

Scoping Report

## Lyttelton Access Project

Prepared for the  
Christchurch City Council, Lyttelton Port of Christchurch, New Zealand Transport  
Agency, KiwiRail, Environment Canterbury and CERA

Prepared by Beca Ltd (Beca)

24 June 2014

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# 1 Scoping Report

## 1.1 Report Purpose

The Lyttelton Access Project is an input to development of the 'Lyttelton Access Statement' (LAS). The LAS is an initiative which responds to objectives of the *Greater Christchurch Land Use Recovery Plan*<sup>1</sup> and *Greater Christchurch Transport Statement*.

The Lyttelton Access Project is to focus on:

- Establishing reliable, resilient, twenty-four hour/ seven day access to the Port of Lyttelton capable of meeting the predicted growth of freight until 2040 as well as cruise ships, commuter and recreational use.
- Identifying appropriate access to the waterfront for the Lyttelton community and visitors

The Lyttelton Access Project is to identify issues, programmes and projects, their priority and funding necessary to implement the statement agreed by the participants.

**Figure 1** sets out the current Lyttelton Port configuration and the study area and key elements of the Terms Of Reference for this study are provided at **Appendix 1**.

The project participants are Christchurch City Council (CCC), the New Zealand Transport Agency (NZTA), Lyttelton Port of Christchurch (LPC), and KiwiRail. CERA and Environment Canterbury have observer status which includes consultation as necessary.

This report:

- informs and updates the participants of progress on the Lyttelton Access Project to the end of June 2014,
- indicates the nature of considerations arising and options for addressing these; and,
- identifies a need for project participant's guidance as to 'next steps' for progressing a *Lyttelton Access Statement*.

## 1.2 Process to date

Site visits, assessment of previous studies, new evaluation work, and interviews with study participants have been undertaken and inform this scoping report. The process has included:

- A workshop with all study participants was held on 27<sup>th</sup> June 2013.
- Subsequent information gathering meetings with LPC, NZTA, Kiwi Rail and CCC representatives over July and August 2013.
- Direct one on one feedback on emerging concepts to help shape the analysis and evaluation.
- A further study participant meeting in April 2014 and subsequent further information received.
- Receipt of draft 2014 transportation and freight forecast findings for Greater Christchurch.

Progress on the scoping report has been influenced by the need to await and respond to discussions and negotiations over the last 12 months in relation to settlement of the LPC insurance claim (late 2013), the scope for a Port recovery plan to be developed, and discussions over wider transportation access (i.e. via Sumner Road and other options). Also relevant is the development of

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<sup>1</sup> Land Use Recovery Plan: Action 40 '**Support an Integrated Transport Network**' for "a strategic freight network that provides for distribution and servicing needs of businesses ... while managing the effects on local communities".

the draft *Greater Christchurch Freight Demand Statement 2014*<sup>2</sup>, which has helped inform finalisation of this report. Key assumptions used for the purposes of this scoping report are set out in **Table 1**.

### 1.2.1 Lyttelton Port of Christchurch (LPC) Master Plan

Port representatives have described the general thrust and timings of the Port’s vision for the rebuild and enhancement of the Port (the Port Lyttelton Plan) and this information was used to shape the opinions expressed in this report. The draft Lyttelton Port of Christchurch Port Plan has not been viewed. However the Port Company as part of its consultation responsibilities in relation to the preparation of a Lyttelton Port Recovery Plan will be releasing a 30 year vision called *Port Lyttelton Plan Our Future*.



**Figure 1: Current Lyttelton Port Configuration**

Source: LPC website

LYTTELTON PORT OF CHRISTCHURCH	SERVICES AT THE PORT	"Z"
01 Security control centre	14 C3 Office	23 Mobil
02 Operations building	15 Independent Fisheries wharf office	24 San-i-Pak
03 Supply store	16 New Zealand Shipping Services	25 Momentive Speciality Chemicals
04 Weighbridge	17 Holcim Cement	26 Liquigas
05 Administration building (Closed)	18 Pacifica wharf office	27 Lyttelton Stevedoring
06 Dry dock	19 Lyttelton Engineering	28 Sewerage treatment plant
07 Coal amenities	20 Stark Bros	29 Public ferry terminal
08 Civil maintenance amenities	21 New Zealand Oil Services	30 Fulton Hogan Bitumen
09 Straddle workshop	22 BP Oil NZ	
10 MAF Vehicle inspection area		
11 Log storage areas		
12 LCT Rail siding		
13 Dampier Bay Marina office		

Once the Port Plan is available, a check is recommended to ensure there are no matters of detail or substance that might alter the current conclusions and recommendations for the Lyttelton Access Project.

<sup>2</sup> The Greater Christchurch Freight Demand Study is being prepared by Aurecon on behalf of The Greater Christchurch Transport Statement (GCTS) partnership formed in 2012. It consists of members from NZ Transport Agency (NZTA), KiwiRail, Lyttelton Port of Christchurch Limited (LPC), Christchurch International Airport Limited (CIAL), Christchurch City Council (CCC), Selwyn District Council, Waimakariri District Council, Environment Canterbury and the Canterbury Earthquake Recovery Authority (CERA).

**Table 1: Key Assumptions Underpinning The Scoping Report**

Key Assumption	Commentary	Implication
Timeframes for altering Port operational requirements adjacent Norwich Quay	Identified by LPC as mostly post 2020. Potential for some initial changes may exist, however this will be subject to finalisation of the LPC Master Plan.	The ability to make available public open space in the vicinity of Wharves 5, 6 and 7 links to progress with the Port's eastern extension proposals. Ability to review log storage and handling requirements near Norwich Quay is on the same timeline.
Security requirements for retaining Port accreditation status.	Retaining Port accreditation status to avoid terrorism risks is critical. It results in specific design limitations in considering public waterfront access options.	This is a major influence on viable design solutions for public access to the waterfront. In particular it affects scope for any design solution at the southern end of Oxford Over bridge near Wharves 2 & 3.
General Cargo operations to continue at Wharves 2 & 3 indefinitely	General cargo (including fertiliser and scrap metal) and log loading are intended under the Port Master Plan to continue to load from their current locations.	On-going Port operations activity at the southern end of Oxford Street Over bridge mean public access will not be feasible at this location. An alternative public waterfront access option is therefore needed.
Importance of 'walkability' in achieving public waterfront access.	The existing situation is either: <ul style="list-style-type: none"> <li>■ a 360m walk from the town centre from London / Oxford Street over the Oxford St Over Bridge, or</li> <li>■ From London / Canterbury St via Sutton Crescent to Wharf 7 or the Marina (circa 530m to 700m depending on public access availability).</li> </ul> Both routes currently have drawbacks in needing to cross State Highway 74 at grade. Walking via Sutton Crescent involves travelling parallel to the traffic on Norwich Quay.	International 'best practice' is that distances less than 400m are optimal for creating satisfactory walking access. This indicates a new pedestrian bridge may be desirable.  Options of pedestrian crossings of rail lines at grade is not viable for safety reasons and for port security.
Cruise Ships requirements are not material to decisions on public waterfront access or SH74 LOS issues.	The volumes of traffic and operational needs of Cruise Ships while relevant, are not at a scale that shapes overall access or LOS factors. Public access adjacent Cruise Ship berths does occur in some other ports, however is understood not to be operationally viable at Lyttelton.	Port security and management of bus and taxi transport is able to be integrated with general Port traffic management planning. Detail of how cruise ship pedestrian access is to be addressed is yet to be confirmed. Potential may exist to combine this with general public access.
Practical limitations in relation to freight 'mode share' switching potential between road and rail.	Kiwi Rail assessments indicate that forecasts of freight mode shift to rail from road might see a 10% to 30% diversion from current freight modal splits.	Mode shift of this magnitude to rail will assist to maintain Levels Of Service on Norwich Quay and the wider road network. Significant traffic growth on SH74 will nevertheless still occur with at least a doubling of road freight movements forecast by 2040.
SH74 network management response for freight (beyond the LAP study area) is required	Forecasts for significant freight growth to 2025 and 2040 are identified in the draft 2014 <i>Greater Christchurch Freight Demand Statement</i> . Norwich Quay is identified as having capacity to accommodate the forecast road freight volumes. This will however result in at least a doubling of heavy vehicle traffic which will have amenity impacts adjacent the route.	Achieving a more even flow of freight into the Port to assist maintain satisfactory Levels Of Service will require responses beyond the scope of this report. As identified in the draft 2014 <i>Greater Christchurch Freight Demand Statement</i> a range of responses are available.

