25. TRAM EXTENSION: STAGE 2 ROUTE CONFIRMATION

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PURPOSE OF REPORT

1. To recommend to the Council a preferred route for the Stage 2 tram extension loop through the Christchurch Polytechnic Institute of Technology.

EXECUTIVE SUMMARY

2. The extension of the Christchurch tramway, as consulted and agreed by the Council as part of the 2009-19 LTCCP in June 2009, is planned to be constructed in two stages, as illustrated in **Attachment 1**. Currently the design and construction focus is for Stage 1, which takes the tram as far as Tuam/High Streets, and this is scheduled to be completed in time for the Rugby World Cup in September-October 2011.

3. Stage 2 of the tram extension project takes the tram further along High Street, St Asaph Street and Ferry Road to Barbadoes Street, in the vicinity of the Roman Catholic Cathedral, the Music Centre of Christchurch and Christchurch Polytechnic (CPIT). It is anticipated that a second tram storage facility (funded by the tram operator) will be located in this area. The Statement of Proposal (SOP) which was part of the 2009-19 LTCCP consultation proposed that the tram line be double tracked along High and St Asaph Streets and Ferry Road as far as Williams Street, with a single track turning loop around Barbadoes, Coventry and Williams Streets back into Ferry Road. This is shown in **Attachment 1**. The Statement of Proposal also indicated that the route of Stage 2 had yet to be finalised.

4. A submission from CPIT on the Statement of Proposal promoted the idea of returning the tram line via the CPIT site in preference to the St Asaph St-Ferry Rd double track option and this received favourable comment from the Council at the hearing of submissions. The Council's decision was to approve the Stage 1 route and provide funding for both Stages 1 and 2 as per the SCP (i.e. spread over five years from 2009/10 to 2013/14.)

5. Since the Council's LTCCP decision in June 2009 the following has been achieved in respect of Stage 2:

   (a) CPIT, in conjunction with a Council team, have been developing their concept of a Campus Walk - the "High Street Extension," a 12 metre wide boulevard commencing at the corner of Madras and St Asaph Streets and incorporating the Council's Wilson Reserve, and extending through the Campus to Barbadoes Street. This would be a publicly available pedestrian and cycle thoroughfare, also including the return leg of the tram route. It will provide views of the Barbadoes Street Cathedral back to the city centre. (**Attachment 2**)

   (b) This project will require removal of a corner of one building (Visions training restaurant) and the demolition of the Recreation Centre. The first stage of the work is under way with alterations to the Visions building having already been completed. Recreation Centre removal is planned for the end of this year.

   (c) The new design for Wilson Reserve has been completed by Council staff. As well as providing for the boulevard and allowing for the tram, it includes the site for a new art work to be unveiled later this year for the Scape 2010 Biennial of Art in Public Space.

   (d) As part of planning for a number of projects at the Madras/St Asaph/High Street intersection, options for locating the exit of the tram on to the street have been identified and evaluated by a staff project team. The two most likely options have been the subject of safety audits and further staff evaluation, identifying a preferred option for recommendation. These are noted in paragraph 6 and explained in detail in paragraphs 25-33 below.

(e) A Memorandum of Understanding between the Council and CPIT has been signed confirming "the objectives and principles behind a co-ordinated approach to capital works that the Council and CPIT will endeavour to undertake between 2010 and 2015." Included in the Memorandum are the investigation and extension of the tram through the campus, endeavouring to locate tram storage space, co-ordination of Wilson Reserve, the public art work and the CPIT/High Street corridor planning, design and construction, improving amenity, pedestrian and cycle connectivity between the campus and High Street as part of the Madras Street upgrade and collaborating on a parking and travel demand management plan for the campus and surrounding area.

The Council approval to amend and confirm the route is sought so that these matters can be progressed.

6. The proposal is to vary the tram route from that shown in the 2009 SCP by deleting the Williams Street, Ferry Road and St Asaph Street return leg with the tram alignment linking into the "High Street Extension near Barbadoes and Coventry Streets and proceeding generally along the length of the boulevard, rejoining the public street at the Madras/St Asaph Streets intersection (described as Tram Route B). An alternative exit, also given detailed consideration, was for the tram to turn right off the boulevard then left in to St Asaph Street, joining the existing right turn lane to head towards High Street (described as Tram Route A). The route with these options is shown in **Attachment 3**. While Tram Route A appears to have fewer traffic safety and/or road network level of service issues to resolve, Tram Route B is considered to be a superior solution in terms of central City revitalisation, CPIT links, and urban design generally and is the preferred option. While Tram Route B is the preferred option, there are a number of traffic and pedestrian issues that need to be fully resolved. These design and management options will be further developed and finalised through the detailed design phase of the project.

