

Alternative Transport Strategy Discussion Document

Prepared by

the

**North West Leeds Transport
Forum**

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Executive Summary

This assembly of transport proposals draws on published documents, blue-sky thinking, discussions with interested parties and feedback from public meetings. The proposals are in full accord with national and local priorities. We believe that, for a number of reasons, including the prospect of increased devolution to the Leeds City Region, their potential inclusion in Leeds transport strategy should be considered as a matter of urgency. This note comprises two sections addressing, respectively, the A660 corridor and the wider Leeds area.

A) Improvements in the A660 Corridor

Changes which are probably worthwhile whether or not the NGT project goes ahead and so need not await the outcome of the Inquiry:

- Enhanced bus priority on the A660
 - priority at signals (particularly important for late running buses)
 - new bus lane southbound in front of Arndale Centre
 - new bus lane northbound on approach to St Michael's Church
- Other measures to encourage increased bus usage:
 - provision of accurate real-time information at all bus stops
 - introduction of new services (e.g. express services, services providing access to important sites which are not well served.....) and state-of-the-art vehicles
- Measures to improve traffic flow
 - restriction of HGVs at peak hours
 - simplification of the North Lane/Otley Road junction
 - introduction of a bus bay on Cardigan Road
- Measures to improve pedestrian experience
 - At North Lane's junctions with Otley Road and with Cardigan Road
 - At Ash Road's junction with North Lane
 - Near the Original Oak (changes to facilitate pedestrian movements)
 - Other (concerning street furniture and other obstacles)

Additional changes which should be regarded as alternatives to the NGT project:

- Increased bus priority
 - Northbound bus lanes: up Headingley Hill (requiring limited widening of the carriageway), from Richmond Road to Richmond Avenue, and at the approach to West Park
 - Alterations at the north end of Blenheim Walk and at Blackman Lane to reduce delays to southbound buses
 - Southbound bus lane after Shaw Lane Junction and from Rampart Road to Clarendon Road
 - Redesign of Clarendon Road/Woodhouse Lane junction
- Improvements to traffic flow which, directly or indirectly, assist bus operations
 - At junctions on A660 at Clarendon Rd, Hyde Park, Shaw Lane and Thornbury Ave
 - Traffic signals at Otley Old Road/Otley Road junction and at Lawnswood roundabout (significant cost but includes priority for buses)
- Improvements benefitting pedestrians and/or side road traffic
 - At or near: St Mark's Rd, Clarendon Rd, Cliff Rd, Hyde Park, Victoria Rd, St Michael's Rd, Shaw lane, St Chad's Drive/Burton Crescent, St Chad's Rd, Glen Rd/Church Wood Ave, Thornbury Ave
- Bodington Fields Park and Ride
 - served by existing bus services, the X84 express and additional express buses
 - with development staged as demand grows.

B) Transport Improvements for Leeds as a whole

Aiming to:

- assist the development of the Leeds economy and increase the opportunities available to Leeds residents by improving connectivity within the Leeds City Region and with other centres
- reduce the need to travel where/when e-communication would fulfil the need

General strategy

- making efficient use of limited road-space (e.g. by encouraging the use of public transport)
- managing demand to make efficient use of spare network capacity (likely to involve more intensive use of existing rail lines and encouragement of peak-spreading)
- co-ordination between new development and new/improved transport links
- encouraging use of active modes and promoting e-communication

Generic actions which would improve, and encourage use of, public transport

- Improving the quality of public transport journeys
 - Improving bus journey times through enhanced bus priority and more efficient boarding
 - Progressive renewal of bus fleet and rail rolling stock
 - Improvement of facilities at bus stops and stations
- Introduction of new bus and rail services where necessary and possible
 - To serve new developments
 - To provide express links where appropriate
 - To increase frequency
- Travel demand management to maximise the efficiency of network operation:
- Maximise the efficiency of network operations to ensure most efficient use of existing capacity:

Specific infrastructure schemes to be considered

- **Highway Schemes:**
 - Addressing capacity issues on Outer Ring Road, on M62 and M621 and in Leeds City Centre (station access, inner loop)
 - Completion of “missing links” (southern arc of Leeds Inner Ring, East Leeds Link Road, airport Access Link)
- **Rail infrastructure**
 - Enhanced signalling and introduction of turnrounds and bypass lines where appropriate
 - Provision of rail-based park and ride facilities (e.g. at Apperley Bridge, Kirkstall Forge, Calverley, Horsforth station, Horsforth Woodside, Leeds Bradford Airport, East Leeds Parkway, Thorpe Park, Stourton, and Tingley)
 - New stations on existing rail lines or on extensions to them – possibly built to Light Rapid Transit (LRT) rather than “heavy” rail standard. (e.g. at Kirkgate, Aire Valley, Seacroft / Coal Road / Thorpe Park, Beeston / Middleton, Rothwell, Woodkirk / East Ardsley, Tyersal and Otley)
 - Improved rail links to Birmingham, Sheffield and Manchester, perhaps via HS2/HS3
- **Partially segregated rapid transit (LRT or Bus Rapid Transit).**
 - The route to St James Hospital
 - Existing guided bus corridors (may warrant extension or upgrade)
 - Other radials (Kirkstall Rd, Dewsbury Rd, Stanningley Rd towards Bradford, Easterly Rd and Wakefield Rd)
 - Linking the airport with Horsforth station (potentially fully segregated)

Introduction

This document is offered by North West Leeds Transport Forum as an input to discussion and as a preliminary stage of more detailed investigation of the ideas put forward. It is based on earlier drafts prepared for us by Professor Bonsall in response to widespread interest in alternative ways forward if the Trolleybus project were not to proceed. Draft ideas were presented at a series of public meetings in the Headingley area during the first half of 2015 and were revised following feedback received following those meetings. A summary of the feedback received is provided in an appendix but, in brief, it indicates a high level of public support for the ideas presented here.

Any city must keep its transport strategy under review. Not only will its needs be continually evolving but so too are the opportunities offered by technology and regulation. Although there have been previous reviews of Leeds transport strategy, the new administrative arrangements and the prospect of new devolved powers for the Leeds City Region mean that it would be timely to repeat the exercise with a wider brief than was previously the case. It should not be assumed that schemes and projects which were afforded high priority in a previous review are still appropriate today.

A particular reason to conduct a review now is that, whatever the outcome of the Trolleybus Inquiry, Leeds needs to be ready with alternative ideas for promoting the local economy, improving public transport and addressing the particular issues in the trolleybus corridors. We maintain that it is clear that the predicted impacts of the trolleybus project fall short of the original aspirations for it and that, with the prospect of Bus Quality Contract powers, part of its original rationale is removed. Even if the TWAO is approved, Central Government funding for the Trolleybus scheme may not be forthcoming, and, even if it is, Leeds might be wiser not to accept it.

This note identifies a number of potential schemes and projects but the list is neither comprehensive nor prioritised. Several of the ideas have been considered in previous reviews of Leeds transport strategy, some feature in the current plans, others were deferred or rejected (some of them because they conflicted with the trolleybus proposals), and others are completely new. We believe that it would be useful to consider the ideas contained in this note, along with others which will doubtless be forthcoming, as part of a without-trolleybus future. The feasibility (technical, financial/commercial, political and administrative), strengths and weaknesses of each one need to be established as part of a strategy for the Leeds City Region.

This document has two sections; the first addresses the particular issues along that part of the A660 corridor affected by the trolleybus proposals while the second addresses the broader canvas of Leeds as a whole.

Part A: Improvements in the A660 Corridor

Particular characteristics of the A660 corridor

The A660 corridor is characterised by levels of bus use, cycling and pedestrian activity which are well above average for the city. It suffers from serious peak period congestion during university term and at some other times. The A660 serves primarily as a local distributor but has to cope with a significant through-flow of commuters along and across the corridor (the main cross flow creates a particular capacity problem where it dog-legs through Headingley). The bus services are very frequent and well patronised but suffer from slow boarding times and from the traffic congestion referred to above. Local roads suffer from rat-running and excessive demand for parking in residential areas (some of it by people who park up in order to use the bus services). The corridor is served only peripherally by rail (stations on the Harrogate line) and, because of its constricted road space could not accommodate a new transport system without significant impact on existing users and/or the many heritage assets.

These problems are long standing but progress towards their solution or amelioration has been slow - not least because a succession of grand plans for the corridor (Bypass, Supertram, Trolleybus) have diverted attention away from achievement of more modest but nonetheless valuable improvements.

Ideas for consideration

Twenty-three ideas are presented. The emphasis is on relatively inexpensive interventions which could be introduced quite quickly. Several (items 1, 7b, 8, 9, 10, 11a-e, 12, 17 and 18) could proceed irrespective of whether the NGT project goes ahead and so need not await the outcome of the Inquiry. Generic actions are considered first followed by geographically-specific schemes ordered from south to north.

