Background Report

Port Welshpool Marine Precinct Plan

South Gippsland Shire Council

June 2017

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Project Details

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1 INTRODUCTION

The South Gippsland Shire Council ('Council') has commissioned Water Technology, in collaboration with Meinhardt, Essential Economics and GroupGSA to prepare the Port Welshpool Marine Precinct Plan (the 'Precinct Plan'). The purpose of this project is to develop agreed strategies for marina development/modification, public space enhancement, increased economic and recreation activity (on-shore and off-shore), operational activities, and long term capital investment. Together, this array of strategies in intended to enhance the appeal and functionality of the Port Welshpool Marine Precinct for its users, tourists, visitors, and the local community.

The Precinct Plan will be developed having regard for:

- Previous work undertaken by Council and Gippsland Ports;
- The State policy context;
- Regional and local trends in terms of recreational and commercial activity;
- Precinct-specific opportunities for public space improvements;
- Precinct-specific issues and opportunities for landward and seaward functions; and
- Community values and aspirations.

This Scoping Report identifies the matters that will be considered as part of this project. The information contained herein focuses on overall considerations and is not intended to give attention to finer details which will be addressed as part of the Precinct Plan report. Rather, the content of this report acts as a precursor to the 'Issues and Opportunities' component of the Draft Precinct Plan, which will be released for detailed public and stakeholder comment.

2 STUDY AREA

2.1 Context

Port Welshpool plays an important regional role, as it is the only natural deep sea port east of Western Port Bay. It is sheltered from most weather by Wilsons Promontory, Big Snake and Little Snake Islands. Further, the Port is well-known for its productive fishing grounds and as a base for the local fishing fleet, as well as wildlife cruises. These and other key characteristics result in the study area being an attractor of regional activity from across Gippsland and beyond, especially in terms of recreational boating and fishing. The boating catchment (illustrated right) is experiencing an estimated growth exceeding 20% (based on boat registration data for Gippsland) and further growth can be expected on the basis of projected population growth within the region. In addition, the Port also offers supportive characteristics that have potential for increased commercial activity, such as in association with off-shore energy.

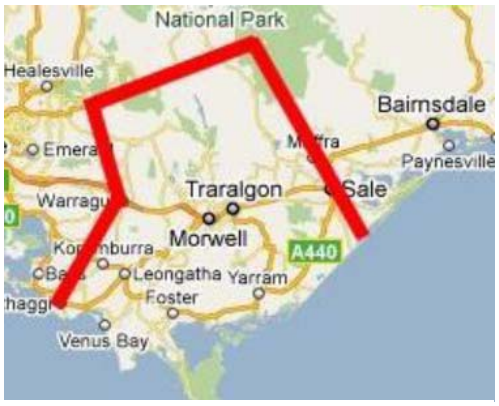


Figure 1 - Port Welshpool Recreational Boating Catchment

At municipal scale, the study area represents the primary boating and fishing facility for the various townships within Council's municipal area. It's ongoing use and enhancement are a matter of Shire wide interest, especially within the context of other work being undertaken by Council. It is noted that Port Welshpool Marina Development is one of five key projects, which form part of the larger Corner Inlet Tourism Development Project, aimed at improving the tourism offer in South Gippsland. Other projects are:

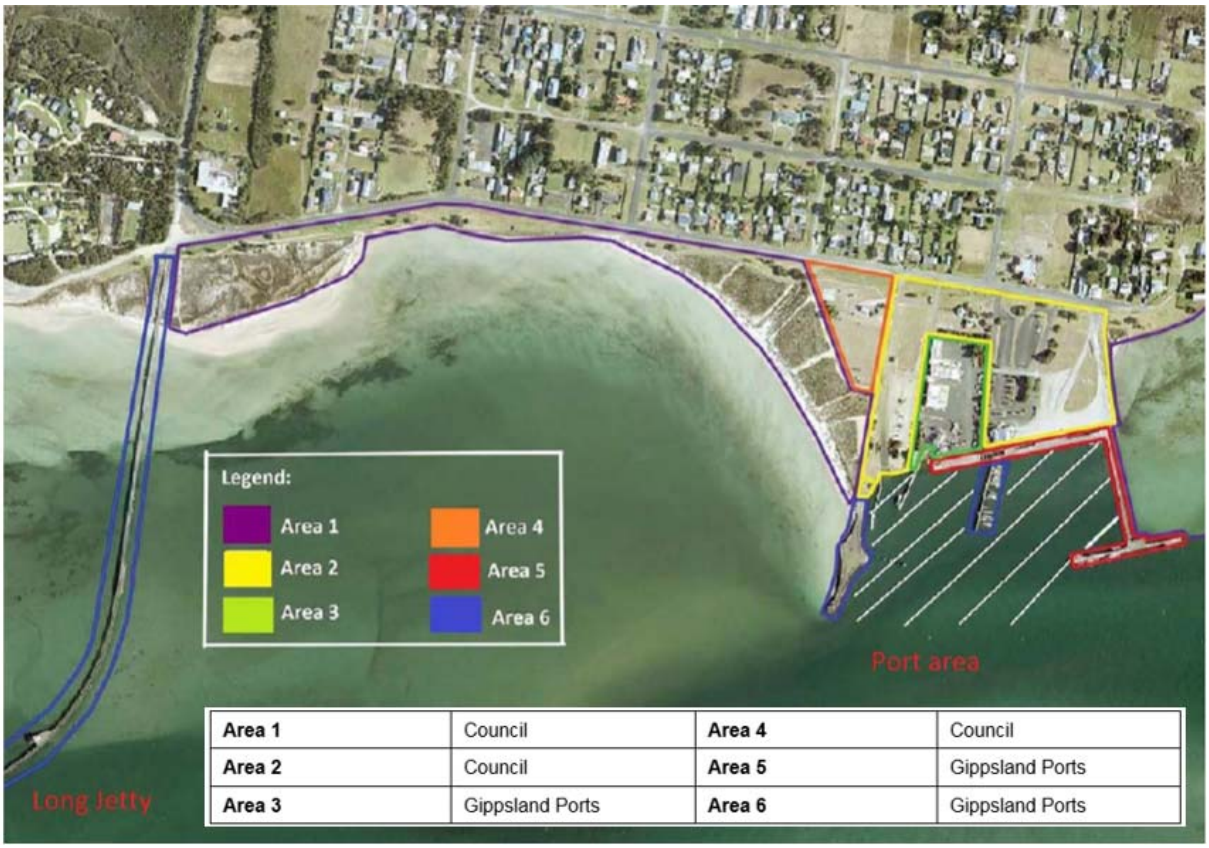
- Extension of the Great Southern Rail Trail (now completed to Welshpool)
- Redevelopment of the Port Welshpool Long Jetty (now funded and currently out for tender)
- Toora Channel Dredging
- Agnes Falls Redevelopment

From a local perspective, community feedback and previous work clearly demonstrate that the Port Precinct is of considerable value in terms of community identity, employment, and recreation. Although a decline in economic activity has been experienced, the Port Precinct holds the potential for improving the current situation. Currently, the town contains a general store, hotel, maritime museum, boat storage, and garage. There is potential for this range of commercial uses to be expanded, especially noting the State-level role of the Port. Additionally, it is noted that local influences may arise from the Barry Beach Marine Terminal, as well as the potential sale of Exxon assets on land and water.

2.2 Site Characteristics

The Precinct characteristics vary depending on the location, and are affected by management responsibilities, functional activities, and spatial factors.

From a management perspective, the study area is comprised of six (6) key areas of Crown Land and marine environs, which are managed under delegation by Council and Gippsland Ports. The extent of these management areas is depicted as follows (albeit Gippsland Ports' responsibilities extend into the marine environs):



Area 1	Council	**Area 4**	Council
Area 2	Council	**Area 5**	Gippsland Ports
Area 3	Gippsland Ports	**Area 6**	Gippsland Ports

Figure 2-2 Study Area Management Responsibilities (Source: project brief)

In terms of spatial qualities, it is firstly important to note the relationship of the study area to opportunities outside the precinct boundaries which are presently under-utilised. The Port precinct incorporates the foreshore, which is located at the entry into the township. The entry and foreshore interface provide scenic glimpses of the Corner Inlet Marine Park and off-shore islands (albeit the views are interrupted by electricity poles and cabling). 'Long Jetty' is also located at this interface, creating an opportunity for an inviting visitor experience (when the jetty is repaired and restored for tourist function). However, this interface between the town entry, foreshore and Long Jetty is entirely un-enhanced and lacking in appearance. Relative to other boating and marine recreation locations, this results in a lack of address and appeal to the non-local public.

Likewise, the eastern end of the study area also interfaces with a bowls club and caravan park, which are not overtly visible from the town entry and do not have any notable spatial relationship to the foreshore.

The spatial and functional characteristics of the study area itself are illustrated in Figure2-3.

OVERALL PRECINCT CHARACTERISTICS

LANDSIDE CHARACTERISTICS

1 Community / Tourist Functions

Lack of precinct address, lack of east-west connection
Area generally expansive, un-enhanced, lacks way-finding and spatial cues
Missed opportunities for recreation/leisure
Lack of connection with town
Lack of connection with bowls club, caravan park
(see western section, lower image)
Disconnected open space pockets
Public access / movement (existing and potential)

2 Vehicular Functions

Yachts, boats, trailers, cars, livestock, trucks – high competition during peak periods
Western parking area informal, undefined
Eastern parking area formalized and landscaped (higher quality space)

3 Commercial Functions

Essential functions – Gippsland Ports, Parks Victoria, Fisheries, Coast Guard (SW)
Central location affects overall precinct
Breakwater commercial in feel (limited aesthetic quality)
Commercial access / movement (existing and potential)

4 Spill-Over Functions

Vehicular access to Marginal Wharf
Net stretching
Undefined community access – conflict with other users
Interface with exiting/potential community spaces/corridors

WATER-SIDE CHARACTERISTICS

1 Community / Tourist Functions

Quality views
Boat launch competes with Slipway Jetty and Ro-Ro Berth functions
Partial underutilization of waterfront, emphasis on functionality (not aesthetics)

3 Commercial Functions

Essential safe harbor functions, turn-around area
Ferry Berth aging, sub-standard, and locationally challenging
Livestock (Ro-Ro Berth) and Slipway operations compete with boat launch

Figure 2-3 Precinct Characteristics

Landward Precinct Characteristics

Areas illustrated in green and denoted 1 comprise spaces which are of greatest relevance to cost-free community and visitor functions. To the west of the Port facilities, the foreshore area between Lewis Street and the beach consists primarily of grass and is expansive in nature, although there are some coastal trees. This area interfaces with the public beach, which is bound to the east and west by coastal shrubs. The area between the vegetation is the primary beach interface and access, but has little relationship with the asset. In comparison, the western end of this area/sub-precinct begins to cater for public needs through a playground and covered structure. However, this level of enhancement remains basic in comparison to its potential. Moving eastwards from this location, there is a grassed area adjoining Lewis Street, which appears to have no distinct characteristics, followed by an area containing a rotunda and public toilets, which is in turn followed by grassed areas until the foreshore terminates at a residential interface. There are no significant pedestrian and spatial linkages between these open space areas.

Areas denoted 2 and coloured blue are managed by Council and comprise vehicular access and parking facilities. The western area, in particular, is highly utilised by users who compete for space for their activities. There can be some 200 vehicles, including yachts and trailers, fisherman's boats and vehicles (generally parked in a small area between the boat ramp and coastal vegetation), livestock vehicles, B-Double trucks, etcetera. The eastern area denoted 2, has a more defined entrance and formalised parking that leads to the 'old ferry terminal' building, which now functions as a community space. This section is characterised by vehicular parking and community activity functions (including the 'Sea Days' festival). Towards the wester-most section, this sub-precinct contains areas with the potential for over-flow parking.

Area 3 contains the Gippsland Ports Depot, as well as the Slipway and sheds for Parks Victoria and Fisheries functions. This area is an integral component of the greater port precinct, but creates challenges for competing uses due to its central location.

Area 4 (purple) has an unsealed surface and is spatially undefined, likely due to the itinerant nature of the activities. This area is accessible from the formal car parking to the west and from Lewis Street to the north. Part of the area is used for net stretching, which competes for space with vehicular movements. This area has the potential for developing a more resolved relationship with the grassed spaces to the north.

Water-Side Precinct Characteristics

On the marine side, there is a very broad range of users.

Recreationally, boating, yachting, fishing, kayaking, etcetera are highly popular at summertime. Yachts visit from Tasmania, stay 3-4 days and then go to Port Phillip. These rely on food, water, fuel, overnight accommodation and other necessities. Itinerant vessels also dock at the Port, seeking fuel and water, which are particularly important for small vessels travelling to Wilson's Promontory. Importantly, recreation boating for small to medium sized boats has increased considerable within the catchment (refer to the economic analysis section of this report).

Commercially, livestock operations increase the amount of traffic and activity within the Port monthly (which is less than the previous frequency), cargo operations occur, charter boating occurs and may increase over time, off-shore energy holds potential for increased activity over time, and commercial fishing continues to have some requirements (which are substantially

less than former operations). All of these operations are currently below levels of activity experienced previously, yet potential remains for increased activity.

Due to the confluence of recreational and commercial activities, there is a high degree of user competition. This arises not only from the number of activities, but also the proximity of the public, commercial, and safety facilities. Much of the user conflict occurs at the junction to the public boat ramp, Roll-on Roll-off ('Ro-Ro') Berth, Slipway Jetty and Depot Wharf. This conflict would be greatest when recreational activities coincide with commercial operations, which can involve 30-40 barges waiting to load/unload at peak times.

Additionally, it is noted that the usability of this space is also compromised during bad weather. For example, the Coast Guard experiences difficulties in launching their vessels for rescue purposes, a matter that is exacerbated by their deficient facilities.

3 PREVIOUS STUDIES AND STATUTORY CONTROLS

There is a considerable body of information to be taken into account for preparing the Precinct Plan. Specifically, it is noted that implications arising from the following legislation, statutory provisions and previous studies should be considered in the subsequent project report:

Previous Studies:

- Corner Inlet Tourism Development Project, South Gippsland Shire Council 2014
- Port Welshpool Marina Economic and Design Assessment, Essential Economics and Water Technology 2014
- Eastern Districts Urban Design Framework, Planisphere 2013
- Seasonal Population Impacts in Coastal Towns, South Gippsland Shire Council 2015
- Gippsland Regional Coastal Plan, Gippsland Coastal Board 2015
- Gippsland Boating Coastal Action Plan, Gippsland Coastal Board 2013
- Gippsland Ports' Position Paper on the Port Welshpool Long Jetty, Gippsland Ports 2016
- Various Gippsland Ports Studies (to the extent these are directly relevant to the marine precinct design)
- The Victorian Costal Strategy, the State of Victoria 2014
- Marine and Coastal Act Consultation Paper 2016 (to the extent this flags key changes to current legislation)

Statutory Controls and Legislation:

- South Gippsland Shire Planning Scheme – Policy, Zones, Overlays
- Legislation pertaining to Crown land and port management
- *Environment Protection and Biodiversity Conservation Act 1999* (if development extends into new marine areas and requires dredging)
- *Native Title Act 1993* (if development extends into new marine areas and requires dredging)

Other Influences:

- Declining activity within Barry Beach, but potential for increased/modified activity in association with the potential sale of Exxon assets (including the Port Anthony terminal), and the development of the 'Star of the South' wind energy project.

Some of the above information has been considered as part of previous Council projects. However, the implications arising from these studies need to be briefly re-considered due to the current need to reach an appropriate and agreed balance between Port and public functions. Moreover, changes are presently occurring to coastal legislation, which need to be considered (albeit the timing of this project will not allow for the legislation to be finalised).

Key considerations arising from the assessment of the above documents are summarised in this section.

The Corner Inlet Tourism Development Project

As a strategic initiative for attracting tourism to the Corner Inlet area, Council is delivering 5 key projects, one of which is the Marine Precinct Plan. Together, the 5 projects aim to leverage "the strength and proximity to Wilsons Promontory National Park and the location of Corner Inlet to popular tourist routes" (South Gippsland Shire Council 2015). The projects are:

- Extension of the Great Southern Rail Trail (now completed to Welshpool);
- Redevelopment of the Port Welshpool Long Jetty (now funded);
- Port Welshpool Marina Development (the current project);
- Toora Boat Ramp Improvements Channel Dredging; and
- Agnes Falls Redevelopment.

These projects collectively increase the attraction of Corner Inlet as tourism destination and stop over, significantly increasing the potential for economic benefit for the township and the Shire. Council has accordingly allocated up to $2.1 million for the 5 projects. This project, the Marine Precinct Plan, represents the first step in delivering the Port Welshpool Marina Development. This is a key component of the overall Tourism Development Project, as it is an essential basis for accommodating and enhancing boating, recreation and commercial demand along the waterfront.

Details of the Corner Inlet Tourism Development Project are contained in Appendix 2.

