

Private Plan Change Request

Waikawa Marina

Assessment of Traffic Effects

February 2010

Traffic Design Group



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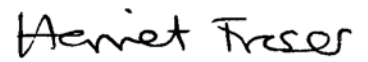
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Private Plan Change Request

Waikawa Marina

Assessment of Traffic Effects Quality Assurance Statement

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1. Introduction

Port Marlborough New Zealand Ltd proposes a Private Plan Change to extend the Waikawa Bay Marina Zone to the northwest of the existing Marina Zone to provide potential capacity for approximately 250 additional vessels. In conjunction with the proposed zone change, a total of 186 swing mooring sites are to be relocated and consolidated in specific Mooring Management Areas within the inner part of Waikawa Bay, as detailed in the proposed Plan Change.

In conjunction with these proposed changes under the Plan Change as requested, it is intended to allow the existing resource consent to develop 250 dry berths adjoining the existing northwest marina facilities to lapse.

It is understood that, following extensive consultation and contingent on successful extension of the Marina Zone through this Plan Change, Port Marlborough will seek resource consent to expand Waikawa Marina into the newly zoned northwest Marina Zone as a preference over development in the existing undeveloped northeast Marina Zone.

This report firstly outlines the existing traffic environment at the existing marina and adjoining road network. The overall traffic effects of the Plan Change in terms of construction traffic, ongoing traffic associated with the wet berths and swing moorings together with any anticipated changes in parking demand, and any wider effects on the local road network are then identified and assessed.

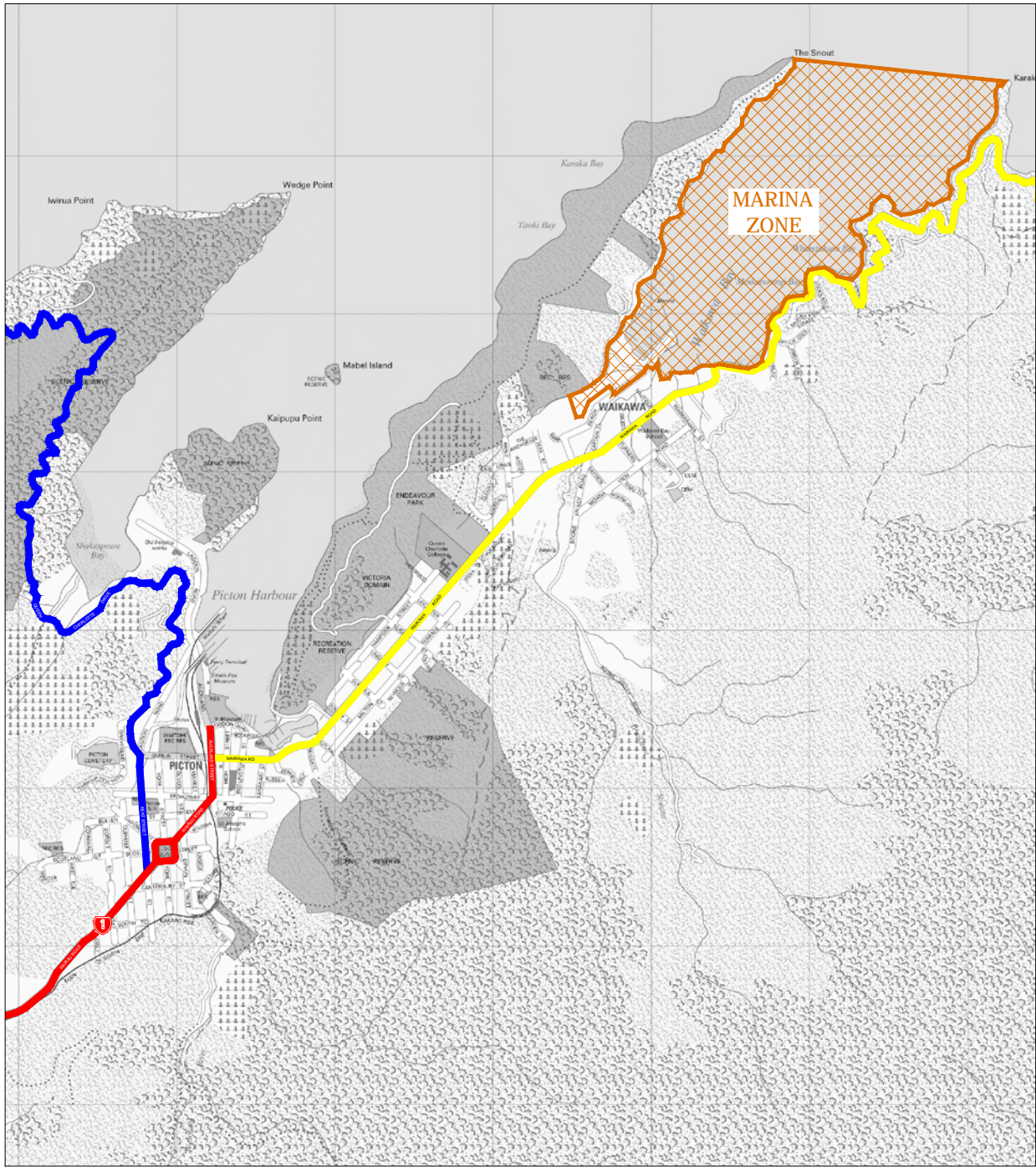
As will be seen, the scale of the anticipated traffic-related effects over and above those associated with the existing Marina Zone will be relatively modest, with the exception of the traffic during construction. Any construction traffic effects can be effectively managed by a mechanism such as a Construction Traffic Management Plan which would be imposed through the resource consenting process necessary for the development of any new marina.

In summary, it is found that the transportation effects of the proposed Plan Change are readily able to be accommodated both on-site and across the wider road network without any significant effect on other road users or the wider community. These improvements to the marina could be expected to lessen, to some degree, the need for otherwise more regular road transport of boats to and from Waikawa and the associated increased demand on launching facilities that are already relatively congested during the peak tourist season.

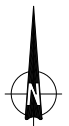
2. Existing Transport Infrastructure

2.1 Site Location

The existing Marina Zone at Waikawa is located to the north of Waikawa Road approximately 4km northwest of Picton. The site location together with the roading hierarchy, as set out in the Marlborough RLTS 2007 and the Resource Management Plan, is shown in Figure 1.



- National Route
- Primary Arterial
- Secondary Arterial
- Collector Route
- Local Road
- Marina Zone Location



Friday, 29 January 2010

Waikawa Marina Plan Change
Location in Road Network

Traffic Design Group

1

SCALE: 1:40,000

As shown, access to the Marina is provided from Waikawa Road via Beach Road and Marina Drive. Both roads are local access roads, with Marina Drive accessing Beach Road via a 'T' intersection and Beach Road joining Waikawa Road also through a 'T' intersection. At both of these intersections, the intersecting road is give way controlled.

These roads also function as access to local businesses and residential properties that are located around the marina.