FINANCIAL IMPLICATIONS

7. The cost estimates for Stage 2 were based on the LTCCP Statement of Proposal option. This has a track length of 1,058 lineal metres. The two options considered are of a similar length with Tram Route A being longer at 1065 metres and Tram Route B being shorter at 1,039 metres. Route B also has less curves and also being off road, construction costs may be less than for the LTCCP option. Both CPIT options will have some traffic management and safety costs additional to the LTCCP option. While detailed costings have not been calculated, it is estimated that all three options would be in an acceptable budget range within the scope for Stage 2 of the tram.

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

8. Yes. The Central City tram extension project is included in the 2009-19 LTCCP and funding for Stage 2 is provided for in the 2012/13 and 2013/14 financial years.

LEGAL CONSIDERATIONS

9. The revised route includes the use of CPIT/Crown land and also part of the Wilson Reserve. An easement will be negotiated for the right to occupy and use the CPIT/Crown land, and a further easement will be sought to permit the tram to cross Wilson Reserve.

10. As a Statement of Proposal has already been published in relation to the tram route generally and the funding of its construction, and as CPIT is the only party considered to be materially affected by the change in route, a further Special Consultative Procedure is not necessary. There will however be on-going consultation with other parties around the route during the detailed planning, design and construction phases.

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

11. As above.

ALIGNMENT WITH LTCCP AND ACTIVITY MANAGEMENT PLANS

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

12. Yes - the tram extension project is included in the 2009-19 LTCCP.

ALIGNMENT WITH STRATEGIES

Do the recommendations align with the Council's strategies?

13. Yes - The proposals align with the Central City Revitalisation Strategy and related policies and plans, the Central City Transport Concept, the Greater Christchurch Urban Development Strategy, the Christchurch Visitor Strategy, the Parking Strategy 2003, Pedestrian Strategy 2001, the Road Safety Strategy 2004 and "A City for People - Action Plan - Christchurch 2010."

CONSULTATION FULFILMENT

14. The history of consultation on the tram project has been extensive and complex, commencing in 2006. The Stage 2 general route evolved from consultation on the tram extension during the 2008 Annual Plan round. At that stage the tram had been proposed to extend as far as Manchester Street, but some of the submissions received suggested alternatives, including extending as far as Barbadoes Street to reach CPIT and the Cathedral. The Council in June 2008 confirmed, subject to funding, the extension to City Mall and requested *"further work on other options which take the tram further along High Street (in particular Plan 3 - "Cathedral via High, Ferry" and Plan 8 - "High, Tuam, Manchester Loop) be considered… and a final recommended route with costings be reported back for potential inclusion in the proposed 2009/19 LTCCP."*

15. In February 2009, the Council confirmed, for consultation, the overall route of the tram extension, to be built in two stages, firstly to Tuam Street via High, Lichfield and Poplar Streets, to be completed in 2011 and open in time for the Rugby World Cup and secondly to Barbadoes Street, near the Cathedral, Music Centre and CPIT, to be completed in 2013/14.

16. The tram extension proposal, including provision of funding, was consulted on as part of the draft 2009-2019 LTCCP. This took the form of a special consultative procedure with a detailed Statement of Proposal including a map of the suggested route. The Statement described the intended route, including: *"The suggested funding proposal contained in the draft 2009-19 LTCCP contemplates the tram route continuing along High Street, Ferry Road and Barbadoes Street with a turn around via Coventry and Williams Streets back to the City along Ferry Road and High Street connecting to the Stage 1 terminus at the intersection of High Street and Tuam Street (as noted on the plan attached). Because additional tram storage is required in the area comprising the second stage, it is proposed that this development will follow as soon as practically possible."*

17. The tram extension proposal was widely publicised in The Press, The Star and four local community newspapers during March and April 2009. Information including a further route map and an invitation to attend a public meeting about the tram proposal was delivered to businesses and residents along the proposed route. Approximately 40 people attended the meeting, held at the Council Chambers on 25 March. Consultation closed on 16 April 2009. There were 90 submissions received to the tram extension Special Consultative Procedure; 25 being opposed and 65 in support.

