

6. Appendix A – Progress Update

This appendix provides a progress summary for the Spaces for People pedestrian crossing improvements commission following completion of the on-street observations. It discusses progress to date on delivering the objectives of how traffic signal operation could be altered to better accommodate pedestrians across the city.

A sample of sixty-four signal sites were identified for the review across eight corridors. The sites consisted of thirty-one junctions and thirty-three stand-alone crossing facilities. The review primarily concentrated on improvements at junctions, but observations were also made at the crossing facilities to ensure their operation does not cause excessive delay to pedestrians. The sixty-four signal sites were identified based on their high footfall, but if the proposed improvements are found to provide tangible benefits then the commission could be extended further. The review also concentrated on the weekday off peak period, typically 09:30 to 15:45, where it is considered a greater level of benefit to pedestrians can be achieved, but there would also be scope to extend throughout the day. However, it should be noted that the AM and PM peak periods will have little scope to amend timings for pedestrian improvements without having a significant impact on the overall operation.

The proposed amendments to junction operation are variable dependent on the current mode of operation at each signal site. In most cases, the proposed solution is to reduce the overall cycle time, which would make it quicker to return to the pedestrian stage, reducing overall delay to pedestrians. The on-street observations provided a basis for how much this time could be reduced without having a detrimental impact on the road network. If possible, the cycle time could effectively be halved creating a double cycle that would allow the pedestrian movements to appear twice in the period they were previously only called once. Another similar possibility would be to allow a second stage for pedestrians to run during a single cycle. However, it should be noted that many of the signal sites are located close together and therefore require a coordinated approach to signal timings. Under these circumstances it may not be possible to achieve maximum improvements for pedestrians at one junction without adversely impacting another, and so a holistic approach is needed that suits all signal facilities that are linked together. The linked junctions can be broadly associated together by the term “region” within the UTC system.

As no thorough analysis has been undertaken on pedestrian numbers and only snapshot traffic observations have been undertaken for each site, an estimate for the delay reduction to pedestrians has been based on how long it would take a pedestrian to clear a junction, i.e., the maximum time pedestrians would have to wait if they had arrived just after the previous opportunity to cross. To keep this simple and provide the same logic for a junction with an “all red pedestrian stage” as a junction operating pedestrian signals as “walk with traffic”, the delay reduction broadly equates to the percentage reduction in cycle time.

Summary of Improvements

Following a review of the on-street observations and discussions with the traffic control team within the CEC, the following improvements were agreed to be implemented and monitored.

Corridor 1 – Lothian Road to Morningside Road

This corridor is split into two regions within the UTC system, the Lothian Road to Leven Street section (region 1C) and the Morningside Road section (region 1S). The former is running coordinated fixed time plans through UTC whilst the latter is operating under SCOOT control.

Lothian Road to Leven Street section (Region 1C):

The table below outlines the proposals for each facility within this section and the associated improvements for pedestrians.

Junction	Existing Off Peak Cycle Time or Vehicle Max. Green (secs)	Proposed Amendment	Proposed Off Peak Cycle Time or Vehicle Max. Green (secs)	Timings Implemented	Pedestrian Delay Reduction
Lothian Road / Castle Terrace / King's Stables Road	112	None	112	N/A	None
Lothian Road / West Approach Road	112	None	112	N/A	None
Lothian Road at Usher Hall Puffin Crossing (Outside Nando's Restaurant)	20 (max)	None	20 (max)	N/A	None
Lothian Road / Morrison Street / Bread Street	100	Lower Cycle Time	88	Yes	12%
Lothian Road / Earl Grey Street / East Fountainbridge	100	Lower Cycle Time	88	Yes	12%
Home Street / Earl Grey Street / Brougham Street / Lauriston Place (Tollcross)	100	Lower Cycle Time	88	No	None
Home Street at Lochlin Place Pedestrian Crossing	100	Lower Cycle Time	88	Yes	12%
Home Street / Leven Street / Gilmore Place / Tarvit Street (linked to Lochlin Place Crossing)	100	Lower Cycle Time	88	Yes	12%
Bruntsfield Place at Gillespie Crescent Puffin Crossing (Outside BP Garage)	20 (max)	None	20 (max)	N/A	None
Bruntsfield Place at Leamington Terrace Toucan Crossing	20 (max)	None	20 (max)	N/A	None
Bruntsfield Place at Bruntsfield Avenue Pelican Crossing	25 (max)	None	25 (max)	N/A	None

The first two junctions on Lothian Road heading south from the city centre, are closely associated with the Princes Street network and Tram operation. The on-street observations suggested the cycle time could be reduced from **112 secs to 104 secs**, but it was considered that coordination at this location is critical and an overall reduction could not be implemented without creating problems within the Princes Street corridor. Therefore, no changes to these two junctions were proposed.

