

## Central Area Bus Operational Review Key Recommendations

The Central Area Bus Operational Review makes recommendations in several key areas relating the bus operations on the Golden Mile. These recommendations are outlined here in order from the short to longer term:

### 1. Manners Mall (short term)

The proposal to open Manners Mall provides the opportunity to relieve one of the most significant bottlenecks for bus operations on the Golden Mile. This infrastructure project was identified in the Review as the most significant change that could be made to enhance current bus operations and future PT provision on the Golden Mile.

The Review however identified that this project must be seen as part of a package of works including bus stop rationalisation and bus priority measures if it is to deliver its full potential for significant reductions in travel time variability and journey time savings.

Greater Wellington is working with Wellington City to identify optimal bus stop locations on Manners Street which balance passenger accessibility and operational efficiency needs.

### 2. Bus schedule co-ordination (short term)

Bus scheduling on the Golden Mile is currently characterised by a very uneven flow of buses where as many as 12 buses can be observed travelling in “convoy” followed by periods with no bus departures.

This uneven flow of buses contributes to bus congestion and slow travel times with buses having to queue to access bus stops. Where more than three buses pull up at a bus stop at the same time the tailing buses are required to stop more than once further slowing bus progress through the Golden Mile.

This uneven flow of buses also contributes to pedestrian congestion on footpaths with passengers accumulating during the “gaps” between buses and then being picked up when the next “convoy” of buses arrives, which impacts other pedestrians trying to walk along the golden mile.

Figure 1 shows a sample of the uneven flow of buses in the pm peak from Courtenay Place with 9 buses scheduled to depart Courtenay Place at 17:00 and 17:15 while there are no departures scheduled between for example 16:56 and 16:59.

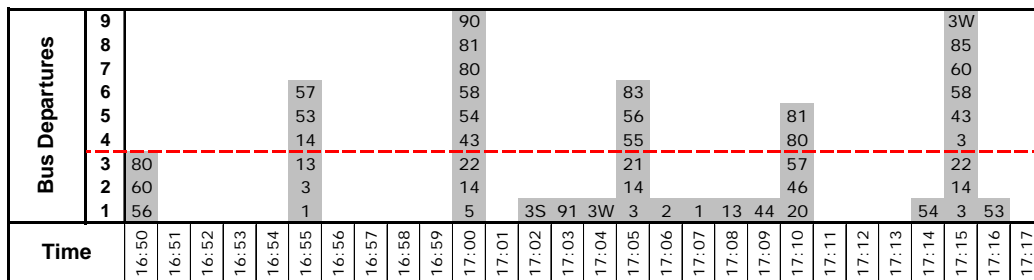


Figure 1 – Current Bus Departures - Courtenay Place PM Peak Northbound

By retiming some bus trips to depart either a couple of minutes earlier or later it would be possible to significantly smooth the flow of buses so that no more than three buses are scheduled to depart at any given time as shown in **Figure 2**.

