

12 April 2005

**YARRA TRAMS ROUTE 109 – PROPOSED INFRASTRUCTURE
REMODELLING IN COLLINS STREET**

Division Assets & Services

Presenter Haig Poulson, Principal Engineer Traffic Engineering

Purpose

1. The Planning and Environment Committee at its meeting held on 1 March 2005 expressed concerns about the State Government's proposal to upgrade the Collins Street leg of Tram Route 109. Committee recognised the need to improve public transport in and around the City and requested that Councillors be invited to attend meetings of the Yarra Trams Working Party to explore design options. All Councillors were invited to attend the meeting held on 9 March 2005.
2. This report informs the Committee of the options developed to progress the engineering design aspects of proposed Yarra Trams improvements, including the reasoning behind the options and their impact on tram passengers, pedestrians, traffic, parking and sight lines along the street.

Recommendation

3. That the Planning and Environment Committee:
 - 3.1. supports the construction of the proposed tram super stops in Collins Street; and
 - 3.2. notes that some retailers and public transport groups have expressed concerns about the removal of the remaining tram stops.

Key Issues

4. In developing the tram stop options, for Collins Street Council has had to consider the impact the various configuration of tram stop footprints and placements have on:
 - 4.1. road safety;
 - 4.2. achieving the State Government's goal of improving tram travel time by 25% across the network;
 - 4.3. passenger walking distances;
 - 4.4. passenger access to north-south streets and public transport operating along these streets;
 - 4.5. overall tram travel and walking time for passengers;
 - 4.6. motor vehicle circulation and access;
 - 4.7. loss of on-street parking spaces and parking meter revenue;
 - 4.8. Disability and Discrimination Act requirements (for example gradient of road pavement);
 - 4.9. passenger amenity;

- 4.10. vehicular access to abutting laneways;
- 4.11. impact on bicyclists.
- 4.12. urban design; and
- 4.13. cost benefit ratio.

Time Frame

- 5. Yarra Trams has indicated that it wishes to have 3 new stops constructed in Collins Street by the end of June 2005.

Relation to Council Policy

- 6. The upgrading of tram stops along Collins Street is in accordance with Strategic Direction 1.5 of *City Plan 2010*, to ensure a sustainable and highly integrated transport system services the city needs and links key assets, while facilitating accessible transport options for people with a disability.

Consultation

- 7. Council has coordinated a public consultation effort regarding the Yarra Trams' proposal tabled at the March Committee meeting. A public information meeting was held on 24 February 2005 in the Town Hall. A letter with a plan of the proposed works was delivered to all owners and occupiers of properties abutting Collins Street and a number of key stakeholders, including emergency services. A total of 45 submissions, as listed in Attachment 1 have since been received. These submissions, which have been forwarded to Yarra Trams for consideration, were generally concerned about the lack of consultation by Yarra Trams, the removal of stops, reducing the motor vehicle capacity of Collins Street, the loss of on-street parking spaces, tram stop shelter advertising panels blocking sight lines to shop frontages and the safety of passengers accessing the platforms.

Government Relations

- 8. The alterations to the operation of intersections via the introduction of left turn bans or reduced traffic lanes requires VicRoads approval under the *Road Safety (Road Rules) Regulations 1999* before these measures are put into effect.
- 9. The Department of Infrastructure and Vic Roads have been liaising with Councils' administration on all tram matters relating to Collins Street.

Finance

- 10. The proposed infrastructure remodelling in Collins Street will result in a loss of parking meter revenue of approximately \$96k per annum. All costs associated with the remodelling of the tram infrastructure will be budgeted for by the State Government.

Legal

11. Under Clause 52.03 of the Melbourne Planning Scheme, land identified in the Schedule to the Clause may be used or developed in accordance with the specific controls contained in the incorporated document corresponding to that land. *Tram Route 109 Disability Discrimination Act Compliant Platform Trams Stops dated June 2001* (gazetted on 5 July 2001) is identified in the Schedule to clause 52.03.
12. Therefore the location of all the Route 109 tram stops has been approved in accordance with the plan attached to the Incorporated Document. The Council, as the Responsible Authority, has the power to amend the plans to allow a relocation of any of the tram stops.
13. Secondly the Incorporated Document requires plans to be submitted and endorsed by the Responsible Authority (i.e. the Council) showing the specific location, design, materials, colours, size, appearance and illumination of each of the new tram stops. This application was lodged in late January but has not yet been determined.

Sustainability

14. The adoption of the proposal will create a safer, faster and more accessible tram service to, within and from the city, which in turn should attract visitors to the city to make greater use of public transport.

Comments

15. The options developed by Council, Yarra Trams and VicRoads followed a workshop meeting attended by Councillors Brindley, Clarke and Snedden on 9 March 2005 and discussions with representatives of the Public Transport Users Association on 10 March 2005. All options listed below retain the existing platform stops already installed at Spring Street, Swanston Street and between King Street and Spencer Street. The options developed and discussed below are:
 - 15.1. retain existing infrastructure and install physical separation measures between stops (Option 1);
 - 15.2. convert all existing safety zone stops to platform stops (Option 2);
 - 15.3. the existing Yarra Trams proposal as presented to Committee on 1 March 2005 (Option 3A);
 - 15.4. modifying Yarra Trams original proposal (Option 3A) by combining the William and King Street stops into a mid-block stop between King and William Streets and converting the stops at Queen Street to westside platform stops. The Elizabeth Street west side platform proposal and the Russell to Exhibition Street mid block platform proposal remain the same as proposed in the original Yarra Trams proposal (Option 3B)
 - 15.5. convert stops at William and Elizabeth Streets to platform stops as detailed in the original proposal and retain all other safety zone stops at King, Queen, Russell, and Exhibition Street (Option 4A);
 - 15.6. convert stops at William and Elizabeth Streets to platform stops as detailed in the original proposal, install a new eastbound departure platform stop east of Russell Street and a new westbound departure platform stop west of Exhibition Street and retain existing safety zone stops at King Street and Queen Street (Option 4B);