The standalone crossing facilities are operating low vehicle maximums at 20 to 25 secs with good pedestrian discipline and low delay observed, therefore, no changes were proposed.

A reduction in cycle time from **100 secs to 88 secs** has been applied to the remaining four junctions. On-street observations following the amendments suggested that three of the four junctions worked well with the lower cycle times leading to reduced waiting times for pedestrians and little impact on other road users. However, the Tollcross junction experienced significant queuing on the southbound Earl Grey Street approach to the junction, which generated queuing back to and through the upstream junction. This can cause problems for pedestrians as vehicles are queuing through the crossing points. Therefore, the decision was taken to retain the current 100 secs cycle time at the Tollcross junction but implement the reduced cycle time at the other three junctions as the lack of coordination with the Tollcross junction appeared acceptable during the observation period.

Morningside Road section (Region 1S):

The table below outlines the proposals for each facility within this section and the associated improvements for pedestrians.

Junction	Existing Average Off Peak SCOOT Cycle or Vehicle Max. Green (secs)	Proposed Amendment	Expected Average Off Peak SCOOT Cycle or Vehicle Max. Green (secs)	Timings Implemented	Potential Pedestrian Delay Reduction
Morningside Road / Bruntsfield Place / Colinton Road / Chamberlain Road (Holy Corner)	104	Sub Region Independence	80	In Progress	23%
Morningside Road / Church Hill Place	104	Sub Region Independence	80	In Progress	23%
Morningside Road at Falcon Avenue Pelican Crossing (Outside Waitrose)	52	None	52	N/A	Adaptive to Traffic
Morningside Road at Steel's Place Pelican Crossing	52	None	52	N/A	Adaptive to Traffic
Morningside Road at Jordan Lane Pelican Crossing	52	None	52	N/A	Adaptive to Traffic
Morningside Road / Comiston Road / Cluny Gardens / Belhaven Terrace (Morningside Station)	104	None	104	N/A	Adaptive to Traffic

All junctions and crossings within this section are linked together under dynamic SCOOT control. The on-street observations and review of the UTC data average timings have confirmed that the overall cycle time for the region is dictated by the Morningside Station junction. However, the observations suggest that a lower cycle time could be achieved at the Holy Corner and Morningside Road / Church Hill Place junctions. This could be achieved by incorporating sub region independence into the control strategy during the off peak period to affectively allow the two junctions to operate at a separate cycle time from the other sites in the region but retain a level of dynamic control. A lower cycle time has the potential to reduce pedestrian delay in the region of 23% from the existing operation.

The UTC data will be updated to test sub region independence in due course. Following implementation, the average timings will be checked to confirm what actual delay reductions can be achieved for pedestrians.

No other changes are proposed to the remaining sites in this section as it is considered that the current timings provide a good balance for all users.

Corridor 2 – Queen Street (Region 1B)

This corridor forms part of the central UTC area and is currently coordinated with the Tram operation. Following discussion with the CEC traffic team, it is considered that independent operation from the Tram network can be achieved without significant detriment to the overall network. The facilities along Queen Street are currently operating fixed time plans through UTC and are also closely linked to two facilities on Heriot Row at Howe Street and Dundas Street. These two signal junctions have, therefore, been brought into the commission.

The table below outlines the proposals for each facility within this section and the associated improvements for pedestrians.

Junction	Existing Off Peak Cycle Time or Vehicle Max. Green (secs)	Proposed Amendment	Proposed Off Peak Cycle Time or Vehicle Max. Green (secs)	Timings Implemented	Pedestrian Delay Reduction
Queen Street / North Charlotte Street / St Colme Street (Stream 0)	112	Double Cycle	56	Yes	50%
Queen Street / North Charlotte Street / St Colme Street (Stream 1)	112 (double cycle)	None	56	N/A	None
<i>Queen Street at Albyn Place Puffin Crossing</i>	<i>20 (max)</i>	<i>None</i>	<i>20 (max)</i>	<i>N/A</i>	<i>None</i>
Queen Street / North Castle Street	112	Lower Cycle Time	104	Yes	7%
Queen Street / Frederick Street / Queen Street Gardens West	112	Lower Cycle Time	104	Yes	7%
Queen Street / Hanover Street / Queen Street Gardens East	112	Lower Cycle Time	104	Yes	7%
Queen Street / North St David Street	112	Lower Cycle Time	104	In Progress	7%
Howe Street / Heriot Row	112	Lower Cycle Time	104	In Progress	7%
Dundas Street / Heriot Row	112	Lower Cycle Time	104	Yes	7%

