

# **CITY CENTRE TRAFFIC MANAGEMENT**

## **BRIEFING NOTE JANUARY 2009**

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### **1) Background**

In 1995, a major public consultation exercise was undertaken involving the city's stakeholders to develop a strategy that would assist in regenerating the City Centre. The resultant strategy, known as the Millennium Plan, promoted greater priority for pedestrians and public transport and enhanced the public realm. A number of transport management measures were introduced through the Millennium Plan including one way operation on Queen Street and part of Argyle Street and a bus gate on Hope Street. The current review and update builds on the work previously undertaken as part of the Millennium Plan project.

A commitment to undertake this review is contained within the Council's Local Transport Strategy 2007 – 2009 and it is also a key action in the City Centre Action Plan launched by Glasgow City Council, Scottish Enterprise Glasgow and Glasgow Chamber of Commerce in November 2007.

As part of the Local Transport Strategy consultation exercise specific feedback was sought relating to the issues, constraints and possible options for the City Centre. In addition there have been two 'internal' workshops, the first involving GCC staff representatives from various relevant departments and the second including representatives from SPT. These were followed by a series of six theme based focus groups attended by GCC representatives, SPT and the Police.

Taking account of the feedback from the above consultation and the wider strategic context, including the Regional and National Transport Strategies, a set of draft objectives for the project were agreed:

O1 – Increase the number of trips to / from the city centre by walking, cycling and public transport

O2 – Reduce the number of private car trips to / from and within the city centre, while accommodating residents, blue badge holders and traffic essential to sustain economic functions

O3 – Enhance the quality and legibility of main pedestrian spaces, key development areas and main access routes

O4 – Improve air quality through reducing harmful traffic emissions to below government guidelines.

O5 – Enhance safety and security (perceived and actual) for city centre users.

There are a number of key areas within the City Centre where issues have been identified from the consultation undertaken to date (see drawing ref no P/2124/06/18). These are:

- Renfield Street / Union Street
- Gordon Street
- Oswald Street / Hope Street
- Argyle Street / Jamaica Street
- West George Street / Nelson Mandela Place / George Square
- Castle Street / Cathedral Street
- Trongate
- West Nile Street
- High Street

Not all the areas can be covered at once and initial proposal development and traffic modelling analysis has concentrated on the first four areas referred to as the core area, Renfield St / Union St, Gordon St, Oswald St / Hope St and Argyle St / Jamaica St (see drawing ref no P2124/06/21). This covers the two main northbound and southbound bus corridors through the city centre. Details of the specific issues and possible solutions for these four areas are described in this note. The initial assessment of these proposals indicates that their implementation will produce benefits in terms of bus reliability and general traffic movement as well as providing an improved environment for pedestrians. Further detailed modelling has still to be undertaken.

In addition to the above, some possible proposals have been developed for the West George St / Nelson Mandella Place /George Square, Castle St / Cathedral St and Trongate areas and an outline of these is also contained within this note. It should be noted that no traffic modelling analysis has as yet been undertaken on the proposals for these areas.

## **2) Renfield Street / Union Street Corridor**

### **BACKGROUND**

The Renfield Street and Union Street corridor forms the main north to south route for buses travelling through the city centre. Around 230 buses travel down this corridor per hour during the day and at some bus stops up to 65 buses are stopping to load and unload passengers every hour. This volume of bus activity combined with the general traffic movements and goods vehicles stopping to serve the local businesses combine to produce periods of congestion with resultant high accident rates and traffic emission levels.



### **SPECIFIC ISSUES**

#### **High volume of buses**

The sheer volume of buses currently travelling down Renfield Street and Union Street and attempting to access the bus stops is a major contributor to the high levels of congestion that are witnessed at certain times of the day and needs to be rationalised.



#### **High level of accidents**

Three out of the five sites with the highest level of injury accidents in Glasgow occur on the Renfield Street / Union Street corridor with the worst site being at the Union Street / Argyle Street junction.



#### **Narrow footway / high pedestrian activity**

There is a high level of pedestrian movement on both sides of Renfield Street and Union Street during the day. This combined with relatively narrow footways in many locations, results in uncomfortable conditions for pedestrians. This is particularly true on the east footway where the problem is exacerbated by the volume of passengers waiting to board buses at the bus stops.