- 15.7. convert stops at William and Elizabeth Streets to platform stops as detailed in the original proposal, install a new eastbound departure platform stop east of Russell Street and a new westbound departure platform stop west of Exhibition Street, retain existing safety zone stops at King Street and Queen Street, and retain both the existing westbound approach side safety zone stop east of Russell Street and the existing eastbound approach side safety zone stop west of Exhibition Street (Option 4C);
- 15.8. reduce the maximum traffic signal cycle time along Collins Street from 90 seconds between Spring Street and William Street to 60 seconds and maintain existing safety zone stop footprints, while positioning the stops in the most advantageous position, be it approach side or departure side stops, to enhance tram travel time (Option 5);
- 15.9. reduce the King Street/Collins Street traffic signal cycle time from a maximum 120 seconds to a maximum 90 seconds (Option 6A)
- 15.10. introduce active tram priority traffic signal phasing at the King Street/Collins Street intersection during the daytime hours between 7.00am and 7.00pm when the traffic signal cycle time is operating at or around 120 seconds (Option 6B)
16. The main driver in developing these options and comparing their impacts on the city's operation was to develop a model that improved tram travel time along Collins Street, while limiting any negative impact on pedestrian accessibility to the city along Collins Street and any negative impacts on the overall operation of the city's street network in general.
17. To determine which Option should be adopted by Council as the preferred treatment for improving tram travel time, while maintaining a high service level of service to pedestrians and other city visitors, the above options have been assessed against a number of criteria drawn from the key issues listed above in paragraph 3.
18. In order to adequately assess the impact of these Options, consideration has been given to travel time "delay surveys" carried out by VicRoads. These surveys indicated that up to seven minutes of a tram's 19 minute peak hour journey along Collins Street is due to delays emanating from passenger loading (62% or 4 minutes 20 seconds), traffic signals (34% or 2 mins 20 seconds) and other delays including cars travelling along or stationary on tram tracks (4% or 20 seconds).

Option 1: Retain Existing Safety Zone Stops and Install Physical Separation Measures between Stops (Refer Attachment 2)

19. Installing separation measures such as low profile kerbing or bollards between the tram tracks and the traffic lanes would reduce the incidences of collisions between trams and vehicles but it would not result in significant travel time savings along Collins Street. Given that the average measured delay caused to trams travelling along Collins Street by vehicles travelling along or stored on the tram tracks is less than 2% (or less than 20 seconds) of the average travel time in Collins Street, the installation of such treatments would not result in a significant improvement in travel time. It would also have little impact on passenger safety and is therefore not considered a worthwhile viable option in its own right. It should not, however, be totally discounted as separation kerbing installed at strategic locations such as the block between King Street and William Street should discourage some vehicles queuing on the tram tracks. Council has already approved the installation of temporary kerbing in this block in order to measure the effectiveness of such a treatment.

Option 2: Convert All Existing Safety Zone Stops to Platform stops (Refer Attachment 2)

20. The travel time saving resulting from converting all existing safety zone stops to platform stops is 7.5% of the overall travel time along Collins Street or 1.2 minutes off an average travel time of approximately 16 minutes. This is well below the overall target of 25% (4 minutes), or the 19% (3 minutes) improvement predicted under the existing Yarra Trams proposal.
21. While there are very significant benefits for tram passenger safety, amenity, walking distance, and connection to north-south streets and public transport services operating along these streets, there are also extremely negative impacts on motor vehicle circulation and access into and around Collins Street and the city. This is due to the fact that all approach side platform stops will result in the loss of a “stand up” traffic lane at each intersection, which will require either the introduction of peak hour or daytime turn restrictions.
22. This proposal would also result in the loss of approximately 74 on street parking spaces which would have a significant impact on the ability of Collins Street to service the abutting properties. If all the spaces that are required to be removed from the street were metered parking spaces, then the financial cost to Council would be in the order of \$440,000 per annum.
23. While platform stops would improve passenger amenity, DDA compliance would not be achieved at the stops located on the west side of Russell Street as the resultant slope between the top of the platform and the road pavement would exceed the specified 1:14 maximum ramp. In order to comply with the 1:14 gradient, the ramps at the platforms on the west side of King Street and the east side of Queen Street would need to be extended by 12 metres in length, further reducing vehicle access and parking. (These additional losses have been accounted for in paragraph 22 above)
24. The consequences of banning turns into Exhibition Street, Russell Street, Elizabeth Street, Queen Street, William Street and King Street would have a major impact on the circulation and service role of Collins Street, as well as the rest of the city and in addition to loss of on-street parking, could not be recommended from a traffic engineering perspective.
25. Given the cost of a “double” platform is approximately \$750,000 this proposal would cost in the order of \$4.5 million and is not considered to meet a favourable cost/benefit ratio.
26. As part of this option consideration was also given to locating the platforms to the departure side of the Collins Street intersections. While this may have been physically achievable the additional road works involved made this variation an even less cost effective option.

Option 3A: Install platform stops at William St, Elizabeth St and mid block between Exhibition and Russell Streets. (Refer Attachment 2)

27. This proposal is estimated to achieve a travel time saving of approximately 3 minutes or 19% of total travel time along Collins Street.
28. This proposal retains acceptable vehicle access to and from Collins Street, even though it still requires peak hour turn bans at William Street and Elizabeth Street.
29. Although the proposal also minimises overall on-street parking losses, to 12-13 spaces over the entire length of Collins Street, it concentrates these losses in the blocks between Russell Street and Exhibition Street and between Elizabeth Street and Queen Street, where 22-23 spaces and 14 spaces respectively, have to be removed.
30. The comments made at the public information session on 24 February 2005 and the previous Planning and Environment Committee meeting held on the 1 March 2005, indicate this proposal is unacceptable to a number of Collins Street businesses because of its impact on parking losses in front of 101 Collins Street, its impact on pedestrians’ line of sight to the shops in the vicinity of the proposed mid-block stop opposite 101 Collins Street and the shops on the north side of Collins Street.

