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# **NET Network Extensions**

## **Clifton via Wilford route:**

### **Local options**

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# NET Network Extensions

## Clifton via Wilford route: Local options

### Issue and Revision Record

Rev	Date	Originator	Checker	Approver	Description
A	March 2002	CTC Gibson	DA Hand	DA Hand	First Issue
B	March 2002	CTC Gibson	CTC Gibson	DA Hand	Client comments incorporated
C	April 2002	CTC Gibson	CTC Gibson	DA Hand	Capital costs amended
D	April 2002	CTC Gibson	CTC Gibson	DA Hand	Further Client comments incorporated

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## Summary

Line 1 of the proposed Nottingham Express Transit light rapid transit (LRT) system is currently under construction. This will route from Nottingham City Centre (at Nottingham station) to the north of the city. Preliminary work has been carried out to evaluate options for extending this line to provide a network serving much of the Nottingham conurbation. This has included extensions to Clifton, West Bridgford, and Chilwell via Beeston.

A number of options along each extension have been considered. These included options to the section of the Clifton via Wilford route which runs along the former Great Central Railway corridor. This Note summarises the key engineering and traffic issues for these route alternatives.

The core route via the former railway corridor provides a segregated and therefore reliably fast route, interfacing with other traffic only at simple crossings of existing highways. It also has a relatively low capital cost with no impact on existing parking and servicing requirements and no residential land acquisition/demolition. The design of the tram route on the former railway corridor will require careful consideration to mitigate any impacts on adjacent properties, but there is generally sufficient scope within the existing railway corridor to provide landscaping mitigation and to accommodate a pedestrian route along the corridor.

The alternatives route via Main Road and Ruddington Lane, and via the former railway corridor/Wilford Lane/Ruddington Lane. Both route alternatives are significantly slower and costlier than the core route. They would also be subject to potential journey time unreliability due to general traffic interface. Both routes require residential land acquisition and demolition, and impact on existing parking and servicing arrangements and on existing traffic calming measures.

These issues apply particularly on the Main Road option, where there would be difficulties in providing an acceptable solution on the southern section of Main Road in particular. We recommend that this option is not pursued further.

Subject to the findings of environmental and patronage studies, we recommend the core option as the preferred route.

# 1 Introduction

## 1.1 General

Line 1 of the proposed Nottingham Express Transit light rapid transit (LRT) system is currently under construction. This will route from Nottingham City Centre (at Midland heavy rail station) to the north of the city. Preliminary work has been carried out to evaluate options for extending this line to provide a network serving much of the Nottingham conurbation. This has included extensions to Clifton, West Bridgford, and Chilwell via Beeston.

The results of this work were recently presented to the public in a series of public consultation and exhibition events. This included presentation of several options to the core routes. Following the public consultation, Mott MacDonald have been commissioned to prepare this Note summarising the key engineering and traffic issues for the main route alternatives on the Clifton via Wilford route. Environmental and patronage/revenue issues are not considered in this Note.

This study is undertaken with assistance from subconsultants EC Harris on capital and operational costs.

## 1.2 Route options

The area covered in this Note runs from the proposed crossing of the River Trent at Wilford Toll Bridge to the southern end of the former Great Central Railway embankment at Ruddington Lane.

The routes considered are illustrated on drawing 61985/NWD/TN13/01 in Appendix A, and are:

- Core Option: This runs alongside Coronation Avenue to join and run along the former railway corridor to beyond Ruddington Lane
- CW Option 1: This diverges from the core option just prior to Coronation Avenue, and runs on street along Main Road and Ruddington Lane to rejoin the core option where the former railway crosses Ruddington Lane.
- CW Option 2 : This follows the core option along part of the former railway corridor, and diverges at the crossing of Wilford Lane. The route then runs along Wilford Lane to connect with CW Option 1, and runs along Ruddington Lane to rejoin the core option.