#### **Loading disrupting flow of traffic**

A number of dedicated loading bays are currently provided on Renfield Street and Union Street to allow goods vehicles to service the many commercial premises located on both sides of the corridor. Access to these loading bays is generally restricted during the morning and evening peaks but is available the rest of the day. Many of these loading bays are located on the same side of the street as the bus stops. This results in goods vehicles disrupting the flow of buses and restricting access to the bus stops.



#### **Restriction to Carriageway width at Gordon Street**

The narrowing of the carriageway to 2 lanes at the approach to Gordon Street contributes to the congestion experienced by buses travelling down the corridor. It also results in buses leaving the bus stop north of Gordon Street being delayed.

## **POSSIBLE SOLUTIONS**

### **Liaise with bus companies to redirect some services onto Wellington Street**

If some bus services could be re routed to Wellington Street this would reduce the volume of buses on the Renfield St / Union St corridor and alleviate traffic congestion and congestion at bus stops. It would also provide additional bus services into the heart of the International Financial Services District (IFSD). A bus lane could be introduced on Wellington Street between Bothwell St and Argyle St to protect the re-assigned buses from any congestion. Discussion with the Traffic Commissioner would be required to ensure that no new registration were permitted in the Renfield Street / Union Street corridor.

### **Remove all on street metered parking**

This would allow for widening of the east footway thus reducing pedestrian congestion at bus stops. It could also have the effect of reducing the number of cars travelling down Renfield St and Union St looking for parking spaces and thus improve traffic flow.



### **Restrict loading during daytime**

Restricting loading times to when the traffic flow on the Renfield St / Union St corridor is lower would reduce the conflict between vehicles trying to service the commercial premises, general traffic flow and buses accessing the bus stops. The high flow of buses remains fairly consistent throughout the day, therefore to gain maximum benefit in terms of reducing congestion loading would need to be restricted throughout the day, say from 0800 – 1800.

### **Widen footway on east side**

Removing some nibs and the on-street parking facilities on the west side of Renfield Street would allow for widening of the east footway while maintaining three lanes for traffic movement. This would improve the pedestrian environment and reduce pedestrian congestion particularly around the bus stops.

### **Widen Carriageway at Gordon Street Junction**

Removing the footway nibs on the east side of the Gordon Street junction would result in three lanes being maintained through the junction. It would also mean that buses stopping at the bus stop north of Gordon Street could stay in the inside lane and travel unhindered to the bus stops on Union Street.

There is a high level of pedestrian activity at this junction and removing these nibs in isolation would result in a much reduced area for pedestrians waiting to cross from east to west. These nibs would therefore not be removed without first implementing the pedestrianisation of Gordon Street east of Renfield Street, as detailed in the Gordon Street section of this note, which would result in a much increased waiting area for pedestrians.



### **3) Gordon Street**

#### **BACKGROUND**

Gordon Street outside Central Station forms one of the key gateways for pedestrians entering the City Centre and it is therefore crucial that the pedestrian environment is of a high quality. One of the City Centres main taxi ranks is located on the north side of the street and the whole area was subject to a major public realm improvement scheme in 2001.

West of Renfield Street, Gordon Street provides the main pedestrian route to the pedestrianised shopping area of Buchanan Street. It is also part of the sign posted route for pedestrians walking between Central and Queen Street stations.

#### **SPECIFIC ISSUES**

##### **High level of Illegal Manoeuvres outside Central Station**

There are currently a high level of illegal manoeuvres taking place on Gordon Street outside Central Station, including taxis u turning, taxis, private hire cars and private cars entering from Renfield Street, coaches accessing the Central Hotel and goods vehicles loading throughout the day. This contributes to lowering the quality of the environment for the large number of pedestrians present in this area.



##### **Poor Pedestrian environment on Gordon Street (Renfield St to West Nile St)**

This section of Gordon Street is currently open to all traffic and has relatively low traffic flows being mainly used for servicing access and access to the Mitchell Street Car Park. There is a high level of pedestrian movement particularly in the morning and evening peaks and at weekends with pedestrians accessing Central Station. At these times pedestrians often overflow from the footway onto the carriageway resulting in conflict with traffic. This section of Gordon Street is currently the only non pedestrianised link on the route from Central Station to Queen Street Station.

