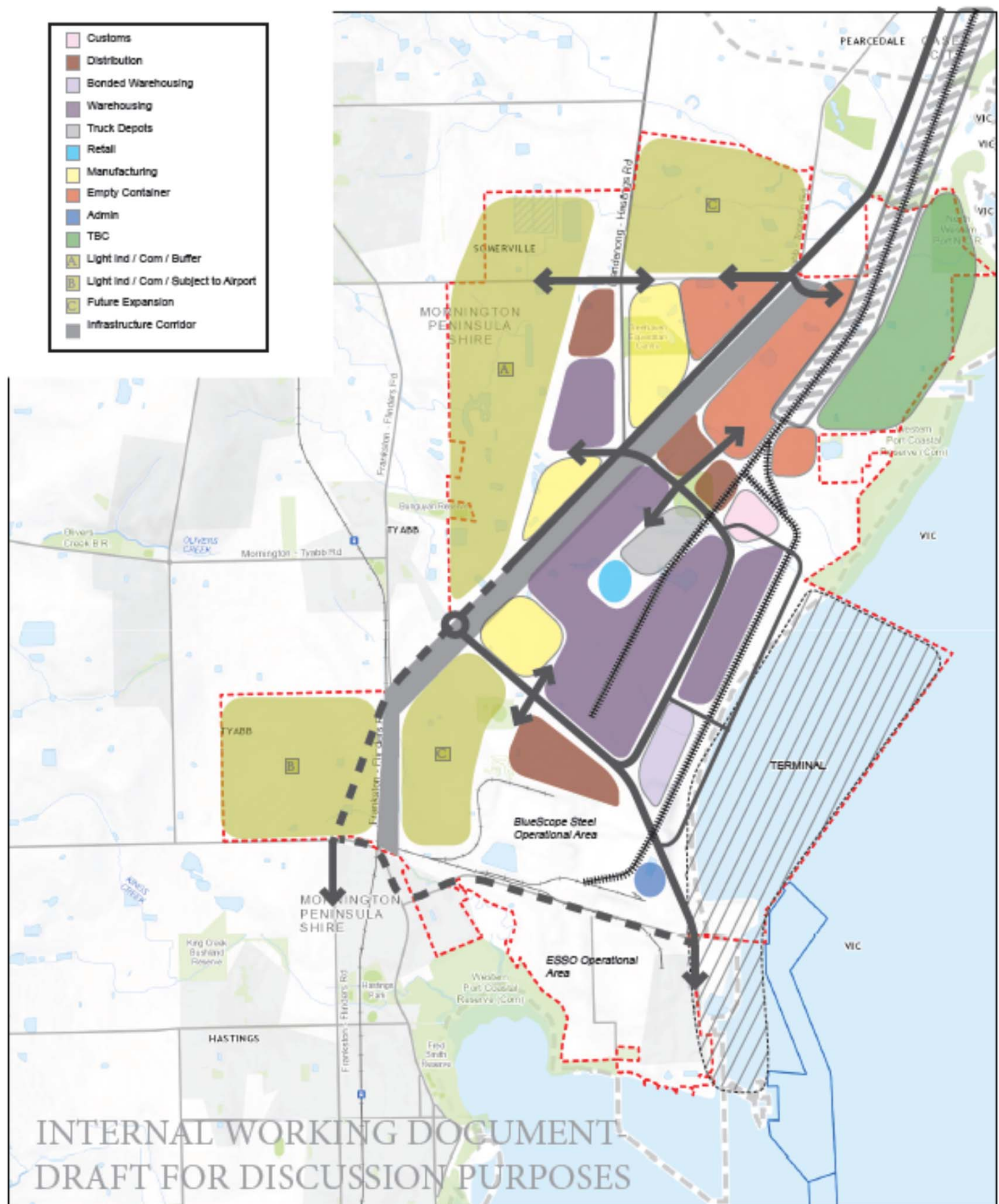
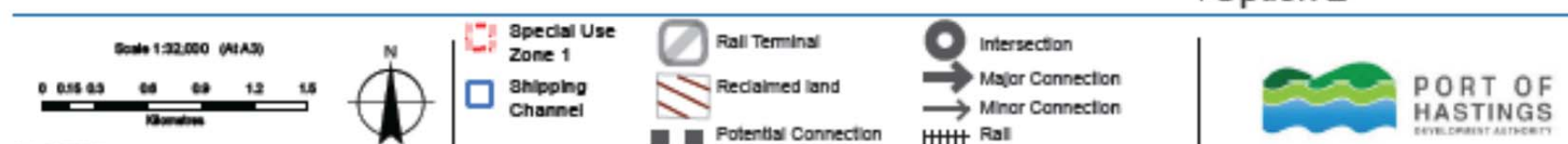


