11. TRAFFIC CONGESTION MANAGEMENT REPORT

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PURPOSE OF REPORT

1. The purpose of this report is to seek the Community Boards' endorsement and recommendation to Council concerning several measures to reduce traffic congestion following the 22 February earthquake.

EXECUTIVE SUMMARY

2. The 22 February earthquake has caused a significant and unprecedented increase in the level of traffic congestion in Christchurch. The primary factors that are contributing to this increase include; restrictions to traffic movement along some strategic arterials particularly within the Central Business District (CBD), the incapacitation of business activity in the CBD, the closure of schools and large retail centres in eastern areas and the associated migration of business, retail and educational activity to the west.

3. In the first two to three weeks following the earthquake event travel times were three to four times higher for many motor-vehicle journeys, particularly during the morning and evening peak periods. This situation was considered unacceptable both in terms of the level of service to the public and emergency services.

4. Civil Defence responded to the situation by setting up a Strategic Transport Routes team which comprised staff from the Council, New Zealand Transport Authority and the private sector. This team was tasked with the identification and implementation of traffic operational initiatives targeted at improving the level of service along key arterial routes in order to "Get Christchurch Moving".

5. Following extensive field work the team identified approximately 60 measures involving physical changes to the road network. Some of these were contingency measures. Thirty-six measures have been implemented to date. A process involving modifications to a significant number of traffic signal timings to reflect changes in leg volumes and priorities ran in parallel.

6. Now that we have moved beyond the state of emergency, CCC, NZTA and Canterbury Earthquake Recovery Authority are working together to "Keep Christchurch Moving" during the city recovery and rebuilding period. A monitoring and evaluation process to determine the effectiveness of each measure has recently been completed. This has led to recommendations for the tenure of each measure. Some initiatives have already been removed due to limited effectiveness, safety concerns or being no longer required. Most are operating effectively and are still required while travel patterns remain altered, businesses get back to full productivity and there is high levels of city recovery activities.

GETTING CHRISTCHURCH MOVING

7. The response to the elevated levels of traffic congestion has generally been targeted on main arterial roads and therefore focuses on the majority of road users ie. motorists and heavy vehicles. This is purposeful in that it is considered vital for the recovery of the city to provide the highest possible level of service to move people and freight around the city. These works also benefit public transport in many instances and significant effort has also been made to provide strategic cycle connections where possible, particularly to replace the east/west link severed by the cordoned CBD. In some instances additional capacity has been created at significant intersections by removing kerb-side car parking and/or relocating cycle facilities to the footpath or adjacent routes. It is acknowledged that in some cases that creating a higher level of service for motorists has reduced the level of service to cyclists.

CONGESTION MANAGEMENT MEASURES

8. The measures that have, or are in the process of, being implemented to mitigate congestion are, by a large, considered temporary. However, in some instances, the increased congestion is merely a consequence of accelerated growth that would have occurred is a few years time. It is acknowledged that should the city fail to revert to pre-quake travel patterns then more comprehensive and integrated solutions to congestion need to be explored. The thrust of some of the opponents to removing on-road cycle facilities is that these alternative solutions should have been implemented during the emergency response phase. The reality is that measures such as bus-lanes, on-road cycle lanes and high occupancy vehicle lanes are high cost and difficult to implement. Removal and reinstatement of pre-existing street furniture (possibly including street trees) is also high cost. Travel plans and ride share schemes are useful but again they are slow in uptake creating a lag in the realisation of benefits.

9. The operational response which focussed on low cost (paint and signage), easily implemented (and removed) measures provided immediate benefits and this is considered appropriate given the circumstances.

Table 1 shows the complete list of measures investigated with an associated description and current status.