2.2 Existing Layout of Marina

The Marina site is relatively extensive within the bay, with areas away from the coastal frontage consisting of boat sheds, boat storage compounds, maintenance areas and small scale marine-related commercial activities such as sail making, marine engineering and boat charter companies. All these uses have dedicated carparking facilities.

Along the coastal frontage and within the bay itself, the main berthing areas and carparking facilities are located along with waterfront cafe/bar facilities, a boat ramp and associated trailer parking, and further boat charter and water based activities.

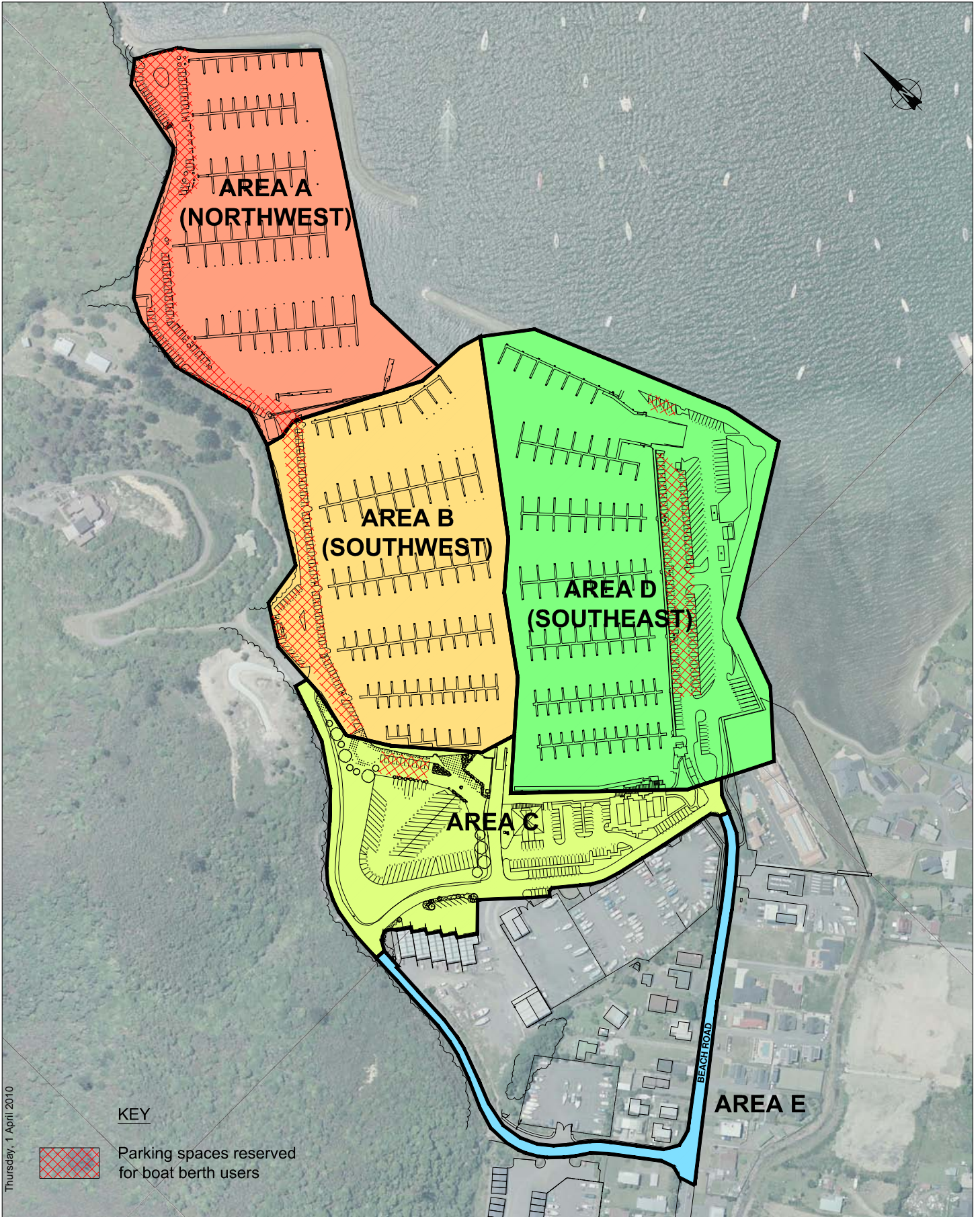
These existing site layout details are illustrated in Figure 2.

The existing marina has a total number of 605 wet berths in three main areas. One area containing space for 251 berths (Area D) is located on the southeastern side of the marina, and two further areas of 208 berths (Area B) and 146 berths (Area A) respectively are sited on the northwestern side. The 251 berths within Area D include seven berths used for boat sales and six berths used by charter companies. Pedestrian and vehicle access and associated parking is provided adjacent to each of these three berthing areas. The parking area serving the southeastern side of the marina also has facilities for the launching of boats, which is available both to marina tenants and to the general public. The parking spaces provided for marina berth holders are controlled by a permit scheme that is enforced by the marina management. Marina berth permit holders are permitted to park within any of the designated parking areas for marina berths on either side of the marina.

The parking spaces provided for sole use by marina berth holders include:

- 115 carparks in southeast carpark (serving 251 berths)
- 123 carparks in southwest carpark (serving 208 berths)
- 92 carparks in northwest carpark (serving 146 berths).

This equates to a total parking provision of 330 spaces for 605 wet berths associated with the existing facility or an effective rate of some 0.55 spaces per berth. The southeast carpark also includes a separate pay and display area for 30 cars and 49 car and trailer spaces. Additional car and trailer spaces are also provided in an overflow carpark on the western side of the marina for a total of 54 car and trailer spaces and 22 car spaces.



Thursday, 1 April 2010

KEY



Parking spaces reserved for boat berth users

Waikawa Marina Plan Change
Existing Site Layout

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2

SCALE: 1:3,500

2.3 Dry Stack Facility

In accordance with RM U050484, further development is permitted within the Marina Zone, including:

- a dry stack facility to accommodate some 250 boats
- up to 35 residential apartments
- associated carparking for 135 vehicles.

Accordingly, potential further traffic associated with a 250 space dry stack facility was envisaged by this existing consent, although it is now planned that instead of the dry berth facility, additional wet berths will be developed.

2.4 Road Network

Waikawa Road is defined as a Collector Route in the Marlborough Regional Land Transport Strategy 2007 (Appendix 1) and the Marlborough Sounds Resource Management Plan, meaning that it is a locally preferred route between or within areas of population or activities. In the vicinity of the intersection with Beach Road, Waikawa Road has an overall reserve width of 20m comprising a trafficable width of 7m with shoulders and berms on each side. There is a 2m wide footpath along the northern side of the road. The road is subject to a 50km/h speed restriction in this locality.

Beach Road is a Local Road with an overall reserve width of 18m. The sealed carriageway width varies from 10.2m close to Waikawa Road reducing to 8.5m in the vicinity of Marina Drive. There is a 1.5m wide footpath along the northern side of the road.