### 1.3 Working Draft Ideas

Assessment work undertaken to date has enabled initial ideas to be developed for discussion by the study participants. These are set out in this section as a basis for informing discussion and eventual decision-making on the content of a ***Lyttelton Access Statement (LAS)***.

The ideas reflect interpretation of information received and may require amendment following receipt of further information and / or feedback from study participants and the public through the preparation of the Draft Lyttelton Port Recovery Plan by Canterbury Regional Council (Environment Canterbury). The LPC development aspirations and timing for changes will be particularly relevant.

A preamble for the LAS is proposed that would provide recognition of:

- the major significance of the Port to the Canterbury region and wider South Island economy,
- acknowledgement of the high level of local community interest in the liveability and amenity of Lyttelton township, and desire for appropriate public access to the waterfront.
- an outline of LPC's Port development thinking, particularly insofar indications are that is long term vision will facilitate public access to the waterfront. This opportunity is understood to be at Dampier Bay and longer term in the vicinity of Wharves 5, 6 and 7. This would also set out relevant operational, security, safety and cost considerations shaping the Port's master planning.
- For reasons set out in this report, the feasible options for delivering public waterfront access and long term sustainable port freight access have been narrowed to:
  - Most likely, retaining Norwich Quay as the State Highway Strategic Access Route, and implementing steps to achieve appropriate public access to the waterfront. This will require capital investment and management of adjacent land uses to address community amenity, connection and safety considerations.
  - Alternatively, achieving a commercial agreement for a new port access road parallel to Norwich Quay north of the rail lines. On the basis of information to hand this option is considered less likely to be achievable due to cost and Port operational factors and priority for the cash available from the Crown, NZ Transport Agency and the Christchurch City Council to recover from the Christchurch Earthquakes.

The business case for a new port access road north of the rail lines (Option C) is not proven as this land will be needed for Port operational purposes, earthquake recovery and future development of the Port.

The strategic partner officials have considered the draft ideas below provide as a potential 'way forward' for reconciling the above matters. The range of options considered that have informed these ideas is set out in **Appendix 2**. The ideas are:

**Draft Idea 1:** That consideration be given to how a safe and attractive pedestrian route can be achieved from the Lyttelton Town Centre to the proposed public access areas at Dampier Bay and in the vicinity Wharves 5, 6 and 7. As grade separation of pedestrians from the SH74 flows would provide safety and efficiency benefits, plus a suitably direct waterfront access route, exploring potential for a new pedestrian over-bridge is suggested. This could connect the Lyttelton town centre to the waterfront from Canterbury Street / Norwich Quay to adjacent Wharves 5, 6 and 7. Timing for this would need to coincide with LPC redevelopment plans and is understood to most likely be after 2020 and have a capital cost of the order of \$2m to \$4m. *[the basis for this idea is set out in the assessment at Section 2.1 and multi-criteria analysis in Appendix 3]*

**Draft Idea 2:** That the Strategic Partners accept that it is not practically feasible to progress the idea of an alternative port road access within LPC land south of the rail lines running parallel to Norwich Quay. This is due to on-going port operational needs, constructability and cost reasons, and future

potential for creating open space amenity in the vicinity of Wharves 5, 6 and 7. [The see basis for this idea is discussed at paragraphs 50 and via the multi-criteria analysis in Appendix 3]

**Draft Idea 3:** That the Strategic Partners acknowledge that an alternative port road access option within LPC land north of the rail lines adjacent Norwich Quay appears to be technically feasible however would require resolution of significant cost and port operational matters. On the basis of information received it is considered that the likelihood of resolving these matters is low. [The basis for this idea discussed at paragraphs 40 through 43, and 49 through 56, and via the Multi-criteria analysis is in Appendix 3]

**Draft Idea 4:** As indications are that commercial and operational terms for agreement may not be able to be achieved for establishment of a new port access road within LPC land, then it is agreed that a suite of safety, management and amenity measures<sup>3</sup> need to be instituted on Norwich Quay. Design work is needed to recognise Norwich Quay as the long term major freight route. This will entail re-visiting the Christchurch City Council Lyttelton Master Plan (2012) to respond to the land use and amenity implications of a busier Norwich Quay. The draft *Greater Christchurch Freight Statement* 2014 indicates at least a doubling of heavy vehicles on Norwich Quay by 2040. [The see basis for this idea is discussed at paragraphs 44 to 48 and via the multi-criteria analysis in Appendix 3]

**Draft Idea 5:** Irrespective of decisions as to the long term Port access road option, that the Strategic Partners agree to progress near term safety, management and amenity improvement measures on Norwich Quay. A basis for amenity and safety concepts applicable to Norwich Quay are already set out in the City Council Lyttelton Master Plan (2012). This will assist Christchurch City Council's consideration of timing for funding of Action M1 in the Lyttelton Master Plan (3 – 10 years from its adoption in June 2012). [See paragraphs 57 through 60]

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<sup>3</sup> Safety measures relate primarily to ensuring appropriate pedestrian crossing opportunities at the Oxford and Canterbury intersections to the southern side of Norwich Quay. Management measures would focus on means of ensuring the speed environment remains appropriate and amenity measures focussed on treatment of the interface of the town centre zone and Norwich Quay, and the design treatment of the footpath and land on the south of Norwich Quay. The Christchurch City Council Lyttelton Master Plan sets out concept which can inform decision-making on this aspect as per action M1 below.