## 2 Route comparison

**Table 2.1: Summary of route comparison**

Options	CW Core Option	CW Option 1 (via Main Road & Ruddington Lane)	CW Option 2 (via Wilford Lane & Ruddington Lane)
<b>Permanent landtake</b>	<ul style="list-style-type: none"> <li>Landtake from area between Iremongers Pond and Coronation Avenue required</li> <li>Landtake likely to be required from Wilford Industrial Estate where adjacent properties have encroached beyond original boundaries of railway corridor</li> <li>Just south of Wilford Lane, the Ordnance Survey background shows what appears to be third party land set into the existing embankment (not observed on site). Landtake from these areas may be required</li> </ul>	<p>Strips of landtake at several locations, including:</p> <ul style="list-style-type: none"> <li>Around corner at 131 Main Road</li> <li>Around corner at 39 Main Road</li> <li>Nos 4, 8, 10, 12 and 14 Main Road and 1 Leander Close</li> <li>7 to 27 (odd) Ruddington Lane</li> <li>Possible landtake from gardens to the rear of 21, 23 and 25 Barnfield</li> </ul>	<p>Strips of landtake at several locations, including:</p> <ul style="list-style-type: none"> <li>240 to 258 (even) Wilford Lane</li> <li>281 to 285 (odd), 299 and 327 Wilford Lane</li> <li>7 to 27 (odd) Ruddington Lane</li> <li>Possible landtake from gardens to the rear of 21, 23 and 25 Barnfield</li> </ul>
<b>Proposed demolition</b>	<ul style="list-style-type: none"> <li>No demolition likely to be required</li> </ul>	<ul style="list-style-type: none"> <li>Proposed demolition of 2 Main Road</li> <li>Proposed demolition of Gas Governor, Elec. Sub Station, and nos 3 and 5 Ruddington Lane</li> <li>Possible demolition required of additional properties at Main Road/Clifton Lane/Wilford Lane/Ruddington Lane junction due to substantial landtake from frontages, &amp; may arise from further refinement of proposals through more detailed alignment consideration</li> </ul>	<ul style="list-style-type: none"> <li>Proposed demolition of Gas Governor, Elec. Sub Station, and nos 3 and 5 Ruddington Lane</li> </ul>
<b>Highway and traffic issues</b>	<ul style="list-style-type: none"> <li>New signalised junction to be provided on Coronation Avenue to facilitate tram crossing into former railway corridor.</li> <li>Volume of existing vehicle movements low along Coronation Avenue</li> <li>New signalised crossing of Wilford Lane</li> </ul>	<ul style="list-style-type: none"> <li>Tramway would run on street along Main Road, which is currently relatively narrow, has several bends and restricted visibility at priority junctions. Substantial works required to improve route to accommodate tram, in particular strips of landtake as listed above</li> <li>Existing signalised Main Road/Clifton Lane/Wilford Lane/Ruddington Lane junction to be remodelled. Tight horizontal tram alignment required through this junction, which will impose slow tram speed. No opportunity (without further landtake and demolition) to provide segregation for tram on approaches to junction</li> <li>Existing traffic calming measures on Ruddington Lane would have to be removed/reconfigured to accommodate on street tramway</li> </ul>	<ul style="list-style-type: none"> <li>New signalised junction to be provided on Coronation Avenue to facilitate tram crossing into former railway corridor.</li> <li>Volume of existing vehicle movements low along Coronation Avenue</li> <li>New signalised junction required on Wilford Lane at entry/exit from former railway corridor.</li> <li>Existing signalised Main Road/Clifton Lane/Wilford Lane/Ruddington Lane junction to be remodelled. Tight horizontal tram alignment required through this junction, which will impose slow tram speed. No opportunity (without further landtake and demolition) to provide segregation for tram on approaches to junction</li> <li>Existing traffic calming measures on Ruddington Lane would have to be removed/reconfigured to accommodate on street tramway</li> </ul>
<b>Parking and servicing issues</b>	<ul style="list-style-type: none"> <li>No direct impact on parking or servicing</li> </ul>	<ul style="list-style-type: none"> <li>Formal parking bays provided on Main Road on approach to Wilford Lane junction. These can be provided only through landtake from frontage properties</li> <li>Formal parking bays can be provided where required along southern section of Ruddington Lane</li> </ul>	<ul style="list-style-type: none"> <li>Formal parking bays can be provided where required along southern section of Ruddington Lane</li> </ul>