Marina Drive is also a Local Road, and has a sealed carriageway width of between 6.0 and 6.2 within a 15m wide road reserve. There is a 1.5m wide footpath along the eastern side of the road. Both Beach Road and Marina Drive are within a 50km/h speed zone.

2.5 Facilities for Other Transport Modes

Easy pedestrian access is available to and from the Marina Zone. A footpath provided along the entire length of Beach Road, linking into Marina Drive, which in turn provides further connections to footpaths around the marina carparks and to and from the commercial and other on-site facilities. A further footpath link is also provided from the cul-de-sac head in Nautique Place through to Waikawa Road.

Although there are no dedicated cycleways to and from the marina, and it is recognised that marinas generate very little demand for cycle access, the relatively modest vehicle flows along both Waikawa Road and Beach Road allow them to readily accommodate the cyclists that do use these roads to access the marina.

3. Current Vehicle Travel Patterns

3.1 Traffic Volumes

As part of the detailed investigations undertaken for this assessment, traffic data was collected at each of the locations shown in Figure 3. This enables the size and pattern of marina related traffic in relation to the overall local traffic patterns to be identified, as described in the following sections.

3.2 Daily Patterns

The summer daily patterns of all traffic across the local road network have been measured, as identified in Figure 4.

As expected, the heaviest concentration of traffic is along Waikawa Road, and to a lesser extent along Beach Road.

3.3 Intersection Patterns

In conjunction with recording the underlying daily patterns, as described above, manual turning count surveys were specifically commissioned to target the projected busiest weekday and weekend traffic during the 2007/08 summer holidays. The turning flows were recorded on Thursday 27 December 2007, Saturday 29 December and Tuesday 1 January 2008. In reviewing the subsequent traffic flows on Waikawa Road for 2008/09 and 2009/10, it is noted that traffic patterns in this locality have not increased during the last two years. The three key intersections leading to the marina that were surveyed are identified in Figure 3 and include:

- Waikawa Road / Beach Road
- Beach Road / Marina Drive
- Marina Drive / Alternative Marina Access.

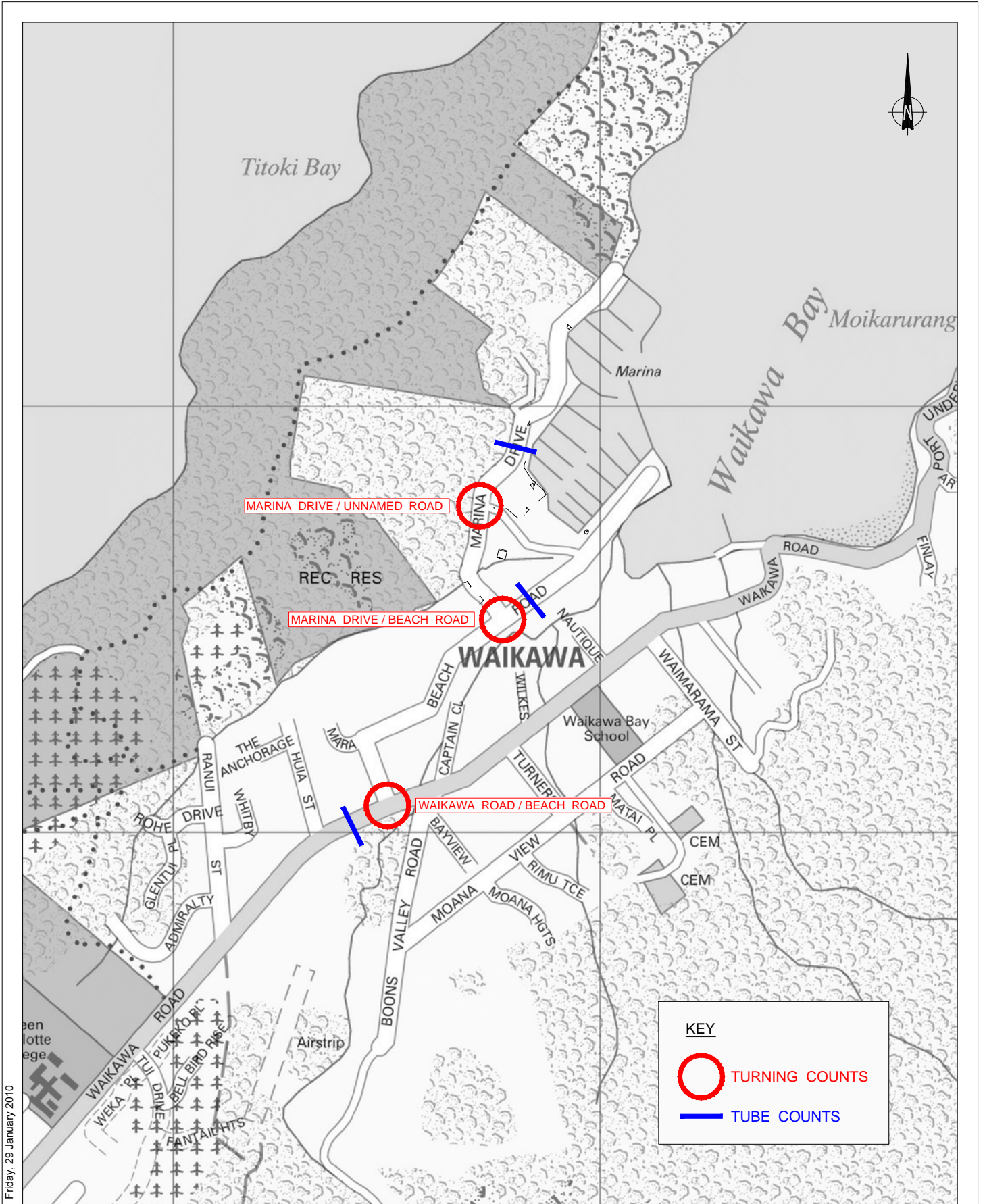
The days surveyed, and the start and finish times of the surveys were selected to ensure that they identified the traffic flows during the peak times for the summer at the marina, as follows:

- 9:00am to 11:00am
- 4:00pm to 6:30pm.