### **(M1) Norwich Quay amenity improvements**

<b>Description:</b>	Undertake small-scale amenity improvements within the kerb and build-outs on Norwich Quay in the short term to improve the environment for pedestrians and redevelopment while maintaining freight and other vehicle movements. Consider small public spaces, seating, planter boxes and public art in the northern parking lane to filter the traffic and noise.
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## 2 Assessment

### 2.1 Public Waterfront Access

1. A specific deliverable for this report is to identify appropriate access to the waterfront for the Lyttelton community and visitors. The majority of people accessing the waterfront are understood to currently do so by private vehicle, however walking and cycling also occur and are identified as being valued (Lyttelton Town Centre Master Plan feedback).
2. Consideration has been given to what convenient 'walkability' distances from the town centre are, plus assessment of long term safety, and the pleasantness of route options (i.e. amenity). Additionally, the on-going operational needs of the Port have been taken into account to avoid conflicts with Port activities and ensure safety and security standards can be met.
3. Good practice in terms of urban design is for optimal walking distances to be less than 400m.
4. From the centre of Lyttelton (on London Street between Canterbury and Oxford Streets) it is approximately 450m to the current Ferry steps. Alternatively from the centre of town to Wharf 7 or Marina is between 530m to 600m. This route requires travel adjacent to Norwich Quay or vehicles using Sutton Quay. Both routes require at grade crossing of Norwich Quay.
5. The draft 2014 *Greater Christchurch Freight Demand Statement* indicates that road based freight volumes are likely to at least double by 2040. This translates to heavy vehicle frequency on Norwich Quay during daytime hours moving from current averages of approximately one heavy vehicle movement every 40 seconds, to one every 20 seconds by 2040. Pedestrians will need to cross the State Highway, and the amenity of this route for pedestrians and cyclists will change with increased heavy vehicle movements.

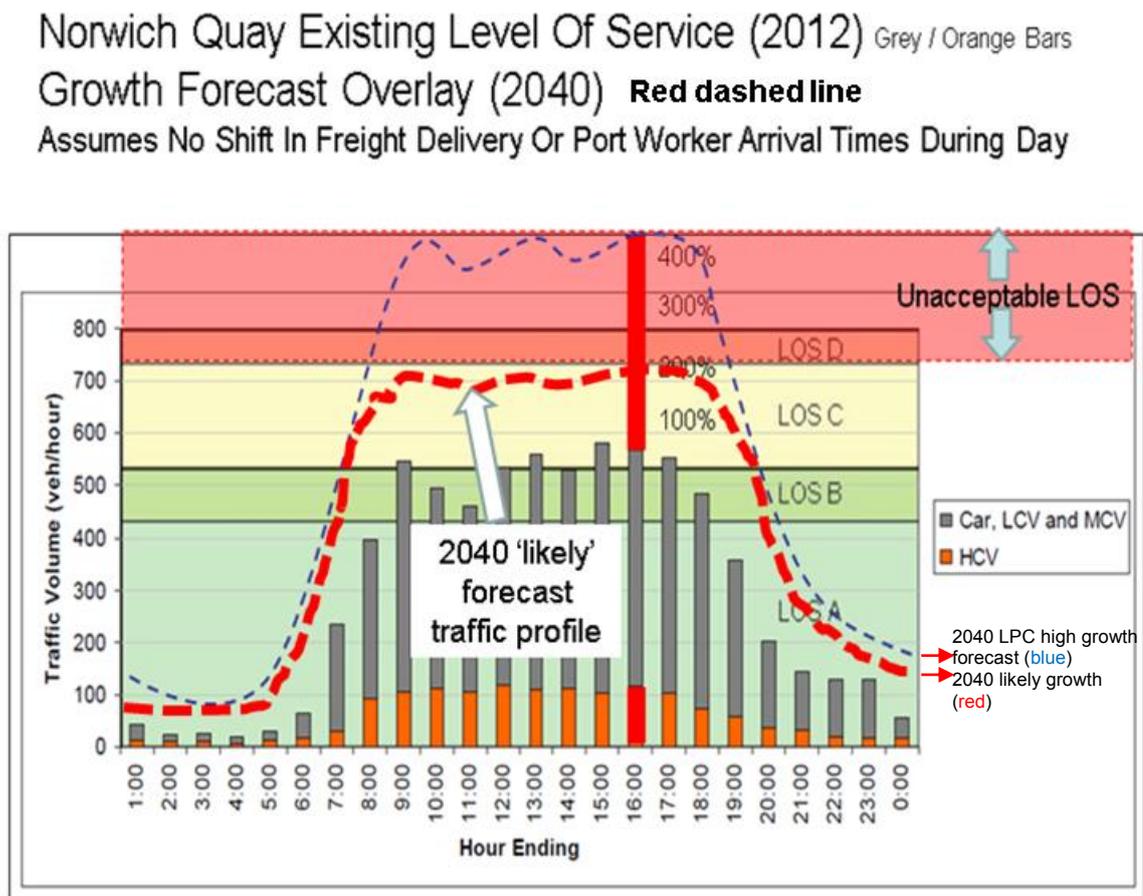


Figure 2: Potential Public Access To Waterfront Via Over-Bridge

6. Options for continued use of the Oxford Street over-bridge or 'at grade' pedestrian crossing options have been considered, but are understood to be ruled out for LPC operational, safety, and / or port security reasons. Continued use of Oxford Street over-bridge may however continue to enable access for Cruise Ship passengers.
7. Use of the western arm of Sutton Quay from Norwich Quay is an option, but is more indirect and requires travel adjacent Norwich Quay. Unless this access is no longer used for Port Traffic (or a grade separated path is provided for the public) conflict issues with heavy vehicles and other traffic could result. Without these changes it is therefore not favoured.
8. As an alternative to the current 'at grade' walking options, potential has been examined for a new pedestrian over-bridge. This could connect to waterfront access opportunities identified by LPC at Dampier Bay and adjacent to Wharves 5, 6 and 7. This would result in a more direct and shorter trip of around 430m from the town centre. At its northern end it would connect in the vicinity of the intersection of Canterbury Street and Norwich Quay as indicated in **Figure 2**.
9. An indicative rough order of magnitude cost for a suitable pedestrian over bridge structure is \$2.5m to \$4.5m. This linkage is dependent upon and would access areas that LPC indicate might potentially be released from operational use and be able to be made available for public use after 2020.
10. A new pedestrian over-bridge at this location would also enable more direct connection to and from the town centre to relocated ferry operations. Information provided by LPC is that ferry service relocation will be necessary due to reconfiguration of the port's operation areas, modifications to Z-Berth and Gladstone Pier to accommodate increasing ship sizes, cruise ships and general operations. The result of these modifications is that harbour conditions and operational demands in the vicinity of A and B Jetty will no longer be suitable for Ferry operations.
11. As a consequence LPC identify a need to relocate the Ferry operations to somewhere with appropriate shelter and free from operational constraints. This is currently proposed to be in the vicinity of the public access area at Dampier Bay as will be identified in the Port of Lyttelton Plan (2014). An exact location is to be confirmed within Dampier Bay. Examining scope for the public access provision in the vicinity of Wharves 5, 6 and 7 to more conveniently link to the ferry operations may be a means to assist to resolve this tension. Establishing a pedestrian over bridge as close as practicable to Wharves 5, 6 and 7 would therefore have merit in terms of reinforcing the public access opportunity and in doing so help justify the investment in a new pedestrian over-bridge.