18. Of the submissions in opposition, most were about the tram extension generally - around financial issues, the tourism focus and safety issues (mainly cycles). Six submissions raised concerns about route selection, three of those opposing Stage 2. Of those in support many were general, without specifically referring to Stage 2. Twenty-three submitters included Stage 2 in their support.

19. There were only three submissions received from property owners directly affected by the Stage 2 route, the first being a sheet metal fabrication business, concerned about possible impacts of the tram, the second being CPIT seeking the Stage 2 tram route to include the Polytechnic campus, and the third being the Music Centre of Christchurch, supporting the tram extension but emphasising the need for high quality design. The first two submitters appeared and were heard by the Council. There had also been discussion with the Cathedral authorities who expressed support for the extension but did not make a formal submission.

20. The Council's LTCCP decision on 30 June 2009 confirmed the extended tram route and funding, as follows:

    "(a) That the Council adopt the proposal to extend the City Tram route as far as the intersection of High Street and Tuam Street by 2011 to open in time for the Rugby World Cup as per the Statement of Proposal and that funding for the second stage of the extension (through to the Catholic Cathedral) also be confirmed as per the Statement of Proposal.

    (b) That following the adoption of the proposal above the Council grant delegated authority to the Chief Executive to enter into such contractual arrangements with such parties as he shall consider necessary or appropriate to implement the above decision of the Council."

21. Consultation since the Council's decision has been limited. Other than responding to public enquiries about the extension and its timing, the focus has been on working with CPIT to progress the options for a campus alignment of the tram route. There has also been on-going discussion with the tram operator, including the Stage 2 proposals and tram storage siting. CPIT, as part of their internal communication strategy have kept their stakeholders, such as the Students Association, informed of the changes being proposed on campus and this has included publicising within the Polytechnic their proposals for the "High Street Extension," including the possible tram route.

22. As has been the case for Stage 1, the intention is for the tram extension project team to establish and maintain contact with property owners and occupiers along the Stage 2 route as detailed design and construction proceeds.

STAFF RECOMMENDATION

It is recommended that in order to facilitate the co-ordination of the various civil works projects occurring at the Madras, St Asaph, High Streets intersection and to enable detailed planning, design and negotiations with CPIT to progress, the Council:

(a) Confirm Route option "Tram Route B" for Stage 2 of the tram extension (i.e. tram to return through CPIT Campus exiting at the Madras, St Asaph, High Streets intersection), noting that the detailed design process will finalise the traffic management pedestrian safety elements required to support the intersection's functions.

(b) Undertake further consultation with affected parties on any required road layout, parking or access changes, as detailed design is progressed.

(c) Grant delegated authority to the Chief Executive to enter into such contractual arrangements with such parties as he shall consider necessary or appropriate to implement the above decision of the Council.

BACKGROUND (THE ISSUES)

23. The issues have been covered in detail in the preceding paragraphs of this report.

THE OBJECTIVES

24. The Council and the CPIT are keen to improve the connection and linkages between the CPIT campus and the Central City and including the tram as part of the High Street Extension will assist in meeting that objective. There are activities on campus which can work with the tram operator and its passengers to mutual advantage, and there is a potential student market to increase tram patronage.

THE OPTIONS

25. Following the Council's LTCCP decision in June 2009, a number of options were identified for using the CPIT campus for part of the Stage 2 tram route. This work was undertaken by a Council staff project team, in consultation with affected business units, as part of a wider project considering the co-ordination of a number projects affecting the Madras-St Asaph-High Streets intersection, including the Western Interceptor pipeline project, Madras Street kerb and channel renewal, High-Madras-St Asaph Intersection Forward planning project, Stadium Walkway, Wilson Reserve upgrade including new public artwork, and the tram.

26. In addition to the wider planning objectives of central city revitalisation and a desire to improve the "connection" between the CPIT campus and the central city, the following criteria were identified as the important considerations for making a decision on the tram track alignment:

- Safety for pedestrians, cyclists and vehicles.
- To provide an improved level of service for pedestrians and cyclists, with the level of service for vehicles (local and network) retained if possible but to be secondary to pedestrians and cyclists.
- Safe and efficient operation of the tram network.

27. Madras Street is a major arterial road that carries approximately 14,000 vehicles per day. St Asaph Street is a minor arterial road and carries approximately 11,500 vehicles per day. High Street is a local road and carries approximately 1,250 vehicles per day. It is assumed at this stage that the one-way function of Madras and St Asaph Streets will remain. The intersection upgrade is listed in the 2009-19 LTCCP with the aim of balancing the needs of and improving the safety for all road users.