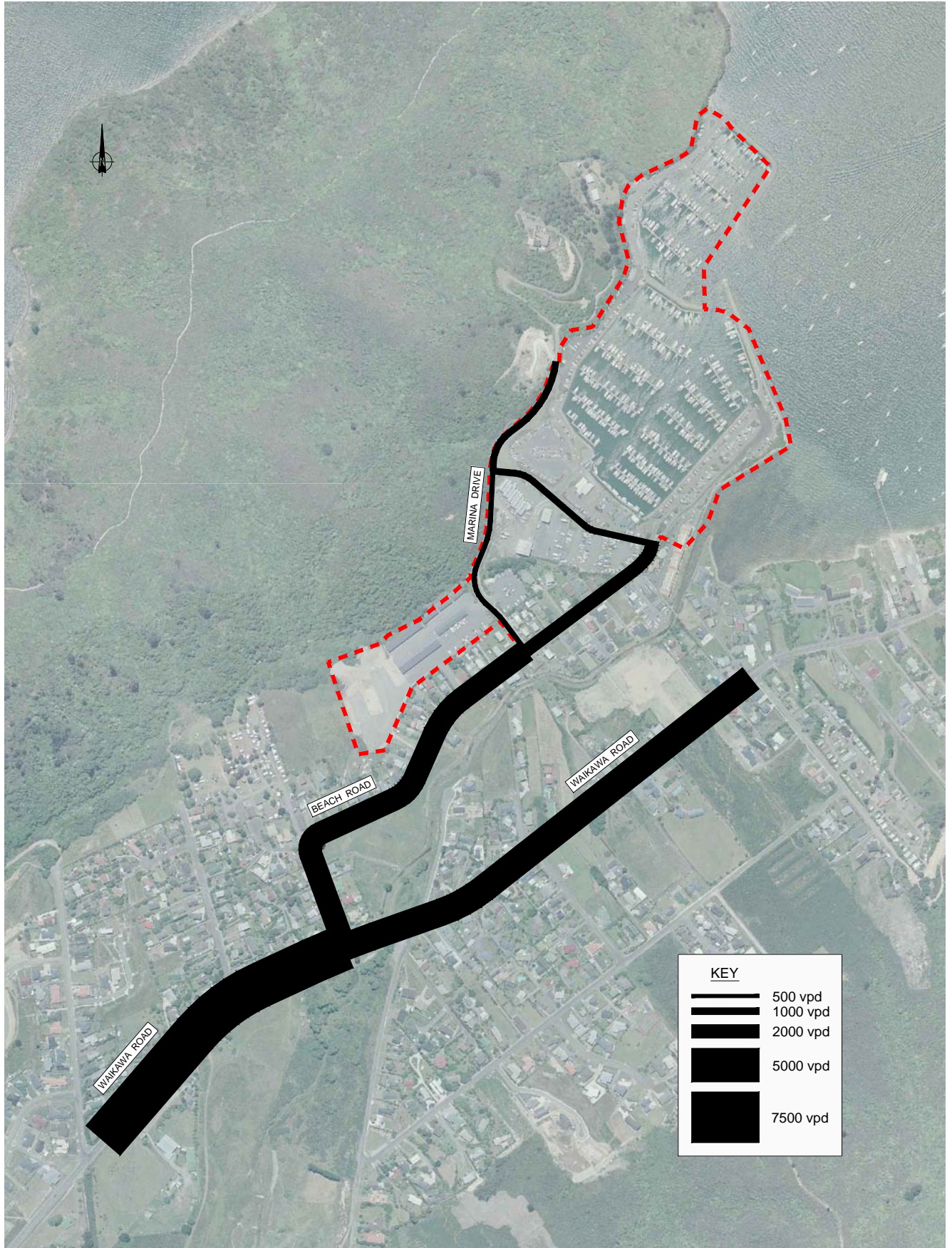
The peak hour turning patterns recorded at each intersection are identified in Figures 5, 6 and 7.

The morning peak hours were recorded between 10:00am and 11:00am on weekdays and Saturdays at each intersection, and the weekday and Saturday afternoon peaks were all recorded within the period 4:00pm - 5:45pm. All of these peak hour turning patterns are readily accommodated by the existing intersections.

From data provided from Council records, the traffic flows on Waikawa Road have not increased through the last two years. The surveyed peak traffic patterns recorded in the summer of 2007/08 are therefore considered to remain a valid representation of the existing 2009/10 traffic environment.