31. This proposal is opposed by the PTUA and a number of tram users because of the removal of tram stops from the intersections of Exhibition Street, Russell Street, Queen Street and King Street. It is also opposed because of the increased walking distances the proposal creates as a result of the removal of stops and the increased spacing between the stops. The maximum distance between stops, under this arrangement increases from 260 metres to 370 metres, while the average distance between stops increases from 210 metres to 290 metres. While Yarra Trams' analysis indicates that the average additional walking distance is approximately only 30 metres, many of the submissions from the public considered that the benefits of improved travel time long Collins Street will be outweighed by additional walking distances. While some passengers travelling along the Collins Street section of Route 109 would be disadvantaged in terms of total tram and walking travel time, it should be stressed that passengers using the service from the suburbs into the CBD will experience overall travel time improvements.
32. Although this proposal removes stops it will result in improved passenger safety and amenity at the new stops. Following the installation of the platform stops at Collins Street in 2001, there has not been any recorded crash between a tram and a passenger. For the 3 year period between 1998 and 2001, (prior to platform stop's installation) there were 4 crashes involving pedestrians crossing to the safety zones and cars. For the 3 year period after the stop was installed there was only 1 pedestrian/car crash involving pedestrians accessing the platform stop. These figures support the general traffic engineering position that the platform stops result in improved safety conditions for tram passengers and pedestrians.

Option 3B: Modification of Yarra Trams Original Proposal retaining the Mid-block Platform Stop between Exhibition Street and Russell Street, and the Westside Platform Stop at Elizabeth and installing new proposed Platform stops on the Westside of Queen Street and Mid-Block Platform stops between William and King Streets. (Refer Attachment 2)

33. The travel time saving for this option is estimated to be 2.2 minutes or 14% of total travel time along Collin Street.
34. This proposal which would reduce walking distances between stops and connect to the Queen Street bus stop
35. The loss of approximately 49 on-street spaces with 23 spaces being lost between King and William Streets would be a significant issue. The loss of such a high number of spaces in a block that services the stock exchange, the Rialto, the Olderfleet building and the Le Meridien Hotel would be difficult to overcome. The need to relocate one of the most post popular taxi ranks servicing the above buildings would also be very difficult.
36. The estimated loss in revenue would be \$294,000 if all lost parking spaces were metered spaces.

Option 4A: Convert the William and Elizabeth Street stops to Platform stops as per Option 3 and retain all other safety zone stops at King Street, Queen Street, Russell Street and Exhibition Street (Refer Attachment 2)

37. The travel time saving for this option is estimated to be 0.6 minutes or only 35 seconds of travel time along the street.
38. This proposal, which retains acceptable vehicle access to and from Collins Street, eliminates any adverse access problems the mid-block stop would have created between Russell Street and Exhibition Street. It still, however, as per option 3 requires peak hour turn bans at William and Elizabeth Streets.
39. The removal of the mid-block stop between Russell Street and Exhibition Street reduces street clutter and improves pedestrian line of sight to abutting businesses and shop fronts.

40. The proposal results in an overall loss of 17 on-street parking spaces, which equates to a revenue loss of approximately \$102,000 per annum. While it eliminates the loss of parking between Exhibition Street and Russell Street, it increases the loss of parking in the block between Elizabeth and Queen Street to 18 spaces.
41. Obviously DDA compliance would not be achieved at the existing safety zone stops retained at King Street, Queen Street, Russell Street and Exhibition Street.
42. Passenger safety and amenity would not be improved at the existing safety zone stops.
43. Walking distances would effectively remain unchanged between tram stops as there would be a stop located at each of the north-south streets and consequently tram passenger access to the Queen Street and Russell Street bus services would remain.
44. This proposal would only result in 2 new platform stops being constructed which limits DDA access and safety improvements. Given the low travel time improvements this proposal also creates it would be difficult for Yarra Trams to develop a business case to undertake this proposal.

Option 4B: Convert the William and Elizabeth Street stops to Platform stops as per Option 3, install a new eastbound departure platform stop east of Russell Street and a new westbound departure platform stop west of Exhibition Street, and retain existing safety zone stops at King Street and Queen Street. (Refer Attachment 2)

45. The travel time saving for this option is estimated to be 1.5 minutes or 9 % of the total travel time along Collins Street
46. This proposal, which retains acceptable vehicle access to and from Collins Street, eliminates any adverse access problems the mid-block stop would have created between Russell Street and Exhibition Street. It still, as per Options 3A and 4A, requires peak hour turn bans at William and Elizabeth Streets.
47. The replacement of the mid-block stop with two departure side platform stops in the block between Russell and Exhibition Streets marginally reduces street clutter and slightly improves pedestrian line of sight to abutting businesses and shop fronts. This configuration could encourage unsafe movements across Collin Street to and from the footpath on the opposite side of the Collins Street. Such movements may ultimately have to be controlled with a physical barrier or fence between the tram track and the adjacent carriageway.
48. The proposal results in an overall loss of 21 on-street parking spaces, which equates to a revenue loss of approximately \$126,000 per annum. While it reduces the loss of parking between Exhibition Street and Russell Street, from 23 spaces to 13 spaces it increases the loss of parking in the block between Elizabeth and Queen Street to 18 spaces.
49. DDA compliance would not be achieved at the existing safety zone stops retained at King Street and Queen Street.
50. Passenger safety and amenity would not be improved at these existing safety zone stops.
51. Walking distances between tram stops would effectively remain unchanged at the current 200 metres or less between and Swanston Street and Spencer Street. This would not be the case east of Swanston Street where the distance between the existing Swanston Street west bound platform stop and the west bound Exhibition Street platform stop would be 400 metres. The distance between the east bound stops would be approximately 260 metres. Tram passenger access to the Queen Street bus service would remain excellent, while access to the Russell Street stop would be reduced for east bound tram passengers.
52. This option would also require the relocation of the tram track crossover on the east side of Russell Street.