Gippsland Boating Coastal Action Plan, Gippsland Coastal Board 2013

The Boating Costal Action Plan provides strategic guidance for the Gippsland-wide planning and management of recreational boating and its associated infrastructure. The Plan addresses boating issues at the regional level, contains a raft of broad strategies, and identifies current and future roles for various boating facilities across the Gippsland coastline. This provides strategic basis for decision making, investment, and future work along the coastline.

With specific relevance to Port Welshpool, the document identifies that it's future role should be of State significance (in comparison to its current regional significance). With respect to this role, it is noted that Port Welshpool is a significant commercial port servicing the offshore oil, gas and fishing industries, as well as being a popular recreational boating area. It is well-positioned for recreational boating (including access to sheltered waters of Corner Inlet), and with the potential to accommodate more boating activity. However, Port Welshpool does not yet have the community facilities and land-based attractions to support a State marine precinct – the classification given to it in the Victorian Coastal Strategy. This is an area in which the Port could increase its function as a regional boating precinct in the next five years or more.

Seasonal Population Impacts in Coastal Towns

This document provides the following insights for planning purposes:

- In 2015, it is estimated that 86 of the 206 dwellings within port Welshpool were occupied. This underscores the seasonal nature of occupation within the town, with a 41.7 percent occupation rate and a 58.3 percent vacancy rate at off-peak times for tourism.
- In the period from 2006 -2011, 9 dwellings were approved to be constructed. In the period from 2012-2015, 17 dwellings were approved.
- "On calm days in summer, boat trailer parking becomes congested in Port Welshpool and Walkerville South and North. Dust from unsealed roads and carparks was also noted as a concern in relation to boat trailer car parking."
- "The Great Southern Rail Trail now runs from Leongatha to Welshpool with an extension to Port Welshpool bringing many recreational cyclists to Toora and Port Welshpool."

Port Welshpool Marina Economic and Design Assessment

The 2014 Port Welshpool Marina Economic and Design Assessment involved an analysis of the economic drivers for recreational boating and fishing, as well as a raft of background matters, which underpin the enhancement of the marina facility at Port Welshpool. This assessment was based on an analysis of multiple options for marina development, and the selection of a preferred option.

The report found that the development of a marina in the form of the preferred concept would deliver economic benefits to the region, including the following:

- Potential to support 'landside' facilities including a small café/takeaway food and/or small shop selling bait, fishing equipment, boat supplies, souvenirs etc. This could be provided in the existing Port Welshpool Terminal Building. Some refurbishment would be required.
- Employment associated with construction and maintenance of new facilities. Potential to generate additional revenues through wet berth sales, dry berth leases and potential for retail leases.
- Ongoing employment associated with operation and maintenance of the marina. Potential to attract an estimated 14,500 new visitors a year to the region who will spend $1.5 million in visitor expenditure, a proportion of which could be retained by local businesses.

However, the preferred concept contained in the report was not supported by Gippsland Ports due to conflicts with commercial objectives, which were not sufficiently resolved as part of the project.

In terms of the application of previous findings to this project, the report identifies that Port Welshpool is well-located to meet the demand for marina berths generated in the surrounding region. While the economic assessment in the 2014 Report is based on a 'preferred' concept for 82 berths, it is reasonable to assume that economic benefits such as increased visitation, construction-related employment and ongoing employment will also be generated if an alternative concept plan is prepared.

The over-arching driver for any commercial activity associated with the Port Welshpool Marine Precinct Plan will be the extent to which the marina can generate increased activity in the area.

Currently, year-round visitation to Port Welshpool is limited and this has resulted in a small array of commercial activities in the sea-side town. Commercial enterprise is also generally limited, with key facilities being the general store and the Pier Port Hotel.

The Precinct Plan should consider a staged approach to facilitating any commercial areas in the Precinct Plan. The 2014 Economic and Design Assessment identified the opportunity for a small shop (up to 200m^2) to be located within the existing building. This is a sensible approach that minimises costs associated with developing a commercial use. This may be a consideration when developing the Precinct Plan.

Eastern District Urban Design Framework

The Eastern District Design Framework is a broad strategic document that provides guidance for urban design within Port Franklin, Toora, Welshpool, Port Welshpool, Mt Best, Agnes and Hedley. The document establishes character statements, design objectives, and strategic actions for achieving the desired urban design outcomes. It contains a number of recommendations for Planning Scheme responses, as well useful critiques that can inform design responses.

Figure 4 - Towns within the Eastern District
(Source: Eastern Districts Urban Design Framework)

With respect to Welshpool and Port Welshpool, the following points are of note:

- The tourism link between Welshpool and Port Welshpool is referenced through the completion Great Southern Rail Trail, as well as the shared path link between the towns.
- The following issues are identified:
  - Sparse development;
  - Dominance of port infrastructure;
  - Underutilisation of some port facilities (e.g. the former Seacat terminal)
  - Poorly defined town entry; and
  - Lack of consistent landscaping and street furniture.

- Focussing on the identified issues, the document sets objectives for improving the sense of arrival, enhancing the attractiveness and function of the foreshore, visual cohesiveness, regional opportunity capture, foreshore enhancement, township/foreshore connections, etcetera. Many of these objectives are yet to be achieved and remain valid as part of this project.
- Detailed actions within the Urban Design Framework include the improvement of gateways, the protection of heritage character, encouraging improvements to facilities such as the bowls club, advocating for the refurbishment of Long Jetty, etcetera. These actions are highly consistent with the desired outcomes for this project, which will identify more targeted strategies for achieving the improvements sought.

To implement the project recommendations respecting Port Welshpool, changes were made to the South Gippsland Shire Planning Scheme through Amendment C77, Parts 1 and 3. These Amendments have resulted in changes to the zoning and overlays, as well as the introduction of the Eastern Towns Design Framework as a Reference Document within the Local Planning Policy Framework.

Other than Planning Scheme recommendations, a number of the spatial issues raised remain outstanding and are proposed to be addressed through the Marine Precinct Plan.

The South Gippsland Shire Planning Scheme

This section contains a brief discussion of key components of Council's Planning Scheme which are relevant to this project. More detailed assessments are contained in previous studies undertaken by Council and, accordingly, the following comments are limited to the most salient matters:

The Local Planning Policy Framework

Clause 21.06 addresses Environmental and Landscape Values and includes strategies for the 'Corner Inlet Amphitheatre,' which surrounds Port Welshpool and nearby towns. These areas contain regional and State values in terms of their scenic amenity and environmental value. Clause 21.06 primarily deals with these by providing objectives and strategies targeted at minimising the adverse effects of land use and development on landscape features, and by identifying the use of the Significant Landscape Overlay and Zoning as tools for detailed assessment purposes.

In addition to what this Clause states, it is noted that the planning provisions herein are based on the *Coastal Spaces Landscape Assessment Study 2006*. This study also identifies strategies for the Nooramunga Marine Park, which abuts the project study area. The significance of this marine area is acknowledged and earmarked for more detailed consideration if future marina works result in adverse impacts beyond the present level of disturbance associated with the existing Port.

Clause 21.07 deals with Environmental Risks. Consistent with the State Planning Policy Framework, it flags that climate change effects on storm surges are likely to create impacts on coastal towns. The two nominated strategies for addressing these impacts are the application of Overlays, and ongoing monitoring and planning. While this project does not address climate change impacts per se, it is noted that the policy direction suggests the need for caution with respect to any future coastal development. This underscores the regional drivers for investment in infrastructure and public works, as opposed to local drivers. While local benefit is a key consideration, the economic impetus for this project arises as a result of Port Welshpool's regional role.

Clause 21.15-13 builds on the Eastern District UDF and includes strategies, Framework Plans, etcetera, for implementing the UDF. Of principal relevance, this Clause contains the Port Welshpool Framework Plan, which:

1. Supports tourism opportunities at the Long Jetty Precinct;
2. Supports opportunities at the Marine Facility; and
3. Identifies land at the north-eastern corner of Port Welshpool Road and Lewis Street as a preferred site for tourism related uses.

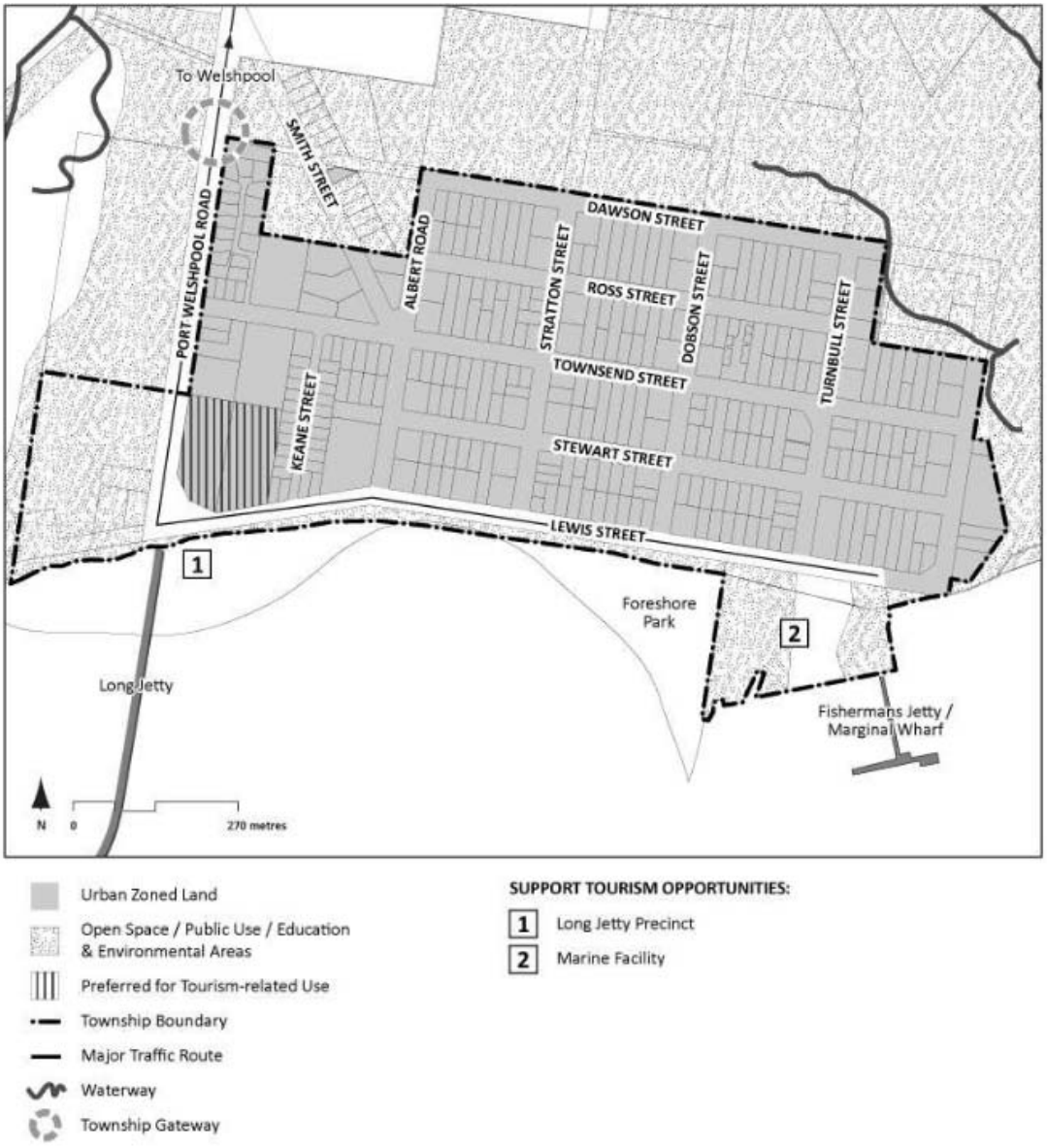


Figure 5 - Port Welshpool Framework Plan
(Source: South Gippsland Shire Planning Scheme)

Other relevant strategies include:

- "Encourage… marine related activities at Port Welshpool."
- "Carefully manage development at the Corner Inlet coastal edge to retain intact natural coastal character by… clustering development at already developed centres (e.g. Port Welshpool)."
- "Encourage medium-scale tourism, compatible with any environmental constraints, in the precinct in the Township Zone in the vicinity of Long Jetty at Port Welshpool."

Zones and Overlays

Almost the entirety of Port Welshpool is contained in the Township Zone (TZ), with adjoining areas being designated the Public Parks and Recreation Zone (PPRZ) and the Public Conservation and Resource Zone, as illustrated:

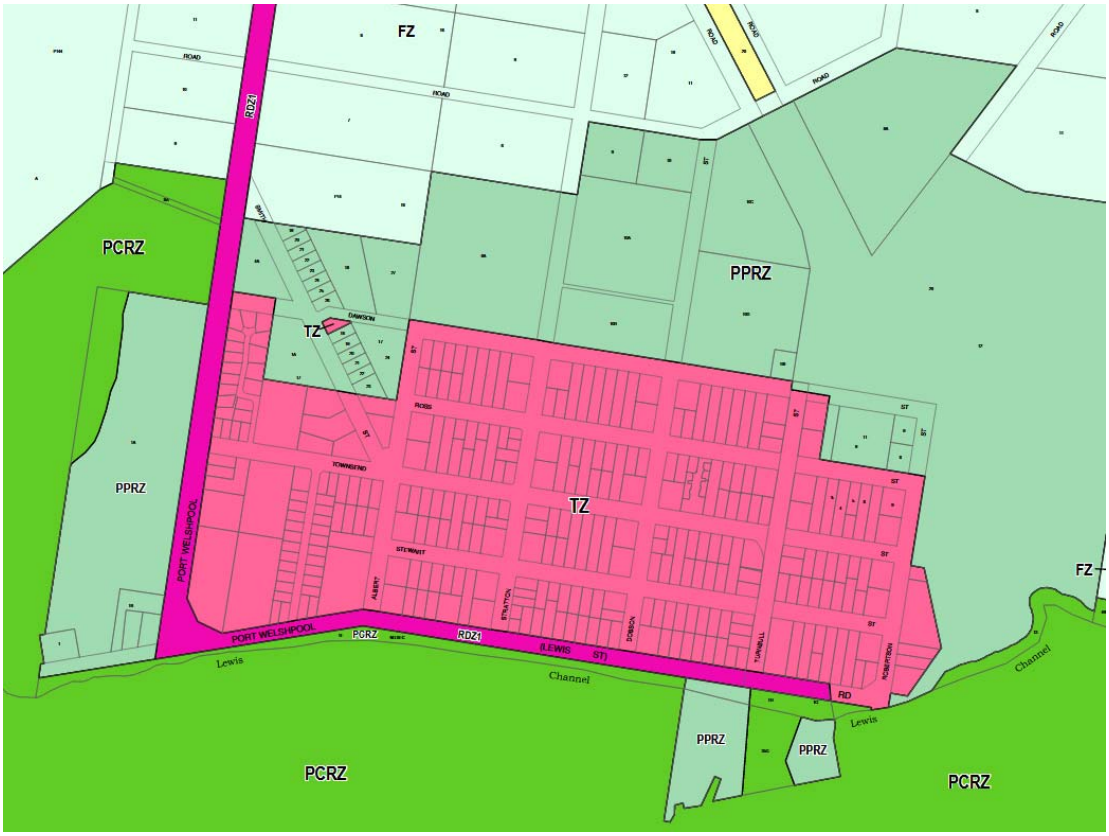


Figure 6 - Port Welshpool Zoning
(Source: South Gippsland Shire Planning Scheme)

The majority of the Marine Precinct study area is within the PCRZ, with the exception of the 2 PPRZ areas delineated above. The first area comprises land generally bounded by Lewis Street, the Ro-Ro Berth, the water, and the eastern boundary of the Gippsland Ports compound. The second area comprises land that generally bounded by Lewis Street, the eastern edge of the Council car park, Marginal Wharf, and the eastern edge of the Marine Precinct.

Schedule 3 of the Environmental Significance Overlay (ESO3) has been extensively throughout the town (as depicted below). The application of this Overlay reflects the broad

landscape value of Port Welshpool and its surrounds, which contain some of Victoria's most significant coastal areas. These values, along with the guidance provided by the ESO3 Schedule, will be taken into account as part of any landside solutions proposed by this project.