Friday, 29 January 2010



Friday, 29 January 2010

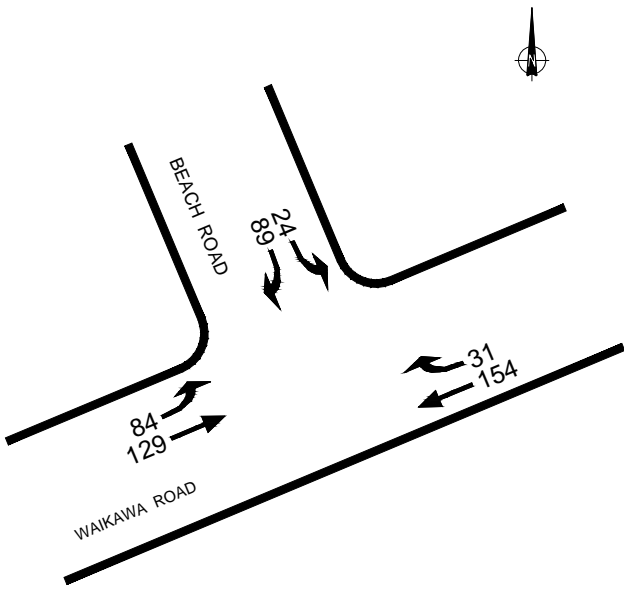
Waikawa Bay Marina, Marlborough

Traffic Volumes

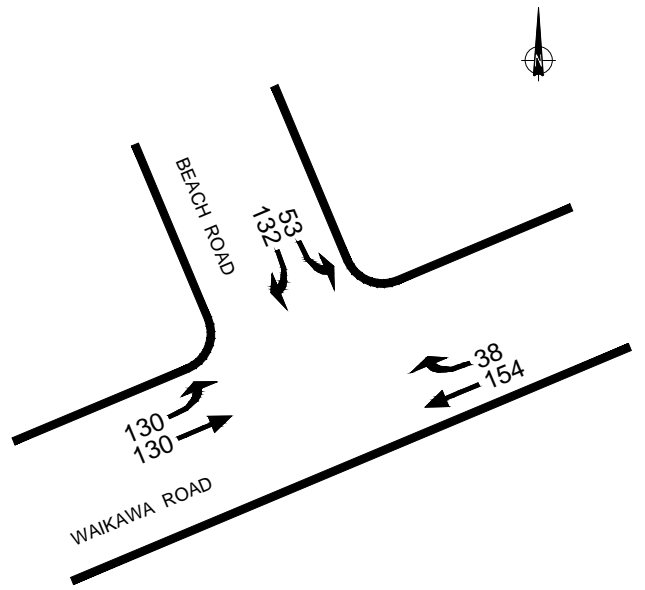


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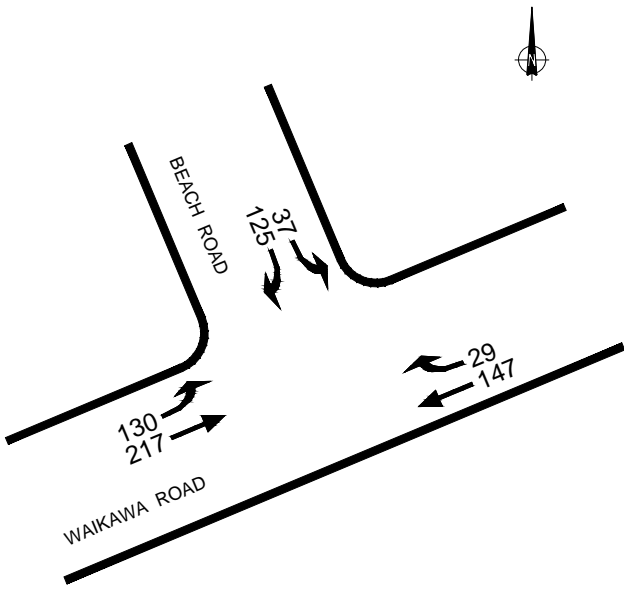
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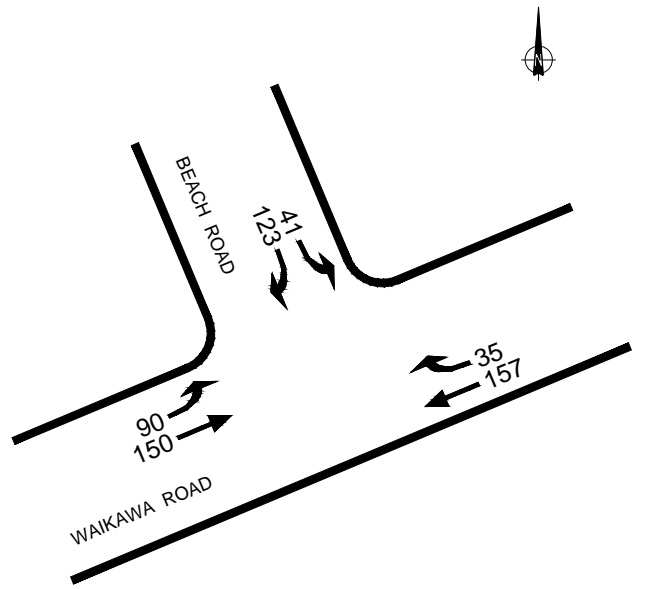
Weekday AM Peak Hour
(10:00 - 11:00am)



Saturday AM Peak Hour
(10:00 - 11:00am)

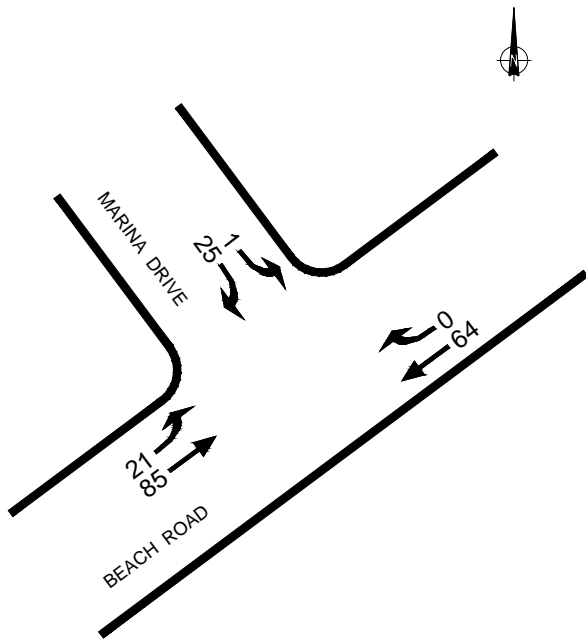


Weekday PM Peak Hour
(4:30 - 5:30pm)

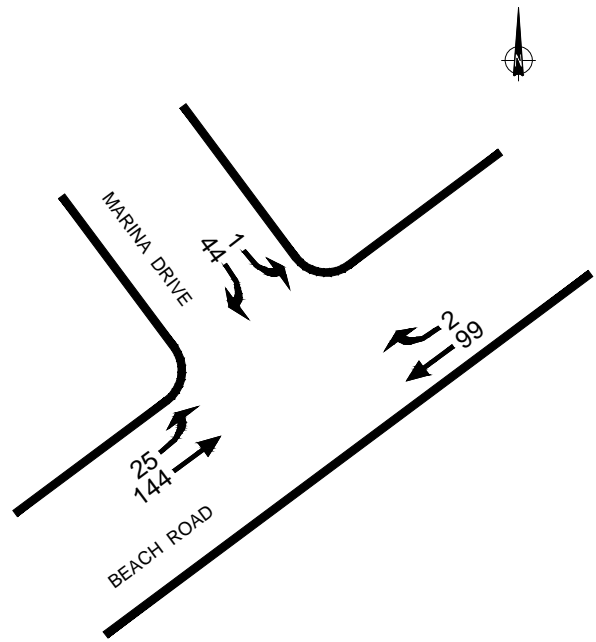


Saturday PM Peak Hour
(4:30 - 5:30pm)

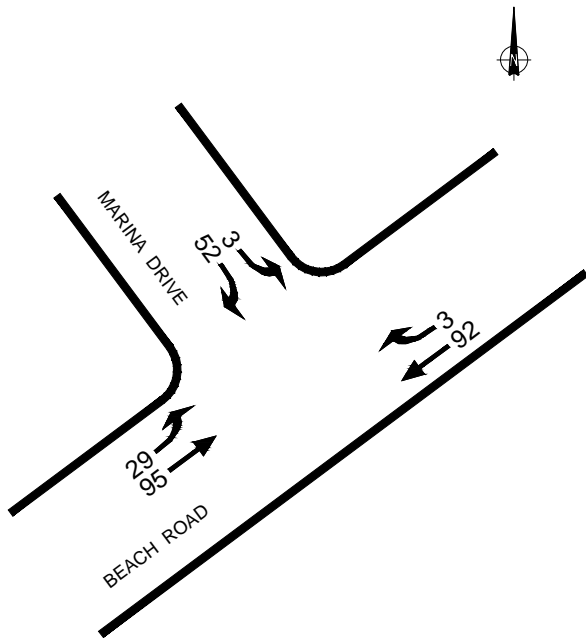
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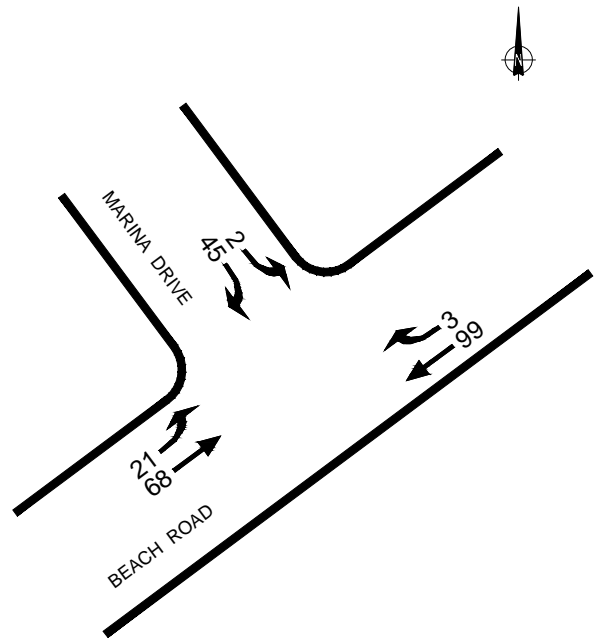
Weekday AM Peak Hour
(10:00 - 11:00am)



Saturday AM Peak Hour
(10:00 - 11:00am)