Option 4C: Convert the William and Elizabeth Street stops to Platform stops as per Option 3, install a new eastbound departure platform stop east of Russell Street and a new westbound departure platform stop west of Exhibition Street, retain existing safety zone stops at King Street and Queen Street, and retain both the existing westbound approach side safety zone stop east of Russell Street and the existing eastbound approach side safety zone stop west of Exhibition Street. (Refer Attachment 2)

53. The travel time saving for this option is estimated to be 0.9 minutes or 6% of the total travel time along Collins Street.
54. This proposal, which retains acceptable vehicle access to and from Collins Street, eliminates any adverse access problems the mid-block stop would have created between Russell Street and Exhibition Street. It still, as per Options 3, 4A and 4B requires peak hour turn bans at William and Elizabeth Streets.
55. The replacement of the mid-block stop with two departure side platform stops and two retained safety zone stops in the block between Russell and Exhibition Streets very marginally reduces street clutter and slightly improves pedestrian line of sight to abutting businesses and shop fronts.
56. The proposal results in an overall loss of 29 on-street parking spaces, which equates to a revenue loss of approximately \$174,000 per annum. It does little to reduce the loss of parking between Exhibition Street and Russell Street, with 21 spaces being removed instead of 23 under the original proposal described in Option 3. It also increases the loss of parking in the block between Elizabeth and Queen Street to 18 spaces, as is the case in Options 4A and 4B.
57. Obviously DDA compliance would not be achieved at the existing safety zone stops retained at King Street and Queen Street, and the approach side safety stops at Russell Street and Exhibition Streets. This proposal would also create potential confusion for disabled passengers as the two new departure side DDA compliant platform stops in the block between Russell Street and Exhibition Street, would be located opposite existing safety zone stops which would not be DDA compliant.
58. Walking distances between tram stops would effectively remain unchanged at 200 metres or less between and Swanston Street and Spencer Street. Between Swanston Street and Russell Street the distance would be slightly increased to 260 metres. Tram passenger access to the Queen Street and Russell Street bus services would remain excellent,

Option 5: Reduce the Maximum Traffic Signal Cycle Time along Collins Street from 90 seconds to 60 seconds between Spring Street and William Street. (Refer Attachment 2)

59. Recent travel time surveys of Collins Street indicate that 34% or 2minutes 20 seconds of tram delays are caused by traffic signals and that adjustment to the signal operations should improve tram travel time along the street.
60. Reducing the cycle time to 60 seconds between and including Spring Street and William Street would reduce tram travel time along Collins Street by 1 minute 30 seconds.
61. The operation of traffic signals in the Hoddle Grid east of King Street has for many years been limited to a maximum cycle time of 90 seconds. This limit has been set to avoid creating long delays to pedestrians where pedestrian movements are often very congested. When cycle time are extended to 120 seconds as is the case during the morning peak period along King Street, pedestrians will begin to experience very congested footpath storage conditions and will at times begin ignoring the red signal and crossing when they consider it is reasonably safe to do so. This behaviour is supported by Australian Road Research which indicates that increasing waiting times for pedestrians leads to a proportionate increase in high risk illegal crossings of streets by pedestrians.
62. Consequently the introduction of active tram priority traffic signal measures should not be introduced into the Hoddle Grid east of King Street, as such traffic signal operations require cycle times of at least 120 seconds to operate successfully.

63. Another alternative treatment is to reduce the tram cycle time below the current 90 second maximum east of King Street. This approach is designed to reduce the time trams have to wait at a red light and at the same time not disadvantage trams travelling in the opposing cross grid movement, which would have resulted from the calling up of an active tram priority phase in the favoured direction.
64. It is possible to reduce the cycle phase to either 60 seconds or 72 seconds in the inner sections of the Hoddle Grid, such as Collins Street, between but not including Russell Street and Queen Street; Elizabeth Street between Flinders Lane and Lt Bourke Street; and Swanston Street between Collins Street and Lt Bourke Street.
65. The introduction of short 60 second cycle times outside this area would not be possible without removing the three phase operation of many of the adjoining intersections. Removing the three phase operations at intersections such as Flinders/Queen, Flinders/Elizabeth, Flinders/Russell, Flinders/Exhibition, Flinders/Spring, Lonsdale/Queen, Lonsdale/Russell, Lonsdale/Exhibition would not only create unsafe traffic conditions, by allowing uncontrolled right turns against tram movements and through traffic, it would increase risks to pedestrians and interfere with relevant tram movements. In the case of the Swanston/Flinders Street intersection, three phases are mandatory given the closure of Swanston Street to traffic north of Flinders Street. Three phase signals cannot operate within a 60 second cycle time as the minimum time that can be given to a pedestrian phase at a 30 metre wide Hoddle grid street is approximately 25 seconds. This 25 seconds is made up from a minimum green time of 8 - 10 seconds green person sub-phase and a 15 - 16 seconds flashing red person clearance sub-phase. Adding in the need to have an inter green time of 5 seconds, this adds up to a minimum time of 30 seconds for one phase or 60 seconds for two phases.
66. Introducing a 60 second phase along other Collins Street intersections such as Exhibition Street Russell Street and Queen Street would de-link major by-pass and access north-south links across the Hoddle grid as Flinders Street and Lonsdale Street would still be operating at a 90 second cycle time. The 60 second Collins Street cycle time would then create a random operation relative to Flinders Street and Lonsdale Street. In the case of Flinders Street this would lead to excessive queuing back from Flinders Street, which would in turn lead to north-south vehicles blocking access along Collins Street which would therefore adversely affect tram travel times.
67. It must be noted that reducing the 90 second cycle time along main CBD by pass and distributor routes to 60 second cycle time would lead to increased congestion of the street network. This is because the amount of lost inter-green time increases as the number of cycles increases. In an hour the 90 second cycle time results in 200 seconds of lost inter-green time in each direction. A 60 second cycle time results in 300 seconds of lost inter-green time in each direction. This means that capacity of these intersections would be reduced by 50 vehicles per hour per through traffic lane. This would represent a significant reduction in capacity along streets such as Russell Street, which is currently carrying close to capacity volumes of 600 vehicles per lane.
68. In accordance with a City of Melbourne / State Government Deed any adjustment of traffic signal timing arrangements along Exhibition Street would also have to be approved by the State Government as the State Government would be liable to provide redress to Transurban if the traffic environment was altered.