## 2.2 Reliable, resilient, twenty four/seven access to the Port of Lyttelton

12. Establishing reliable, resilient, twenty-four hour / seven day access to the Port of Lyttelton evaluation requires understanding of the likely freight growth and arrival timeframes over a 24 hour period. Market conditions will determine how quickly this growth occurs, however from a 'future-proofing' perspective it is the potential quantum long term that is the focus.
13. Over the last 20 years the port has experienced considerable growth, especially in containers. Compound average growth over this period is over 10%. In the 2013 financial year, container volumes rose 4.5% to a record 351,217 TEUs (twenty-foot equivalent units). Volumes moved through Lyttelton Container Terminal rose 9.2% to 345,940 TEUs. Dry bulk imports increased a total 11.2% to 649,365 tonnes, with a 42.4% rise in cement and a decrease of 7.4% in fertiliser. Log exports rose 30.9% to 369,657 tonnes, while fuel imports grew 8.7% to over 1.1 million tonnes. Vehicles, including machinery, heavy vehicles, and new and used cars, rose 24.6% to 35,568 units. Coal exports fell back 17.7% to just over 2 million tonnes as a result of Solid Energy's changes in operations.
14. The current 24 hours patterns of road freight activity along Norwich Quay (HCV or Heavy Commercial Vehicle shown in orange bars) are shown in **Figure 3**.



**Figure 3: Current Norwich Quay Weekday Vehicle Patterns & Growth Forecast Overlay**

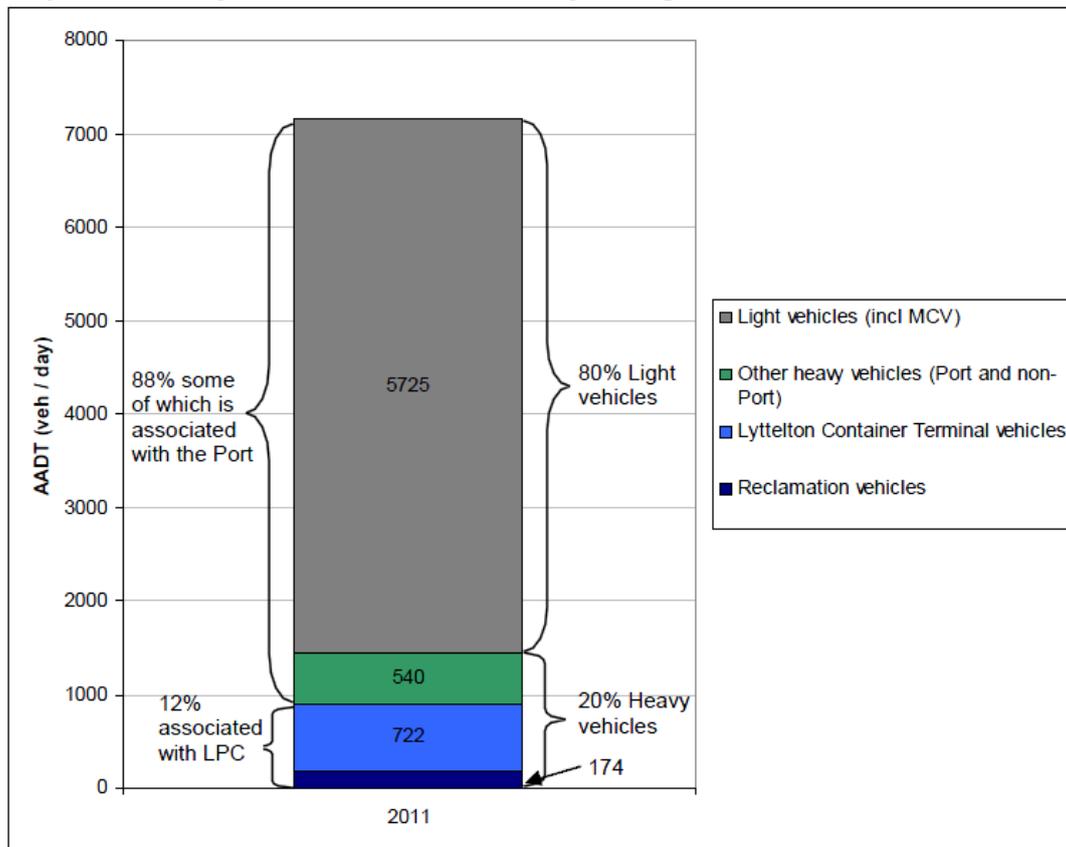
Note: Assumes Rail freight share remains constant. Base graphic source from LPC report by Abley Transportation Consultants, December 2011, projection data and LOS comment by Beca Ltd. 2040 forecasts derived from draft Greater Christchurch Freight Statement (Auercon 2014)

15. An overlay of the forecast future growth demand at 2040 is shown as the red dotted line (the blue dotted line reflects a high growth forecast range for 2040). Recent freight evaluation<sup>4</sup> work indicates that freight volume increases of at least 50% by 2025 are feasible.
16. Growth estimates in the order of 100% to 200% by 2040 are also assessed to be an appropriate basis for planning purposes. Higher growth of up to 400% by 2040 has also been considered which is the growth level LPC is planning for in its Port Lyttelton Plan *Our Future* document. Given that the Port is a nationally significant asset, enabling this level of freight growth to be efficiently and effectively accommodated is judged as essential for the South Island economy.
17. A key finding is that continuation of current Port access freight patterns (with the majority of freight arriving between 9am and 5pm) could result in Levels Of Service (LOS) becoming problematic once volumes exceed 200% of current. There are a number of variables in assessing this, however under current patterns of activity the Greater Christchurch Freight Statement suggests this could occur by 2040. This would impact along the SH74 corridor to include the Tunnel and along Norwich Quay.
18. Scope exists to avoid or alleviate SH74 capacity constraints through a continuation of current industry trends (i.e. more trucks operating with double container loads), plus active management measures with an emphasis on spreading the timing of freight arrivals outside of the current daytime peak times. Additionally there is major scope for an increased percentage of deliveries to be by rail. This latter rail option does have practical limitations which are discussed later in this report.
19. Steps have been initiated by LPC to explore such options with freight operators and suppliers. In addition, the separately commissioned *Greater Christchurch Freight Statement* is addressing freight optimisation issues in detail. These will include consideration of 24hr / 7 day concepts for hubbing freight north of the Lyttelton Tunnel to smooth freight delivery timings into the Port

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<sup>4</sup> The draft 2014 *Greater Christchurch Freight Statement* indicates that by 2040 road freight volumes on Norwich Quay are likely to at least double. A higher range is also identified as possible.