Project	Description	Status	Duration
Moorhouse Avenue @ Colombo Street overbridge	Priority repairs involving stabilisation of the overbridge to allow the bridge to re-open to traffic.	COMPLETE	NA
Moorhouse Avenue @ Science Alive	Priority repairs to the clock tower to allow Moorhouse Ave westbound lanes to re-open.	COMPLETE	NA
Main South Road / Symes Road	create merge lane out of Symes Road onto Main South Road to reduce left turn queues.	NO LONGER WARRANTED	NA
Fitzgerald Avenue north of Avonside Drive	Road subsidence and bridge damage repairs interim solution involves 2 lanes contra-flow on the east side of Fitzgerald Avenue.	COMPLETE	Until road repairs are complete
Main North Road / Cranford Street	Extension of the 2 south bound lanes on Main North Road to improve intersection clearance capacity and reduce left turn queues out of Cranford Street. Shared use path to be installed on eastern footpath.	COMPLETE	Until Pre-quake travel patterns are realised
Fitzgerald Avenue @ Avonside Drive	Road subsidence and bridge damage repairs interim solution involves 2 lanes contra-flow on the east side of Fitzgerald Avenue including and north Avonside Drive/Kilmore Street intersection. (Left turn only in and out of Avonside Drive and Kilmore Street).	COMPLETE	Until road repairs are complete
Idris Road / Straven Road / Fendalton Road	Ban Right Turns on Straven and Idris Road approaches to accommodate 2 through lanes to increase intersection capacity.	COMPLETE	Until Pre-quake travel patterns are realised
Main North Road / Northcote Road approach	Remove parking on Northcote Road west of the intersection to create a kerb side cycle lane and a wide traffic lane for merging.	COMPLETE	Permanent
Hills Road / North Avon Road	Install no stopping and mark 2 lanes on North Avon Road approach to the intersection.	COMPLETE	Permanent
Clarence Street / Whiteleigh Avenue	Extend 2 traffic lanes on Clarence Street south approach and departure side of the intersection to increase intersection capacity.	COMPLETE	Until Pre-quake travel patterns are realised
Aldwins Road @ Linwood Avenue	Priority building demolition required to optimise efficiency i.e. 2 lanes operational.	COMPLETE	NA
Avonside Drive / Stanmore Road	Approach repairs on north and south side of Stanmore Road plus signage to encourage redirect of northbound traffic.	COMPLETE	NA
Ferry Road @ Rutherford Street	Reconfigure lanes with dedicated left, through and right.	COMPLETE	Removed
Idris Road / Glandovey Road	Flow regulating using stop/go person to improve the efficiency of the roundabout.	COMPLETE (ceased on 1 May)	Removed

Moorhouse Avenue @ Ferry Road	Increase lane capacity, ban right turns at Lancaster Street.	NOT PROGRESSED	NA
Riccarton Road / Clarence Street	Extend 2 approach lanes on Clarence Street south of Riccarton Road, prevent right turns into private access-ways and Nelson Street.	COMPLETE	Until Pre-quake travel patterns are realised
Brougham Street @ Ensors Road	Priority repairs- Large slump.	COMPLETE	NA
Ferry Road east of Wilsons Road	Priority repairs -remove rubble from dairy and open cycle lane.	NOT PROGRESSED	NA
Bridle Path Road @ Port Hills Road	Increase corner radii to facilitate heavy vehicles.	COMPLETE	To be removed
Tennyson Street / Colombo Street / Strickland Street	Create 4 lanes by removing kerbside parking.	NOT PROGRESSED	NA
Barrington Street / Milton Street / Frankleigh Street	Create 4 lanes by removing kerbside parking.	NOT PROGRESSED	NA
Barrington Street	4 laning from Jerrold Street to first intersection and install a flush median from there.	NOT PROGRESSED	NA
Barrington Street (Milton Street to Rose Street)	flush median.	NOT PROGRESSED	NA
Curletts Road (Main South Road to Blenheim Road)	Remove flush median and refuge islands to enable a third lane to be installed and operated on a tidal basis (NZTA project).	COMPLETE	Likely permanent but in a revised form to reduce operation costs
Humphreys Drive @ Ferry Road	Priority pavement repair to enable re-opening of traffic lane.	COMPLETE	NA
Greers Road / Harewood Road	Signal phasing changes and changes to lane configuration on the north east Greers Road approach to improve intersection capacity – no stopping on departure side.	COMPLETE	Permanent
Papanui Road @ Bealey Avenue	Dual right turn lanes from Papanui Road into Bealey Avenue.	COMPLETE	Removed
Montreal Street (Brougham Street to Moorhouse Avenue)	Priority building repairs to enable opening of this section as soon as possible to relieve Right Turn congestion at Brougham Street.	COMPLETE	NA
Hospital Parking	Remove parking on grass berm enforce 2 hour time limit - to create turnover for visitor parking.	Ban on parking on grass is permanent; Parking enforcement under review	NA
Barbadoes Street	Priority building repairs to allow opening or partial opening for general traffic to relieve Fitzgerald Avenue congestion.	COMPLETE	NA
Hagley Park (within park) shared use lanes	Priority repairs of shared use lanes in North Hagley Park to improve level of service and connectivity for cyclists.	IN PROGRESS	NA
Avonside Drive / Linwood Avenue / Woodham Road	Priority repairs to intersection to improve levels of service.	COMPLETE	NA
Antigua Street (Moorhouse Avenue / St Asaph Street)	Create 4 lanes by removing kerbside parking.	NOT PROGRESSED	NA
Strickland Street / Milton Street	Create 4 lanes by removing kerbside parking.	NOT PROGRESSED	NA
Antigua Street / Tuam Street / Riccarton Avenue	Priority repairs to Oxford Terrace at ped tunnel investigate possible Bailey Bridge - Oxford Terrace Road repairs. Works completed Oxford Terrace now re-opened.	COMPLETE	NA
Riccarton Avenue (Hospital to Deans Avenue)	Create 4 lanes by removing kerbside parking.	NOT PROGRESSED	NA
Riccarton Road (Deans Avenue to Bartlett Street)	Lengthen east bound approach lanes to roundabout.	COMPLETE	Permanent