Option 6A: Reduce the King Street/Collins Street traffic signal cycle time from a maximum 120 seconds to a maximum 90 seconds. (Refer Attachment 2)

69. The current operation of King Street traffic signals operating on a 120 maximum cycle time during the AM peak period and 110 second cycle time during the evening peak period, with Collins Street only receiving 32% of green time is a significant delay point for tram movements. The delays caused by the lack of green time is also compounded by cars, travelling around double parked taxis near the Rialto, being stranded on the tram tracks because of the lack of vehicle movement along Collins Street across King Street.
70. Reducing the cycle time at King Street to 90 seconds tram travel delays will be reduced by 21 seconds.

71. Reducing King Street to a 90 second cycle time would however reduce the traffic carrying capacity along King Street by approximately 10% which would create significant congestion on alternative by-pass routes at the western end of the CBD during peak periods. These routes, which include Spencer Street, Wurundjeri Way Bolte Bridge, and Southern Link's Domain Tunnel exit onto Kings Way are nearly at capacity during the peak periods and the 6,000 vehicles per day that could be displaced from King Street would further reduce the reliability and service levels of these critical routes.

Option 6B: Introduce Active Tram Priority at the King Street/Collins Street (Refer Attachment 2)

72. Given the existence of a 110-120 second cycle time at the King/Collins Street intersection during the daytime period between 7.00am and 7.00pm, consideration could also be given to introducing active tram priority traffic signal phasing.
73. The introduction of such a measure would reduce tram travel by 31 seconds.

Conclusion

74. Noting the above and in particular the time travel time savings advantages and the limited impacts to the City it is considered that Option 3A is the most appropriate treatment.

75. Summary of Options

OPTION	TIME SAVING	PED SAFETY	DDA	PARKING	COST	TRAFFIC IMPACT	PED WALKING TIME	PTUA ISSUES	COMMENTS
1	2% (20sec)	No impact at tram stops but could assist pedestrian safety midblock	Negative impact. Reduce midblock crossings by disabled	No impact	N/A	Reduced vehicle access to abutting properties and laneways	No change	N/A	Minimal travel time saving
2	7.5% (1.2min)	Significant improvement	Not achieved at Russell St due to resultant slope of ramp	Loss of 74 spaces (\$440K per annum)	\$4.5M	Reduction in capacity at all intersections with turn bans required	No change	N/A	Unsustainable traffic congestion
3A	19% (3min)	Significant improvement	All stops will be DDA compliant	Overall loss of 12-13 (\$96K per annum) spaces with concentrated losses of 22-23 spaces Russell to Exhibition & 14 spaces Elizabeth to Queen	\$2.4M	Retains acceptable vehicle access in Collins Street requiring peak hour turn bans at Elizabeth & William Sts	Avg additional walking distance of 30-35m	Strongly oppose proposal due to removal of stops from intersections, increased walking distances & loss of connection to bus services	Maximum travel time saving, but loss of access to north-south bus routes, stops at each block & reduced parking opportunities in specific blocks
3B	14% (2.2min)	Significant improvement	All stops will be DDA compliant	Overall loss of 49 spaces (\$294K per annum) with concentrated losses King to William and Russell to Exhibition	\$3.2M	Retains acceptable vehicle access in Collins Street requiring peak hour turn bans at Elizabeth & Queen Sts	Avg additional walking distance will be below 30m	Not known	Reasonable travel time savings however significant parking losses in the vicinity of major attractions
4A	4% (35sec)	No improvement at King/ Queen/ Russell & Exhibition	Not achieved at King/ Queen/ Russell & Exhibition	Overall loss of 17 spaces (\$102K per annum)	\$1.6M	Retains acceptable veh access in Collins St Peak hour turn bans at William & Elizabeth Sts	No change	Not known	Improved DDA access at 2 stops but little travel time saving due to retention of safety zones

OPTION	TIME SAVING	PED SAFETY	DDA	PARKING	COST	TRAFFIC IMPACT	PED WALKING TIME	PTUA ISSUES	COMMENTS
4B	9% (1.5min)	No improvement at King & Queen Streets	Not achieved at King & Queen Sts	Overall loss of 21 spaces (\$126K per annum)	\$2.4M	Retains acceptable veh access in Collins St Peak hour turn bans at William & Elizabeth Sts	Effectively remains unchanged other than east of Swanston	Not known	50% travel time saving of Option 3 and could create some additional pedestrian safety problems.
4C	6% (55sec)	No improvement at King & Queen and approach side of Russell & Exhibition	Not achieved at King & Queen and approach side of Russell & Exhibition	Overall loss of 29 spaces (\$174K per annum)	\$2.4M	Retains acceptable veh access in Collins St Peak hour turn bans required at William & Elizabeth Sts	Effectively remains unchanged other than b/w Swanston & Russell	Not known	Minimal travel time savings. DDA and safety issue results from mixing platforms with safety zone stops
5	9% (1.5min)	Positive impact at Collins St intersections with Elizabeth & Swanston Streets	Positive impact for able bodied pedestrians but could have detrimental impact on elderly and disabled	No impact	Minimal installation cost	Should not be significant if only installed at Collins St intersections with Swanston and Elizabeth.	No impact.	Not known	Should be trialled at Collins Streets intersections with Swanston and Elizabeth Streets
6A	2% (21sec)	Positive impact at King Street	No impact	No impact	Minimal installation cost	Reduction of 10% traffic carrying capacity along King St which will create significant congestion on alternative routes that are already at capacity during peak times	No change	Likely to support	Could be trialled to measure benefits & impact
6B	3% (31sec)	No impact	No impact	No impact	\$30,000	Could be trialled at various time of day to gain maximum benefit.	No change	Likely to support	Could be trialled to measure benefits & impact