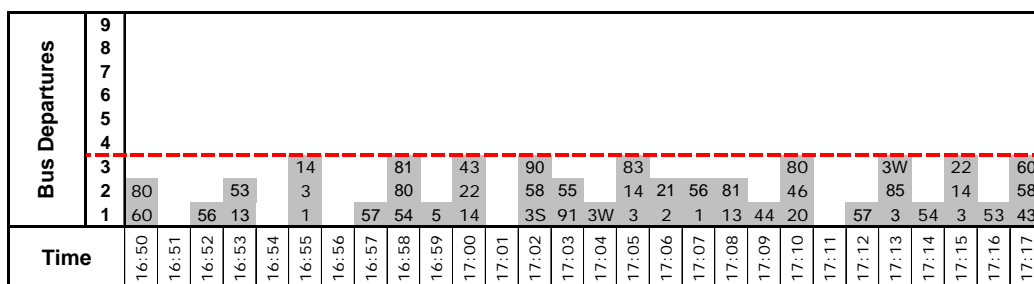
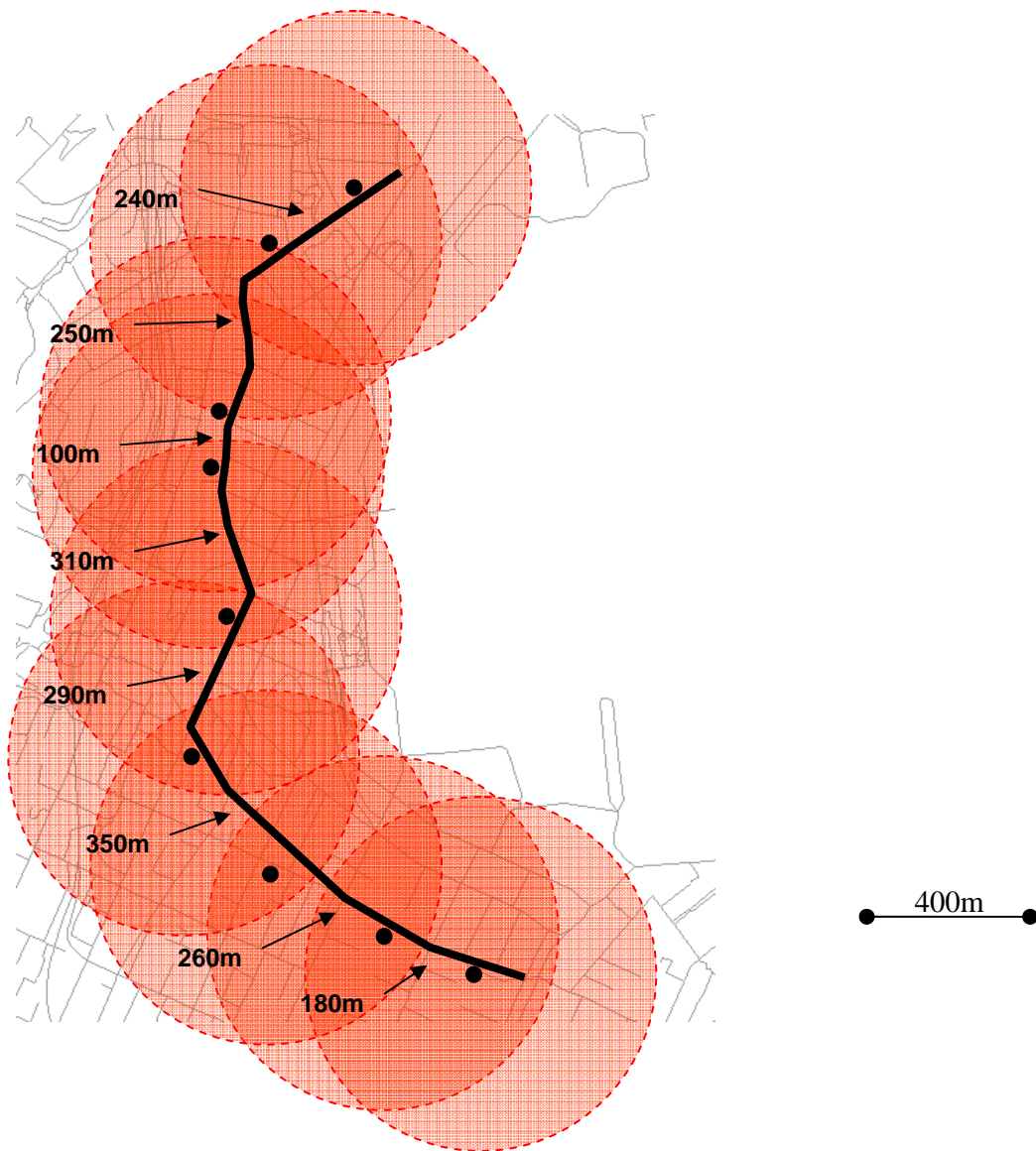


Figure 2 – Optimised Bus Departures - Courtenay Place PM Peak Northbound

Greater Wellington will work with bus operators to co-ordinate bus schedule departure times as each bus timetable comes up for reprint. This is anticipated to be an incremental process that will be carried out using existing resources and involve small changes to departure times that do not adversely affect passengers but over time deliver benefits to the peak flow of buses through the Golden Mile.