Durham Street South @ Brougham Street	Change lane configuration to favour changed volume splits, remove parking and install Give-way controls on side roads.	COMPLETE	Until one-way street network is re-established
Prestons Road / Styx Mill Road / Wilkinsons Road	Publicise this as an alternative new route.	NOT PROGRESSED	NA
Johns Road / Sawyers Arms Road / Harewood Road	Publicise this as an alternative new route.	NOT PROGRESSED	NA
Moorhouse Avenue / Barbadoes Street	Change lane configuration to favour changed volume splits.	COMPLETE	Until one-way street network is re-established
Hills Road, southbound approach to North Avon Road	Signage for southbound traffic to indicate alternative route using Stanmore Road.	COMPLETE	Until Pre-quake travel patterns are realised
Science Alive Clock Tower	Cycle routes: shared cycle lane / pedestrian path around barriers.	COMPLETE	Until building repairs are complete
Antigua Bridge @ Boat Shed	Cycle routes: Hospital detour.	COMPLETE	Until bridge is repaired
Park Terrace	Cycle routes: Opening to cyclist.	COMPLETE	NA
Bealey Avenue cycle lanes	Cycle routes: remove parking during peak periods 6-9am and 4-6pm and install cycle lanes.	COMPLETE	WITHDRAWN
Blenheim Road cycle lanes	Cycle routes: Remove parking & install cycle lanes (NZTA project).	COMPLETE	Permanent
Riccarton Road (Matipo Street to Mandeville Street)	Provide additional bus stop space and install sections of flush median to improve traffic flow along Riccarton Road by assisting right turn function.	COMPLETE	Permanent
St Asaph Street- Madras Street contra-flow cycle lane	Provide eastbound contra-flow cycle from Durham Street to High Street.	IN PROGRESS	Until alternative east/west cycle links are opened
Strowan Road / Glandovey Road / Rossall Street / Heaton Street	Widen right turn bay on Strowan Road to assist through lane traffic.	COMPLETE	Until Pre-quake travel patterns are realised
Durham Street South / Moorhouse Avenue	Lane marking changes to increase Left Turn capacity from Durham into Moorhouse.	COMPLETE	Until one-way street network is re-established
Riccarton Road / Riccarton Avenue / Deans Avenue	Cross hatching within intersection to discourage blocking.	IN PROGRESS	Trial (being monitored)
Bealey Avenue/ Carlton Mill Road / Harper Avenue / Park Terrace	Ban Right Turn from Harper Avenue for benefit of Bealey Avenue traffic flows.	COMPLETE	Until one-way street network is re-established
Grassmere Street	Extension of no stopping restriction to allow left turners on Grassmere Street to access intersection.	COMPLETE	Permanent
Hills Road @ Dudley Street	Extension of no stopping restriction and relocation of cycle lane to kerbside.	COMPLETE	Until site is rebuilt
Main North Road at Barnes Road intersection	Installation of no stopping restrictions.	COMPLETE	Permanent
Main South Road (Yaldhurst Rd to Craven Street)	Installation of no stopping restrictions.	COMPLETE	Permanent
Yaldhurst Road- Curletts to Main South	Relocate Bus stop and install no stopping restrictions.	In progress	Until Pre-quake travel patterns are realised