1. Generic actions

a) Measures to enhance bus priority on the A660:

- Increase priority at signals - most particularly for late-running buses
- Deny taxis access to bus lanes during peak periods
- Provide periodic high profile enforcement of bus lane restrictions
- Introduce “Give Way to Buses” markings at the end of bus lanes and bays

b) Other measures to encourage increased bus usage:

- Provide accurate real-time information at all bus stops
- Introduce new services (e.g. express services, services providing access to important sites which are not well served.....)
- Introduce new bus fleet (quieter, smoother ride) – probably parallel hybrid evolving to all-electric

c) Measures to improve traffic flow on A660¹

¹ **Important Note** It can be argued that free movement of traffic is not a desirable goal because it will simply attract additional traffic and dissuade people from using other, more benign, modes. The goal here, and in several traffic management measures described elsewhere in the document, is not to reduce congestion per se but to reduce its impact on buses. The intention is to introduce measures which reduce congestion and delay in those parts of the corridor where buses are mixed in with general traffic. These measures will, of course, benefit vehicles other than buses but that benefit is then offset or outweighed by the extra priority given to buses (and to pedestrians) elsewhere in the corridor. The overall effect is thus to leave buses better off and other traffic relatively unaffected.

- Ban articulated vehicles (including buses) and, during peak periods, of HGVs
- Use the most advanced traffic signal technology and control concepts
- Enforce parking and waiting restrictions where stationary vehicles constitute an obstacle to traffic flow

d) **Measures to improve the pedestrian and cyclist experience:**

- Provide more pedestrian crossings and more time at existing crossings
- Monitor the effectiveness of pedestrian signal calls (avoid delays which are so long that the pedestrian has already crossed, or walked away, before the call is met)
- Avoid insensitively located street furniture
- Remove unnecessary discontinuities in pavement surface (e.g. at low volume side roads and driveways)
- Place call-buttons at convenient places (e.g. not at the “far” side of an island crossing)
- Maintain pavements in good condition
- Deal with obstructions caused by parked vehicles.

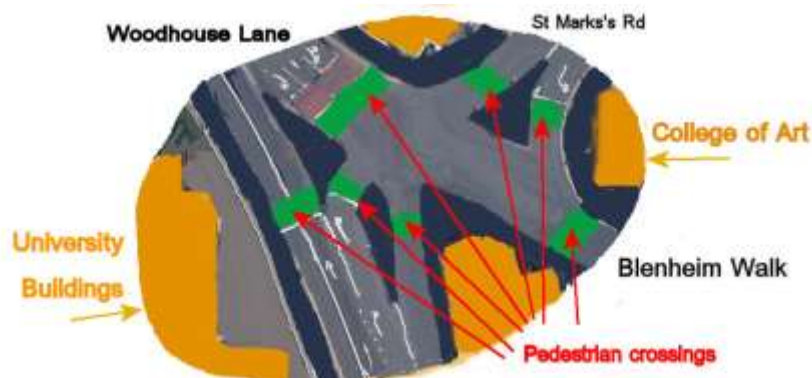
2. Between St Mark’s Road and Blackman Lane



The problem here is that southbound buses are subject to significant delay as a result of their diversion from the main southbound A660 to pass in front of the Parkinson Steps and along Blackman Lane before rejoining the main southbound traffic lanes. Signal delays occur at the diversion point at the top of Blenheim Walk, at the west end of Blackman Lane and again when they rejoin the general traffic at the bottom of Blenheim Walk. A number of solutions can be imagined:

- Either Allow southbound buses to proceed on down Woodhouse Lane (past the old BBC building and over the inner ring road before re-joining general southbound traffic behind the *Dry Dock* pub) rather than turn left along Blackman Lane. This would not avoid the delay at the top of Blenheim Walk and would require very expensive bridge alterations.
 - Or Re-route southbound buses via Blenheim Walk (with new bus stop just north of St Marks Road and use of the stop at the multi-storey car park). This would save southbound buses about 5 minutes but would be less convenient for passengers wanting to get on or off southbound buses at Parkinson Steps. A variant to this idea is to re-route only some of the buses.
- Give much greater priority to southbound buses at the signals at all three locations (e.g. turning lights to green as a bus approaches). This would help southbound buses (saving them perhaps 4 minutes) but would delay other vehicles and pedestrians unless conflicting movements are removed – see below.
 - Remove conflicting movements:
 - **at Blackman Lane**, about 2 minutes delay to southbound buses could be avoided by banning traffic from entering or leaving Lodge Street other than by a left turn and giving southbound buses priority at the signals

- **at the top of Blenheim Walk** about 1.5 minutes delay to southbound buses could be avoided by banning traffic from exiting St Mark's Rd other than by a left turn, by moving the pedestrian islands to provide southbound buses with their own channel and by rephasing signals to give more time and priority to southbound buses (these changes would also allow more time to be given to pedestrians but would require some traffic from St Mark's Rd to divert via Blackman Lane)

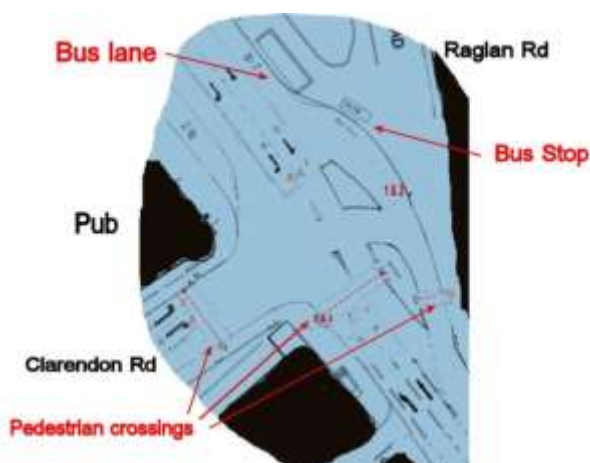


3. The Clarendon Road junction

This junction is a source of frustration to pedestrians (the crossing of the A660 is not on the natural desire line while the delays at the Clarendon Rd crossing promotes hazardous jaywalking) and of significant delays to southbound buses. A possible solution (see plan) would involve: replacing the existing A660 crossing by a new one on the southern arm of the junction (with an island part way across) and introducing a southbound bus lane from Rampart Rd (taking a narrow slice from the verge and shifting the general lanes further west and taking in the central reservation) to a bus stop in the mouth of Raglan Rd without needing to stop at the signals. The signal stages would be:

- i. A660 traffic from north to south (ceding priority to buses leaving the bus stop) and from south to north, while pedestrians cross the eastern-most lane of the south-east arm of the junction (provided that buses are not leaving the bus stop) and Clarendon Rd
- ii. As stage i but A660 traffic can also turn left into Clarendon Rd and pedestrians can no longer cross Clarendon Rd.
- iii. As stage I but traffic from South East arm is halted to allow traffic from North West arm to turn right into Clarendon Rd and traffic from Clarendon Rd to turn left (pedestrians can no longer cross Clarendon Rd).
- iv. traffic exits from Clarendon Rd turning left or right (buses leaving the bus stop do not have priority during this phase), while pedestrians cross the western three lanes of the south arm of the junction.

This would benefit pedestrians and reduce delay to southbound buses.



4. Across Woodhouse Moor

The width of the slice of verge required to accommodate the bus lane described at 3 above could be minimised if buses had sole-use of the bus lanes. This implies a separate facility for cyclists. One possibility is to designate one of the existing paths running parallel to Woodhouse Lane as being for cyclists only. The existing path to the west of Woodhouse Lane could accommodate northbound cyclists while leaving a separate path for pedestrians. Southbound cyclists would benefit from a new path to the east of Woodhouse Lane.

5. Hyde Park Corner

This junction is very difficult and hazardous for pedestrians, has poorly-located bus stops and is a source of delay for buses and other traffic. A possible solution (see plan) would involve:

- remodelling Moor View as a one-way link from Woodhouse Lane onto Hyde Park Rd (some loss of parking but no intrusion onto the Moor)
- banning all right turns:
 - southbound A660 traffic would access Hyde Park Rd via Woodhouse Street, Cliff Rd and Moor View
 - northbound traffic from Woodhouse Street would access A660 via Cliff Rd
 - northbound A660 traffic would access Woodhouse Street via Moor View and Hyde Park Rd
 - southbound traffic from Hyde Park Rd would access A660 via Woodhouse Street and Cliff Rd
- requiring traffic from Woodhouse Street to access Hyde Park Rd via Cliff Rd and Moor View
- moving the northbound bus stop to a new site just north of Hyde Park Rd;
- providing a new pedestrian crossing across the A660 just north of Victoria Rd (which would benefit pedestrians and offer opportunity for traffic to exit from Victoria Rd)
- provide a new pedestrian crossing across A660 South of Cliff Rd (which would benefit pedestrians and offer opportunity for traffic from Cliff Rd to turn right onto A660)
- extending the north bound bus lane on Woodhouse Lane right up to Victoria Rd
- creating a stretch of southbound bus lane on the A660 from Woodhouse Street to Cliff Rd.