Figure 3-5 Preliminary Constraints and Land Form Map



FUNCTIONAL REQUIREMENTS LAYOUT CONCEPTS

Figure 6.2 Option 2

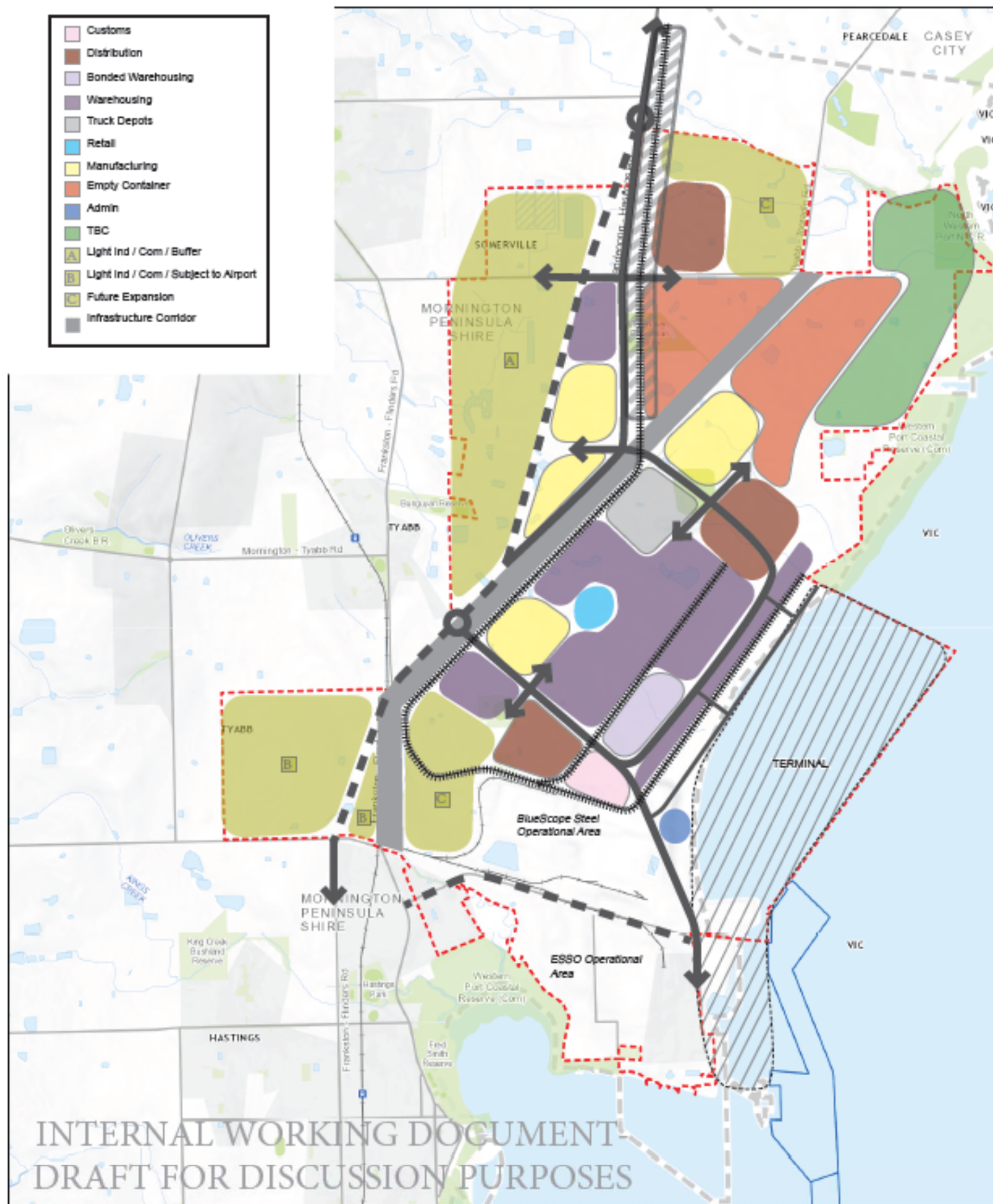


Date: 20/06/2014

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Figure 6-2 Option 2 Concept Plan