MONITORING AND EVALUATION

10. The monitoring and evaluation process for these measures will be ongoing, however to date there is sufficient evidence to draw some conclusions concerning the desired tenure of each change. This is largely based on operational effectiveness and the anticipated timeframes associated with elevated levels of congestion and/or the closure of strategic routes through the Central City. The outcome of this evaluation is a schedule of measures that are considered necessary to retain, and in some cases progress to completion. Of these, some would have otherwise required a decision from a Community Board and/or Council and this refined list is shown in **Table 2.** Note that projects on roads controlled by NZTA have been excluded from the Table and will be separately reported to relevant Community Board(s) by NZTA staff.

Table 2: Measures that Require Council Approval

Project	Description	Status	Duration
Main North Road / Cranford Street	Extension of the 2 south bound lanes on Main North Road to improve intersection clearance capacity and reduce left turn queues out of Cranford Street.	COMPLETE	Until Pre-quake travel patterns are realised
Idris Road / Straven Road / Fendalton Road	Ban Right Turns on Straven and Idris Road approaches to accommodate 2 through lanes to increase intersection capacity.	COMPLETE	Until Pre-quake travel patterns are realised
Main North Road / Northcote Road approach	Remove parking on Northcote Road west of the intersection to create a kerb side cycle lane and a wide traffic lane for merging.	COMPLETE	Permanent
Clarence Street / Whiteleigh Avenue	Extend 2 traffic lanes on Clarence Street south approach and departure side of the intersection to increase intersection capacity.	COMPLETE	Until Pre-quake travel patterns are realised
Riccarton Road / Clarence Street	Extend 2 approach lanes on Clarence Street south of Riccarton Road, prevent right turns into private access-ways and Nelson Street.	COMPLETE	Until Pre-quake travel patterns are realised
Riccarton Road (Deans Avenue to Bartlett Street)	Lengthen east bound approach lanes to roundabout.	COMPLETE	Permanent
Greers Road / Harewood Road	Signal phasing changes and changes to lane configuration on the north east Greers Road approach to improve intersection capacity – no stopping on departure side.	COMPLETE	Permanent
Durham Street South @ Brougham Street	Change lane configuration to favour changed volume splits, remove parking and install Give-way controls on side roads.	COMPLETE	Until one-way street network is re-established
Riccarton Road (Matipo Street to Mandeville Street)	Provide additional bus stop space and install sections of flush median to improve traffic flow along Riccarton Road by assisting right turn function.	COMPLETE	Permanent
St Asaph Street- Madras Street contra-flow cycle lane	Provide eastbound contra-flow cycle from Durham Street to High Street.	IN PROGRESS	Until alternative east/west cycle links are opened
Strowan Road / Glandovey Road / Rossall Street / Heaton Street	Widen right turn bay on Strowan Road to assist through lane traffic.	COMPLETE	Until Pre-quake travel patterns are realised
Grassmere Street	Extension of no stopping restriction to allow left turners on Grassmere Street to access intersection.	COMPLETE	Permanent
Hills Road @ Dudley Street	Extension of no stopping restriction and relocation of cycle lane to kerbside.	COMPLETE	Until site is rebuilt
Main North Road at Barnes Road intersection	Installation of no stopping restrictions.	COMPLETE	Permanent
Main South Road (Curletts Rd to Craven Street)	Installation of no stopping restrictions.	COMPLETE	Permanent
Yaldhurst Road- Curletts to Main South	Relocate Bus stop and install no stopping restrictions.	In progress	Until Pre-quake travel patterns are realised
Hills Road / North Avon Road	Install no stopping and mark 2 lanes on North Avon Road approach to the intersection.	COMPLETE	Permanent
Bealey Avenue/ Carlton Mill Road / Harper Avenue / Park Terrace	Ban Right Turn from Harper Avenue for benefit of Bealey Avenue traffic flows.	COMPLETE	Until one-way street network is re-established