The signal stages would be:

- i. A660 traffic from north to south and from south to north while pedestrians cross Hyde Park Rd and Woodhouse Street
- ii. as stage i but A660 traffic can also turn left into Woodhouse Street – pedestrians can no longer cross Woodhouse Street
- iii. traffic from Hyde Park Rd can turn Left on to A660 and proceed across to Woodhouse Street, pedestrians can cross A660 (no need to pause on island).

Taken as a whole, these changes would:

- Give pedestrians more opportunity to cross the A660, Hyde Park Rd and Woodhouse Street in safety
- Allow for much wider pavements (particularly along the stretch of Woodhouse Street which would become one-way)
- Reduce delays to buses²

² It would also reduce delays to other traffic, particularly southbound, but this reduction in delay would be offset, and could be outweighed, by bus priority measures elsewhere on the route and so would not attract additional traffic.



6. Between Hyde Park Corner and the Elinor Lupton Centre

This stretch of the A660 currently has no bus lanes and so buses are inevitably delayed by the congestion which occurs particularly, but not exclusively, at peak times. The southbound problem would be alleviated by the changes at Hyde Park Corner discussed at 5 above but the northbound problem is less tractable and so provision of northbound bus lanes would be very desirable. Wholesale widening of the road has heritage implications and would require significant expenditure. However, noting that benefit can be gained even from short stretches of bus lane, consideration should be given to limited widening (on the west side) where this can be achieved without damage to the heritage.

Another feature of this stretch of road is the fact that pedestrians using the footway on the western side find their progress obstructed by poorly placed street furniture and interrupted by redundant gateways (see photo). Action should be taken to improve the situation.

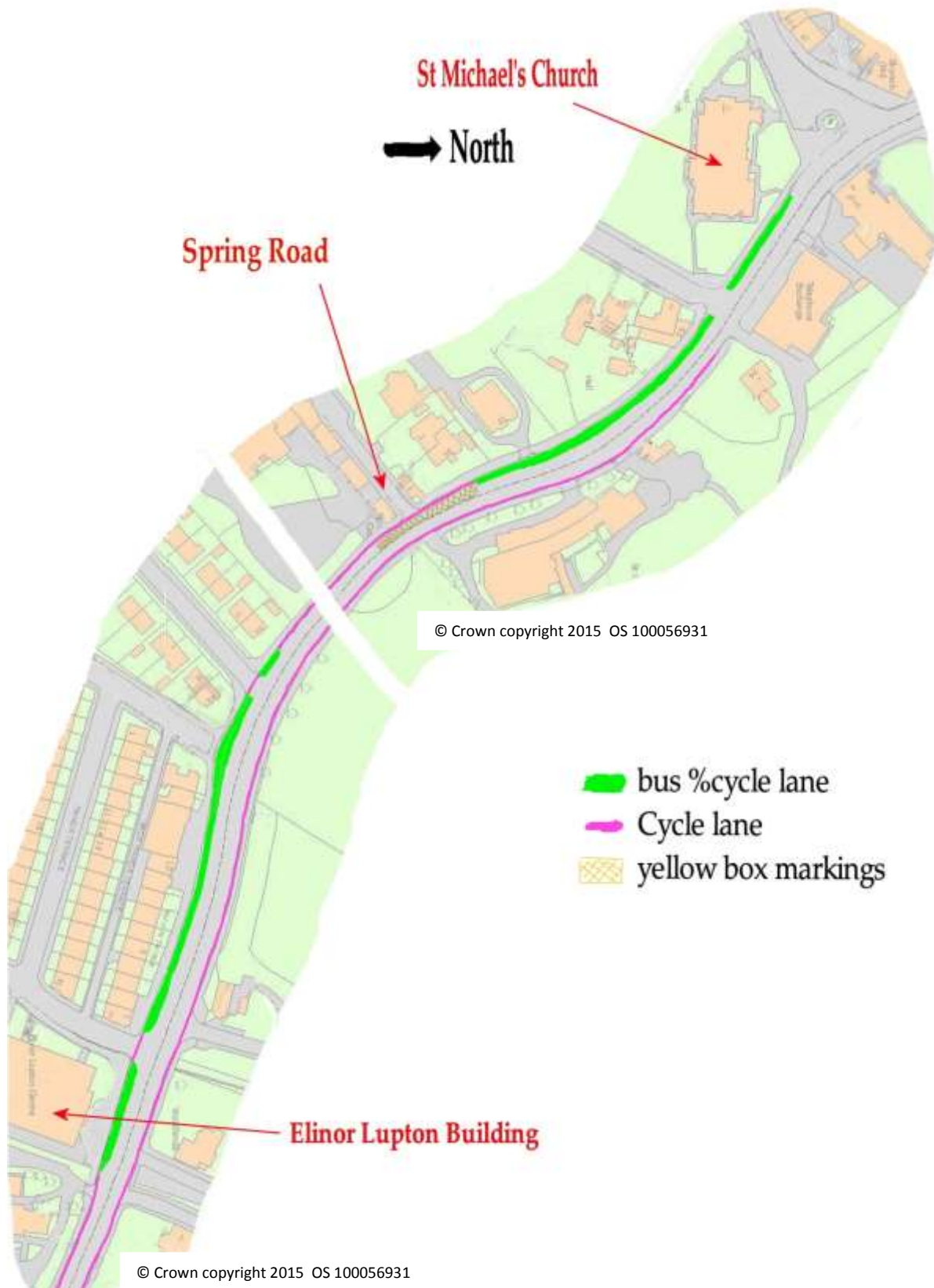


Image capture: Apr 2015 © 2015 Google

7. Between the Elinor Lupton Centre and Bainbrigge Road

This stretch of road suffers from northbound congestion in the morning as well as in the pm peak and so buses would benefit from a northbound bus lane throughout much of the day. The carriageway is already wide enough to accommodate a bus lane except for about 100 metres in the vicinity of Spring Rd (see plan). This narrower stretch could be widened but if this is not possible, particularly in the short term, the lane could be interrupted at this point and yellow box markings could be used at Spring Rd

(these markings, which mean “do not enter unless your exit is clear”, would assist traffic entering or leaving Spring Rd but would also benefit buses during congested periods because their exit into the next stretch of bus lane would be clear while that for cars would not be). Note that there may also be some merit in moving the existing northbound bus stop at Richmond Avenue into the mouth of that road (closure of which would require access to be via Richmond Rd). Provision of a bus bay would allow buses to overtake others stationary at the stop and would allow a shelter to be provided without obstructing the pavement. Consideration should also be given to provision of a pedestrian crossing to facilitate access to the southbound bus stop.

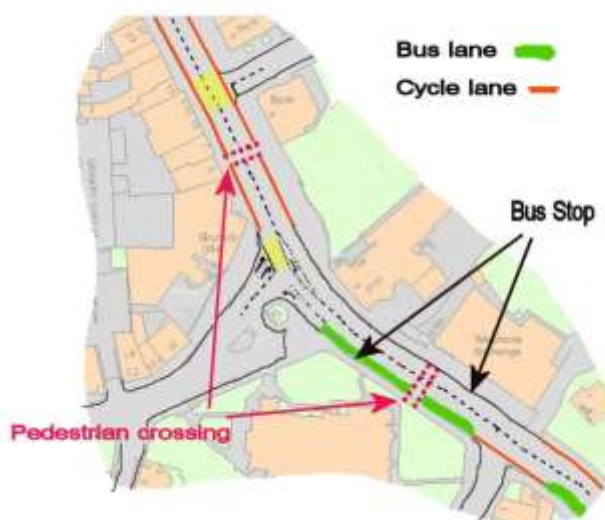


8. Between Bainbrigge Road and Shire Oak Road

Northbound buses leaving the bus stop at St Michael’s Church often have to stop almost immediately at the pedestrian lights at the War Memorial (effective priority cannot be given to buses because there is not enough time between their leaving the bus stop and their arrival at the signals). This problem could be overcome if the crossing were moved (see map) such that it was just south of the northbound bus stop and just north of the southbound bus stop (the approach of buses could then be detected in time to delay the start of the crossing phase – or the presence of a bus at the stop could be used to call the crossing phase). This would reduce delays to buses.

There is no pedestrian crossing between North Lane and the War Memorial. This is a source of inconvenience and/or hazard to large numbers of pedestrians. There is a case for a new crossing to be introduced near Shire Oak Road.

If the existing crossing at the War Memorial were moved south and a new crossing were introduced just south of Shire Oak Road, traffic from St Michael’s Rd would find it easier to exit onto the A660 because the crossings would provide interruptions in the A660 flow.