**FUNCTIONAL REQUIREMENTS
LAYOUT CONCEPTS**

Figure 6.3
Option 3

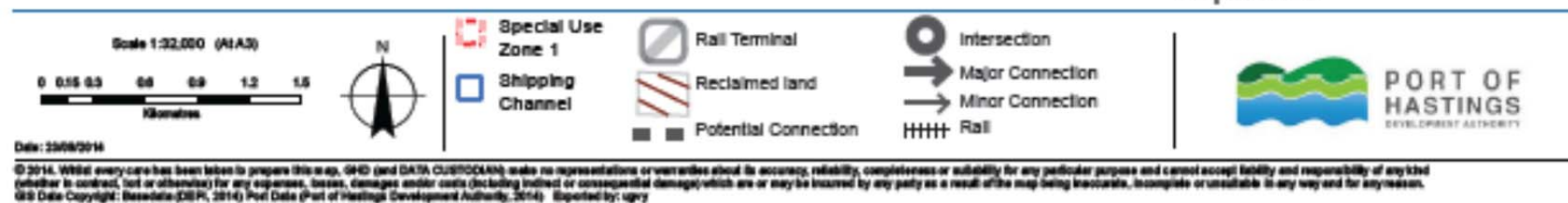
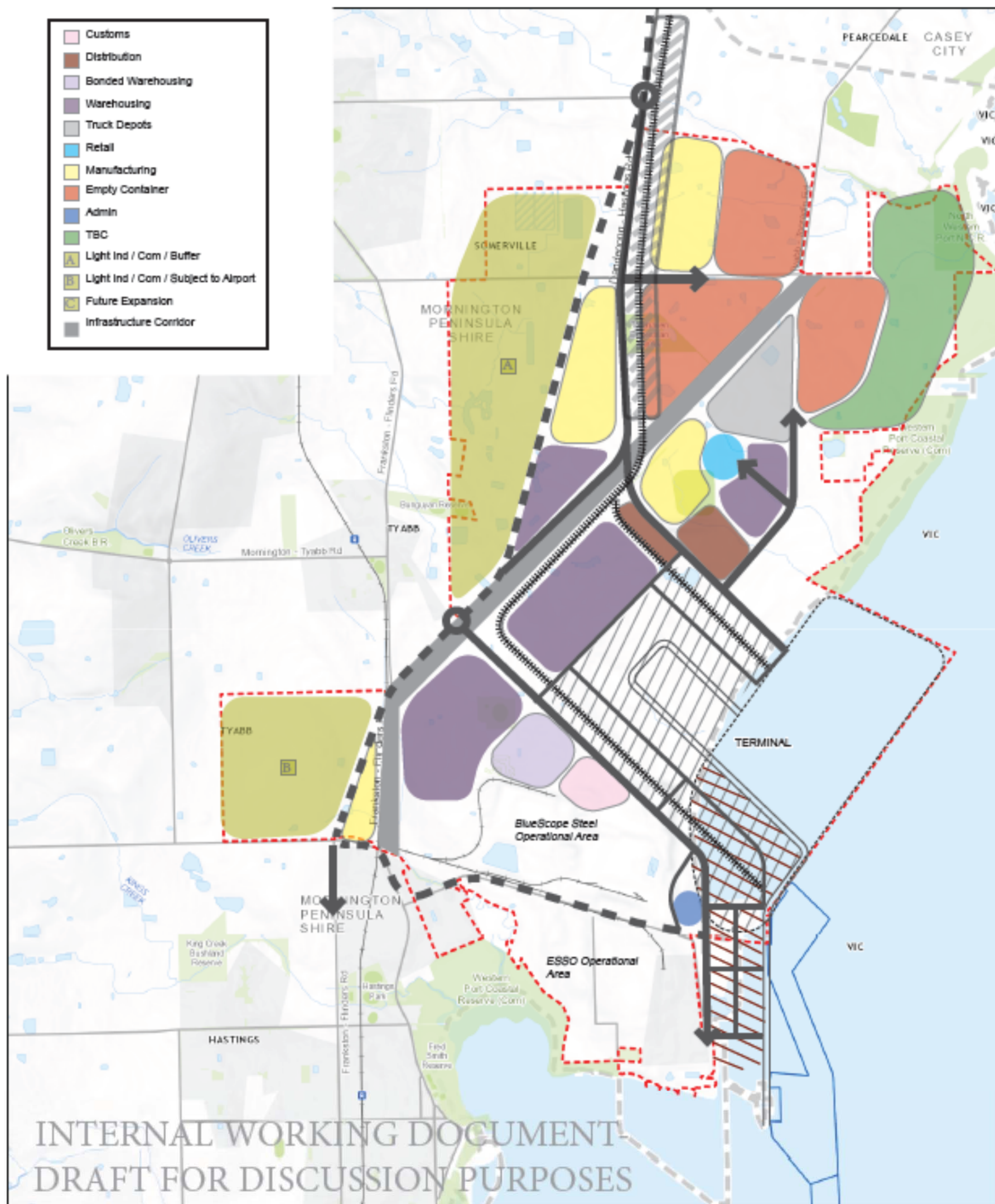