The Queen Street / North Charlotte Street junction had considerable spare capacity in comparison to the other junctions along the Queen Street corridor, and given it is situated approximately 200 metres from the next junction to the east and has an independently controlled puffin crossing situated in between, it was considered that this junction could be operated without the need for coordination. Therefore, a double cycle was implemented effectively reducing the cycle time from **112 secs to 56 secs**, significantly reducing pedestrian delay.

The staggered Puffin crossing at Albyn Place is operating low vehicle maximums at 20 secs with good pedestrian discipline and low delay observed, therefore, no changes were proposed.

The Queen Street / Hanover Street and the Queen Street / Frederick Street junctions were the busiest junctions along the corridor but still had the potential for a reduction in cycle time. Therefore, a reduction in cycle time from **112 secs to 104 secs** was implemented for the rest of the corridor allowing the coordination to be maintained. This was applied at three of the Queen Street junctions and one of the Heriot Row junctions, the other two junctions had a communications fault at the time of implementation and were, therefore, operating under their fallback method of control. Notwithstanding, the revised timing plans were implemented within the UTC system so that once communications are restored the reduced cycle time will be in place.

The initial review of the operation with the timings in place was generally positive for all users. There is potential scope to reduce the cycle time further to possibly 100 secs or 96 secs, but this may adversely affect coordination. It is recommended that this is considered further once all sites on the corridor are operating under the revised fixed time plans and a period of monitoring confirms that the current 104 secs cycle does not generate any problems.

Corridor 3 – North Bridge to South Clerk Street (Region 1F)

This corridor is split into two sections, but both fall within UTC region 1F. The two junctions closest to the city centre at High Street and Chambers Street both operate under fixed time UTC whilst the junctions from Nicolson Street heading south operate under SCOOT control. The stand-alone crossing facilities are all

isolated during the off peak period, with the exception of the Puffin Crossing at Hunters Square which is linked to the High Street junction operation.

The table below outlines the proposals for each facility within this section and the associated improvements for pedestrians.

Junction	Existing Off Peak Cycle Time or Vehicle Max. Green (secs)	Proposed Amendment	Proposed Off Peak Cycle Time or Vehicle Max. Green (secs)	Timings Implemented	Pedestrian Delay Reduction
High Street / North and South Bridge (Tron)	120	Lower Cycle Time	104	Yes	13%
South Bridge at Hunter Square Puffin Crossing	120 (double cycle)	Lower Cycle Time	104 (double cycle)	Yes	13%
South Bridge / Chambers Street / Infirmary Street	120	Lower Cycle Time	104	Yes	13%
Nicolson Street at Drummond Street / South College Street Puffin Crossing	20 (max)	None	20 (max)	N/A	None
Nicolson Street at Nicolson Square Puffin Crossing	20 (max)	None	20 (max)	N/A	None

Junction	Existing Average Off Peak SCOOT Cycle or Vehicle Max. Green (secs)	Proposed Amendment	Expected Average Off Peak SCOOT Cycle or Vehicle Max. Green (secs)	Timings Implemented	Potential Pedestrian Delay Reduction
Nicolson Street / West Nicolson Street / West Richmond Street	96	None	96	N/A	Adaptive to Traffic
Nicolson Street at St Patrick Street / West Crosscauseway Toucan Crossing	20 (max)	None	20 (max)	N/A	None
Clerk Street at Rankeiller Street Toucan Crossing	20 (max)	None	20 (max)	N/A	None
South Clerk Street / Bernard Terrace / Hope Park Street	96	None	96	N/A	Adaptive to Traffic
South Clerk Street at Lutton Place Puffin Crossing	20 (max)	None	20 (max)	N/A	None
South Clerk Street / Newington Road / East Preston Street / West Preston Street	96	None	96	N/A	Adaptive to Traffic

The on-street observations suggested that the fixed time operation for the High Street and Chambers Street junctions could be reduced from **120 secs to 104 secs** without generating any significant problems. This was tested on-street and found to work well during the initial monitoring period.