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9. Bennett Road

The current arrangements include a barrier across Bennett Rd such that most of the premises (together with those in Grunberg Street and Grunberg Rd) are accessed from North Lane while premises in Cross Granby Terrace and Granby Street are accessed from Otley Rd via the stub end of Bennett Rd. The resulting situation is largely satisfactory except that traffic entering and leaving Otley Rd is a hazard to pedestrians and a source of delay on the main road. Moving the barrier across Bennett Rd from its current position to a new position at the extreme east end of the road – thus closing off the access to Otley Rd and requiring the premises accessed via Cross Granby Terrace to be accessed via North Lane rather than Otley Rd, would:

- reduce hazard and delay to pedestrians crossing the east end of Bennett Rd
- reduce delay to traffic, including buses, on Otley Rd, but would
- increase the amount of traffic using the western part of Bennett Rd and its junction with North Lane.

The balance of pros and cons needs careful consideration.

10. The North Lane/Otley Rd junction

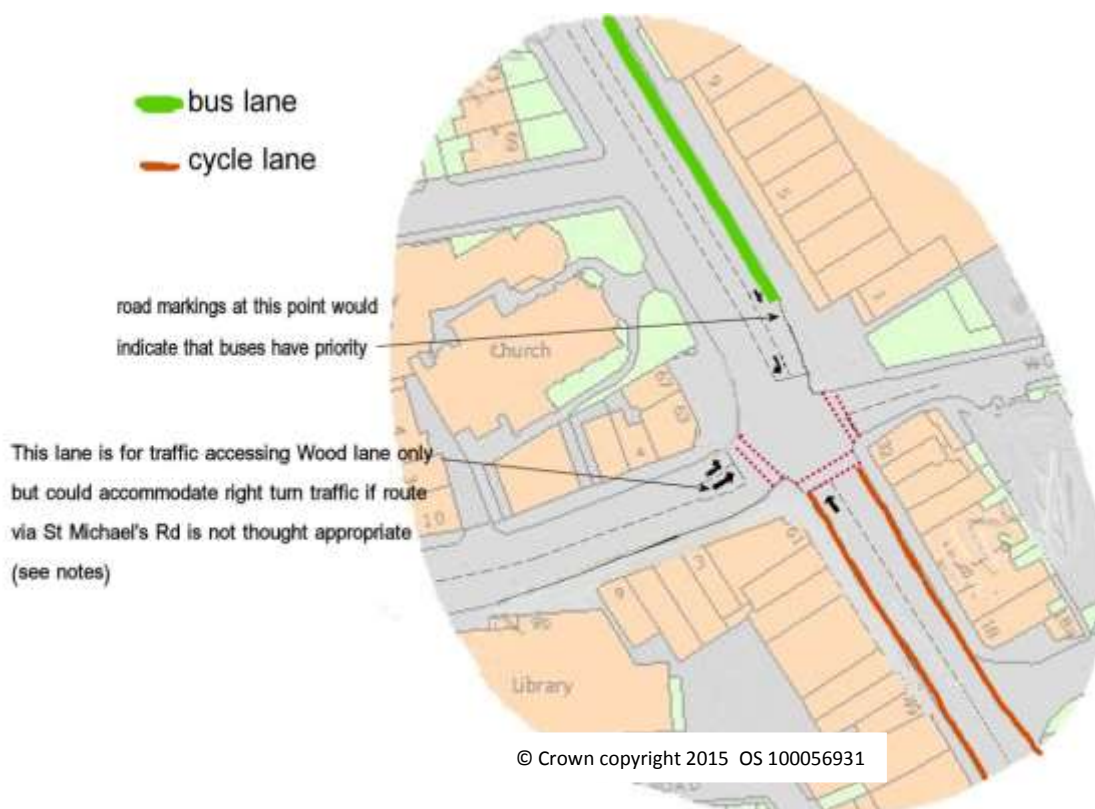
Along with the Shaw Lane junction (see 14 below), this is a major bottleneck which causes congestion to traffic passing through Headingley from the north, south, east and west. Removal of one or more conflicting movements would increase the effective capacity and this could then be allocated to pedestrians or to one or more of the remaining movements. Greatest benefit is to be gained by

allocating it to a movement which has a high proportion of buses (as discussed, any concomitant improvement to general traffic could be outweighed by introducing bus priorities elsewhere). The conflicting movements and other obstacles which might be removed are:

- a) the right turn out of North Lane (with the traffic using St Michaels Rd instead)³
- b) the left turn into North Lane (with the traffic using St Michaels Rd instead)³
- c) traffic entering or leaving Wood Lane (this traffic could, at some cost, be routed behind the Arndale Centre if NGT does not proceed or, given a Compulsory Purchase Order, via Shire Oak Street. Less drastically, the left turn out of Wood Lane might be banned)
- d) buses stopping at the stop adjacent to the Library obstructing traffic trying to exit the junction (the stop could be moved further from the junction).

The plan shows a possible design whose signal phases could be:

- i. A660 traffic towards Leeds and towards Otley while pedestrians cross Wood Lane and North Lane
- ii. Traffic turning right into North Lane and left out of North Lane while pedestrians cross the A660 (at *Costello's*) and Wood Lane
- iii. (if traffic is detected waiting to enter or leave Wood Lane) Traffic moving into Wood Lane, out of Wood Lane and turning left out of North Lane while pedestrians cross the A660 (at *Costello's*).
- iv. (if thought necessary) All traffic halted while pedestrians cross any part of junction.



These changes would allow significantly more time to be given to pedestrians – reducing the current temptation to attempt crossing on red, and would reduce congestion on the A660 and on North Lane. However, the traffic levels would be increased on St Michael’s Rd (requiring additional parking restrictions on its northern side) and, even if their impact were mitigated, would clearly be unwelcome. The changes at the North Lane cannot therefore be recommended unless further analysis indicates that the benefits outweigh the unwanted impact on St Michael’s Rd.

³ Use of St Michael’s Rd could be facilitated by changes described at 8 above and 1b below.

11. Other changes, off the A660, in Headingley

- a) **At junction of Ash Road and Cross Chapel Street with North Lane** (to improve pedestrian safety)
 - close Cross Chapel St and provide alternative exit from Chapel St via Ash View
- b) **At junction of Cardigan Road with North Lane / Kirkstall Lane** (to improve access and safety for pedestrians and facilitate traffic access to/from St Michaels Rd)
 - replace existing signals by mini-roundabout with pedestrian crossings and islands (plan shows two variants) note that, depending on what is done at the North Lane junction, it may not be necessary/appropriate to improve entry to St Michaels Rd and/or to allow exit from it.
 - close south end of South Parade - moving the barrier from its current position just north of Derwentwater Grove down to North Lane kerblines.



- c) **At St Ann's Lane** (to improve safety)
 - designate the narrow stretch of road (between junctions with St Ann's Drive and with Burley Rd) as one-way
 - possibly designate the lane as tidal (down-hill in morning, up-hill in evening)
 - access to St Ann's Close via St Anne's Rise rather than via St Ann's Lane but some inconvenience to local traffic would be inevitable.
- d) **At St Michael's Grove** (to reduce delays, caused by stationary buses at St Michael's Grove bus stop on Cardigan Rd, which sometimes back up to interfere with traffic entering from Kirkstall Lane and North Lane)
 - provision of bus bay in the entrance to St Michael's Grove - with minor land acquisition via a Compulsory Purchase Order to create splays and with "give way to buses" markings to facilitate buses exiting the bay.
- e) **Cycle path(s) along Woodhouse Ridge** (to encourage cycling as an alternative to car use)
 - lighting would be intrusive so probably not suitable for year-round commuting
 - the "upper path" is already surfaced but has an unattractive gradient
 - a middle path could link Wood Lane with Woodhouse Moor via Delph Lane and Cliff Terrace but would require surfacing and could be regarded as intrusive
 - a lower route could link Wood Lane with cycle lanes on Meanwood Rd and Sheepscar via Ridge Rd but would require surfacing and could be regarded as intrusive
- f) **Cycle path behind Arndale Centre** (to encourage cycling as an alternative to car use)
 - could be extended to run along the NGT's "bypass" route all the way to Headingley Hill
 - a high quality facility could be provided if funds are available
- g) **Additional off-street short term parking for customers** (to assist businesses in Headingley and allow some reduction in on-street parking)
 - behind the Arndale Centre if NGT does not proceed (a multi-storey facility would require significant expenditure but a more modest capacity could be achieved quite cheaply)
 - at the bottom of St Anne's Rd if the proposal at 14b is carried out.