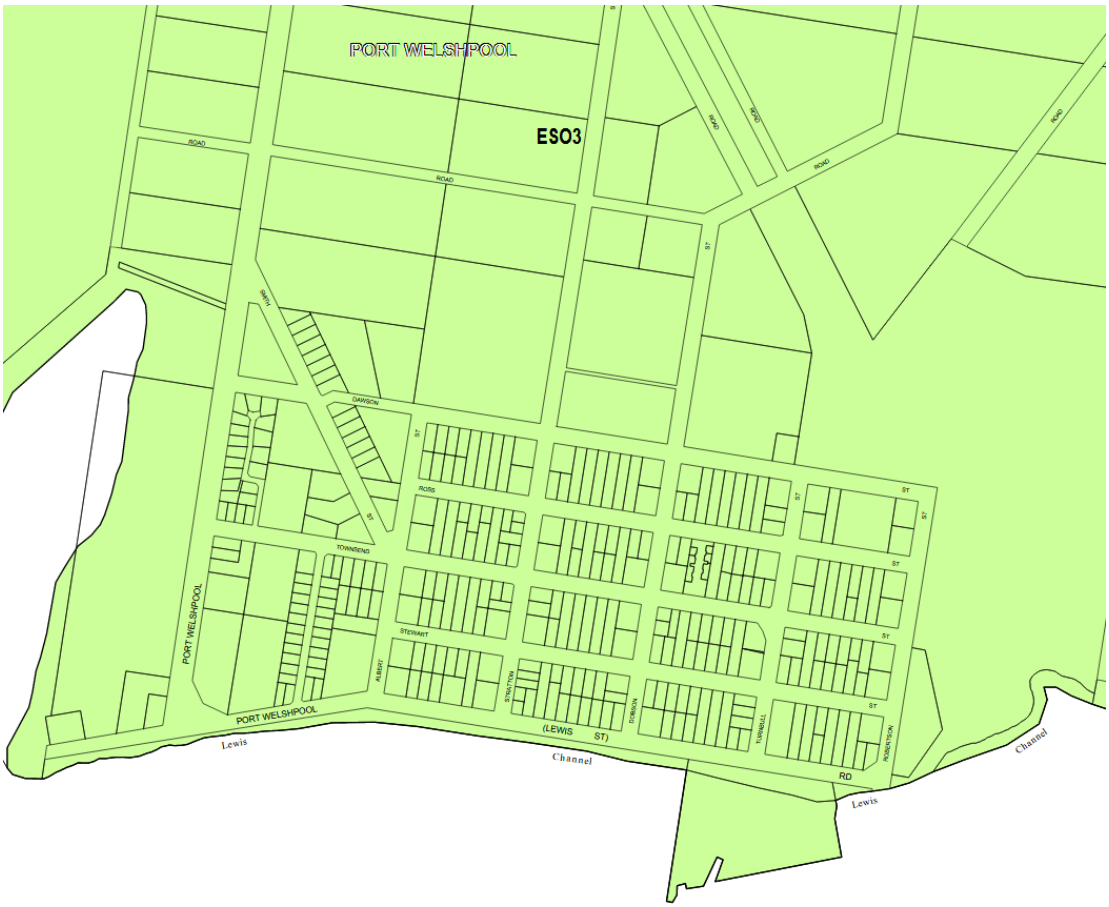


Figure 7 - Environmental Significance Overlay Schedule 3
(Source: South Gippsland Shire Planning Scheme)

Similar to ESO3, Schedule 3 to the Significant Landscape Overlay (SLO3) deals with natural and environmental values. However, the Overlay is applied to a more targeted area containing vegetation and wetland communities, as illustrated below. As part of this project, the values of this area are acknowledged as a major contributor to the spatial characteristics of the township. However, the relevance to recommendations is limited to drawing inspiration for landward landscape and design strategies.

Figure 8 - Significant Landscape Overlay Schedule 3
(Source: South Gippsland Shire Planning Scheme)

Figure 9 - Enlarged View of Significant Landscape Overlay Schedule 3 (Source: Planning Maps Online, https:// land.vic.gov.au)

Other Overlays affecting the township include the Heritage Overlay (HO), the Land Subject to Inundation Overlay (LSIO), and the Wildfire Management Overlay (WMO). These Overlays have limited relevance to the study area in comparison to the SLO and ESO, which have a bearing on town character and identity (matters that are pertinent from a foreshore design perspective).

The Victorian Coastal Strategy 2014, the *Costal Management Act 1995* and the Proposed *Marine and Coastal Act*

The Victorian Coastal Strategy, as well as documents such as the Gippsland Boating Coastal Action Plan, have been prepared under the *Coastal Management Act 1995*. This legislation is proposed to be replaced with the *Marine and Coastal Act*, for which a discussion paper in relation to the proposed legislation was released in 2016. Due to this state of flux, this project cannot address detailed legislative provisions. However, there are relevant matter matters which are noted for the future management of facilities in the area. Specifically, salient suggestions within the Discussion Paper include the following:

- Current marine and coastal arrangements are complex, with over 60 entities involved in various processes. Rationalisation of these entities and streamlining of processes are key drivers.
- A Marine and Coastal Council is proposed, with representation from the community, user groups, industry, and marine sectors. The proposed function of the Council is to advise the Minister for Energy, Environment and Climate Change on various marine and coastal matters (as described in the paper).
- The role of the Catchment Management Authorities is proposed to be expanded, for the agencies to provide advisory services on coastal erosion, flooding, and inundation matters. Asset management responsibility, however, is intended to remain with other stakeholders (depending on the asset(s).
- The Regional Coastal Boards are proposed to be phased out at the end of their terms, with the Catchment Management Authorities (CMAs) absorbing a large portion of the responsibility.

The above proposals and several other matters have been subject to significant input. 115 submissions were received from State agencies, CMAs, Councils, Committees of Management and others. As such, the proposed direction of the legislation is subject to refinement.

For this project, it is noted that new management, advisory, collaborative, and funding arrangements may be instituted. The Precinct Plan project notes these as potential influences to monitor through the course of project delivery.

Other Influences

Exxon Mobil, as the proprietary head of Esso Australia, invited Expressions of Interest in 2016 for the purchase of selected assets in Bass Strait. This includes the potential sale of assets at Barry Beach, as well as the renowned ‘Kingfish’ oil filed. Whether this transfer of assets occurs is yet to be determined.

In addition, it is noted that the Start of the South wind energy project has been announced as a major initiative just south of Port Welshpool. This may enable new supporting commercial operations from Port Welshpool and Barry Beach.

In association with both influences, the scenarios to note are that there may no change in terms of the level of activity, there may be increased activity, or there may be reduced activity. In any case, the Precinct Plan should be sufficiently adaptable to enable scalable design responses in proportion to the level of change, as well as responses that actively encourage an increased level of recreational activity regardless of these changes.

4 PROJECT DRIVERS, ISSUES, AND OPPORTUNITIES

This section deals with numerous divers, issues, and opportunities within the study area, as they relate to economic, operational, and spatial considerations. Several ideas and options are raised with the purpose of developing project directions. These should not be mistaken for recommendations regarding design interventions, as those are contained within the Precinct Plan, which builds on the background analysis contained herein.

4.1 Economic Drivers and Challenges

Port Welshpool and Welshpool are located approximately 5km from each other and 200km to the south-east of the Melbourne CBD.

Welshpool performs a local service-centre role and is located on the South Gippsland Highway, whereas Port Welshpool is a small coastal community less than a five minute-drive to the south.

Combined, both townships are important to the regional economic context. The relatively small business sector in the combined townships includes:

- Welshpool: café/sandwich bar, hotel/motel; small supermarket; petrol station; rural sales; opportunity shop; and kitchen manufacturer; Prom Port Cottages; a boat storage and bait supplier business.
- Port Welshpool: Port Welshpool's commercial activity is mainly focused on Lewis Street and comprises a general store, The Pier Port Hotel, a Maritime Museum, and the commercial port activities at the port.

Over recent years a significant loss of commercial activity has occurred in Port Welshpool, including a reduction in the size of the fishing fleet, closure of the local abattoir, removal of the Seacat Tasmania ferry service (from Port Welshpool to Georgetown, Tasmania), and closure of the historic Long Jetty. These factors have contributed to a decline in local population, workforce and visitors.

For this reason, the township's remaining assets – particularly the Port and foreshore – are critical to stimulating new economic activity.

In 2016 the permanent resident population in Port Welshpool was estimated at 170 persons, and a further 430 persons were estimated to be residing in Welshpool. In total, approximately 600 persons permanent live in the Welshpool/Port Welshpool locality.

This population has declined from approximately 640 persons in 2006 based on ABS Estimated Resident Population data at the small area level.

Per ABS 2011 Census of Population and Housing data, the permanent resident population in Port Welshpool/Welshpool can be characterised as:

- An older population (27% aged 65 years or over c.f. 17% for regional Victoria)
- Lower incomes (median household incomes 27% below the regional Victoria median)
- Low labour force participation rate (53% c.f. 61% for regional Victoria)
- High share of employed persons in primary industry (37% c.f. 9% for regional Victoria).

Although not considered a major tourism location in a regional context, it was estimated that Port Welshpool attracted 42,000 day visitors and 19,000 overnight visitors in 2010 (AEC Group, Port Welshpool Long Jetty, 2010).

Key Drivers for Economic and Commercial Activity for the Precinct Plan

The over-arching driver for any commercial activity associated with the Port Welshpool Marine Precinct Plan will be the extent to which the marina can generate increased activity in the area.

Currently, year-round visitation to Port Welshpool is limited and this has resulted in a small array of commercial activities in the sea-side town. As stated earlier, commercial enterprise in Port Welshpool is generally limited to a general store and the Pier Port Hotel.

The *existing* drivers of commercial activity in Port Welshpool are summarised below:

- Permanent resident population: Port Welshpool currently has an estimated population of approximately 170 persons; a further 430 persons reside in Welshpool.
- Day visitors: Port Welshpool attracts an estimated 42,000 day visitors a year (AEC Group, Port Welshpool Long Jetty, 2010).
- Overnight visitors: Port Welshpool attracts an estimated 19,000 overnight visitors a year (AEC Group, Port Welshpool Long Jetty, 2010).
- Commercial operations at the Port: The commercial operations of the Port attract a limited number of direct workers plus commercial users of the port including commercial fisherman, boats and trucks carrying livestock, maintenance of off-shore energy projects, marine research vessels, etc. Potential exists for these users to utilise commercial facilities identified in the Precinct Plan.
- Recreational boat users: The boat ramp at Port Welshpool is popular with recreational fisherman.
- Proximity to Wilsons Promontory: Wilsons Promontory is a major tourism attraction in Victoria and Port Welshpool benefits currently, to a limited extent, from its relatively close proximity. For instance, a tour operator now runs from Port Welshpool providing all-day boat tours around Wilsons Promontory.

However, the development of the Port Welshpool Marine Precinct Plan provides an opportunity to support additional commercial activity via the following key drivers:

- Increased visitation by marina users: The 2014 Report found that development of an 82-berth marina had the potential to attract an estimated 14,500 new visitors a year to the region who will spend $1.5 million in visitor expenditure. A proportion of this spending could be retained by local businesses and any new businesses associated with the Precinct Plan.
- Improved regional tourism assets: The completion of the Corner Inlet Tourism Projects, in particular the Long Jetty and the Port Welshpool Marina. These will improve the regional profile of the South Gippsland as a tourism region, provide visitors with a greater array of things to do and encourage a longer stay. This has the potential to add to the number of day and overnight visitors to Port Welshpool.
- Improved amenity: The Precinct Plan provides an opportunity to provide a greater level of amenity throughout the marine precinct. Improved amenity of the precinct will attract people to Port Welshpool and encourage people to stay longer. This may involve upgrades of toilet facilities, improved footpaths, integrative signage, play ground or activities, etc.

Key Considerations in the Market Assessment for Marina Berths

The following are relevant considerations for market potential for marina berths at Port Welshpool:

- No major coastal marinas are located between Phillip Island and Lakes Entrance, making Port Welshpool an important strategic location in terms of providing a facility to support a large recreational boating area which includes large populations in south-east Melbourne and the Latrobe Valley.
- A number of small marinas/ports are located on the coast in proximity to Port Welshpool and these include Port Albert (a 25-minute drive from Port Welshpool) and Port Franklin (a 25-minute drive).
- Demand for boating has been particularly strong in the Gippsland region where boat registrations increased by approximately 25% (representing an additional 3,360 boats) between 2003 and 2012. A similar strong trend has been observed for the Corner Inlet area over this period, with boat registrations increasing by 22% (representing an additional 2,100 boats). These boat registration growth rates are approximately twice that experienced across the State, highlighting the ongoing strength of the Gippsland and Corner Inlet recreational boating markets.
- Forecast demand for approximately 285 new boat registrations a year is forecast in the Gippsland study region between 2011 and 2031. This assumes the 2011 ratio of 15 persons for every registered boat in Gippsland remains constant.
- Significant growth in recreational boating has occurred across Victoria between 2003 and 2012, with total boating registrations increasing from 146,990 to 170,450 over this period, growth of 11.6% over the period (Tibar Services, *Gippsland Vessel Registration Analysis – 2012 Addendum*, 2013).
- Strong growth in boating registrations in the Gippsland catchment has also occurred with the number of boat registrations increasing from 17,790 in 2003 to 18,420 in 2012. This represents growth of 25%, more than double the rate observed throughout Victoria.
- Small boat registrations represent 83% of all registrations in Victoria between 2005 and 2009 (Draft Gippsland Coastal Boating Action Plan, 2012).
- Price points for new or high quality regional coastal marinas tended to average between $3,500 pa to $6,000pa, depending on the berth size and leasing term.

Key Challenges and Considerations for Economic and Commercial Activity

The key challenges for the creation of economic and commercial activity in the Port Welshpool Precinct Plan include the following:

- Seasonality: Any commercial activities aimed at the general public will be subject to the risks associated with higher levels of activity during the summer months, and lower levels of activity during the cooler times of the year. The impact of seasonality is greater due to the small local permanent population able to sustain business at quieter times.
- Integrating with existing commercial areas: The Pier Port Hotel and general store are located on Lewis Street towards the eastern end of town. This may be a consideration for the Precinct Plan if it is to maximise the benefits for existing commercial areas.
- Impact on existing business: Although limited commercial activities are located in Port Welshpool, the inclusion of new commercial activities in the Precinct Plan may have an impact on existing businesses. Depending on the situation of businesses owners, it may

be prudent to consult with the Pier Port Hotel and general store business owners to garner an understanding of how they may be involved in the project.

- Co-location of commercial port activities and the public: The separation of commercial port activities from general access and interaction with the general public has been identified as an issue to be considered in the Precinct Plan.
- Minimising commercial risk: Port Welshpool has only a limited permanent resident population, is not a major tourism location at present and any future commercial operations are likely to be subject to issues associated with seasonality. Therefore, an element of risk is associated with funding and developing commercial areas.

As a result, the Precinct Plan should consider a staged approach to facilitating any commercial areas in the Precinct Plan. The 2014 Economic and Design Assessment Report identified the opportunity for a small shop (up to 200m^2) to be located within the existing building. This is a sensible approach that minimises costs associated with developing a commercial use. This may be a consideration when developing the Precinct Plan.

Potential Opportunities for Economic and Commercial Activity

Potential commercial activities and/or land uses that may be considered for the Precinct Plan or for further discussion and analysis may include those identified below:

- Small café/takeaway food/general store aimed at serving the needs of visitors (and residents), marina users and recreational boaters (e.g. bait, fishing supplies, etc).
- Dry boat storage - The provision of dry storage has been identified as a feature which could be incorporated into the Port Welshpool Marina. Dry storage is a popular facility at many marinas, particularly with owners of small to medium trailer boats, and can increase the number of effective “berths” without large up-front capital costs. The ‘preferred’ option in the 2014 Report included a new dry berth area with capacity for over 50 boats and mast up storage, and access to the public boat ramp.
- Integration of the Port Welshpool Maritime Museum. This may simply involve a display of selected artefacts in the Precinct Plan area that would encourage visitors to walk to the Museum on the corner of Turnbull and Townsend Streets, or a full integration of the museum.
- Space to display local art works.
- Recreational Vehicle (RV) park allowing free overnight camping. Nearby Port Albert provides these facilities which appear to be well-utilised and generate a level of year-round activity in the town. Other examples exist throughout Australia. These can be provided with relatively low cost and be used as an interim land use on land planned for alternative uses in the future.

4.2 Precinct Operations and Functions

4.2.1 Recreational

Existing facilities include a three-lane boat ramp with an alongside jetty and a floating jetty at the end, supported by a large parking area. The position of the ramp creates conflict between commercial and recreational waterway users. Wet berths are also available on several jetties. The recreational boating facilities at Port Welshpool are well used throughout the year, with most of the use being for launching and retrieval of power boats. Users identified that boat launching could be made more efficient through better design of the launching area and car park.

The other marine recreational facility at Port Welshpool is the Long Jetty. It is currently closed to public access, but the Long Jetty Rehabilitation Project is currently underway to rehabilitate this facility to provide public access. The project includes rehabilitation of the jetty to the section burnt in the 2010 fire to a standard that allows for promenading and recreational fishing.

The Gippsland Boating Coastal Action Plan 2013 identifies Port Welshpool as a Regional Boating Precinct within the recreational boating facilities hierarchy. This level of services should accommodate:

> *"a significant amount of recreational boating in appropriate conditions. These include multiple boat ramps, jetties, substantial car parking, safety measures where required and significant onshore facilities such as fish cleaning facilities, wash down areas and toilets. A site satisfying this level of the hierarchy generates a significant level of boating activity from a wide catchment."*
>
> *Gippsland Boating Coastal Action Plan 2013*

The specific components associated with a regional boating precinct are detailed in Table 4-1.