28. Five route options for the tram were initially considered. These included two possibilities for exiting on to St Asaph Street (one including alignment through CPIT and the other using the Council reserve land (formerly part of Ferry Road) entirely), exiting at the Madras, St Asaph intersection, exiting on to Madras Street, and retaining the alignment as shown in the LTCCP. Several separate intersection layout options were also considered in conjunction with the tram track options.

29. Taking into account the opportunity to strengthen the connectivity from the central city to the CPIT campus, and acknowledging the work being done by CPIT to develop their "High Street Extension" concept, two options were selected for detailed analysis. These were identified as:

Tram Route A - tram out via High Street, St Asaph Street and Ferry Road, then back via the CPIT campus, turning right into St Asaph Street approximately 45 metres from the Madras-High intersection and back to the City centre via High Street.

Tram Route B - tram out via High Street, St Asaph Street and Ferry Road, then back via the CPIT campus, directly through the Madras, St Asaph Street intersection and back to the City

centre via High Street. Two versions of this option have been developed, one seeking operational safety for the tram and other intersection users without significantly affecting current levels of service for vehicles at the intersection and beyond, and the other providing improved pedestrian linkage and safety advantages but affecting peak hour service levels.

Tram routes A and B are illustrated in **Attachment 3**.

Until the Council confirms, in conjunction with CPIT, that the tram will go through the campus, the route included in the 2009-19 LTCCP remains an option.

30. **Tram Route A (exits CPIT via St Asaph Street)**

Under this option the tram enters CPIT land in the vicinity of Coventry Street, follows the to-be formed boulevard ("High Street Extension") north-westwards as far as the Visions Training Restaurant. It then turns right, crosses that part of Wilson Reserve adjacent to St Asaph Street, crosses two west-bound lanes of St Asaph Street, turning left into the third (right turn lane) and then entering the intersection and crossing into High Street from that lane.

Advantages:

1. No additional traffic signal phase is necessary at the Madras, St Asaph, High intersection. Modelling showed that tram could use right turn out of St Asaph Street without significant reduction in level of service. Impacts similar to Route B1.
2. Potential conflicts between tram, pedestrians and cyclists waiting to enter the intersection are avoided.
3. As first identified by staff project team and presented to external auditors, was their recommended option (because of the potential conflicts with pedestrians and cyclists).
4. Is considered to have a lesser impact on level of service of the road network and have less safety issues to resolve than Route B, and remains the preferred traffic solution.
5. While not their first choice, as it partially dilutes legibility of the "High Street Extension" concept, would be acceptable to CPIT.

Disadvantages:

1. Potential conflicts where the tram would cross Wilson Reserve (pedestrian and cycle), including obstruction of the shared path while waiting to enter St Asaph Street
2. Potential conflicts and obstruction when crossing two traffic lanes to turn into third (right turn) lane, a lane with very limited queuing space.
3. An additional set of traffic signals may be necessary to avoid delays and provide safe passage of the tram on to the street, impacting other street users.
4. Additional construction costs (compared to Route B) due to curves in tracks, more complex overhead wires, and the need for significant re-contouring or track lowering to reconcile height differences between Wilson Reserve and St Asaph Street. The track could be moved further west to reduce the height differences but this would further compromise queuing space in St Asaph Street.
5. Higher running costs, compared to Route B (curves causing wear and tear on trams and tracks).
6. Additional visual "clutter" because of need for more poles, more complex overhead wiring and additional signage.
7. Reduction in area of usable green space in Wilson Reserve, visual and functional break up of the open space continuity and may require the removal of an existing mature tree.
8. Current alignment affects outdoor dining area of Visions training restaurant with consequent loss of amenity and usable space.
9. Partial dilution of the direct connection between CPIT and the city centre, being the objective of the "High Street Extension" concept. Reduces the vibrancy and activity along the northern sector of the "Extension" by not having the tram there.
10. Not favoured by tram operator because of potential additional wear and tear on tram wheels and track and because there may be more potential for delays.

31 **Tram Route B (exits CPIT through the Madras/St Asaph intersection)**

Under this option the tram enters CPIT land in the vicinity of Coventry Street, follows the to-be formed boulevard ("High Street Extension") north-westwards all the way to the Madras/ St Asaph Streets intersection, from where it crosses into High Street. Two versions of this route have been developed:- Route B1 which provides for an on demand tram phase but no separate provision for pedestrians and Route B2 which provides for both an on demand tram phase and a pedestrian only phase.