11. With the exception of the no-stopping restrictions on Grassmere Street and Barnes Road, all measures in Table 2 require formal ratification by Council due to the metropolitan significance of the roads involved.

12. Most of the measures have been implemented at intersections. Additional capacity has been added predominantly by creating additional traffic lanes which in turn increases the capacity of a particular route. The most notable route where changes in travel patterns have seen a substantial increase in congestion comprises Heaton Street – Glandovey Road – Idris Road – Straven Road – Clarence Street – Whiteleigh Avenue.

13. Measures to increase capacity and improve intersection efficiency have been implemented at Blenheim/Clarence/Whiteleigh, Clarence/Riccarton/Straven and Glandovey/Heaton/Strowan. Metering of traffic flows using a "Stop/Go" person ceased at the Glandovey/Idris roundabout controlled intersection prior to the May school holidays.

14. Surveys of travel time and travel speed were used to compare the level of service in the period prior to intervention (April 2011) with the period post intervention (May 2011). This provides a reasonably robust basis to determine the effectiveness of a suite of congestion mitigating measures along this route. Metering of traffic flows at the Glandovey/Idris intersection was not occurring during the period of either the before or after surveys.

15. The findings of these surveys are summarised as follows:

    (a) Average northbound travel time was reduced by one minute in the morning and three minutes in the afternoon peak periods.
    (b) Average southbound travel time was reduced by 13 minutes in the morning and one minute in the afternoon peak periods.
    (c) Average northbound speeds increased by 4kph during both the morning and afternoon peak periods.
    (d) A significant increase was observed in average speeds in the morning peak in the southbound direction from 16 kph in April to 28 kph in May.
    (e) Average speeds in the afternoon peak in the southbound direction in April and May were observed to be similar.

16. The detailed analysis is **circulated separately**. The surveys reveal that the measures implemented are significantly improving the level of service along this route.

17. The performance of the other measures at other intersections have not been assessed using travel time of travel speed surveys because they are congestion "hot spots" rather than forming part of a definite route. However regular observations conducted by staff reveal significant improvements to the levels of congestion in the locations where changes have been made.

MEASURES BY WARD

18. The measures included in Table 2 which are located within the Heathcote/Spreydon ward are listed in Table 5.

Table 5: Heathcote/Spreydon Ward Measures

Project	Description	Status	Duration
Durham Street South @ Brougham Street	Change lane configuration to favour changed volume splits, remove parking and install Give-way controls on side roads.	COMPLETE	Until one-way street network is re-established

19. Some of the measures that have been implemented and some that are still being progressed simply involve general maintenance or repairs to reopen road sections and enable levels of service on strategic routes to revert to pre-quake levels. Other measures are considered general operational changes e.g. lane markings and adjustments to signal timings. Collectively these types of changes would generally not require a decision from either a Community Board or Council.

20. Many of the measures have necessitated removal of kerbside parking, turning bans, relocation/removal/installation of cycle lanes and installation of clearways etc. During the emergency period these measures were approved by Civil Defence through the National Controller. Legislation provided for this (refer Legal Considerations below). Now that the national state of emergency has been lifted the measures require formal ratification by a Community Board or Council.