Figure 6-3 Option 3 Concept Plan



FUNCTIONAL REQUIREMENTS LAYOUT CONCEPTS

Figure 6.4 Option 4

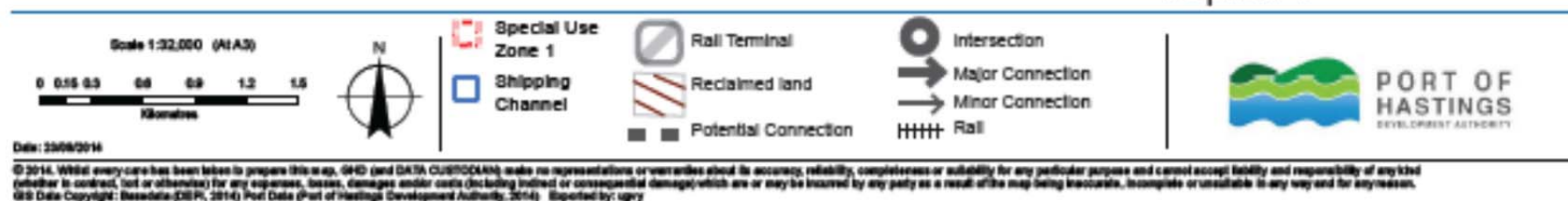
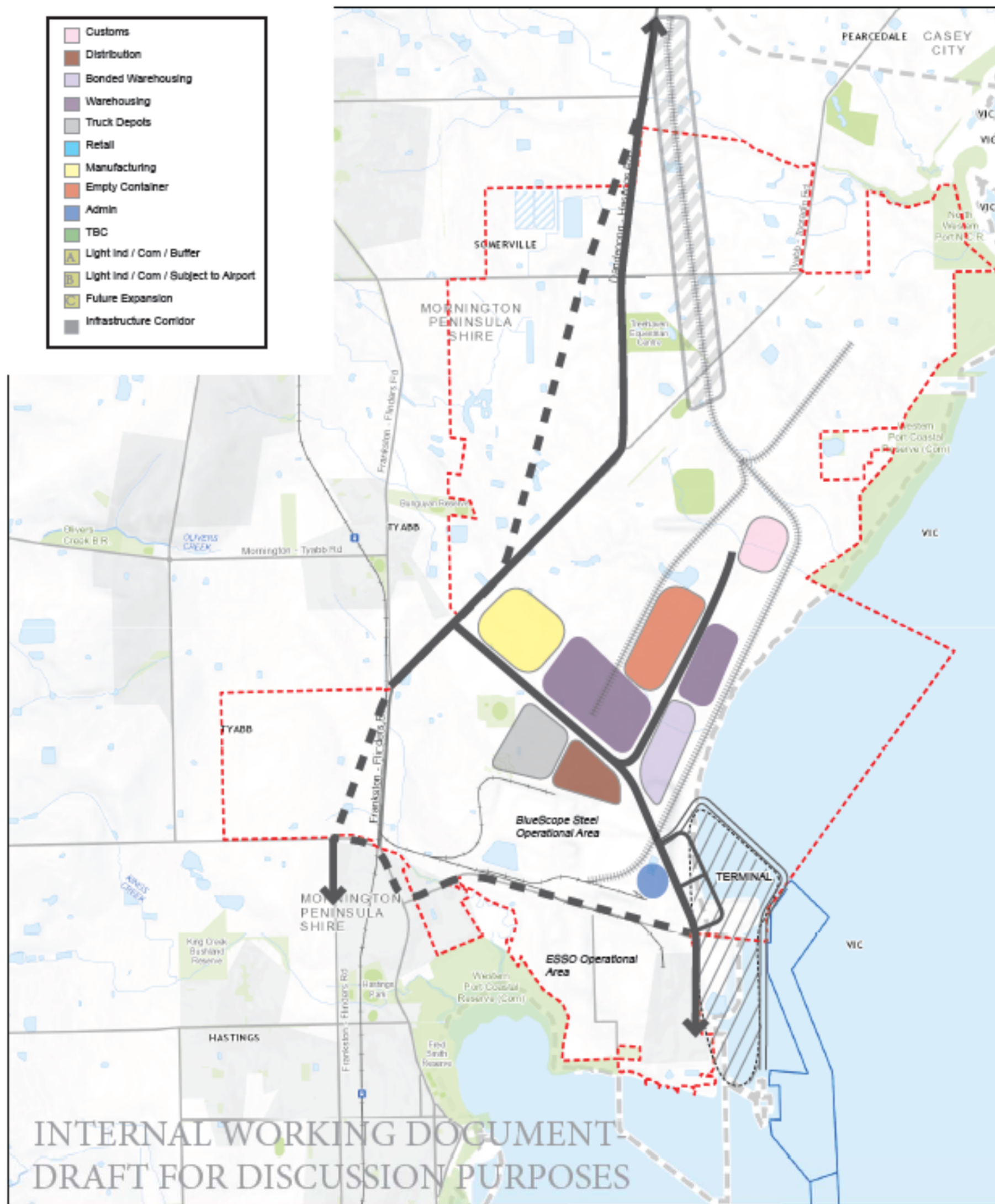