## Purpose of Heavy Vehicles on Norwich Quay in August 2011



**Figure 4: Weekday Traffic Makeup On Norwich Quay**

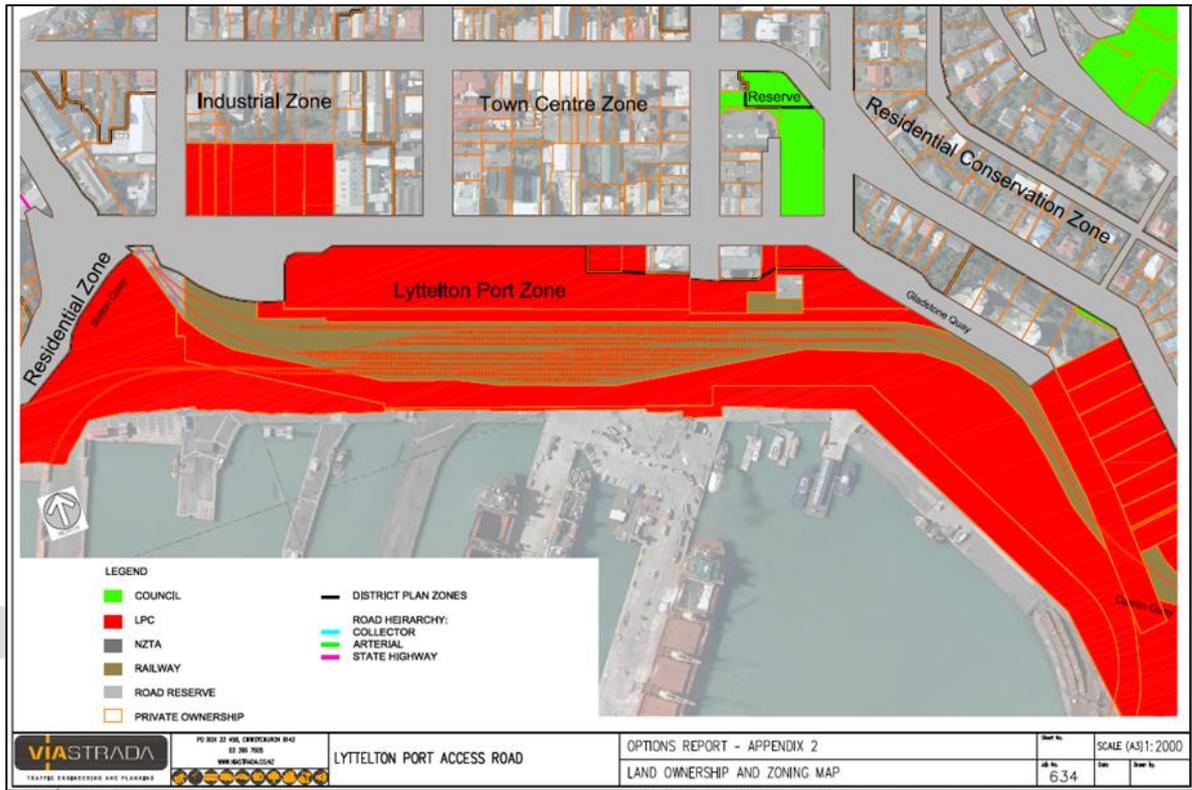
Source: LPC report by Abley Transportation Consultants, December 2011

20. Other options exist to take pressure off access along Norwich Quay. In particular consideration can be given to spreading and / or lessening workforce generated traffic which makes up a currently unknown but not insignificant proportion of the 80% of light vehicles. The relative shares of weekday traffic are shown in **Figure 4**. Currently this largely coincides with peak freight delivery times. Local traffic generation is likely to grow only marginally given Christchurch City Council forecasts for modest local population growth and is therefore not considered to be a material factor.

### 2.3 Consideration Of Kiwi Rail Operations And Infrastructure Assets Adjacent Norwich Quay

21. The role of Kiwi Rail's operations is twofold for the purposes of the Lyttelton Access Project. The first is how Kiwi Rail's physical infrastructure and operational requirements (including safety) interact with choices on where and how road and pedestrian / cycle access can safely and appropriately occur. The second revolves around the relative share of freight carried between rail and road and the extent to which mode shift of freight to rail could alleviate pressure on Norwich Quay and SH74 more generally.

22. Kiwi Rail's assets within Lyttelton Port are held within a designated corridor shown in brown shading in **Figure 5**.



**Figure 5: Kiwi Rail Designation (Source: CCC ViaStrada Report)**

23. Options for moving the rail lines have been considered, but discounted as impractical. This is due to cost, current and likely future operational needs and the fact that workable road access options exist without needing to interfere with the rail lines.
24. In terms of options for pedestrian access Kiwi Rail has long standing policies that any new pedestrian access at locations such as Ports should be grade separated. In terms of options for pedestrians accessing the waterfront this obliges use of the Oxford Over-bridge, or the 'at grade' separated access along Sutton Quay near the Lyttelton Tunnel entrance. The option of a new pedestrian over-bridge is also available.
25. In the 5 to 10 (by 2024) year timeframe Kiwi Rail advise that some rationalisation of tracks within their current designation adjacent Norwich Quay may be feasible. This does not however alter the overall conclusions of this scoping report assessment as it will not affect the key multi-criteria assessment ratings (as set out in **Appendix 3**).
26. In relation to the second dimension noted of relative shares of freight carried between rail and road, KiwiRail has carried out its own evaluation work of scope for this.
27. This work indicates that a greater proportion of the freight task could be provided by rail. The scale of the shift could be a movement from the current 80% road based freight to around 60%. This scale of shift would delay and potentially avoid LOS difficulties for SH74 (including Norwich Quay) under status quo freight delivery patterns. A mode shift to rail would therefore assist with, but not be the only management response needed to address long term pressure on SH74.

### 3 Defining Freight Access Options

28. The Project brief includes achieving sustainable, long term 24hour / 7 day a week Port access. Previously commissioned proposals looking at tackling access solutions for the Port have been examined and scope for new alternatives explored.
29. The most recent and comprehensive of these previous assessments is work commissioned by Christchurch City Council in 2011 by ViaStrada Ltd. In addition to what was described as the 'do nothing option' (retaining SH74 as the road freight route), five alternate options (plus sub-options) were considered at that time.
30. As the distance from the Lyttelton road and rail tunnels to the Port gates is less than 1000m the practical alternative options are limited. At a summary level these are:
  - a. Retaining Norwich Quay as the State Highway access to the Port and instituting safety and amenity improvements, plus management measures for the existing road environment (this is referenced as Option B in Appendix 2);
  - b. Creating various permutations of a new access road (circa 500m) that runs parallel to Norwich Quay on the north side of the rail lines. A range of structures or at grade options were considered to connect to this new link (Options C and D in Appendix 2)
  - c. Creating a new longer access road (circa 900m) that runs adjacent the rail lines on their southern side immediately adjacent the harbour edge (Option E in Appendix 2). A range of sub-options for structures or at grade links were considered.
31. Sub-options of running at grade, on embankments or including bridging structures affect choices as to intersections, where they tie into the existing network and cost.
32. Business case justification and funding have been identified by the Strategic Partners in interviews as significant factor for the Lyttelton Access Project. As the current Norwich Quay route is functional and will cater for foreseeable freight traffic growth, the business case justification question is significant. A key assumption underpinning the current study is therefore that more expensive solutions involving structures will generally be less favoured in the absence of clear safety, efficiency or other benefits.
33. Informed by the foregoing, five options have been adopted for the Lyttelton Access Project study for assessment. **Appendix 2** shows the general location of each of these options.
34. These are largely in keeping with the previous ViaStrada work, although a new option is included which explores a new local road option on the northern side of Norwich Quay. The options assessed are:
  - a. Retaining Norwich Quay as a freight route under its SH74 status (with improvements and implementation of safety, amenity and efficiency management measures).
  - b. A new local road link to the north of Norwich Quay to separate local traffic from the freight task on existing SH74.

- c. A new at grade 500m Port access road that runs parallel to Norwich Quay within LPC's land holding on the northern side of the rail lines<sup>5</sup>.
- d. A variant of Option C above, with an additional 100m of structure at the western end connecting directly to the Lyttelton tunnel.
- e. A new 900m access road that runs adjacent the rail lines on their southern side next to the harbour. 'At grade' or bridging structure sub-options are possible.