### 3. Bus stop rationalisation and layout improvement (medium term)

The Golden mile has a number of bus stops that are very closely spaced and which have limited demand. Currently bus stops on the Golden Mile are spaced between 110 to 370 metres apart. This is significantly less than the 400m-600m spacing recommended in various national and international literature and results in significant overlap between the catchment areas of bus stops. This overlap between bus stop catchment areas is seen in Figure 3.



**Figure 3 – Northbound Golden Mile bus stop spacing**

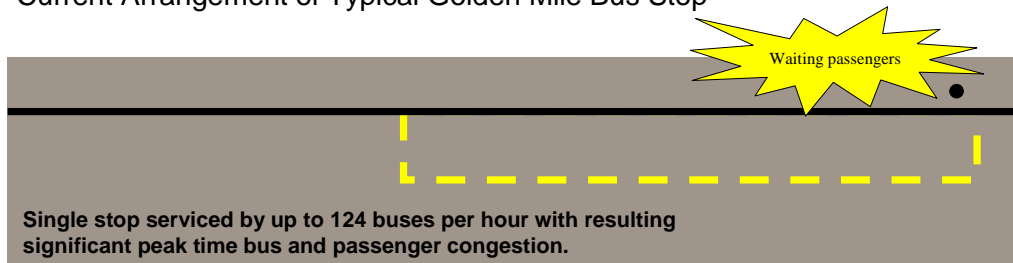
Under the current bus operational model every bus is stopping at every bus stop with up to 124 buses per hour stopping at individual bus stops. By comparison ARTA recommend no more than 25 buses per hour stopping at a single bus stop.

This combination of closely spaced bus stops with every bus stopping at every bus stop contributes to bus congestion and travel time variability on the Golden Mile.

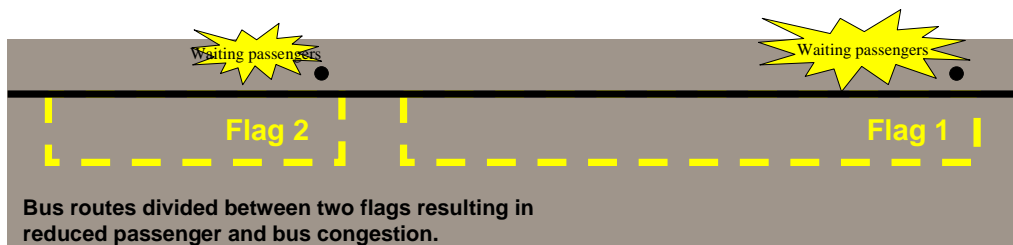
Further many bus stops are of an insufficient length to cater to the volume of buses stopping in the peak further exacerbating bus congestion, queuing and delay at stops.

To address these issues the Review identified two bus stops that could be removed and other stops that could be relocated to optimise spacing and hence performance. It also recommends the introduction of Split Stops where each bus stop consists of two bus stands with services divided between the two stands as outlined in and Figure 4.

#### Current Arrangement of Typical Golden Mile Bus Stop



#### Recommended Arrangement of Golden Mile Bus Stop



**Figure 4 – Split Bus Stops**

These recommended changes are intended to address both the issue of congestion from too many buses trying to access a single bus stop and also have the benefit of potentially reduced footpath congestion by dividing waiting passengers between two bus stands rather than all waiting together at the head of a single bus stand.

The splitting of services at bus stops between separate bus stands would facilitate the splitting of different service types between stops such as express services from local services as recommended below.

Greater Wellington will work with Wellington City Council to pursue opportunities to introduce split stops on the Golden Mile.

## 4. Express services (medium term)

The Review recommends that express/regional buses, many of which pick or set down only in the central city, or in the case of the Airport Flyer don't cater to short trips within the city, be separated from the regular local bus services. This would be achieved by allocating these services to a separate bus stand at each bus stop.