Figure 6-4 Option 4 Concept Plan



FUNCTIONAL REQUIREMENTS LAYOUT CONCEPTS

Figure 6.5 Options 1 & 2 Stage 1

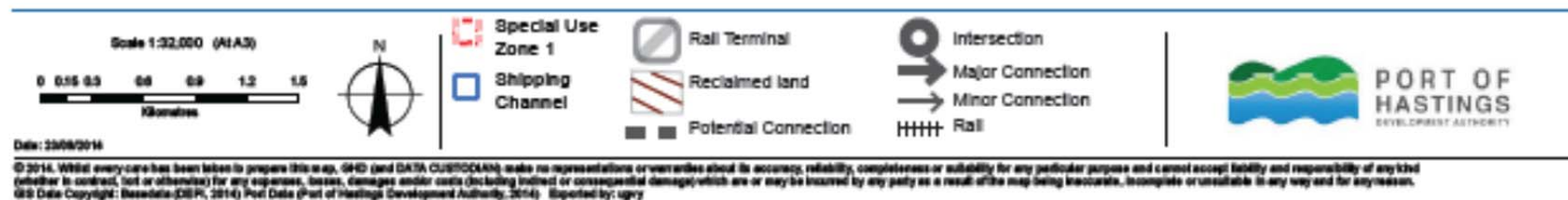
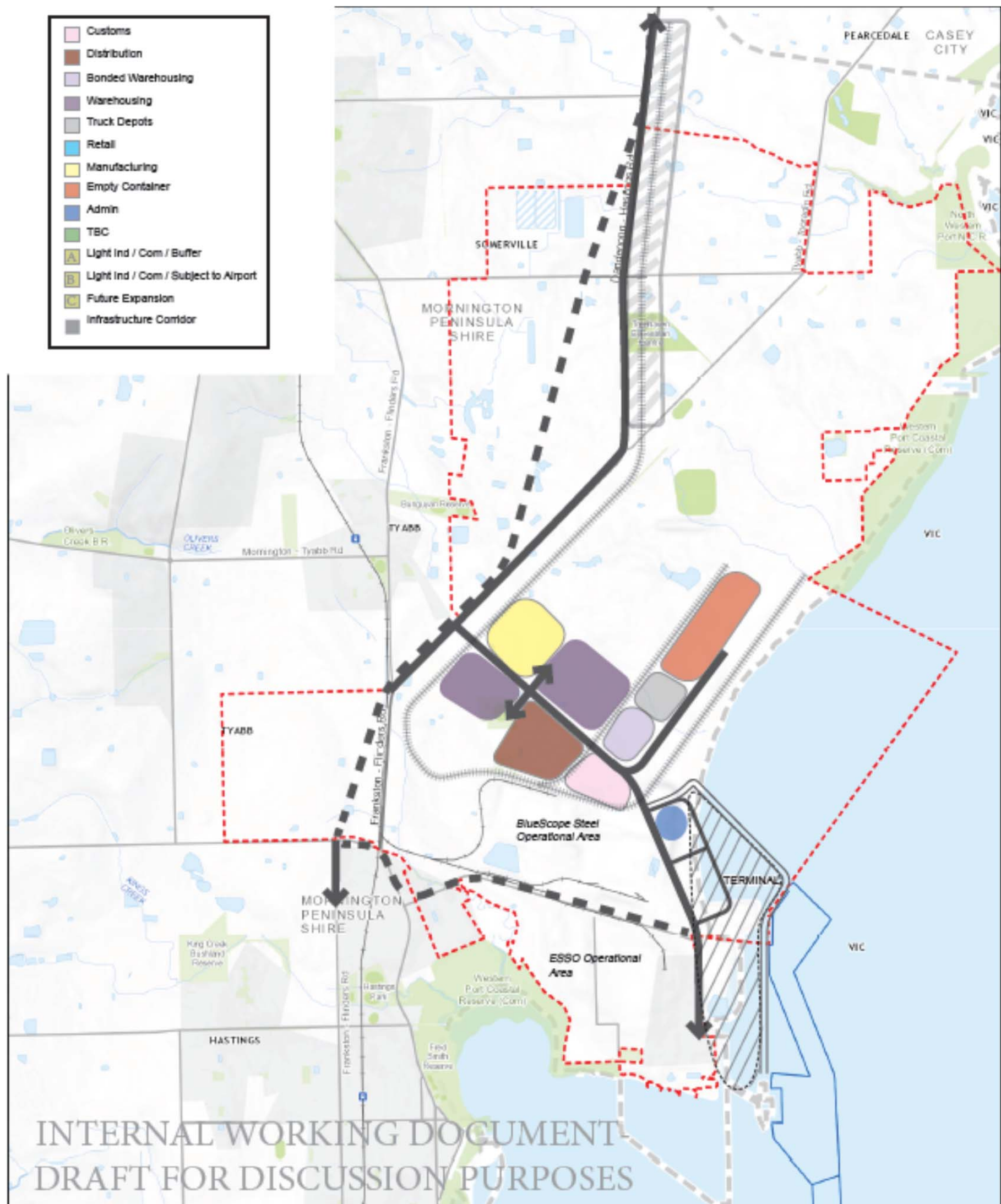