The junction at Chambers Street still had some poor pedestrian discipline when crossing the side roads even with the reduced cycle time in place, but this is primarily due to the staggered junction layout and relatively wide central island on Chambers Street. There is scope to add an element of “walk with traffic” operation to provide more opportunities for pedestrians to proceed as Infirmary Street operates in its own stage in the control plan and is under a mandatory left turn signal, which would allow some pedestrian movements to proceed without conflict. However, it was observed that some vehicles go straight ahead from this location and so applying a “walk with traffic” operation over Chambers Street could put pedestrians at risk even though it is an illegal manoeuvre.

The Puffin crossing at Hunters Square has two windows for pedestrians to proceed and by reducing the cycle time to 104 secs it effectively reduces the maximum wait time for pedestrians from **57 secs to 48 secs**. This crossing needs to be linked to the High Street junction operation otherwise significant traffic delay and vehicles blocking back through the junction would occur. This would likely have a negative impact on pedestrian progression at the High Street junction. All remaining stand-alone crossings in this region are operating low vehicle maximums at 20 secs with good pedestrian discipline and low delay observed, therefore, no changes were proposed.

The remaining three junctions that operate under linked SCOOT control were unfortunately under a fault state during the initial observation period, meaning they were operating under their fall-back method of control rather than dynamic operation. This still allowed a reasonable representation of traffic and pedestrian throughput to be determined. The minimum observed timings for linked operation was estimated at around a **91 secs** cycle time, under SCOOT control the average expected cycle time is **96 secs**, this demonstrates that SCOOT operation is working well at keeping the cycle time around the minimum practical requirement and reducing delay for all users. Therefore, it was agreed to retain SCOOT operation.

Corridor 4 – Raeburn Place (Region 1W)

All junctions in this corridor would typically operate under fixed time UTC control but are currently operating in fall-back mode due to long term communication faults. The communication issues have been reported to third

party providers and will be addressed in due course. The two junctions at Leslie Place and Hamilton Place and the Deanhaugh Street crossing need to be linked due to their close proximity.

The table below outlines the proposals for each facility within this section and the associated improvements for pedestrians.

Junction	Existing Off Peak Cycle Time or Vehicle Max. Green (secs)	Proposed Amendment	Proposed Off Peak Cycle Time or Vehicle Max. Green (secs)	Timings Implemented	Potential Pedestrian Delay Reduction
Raeburn Place at Portgower Place Puffin Crossing	20 (max)	None	20 (max)	N/A	None
Raeburn Place at Raeburn Street Puffin Crossing	20 (max)	None	20 (max)	N/A	None
Raeburn Place at Deanhaugh Street Pedestrian Crossing	80	Lower Cycle Time	72	In Progress	10%
Deanhaugh Place / Leslie Place / Haugh Street	80	Lower Cycle Time	72	In Progress	10%
Deanhaugh Street / Kerr Street / Hamilton Place / Saunders Street	80	Lower Cycle Time	72	In Progress	10%

Under UTC operation, the junctions operate under the AM peak 80 secs control plan until 14:00, then revert to the PM peak 90 secs control plan, so there is no set off peak plan in place. Under fall-back operation the off peak period runs an 80 secs CLF plan between 09:30 and 15:30. The on-street observations suggested the cycle time could be reduced from **80 secs to 72 secs**. Off peak plans with a cycle time of 72 secs have been set up in the UTC system ready for initiation once the communications faults have been rectified. This is expected to achieve a 10% reduction in pedestrian delay across the three facilities if no detrimental impacts are identified during post implementation monitoring.

The two stand-alone Puffin crossings in this region are operating low vehicle maximums at 20 secs with good pedestrian discipline and low delay observed, therefore, no changes were proposed.

Corridor 5 – Gorgie Road

This corridor is split into three regions within the UTC system, Region 1H includes the Balgreen Road junction, Region 2H covers the Westfield Road and Robertson Avenue junctions whilst Region 1J includes the Ardmillan junction. All three are operating under SCOOT control with differing cycle times.

The table below outlines the proposals for each facility within this section and the associated improvements for pedestrians.