This would facilitate some speeding up of these buses as they would not be delayed by local buses at each stop, or by passengers attempting to board to make short trips within the city.

Legibility for passengers would be improved as it would be clear which bus stand to wait at for a bus to travel within the Golden Mile. Currently there is regular passenger delay caused by passengers attempting to board express buses for short trips within the Golden Mile. As all services stop at the same stops there is no easy way for passengers to differentiate which services they can use and which are set-down or pick-up only express services.

The opportunity to implement this recommendation will depend on progress being made with Wellington City to introduce the split stops required to facilitate the separation of express services from local stopping services.

## **5. Integrated and cashless ticketing (long term)**

The time each bus spends at bus stops loading passengers (dwell time) accounts for up to 30% of the total journey time in the peak on the Golden Mile. One fundamental way of reducing this dwell time and associated delay is by improving passenger loading.

Monitoring of bus journey found that for example in the PM peak northbound Newlands buses had a 53% longer dwell time per stop than the Snapper equipped Go Wellington buses.

The key opportunities identified for Wellington include:

- Moving towards an integrated ticketing system to allow bus, rail and ferry users to interchange without having to pay another fare or purchase additional tickets
- Replacing all paper tickets with electronic tickets
- Removing the ability to purchase cash fares on-bus on the Golden Mile by installing off-bus ticket machines along the Golden Mile and allowing all door loading of buses with random enforcement of fare evasion.

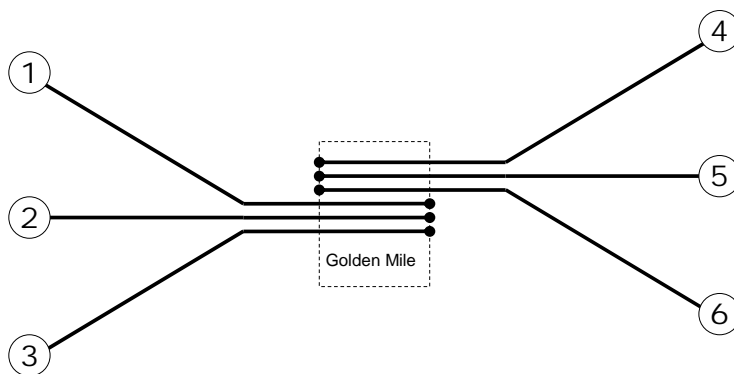
In the short term the introduction of Snapper onto Newlands buses which is likely later this year will improve the peak flow of buses on the Golden Mile. Greater Wellington is also working with operators to make changes Golden Mile fares which would increase the cash fare while introducing a discount for smart card users. This would encourage a switch away from the use of cash fares to faster smart cards with resulting improvements to bus boarding times.

## **6. Network structure (long term)**

The Review analysed a range of eight alternative approaches to bus operations on Golden Mile including options with some or all bus routes terminating at either end of the Golden Mile, or further out at suburban hubs.

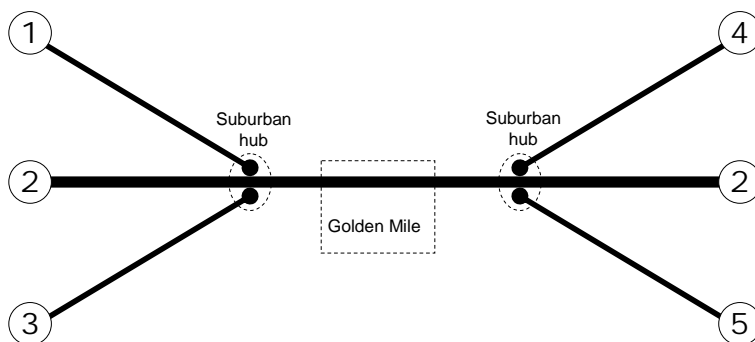
In all the options that were assessed there was a trade-off between the need to transfer and the provision of direct routes that minimise the need to transfer. However it was noted that many effective and efficient transport systems around the world require passengers to transfer. It should be noted that such concepts closely link to light rail and Bus Rapid Transit (BRT) operational models.