Background

76. Yarra Trams is developing a proposal for relocation and improvement of tram stops in Collins Street as part of a broader initiative to develop route 109 as an example of “best practice” management of Melbourne’s tram services. Yarra Trams’ overall intention is to provide existing customers with a high service standard and encourage central city area visitors to travel by public transport rather than by private car. In addition, Yarra Trams will also improve levels of access to its service in accordance with the *Disability and Discrimination Act 1992* (DDA).
77. Yarra Trams’ obligations under the franchise agreement with the State Government to operate the tram service within the metropolitan area, is to enhance tram stops and, given the high passenger numbers along Route 109 and Collins Street in particular, it is concentrating its efforts on this route.
78. Tram route 109 serves the eastern suburbs extending to Whitehorse Road, Box Hill and travels through the CBD ultimately connecting to Station Pier in Port Melbourne. Within the City of Melbourne it includes Victoria Parade from Hoddle Street to Macarthur Street, Macarthur Street, Collins Street, Spencer Street and Clarendon Street from where it connects to the Normanby Road light rail line which leads to the Port Phillip Bay waterfront at Station Pier.
79. Yarra Trams have already extended Route 109 along Whitehorse Road by approximately 2km between Union Road and Station Street, Box Hill. This extension also includes the installation of 5 new raised platform stops and 2 pairs of kerb access stops. Yarra Trams have installed raised platform stops in Victoria Street Abbotsford adjacent to the Victoria Gardens retail and entertainment development.
80. Closer to the CBD, Yarra Trams has installed a raised platform stop opposite St Vincent’s hospital in Victoria Parade which is known as St Vincent’s Plaza. Yarra Trams is also proposing to install 4 new platform stops along Victoria Parade between St Vincent’s Plaza and Hoddle Street. These plans have already been endorsed by the City of Melbourne.
81. Within the CBD, these new raised stops have also been installed in Collins Street at Spring Street, Swanston Street and mid block between King Street and Spencer Street.
82. These stops have been previously approved by Council in 2001, with in principle support also given to the need to improve tram stops along Route 109, including the remainder of Collins Street. This was reflected in the approval by the Minister for Planning of an amendment to the Melbourne Planning Scheme which formally approves all the Route 109 super stops and tram stops removals in the City of Melbourne.

Attachments:

1. Submissions Received
2. Maps for each option

FINANCE ATTACHMENT

**YARRA TRAMS ROUTE 109 – PROPOSED INFRASTRUCTURE REMODELLING IN
COLLINS STREET**

The proposed infrastructure remodelling in Collins Street will result in a loss of parking meter revenue of approximately \$96k per annum. All costs associated with the remodelling of the tram infrastructure will be budgeted for by the State Government.

Joe Groher
Manager Financial Services

LEGAL ATTACHMENT

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Instrument of Delegation

On 16 December 2004 the Council resolved to delegate to the Planning and Environment Committee the power, duties and functions directly relating or ancillary to Transport Planning, Traffic and Parking.

Instrument of Delegation

On 16 December 2004 the Council resolved to delegate to the [insert name of committee] the power, duties and functions directly relating or ancillary to **[solicitor to insert the relevant term of reference]**