Junction	Existing Average Off Peak SCOOT Cycle or Vehicle Max. Green (secs)	Proposed Amendment	Expected Average Off Peak SCOOT Cycle or Vehicle Max. Green (secs)	Amendments Implemented	Potential Pedestrian Delay Reduction
Gorgie Road / Balgreen Road / Hutchison Crossway	96	None	96	N/A	Adaptive to Traffic
Gorgie Road / Westfield Road / Gorgie Park	120	Validation	80	Yes	33%
Gorgie Road / Robertson Avenue / Wheatfield Road	120	Validation	80	Yes	33%
Gorgie Road at Wheatfield Street Puffin Crossing	20 (max)	None	20 (max)	N/A	None
Gorgie Road at Newton Street Pelican Crossing	20 (max)	None	20 (max)	N/A	None
Gorgie Road at McLeod Street Puffin Crossing	20 (max)	None	20 (max)	N/A	None
Gorgie Road at Murieston Lane Puffin Crossing	20 (max)	None	20 (max)	N/A	None
Gorgie Road / Dalry Road / Henderson Terrace / Ardmillan Terrace (Ardmillan Junction)	120	Validation	96	Yes	20%

On-street observations found the timings for the Balgreen Road junction under SCOOT control were running a cycle time of approx. **96 secs**, this provided a reasonable balance for all users as it allowed traffic to keep moving and keep waiting time for pedestrians relatively low, given the site operates a combination of “walk with traffic” and an “all red pedestrian stage”. Therefore, it was agreed to retain SCOOT operation.

Observations at the Westfield Road and Robertson Avenue junctions suggested there was a significant amount of wasted time that was leading to long delays for pedestrians. The junctions were operating a cycle time of around **120 secs** under SCOOT operation, but the observations suggested a cycle time closer to **80 secs** would be sufficient. The system has since been validated and updated which has significantly reduced the cycle time to the average timings expected based on the observations. This will achieve a delay reduction to pedestrians in the region of 33%.

Similarly, the Ardmillan junction was operating a cycle time of around **120 secs** under SCOOT operation, but the observations suggested a cycle time closer to **96 secs** would be sufficient. Again, with some system validation the cycle time has reduced, potentially achieving a delay reduction to pedestrians in the region of 20%. It should also be noted that this will likely have a positive impact at the other four junctions in region 1J (at Henderson Terrace / Dundee Street, Angle Park Terrace / Ardmillan Terrace, Slateford Road / Shandon Place and Slateford Road / Robertson Avenue).

The three stand-alone Puffin crossings and one Pelican crossing in this corridor are all operating low vehicle maximums at 20 secs during the off peak, with good pedestrian discipline and low delay observed, therefore, no changes were proposed.

Corridor 6 – Great Junction Street (Region 2R)

Facilities on the Great Junction Street corridor form part of a wider area within Leith that broadly fall under Region R. The two Pelican crossings and signal junction at Cable Wynd that form part of this commission are all currently operating independently during the off peak period.

The table below outlines the proposals for each facility within this section and the associated improvements for pedestrians.

Junction	Existing Average Off Peak VA Timings or Vehicle Max. Green (secs)	Observed Minimum Required Timings (secs)	Proposed Amendment	Amendments Implemented	Potential Pedestrian Delay Reduction
Great Junction Street at Bangor Road Pelican Crossing	20 (max)	N/A	None	N/A	None
Great Junction Street / Cable Wynd / Bonnington Road	85	82	None	N/A	None
Great Junction Street at Pirrie Street Pelican Crossing	20 (max)	N/A	None	N/A	None

The Cable Wynd junction is currently operating under VA control and the on-street observations suggest that the set up works well for all users. The detectors are extending the green periods for traffic only to the maximum amount required to clear the arriving vehicles meaning the cycle time is kept low. The “all red pedestrian stage” is typically called every cycle with generally good pedestrian discipline observed. There could be potential to apply an additional opportunity for pedestrians to cross by adding an additional “all red pedestrian stage” to the staging plan, creating a four-stage operation instead of three-stage. This will be discussed further with the CEC traffic team to understand the best way to implement this if it is appropriate for all conditions, given only the off peak period has currently been assessed.

The two stand-alone Pelican crossings are both operating low vehicle maximums at 20 secs during the off peak, with good pedestrian discipline and low delay observed, therefore, no changes were proposed.

Corridor 7 – Portobello High Street (Region 2P)

This corridor is still being assessed and proposals / amendments will be added in due course.

Corridor 8 – Glasgow Road to St John’s Road (Region 1L)

Most facilities except for the two staggered Pelican crossings near the Drum Brae roundabout, fall into the St John’s Road corridor under Region 1L of the UTC system. This region is currently operating on fixed time UTC plans.

The table below outlines the proposals for each facility within this section and the associated improvements for pedestrians.