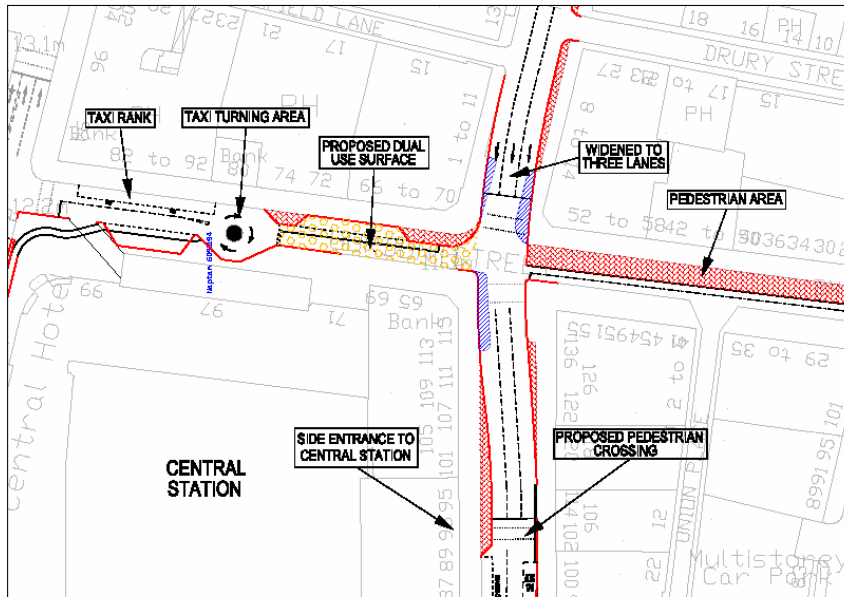


##### **Lack of pedestrian crossing facilities on Union Street at side entrance to Central Station**

Pedestrians travelling between the Union Street side entrance to Central Station and the heavily used bus stops on the east side of Union Street currently have to cross 4 lanes of carriageway with no pedestrian facility.



## **POSSIBLE SOLUTION**



### **Restrict Egress from Gordon Street to Union Street**

In order to improve the environment for pedestrians all vehicles including taxis could be restricted from exiting Gordon Street at the Renfield Street end. The only vehicles permitted to enter Gordon Street from Renfield Street during the majority of the day would be the inter-station bus which runs every 10 minutes. Goods vehicles could be permitted access to service the commercial premises outwith the daytime period. The carriageway surface directly outside and to the east of the Central Station entrance could be ramped up to footway level thus emphasising the priority for pedestrians.

In this option a formal turning circle for taxis would be provided to the west of the entrance to Central Station. This proposal would result in slightly longer journeys for taxis travelling south and east, but shorter journeys for taxis travelling north and west.

This option would also contribute towards reducing congestion on the Renfield Street approach to Gordon Street by removing a traffic signal stage thus allowing more green time to be allocated to traffic on Renfield Street. More time could also be allocated for pedestrians crossing Renfield Street and Union Street.

### **Pedestrianise Between Renfield Street and West Nile Street**

The section of Gordon Street between Renfield Street and West Nile Street could be pedestrianised in order to reduce the pedestrian / vehicle conflict on this section of Gordon Street. In order to maintain access to the Mitchell Street Car Park, West Nile Street would need to be made 2 way between St Vincent Street and Gordon Street. This would have the added advantage of reducing the traffic flow travelling south on Renfield Street approaching Gordon Street thus improving conditions for the buses.

### **Provide Pedestrian Crossing on Union Street at Central Station**

In order to improve the situation for pedestrians crossing between the Union Street entrance to Central Station and the bus stops, a traffic signal controlled pedestrian crossing could be provided with footway widening on the west side of Union Street to reduce the crossing distance.



## **4) Oswald Street / Hope Street Corridor**

### **BACKGROUND**

The Oswald Street and Hope Street corridor forms the main south to north route for buses travelling through the city centre.. Around 120 buses travel up this corridor per hour during the day with around 70 buses per hour utilising the bus stops within the bus gate between Waterloo Street and Bothwell Street with a further 50 passing through. In addition around 300 private cars per hour currently travel up Hope Street and turn left into Waterloo Street during the peak periods, conflicting with the buses and the high pedestrian movement. There is currently an under utilised contraflow cycle facility between Gordon Street and Waterloo Street.

### **SPECIFIC ISSUES**

#### **Pedestrian / Vehicle conflict crossing Hope Street at Central Station side entrance**

The flow of pedestrians utilising the side entrance to Central Station to access the International Financial Services District (IFSD) is high during peak times. These pedestrians have to cross the Waterloo St / Hope St junction which has a high level of buses, taxi and general traffic movements.