Table 4-1 Recreational Boating Facilities Hierarchy (from the Gippsland Boating Coastal Action Plan, 2013)

The following elements are generally provided at each level of service in the hierarchy: ✓ Required • Optional ✗ Not required

Typical components	Level of service					
	State marine precinct	Regional boating precinct	District boating facility	Local boating facility	Basic boating facility	Informal boating facility
Access						
Safe harbour [safe haven]	✓	•	•	✗	✗	✗
Public access	✓	✓	✓	✓	✓	✓
Car parking	✓	✓	✓	✓	✓	•
Car access to beach	✗	•	•	•	•	•
Disabled access	✓	✓	•	•	✗	✗
Launch and retrieval						
Boat ramps	✓	✓	•	•	•	•
Pier/jetty	✓	✓	•	•	•	✗
Berthing						
Public berths (itinerant)	✓	✓	•	✗	✗	✗
Wet berths	✓	•	•	•	✗	✗
Dry berths	•	•	•	✗	✗	✗
Mooring jetties	✓	✓	•	•	✗	✗
Swing moorings	•	•	•	•	•	•
Commercial shipping facilities	•	•	•	✗	✗	✗
Supplementary services						
Fuel	✓	•	•	✗	✗	✗
Pump-out	✓	✓	•	•	✗	✗
Toilets	✓	✓	✓	•	✗	✗
Wash down	✓	✓	•	•	✗	✗
Fish cleaning	•	•	•	•	•	✗
Security	✓	✓	•	✗	✗	✗
Signage	✓	✓	✓	✓	✓	•
Service utilities (power/water/lighting)	✓	✓	✓	•	✗	✗
Recreational/tourist facilities						
Capacity for major public boating events	✓	•	✗	✗	✗	✗
Boat hire/charter	✓	•	•	✗	✗	✗
Commercial vessel berthing facilities	✓	•	•	✗	✗	✗
Community facilities (including club rooms)	✓	✓	•	•	✗	✗
Recreational facilities (picnic tables, BBQs)	✓	✓	•	•	•	•
Retail or entertainment and land based uses/attractions	✓	•	✗	✗	✗	✗
Maintenance						
Boat repair and servicing	✓	•	•	✗	✗	✗
Chandlery/boating retail	✓	•	•	✗	✗	✗

4.2.2 Commercial

The Gippsland Ports Safety and Environmental Management Plan for South Gippsland Ports including Corner Inlet notes that the Port Welshpool harbour and wharf infrastructure is used by fishing, oil and gas industry and shipping operators for loading and unloading cargo and berths are used by fishing and recreational vessels. There is also slipway which is capable of slipping vessels up to 75 tonnes.

Commercial vessels may unload and replenish supplies at the Marginal Wharf. Additionally, lay up berths are available for short or long term hire. Commercial vessels may utilise the Marginal Wharf, Fisherman's Jetty or Roll on Roll off (Ro-Ro) Wharf. These facilities are under the management of Gippsland Ports

Gippsland Ports maintains an office as well as two depots in Lewis Street, Port Welshpool. The depots provide office support, work shop, storage and staging facilities for marine infrastructure works undertaken by Gippsland Ports staff. Activities undertaken include the repair and overhaul of navigation aids, construction of wharf and jetty components and moorings for navigational buoys and the storage of essential equipment including materials for oil spill response.

An overview of the facilities provided at the port is detailed in Table 4-2.

Table 4-2 Commercial Facilities at Port Welshpool

Facilities	Description
Dangerous Goods	Gippsland Ports have a dedicated dangerous goods and hazardous materials storage facility located at the depot at Port Welshpool. There are small amounts (<100 litres) of particular flammable materials such as paints and solvents stored in approved cabinets at the Port Welshpool Depot.
Fuel Storage	▪ A 5000 litre capacity above ground "convault" self-contained & bunded and fire rated fuel tank at the Port Welshpool depot containing 2500L of ULP and 2500L of diesel. ▪ One of 2000L ULP underground storage tank at the PW depot belonging to Parks Victoria. ▪ One of 30,000 litre diesel underground storage tank located adjacent to the rock wall at the entrance to the Eastern Harbour, Port Welshpool. The tank is owned by Evans Petroleum and operated by Peter Rose from the Port Welshpool General Store under arrangement with Evans Petroleum. The tank and piping are located on land under Committee of Management by South Gippsland Shire Council.
Fuel Dispensing	Fuel dispensing equipment is located at the unloading berth of the Marginal Wharf. The on-water refuelling facility services the local and passing fishing fleet.
Battery	Dedicated battery storage and charging facility in a shipping container located at the Port Welshpool Depot. It contains battery test and charge equipment, safety equipment and various lead acid battery types predominately used for vessel and plant starting, hydraulic plant operation and operation of navigation lights.

Facilities	Description
Waste Oil	2,500 litre bulk waste oil storage facility and a bunded facility for waste oil containers is located adjacent to the Marginal Wharf and Depot at Port Welshpool.
Slipways	The Port Welshpool and Port Franklin slipways are key maintenance facilities used by both commercial and recreational users. The Port Welshpool slipway is managed directly by Gippsland Ports (i.e. all slipping is undertaken by Gippsland Ports' staff). Once a vessel is slipped, maintenance work such as vessel repairs, shipwright work, cleaning, abrasive blasting and painting and mechanical work is carried out by the owner, charterer, contractors and/or support personnel. The slipway comprises a 75 tonne slip which enables pressure cleaning of hulls, painting and certain repair/maintenance activities.
Sewage Pumpout and Hopper	No sewage pumpout and hopper facilities currently at Port Welshpool.
Waste Management	Hard waste and waste oil disposal facilities exist at Port Welshpool Harbour precincts. Waterborne debris is removed and disposed of at Municipal waste disposal facility.
Berthing	Berthing is provided by the Fishermans jetty and Marginal Wharf, Ferry Terminal Jetty and the Roll On Roll Off (RoRo) Ramp.

Figure 4-1 Existing facilities at Port Welshpool

Other

- The Volunteer Coastguard is located at Port Welshpool. They are currently located in buildings adjacent to the public boat ramp facilities. Their vessel is moored at the Ferry Terminal Jetty.
- The former Ferry Terminal building is used by the community for local recreational activities.

4.2.3 Drivers, Issues and Opportunities

Table 4-3 summarises the operational / function drivers for development of Port Welshpool, the issues associated with these drivers and potential opportunities that can be developed further through the project.

Table 4-3 Operations and Functions – Drivers, Issues, and Opportunities

Issues	Opportunities
Driver 1 - Increasing recreational boating accessing Corner Inlet (and offshore) via the boat ramp.	
■ Potential competing uses and associated risks ■ Appropriate buffers between potentially incompatible uses (commercial / recreational)	■ Separation between recreational and commercial users by developing a 2-3 lane boat ramp within the new marina development away from commercial activities.
■ Traffic management and parking	■ Provision of dry storage area within Port Welshpool. ■ Formalisation of car parking and boat ramp access, particularly for any new facilities. Integration of complimentary facilities.
■ Insufficient boat ramps to cater for peak periods	■ Provision of a 2-3 lane boat ramp within a new marina, with easy access for dry storage launching.
■ Lack of good quality permanent and temporary wet berths	■ Provision of wet berths in a new marina adjacent to Long Jetty.
■ Distance to dry storage and lack of mast-up dry storage	■ New dry storage within Port Welshpool itself. ■ Income generation and employment.
Driver 2 - Port Welshpool is designated a Regional Boating Precinct	

■ Based in requirements for Regional Boating Precinct there is a need to provide the following:
  ■ Disabled access
  ■ Public berth (itinerant)
  ■ Mooring jetties
  ■ Pump-put facilities
  ■ Toilets
  ■ Wash-down facilities
  ■ Security
  ■ Service utilities
  ■ Community facilities (including clubrooms)
  ■ Recreational facilities (picnic tables, BBQ)
	■ Increased use of Ferry Terminal building.
	■ Provision of onshore facilities integrated with a new marina and boat ramp and Long Jetty redevelopment.

Issues	Opportunities
■ Land usage associated with Gippsland Ports is in centre of the precinct and interrupts flow between main car park, ferry terminal building and boat ramps	■ Create long term vision which aligns on-shore and offshore uses and encourages safe movement of public and commercial users
■ Many facilities are available but not in a convenient or central location for different activities.	■ Provide a focal point which connects the Long Jetty to the new marina and boat ramp and separates recreational from commercial uses.
Driver 3 - Provision of increased berths for recreational vessels – includes marina for recreational vessels	
■ Location of marina within Port area has potentially competing uses for same space. ■ Large vessel manoeuvring requirements limits location of marina within existing port area. ■ Location of marina outside existing port (i.e. adjacent to Long Jetty) requires dredging and associated environmental approvals/Native Title. ■ Large number of permanently utilised berths required to be commercially viable.	■ Provision of a new marina and dry storage area(s) to support increasing recreational users, including a significant number of new wet berths along with 2-3 lane boat ramp. ■ A new marina at Long Jetty ensures separation of commercial and recreational activities. ■ Ability to provide better on water fuelling and boat sewage pump-out facilities
Driver 4 - Variable demand for commercial berth arrangements (current and future)	
■ Current Commercial operational requirements (fishing, oil and gas industries, livestock, cargo, charter vessel tourism and fishing operations) ■ Provision of on-land space for net stretching, equipment maintenance, dry storage.	■ Ability to provide better on water fuelling and boat sewage pump-out facilities in a new marina than currently available for recreational vessels. ■ Encourage mixed use which caters for a number of different commercial users e.g. Ro-Ro in same area as that used for net stretching.
■ Periodic and seasonal demand for Marginal Wharf access by commercial fishing vessels from other ports for loading/unloading & refuelling and for crane, equipment and truck operations.	■ Ability for recreational vessels to use of existing Port facilities when not required for commercial purposes. ■ Preference for recreational vessels to use new marina and free up commercial space.

Issues	Opportunities
■ Potential increase in commercial activities in Corner Inlet, (i.e. the change of Marine Terminal management at BBMT that has and will in the future, allow vessels other than ESSO contracted vessels to use the Marine Terminal along with the future staged developments of Barry Point, including PAMT, brings with it background industries such as, Towage, Pilotage, Pilot Transfer Service, line handling services and emergency and environmental management services).	■ The infrastructure and port facility to accommodate this ancillary industry to support any future developments would by necessity be located at Port Welshpool given the constraints in available area at Barry Point.
■ Land access and storage limitations with the Ro-Ro berth activities associated with livestock trade.	■ Provision of better access to the RoRo facility for trucks and other vehicles. ■ Provision of onshore storage facilities near existing car park or Port facilities.
■ Conflicting wharf uses e.g. general public conflicts with across the wharf activities	■ Consolidation of recreational users to new marina and boat ramp, removing conflict.
■ Maintaining GP depot operations	■ Consolidation of recreational users at a new marina and boat ramp, allowing maintenance and potential expansion of GP depot operations.
Driver 5 - Provision of maritime security	
■ Maintaining slipway and maintenance wharf operations	■ Long term plan to remove slipway and shift practices to ship-lift configuration.
■ Maintenance dredging and disposal sites	■ Dispose of dredged sand to west of previous dredge area to increase beach width along Lewis St near Albert Rd

4.3 Urban Design and Landscape

An analysis of the urban design and landscape considerations is provided overleaf to illustrate key considerations which will inform recommendations and concepts in subsequent stages of this project. It is also noted that further opportunities will arise from the revised layout of the marine area, which is presently under development. Accordingly, the graphic analysis provided is broad in nature. It is intended to stimulate readers' analysis and does not delve into potential solutions, which are addressed through the Precinct Plan component of the project.

ISSUES + OPPORTUNITIES

① **The intersection treatment of Port Welshpool/ Lewis Street and the Bowling Club Road is poorly defined and therefore displays an underwhelming traffic island.**
O: Formalise intersection treatment and improve landscaped traffic island to enhance the foreshore entry appearance.

② **The spatial experience and attraction, west of Long Jetty and along the Bowling Club Road, lacks interest and is underutilised due to the accessibility.**
O: Encourage recreational and sightseeing tourism through measures such as a new bird watch and viewing tower, with views to Corner Inlet and Wilsons Promontory. In conjunction, enhance the existing foreshore path.

③ **The vista looking south along Lewis Street is interrupted by power lines.**
O: Increase existing street trees (especially Norfolk Island Pines) to provide a strong landscape feature along foreshore and to reduce visual clutter created by overhead power lines.

④ **Lack of on-street parking along the south side of Lewis Street and access to beach.**
O: Provide on-street parking along the south of Lewis Street for potential tourists, fishers, kite surfers, and the like.

⑤ **The narrow foreshore area has no consistent landscape treatment, and features limited furniture and picnic facilities. Lewis Street has an austere character with the only obvious attraction being the port facilities and beach.**
O: Improve and supply additional outdoor furniture to provide additional leisure and encourage a place to stay. Additionally, enhance the sense of arrival and identity with a themed landscape along the entire foreshore area.

⑥ **Illegible connection to the existing Picnic area, skate park and playground area.**
O: Improve path network from Picnic area to pergola.

⑦ **Existing public boat ramp conflict with commercial port activities and location of Coast Guard buildings.**
O: Relocate Coast Guard buildings to a more appropriate location.

⑧ **Informal car parking area:**
- **Large open expanse of gravel and grass;**
- **Unattractive and uninviting;**
- **Used for net haul-out and repairs;**
- **Ill-defined uses and spaces for activities;**
- **Confused access and circulation.**

O: Landscape selected portions as potential public open space areas, and other areas as higher amenity functional areas. Options could include defining the pier edge as working port (with area for net haul-out and other required activities), providing more public-focused spaces and uses, or a combination.

⑨ **Township linkages: Links to the Hotel across Lewis Street, and further towards the Maritime Museum, Rail Trail, etcetera, are lacking.**
O: Improve link between hotel, key uses, access features, and former ferry terminal/ docks

⑩ **The existing pier is old and in need of maintenance and interferes with the functioning of the port.**
O: Reconfigure commercial activities (re-fuelling, fishing, coast guard, etc.) to better use turning area.

⑪ **Boat trailer parking is informal and inefficient.**
O: Improve the access definition and parking bays to enable efficient use of the area (especially boat trailer parking numbers).

LEGEND
- PUBLIC RESERVE
- OVERFLOW PARKING
- RECREATIONAL FISHING + BOATING
- COMMERCIAL PORT
- CAR PARKING (PUBLIC + COMMUNITY)
- COMMUNITY FACILITY
- COMMERCIAL + RECREATIONAL PORT ACTIVITIES

Figure 4-2 Urban Design Issues and Opportunities

5 OPTIONS

Having regard for the analysis contained in this document, there are two options for marina development, with one option being at the eastern end of the Precinct (abutting the existing port area), and the other being at the western end (abutting Long Jetty). These options and the surrounding township features are depicted as follows:

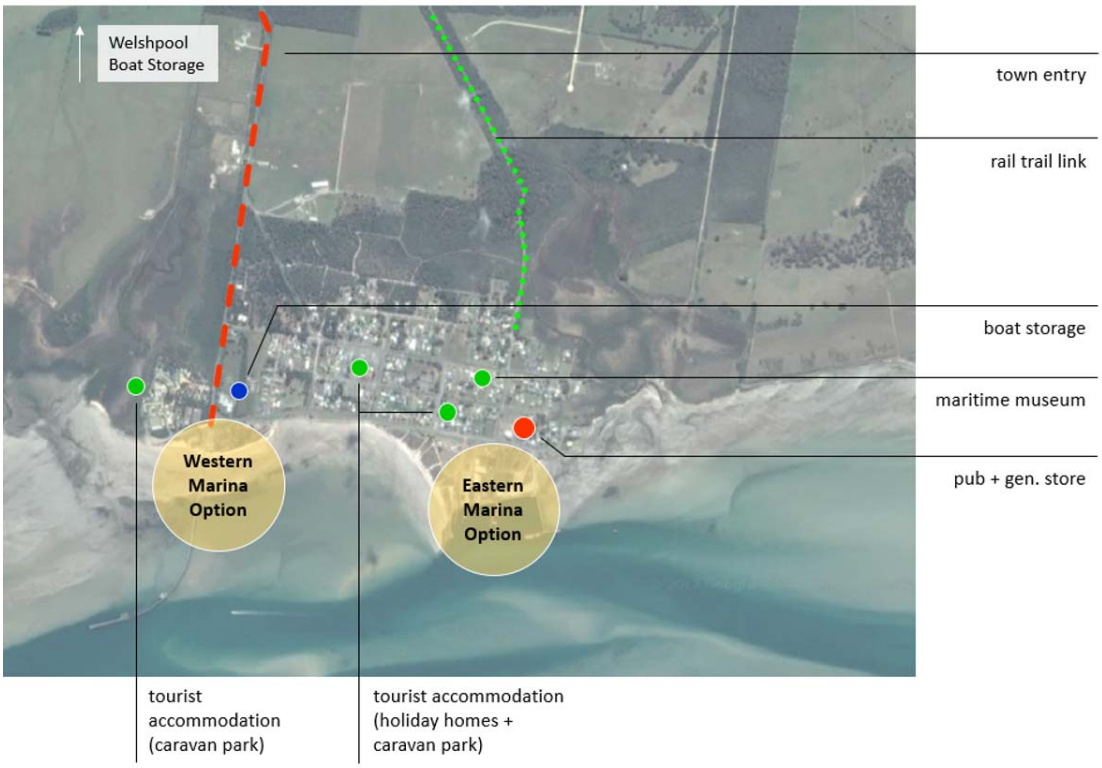


Figure 5-1 Marina Options

Each of the above options has been developed into concepts and tested through discussions with Council officers, based on engineering and economic inputs.