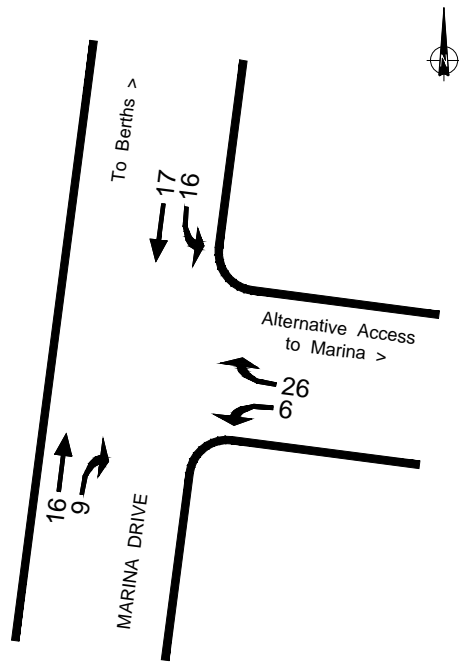


Weekday PM Peak Hour
(4:30 - 5:30pm)

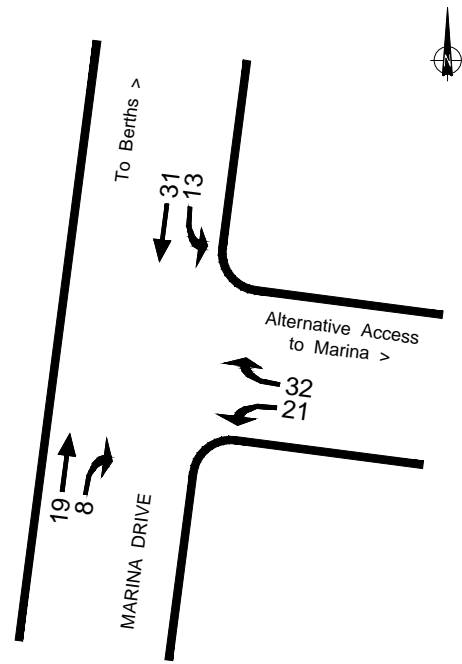


Saturday PM Peak Hour
(4:45 - 5:45pm)

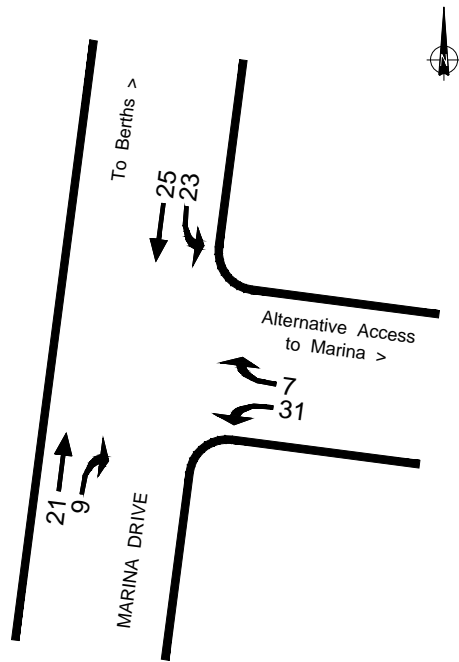
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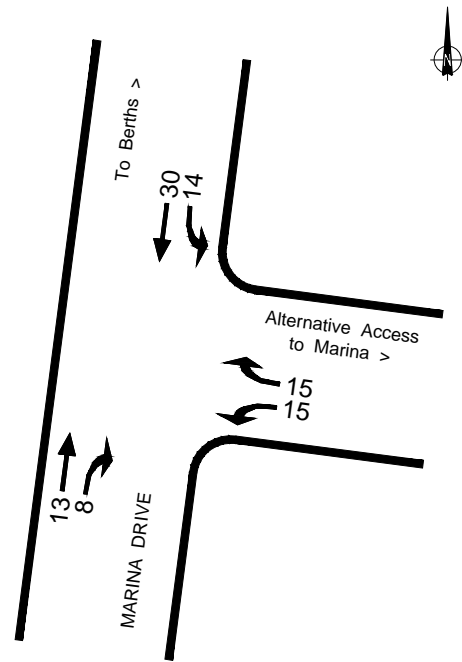
Weekday AM Peak Hour (10:00 - 11:00am)



Saturday AM Peak Hour (10:00 - 11:00am)



Weekday PM Peak Hour (4:00 - 5:00pm)



Saturday PM Peak Hour (4:00 - 5:00pm)

Friday, 29 January 2010

3.4 Marina Traffic Generation

The detailed surveys at the access to the western marina wet berths indicated two-way peak hour traffic generation levels ranging from a weekend peak of 0.25 vehicle movements (includes in and out) per marina berth to 0.34vph per marina berth on a weekday afternoon (4:00 - 5:00pm) in the summer holiday season. Flows throughout most of the year will be considerably lighter.

For evaluation purposes, peak traffic generation levels of 0.34vph are assumed for the wet berths. Accordingly, the marina could generate an additional 170vph over and above existing levels, comprising 85vph associated with 250 wet berths as part of the proposed Plan Change and a further 85vph associated with the potential 250 wet berths that could be developed within the existing Marina Zone.

4. Parking Patterns

Very detailed parking occupancy surveys were undertaken over the 2007/08 Christmas/New Year holiday period extending through to mid-January, and included all of the Marina Zone and the nearby adjoining public roads. Again, observation has shown that there was no noticeable increase in marina parking demands during the last two years.

From these detailed surveys, it is concluded that the appropriate level of parking provision is 0.45 spaces per wet berth. Parking is separately provided for the existing boat ramp, restaurant/yacht club and other facilities already provided within the Marina Zone.

5. Road Safety

The Land Transport New Zealand Crash Analysis System (CAS) identifies all reported crashes. A search of these reported accidents, both injury and non-injury, was undertaken in the vicinity of the marina, which includes Waikawa Road within 200m of Waikawa Road/Beach Road intersection, and along Beach Road and Marina Drive, for the most recent five year period between 2005 and 2009 inclusive. This search identified five reported crashes. One occurred when a vehicle failed to take the corner at Beach Road's intersection with Marina Drive. The other four all occurred on Waikawa Road, in close vicinity to the intersection with Boons Valley Road. In one of these a vehicle lost control turning at the intersection of Captain's Close with Waikawa Road. Another involved a collision with a pedestrian. The remaining two crashes were reported at or near the intersection of Turners Road. One involved loss of control and the other involved a collision with a turning vehicle. Alcohol was suspected at two of these crashes.

There were no reported accidents associated with the Beach Road / Waikawa Road intersection. Overall, there is no indication of particular safety issues that need to be addressed.

6. Proposed Plan Change

The proposed Plan Change is essentially to:

- remove the need for individual resource consent applications for swing moorings by specifying four Mooring Management Areas within the inner parts of the Bay where moorings will be permitted as of right
- extend the Marina Zone to provide for the proposed northwestern marina extension.