12. In front of the Arndale Centre

A southbound bus lane from just after Alma Rd to a point just short of North Lane could be created by extending the existing bus bays and moving the centre line such that the road has three southbound lanes (one for buses, one for traffic passing straight on and one for traffic turning into North Lane) and one northbound lane. It is accepted that newly arriving buses would not be able to overtake buses already at the southbound bus stop without impinging on the general traffic lane. Buses emerging from the south end of the lane could be given priority (via road markings) over traffic in the general traffic lane and so would be well placed to proceed through the North Lane junction (and, if changes discussed at 10 above have been effected, the buses emerging from the lane could be given priority to pass on through the junction. Re-landscaping of the public realm, including any necessary replacement of the recently planted trees, would need to be allowed for in the budget.



Image capture: Apr 2015 © 2015 Google

13. Between Shaw Lane and Alma Road

A short stretch of southbound bus lane might be provided in the space currently occupied by the inner of the two southbound lanes (but not if traffic turning left into Alma Rd is expected to increase as a result of additional parking described at 11g or the new access to Wood Lane described in 10c).

14. The Shaw Lane /A660 junction

As noted at 10 above, this is one of two key bottlenecks in the A660 corridor where shortage of capacity causes widespread delay. The consequences of the shortage of capacity is felt by all traffic movements and by pedestrians. Removal of conflicting movements would increase effective capacity which could then be allocated to pedestrians or to any of the remaining movements. Two alternative proposals are considered here, a minor and a major change. Either one could be combined with the provision of a pedestrian island in the mouth of Shaw Lane created by narrowing the pavement on the north side of Shaw Lane (allowing a pedestrian crossing phase to be provided at the same time as traffic is entering or exiting Shaw lane and, provided that overall waiting time is thereby reduced, offering benefit to pedestrians)

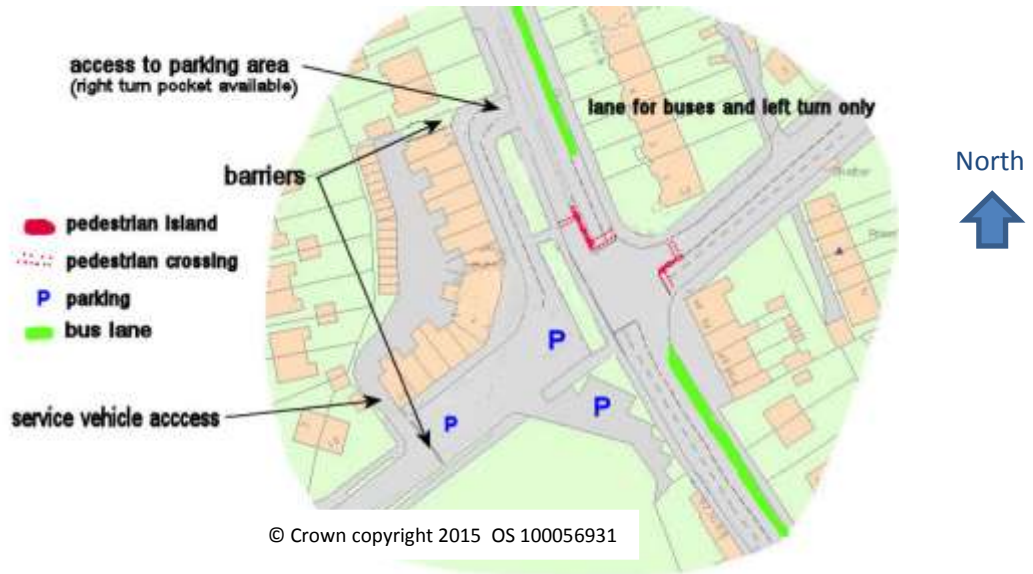
a) **Minor change – Banning the right turn into St Anne’s Road**

- not much traffic makes this movement but that which does so creates significant delay
- traffic wishing to make this movement would, instead, have to travel via Burton Crescent and Shaw Lane or via St Chads Drive.

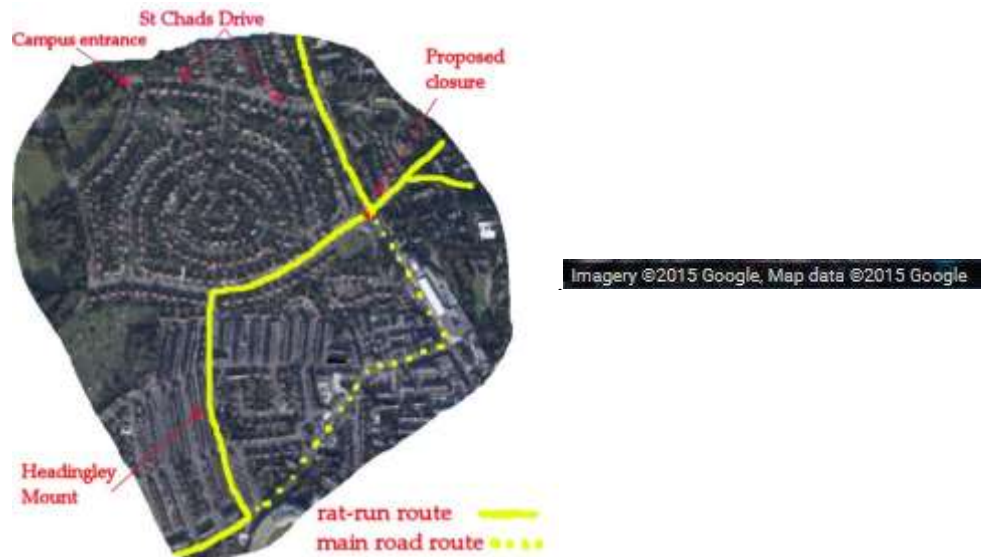
b) **Major change – closure of the bottom of St Anne’s Road – see plan**

- Access to St Anne’s Parade :
 - customers arriving by car would come and go via existing exit onto Otley Rd (with a dedicated right turn pocket provided in centre of Otley Rd possible if bus stop is moved- see 20 below). Access on foot would be simplified because the barrier presented by St Anne’s Rd would no longer exist.
 - service traffic would access the rear of the premises via St Anne’s Rd (barriers would prevent traffic from using the service road to access Otley Rd)
- The redundant stub end of St Anne’s Rd could be used to provide short term parking for local shops.

- Appropriate landscaping would be required and would be a significant expenditure.



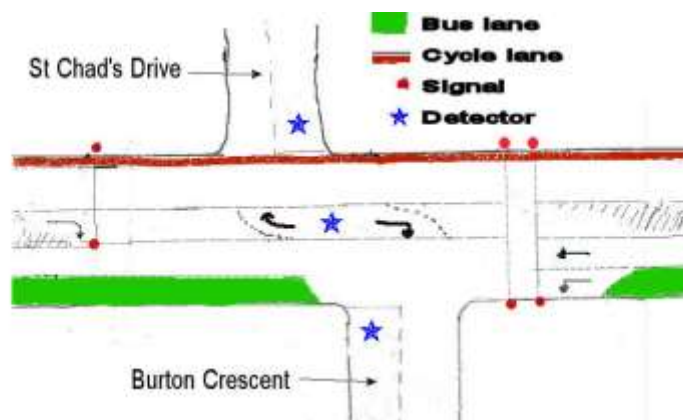
- The signal stages would be:
 - traffic from A660 north to south and turning left into Shaw lane, traffic from A660 South to north, pedestrians crossing part of Shaw Lane (between *Bowery* and new island)
 - traffic from A660 south to north and turning right into Shaw lane, traffic from Shaw Lane turning left into A660, pedestrians crossing part of Otley Rd (from north corner to island)
 - traffic from A660 turning right into Shaw Lane, traffic from Shaw Lane turning left into A660, pedestrians crossing Otley Rd
 - traffic from Shaw Lane turning left or right onto A660, pedestrians crossing part of Shaw Lane (between new island and north corner) and part of Otley Rd (from north corner to island).
- Most of the existing traffic entering or exiting St Anne's Rd at Shaw Lane is rat-running via Headingley Mount as an alternative to using North Lane. Closure of the road would reduce that flow and increase the use of North Lane.



- Traffic associated with the Beckett Park estate would have to use Headingley Mount or St Chads Drive, entry/exit from the latter could be facilitated by placing a new pedestrian crossing near that junction (see 15 below).
- Within the Beckett Park estate, priority markings at junction of Headingley Mount would indicate that the main route is between Headingley Mount and western part of St Anne’s Rd and speed bumps would be used to dissuade rat running through Beckett Park Crescent.
- Detailed modelling of traffic movements is needed to confirm our expectations about the impacts of this scheme.

15. Junctions of St Chad’s Drive and Burton Crescent with A660

Drivers can experience problems exiting from St Chads Drive and pedestrians attempting to cross the A660 to reach the bus stop south of Burton Crescent are not catered for. Both issues could be addressed by placing a signalised pedestrian crossing at this location. The best arrangement might be to locate the crossing just north of Burton Crescent with a linked set of lights to hold up northbound traffic just south of St Chads Drive (the signals could be set to red in response to a pedestrian call or to the detection of excessive delay to traffic seeking to enter or exit St Chad’s Drive or Burton Crescent). This would be preferable to full signalisation which would introduce unnecessary delays to all parties.