## 4 Evaluation Framework

- 35. A multi-criteria assessment (MCA) has been undertaken of potential options and is summarised in **Appendix 3**.
- 36. The assessment framework is designed to address the key deliverables defined for this study; namely, appropriate public waterfront access and a sustainable, 24/7 access solution for Port freight access.
- 37. A range of cost and non-cost attributes have been considered and justifications set out on the key considerations arising for each.
- 38. The conclusions of the MCA evaluation is that significant impediments exist with all options identified.
- 39. Retaining Norwich Quay as State Highway is technically feasible, and cost effective. Public access to the waterfront could be achieved via a new pedestrian over-bridge. This option does not however respond to the aspirations set out in the City Council Lyttelton Master Plan (2012) in terms of the 'urban edge' of the town centre adjacent Norwich Quay or public amenity sought for Norwich Quay.
- 40. Of the alternative freight access road options, **Option C** for a new access road adjacent Norwich Quay north of the rail lines shows the most promise in terms of construction costs, and addressing the Christchurch City Council Lyttelton Master Plan aspirations.
- 41. Challenges with **Option C** are that:
  - a. It would disrupt Port operations, particularly insofar as log storage, existing lease and occupation arrangements, and LPC having not identified any readily implementable alternative solutions to address these matters.
  - b. The commercial value LPC places on this land is in excess of \$10m.
  - c. In combination with the construction cost for a new access road at this location (estimated at circa \$3m) some \$13 million would need to be invested, plus on-going maintenance costs would need to be secured to enable Option C to proceed.
- 42. The basis for these statements is further explained and illustrated in the following sections.

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<sup>5</sup> It is assumed under this option that other than General Goods delivery vehicle which will need to utilise Oxford Over Bridge, the majority of heavy vehicles will turn around on Port land and exit to the Tunnel along the same new access road.

#### 4.1 Retain and strengthen the Norwich Quay route (Option A in MCA)

43. The MCA evaluation indicates that the most cost-effective option for long term road access adjacent the Lyttelton town centre is to retain Norwich Quay. Management and safety measures will be needed to recognise its national rating as a 'Strategic Freight Route' and investment undertaken for amenity purposes adjacent the Town Centre.
44. The significant downside of this option is that it does not align with aspirations expressed within the City Council Lyttelton Master Plan (2012), and would not result in the amenity improvements for adjacent town centre land signalled in that document.
45. The community response to this may have repercussions for the Port's own development plans. While Port activities and any activities which are ancillary to the functions of the Port are permitted under the District Plan, RMA approvals would be required to establish retail and commercial activities.
46. If this option is to be pursued (retaining Norwich Quay's current freight transport focus) then the nature of the zoning interface with the town centre, as well as scope for connecting to the waterfront has to be considered insofar as the current Master Plan direction.
47. An option in relation to walking / cycling access to the waterfront is that it be channelled down Canterbury Street and then across a pedestrian over-bridge over Norwich Quay to the public open space which LPC are indicating may be feasible in the longer term adjacent Wharves 5, 6 and 7.

## 4.2 New Port Access Road Within LPC Land (Option C in MCA)

48. The general area considered to have most promise to provide alternative road access through the Port land (referred to as Option C in the MCA) is shown in **Figure 6**.



**Figure 6: General Location Of Potential Alternative Freight Access Road And Pedestrian Over-Bridge Location.**

49. Study participants have agreed that alternate road access alignments south of the rail lines are not feasible. This reflects on-going operational requirements on the southern side of the rail line for Port general cargo operations continuing at Wharves 2 and 3 medium to long term, and also that it would bisect the area adjacent Wharves 5, 6 and 7 that LPC has identified as being feasible to make available for public use longer term.

50. On the basis of the above considerations, the study participants therefore accept that if a route other than Norwich Quay is to be pursued then the alternative road option that is most practical is to run this access north of the rail line. This new link would be approximately 500m in length.

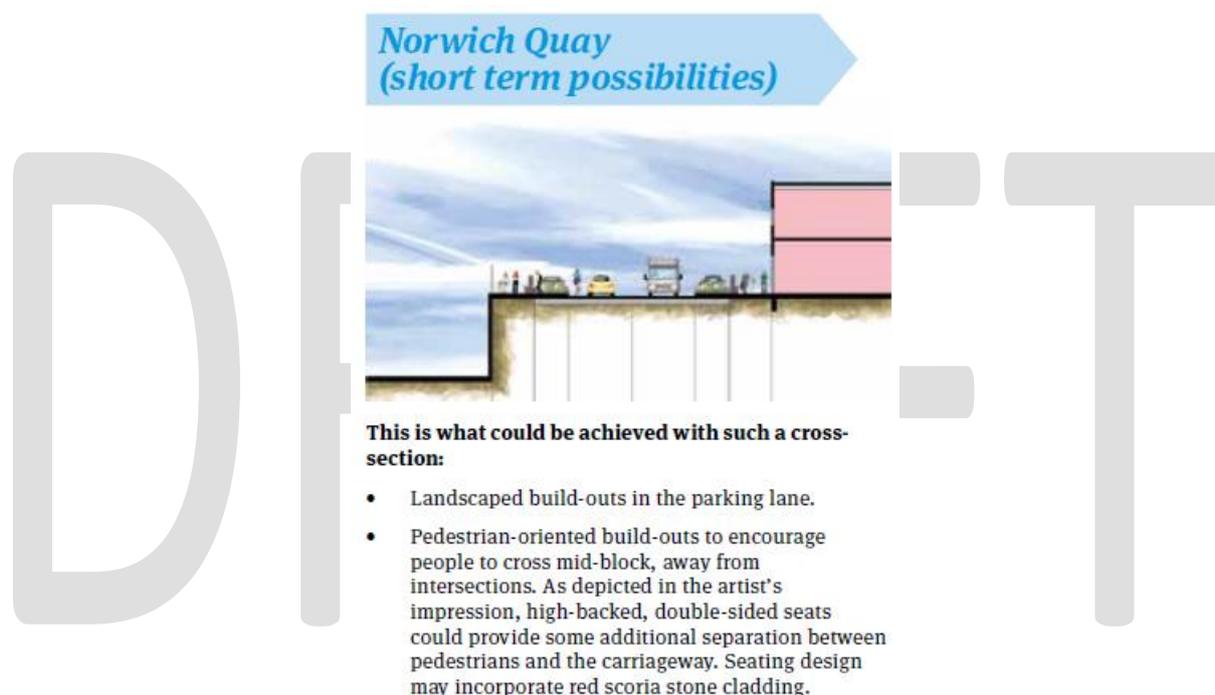
51. This alternate option would respond to the City Council Lyttelton Master Plan (2012) aspiration to enable higher amenity on Norwich Quay, but gives rise to operational and cost issues within the Port land.

52. A possibility under Option C is that some current Norwich Quay road space could potentially be released either fully or in part for other purposes (retail, commercial, public open space) creating an 'urban edge' and potential for public open space, and also thereby providing a means of a partial offset of costs of establishing the new freight road. This would likely entail changes of ownership for the road space. As study participant's support for this idea was mixed, it has not been further developed.