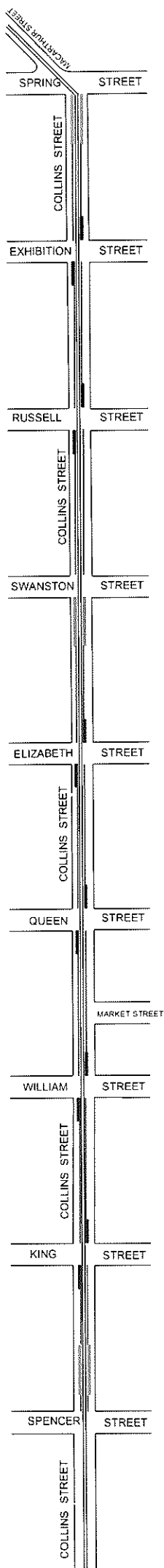
Alison Lyon
Manager Legal & Governance

YARRA TRAMS ROUTE 109 PROPOSED INFRASTRUCTURE REMODELLING IN COLLINS STREET

SUBMISSIONS

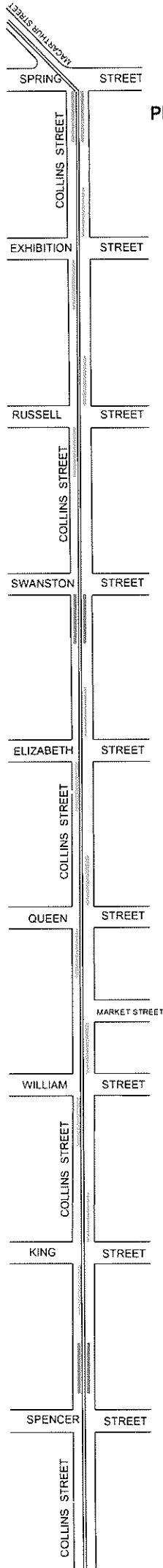
	NAME	COMPANY	ADDRESS
1	Carolyn Paulin		21/41 Chapel St St Kilda Vic 3182
2	Liz Neumann		lneumann@unimelb.edu.au
3	Andrew Middleton		2/2 George St Reservoir Vic 3073
4	Lina Antonella		134 Waiora Rd Rosanna Vic 3084
5	Bob Hale		cromhale@optusnet.com.au
6	Blake Zent		blakezed@hotmail.com
7	Phillip Ross		pross@Parks.vic.gov.au
8	Fiona Arnold		fionajkenedy@hotmail.com
9	David John Eggers		PO Box 924 North Melbourne Vic 3051
10	Ian Cordiner		517 Dryburgh St North Melbourne Vic 3051
11	Camille van Wessern	Reception Collins	Reception.Collins@siemens.com.au
12	Pauline Williams	AMIDA	247 Flinders Lane Melbourne Vic 3000
13	Ingrid Hindell		ihindell@bigpond.net.au
14	Alan Chuck		akc@alankchuck.org
15	Christine Cambell	Cordiner King & Co	Level 44 Rialto 525 Collins St Melbourne Vic 3000
16	Pamela Beech		pbeech@hmstrust.org.au
17	Paul Murphy		paul.murphy@sport.vic.gov.au
18	Rachel Baurm		Rachel.Baurm@justice.vic.gov.au
19	Carolyn Fyfe		32 Eades Place West Melbourne Vic 3003
20	Raelene West		r.west4@pgrad.unimelb.edu.au
21	Nick Hiscock		nickhiscock@yahoo.com.sg
22	Robin Hicks		R.Hicks@bom.gov.au
23	Jan Lacey		jlacey@vic.nteu.org.au
24	Judy Brunswick		judybrunswick@aol.com
25	Mike Alexander		mike@mikealex.com
26	Effie Deftereos		effie.deftereos@maunsell.com
27	John Stanley Executive Director	Bus Association Victoria	JStanley@busvic.asn.au
28	Kevin Cook Property Manager	St Martins Management Pty Ltd	Level 24, Rialto North Tower, 525 Collins St Melbourne Vic 3000
29	Adrian Dickens General Manager	Jan Logan	90 Collins St Melbourne Vic 3000
30	Penelope Votzourakis Manager	Bally Boutique	LParrino@bally.ch
31	Anne Sullivan Director- Operations	Georg Jensen	90 Collins St Melbourne Vic 3000 annes@georgjensen.com.au
32	Janice Florence Information Coordinator	ParaQuad Victoria	208 Wellington St Collingwood Vic 3066
33	Ray Cowling		20 Capel St West Melbourne Vic 3003
34	Michael Marsterson Secretary	Athenaeum Club	87 Collins St Melbourne Vic 3000
35	Graham Smith Chairperson	Disability Resource Centre	266 Johnston St Abbotsford Vic 3067
36	Kathryn Miller		77 Roseberry St Ascot Vale Vic 3032
37	Bill Leung		bill@Isfa.com.au
38	Anthony Morton Secretary	Public Transport Users Association Inc	www.ptua.org.au

39	Mary Poulakis President	Collins Street Precinct	Suite 3, 4 th Floor, 2 Collins St Melbourne Vic 3000
40	Don Parsons President	Magnificent Seven City Arcades Precinct Inc.	Suite 101 282 Collins Street Melbourne Vic 3000
41	Helen Fanning Secretary	Alexandra Club	81 Collins St Melbourne Vic 3000
42	Robert Hudson MP State Member for Bentleigh	Parliament of Victoria	379 Centre Rd Bentleigh Vic 3204
43	Tim Richards		40A Vickery St Bentleigh Vic 3204
44	Carmel Picone		22/101 Whalley Drv Wheelers Hill Vic 3150
45	Emma Watson		300 Canning St Carlton North Vic 3054
46	Robyn Black		Robyn.black@mfo.com.au
47	Robert Nemarich		8/35 Ashley St Reservoir Vic 3073
48	Sandra Makris Coordinator	Collins Street Precinct	



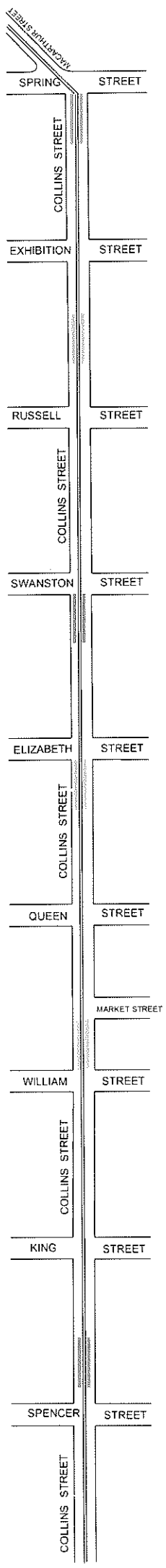
OPTION 1

- Existing Safety Zones
- - - Existing Platform Stops
- Separation Kerb

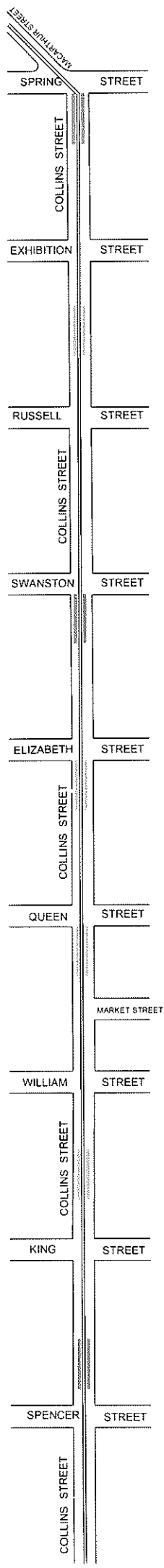


OPTION 2

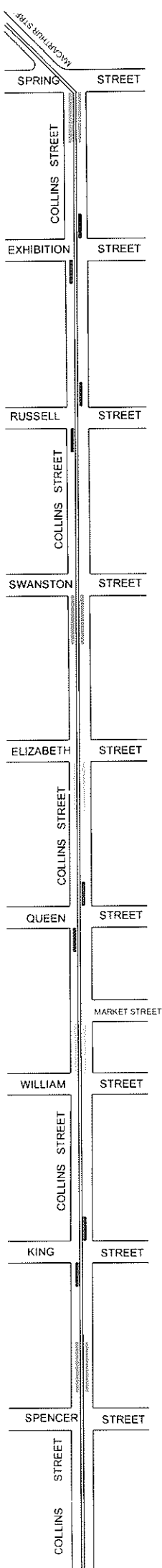
- - - Existing Platform Stops
- New Platform Stops