Figure 6-5 Option 1/2 Stage 1



FUNCTIONAL REQUIREMENTS LAYOUT CONCEPTS

Figure 6.6 Option 3 Stage 1

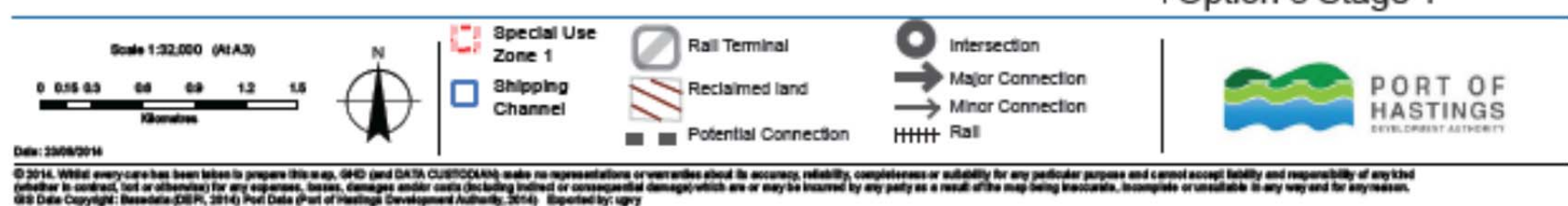