The following is a summary of the key steps involved in options development and testing:

1. Preliminary engineered designs were prepared for each option.
2. Key pros and cons of each option were identified, as shown in Figure 5-2:

Eastern Marina Option

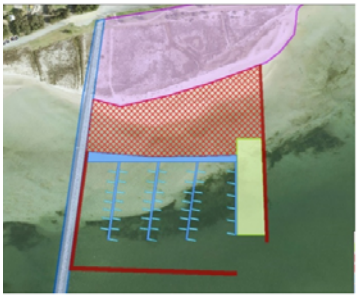
Pros

- Proximal to pub + gen. store + bike link
- Short term | easy + cheap construction
- Ample room for parking
- Ample room for landscaping + amenity

Cons

- Requires dredging in seagrass area
- Expensive | env. approvals + works
- Requires stakeholder buy-in

Western Marina Option



Pros

- Momentum of Long Jetty project | opportunity to capture further govt. commitment
- Entry to town | opportunity
- Proximal to caravan park + bowls
- Proximal to boat storage
- Relatively degraded sea grasses (TBC)

Cons

- Could make parking a dominant feature of town entry (depending on spaces required)
- Limited space available for parking + landscaping
- Expensive | env. approvals + works
- Requires stakeholder buy-in

Figure 5-2 Key Pros and Cons of Marina Options

3. Based on analysis and discussions, it appeared desirable to make the most of government investment in Long Jetty and avoid the environmental impacts which would be greater with the eastern option, due the presence of higher quality seagrasses that would be impacted by dredging. However, it was still considered that either option could prove workable.
4. To assist with choosing a preferred option and provide increase confidence in the financial aspects of the project, preliminary costings were prepared. Major marina elements were itemised and costed. Thereafter, economic due diligence was undertaken, involving a Benefit Cost Analysis and Rate of Return Assessment. This showed that the eastern marina option would be difficult to justify, due to the western option being more economically viable. This factor was noted as being important for securing future funding and potential project partners.

Taking into account the economic analysis, together with the expectation of greater environmental impacts to the east of the port, the Western Marina Option is preferred.

6 CONCLUSION

The primary outcomes sought by the project are to be able to maximise the potential for recreational and economic benefit for the community and the region, in conjunction with other projects being undertaken by Council as part of the larger Corner Inlet Tourism Development Project.

As is evident from the discussion contained within this background report, there are numerous economic, operational and spatial matters to address as part of this project. Council has previously attempted to address these matters, but has been unable to secure the necessary agreement and funding to be able to do so. This project seeks to address this matter.

Two options have been developed and tested, and it has been identified that the Western Marina Option (beside Long Jetty) should be advanced. The Precinct Plan that follows this background report develops this option as a centrepiece of the overall project.

APPENDIX A - PROJECT REFERENCE GROUP FEEDBACK (INCEPTION MEETING)

The following notes document key matters discussed at the Inception Meeting/Workshop of 16 March 2017. The summary provided is not intended to be function as formal minutes. Rather, it has been structured by topic and is provided in a logical format to assist with clarity and readability. It should also be noted that the content herein is essentially raw data, which is intended to capture the discussion at the meeting. While project directions will be informed by this information, it does not follow that all matters will be addressed as documented, or that recommendations will be limited to the information below.

Background:

- The project is a joint venture funded by Regional Development Vitoria (RDV), which has been in abeyance pending advancement of the Long Jetty project (and other endeavours).
- Port Welshpool (PW) contains the largest and most used boat ramp within the municipality, with multiple other marine activities also occurring within approximately 400 metres of the ramp, in addition to land-based activities which compete with maritime activities.
- The precinct contains several assets/management areas under various committees.
- This project deals with establishing an effective redevelopment pathway for the precinct (and sub-precincts), which satisfies the requirements of Gippsland Ports and the range of stakeholder/user groups that utilise the facilities. The project is not about planning the town (bearing in mind that the PW Structure Plan has been adopted), or about climate change or other dedicated town planning matters.
- The project will seek to balance competing interests, looking at the options available, agreeing wherever possible. The end-product will need to have sufficient robustness to make the project work.
- An economic assessment and marina design were prepared by Essential Economics and Water Technology in 2014. However, there is a need to develop alternative solutions that more fully satisfy the objectives of Gippsland Ports and other stakeholders. There is also need to accommodate commercial drivers, in addition to the recreational drivers considered in 2014.
- In parallel with this project, the brief for the refurbishment/re-instatement of Long Jetty has been issued and is to be awarded.
    - The project involves a multimillion dollar investment to restore an asset that was a major tourism attractor and will be again in future (noting it is no longer a useful facility for shipping).
- Separate to this project, Barry Beach has been offered for Expressions of Interest for the management of the marine terminal. Barry Beach accommodates larger vessels than PW.
    - Barry Beach has a 2.5-3m tidal range – approximately 5.2m at low tide and 7.5m generally.
    - Vessels can be up to 120m in length.
    - An offshore bar limits ship dimensions.

- Within the context of other ports, PW offers opportunities, as a sheltered harbour is essential for small vessels associated with various industries.
- There were extensive commercial shipping movements in the past, which accessed facilities on land. Opportunities remain.
- The Toora boat ramp to the west previously experienced more frequent usage. However, dredging is required to maintain access to the ramp and there is a lack of finances to regularly complete this work, which increases importance of this project in terms of catering for displaced demand.
- Wind and swell wave components limit ship dimensions to what is currently seen in the Barry Beach channel. The depth of the channel (6-7 metres) also limits the size of vessels entering the area. Larger boats are unlikely to be accommodated by the re-developed marina.
- The current level of protection at the harbour can be notably improved (winds can be as high as 80-90 knots or 180 kmph).
- The channel is shoaling near breakwater (but has been reasonably stable for 20 years)
- The marina is infilling with sediment from the east and the sediment trap and marina bed will need dredging again in the short term to maintain navigable depths.
- The existing beach has been established using spoil from dredging activities.

Overall Project Outcomes:

The following project outcomes are desirable, as per comments made at the meeting:

- Develop a Precinct Plan that balances competing interests and achieves a high degree of acceptance from stakeholders.
- Develop a robust framework for accessing grant monies.
- Maintain Gippsland Ports' ability to perform port functions over a 30-year horizon.
- Contribute to effective management of coastal tenures and assets.

Commercial Considerations:

- Tourism activities include/could include:
  - Boating:
    - During summer-time, yachts visit from Tasmania, stay 3-4 days and then go to Port Phillip. These rely on food, water, fuel, overnight accommodation and other necessities.
    - Itinerant vessels primarily need good fuel and good fresh water (this is especially important for smaller vessels). Not all vessels stay, as some go straight to Wilson's Promontory.
    - The proximity to Wilson's Promontory has not been utilised.
    - Gippsland Ports have a 10-year plan for navigational aids, which can dovetail with potential endeavours to create a Corner Inlet circuit that capitalises on upgraded facilities at PW.
    - Recreational boating activity has been increasing over recent years and priority should be given to addressing boating needs.
  - Fishing:

- Several visitors arrive by car and spend time on the wharf; some fish all day.
- Corner inlet fishing has increased.

- General boating and fishing:
  - One boat storage facility nearby - expansion mooted but did not occur.
  - Potential exists for additional storage facilities. Trailers are significantly more expensive when catering for vessels over 2 tonnes ($15,000 upwards), suggesting that additional dry docking is likely to be desirable due to cost effectiveness for customers.
  - Dry dock also provides opportunity for employment and side business such as refreshments and boating/fishing retail
  - One charter operator conducts tours and another charter operator is interested. The current operator undertakes 4-5 trips per year, including charters to Wilson's Promontory.
- General visitation:
  - Potential for informal recreation on enhanced landside facilities.
  - Potential for jet-skis, kayaking, stand-up paddle-boarding, etcetera. Kayaking, in particular, is increasing in popularity.
  - Landward space is barren, but people still come – there is potential for improvement.
  - Council wishes to enhance land based activities.

- Offshore energy:
  - There is latent commercial demand for offshore energy activities, including oil and gas. Long term opportunities could include wind and wave energy, depending on technological or large-scale changes regionally or globally.
    - Larger ships stay offshore with the adjoining rigs and obtain support through smaller vessels.
  - Supportive shipping functions cannot be substituted by the freeway system; these require a local commercial port.
  - Dredging is a requirement for these operations:
    - Maintenance dredging is important.
    - Opportunities may exist for new dredging.
    - Dredging at "Middle Ground," the confluence of two channels between Port Albert and Port Welshpool, was discussed – refer Environmental Considerations below.
- Commercial fishing
  - As with offshore energy, commercial fishing could benefit from new dredging.
  - PW used to function as a large commercial jetty, but most have now gone to Lakes Entrance. This has occurred even though PW has an advantage in that boats can go straight out to water. By contrast, boats must travel a considerable distance past the bar at Lakes Entrance, where extensive and regular dredging is required.

- The current jetty is not well located. It is near fully utilised, comprises some of the oldest infrastructure in the Port, and has potential to be re-located at an angle which allows for better use of the port space.

- Vessel characteristics:
  - A 65-metre length vessel has previously entered PW, although it takes considerable effort to accommodate a ship of this size in (including docking during appropriate weather conditions and subject to channel maintenance).
  - Marine research vessels occasionally visit.
  - 2 shark fishing boats utilise the PW facilities, although this number used to be greater previously.
  - Vessel operations associated with offshore energy can include tugs, pilot boats, larger vessels and line handling.
  - Numerous smaller vessels arrive from Latrobe or Melbourne by trailer. Statistics are not entirely representative, as these are based on licence locations.
  - Vessels requiring maintenance, decommissioning or other activities out of water are catered for by the slipway.
    - The slipway accommodates vessels of up to 70-75 tonnes and is utilised 20-35 times per year. Operations could increase if Port Franklin were to cease such operations.
    - The usage of the slipway has diminished significantly over the past decade.
- Commercially viable implementation:
  - Plan useability would be maximised if there are options for scaling up or down, or adapting the precinct development (e.g. if offshore energy activity increases substantially, if commercial ships increase/decrease).

Operational and Infrastructure Considerations:

- Seasonal activity can be extremely high, although activity at times can be limited.
  - Activity occurs in bursts – can be very busy or very quiet, depending on the timing.
  - There can be 60-70 boats at times.
- Commercial functionality and access from the landward loading/unloading areas needs to be maintained.
- Marginal Wharf is aging and may only have a 10-year life.
- Recreational boating competes with commercial functions and conflict needs to be resolved/managed. The proximity of the boat ramp to the roll-on roll-off terminal is an issue.
- Livestock and cargo:
  - Operations impact on/are impacted by interaction between the car park zone and breakwater – there can be 300 vehicles (plus trailers) and visitors trying to enter operational spaces to see how commercial operations work.
  - Movements involved approximately 15,000 head of cattle and 8-9,000 head of sheep.
  - Movements include vessels from King Island and Flinders Island farming operations.
  - Livestock vessels cannot utilise Barry Beach.

- Livestock operations have slowed down from approximately 1 loading/unloading per week to 1 per month. This may be influenced by the cattle-death incident in January 2016. However, it is also possible that the slow-down is market based (e.g. Victorian market may be saturated or Tasmania may be catering for its own livestock needs).

- Safety:
  - 20% of rescues are kayakers – 5 rescued this year already.
  - Rescues also done by those other than the Coast Guard.
  - The Coast Guard operates from deficient facilities. Investment is required and guidance in terms of location and operational matters is desirable as part pf the PW Marine Precinct Plan.
  - Launching into the water is very difficult during windy/stormy conditions and improved facilities, which cater for the relevant vessels are required. Proximity to the boat ramp is desirable.
  - The Coast Guard requires a new building and berthing facilities.
    - The Coast Guard wishes to accommodate an additional vessel (dry berth), training facilities, sleeping provisions for personnel who have been out to sea for an extensive period (some live the outside area and cannot drive home; some may spend 10-12 hours searching).
    - It is a requirement for the Coast Guard to be able to quickly board their vessels in all conditions. This is currently very difficult due to the fixed (as opposed to floating) berth where the CG vessel is located.
  - Rescue boats can bottom out when traversing shallow channels, such as between Port Albert and PW. However, the only way to address this is dredging.
- 250 cars can visit on a weekday at times – the number of people is increasing through the course of a full day, although parking capacity remains fixed at any single point in time.
- Visitors park on DELWP land to avoid parking fees – $55 for a year ticket (or $10 per day). This has been addressed now, so Council can fine people for parking on DEWLP land. However, some people park on the street to avoid fees. Council can only charge for parking near the ramp on council/DELWP land rather than the use of the actual boat ramp.
- The tourist car park does not need to be located as at present; other opportunities should be examined.
- There is scope for the jetty to be located elsewhere – the key reason it is located as at present is due to the Sea Cat. The vessel was accommodated in its current location as part of an opportunistic endeavour.
  - The current location impairs functionality for other activities/users.
  - The location of vessels is not ideal due to weather and competing functions.
- The existing boat berthing facilities are fully used – likely demand for more ramps and better facilities in the future.
- Attention should be given to the interface between land and water; clear delineation of agency roles is highly desirable.

Environmental Considerations:

- Depending on where the works are, native title may need to be considered (although native title has been extinguished in most relevant areas, especially those that are currently developed)
- The area to the east of the Fishermans Jetty is still subject to native title.
- The current RAMSAR management plan allows for boating and dredging activities, but depending on scale, an Environmental Effect Statement (EES) process may be required, in accordance with the requirements of the Environment Protection and Biodiversity Conservation Act 1999 (the EPBC Act).
- The possibility of dredging at "Middle Ground" (the confluence of two channels between Port Albert and Port Welshpool) was raised.
  - Dredging is possible, but will be very expensive.
  - If undertaken, such dredging would improve safety and the ability to cater for larger boats, as well as improve the extent to which existing vessels are catered for.
  - It should be note, however, that dredging here is a 'job for life.' Commitments should be made carefully.
- The last dredging activity in the harbour/port was undertaken in 2007, at which time the spoil was deposited on the foreshore for beach creation/replenishment.
- It is highly desirable to have an agreed framework for coastal crown land management. Factoring this into the project is important. Previous studies have not had sufficient regard for tenure and management responsibilities.

Social Outcomes:

- The Ferry Terminal building functions as a public hall
  - The facility is used for markets weddings, funerals, indoor bowls, etc.
  - The building management is largely self-funded at present.
  - There is a strong local attachment to building.
  - The building is located on crown land, and Council is the committee of management. However, there is very strong community stewardship, along with a keen desire to maintain the management of the building by the community.
- It is desirable to have a more 'user-friendly' Precinct, allowing people to stay and contribute to the economy.
- Council seeks to generate increased economic and tourism growth, maximise links to nearby tourist attractions (forests, Agnes Falls, Long Jetty, etc.), encourage tourist expenditure within the locale, and accommodate the needs of the local community.
- The community is keenly interested to maintain its stewardship of the local hall/Ferry Terminal building, as this is 1 of only 3 key community assets. The other 2 assets are the tennis court and the museum.
- The car park is currently lacking due to its functional demand competing with several commercial/operational activities, as well as its lack of enhancement and spatial appeal.

Communications:

- There is presently an agency forum convened by DELWP.
- Council and the Gippsland Ports board meet on regular occasions.
- A working group has been established for the hall.

APPENDIX B - COSTAL PLANNING AND ENGINEERING FOR THE WESTERN MARINA OPTION

APPENDIX C - COST ESTIMATIONS FOR THE EASTERN AND WESTERN MARINA OPTION

This Appendix contains a summary of the updated cost estimates undertaken by Water Technology for the proposed Port Welshpool Marina, considering two different marina locations (eastern and western marinas) and a range of marina capacities. The estimates have been undertaken using the preferred design requirements specified within the Australian Standard Guidelines for design of marinas AS 3962-2001.

Multiple options were evaluated with at the two locations found in Figure 1-1 with varying boat size and berth numbers. The number of berths is approximate as it depends on the assumptions around boat ramp locations etc.

1 EASTERN MARINA COST ESTIMATES

The following cost estimates found in Table 1-1 were derived for the area located adjacent to the eastern side of the existing port (see figure 1).