#### **Congestion at bus stops within Hope Street bus gate**

There are currently 2 northbound traffic lanes within the bus gate between Waterloo Street and Gordon Street. With this layout buses stopped or waiting to access the bus stops can block other buses attempting to travel straight through the bus gate.



#### **Narrow footway / high pedestrian activity north of St Vincent Street**

On Hope Street, north of St Vincent Street there are some narrow sections of footway, which when combined with the relatively high pedestrian movements result in overcrowding, particularly at bus stops. This is particularly evident at the bus stops south of Sauchiehall Street and Bath Street.

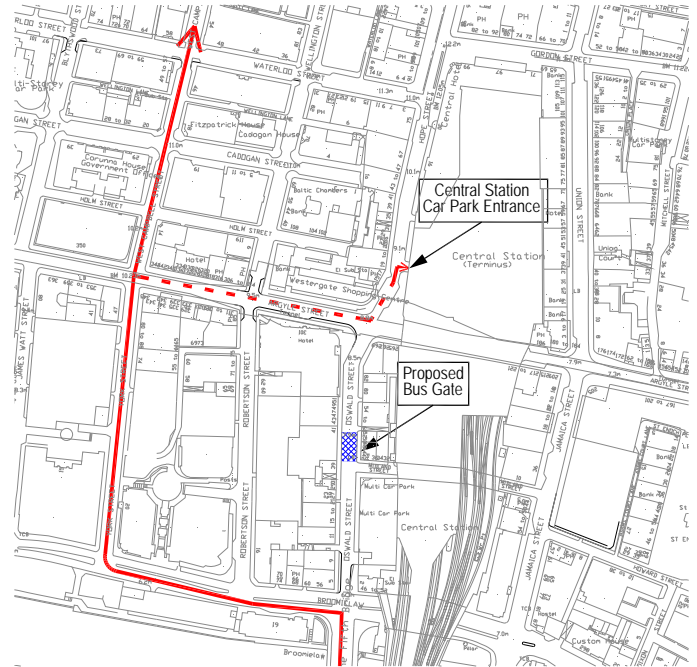


## **POSSIBLE SOLUTIONS**

### **Provide bus gate on Oswald Street, north of Midland Street**

Currently a large number of private cars accessing the City Centre from across King George V Bridge travel straight up Oswald Street and Hope Street before turning left into Waterloo Street at the Hope Street bus gate. This traffic conflicts with the high pedestrian and bus movement at the Hope Street / Waterloo Street junction.

In order to reduce this flow of traffic a bus gate could be introduced on Oswald Street north of Midland Street. General traffic with the exception of buses, taxis and private hire cars travelling to the City Centre would then have to travel along Broomielaw and up York Street and West Campbell Street. Traffic wanting to access Central Station could turn right from York Street into Argyle Street and then onto Hope Street.



### **Widen carriageway to three lanes within bus gate between Waterloo St and Gordon St**

In order to reduce congestion within and on the approach to the Hope Street bus gate, the carriageway could be widened to three lanes within the bus gate. This would allow the 42 % of buses that do not use the bus stops within the bus gate to pass through unhindered. In order to achieve this the contraflow cycle lane would have to be removed in its present form. An alternative contraflow facility could however be provided on the footway.

### **Remove all on street metered parking**

There are currently 16 on street metered parking bays available on Hope Street. Removing these could reduce the number of vehicles travelling on Hope Street looking for parking spaces and thus improve traffic flow.

### **Restrict loading during daytime**

Restricting loading times to when the traffic flow on Hope Street is lower would reduce the conflict between vehicles trying to serve the commercial premises, general traffic flow and buses accessing the bus stops.

### **Widen footway at key locations on west side**

The footway could be widened on the west side in the vicinity of the bus stops south of Bath Street and Sauchiehall Street. In order to maintain 2 lanes for moving traffic when a bus is at the bus stop south of Sauchiehall Street, the carriageway could be widened to 3 lanes where Hope Street crosses Sauchiehall Street.



## **5) Argyle Street / Jamaica Street**

### **BACKGROUND**

The Argyle Street / Jamaica Street junction is a key location within the City Centre. It has very high pedestrian and bus movements with up to 350 buses travelling through the junction each hour during the day. It also has the highest level of accidents within the City.

### **SPECIFIC ISSUES**

#### **High Accident Rate**

There were a total of 35 injury accidents at the Argyle Street / Union Street junction in the three year period up to Dec 2007. Of these 69% involved pedestrians and 50% involved buses. This accident rate is around double that of any other location within the City.