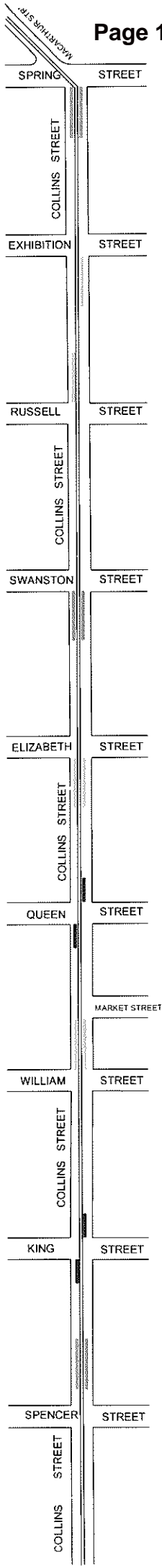
OPTION 3A
Existing Platform Stops
New Platform Stops



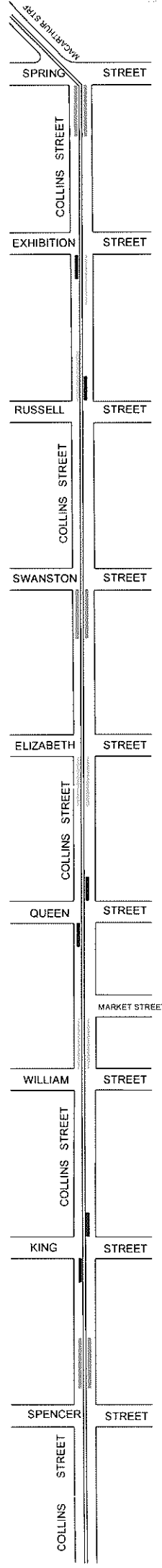
OPTION 3B
Existing Platform Stops
New Platform Stops



OPTION 4A
Existing Safety Zones
Existing Platform Stops
New Platform Stops



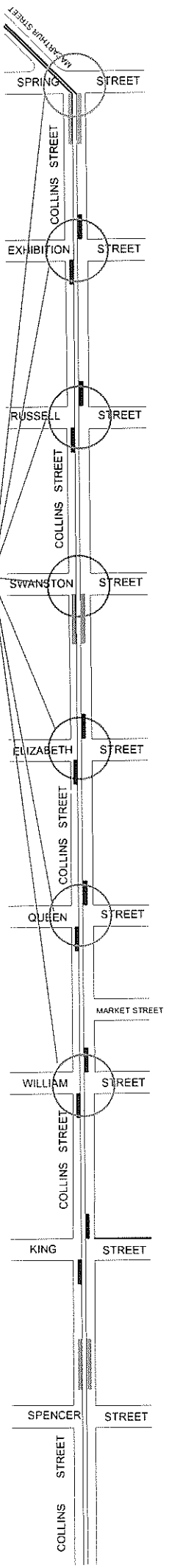
OPTION 4B
Existing Safety Zones
Existing Platform Stops
New Platform Stops



OPTION 4C
Existing Safety Zones
Existing Platform Stops
New Platform Stops

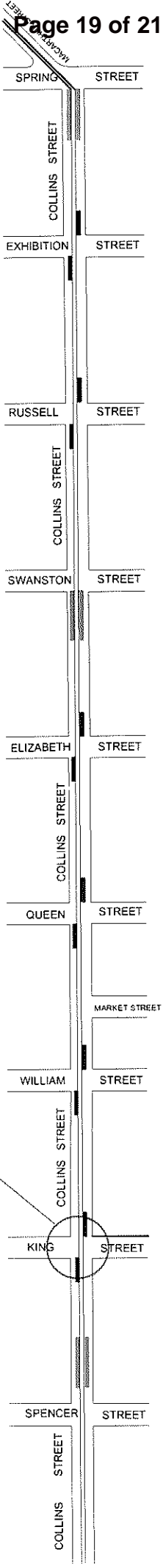


- 1. Reduce maximum signal cycle time from 90 seconds to 60 seconds
- 2. Position the stops to most advantageous position (either approach or departure side)



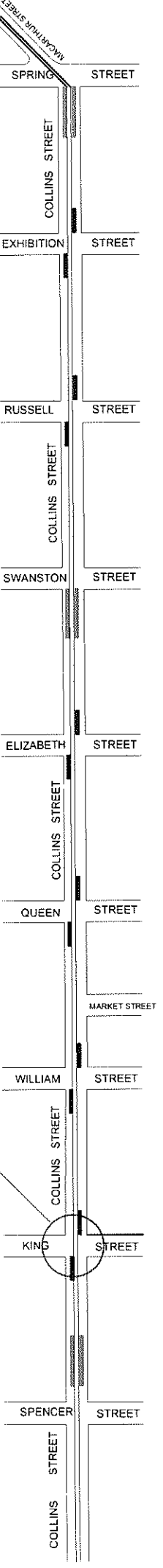
OPTION 5
 Existing Safety Zones
 Existing Platform Stops

Reduces maximum signal cycle time from 120 seconds to 90 seconds



OPTION 6A
 Existing Safety Zones
 Existing Platform Stops

Introduce active tram priority traffic signal cycle from 7:00am to 7:00pm when cycle is around 120 seconds



OPTION 6B
 Existing Safety Zones
 Existing Platform Stops

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