Table 1-1: Eastern marina cost estimates for Port Welshpool

	Boats Size	No. Berths	Estimated Cost
Option 1	12m	80	$ 9,113,212
Option 2	15m	84	$ 10,045,221
Option 3	15m	96	$ 12,273,838
Option 4	15m	120	$ 13,584,599
Option 5	15m	156	$ 15,113,478

2 WESTERN MARINA

The following cost estimates found in Table 2-1 were derived for the area located on the western side of the existing port and adjacent to the Long Jetty Port Welshpool (see Figure 1-1).

Table 2-1 Western marina cost estimates for Port Welshpool

	Boats Size	No. Berths	Estimated Cost
Option 1	12m	80	$ 9,719,081
Option 2	15m	84	$ 10,487,539
Option 3	15m	96	$ 11,034,236
Option 4	15m	120	$ 12,400,333
Option 5	15m	156	$ 13,938,788

APPENDIX D - BENEFIT COST ANALYSIS AND RATE OF RETURN ASSESSMENT

MEMORANDUM

To Paul Stampton, South Gippsland Shire Council

From Water Technology

Date 15 June 2017

Subject Long Jetty Marina – prefeasibility options assessment

1 OVERVIEW

This preliminary design review has been completed in line with the guidelines set out in the Standards Australia's "Australian Standard: Guidelines for design of marinas" AS-3962-2001. The Standard "*sets out guidelines for the design of marinas suitable for vessels up to 50m in length*". This approach is considered suitable for the proposed marina at Port Welshpool, located adjacent to Long Jetty.

The environmental conditions have been assessed and the general and extreme conditions in the vicinity of Port Welshpool described. The environmental conditions review is designed to assist in the identification of any potential issues which may present an obstacle to the marina design. Any potential mitigation options which may alleviate these potential issues, or improve the usability of the marina are noted.

2 PORT WELSHPOOL TOPOGRAPHY

Elevation contours have been provided by the South Gippsland Shire Council. The contours, provided in 0.5m steps have been used to create the digital terrain map (DTM) as shown in Figure 2-1. The figure illustrates the low-lying nature of the township, with many the properties along Lewis Street below 1.5m AHD.

The land between Lewis Street and the basin of the Port Welshpool harbour was artificially nourished during development of the harbour levels are between 1.75m AHD and 2.5m AHD around the existing ferry terminal building and carpark.

The intertidal banks to the east and west of the harbour area are visible, the shoreline sloping gently from 1.0m AHD at the back of the beach to -1m AHD at the extent of the topography shown. Significant beach nourishment with material dredged from the Lewis Channel has taken place to the west of the harbour and established the wide beach and vegetated sand dunes along Lewis Street and to the existing port area.

Dredged material may also have been deposited in and around the end of Port Welshpool Road at Long Jetty. The sediment deposited along Lewis Street also appears to have migrated west towards Long Jetty.

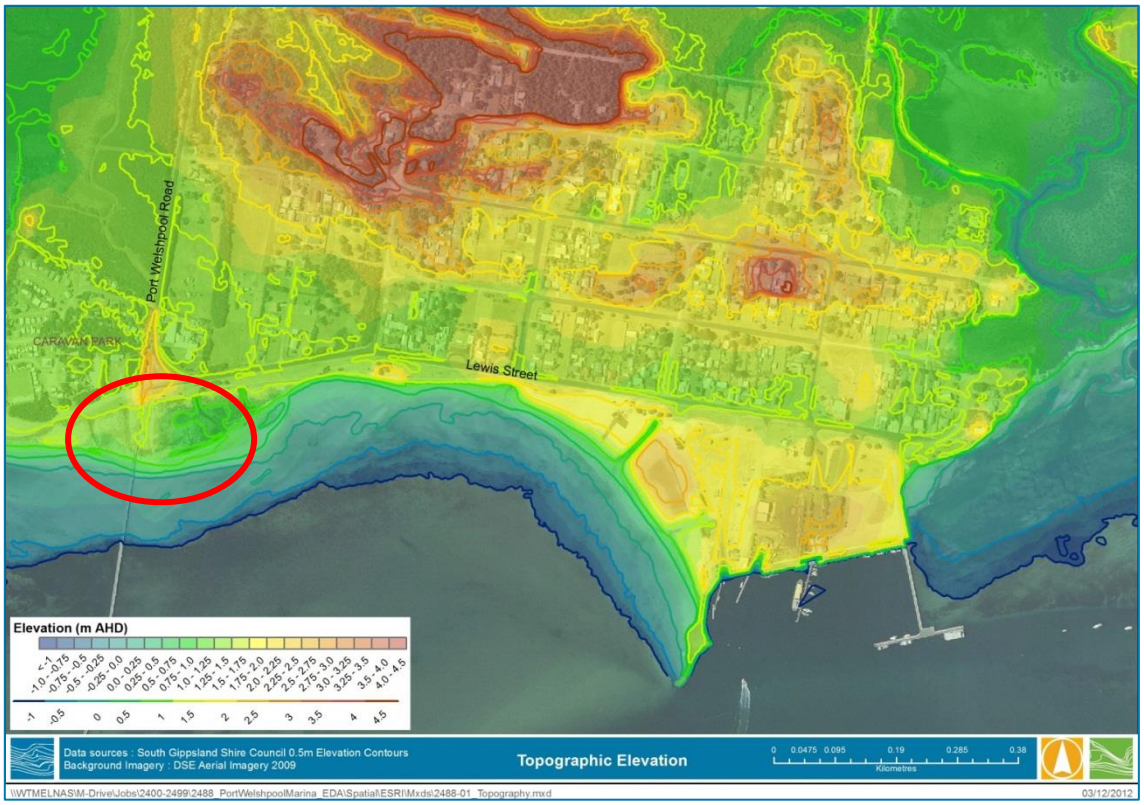


Figure 2-1 Port Welshpool Topography

3 BATHYMETRY

This is no recent bathymetric survey of the area adjacent to Long Jetty. However, an analysis of changes to bathymetry at the existing harbour and Lewis Channel was undertaken for the previous economic assessment (Essential Economics, 2014), Figure 3-1.

Gippsland Ports undertakes bathymetric survey of the Lewis Channel and Port Welshpool harbour area on a regular basis. The bed surface levels recorded in 1999, 2001, 2004, 2007 and 2012 were analysed previously to assess the variability and movement of the sediment in the area.

It was found that there had been significant (1m – 2m) scour of the main tidal channel, or a shift in the channel alignment between the Long Jetty and the harbour area. Analysis of the change between each survey indicated there is gradual accretion adjacent to the Long Jetty.

There generally appears to be a gradual movement of sediment from east to west in this area.

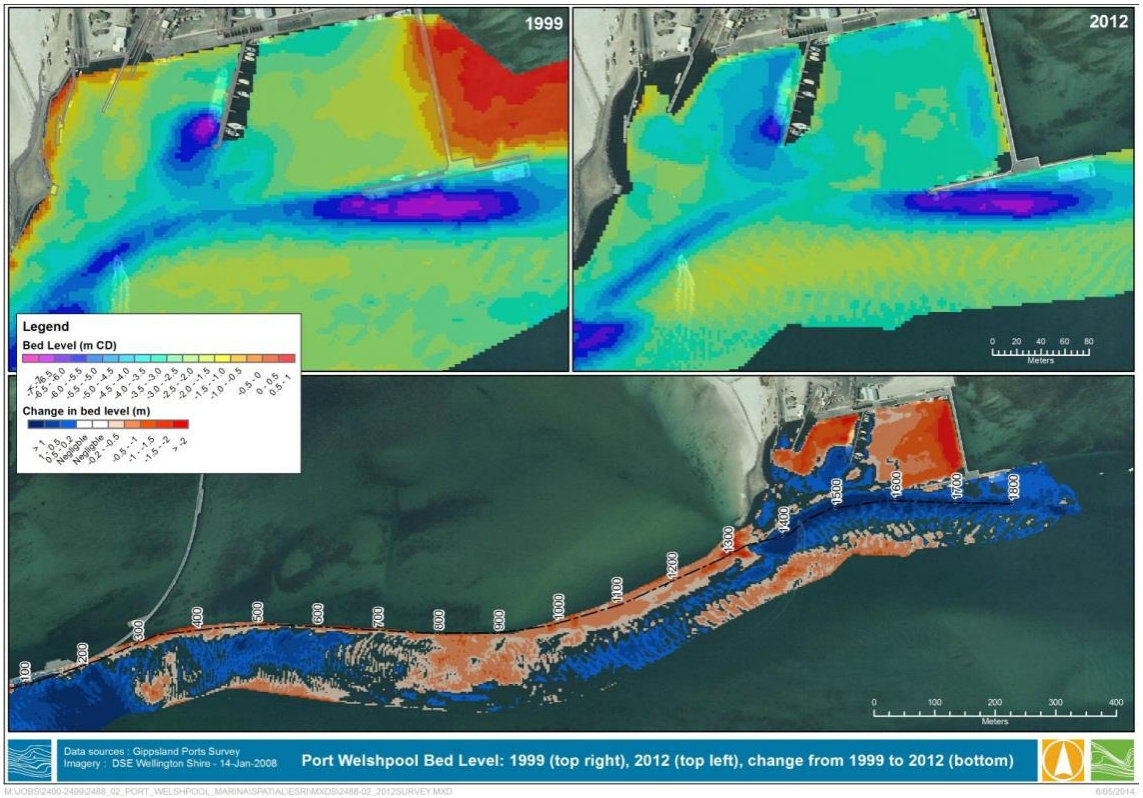


Figure 3-1 Comparison of Available Bathymetric Survey Data

4 PHYSICAL CONDITIONS

The following sections describe the contributions that different physical phenomena make to the overall hydrodynamic variability observed at Port Welshpool.

4.1 Wave Climate

In the vicinity of Port Welshpool, winds are recorded by the Bureau of Meteorology at the Wilsons Promontory lighthouse and Yarram Airport. Wind data has been recorded at the Wilsons Promontory lighthouse since 1957, with data for the period 2000 to 2008 assessed for this study. The Wilsons Promontory Lighthouse anemometer sits on an elevated and exposed headland on the southeast coast of the Promontory. There is considerable local acceleration to the gauge which leads to an overestimation in local wind speed by 20% or more.

Data has been recorded at Yarram Airport since 2007 and provides a more useful picture of the variation of wind across Corner Inlet and the Nooramunga National Park area to the east of Port Welshpool.

Year round, summer and winter wind speed and direction rose plots are presented in Figure 3.6. The wind climate at Yarram Airport is indicative of that experienced at Port Welshpool and shows:

- Wilsons Promontory protects the Corner Inlet area from the strong westerly winds. At the Yarram station, winds are from the west around 15% of the time and only a small proportion is above 10m/s.
- Winds in summer have a more significant north-easterly and south westerly component compared to the winter months.
- Winds in winter have a strong westerly component, with an increased north-west proportion of wind. Average winter wind speeds are higher than the summer winds.

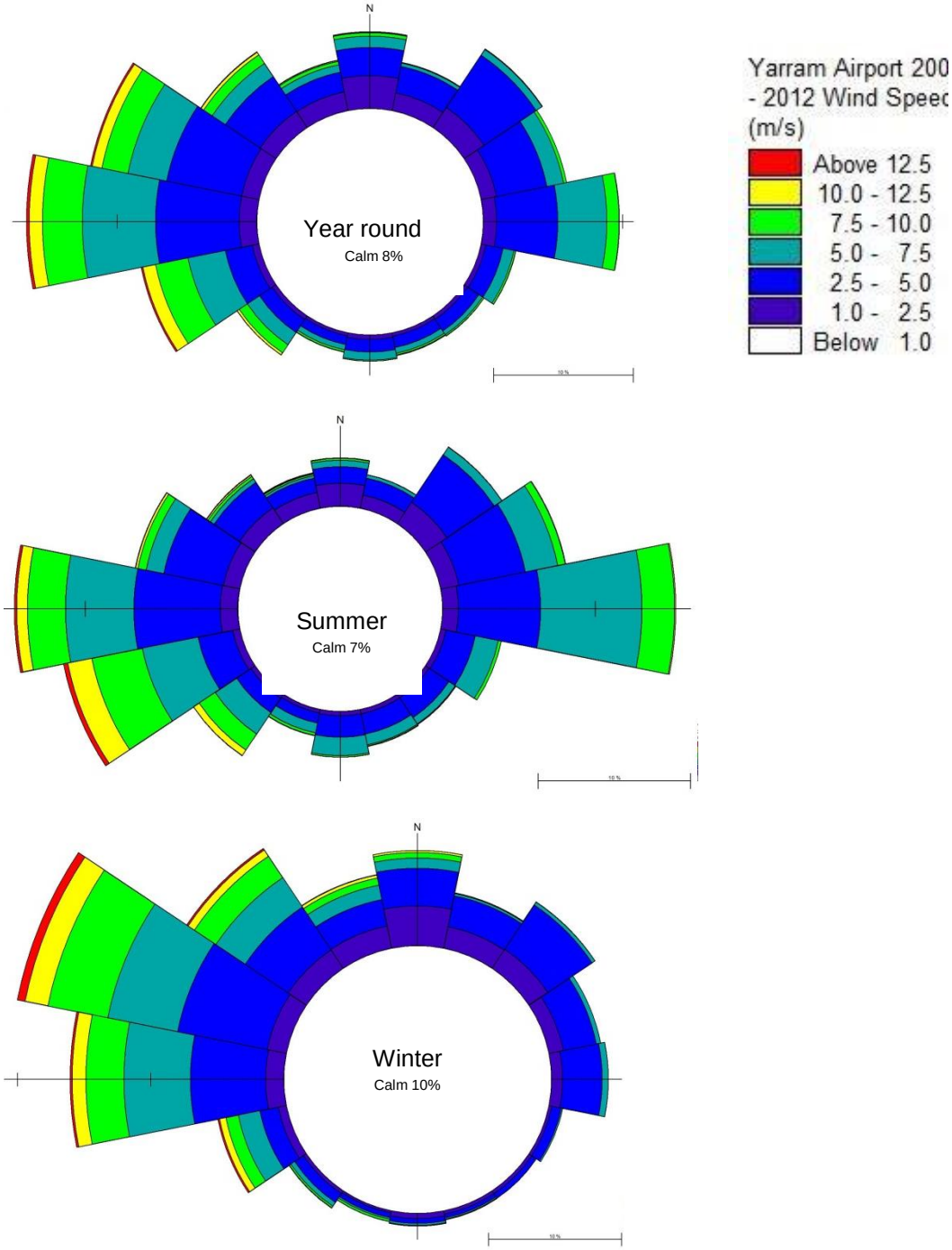


Figure 3.6: Seasonal Distribution of Wind Speeds and Directions at Yarram Airport (2007 – 2012)

4.2 Wave Climate

Port Welshpool is protected from large swell waves generated in the Southern Ocean and Bass Strait by Wilsons Promontory, the narrow entrance to Corner Inlet and the intertidal banks and channels within the inlet. The median annual significant wave height outside of the entrance is less than 1.5m (Water Technology, 2004). Median annual wave periods offshore are less than 9 seconds.

Any larger oceanic swell waves reaching Corner Inlet will develop within the Tasman Sea during east coast low events. Waves have been recorded at offshore oil platforms east of Corner Inlet at heights greater than 8.0m significant. Offshore of the Corner Inlet entrance, significant storm wave heights may exceed 4m, however much of the wave energy will be dissipated through the narrow Corner Inlet entrance channel, and on the tidal shoals around the entrance.

Within Corner Inlet, wind driven waves will be limited by the available fetch (distance wind can blow across the open water) to Port Welshpool. The largest fetch, to the east of the site across the Middle Ground is very shallow, with depths less than 1m below low water restricting the growth of unbroken waves to a fetch of approximately 5km. Design wave heights across a fetch of this length could be expected to be around 1.0m significant, with a peak period of around 3.5 seconds (USACE Shore Protection Manual, 1984).

4.3 Astronomical Tide

The astronomical tides are generated by the gravitational attraction and relative motions of the earth, moon and sun. Astronomical tides within Corner Inlet and at Port Welshpool are semi-diurnal (two tides a day) with a minor diurnal inequality. The spring tidal range at Port Welshpool can be quite large and varies between 2.0 and 2.3m. Neap tide range is in the order of 1.2 to 1.3m.

Tidal water levels at Port Welshpool are derived from 2 years of data collected by Gippsland Ports between 2001 and 2003. Standard water levels at Port Welshpool are shown in Table 4-1.

Table 4-1 Water Levels at Port Welshpool

Tidal Plane	Tidal Elevation (m AHD)
HAT	1.3
MHWS	0.9
MHWN	0.6
MSL	0.0
MLWN	-0.6
MLWS	-1.0

Source: Australian National Tide Tables, 2013

4.4 Tidal Currents

The tide approaches Port Welshpool from both Lewis Channel to the west and Middle Bank Channel to the east. The tidal divide (where the two incoming tides meet) is located approximately 4.5km east of Port Welshpool. The tidal current speed reduces from a maximum at the entrance to Corner Inlet to virtually nothing at the tidal divide. Currents through the Lewis Channel and adjacent to Port Welshpool are in the order of 0.5 – 1.5m/s (Kowarsky, 2003).