53. The Option C new road alignment would begin at grade near the Sutton Quay intersection, run under Oxford Bridge (requiring lowering of ground level), and re-join the current Port Access road north of the gatehouse. No bridging structures would be required which make this option the most cost effective of the options (other than retaining and strengthening the existing Norwich Quay route).
54. Option C's main challenges are in relation to:
- a. On-going short to medium term operational needs to use this land for port operations (predominantly log storage and handling). Log operations are currently anticipated to continue throughout this area for foreseeable future for loading at adjacent Wharves 2 and 3,
  - b. Funding the construction costs for this option (indicatively estimated to be in the order of \$2m to \$3m). LPC and NZTA indicate they are not in a position to justify a business case for this new road link as Norwich Quay can, with appropriate management measures, continue as a cost effective functional State Highway;
  - c. On-going operational and maintenance arrangements for the new road would need to be resolved. NZTA currently holds this responsibility for SH74 through to the Port Gates.
  - d. Addressing the commercial land value of the area occupied and impacted by a new access road (indicated by LPC to be in excess of \$10m).
55. Overall the potential opportunity to release value on the Norwich Quay land freed up by any new port access road to defray / offset costs were acknowledged by study participants, but recognised as not likely to offset road construction costs (estimated between \$2m and \$3m) and the commercial land value requirement of LPC of \$10m plus.

## 5 What Might The Lyttelton Access Statement Say?

56. There are shorter terms measures (next 5 years) which can be implemented irrespective of final decisions on the long term freight route.
57. The soonest that physical works within the Port will enable any significant shift of activities in the vicinity of Norwich Quay is understood to be 2020. This provides a basis for a staged approach to taking actions on Norwich Quay over the next 5 years.
58. These measures would focus on safety and amenity issues and seek to be in accordance with measures identified for Norwich Quay via the City Council Lyttelton Master Plan (2012) (extract below in Figure 7).



**Figure 7:** Lyttelton Master Plan 2012 (Christchurch City Council)

59. Insofar as the question of progressing an alternate freight access road (Option C) or retaining Norwich Quay's current State Highway function guidance is needed to either:
  - a. conclude a decision can be taken now based on current information to retain Norwich Quay as the long term freight route; or,
  - b. Keep the alternative road access option (Option C) 'live' to enable negotiations to continue, while instituting the short term measures identified above.
60. A common element for either option is the recommendation for provision of a pedestrian over-bridge to link to the vicinity of Wharves 5, 6 and 7.

## 5.1 Next Steps

61. It is recommended that this report is made available to the public to assist with the Lyttelton Port Company's consultation and information it is required to represent the Canterbury Regional Council (Environment Canterbury) to enable the preparation of a draft Lyttelton Port Recovery Plan.
62. Prior to this report being made publicly available the Christchurch City Council's Lyttelton Recovery Plan Working Party is briefed.
63. That the report is circulated to the UDS strategic partner governors and officials.
64. The Lyttelton Access Project Steering Group considers how to progress the objectives sought for the Lyttelton Access Statement with the Draft Lyttelton Port Recovery Plan process.

DRAFT

Appendix 1

## Terms of Reference



## Appendix 1: Terms of Reference

This Lyttelton Access Statement will address:

- Establishing reliable, resilient, twenty-four hour / seven day access to the Port of Lyttelton capable of meeting the predicted growth of freight until 2040 as well as cruise ships, commuter and recreational use.
- Identifying appropriate access to the waterfront for the Lyttelton community and visitors

It will also identify issues, programmes and projects, together with their priority and funding necessary to implement the statement.



Project sponsor/facilitator:	NZTA – Jim Harland
Project Participants:	CCC, NZTA, LPC and KiwiRail CERA and ECan will be consulted as necessary. They retain the option to more fully engage should circumstances require.
Project Start Date:	ASAP following Terms of Reference sign off by CEAG
Project Finish Date:	Six months from start date

#### 4.1 Outcomes

- A document with principles and key directions which contains details of concepts but not detailed designs
- Long term transport corridor and community waterfront interface plans, including some sense of scale and time frames at which these could be achieved taking into account anticipated freight volumes and people movements
  - Include stepped changes – short, medium and long term plans
  - Define who is the responsible lead on plans
- Finding consensus on approach so that there is no need to re-visit
  - Technical solutions
  - Agreement on priorities
  - Alignment with funding for earthquake recovery
- An implementation plan with a short, medium and long term focus which also identifies any recovery or consenting issues that may arise

#### 4.2 Objectives/Deliverables

The key objectives will be captured in a fully integrated 'Lyttelton Access Statement'. This document will articulate a common purpose and goals agreed by all project participants. This Statement will provide the platform to identify agreed programme and project priorities, their funding and who has the leadership role consistent with the Greater Christchurch Transport Statement.

## 2. Problem Definition

The earthquakes, forecast growth in freight to and from the port and increased recreational use will benefit from a review of port access arrangements/plans and the interface with Lyttelton township.

There are multiple infrastructure asset owners needing to undertake recovery activity in the Lyttelton area, including the Port. Uncoordinated access planning without a clear strategic direction may result in sub-optimal recovery outcomes for the community and constrain LPC in supporting strong South Island and regional trade growth.

## 3. Purpose & Scope

The purpose of this work is to ensure there is secure long term quality access to the port and appropriate community access to the waterfront. By taking a strategic and long term view, recognizing the operating environment as Lyttelton recovers from the earthquakes, the parties will be well placed to take appropriate action.

This work will build on work already undertaken. It also aims to ensure that all parties understand not only the full Lyttelton area picture but the wider regional implications of Lyttelton planning and decision making and are then able to work constructively together to develop common purpose, goals and plans for the area.

### 3.1 In Scope:

The physical area of this project includes the Lyttelton area shown on the attached map (Appendix 2). In undertaking this project regard will need to be given to the plans/decisions made by the partners in relation to rail and road tunnels, and associated roads including Evans Pass.

The scope will include consideration of both the CCC Suburban Centres Lyttelton Master Plan and LPC's Reinstatement and Master Development Plan\* to the extent they relate to:

- Transport implications of the proposed land use
- Port access and egress
- Reverse sensitivity
- Inner harbour access and development for freight, residents and visitors
- Norwich Quay.

In undertaking this work co-ordination across all infrastructures will be critical, including energy, telecommunications and water infrastructure.

The CCC and NZTA capital and maintenance programmes and lifeline projects will also be considered as part of this project.

2

\*Other documents to be considered include:

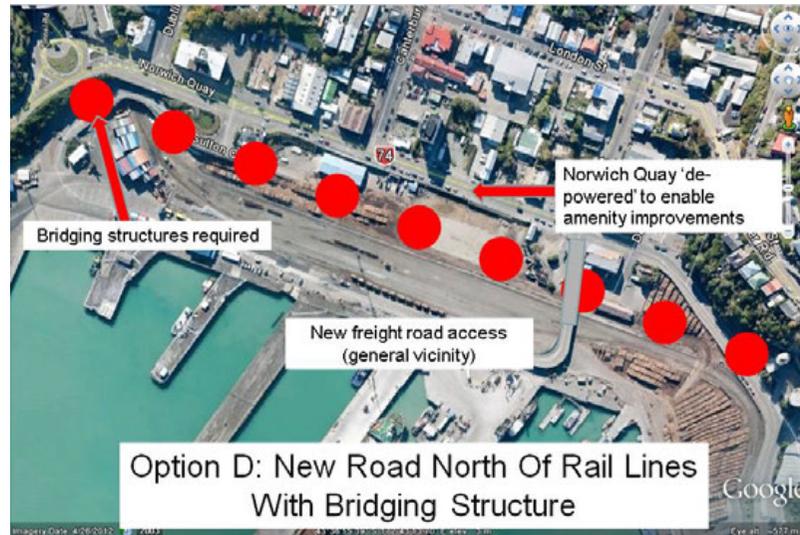
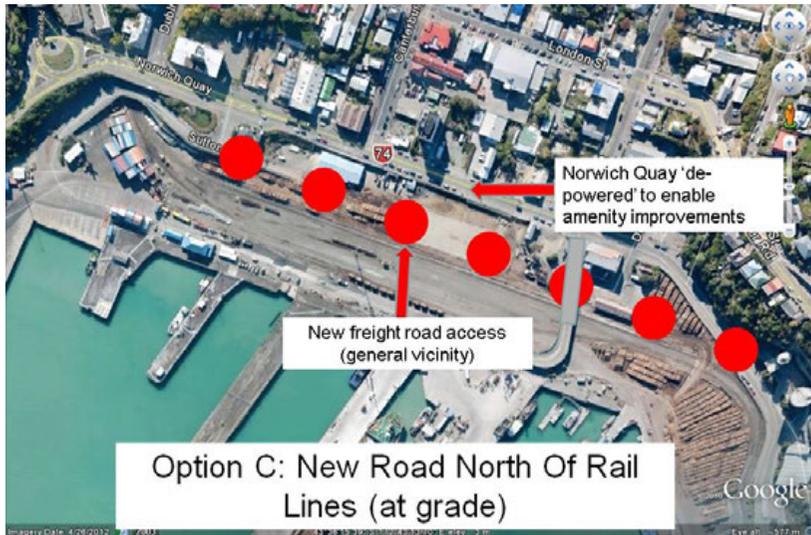
- Lyttelton Port Access Road Options (report prepared for CCC by ViaStrada 2010)
- Lyttelton Strategy Study Report prepared by Opus 2002 for Banks Peninsula District Council
- The Greater Christchurch Transport Statement
- CCC Sumner Road Reopening Study

Appendix 2

# Road Access Options Considered



## Appendix 2: Road Access Options Considered





Appendix 3

# Multi-Criteria Assessment Framework



### Appendix 3: Multi-Criteria Assessment Framework

Table 1: Lyttelton Access Project Multi-Criteria Assessment Framework

Criteria	KEY Easily implementable	Implementable	Moderate impediment exists	Significant impediment exists	Very significant impediment exists
Degree of alignment with CCC Lyttelton Master Plan (CCC)	Fully aligned	Good alignment	Moderately aligned	Marginally aligned	Not aligned
Cost of access construction / upgrade (\$ millions)	<\$1m	\$1m to \$3m	\$3m to \$5m	\$5m to \$10m	\$10m plus
Land value costs / impacts	No land / lease value impacts	<\$2m land / lease values	\$2 to \$5m land / lease values	\$5 to \$10m land / lease values	>\$10m land / lease values
Scheduling issues for LPC re-development	Easily managed	Manageable	Minor conflicts for scheduling	Scheduling conflicts	Major scheduling conflicts
Fit with Port long term operational needs	Excellent	Good	Adequate	Marginal	Not viable
Fit with KiwiRail long term operational needs	Excellent	Good	Adequate	Marginal	Not viable
Port access (Level Of Services to 2040) at 400% freight growth	LOS A to LOS B	Minimum LOS B	Minimum LOS C	LOS D	LOS E
Community waterfront access (town centre precinct distance and safety / convenience)	Excellent access (< 300m)	Good access (<400m)	Satisfactory access (<500m)	Marginal access (<600m)	Poor access (>750m)
Statutory approval risk (noise, visual, other RMA)	Straightforward	Low to Moderate risk	Moderate risk	Moderate to high risk	High risk
Other? [TBC]					

**Table 2: Lyttelton Access Option Multi-Criteria Assessment**

KEY	<b>Option A: Retain Norwich Quay SH Access</b> (with management & safety measures, safety & refocused TCMaster Plan)	<b>Option B: New local link road on northern side of Norwich Quay</b> (enables freight focus)	<b>Option C: New Port Access Road b/w Norwich Quay and north of rail lines</b> at grade from Sutton Quay	<b>Option D: New Port Access Road b/w Norwich Quay and north of rail lines</b> with grade separated access structure from Tunnel entrance	<b>Option E: New Port Access road south / seaward of rail lines</b> (at grade or grade separated sub-options from Tunnel entrance available)
Degree of alignment with Lyttelton Master Plan (CCC)	<b>Does not meet stated goals of community master plan</b>	<b>Does not meet stated goals of community masterplan</b>	Responds to stated goals of community master plan	Responds to stated goals of community master plan	Impacts usage of potential public open space at Wharves 5, 6 & 7
Cost of access construction / upgrade (\$ millions)	Safety and capacity works on road. Other community offset works needed?	Circa \$2m for 300m new access and \$5m property / business disruption costs	Circa \$2m for 500m new access and \$1m property / business disruption costs	As for Option C but with addition of bridging structure @\$5m+	Additional road length of Option C and additional bridging structure @\$7m+
Land value costs / impacts	No LPC land affected. Status quo for adjacent land uses.	No LPC land affected	<b>LPC indication of \$10m+ value</b>	<b>Greater land area take than Option C. &gt;\$10m+ value</b>	<b>Greatest land area take of options. &gt;\$15m+ value</b>
Scheduling issues for LPC re-development	No impact. <i>Impact on LPC RMA applications for commercial / retail?</i>	No impact. <i>Impact on LPC RMA applications for commercial / retail?</i>	Timing post east extension of Port (10 to 15 years)	Timing post east extension of Port (10 to 15 years)	<b>Not feasible with on-going general cargo loading / operational needs</b>
Fit with Port long term operational needs	No impact	No impact	Timing post east extension of Port (10 to 15 years)	Timing post east extension of Port (10 to 15 years)	<b>Impact on general goods loading at Wharves 2 &amp; 3</b>
Fit with KiwiRail long term operational needs	No impact	No impact	Log loading activities [check]	Log loading activities [check]	Impact on general goods loading at Wharves 2 & 3
Port access (Level Of Services to 2040)	Port and local traffic continue to mix. Measures may enable rating = yellow	Enhanced Norwich Quay LOS performance (separates out local traffic)	Enhanced LOS performance (separates out local traffic)	Enhanced LOS performance (separates out local traffic)	Enhanced LOS performance. Avoids new LPC / KiwiRail bridge need by gatehouse.
Community waterfront access (over-bridge assumed all options)	Extra pedestrian crossing element for Norwich Quay required	Greater crossing complexity than Norwich Quay	Separation of pedestrian activity via over-bridge	Separation of pedestrian activity via over-bridge	<b>Impact on proposed open space circa Wharves 5, 6 &amp; 7</b>
Statutory approval risk (noise, visual, other RMA)	Limited to localised consenting for any new safety or pedestrian works	<b>Justification for designating to take residential and business properties</b>	Justification to establish on operational port land. If LPC/ KiwiRail support status= <b>green</b>	Justification to establish on operational port land. If LPC/ KiwiRail support status= <b>green</b>	<b>Elevated structure noise impacts on residential and visual impacts</b>