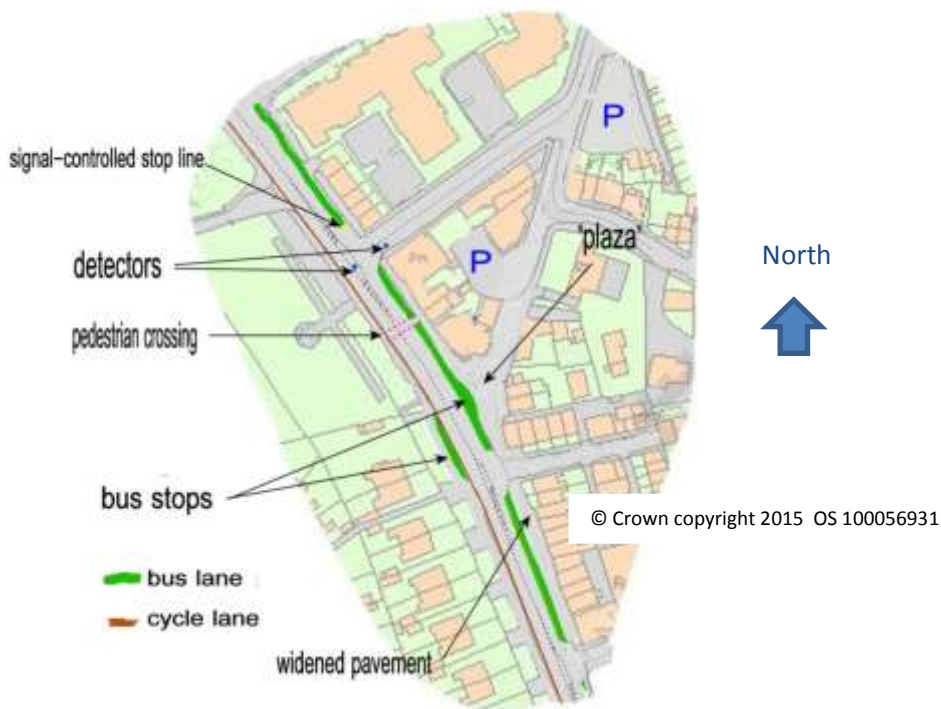
16. Weetwood Lane end

The current arrangement operates satisfactorily off peak but presents safety hazards (at Weetwood Lane end, adjacent to the bus stops on Weetwood Lane and at the exit from St Chad’s Rd onto Otley Rd). A simple solution might involve banning the right turn out of Weetwood Lane and removing obstacles in the sight-line. More radically, closure of Weetwood Lane end (with traffic diverted via St Chad’s Rd and additional traffic signals to facilitate access to and from Otley Rd – see plan) would:

- reduce the safety hazard
- allow a new southbound bus stop to be created south of the Three Horseshoes pub (serving the no.28 as well as the A660 buses and presenting less obstruction to pedestrians and to express buses which wish to overtake buses stationary at the stop)
- provide “plaza” space and/or additional short term parking spaces (appropriate landscaping would be required)
- add marginally to the time taken to exit from Weetwood Lane onto Otley Rd (southbound)
- (possibly) attract more northbound traffic onto Moor Rd to take advantage of an easier right turn onto Otley Rd – this possibility needs examination using an appropriately specified traffic model.

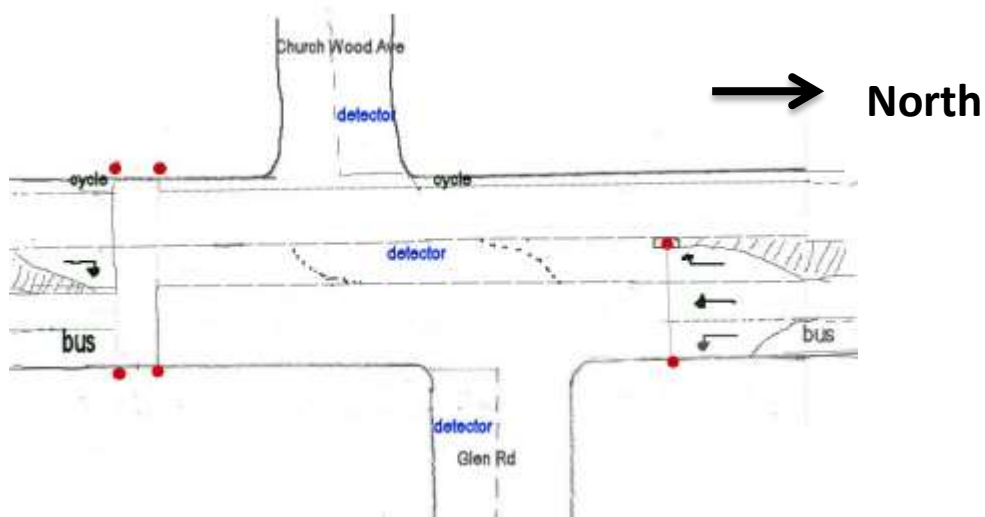
Full signalisation of the A660 St Chad’s Rd junction, as envisaged in the NGT proposals, would introduce unnecessary off peak delay and a more appropriate solution might be achieved by supplementing the

existing pedestrian crossing lights by additional, linked, signals to hold up southbound traffic just north of the junction (with the lights being called by pedestrians or by the detection of traffic waiting to enter or exit St Chad's Rd.



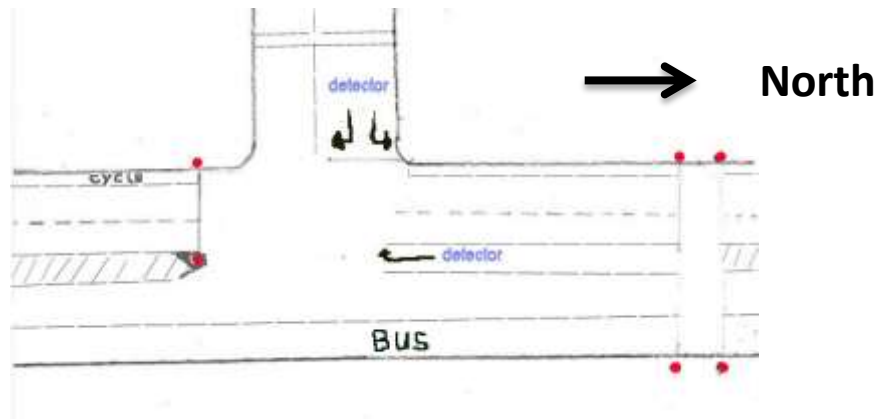
17. Junction of Church Wood Avenue and Glen Road with A660

The current arrangement results in significant delays to traffic seeking to exit from Church Wood Avenue and from Glen Rd and the resulting frustration results in some hazardous manoeuvres being attempted. The NGT proposal (full signalisation but with no right turn into Glen Rd being allowed and with traffic being allowed to exit from the side roads only in alternate signal cycles) would result in some additional delay and significant inconvenience to users of the school car park on Glen Rd. A better solution might more simply make use of the existing pedestrian crossing (which might be simplified to remove the island) supplemented by additional linked signals to hold up southbound traffic just north of Glen Rd. These signals could be set to red (allowing pedestrians to cross the A660 while traffic moves in and out of Church Wood Avenue and Glen Rd) in response to a pedestrian call or the detection of excessive delay to traffic seeking to enter or exit the side roads. This might be more efficient than full signalisation of the junction because it would not restrict the side roads to brief opportunity slots and should avoid wasteful interruption of the main flow.



18. Thornbury Avenue

The current arrangement (full signalisation) causes significant disruption to traffic, including buses, on the A660 and to traffic seeking to exit from Thornbury Avenue. A solution similar to that proposed for St Chad's Drive, St Chad's Rd and Glen Rd/Church Wood Avenue would be preferable; namely a pedestrian crossing to the north with linked lights to hold up traffic approaching from the south⁴, with these lights all being set to red in response to a pedestrian call or the detection of traffic queuing for more than a minute or so to enter or exit Thornbury Avenue.



19. Northbound bus lane on approach to West Park roundabout

Delays to northbound buses in the pm peak could be reduced by provision of a new bus lane starting just north of "The Village" junction and stretching up to the West Park roundabout. It could be accommodated within the existing carriageway if the right turn pocket into Welburn Drive can be dispensed with (as would be the case if the access to Welburn Drive from Otley Rd were closed). Similarly, it might be wise to ban right turns into and out of Welburn Grove (the short stretch of road just south of the West Park shops which can be accessed via Back Welburn Avenue). A longer stretch of lane, beginning at Ancaster Rd, might be useful but would be difficult to achieve without losing the valuable right-turn pocket into "The Village".