Junction	Existing Off Peak Cycle Time or Vehicle Max. Green (secs)	Proposed Amendment	Proposed Off Peak Cycle Time or Vehicle Max. Green (secs)	Timings Implemented	Pedestrian Delay Reduction
Glasgow Road at Meadow Place Staggered Pelican Crossing	30 (max)	None	25 (max)	In Progress	17%
St John's Road at Drum Brae South Staggered Pelican Crossing	25 (max)	None	25 (max)	N/A	None
St John's Road at Featherhall Avenue Staggered Puffin Crossing	20 (max)	None	20 (max)	N/A	None
St John's Road / Manse Road	80	Lower Cycle Time	72	In Progress	10%
St Johns Road at Glebe Road Puffin Crossing	20 (max)	None	20 (max)	N/A	None
St John's Road / Clermiston Road (Stream 0)	80	Lower Cycle Time	72	In Progress	10%
St John's Road / Clermiston Road Offset Crossing (Stream 1)	80	Lower Cycle Time	72	In Progress	10%

On-street observations suggested the staggered Pelican crossing at Meadow Place could potentially be reduced to aid pedestrian progression, however, it is located on a high speed section of carriageway (40 mph) and is located close to the Drum Brae roundabout, so blocking back could become a problem. It was considered that this is worth testing and will be implemented in due course.

All other standalone crossing facilities are operating low vehicle maximums at 20 to 25 secs during the off peak period, with good pedestrian discipline and low delay observed, therefore, no further changes were proposed. It should be noted that the Featherhall Avenue and Glebe Road Puffin crossings are linked to the surrounding signalised junctions on St John's Road but operate in isolation during the off peak period.

The Manse Road and Clermiston Road junctions (including the offset crossing east of Clermiston Road) could benefit from a reduction in cycle time from **80 secs to 72 secs** if coordination is maintained. However, a communications fault at the Clermiston Road junction is currently in the process of being addressed and so this junction is operating under its fallback method of control. Therefore, revised timing plans have been set up in the UTC system and will be implemented once the communications are restored. The Glasgow Road Pelican Crossing at Meadow Place amendment will also be tested at this time.

Summary of Progress

Thirteen junctions of the thirty-three now included within the commission have had amendments made to reduce pedestrian delay. A further two stand-alone crossing facilities have also had the changes implemented. The delay reductions at these facilities vary between **7%** and **50%**.

In additions, a further eight junctions and three stand-alone crossings have improvements identified that will be implemented once fault states have been rectified.

There is one corridor, Portobello High Street, that is still under review. This contains a further two junctions and five stand-alone crossings that are potentially subject to improvements for pedestrians.

The eight remaining junctions are all considered to be operating well, either with already low cycle times or reacting dynamically to local traffic conditions to achieve the best possible throughput for all users, and therefore, no further changes were proposed.

The vast majority of stand-alone crossing facilities are operating under low vehicle maximum green periods, typically 20 secs during the off peak period, meaning wait time for pedestrians are already kept low.

It should be noted, that one positive change within Region 1J (at the Ardmillan Junction) is likely to have had a positive affect at an additional four junctions outside the scope of this commission, further reducing pedestrian delay around the city.

Next Steps

The Portobello High Street corridor will be reviewed, and the proposed improvements agreed with the CEC.

The identified amendments to the remaining eight junctions and three stand-alone crossings will be implemented and monitored.

All sites will be further monitored to ensure the amendments do not have significant detrimental impact on the overall road network. If problems occur either minor changes could be made to retain a level of improvement to pedestrians, or reversion can be made to the previous operation.

The proposed UTC plan timing amendments could also be updated within the controller configuration so that fallback operation under fault state conditions will retain similar benefits to pedestrians as what has been implemented in the UTC system. This has been discussed with the CEC traffic team and is considered a good solution. Proposed CLF and max set timings will be generated to allow these updates to be made by the traffic team.

In addition, the Master Time Clock within the controller configuration can be amended to match the UTC system so that the benefits can be achieved through the off peak period. This is particularly important where facilities are located close to schools as the school PM leaving time often falls around the off peak to PM peak change point. If this can fall within the off peak period then the lower cycle time would be favourable for the increased pedestrian demand (e.g. at Nicolson Street / East Preston Street junction the fallback off peak period terminates at 15:00 and an extension to 15:45 would be favourable).

The commission could be expanded to additional areas and/or other time periods, subject to available funding.