The location of the expanded Marina Zone, showing the specific locations for swing moorings is shown in Figure 8.

7. Assessment of Transport Effects

7.1 Swing Moorings

The consolidation of the swing moorings in specific locations is not expected to have any effect on parking or traffic generation, since the mooring management areas will restrict the number of swing moorings within the bay. Any mooring outside of the Mooring Management Areas will require resource consent for a non-complying activity, and as such, a full assessment of transportation related effects can be carried out for such activities.

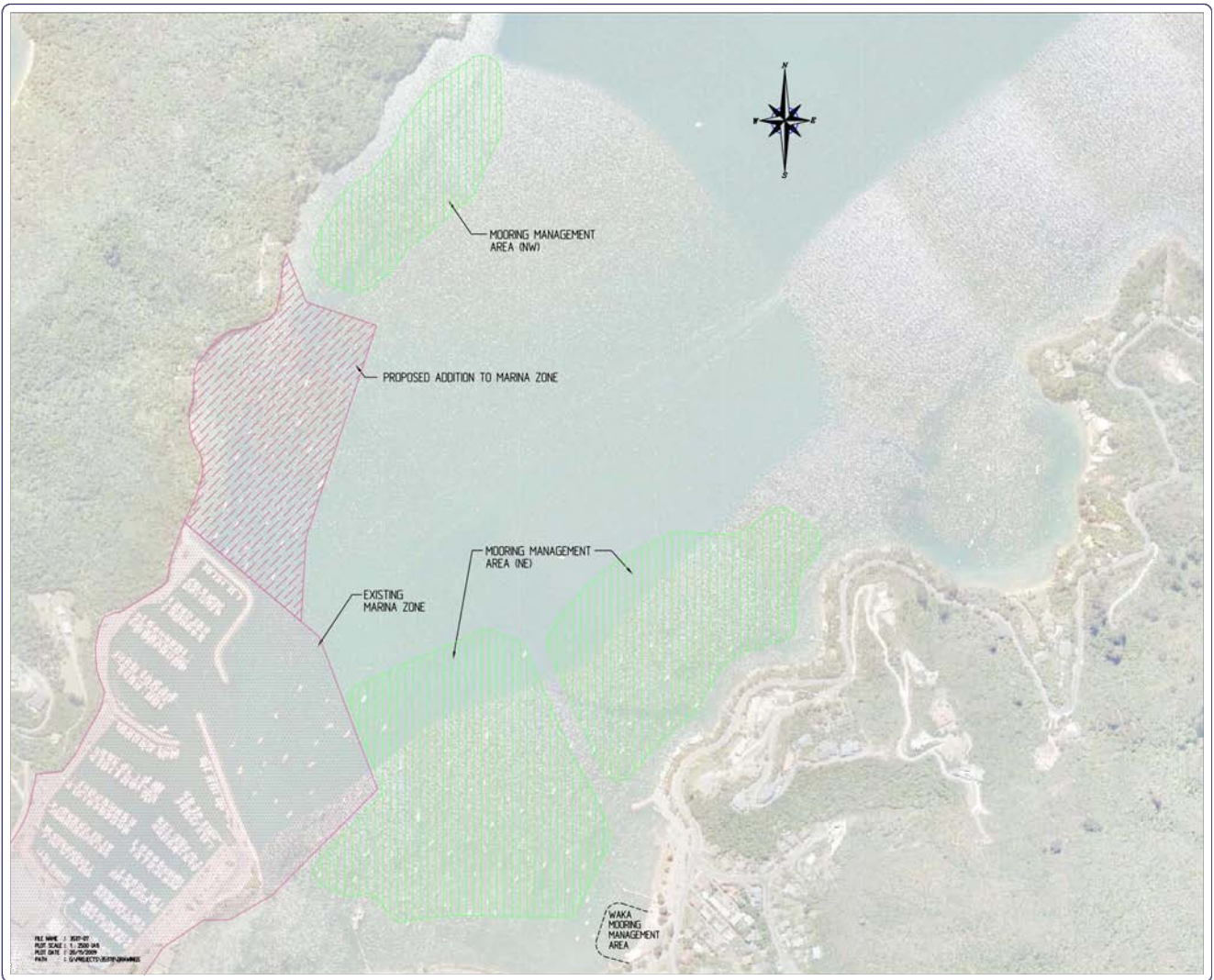
7.2 Wet Berth Expansion

7.2.1 Northwestern Expansion

The proposed northwestern expansion of the Marina Zone will be such as to provide capacity for the development of approximately 250 further marina wet berths and associated vehicle parking provision and access. While the proposed rezoning will provide the appropriate zoning for marina activities, the development of a new marina will be subject to a discretionary resource consent process.

With the consented dry-stack proposal being of a closely similar number of dry berths and associated on-site parking provision to the proposed wet berth development, the potential traffic and parking demands of the marina users overall will remain effectively the same. However, there can be expected to be additional temporary effects associated with construction traffic. Any construction effects will be assessed via the resource consent process for the development of the extended marina facility.

Following construction, the expanded zone can be expected to better provide for increasing the marina berthing facilities in line with the increasing demand over time. An associated benefit, in transport terms, will be the reduced need to transport boats to and from launching facilities, by road, by providing sufficient berthing facilities at the marina. There may also be a lessening in the demand for launching facilities that are currently under intense demand at Waikawa and Picton during the holiday season.



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Waikawa Marina Plan Change

Expanded Marina Zone

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8

SCALE: 1:10,000

7.2.2 Northeastern Marina Zoned Area

The area known as the Northeastern area is yet to be developed for marina activities. This area is already 'Marina Zone' and accordingly, is not a subject of this Plan Change. However, in order to assess the effects of the proposed rezoning on the transportation network, the existing zoning of the area must be taken into account.

The northeastern marina zoned area could provide a further 250 wet berths within the existing zone, subject to obtaining the necessary resource consents. Development of this area is not intended to be undertaken until necessitated by demand. Accordingly, construction traffic associated with the northeastern marina extension will not occur at the same time as for the northwestern extension. Again, it is intended that the vehicle parking and access for pedestrians and vehicles will be in full accordance with the MSRMP.

7.3 Future Traffic Patterns

It can be expected that, once developed, the extension of the Marina Zone for marina activities will generate similar levels of traffic per berth as the existing berths, at a peak summer rate of 0.34vph per wet berth as previously described. For the purposes of assessment, the resulting flows during the weekday afternoon peak are applied to the local intersections.

An additional $500 \times 0.34\text{vph} = 170\text{vph}$ can therefore be expected during the peak hour when the expanded marina is full, inclusive of the rezoned Northwestern area (250 berths) and the ultimate development of the existing Northeastern Marina Zoned area (250 berths). This additional traffic has been distributed across the local network and added to the existing traffic, as shown in Figure 9.