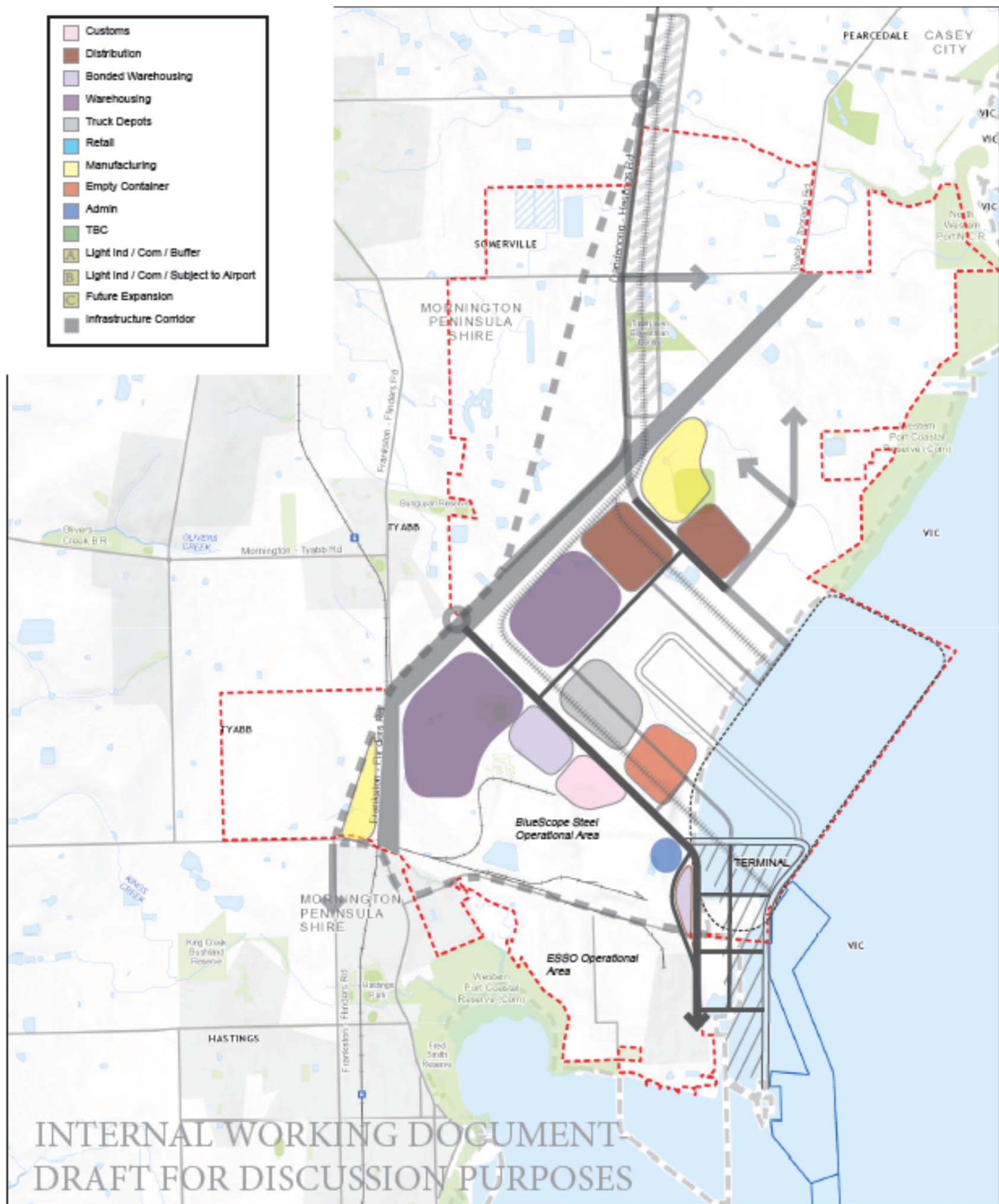


Figure 6-6 Option 3 Stage 1



FUNCTIONAL REQUIREMENTS LAYOUT CONCEPTS

Figure 6.7

Option 4 Stage 1



Figure 6-7 Option 4 Stage 1