The current bus operational model is characterised by many low frequency routes converging on the central city terminating at the ends of the Golden Mile as shown in Figure 5. This approach results in significant duplication of bus routes through the central city.



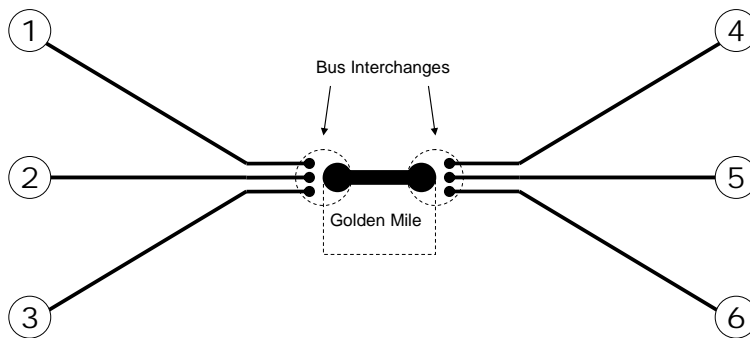
**Figure 5 – Current bus operational model**

The Review recommended a Suburban Hubs approach to bus operations be adopted. This approach is characterised by fewer high frequency high capacity routes on key demand corridors travelling through the Golden Mile as shown in Figure 6. These routes would be through-routed from one side of the city to the other resulting in significantly reduced service duplication on the Golden Mile. Feeder services would provide service between local neighbourhoods and suburban hubs.



**Figure 6 – Suburban Hubs (recommended approach)**

Unlike approaches that require buses to terminate at the ends of the Golden Mile (such as the Golden Mile Rapid Transit Spine approach in Figure 7 which would require all passengers to transfer to a shuttle type service on the Golden Mile) the recommended Suburban Hubs approach would minimise the need for passengers to transfer between buses. Passengers on key corridors where the highest numbers of passenger journeys originate would continue to have direct services to the Golden Mile without the need to change buses.



**Figure 7 – Golden Mile Rapid Transit Spine (not recommended)**

Efficiency savings on the recommended approach would allow the opportunity to operate higher frequency services throughout the bus network benefitting all bus users.

In future if additional capacity is needed on the Golden Mile corridor high capacity articulated buses or light rail could be introduced on the trunk routes.

One of the key requirements of this model is the need to create high quality bus interchange points (stations) at the suburban hubs and then reconfigure services which are not running to the CBD in a way they provides a regular high quality link to and from the suburban hub.

These interchange points would ideally be located in areas with high convergence of existing routes, high population density and bus demand, while also having sufficient space to allow safe and efficient turn around and storage of buses.

The recommended Suburban Hubs model will be investigated further as part of the Wellington Public Transport Review currently underway.

## **7. Reallocation of road space (long term)**

The Review has identified that while 29% of people travelled through the Wellington CBD by bus only 4.9% of road space was dedicated to buses. By comparison cars accounted for 46% of people travelling through the same screen line with 72% of road space.

This assessment highlights that the current allocation of road space to buses and bus passengers is not consistent with the level of use. Therefore changes should be made to road space allocation where appropriate and these changes should link back to the underlying philosophy that the Golden Mile has been endorsed as the core PT spine for

Wellington and the allocation of road space should be provided in order to complement this.

The Manners Mall project is considered the first phase in achieving a step change in bus priority through the reallocation of road space and provision of greater PT priority on the Golden Mile.

The Review recommends a scheme assessment for the entire Golden Mile corridor be carried out to confirm the most effective options for prioritising PT. It will be critical that any planning and design safeguards for future potential operation of Bus Rapid Transit (BRT) or light rail.

Greater Wellington will work with Wellington City Council as part of the Wellington City Public Transport Review to identify opportunities to develop further bus priority measures on the Golden Mile.