#### **Congestion at certain times of the day**

The high flow of buses combined with other traffic passing through this junction results in periods of congestion at certain times of the day. Congestion also occurs in the northbound contra-flow bus lane on Jamaica Street caused by buses accessing the bus stops blocking the bus lane.



### **POSSIBLE SOLUTIONS**

#### **Additional traffic signal aspect southbound**

Currently buses turning right from Union Street into Argyle Street under Central Station receive a green signal at the same time as buses turning left from Jamaica Street causing some confusion and conflict. In order to reduce this conflict an additional signal aspect could be added to the signal head for buses travelling south which only goes to green once the buses turning from Jamaica Street have been stopped. Cantilever traffic signals could also be considered.

#### **Review barrier provision**

Additional pedestrian guardrail could be provided in the vicinity of the junction to encourage pedestrians to use the designated crossing points.

#### **Make Jamaica Street one – way southbound**

The contra-flow northbound bus lane on Jamaica Street could be removed resulting in Jamaica Street becoming one way southbound. This would reduce the number of traffic movements at the Argyle Street / Jamaica Street junction thus improving the environment for pedestrians. Rather than travelling north on Jamaica Street and through the Heilanmans Umbrella, buses would have to divert via Broomielaw and Oswald Street.

## 6) Cost Estimate / Programme

### Cost Estimates

The table below summarises the cost estimates and whether an amendment to the traffic regulation order is required for the proposals outlined in the previous sections.

<b>PROPOSAL</b>	<b>COST</b>	<b>TRO</b>
<b>Area 1 – Renfield St / Union St</b>		
Wellington Street bus measures	£86,800	Y
Renfield Street / Union Street –footway widening	£317,400	Y
Renfield Street / Union Street – other measures – remove parking, nibs etc (excl ped crossing)	£62,700	Y
<b>Sub Total</b>	<b>£467,000</b>	
<b>Area 2 – Gordon St / Central Stn Area</b>		
Gordon Street – measures outside Central Station (public realm)	£222,200	Y
Gordon Street – pedestrianise between Renfield and West Nile (include WNS 2way removal of parking) public realm	£200,000	Y
Union Street ped crossing	£62,800	N
<b>Sub Total</b>	<b>£485,000</b>	
<b>Area 3 – Oswald St / Hope St</b>		
Oswald Street – bus gate	£1,900	Y
Hope St bus gate widen to 3 lanes	£52,000	Y
Hope Street – all footway widening and carraigeway widening at Sauch	£65,700	Y
Hope Street – all other measures – removing parking etc	£28,000	Y
<b>Sub Total</b>	<b>£148,000</b>	
<b>Area 4 – Argyle / Jamaica</b>		
Traffic Signal Amendments	£17,500	N
Barrier provision	£7,500	N
Jamaica Street one way and associated measures	£60,500	Y
<b>Sub Total</b>	<b>£85,500</b>	
<b>Total</b>	<b>£1.18m</b>	

Note: Cost Estimate include an assumption of 25% for design / utilities, 10% contingencies, 10% traffic mgt

#### Early Action (Non TRO)

The measure that do not require an amended Traffic Regulation Order to be promoted could be implemented as **early actions** are:

- **traffic signal infrastructure improvements and additional guardrail provision at the Argyle Street / Jamaica Street junction (Area4) and**
- **provision of a pedestrian crossing facility on Union Street outside Central Station (Area 2).** (May be an issue due to scaffolding being erected on footway at east side of Union Street)

The cost estimate for these early action measures is **approximately £82,300**

### Actions Requiring TRO

The majority of the proposals would require a traffic regulation order statutory consultation process to be completed prior to implementation. The cost estimate for implementation is **approximately £1.1m**

### Programme

Assuming the above funding becomes available an indication of the timeline for the introduction of the core area measures is as follows.