As the bathymetry shallows north of the Lewis Channel adjacent to Long Jetty, the tidal currents reduce significantly. The maximum current speed increases as you move away from shore to a maximum in the Lewis Channel. A simulation of tidal currents over a two-week astronomical tidal cycle indicated maximum current speeds of less than 0.5 m/s at Long Jetty until you get close to the channel.

4.5 Extreme Water Levels

Estimates of extreme coastal water levels (storm tides), including the impact of the projected sea level rise, have been developed by the CSIRO (2009) for different planning and sea level rise scenarios and are displayed in Table 4-2 for Port Welshpool.

The term *storm tide* refers to coastal water levels produced by the combination of astronomical and meteorological ocean water level forcing. The meteorological component of the storm tide is commonly referred to as *storm surge* and collectively describes the variation in coastal water levels in response to atmospheric pressure fluctuations and wind/wave setup.

The areas at or below the existing and projected 1% Annual Exceedance Probability(AEP) storm tide levels are shown in Figure 4-1. The image shows levels below the 1% AEP storm tide level only and should not be considered as modelled flood levels. However, there is evidence that much of the township at Port Welshpool is currently at risk of inundation from the existing 1% AEP storm tide, as shown in the dark blue area. All but isolated patches of the township are below the projected 2100 1% AEP level – the area shown in pale blue.

Table 4-2 AEP Storm Tide Levels Incorporating Mean Sea Level Rise Scenarios

	Existing (m AHD)	2030 High (m AHD)	2070 High (m AHD)	2100 High (m AHD)
Port Welshpool (10% AEP)	1.35	1.55	1.96	2.45
Port Welshpool (1% AEP)	1.63	1.84	2.27	2.73

Source: CSIRO, 2009

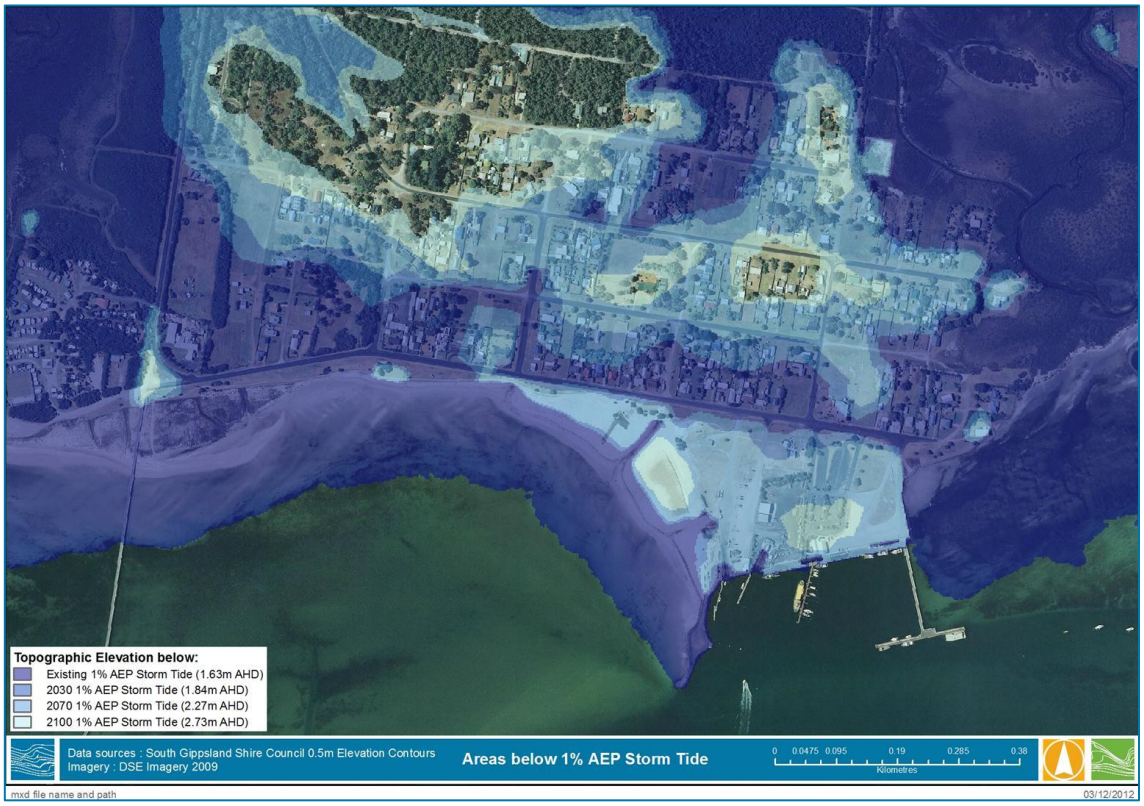


Figure 4-1: Port Welshpool Elevation below 1% AEP Storm Tides

4.6 Coastal Processes

Little analysis has been undertaken in the past to assess the coastal processes at Port Welshpool. Historical aerial photography found in Kowarsky (2007) has been reviewed to provide information on the general changes of the Port Welshpool town, harbour and Long Jetty areas.

Key features from each of the images area described below:

1941

- The Long Jetty and the Fisherman's Jetty have been constructed and partially constructed respectively;
- The Lewis Channel is well formed with visible tidal shoals and channels, as well as some sand wave patterns;
- Little to no beach is apparent above the high-water mark along the Port Welshpool foreshore.

1952

- The Fisherman's Jetty has been completed to the existing extent;
- The harbour breakwater has been constructed, along with the northern harbour wall. The bed of the harbour basin has not been dredged;
- Considerably more seagrass is evident in the intertidal areas;
- The sand bar near the Long Jetty appears to have increased in size and the main Lewis channel has migrated to the south;
- The area covered by vegetation has increased on the sand bar south of the Fisherman's Jetty.

1984

- The harbour hardstand area has been filled and the basin has been dredged. A large sand wedge is visible within the harbour appears to be spreading westward from the shallow banks to the east of the Jetty;
- Significant sediment volume has accumulated/been deposited on the western edge of the harbour breakwater. A beach above the high-water mark appears to have been established in the landward end of the breakwater;
- The channel to the east of the Fisherman's Jetty appears to be less defined than previously and the sand bar flatter and wider;
- The sand bar south of the Long Jetty has continued to grow and both the channel and sand bar have continued to migrate south;
- Less seagrass or vegetation is evident within the intertidal areas.

1991

- An additional jetty has been added in the centre of the harbour basin (the angled jetty);
- The harbour basin sand bar observed in the previous image is no longer visible;
- Channels east of the Fisherman's Jetty are well defined and it appears dredging has also been undertaken along the bar to the east;
- Additional areas of beach above the high-water mark are evident along the Lewis Street foreshore and adjacent to the breakwater. The area previously noted as being new beach has been colonised by vegetation;
- The channel to the immediate south of the Long Jetty has been dredged through to the main channel approach to Port Welshpool. The sand bank in this area has continued to increase in size;
- An increase in the area of seagrass and vegetation is evident in the intertidal zones.

1997

- Additional works (car-parking, vegetation) have been completed on the harbour hardstand area;
- There is evidence of siltation occurring within the harbour basin;

- Increased areas of vegetation on the beach west of the breakwater is evident, and the area of beach above the high water make appears to have increased;
- The area of seagrass/vegetation on the island to the south of the harbour area has increased significantly.
- Vegetation has begun to establish on the sand bank forming at the shoreline in and around Long Jetty.

2009 (DSE Imagery)

- The carpark area of the hardstand has been paved and further development (buildings) are evident;
- The harbour appears to have been dredged and a 50m long vessel is moored at the angled jetty. A dredged cut is visible to the east of the Fisherman's Jetty;
- The sandy beach above the high-water mark has remained approximately constant in area. An excavator/dump truck is visible and sand management operations are being undertaken. This suggests dredging has recently been completed and dredged sand was deposited on the beach area;
- The original main channel south of the Long Jetty appears to be infilling at the eastern end and the dredged channel becoming the primary tidal flow route;
- The sand bank adjacent to the shoreline at Long Jetty continues to increase in extent with vegetation visible.
- Sea grass/vegetation cover has increased to the east of the Fisherman's Jetty but reduced on the sand bar to the south.

4.7 Water Quality Conditions

Water quality around Port Welshpool is generally considered to be good, and conditions are maintained by the enhanced tidal flushing through both Corner Inlet and the Nooramunga area to the east.

High rainfall and subsequent high flow events in the catchments supplying Corner Inlet and Nooramunga can result in a temporary lowering of water quality within the coastal water bodies. The high flow events are usually accompanied with high concentrations of nutrient and sediment inflows; however, these are usually diluted by the tidal inflows within a short period.

There appear to be several small local drainage outlets that discharge across the sand bank area adjacent to Long Jetty. This may affect the water quality locally during rainfall events.

5 POTENTIAL DESIGN CONSTRAINTS

Table 5-1 describes the impact of the environmental conditions detailed above on the design of the marina/boat ramp at Port Welshpool adjacent to the Long Jetty. Potential marina and boat ramp concept design layouts which address some or all of these impacts are noted in the Section 6.

Table 5-1 Environmental Conditions Review

Condition	Impact	Mitigation
Topography		
	Much of the land within Port Welshpool is at or below a level of 1.63m AHD, equivalent to the existing 1% AEP return water level. By 2030 access to the Port Welshpool marina and township could be expected to be cut during the 10% AEP storm tide event.	The ground surface level of Port Welshpool and surrounding areas may present a risk for the project which cannot be mitigated without extensive capital works. Construction within the marina, should be to levels above the existing 1% AEP flood tide level with freeboard to allow for future rises in sea levels.
Bathymetry		
	Sediment appear to be accumulating in the area around Long Jetty.	A physical barrier or significant over dredging will be required in the design of the marina/boat ramp to prevent the ingress of sand from the east. Maintenance dredging of the access channel is likely to be required. Location of the marina closer to deeper water will reduce the need for dredging, and limits potential sedimentation impacts associated with the longshore transport.
	The intertidal area in the area on which the marina would be located has a limited covering of seagrass. Dredging and land reclamation in this area may cause loss of habitat for a number of species.	Detailed study will be required to determine the risks and consequences associated with any removal of the seagrass. This may pose a risk to the development as the site is located within a RAMSAR wetland. Location of the marina further offshore would limit these potential impacts.
	Sediments within Lewis Channel can shift and cause the channel to become too shallow for navigation of deeper vessels.	Gippsland Ports currently undertakes dredging of Lewis Channel every 4 – 5 years. This maintenance dredging would need to be extended to maintain continued access to the new marina and boat ramp.

Geotechnical		
	Information on the subsurface material is not readily available for the proposed marina/boat ramp area. The condition of the subsurface material will have an impact on the constructability of the marina and piling.	A detailed geotechnical investigation should be carried out following the Economic Feasibility Study. Corings within any proposed reclamation and marina areas will enable further design decisions to be made. As the geotechnical conditions are unknown at this time, there is potential risk to the design and cost of the harbour until this information has been established.
	The makeup of material to be dredged is not readily available and removal and subsequent disposal of this material may present issues.	A detailed geotechnical investigation should be carried out following the Economic Feasibility Study. Corings and sediment analysis within the marina area will enable further design decisions to be made. The disposal of dredged material requires a number of State Government approvals. Whilst this could be a risk, dredging and dredge material disposal has been completed in the past and such there is some precedent for works within the area. Dredge material could be used to reclaim the parking and hardstand area adjacent to the shoreline.
Wind Climate		
	Strong winds may cause excessive loading on boats and berthing infrastructure.	Stability analyses can be carried out in detailed design to ensure maximum wind speeds are allowed for.
	Strong winds may cause higher waves, water levels and stronger currents through Corner Inlet and around Port Welshpool, putting pressure on structures, vessels and inundating infrastructure.	Stability analyses can be carried out in detailed design to ensure maximum waves and currents are allowed for. Extreme water levels caused by storm surge can be allowed for in detailed design.
Wave climate		
	No measured wind or wave data is available at Port Welshpool, and as such conditions described in this report may under or overestimate the wave climate within the harbour.	A wave monitor should be established at Long Jetty prior to detailed design. A good record (1 – 2 months) of measured wave data will allow calibration of numerical modelling and a more accurate determination of the wave climate.
	Waves impacting navigation to and from the marina are likely to come along Lewis channel from the west.	Aligning the entrance channel so boats are running with the westerly wave until in the lee of a wavescreen/breakwater will reduce navigational hazards.

	Waves may reflect off the inside of the marina and cause unacceptable water level variations at the berths	This can be addressed and reflection of waves reviewed within the detailed design phase.
	To maintain a “Good” wave climate, waves should be less than 0.3m within the harbour area.	Construction of breakwaters and/or wavescreens will prevent direct wave action within the marina. Further work should be completed in the detailed design phase to ensure there are no internal reflections or seiching issues created within the marina.
Water Levels		
	The 2m tidal range at Port Welshpool will require adequate draft to be provided during the low tide.	Adequate draft can be provided during capital dredging of the marina.
	The 2m tidal range may cause the access to the floating pontoons to become hazardously steep.	Longer access ramps can be designed to ensure recommended maximum grades are not exceeded.
Tidal currents		
	Tidal currents are relatively low in and around Long Jetty until the Lewis Channel. However, this is based on modelling and should be confirmed by measurements or through updating the model with new bathymetric data.	Detailed design should assess the likely current speeds in and around any proposed boat ramp or marina to ensure appropriate conditions are adopted for design of wavescreens etc.
Extreme Water Levels		
	Much of the Port Welshpool township and access to the town will be inundated by the existing 1% AEP and 2030 10% storm tide events.	This may present a risk to the project.
Sediment Transport		
	Sediment from the beaches to the east of the marina/boat ramp may be suspended during larger wave energy events. This sediment may be transported into the marina area and settle out in the calm waters.	Physical barriers, maintenance and/or over-dredging can prevent/manage sedimentation of any marina/boat ramp.
Water Quality		
	Corner Inlet is a RAMSAR listed area and accidental spills within the proposed marina may have significant impact on both Corner Inlet and the Nooramunga National Marine Park.	Well maintained emergency response systems can help to mitigate the impact of accidental spills within the harbour. Proper maintenance and response guidelines should be developed during detailed design.

	Increased levels of antifouling paint may cause an impact on marine life.	There is little that can be done to mitigate the leaching of antifouling paint from the hulls of vessels. Further investigation during detailed design can assess the specific risks associated with anti-fouling material.
	Flows from existing runoff/stormwater outlets adjacent to Long Jetty could impact the water quality in any adjacent marina.	Upgrading of the stormwater outlets could be incorporated into the marina/boat ramp design program.

6 CONCEPT DESIGNS FOR CONSIDERATION

6.1 Aim of Concepts

Concept designs for the Long Jetty marina have been developed considering the risks identified in the previous section. The key items of consideration for design are:

- Inundation of the low-lying land around the development site by extreme water levels;
- Wave conditions within the marina to provide safe mooring;
- Dredging requirements and sediment transport into the marina from the east;
- Sufficient berthing volume for cost feasibility (based on previous economic analysis).

The inundation of the low-lying site can be mitigated by increasing the design floor level to provide a freeboard above the 1.63m AHD existing 1% AEP storm tide. Additional freeboard above future storm tides can also be incorporated in the detailed design phase. Council has advised previously that the current inundation of access roads to Port Welshpool will be managed with rises in sea levels and access will continue to be provided to the town under extreme weather events.

6.2 Concepts

Three marina/boat ramp concepts are presented in Figure 6-1 for discussion. The scale and location of each concept marina can be varied to meet demand and cost requirements. A discussion of the positive and negative aspects of each design are provided in Table 6-1.

As well as the specific marina/boat ramp concepts, the following aspects are required to be considered for any marina/boat ramp concept.

Dry Storage: The provision of dry storage at Port Welshpool was identified previously as a feature which should be incorporated into all potential marina/boat ramp concepts.

Dry storage is a popular facility at many marinas, particularly with owners of small to medium trailer boats. Dry storage can increase the number of effective “berths” without large initial capital costs, and can begin as a low-level facility with a securely fenced area and tractor to transfer vessels to the boat ramp before progressing to a higher level facility with multitier undercover dry storage and a number of forklifts in operation to a dedicated launch site, and additional boat service offerings such as cleaning and repair as demand increases.

There is little existing land suitable for dry storage near the Long Jetty however, dry storage could be located within the existing car park area at the harbour and mast-up transfer of boats to the existing or Long Jetty boat ramp provided.

Obstruction to Sediment Transport: Sediment transport from the east into any marina basin may occur unless an impermeable barrier is positioned along the eastern side of the marina or the marina is located sufficiently offshore to not interrupt sediment movement. A barrier will also act as a wave screen along the eastern side of the marina and boat ramp to reduce the incidence of easterly waves entering the marina during high tides.