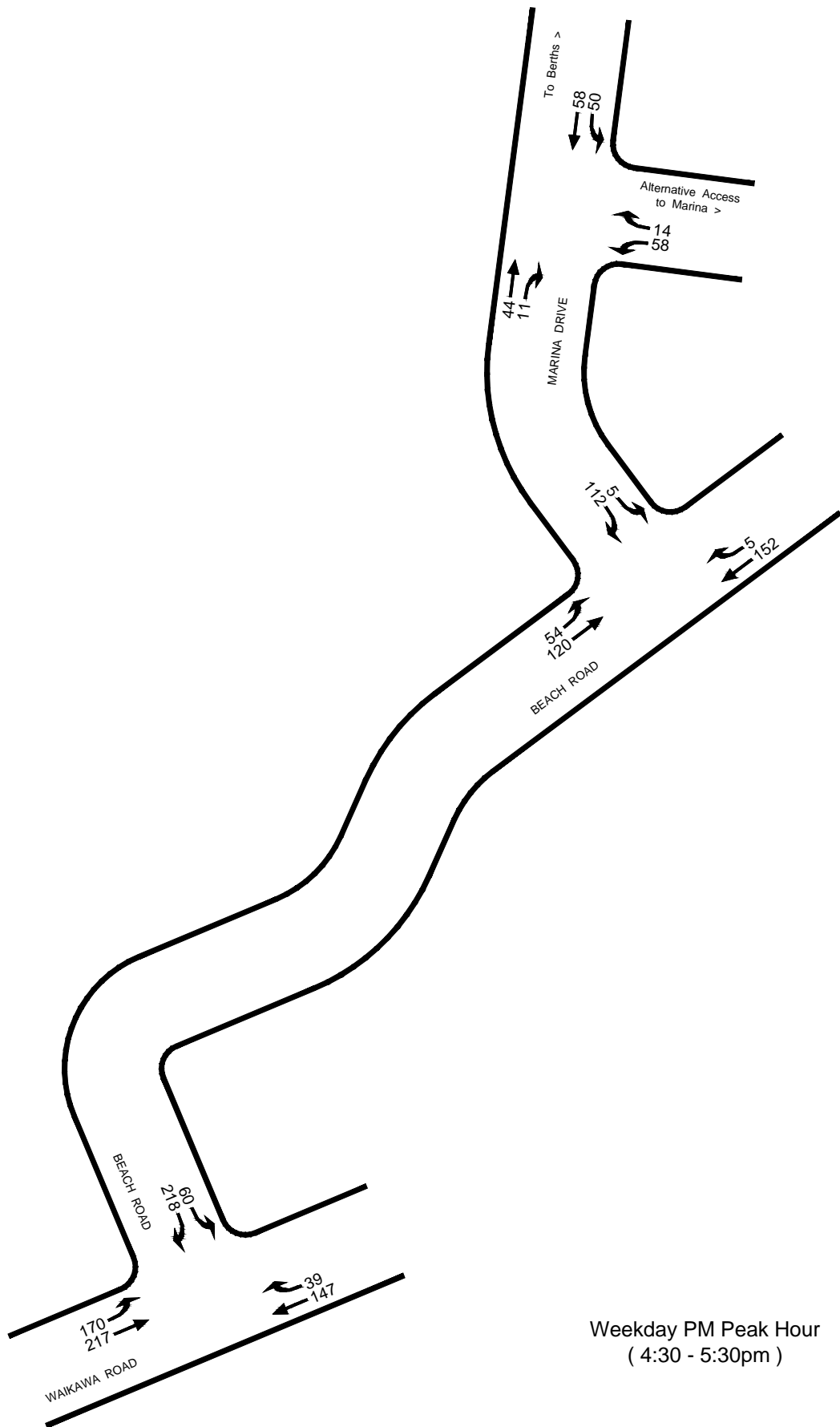
A comparison with the existing summer peak hour flows at these intersections shows that the additional traffic represents an increase of:

- 20-25% to the traffic at the Waikawa Road/Beach Road intersection
- 60-70% to the traffic at the Beach Road/Marina Drive intersection, and
- 90-100% to the traffic at the Marina Drive intersection with the alternative access to the marina.

7.4 Future Intersection Performance

The industry-recognised intersection modelling software "aaSIDRA" has been used to assess the performance of the key intersection of Waikawa Road with Beach Road. This is a tee-intersection, with traffic on Beach Road giving way to traffic on Waikawa Road, and there is a centreline marked along each of Waikawa Road and Beach Road.

The existing and forecast performance of the intersection during peak summer weekday afternoon traffic is summarised in Table 1 below. The forecast performance of the intersection includes all of the existing, as well as the additional traffic, associated with both the northwest and northeast marina extensions.



Weekday PM Peak Hour
(4:30 - 5:30pm)

Friday, 29 January 2010

Waikawa Bay Marina, Marlborough
 Projected Peak Seasonal Traffic Patterns



9
 SCALE: NTS

Approach	Traffic flow (vph)	Average delay (sec/veh)	95%ile queue (vehs)	Level of Service
Existing Weekday PM Peak				
Beach Road	162	10	1	A
Waikawa Road, west-bound	176	1	0	A
Waikawa Road, east-bound	347	3	1	A
Overall	685	4		A
Forecast Weekday PM Peak				
Beach Road	278	11	2	B
Waikawa Road, west- bound	186	2	0	A
Waikawa Road, east- bound	387	3	1	A
Overall	851	5		A

Table 1: Existing and Forecast Intersection Performance Weekday PM Peak

As shown, even during the peak period of traffic activity during the busiest time of the year, the projected overall performance of the intersection remains at a high level of service A. Average delays per vehicle to the side road traffic remain of the same order of 10 to 11 seconds per vehicle, ie at the threshold between Level of Service A and B. Any slight increase in delays and queues on Beach Road, as predicted, are not expected to be discernible to existing road users.

Similarly, the local intersections closer to the marina and within the site itself that carry much smaller volumes of traffic are all expected to continue to operate at a high level of service, with little if any delay to most traffic.

8. Parking Space Requirements

Detailed parking surveys that have been undertaken at the Marina, confirm that the existing provisions of the MSRMP for the number of carparks to be provided within the Marina Zone (34.1.1.2.3), ie 0.5 spaces per wet berth, are appropriate.

9. Conclusions

It is concluded that the proposed Plan Change to extend the Marina Zone to accommodate an additional 250 wet berths, together with the associated parking and vehicle access that will be necessary, is able to meet the expectations of the MSRMP both in relation to on-site parking provision and accessibility across the wider network.

There is also ample capacity to accommodate the additional traffic generated by the possible future development of a further 250 wet berths within the existing Marina Zone. Therefore there will be no associated adverse traffic effects in the longer term.

The consolidation of the existing swing moorings in specific locations is not expected to have any effect on parking or traffic generation, since the overall number of moorings will essentially remain unchanged.

During construction activities there will be a noticeable increase in heavy traffic. This is able to be accommodated and managed across the existing road infrastructure without more than minor

temporary inconvenience, and should any mitigation measures be required, these can be imposed through the resource consenting process.

The existing transport arrangements are accordingly properly able to support the proposed Plan Change to provide for the expanded Marina Zone and introduce four Mooring Management Areas for swing moorings.

Traffic Design Group Ltd
February 2010