CONSULTATION

21. The measures that have been implemented and those which are being progressed are considered important in the interests of mitigating significant congestion throughout the city. The national state of emergency necessitated swift action and there was very limited consultation on the majority of the projects. Most initiatives were listed on the Council earthquake website and leaflet drops were conducted for Curletts Road project. Post implementation some negative feedback was received from residents and businesses directly affected by some changes. Some of the initiatives involving a reduction in the level of service for cyclists have received feedback from a small number of cyclists and from the SPOKES organisation. Considering the number of the projects the amount of feedback has been very modest.

22. As mentioned, most of the measures are considered temporary and caveats have been placed on the recommendations to reflect this. The term of each measure will be determined through continual monitoring of traffic volumes. In the interests of expediting the benefits of the reduction in congestion and higher levels of service achieved through the implementation of these works, further consultation is not recommended.

FINANCIAL IMPLICATIONS

23. The costs associated with these projects were included with the contractors (Fulton-Hogan and City Care) emergency operational costs and are likely to be included in the Council's overall emergency response costs and associated claims.

Do the Recommendations of this Report Align with 2009-19 LTCCP budgets?

24. As above.

LEGAL CONSIDERATIONS

25. Civil Defence Emergency Management Act 2002 Section 85, Emergency Powers of Civil Defence Emergency Management Groups, clause (1)(f):

    (1) While a state of emergency is in force in its area, a Civil Defence Emergency Management Group may;

        (f) Prohibit or regulate land, air, and water traffic within the area or district to the extent necessary to conduct civil defence emergency management.

26. Part 1, Clause 5 of the Christchurch City Council Traffic and Parking Bylaw 2008 provides Council with the authority to install parking restrictions by resolution.

27. The Community Boards have delegated authority from the Council to exercise the delegations as set out in the Register of Delegations. The list of delegations for the Community Boards includes the resolution of parking restrictions and traffic control devices.

28. The installation of any signs and/or markings associated with traffic control devices must comply with the Land Transport Rule: Traffic Control Devices 2004.

Have you considered the legal implications of the issue under consideration?

29. As above.

ALIGNMENT WITH LTCCP AND ACTIVITY MANAGEMENT PLANS

30. Aligns with the Streets and Transport activities by contributing to the Council's Community Outcomes-Safety and Community.

Do the recommendations of this report support a level of service or project in the 2009-19 LTCCP?

31. As above.

ALIGNMENT WITH STRATEGIES

32. The recommendations align with the Council Strategies including the Road Safety Strategy 2004 and the Metropolitan Transport Statement.

Do the recommendations align with the Council's Strategies?

33. As above.

CONSULTATION FULFILMENT

34. Refer paragraph 12.

STAFF RECOMMENDATIONS

It is recommended that the Spreydon/Heathcote Community Board make the following recommendations to Council:

Note: The following recommendations and revocations (v – aa) will remain in place until the one way street network has been re- established.

DURHAM STREET SOUTH AND BROUGHAM STREET INTERSECTION (Refer **Attachment 1)**

Revoke the following parking restrictions:

(v) That any existing parking restrictions at any time on the eastern side of Durham Street South commencing from its intersection with Brougham Street and extending in a northerly direction to its intersection with Elgin Street be revoked.

(w) That any existing parking restrictions at any time on the western side of Durham Street South commencing from its intersection with Brougham Street and extending in a northerly direction to its intersection with the prolongation of the northern kerb line of Elgin Street be revoked.

Approve the following on Durham Street South Street:

(x) That the stopping of vehicles be prohibited at any time on the eastern side of Durham Street South commencing from its intersection with Brougham Street and extending in a northerly direction to its intersection with Elgin Street.

(y) That the stopping of vehicles be prohibited at any time on the western side of Durham Street South commencing from its intersection with Brougham Street and extending in a northerly direction to its intersection with the prolongation of the northern kerb line of Elgin Street.

Approve the following on Stanley Street intersection with Durham Street South:

(z) That a Give Way Control be placed on Stanley Street at its intersection with Durham Street South.

Approve the following on Elgin Street intersection with Durham Street South

(aa) That a Give Way Control be placed on Elgin Street at its intersection with Durham Street South.

CHAIRPERSONS RECOMMENDATION

For discussion.