Advantages - Route B1:

1. Modelling showed that an additional phase for the tram at the Madras/St Asaph/High intersection can be accommodated without significant reduction in level of service. Overall effects are similar to Route A.
2. Potential conflicts with cyclists and pedestrians at Madras, St Asaph, High Streets intersection are able to be managed but to a lesser extent than for Route A and Route B2.

Advantages - Route B2:

3. The additional pedestrian only phase will provide some improvement to pedestrian connectivity across the intersection.
4. Potential conflicts with cyclists and pedestrians at Madras, St Asaph, High Streets intersection are able to be managed.

Advantages -both schemes:

5. Potential conflicts with pedestrians, cyclists and motor vehicles when crossing Wilson Reserve and two traffic lanes in St Asaph Street would be avoided.
6. No additional traffic signals in St Asaph Street, and resultant delays to St Asaph Street and Ferry Road traffic.
7. Less costly to construct and operate. It is likely to be the least expensive of all the options, excluding the costs of potential network delays (Route B2).
8. No negative impacts on the green space area of Wilson Reserve, or on Visions outdoor dining area.
9. "High Street extension" connection retained for entire length, resulting in more legibility for users and continuous diversity and liveliness.
10. Considered to better meet central city revitalisation and urban design objectives.
11. Favoured by tram operator, and first choice for CPIT.

Disadvantages - Route B1:

1. Greater challenge to improve safety rating than Route B2.

Disadvantages - Route B2:

2. Easier to achieve a higher safety rating than Route B1.
3. The additional pedestrian only phase would significantly reduce the level of service for motor vehicles.

Disadvantages - both schemes:

4. Overall more safety issues to resolve than Route A due to the conflict point for cyclists, pedestrians and the tram as the apex of the Madras St Asaph intersection.

32. **Existing (LTCCP) option**

Under this option the line is double tracked along High and St Asaph Streets and Ferry Road as far as Williams Street, with a single track turning loop around Barbadoes, Coventry and Williams Streets back into Ferry Road.

Advantages:

1. All on public road - no need for easements.
2. No changes to traffic signals or other impacts on network - the tram is just another vehicle.

Disadvantages:

1. This option will not meet the objectives identified by CPIT and Council in taking tram through the campus.
2. It is more costly because of greater trackage and more curves, than CPIT Route B.
3. Having the tram off road for part of its journey provides for flexibility for stopping areas, layovers etc.

33. **Conclusion**

The opportunity for part of the extended tram route to pass through the CPIT campus is one that will greatly enhance the role and function of the tram. The proposal has been endorsed by CPIT and has featured as a key element in their campus redesign. It plays a key role in consolidating the physical and experienced connections between the CPIT and the remainder of the central city. Accordingly a route through the campus site should be supported. One of the key challenges in managing this is how the tram exits from the site. A direct exit (Route B) has the greatest synergies with the overall intentions of the route and can be achieved albeit with some compromise to either vehicle Levels of Service or pedestrian safety. Alternatively Route A is considered to have the least impact on any traffic and pedestrian elements, but fails to capture the key "connection" achieved by a direct crossing.

It is considered that Route B best achieves the preferred outcome and that detailed design will address the balance between safety and network efficiency. Such matters have been addressed at each stage of tram development satisfactorily to date, although this intersection is more complex. The two versions of Route B offer a different balance of pedestrian safety and traffic performance, with Version 1 retaining current vehicle levels of service but with more potential for conflict with pedestrians and cyclists. Version 2 improves the current level of safety, but at the expense of level of service at peak times. If option B is adopted it is anticipated that full detailed design will address the key elements in Versions 1 and 2 in a manner that addresses the final mix of traffic management and pedestrian safety elements required to support the intersection function. This will largely rely on a balance to be achieved between raising safety levels, given the presence of the tram, while creating minimal changes to the vehicle environment. If the traffic network investigations for the entire inner city network demonstrate the capacity to slow the overall network and to push extraneous traffic to the Four Avenues, then the issue of traffic times through the intersection may be resolved in that manner.

THE PREFERRED OPTION

33. Taking into account all of the above factors, Tram Route B is considered to be the preferred option and is recommended for adoption by the Council.