20. Bus stop locations

Some relocation of existing bus stops on the A660 might bring benefit to bus users. Examples include:

- moving the northbound and southbound stops near Ancaster Rd further south so as to better serve residents of The "filter beds" estate (the southbound stop would also be more convenient for people from Ancaster Rd in that it would be nearer to a pedestrian crossing)
- move the northbound stops at Church Wood Avenue south to Drummond Avenue (closer to the pedestrian crossing)
- move the northbound stop at St Chad's War Memorial south to be opposite Park Terrace (closer to pedestrian crossing and able to cater for the no.28 buses as well as A660 buses)
- move southbound stop near *Woodies* pub to a new location south of the *Three Horseshoes* pub (see 16 above) where it could cater for the no.28 buses as well as A660 buses.
- replace existing northbound stops north of St Anne's Parade and at the Horse Trough by a new stop, possibly with a bay, just south of St Chad's Drive.
- Provide new stops at the west end of St Chad's Drive (to be served by buses serving the Beckett University Campus).

⁴ Placing the crossing to the north of the junction would be most convenient for the proposed bus-stop locations itemised at 20 below although, given the location of the existing signals, the least costly change would leave the crossing to the south – the only change to the current arrangement would then simply be to remove the lights which restrict traffic leaving Thornbury Avenue and pedestrians crossing it.



21. Lawnswood Roundabout

This junction is hazardous, particularly for cyclists and pedestrians and is a significant source of delay. Introduction of appropriate traffic signals, although not cheap, would reduce the hazard and could reduce delays - most particularly to traffic on the ring road. Special priority could be provided for buses.

22. Otley Old Road /A660 junction

This junction is hazardous. Safety would be increased if it were signalised. Special priority could be provided for buses.

23. Bodington Fields

This is a good location for a bus-based Park and Ride site. The site could be served by the existing bus services (nos. 1 and X84 express) and additional services providing dedicated shuttles to the city centre, perhaps with set-down stops at the Arndale Centre and at the University of Leeds). However, given the uncertainty as to the demand and the expense involved, it would perhaps be wise to build the site in stages – starting relatively small - and monitoring to see if the demand justifies the full capacity envisaged as part of the NGT scheme.

Part B: Transport Improvements for Leeds as a whole

Aims for Leeds as a whole

- Assist the development of the economy of the Leeds City Region and increase opportunities available to Leeds residents by improving connectivity within the Leeds City Region and with other centres.
- Reduce the negative impacts of transport (emissions, wasted time and resources, casualties, frustrating/unpleasant journey experiences, environmental degradation)
- Contribute to Leeds' general aims respecting quality of life for Leeds citizens
- Address existing and anticipated transport problems.

Issues and problems

- Leeds suffers from localised peak period congestion which is modest by international standards but is recognised as a particular problem on certain routes. Particular problems are evident on the M621, the M62, the Inner Ring Road (A58(M)) and the Outer Ring Road (A6110 and A6120).
- It is generally agreed that there is a shortage of orbital road capacity, that the airport is not well connected by road or public transport and that links to other centres within West Yorkshire, across the Pennines and to Birmingham are in need of improvement .
- Leeds does not have a significant suburban rail network (the majority of public transport journeys are by bus) but rail has become increasingly important for commuters into Leeds from neighbouring towns – despite capacity problems and low quality rolling stock.
- Leeds is relatively well served with city centre car parking (a fact which has frustrated attempts to encourage drivers to use alternative modes).

General strategy for Leeds as a whole

- Make more efficient use of limited road-space (this is likely to involve encouraging the use of public transport except where journeys are too complicated/few to be efficiently served in this way)
- Make efficient use of spare network capacity (this is likely to involve more intensive use of existing rail lines and encouragement of peak-spreading)
- Encourage use of active modes (walking and cycling)
- Reduce traffic emissions and casualties
- Reduce the need to travel by promoting e-communication where/when appropriate
- Achieve positive impacts as quickly as possible subject to financial, technological, bureaucratic and political constraints.

Generic actions which would improve, and encourage use of, public transport

1. Improve the quality of public transport journeys by:
 - Improving bus journey times (requiring greater use of bus priority – through new/extended bus lanes and increased priority at signals – and reduction in boarding times by means of smart ticketing, a move towards totally cashless fares and off-bus sales of all ticket products, simplification of fare structures and renewal of bus fleet to include multiple doors and, possibly, two sets of stairs on busiest routes);
 - Progressive renewal of bus fleet (probably towards parallel Hybrid and, then all-electric);
 - Improving facilities at bus stops (shelter, real time Information, lighting, CCTV);
 - Renewal of rail rolling stock - including electrification;
 - Improving facilities at stations (increased parking, waiting areas, real time Information, lighting, CCTV); and
 - Introducing through-tickets and of tickets transferable between operators.

2. Introduce new services (bus and rail) which serve new developments (it being particularly important to serve new developments before contrary modal choices become ingrained), and which provide express links and/or increased frequency where appropriate.

Other generic actions which are needed

3. Maximise the efficiency of network operation through travel demand management by:
 - providing real time information (respecting congestion, roadworks, parking availability);
 - restricting provision of space for commuter parking in the city centre;
 - diverting traffic onto the rail network by provision of additional parking at existing rail stations and of feeder bus services serving rail stations;
 - encouraging peak spreading (via parking tariff structures, off-peak discounts for public transport fares, opening hours of public facilities, agreement with major employers and service providers);
 - encouraging e-activity as a substitute for travel (e.g. by providing e-access to public services, by promoting working from home or at community-based offices); and
 - preparing for introduction of congestion charging at particular locations (implementation likely to become necessary in due course).
4. Maximise the efficiency of network operations through traffic management, control and maintenance by:
 - continued upgrading of the Urban Traffic Management and Control systems (including provision of the most advanced systems to provide priority for buses);
 - investing in enhanced rail signalling systems (to reduce journey times, facilitate provision of higher frequency services and make most efficient use of infrastructure);
 - enforcing bus priority measures and of those parking/waiting restrictions which are designed to ensure smooth flow of traffic; and
 - ensuring adequate maintenance of infrastructure.
5. Reduce road casualties by:
 - following best practice in infrastructure design and maintenance;
 - reviewing speed limits across the city – to ensure that restrictions are appropriate to the site (not too high for safety but not so unnecessarily low as to cause frustration and bring restrictions into disrepute); and
 - having established that the restrictions are appropriate, enforce them effectively.

Specific infrastructure schemes to be considered

It is recognised that major investment in appropriate transport infrastructure can have economic benefits which extend beyond their impact on transport costs. However, it is not suggested that all these schemes could or should be adopted. Some are included simply because they are frequently referred to in public discussion and there are technical, commercial and financial reasons for seeing many of them as alternatives to one another. The order of presentation is not to be taken as indicating priority. Appropriate priorities can only be established through a careful assessment of costs, benefits, urgencies and programming constraints. Note that several of these schemes have already been identified for implementation between now and 2025.

6. Highway Schemes:

- a. Addressing capacity issues on the Leeds Outer Ring Road
 - redesign problematic intersections (e.g. at A61, A65 and A660) with traffic signals
 - more extensive treatment at other intersections (e.g. at Dawson's Corner)
 - relief road for eastern section ("East Leeds Orbital Road")
 - improvements on SW stretch of A6110 between Stanningley Bypass and the M621
- b. Addressing capacity issues on M62 and M621
 - additional lanes/use of hard shoulder
 - use of Smart Motorway Technologies
 - introduction of HOV lanes and or toll lanes?
- c. Addressing capacity issues in Leeds City Centre
 - Leeds City station for drop-off and pick-up (need for more drop-off kerb space and, separately, for more space for drivers waiting to pick up arriving passengers. Also need for better access from Wellington Street direction – possibly by allowing cars to travel east all the way along Wellington Street before turning Right into Aire Street, with Aire Street becoming one way, westbound, as far as Thirsk Row)
 - inner loop between Merrion Street and roundabout at east end of the Headrow (possibly utilising Bridge Street)
 - completion of the Leeds Inner Ring (between Armley Gyratory and Hunslet Rd) consistent with plans for new stations etc
- d. Addressing other capacity issues
 - A61, redesign junction of Scott Hall Rd with Stonegate Rd and Harrogate Rd to include traffic signals
 - A58(M), re-engineering of the Armley Gyratory junction
- e. Addressing other issues
 - improved highway link to Leeds Bradford Airport
 - East Leeds Link Road.

7. More intensive use of existing rail lines – maximum use of existing capacity being achieved by enhanced signalling and introduction of turn-rounds and bypass lines where appropriate. Inter-running of tram-train and heavy rail may be appropriate in some circumstances. The enhanced capacity would facilitate the introduction of new and expanded stations (see 8 and 9 below).