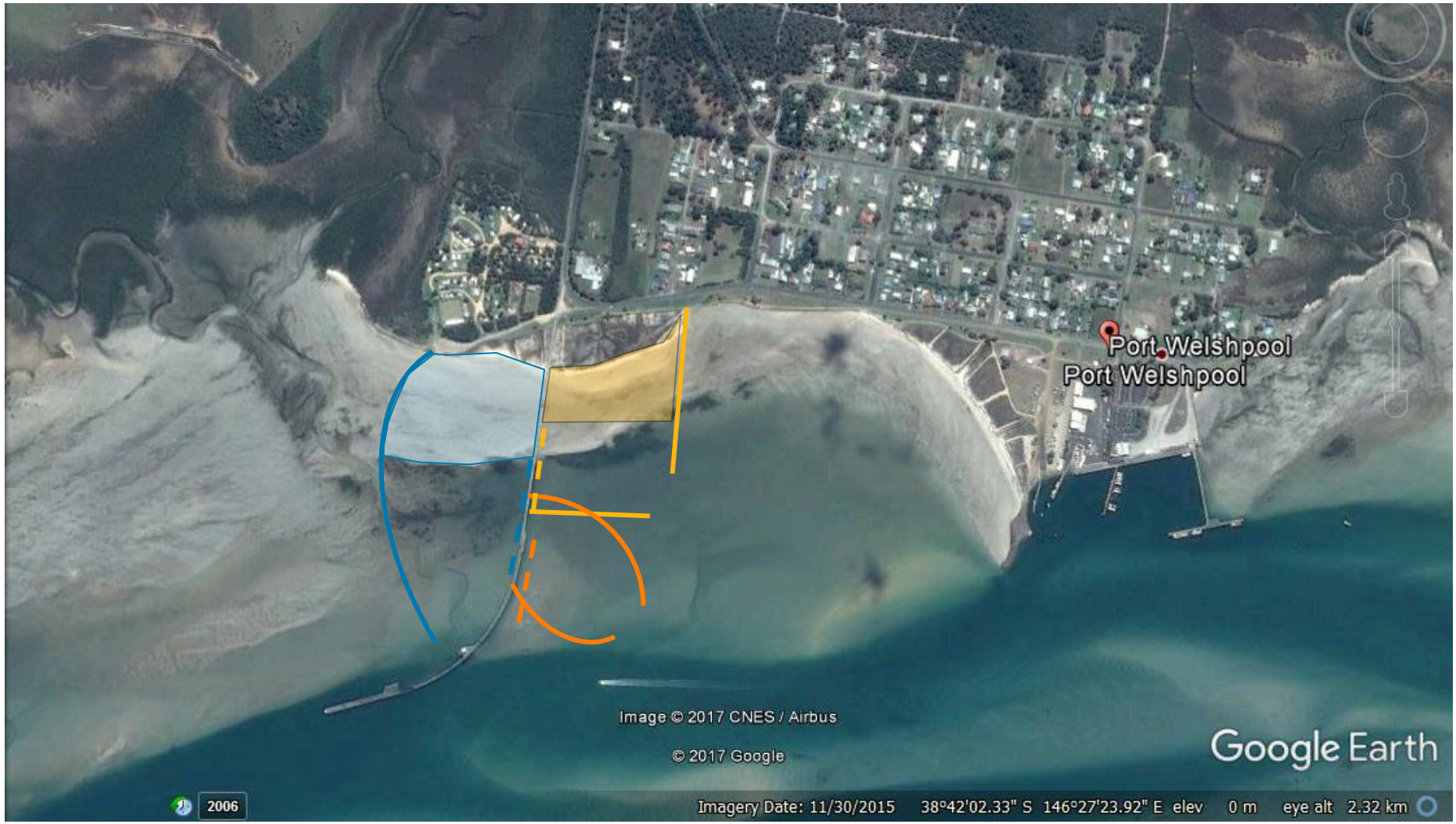


Figure 6-1 Long Jetty Marina Preliminary Concepts (for discussion)

Table 6-1 Positive and Negative Aspects of Concept Designs

Option	Components	Positive Aspects	Negative Aspects
Blue	Large rubble mound breakwater Potential for large number of berths Boat ramp(s) included Reclaimed land at shoreline	Wave protection from strong westerly winds Can incorporate dry storage, carparking, facilities etc within reclamation. Boat ramp(s) can be accommodated at shoreline or reclamation area Safer boat ramp facility for launching/retrieval than current facility Can be sized to accommodate varying numbers of berths	Will require additional wavescreen/breakwater along alignment of Long Jetty on the east Long walking distance to berths at end of southern end of the breakwater Dredging required within areas with seagrass present. Large development including construction of breakwater and dredging of basin Limited opportunity for staging Loss of public foreshore and realignment of existing drainage Maintenance dredging requirements
Yellow	Large rubble mound breakwaters and wavescreen Potential for large number if berths Boat (ramps) included Reclaimed land at shoreline	Wave protection through combination of breakwaters and wave screens. Can incorporate dry storage, carparking, facilities etc through reclamation. Boat ramp(s) can be accommodated at shoreline or reclamation area Safer boat ramp facility for launching/retrieval than current facility Can be sized to accommodate varying numbers of berths Less disturbance of seagrass during dredging than blue options Extent of marina can be scaled to suit projected demand	Will require additional wavescreen/breakwater along alignment of Long Jetty on the west Long walking distance to berths at the southern end of the breakwater Dredging required within areas with seagrass Large development including construction of breakwater and dredging of basin. Loss of public foreshore and realignment of existing drainage Maintenance dredging requirements

Option	Components	Positive Aspects	Negative Aspects
Orange	Smaller scale rubble mound breakwaters Potential for a significant number of new berths No boat ramp included.	Wave protection through breakwaters and wave screens. Can be sized to accommodate varying numbers of berths Less distance to deeper water which reduces capital and maintenance dredging requirements No/less disturbance of seagrass during dredging Extent of marina can be scaled to suit projected demand	Will require additional wavescreen/breakwater along alignment of Long Jetty on the west No boat ramp, dry storage, carparking, facilities etc through reclamation. Long walking distance to berths at the southern end of the breakwater Medium development including construction of breakwater and dredging of basin. Maintenance dredging requirements although less than other options
Dry Storage (not shown on map)	Hard stand area and tractor to launch and retrieve boats Low demand – secure fenced area, use of public boat ramp High demand – Dry stack building, multitier storage, dedicated launching place (not shown)	Suits boats less than 12-13m Suits most trailer boats which are common in region Cheaper (for both owner and users) than wet storage Reduces need for hull cleaning (and therefore prevalence of harmful antifouling paints in water) Easily staged to grow with demand Reduces trailer traffic into Port Welshpool Reduces congestion at boat ramp Creates employment opportunities	Uses up existing carparking/park area Requires staff Could be deemed unsightly

ESSENTIAL ECONOMICS

Port Welshpool Marina Development

Benefit Cost Analysis and Rate of Return Assessment

17th August 2017 **Ref: 17005**

1 Marina Options

The following marina development options have been assessed as part of this analysis:

- Option 1: Western 85 Berth Marina
- Option 2: Eastern 85 Berth Marina
- Option 3: Western 100 Berth Marina
- Option 4: Eastern 100 Berth Marina
- Option 5: Western 125 Berth Marina
- Option 6: Eastern 125 Berth Marina
- Option 7: Western 155 Berth Marina
- Option 8 Eastern 155 Berth Marina

Note, the Eastern Option included in this analysis is not the same option as the one included in the 2014 report, which made use of existing infrastructure hence the lower capital costs.

The new Eastern and Western options are based on the following cost considerations:

Construction components

- Dredging and reclamation
- Breakwaters
- Seawall (where required)
- Allowance for parking area on reclamation
- Berths and marina services
- Construction contingency of 20%
- Boat ramps

Other Investigations

- Detailed design
- Acid sulphate soils/Geotech
- Environmental approvals
- Construction and supervision

2 Development Assumptions

The following assumptions are consistent across all options:

- Wet berths are designed to accommodate boat sizes of 15m in length and are leased at $5,000 pa
- 10 itinerant / visitor berths are provided and leased at $40 per night
- A 50 berth dry storage facility is provided and leased at $25 per berth/week
- $100,000 pa is allocated for ongoing marina maintenance
- $50,000 pa is allocated for ongoing dry berth maintenance
- Wet berth maintenance fees are $500 pa / per berth
- Dry berth maintenance fees are $100 pa / per berth
- A commercial facility of 200m^2 is provided, returning $125/$m^2$ in lease fees

Capital costs for each marina option and associated facilities have been estimated by Water Technology and Essential Economics.

3 Visitation and Visitor Spending Assumptions

Increased visitation leveraged from each marina option is based on:

- Marina occupancy (for permanent berths) of 40 visitor nights pa / per berth (ie one weekend per month, plus two weeks during holiday periods) associated with permanent berths.
- 2 visitors per permanent marina berth are assumed (associated with the 40 visitor nights).
- Visitation and visitor benefits from permanent berths are reduced by 15 berths, to reflect existing marina provision at Port Welshpool – ensuring only 'net' visitor spending benefits are counted.

- A small amount of additional visitation and visitor spending will be generated from the 10 itinerant berths, with a single visitor night associated with these berths when occupied.
- Day trip visitation to Port Welshpool stimulated by the marina development is calculated on a 1:1 ratio with estimated additional visitor nights (associated with each option).

Visitor spending is based on the following Tourism Research Australia estimates for South Gippsland Shire (2015, latest available):

- $80 per overnight visitor
- $85 per day trip visitor

4 Options Testing

The options have been assessed using the following parameters:

- 30-year project lifecycle
- Construction is spread over years 1 and 2, with benefits accruing from year 3 onwards
- Calculations are provided for Net Benefits, Net Costs, Project Costs v Operational Revenues, Benefit Cost Ratio (BCR) and Rate of Return (ROR)
- Results are expressed in Net Present Value (NPV), using a 4.75% discount rate (In line with the Treasury's 10-Year Bond Rate)

Each option is tested against the following scenarios:

- 100% occupancy for wet berths, visitor berths and dry storage berths
- 75% occupancy for wet berths, visitor berths and dry storage berths
- 50% occupancy for wet berths, visitor berths and dry storage berths

Capital and operational costs, marina revenues and visitor spending are adjusted in line with differing marina sizes and occupancy rates, with the results shown in tables A to C.

Overall costs per berth (capital and operational) are shown in Table D.

Table A: 100% Occupancy Scenario – Results

	Western	Eastern
85 Berth Marina		
	Option 1	*Option 2*
NPV Benefits	$28,130,867	$28,130,867
NPV Costs	$12,891,911	$12,449,847
BCR	**2.18**	**2.26**
Project Costs v Operational Revenues	**-$2,535,601**	**-$2,093,536**
ROR	**-19.7%**	**-16.8%**
100 Berth Marina		
	Option 3	*Option 4*
NPV Benefits	$32,231,001	$32,231,001
NPV Costs	$13,416,443	$14,627,937
BCR	**2.40**	**2.20**
Project Costs v Operational Revenues	**-$1,854,210**	**-$3,065,705**
ROR	**-13.8%**	**-21.0%**
125 Berth Marina		
	Option 5	*Option 6*
NPV Benefits	$39,064,558	$39,064,558
NPV Costs	$14,751,530	$15,908,978
BCR	**2.65**	**2.46**
Project Costs v Operational Revenues	**-$1,179,428**	**-$2,336,876**
ROR	**-8.0%**	**-14.7%**
155 Berth Marina		
	Option 7	*Option 8*
NPV Benefits	$47,264,827	$47,264,827
NPV Costs	$16,255,128	$17,403,194
BCR	**2.91**	**2.72**
Project Costs v Operational Revenues	**-$271,182**	**-$1,419,248**
ROR	**-1.7%**	**-8.2%**

Source: Water Technology; Meinhardt and Essential Economics Pty Ltd

Table B: 75% Occupancy Scenario – Results

	Western	Eastern
85 Berth Marina		
	Option 1	*Option 2*
NPV Benefits	$21,057,149	$21,057,149
NPV Costs	$12,891,911	$12,449,847
BCR	**1.63**	**1.69**
Project Costs v Operational Revenues	**-$5,165,680**	**-$4,723,615**
ROR	**-40.1%**	**-37.9%**
100 Berth Marina		
	Option 3	*Option 4*
NPV Benefits	$24,031,756	$24,031,756
NPV Costs	$13,416,443	$14,627,937
BCR	**1.79**	**1.64**
Project Costs v Operational Revenues	**-$4,886,263**	**-$6,097,758**
ROR	**-36.4%**	**-41.7%**
125 Berth Marina		
	Option 5	*Option 6*
NPV Benefits	$29,257,417	$29,257,417
NPV Costs	$14,751,530	$15,908,978
BCR	**1.98**	**1.84**
Project Costs v Operational Revenues	**-$4,613,455**	**-$5,770,903**
ROR	**-31.3%**	**-36.3%**
155 Berth Marina		
	Option 7	*Option 8*
NPV Benefits	$35,206,632	$35,206,632
NPV Costs	$16,255,128	$17,403,194
BCR	**2.17**	**2.02**
Project Costs v Operational Revenues	**-$4,509,157**	**-$5,657,223**
ROR	**-27.7%**	**-32.5%**

Source: Water Technology; Meinhardt and Essential Economics Pty Ltd

Table C: 50% Occupancy Scenario – Results

	Western	Eastern
85 Berth Marina		
	Option 1	*Option 2*
NPV Benefits	$14,266,421	$14,266,421
NPV Costs	$12,891,911	$12,449,847
BCR	**1.11**	**1.15**
Project Costs v Operational Revenues	**-$7,512,769**	**-$7,070,704**
ROR	**-58.3%**	**-56.8%**
100 Berth Marina		
	Option 3	*Option 4*
NPV Benefits	$16,115,501	$16,115,501
NPV Costs	$13,416,443	$14,627,937
BCR	**1.20**	**1.10**
Project Costs v Operational Revenues	**-$7,635,326**	**-$8,846,821**
ROR	**-56.9%**	**-60.5%**
125 Berth Marina		
	Option 5	*Option 6*
NPV Benefits	$19,733,266	$19,733,266
NPV Costs	$14,751,530	$15,908,978
BCR	**1.34**	**1.24**
Project Costs v Operational Revenues	**-$7,764,492**	**-$8,921,940**
ROR	**-52.6%**	**-56.1%**
155 Berth Marina		
	Option 7	*Option 8*
NPV Benefits	$23,431,426	$23,431,426
NPV Costs	$16,255,128	$17,403,194
BCR	**1.44**	**1.35**
Project Costs v Operational Revenues	**-$8,464,142**	**-$9,612,208**
ROR	**-52.1%**	**-55.2%**

Source: Water Technology; Meinhardt and Essential Economics Pty Ltd

Table D: Cost per Berth (Capital and Operating) over 30-years

	Western	Eastern
85 Berth Marina		
	Option 1	*Option 2*
Cost per berth	$151,670	$146,470
100 Berth Marina		
	Option 3	*Option 4*
Cost per berth	$134,160	$146,280
125 Berth Marina		
	Option 5	*Option 6*
Cost per berth	$118,010	$127,270
155 Berth Marina		
	Option 7	*Option 8*
Cost per berth	$104,870	$112,280

Source: Water Technology; Meinhardt and Essential Economics Pty Ltd

5 Conclusions

The above analysis highlights the following:

1 A 155+ berth marina would appear to be a minimum requirement to deliver a 'cost neutral' project rate of return (NPV). This outcome is based on a typical 30-year lifecycle and assumes 100% occupancy across all permanent, itinerant and dry berths with a $5,000 pa price point for permanent wet berths.

In terms of sensitivity, a 75% occupancy rate for a 155 berth marina would result in a -28% project rate of return (NPV), highlighting the need for full occupancy or potentially higher price points to enable the marina to operate with lower occupancy rates.

For example, increasing the annual wet berth lease price from $5,000 to $7,000 – which is in line with current rates for 15m wet berths at Yaringa and Western Port marinas – then a 155 berth marina at Port Welshpool could be financially viable with an 80% occupancy rate.

2 Marina options including less than 155 berths (even at 100% occupancy) are likely to result in negative rates of return (NPV) over 30 years, with these deficits more severe the smaller the marina option.

3 It would be most cost effective to construct a western-located 155+ berth marina adjacent to Long Jetty Port. An eastern-located marina does not appear financially viable under the options tested, due to high comparative cost (capital and operational) per berth.

4 When assessed from a broader regional economic perspective, all options return a Benefit Cost Ratio of more than 1, indicating investment in the project can be considered 'economically efficient' if tourism and economic development benefits are also factored in.

As with the rate of return analysis; the best BCR outcomes (2.9:1.0) is associated with the 155 berth western-located marina option, as this would generate the highest additional visitor numbers and visitor spending revenues.

Disclaimer

Every effort has been made to ensure the accuracy of the material and the integrity of the analysis presented in this report. However, Essential Economics Pty Ltd accepts no liability for any actions taken on the basis of report contents.

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