- |                             |   |
|-----------------------------|---|
| <b>Jan 2009</b>             | - <b>consult local members and key stakeholders</b>   |
| <b>Jan – Feb 2009</b>       | - <b>commence Evening Times consultation.</b>   |
| April – May 2009            | - <b>implement any early action measures</b>  |
| May – July 2009             | - undertake detailed design   |
| Aug 2009                    | – undertake preliminary TRO consultation ( <b>cannot be commenced until new City Centre order has been approved</b> ) |
| Sept – Oct 2009             | – complete detailed design and prepare statutory public TRO consultation documentation                                |
| <b>Nov – Dec 2009</b>       | – <b>undertake statutory public TRO consultation</b>  |
| Jan – Feb 2010              | – negotiate re any objections and make TRO  |
| Mar 2010 – Apr 2010         | – Procure resource for implementation   |
| <b>May 2010 – July 2010</b> | – <b>Implement measures requiring a TRO.</b>  |

## **7) Other Key Areas**

As previously stated, no detailed analysis of the proposals has been undertaken for these areas. However issues have been noted from the consultation to date and initial possible solutions are currently being developed.

### **West George Street / Nelson Mandela Place / George Square**

#### **Issues**

- Narrow footway at bus stops on West George Street east of Nelson Mandela Place
- Pedestrian / vehicle conflict round George Square
- Poor pedestrian access to city from Queen Street station
- Delays to buses approaching Nelson Mandela Place
- Congestion / delays at George Square / Queen Street junction



#### **Possible Solutions**

- Widen footway on north side of West George Street east of Nelson Mandela Place to reduce pedestrian congestion at bus stops
- Remove metered parking from George Square thus providing a larger pedestrian area and removing the vehicles which currently travel to and around the square looking for a parking space
- Pedestrianise east side of George Square outside the City Chambers providing an improved pedestrian environment
- Pedestrianise Queen Street between Ingram Street and St Vincent Street – treated in such way that allows vehicular access when required (eg events in George Square). This would enhance the pedestrian route from Queen Street Station and George Square to Royal Exchange Square and through to Buchanan Street.

### **Castle Street / Cathedral Street**

#### **Issues**

- Delays to buses at Castle Street / Cathedral Street Junction
- Potential release of land for development

#### **Possible Solutions**

- Redesign of Castle Street / Cathedral Street junction to release development land and provide bus priority. This proposal involves providing a cut through for buses from Castle Street to Stirling Road and closing Glebe Street. The cost of the junction amendments would be paid for by the developer.



## **Trongate**

### **Issues**

- Desire to improve the pedestrian environment and attract new development

### **Possible Solution**

- Pedestrianise Trongate between Glassford Street and Candleriggs. Buses would be diverted onto Osborne Street with Osborne Street opened at Saltmarket for westbound buses.



## **West Nile Street**

### **Issues**

- Confusion caused by two-way section north of St Vincent Street
- Potential for use as north / south cycle route

### **Possible Solutions**

- Introduce one way southbound operation north of St Vincent Street. This will reduce the number of vehicle conflicts at junctions on West Nile Street.
- Introduce two-way 'copenhagen style' segregated cycle route - this could be linked to the Connect2 segregated cycle way from the west to provide a segregated route right through the City Centre



## **High Street**

Still to be assessed



## Cost Estimate

The table below summarises the cost estimates and whether an amendment to the traffic regulation order is required for the possible future proposals outlined in this section

<b>PROPOSAL</b>	<b>COST</b>	<b>TRO</b>
<b>West George St / Nelson Mandela Place / George Square</b>		
Pedestrianise outside the City Chambers	£350,000	Y
Remove Parking and widen pedestrian area	£192,000	Y
Pedestrianise Queen St between Ingram St and George Sq	£370,000	Y
<b>Total</b>	<b>£912,000</b>	
<b>Castle St / Cathedral St</b>		
Junction Amendment	£990,000*	Y
<b>Trongate</b>		
Pedestrianise between Glassford St and Candleriggs + associated works	£1m	Y
<b>West Nile St</b>		
Introduce one-way southbound north of St Vincent St and segregated cycle route along whole length	£250,000	Y
<b>High St</b>		
Proposals still to be developed	-	-

Note: Cost Estimates include an assumption of 25% for design / utilities, 10% contingencies, 10% traffic mgt

\*this is the cost estimate including the above assumptions for design, tro and £100,000 for building demolition. The actual implementation of the junction amendments cost estimate is around £600,000, all to be paid for by any potential developer.

## Programme

It is envisaged that the proposed junction amendment at Castle Street / Cathedral Street outside the Royal Infirmary would be paid for development contribution. The timescale for implementation is therefore tied into that for the potential development.

The other proposals in this section will require further assessment, including utilisation of the traffic model to predict likely affects on traffic movements and congestion and it is envisaged that they would form the second phase of implementation during 2011/ 2012.