8. Provision of rail-based park and ride (P&R) facilities. Potential sites⁵ might include:

- a. **Apperley Bridge** on Aire Valley Line (under construction);
- b. **Kirkstall Forge** on Aire Valley line (due to commence construction);
- c. **Calverley** (Sandoz site) on Aire Valley line – if it can co-exist with Apperley Bridge and Kirkstall Forge, could also serve as local station for new housing development planned nearby;
- d. **Horsforth** station. Using existing station on Harrogate Line if additional parking can be provided (possibly by facilitating relocation of the woodyard) - see also 10h below;
- e. **Horsforth Woodside** on Harrogate Line (in connection with Horsforth turn-round facility?);
- f. **Leeds Bradford Airport** (on, or linked to, Harrogate line. Expensive but could serve as rail link to airport and a Park and Ride facility. An alternative approach is given at 10h below);
- g. **East Leeds Parkway** (near Micklefield on the York line, access from A1(M));

⁵ Note that the demand model used in recent assessment of new P&R sites has some undesirable features which make its forecasts unreliable.

- h. **Thorpe Park** (at J46 of M1);
 - i. **Stourton** (at J44 of M1 or J6 of M621, with rail shuttle via Wakefield/Normanton line); and
 - j. **Tingley** (at J28 on M62, utilising disused rail spur from Wakefield Westgate line. A station at this location might also serve new housing developments in the area).
9. New stations on existing rail lines or on extensions to them – possibly built to Light Rapid Transit (LRT) rather than “heavy” rail standard⁶. Potential sites might include:
- a. Serving the **east end of Leeds City Centre** – a halt on the York Line near Kirkgate;
 - b. Serving **Aire Valley Development Area** (possibly via spur from the Wakefield/Normanton rail line and/or from the York rail line at Neville Hill – possibly using alignment of disused industrial lines);
 - c. Serving **Seacroft and the new housing Development in north-east Leeds** (via spur from York rail line – possibly utilising part of the disused line to Scholes);
 - d. Serving **Beeston and Middleton** (via spur from the Wakefield/Normanton rail line – possibly using Middleton Railway alignment);
 - e. Serving existing and potential new development at **Rothwell** (via spur from the Wakefield/Normanton rail line – possibly using part of disused alignment);
 - f. Serving existing and potential new development at **East Ardsley** (or at **Woodkirk** via spur from the Wakefield Westgate rail line – possibly using part of disused alignment and possibly associated with Park and ride at Tingley – see 8j above);
 - g. At **Tyersal** on Bradford/Leeds rail line to serve existing housing and potential new housing development; and
 - h. Serving **Otley** via reopened line from Menston (running alongside bypass) or Arthington (if route through Pool is possible).
10. Partially segregated rapid transit (Light Rapid Transit - LRT, or Bus Rapid Transit - BRT). Recognising that BRT has greater flexibility and lower cost but may be replaced by higher capacity LRT if/when demand justifies it. Also mindful of the implications for bus revenues in the context of a Bus Quality Contract. Potential routes include:
- a. Existing guided bus corridors (A64 York Rd and A1 Scott Hall Rd) may warrant extension or upgrade – particularly if new developments increase potential patronage;
 - b. The route to St James Hospital;
 - c. A65 (to Kirkstall and Horsforth New Road Side);
 - d. A 653 (Dewsbury Rd);
 - e. A647 (Stanningley Rd) and to Bradford;
 - f. A58 (Easterly Rd);
 - g. A61 (Wakefield Rd); and
 - h. From Airport to Horsforth station (potentially on a new, fully segregated, alignment).
11. Improved Regional rail links. Improved links to Birmingham, Sheffield and Manchester are, of course, envisaged as part of the HS2 and HS3 projects. Leeds and the Combined Authority will want to take a view on the best means of achieving these improvements – mindful of the desirability of also achieving improved links to Newcastle and the possibility that the HS2/HS3 projects will not come to fruition in the short or medium term – if ever, and that other schemes based on existing lines might offer better value for money.

⁶ Note that the recent review of new rail stations related only to “heavy” rail and assumed that NGT would proceed.

Appendix: Results of Survey of Opinions on “Alternatives to the Trolleybus”

The North West Leeds Transport Forum presented some ideas for alternatives to the trolleybus at a series of public meetings during Spring/Summer 2015. Well over 100 people attended the meetings. Views expressed at each meeting were noted and taken into account in subsequent presentations. The ideas presented at the final meeting (on 19/6/15) were therefore different in some respects from those which had been presented at first meeting (on 28/4/15). The evolving ideas were available for more detailed study in a document on the NWLTF website.

Feedback forms were distributed at each meeting seeking attendees’ opinions on the ideas which had been presented and any further comments or suggestions. Seventy-three feedback forms were returned and have now been analysed. This paper presents a summary of that analysis.

A majority (84%) of respondents live in the area and most (82%) were aged over 50. A substantial minority (30%) had read the background document.

Respondents were asked to indicate which of a series of specified problems they experience in the area. The percentage of respondents indicating each problem were (in decreasing order):

- Traffic hazards (64%)
- Pedestrian delays (62%)
- Public transport delays (58%)
- Traffic noise, emissions and intrusion (40%)
- Parking difficulties (38%) and
- Traffic delays (30%).

An overwhelming majority (89%) indicated that they agreed with NWLTF’s general approach (namely, “to encourage, wherever possible, the use of public transport and active modes rather than cars”).

The feedback forms included a brief descriptions of key ideas presented in the meeting and were asked to indicate, for each one, whether they would support it, oppose it, or support further investigation of it.

The first set of ideas were general policies for Leeds as a whole and the responses were:

	% of respondents indicating			
	support	need for further investigation	opposition	No opinion
rail based P&R	53	13	6	28
more rail or light rail	53	23	4	19
more bus priority	83	9	0	9
improved bus boarding (via improved ticketing and bus design)	85	4	0	11
more Real time information at bus stops	81	6	0	13

The remainder of the ideas were specific proposals for changes at locations within the A660 corridor. The responses are shown overleaf. Of the 35 ideas described, all but three were supported by a majority of respondents and even for those three, the number supporting or wanting more detailed investigation exceeded the number opposed.

	% of respondents indicating			
	support	need for further investigation	opposition	No opinion
St Marks junction: redesign with banned turns	52	12	4	32
Blackman Lane: additional priority to buses	49	18	7	26
University: s'bound buses to use Blenheim Walk rather than Woodhouse Lane	49	26	2	23
Clarendon Rd junction: redesign	62	10	7	22
Hyde park Corner: redesign with banned turns and use of Moor View	52	21	11	16
Headingley Hill: n'bnd bus lane (without widening) e.g from Elinor Lupton	58	16	5	21
Headingley Hill: n'bnd bus lane (with widening if necessary)	51	21	14	15
Near Shire Oak Rd: additional pedestrian crossing	66	19	3	13
Bennett Rd: ban entry and exit from A660	45	14	25	16
North lane/A660 junction: (banned turns)	29	25	33	14
Arndale Centre: s'bound bus lane in front of building	52	25	10	14
Shaw Lane/A660 junction: ban Right turn into St Anne's Rd	68	8	3	21
Shaw Ln/A660 junction: close St Anne's Rd	49	23	15	12
St Chads Drive/A660 junction: pedestrian crossing and signals	62	14	7	18
Weetwood Lane end: closure, use of St Chad's Rd instead	43	21	17	19
Glen Rd/ Church Wood Avenue/A660 junction: redesign of signals	64	11	4	21
Thornbury Ave/A660 junction: redesign of signals	68	13	0	19
A660 south of West Park: bus lane	68	9	4	19
A660/ Ring Road junction (Lawnswood): replace roundabout with signals	53	19	10	18
A660/Otley Old Rd junction: install signals	56	15	11	18
Bodington Fields: introduce P&R site	71	8	5	15
Pavements along A660: remove obstacles to pedestrians	77	5	1	16
Bus stops along A660: move some stops to better locations	62	13	4	21
Bus lanes on A660: allow cyclist access to new bus lanes	51	22	4	23
Woodhouse Moor: introduce cycle path alongside A660	70	6	6	17
NGT "bypass" route (from Alma Rd to Headingley Hill) use as cycle path	63	10	4	23
Woodhouse Ridge: introduce cycle paths	53	19	11	16
Various location along A660: introduce more short term parking	60	6	18	17
Headingley cycle route: improved signing	60	9	9	23
Ash Rd/north Lane junction: redesign	38	31	15	15
Cardigan Rd /North Ln junction: redesign	27	27	31	15
St Ann's Lane: designate as a one-way road	54	15	15	15
Headingley: introduce more cycle stands	85	0	4	12
Beckett Park: traffic calming to reduce rat-running	58	15	12	15
A660 and Cardigan Rd: provision of bus bays where appropriate	50	27	12	12

28 July 2015