Options	CW Core Option	CW Option 1 (via Main Road & Ruddington Lane)	CW Option 2 (via Wilford Lane & Ruddington Lane)
<b>Structures/ earthworks</b>	<ul style="list-style-type: none"> <li>Retained embankment may be required at Iremongers Pond to minimise landtake from pond</li> <li>Partial removal of embankment north of Wilford Lane proposed and full removal of embankment south of Wilford Lane proposed to provide sufficient width for double track tramway plus associated landscaping and possible parallel footpath link.</li> <li>Reconstruction of two minor existing bridges over access tracks required north of Wilford Lane</li> </ul>	<ul style="list-style-type: none"> <li>No substantial structures required</li> </ul>	<ul style="list-style-type: none"> <li>Retained embankment may be required at Iremongers Pond to minimise landtake from pond</li> <li>Partial removal of embankment north of Wilford Lane proposed and full removal of embankment south of Wilford Lane proposed to provide sufficient width for double track tramway plus associated landscaping and possible parallel footpath link.</li> <li>Reconstruction of two minor existing bridges over access tracks required north of Wilford Lane</li> <li>Regrading of Ruddington Lane required on approach to former bridge crossing over railway corridor</li> </ul>
<b>Additional issues</b>	<ul style="list-style-type: none"> <li>Additional option possible to run at grade in playing fields immediately to east of embankment</li> </ul>	<ul style="list-style-type: none"> <li>Careful consideration of urban design issues through Wilford conservation village required</li> <li>Provides good penetration into Wilford Village, but does not serve Compton Acres area as well as core option</li> </ul>	<ul style="list-style-type: none"> <li>n/a</li> </ul>
<b>Overall route length (Nottingham Station to Clifton P&amp;R site)</b>	<ul style="list-style-type: none"> <li>Total length 7640m</li> <li>Segregated route length 4850m (63%)</li> <li>On street route length 2790m (37%)</li> </ul>	<ul style="list-style-type: none"> <li>Total length 7510m – ie <b>core option -130m</b></li> <li>Segregated route length 2410m (32%)</li> <li>On street route length 5100m (68%)</li> </ul>	<ul style="list-style-type: none"> <li>Total length 7840m – ie <b>core option +200m</b></li> <li>Segregated route length 3520m (45%)</li> <li>On street route length 4320m (55%)</li> </ul>
<b>Operational issues &amp; run time (Nottingham Station to Clifton P&amp;R site)</b>	<ul style="list-style-type: none"> <li>Run time 20 min 55 sec</li> <li>Tram runs segregated along the entire length of the former railway line. This will give rise to reliable fast journey times over this section</li> </ul>	<ul style="list-style-type: none"> <li>Run time 22 min 55 sec (with same number of stops) – ie <b>core option +120 secs</b></li> <li>Significantly higher proportion of on-street running than core option provides greater risk of unreliability and variability in tram journey times due to interface with other traffic</li> </ul>	<ul style="list-style-type: none"> <li>Run time 23 min 11 sec (with same number of stops) – ie <b>core option +136 secs</b></li> <li>Significantly higher proportion of on-street running than core option provides greater risk of unreliability and variability in tram journey times due to interface with other traffic</li> </ul>
<b>Capital cost (Nottingham Station to Clifton P&amp;R site)</b>	<ul style="list-style-type: none"> <li>£93.9m including contingency &amp; land/compensation</li> </ul>	<ul style="list-style-type: none"> <li>£103.5m including contingency &amp; land/compensation – ie <b>core option +£9.6m</b></li> <li>Land/compensation costs likely to be higher than core route due to landtake/demolition required</li> </ul>	<ul style="list-style-type: none"> <li>£102.8m including contingency &amp; land/compensation – ie <b>core option +£8.9m</b></li> <li>Land/compensation costs likely to be higher than core route due to landtake/demolition required</li> </ul>
<b>Summary of key issues</b>	<ul style="list-style-type: none"> <li>Segregated, relatively straight route with low run time and minimal interface with other traffic. Route will have high degree of run time reliability due to high proportion of segregation</li> <li>Limited land acquisition required. No acquisition of residential property/land required</li> <li>Lowest capital cost due to absence of street running tramway</li> <li>Lowering/removal of existing embankment proposed. This will provide sufficient width to accommodate landscaping and other mitigation measures, plus possible parallel footpath. This will also minimise overlooking of adjacent properties.</li> </ul>	<ul style="list-style-type: none"> <li>On street route with no practical potential for segregation of tramway from other traffic. Relatively tight horizontal alignment in some locations</li> <li>Significantly longer run time (by 2 minutes) in comparison with core route, and high risk of journey time unreliability due to interface with other traffic</li> <li>Highest capital cost due to high proportion of street running</li> </ul>	<ul style="list-style-type: none"> <li>On street route with no practical potential for segregation of tramway from other traffic. Relatively tight horizontal alignment in some locations</li> <li>Significantly longer run time (by 2 minutes) in comparison with core route, and high risk of journey time unreliability due to interface with other traffic, particularly on Wilford Lane</li> <li>Higher capital cost than core route due to longer route and proportion of street running</li> </ul>

### **3 Conclusions**

This report has summarised the key engineering and traffic issues for the routes under consideration between Main Road/Coronation Avenue and the former railway corridor south of Ruddington Lane.

The core route provides a segregated and therefore reliably fast route, interfacing with other traffic only at simple crossings of existing highways. It also has a relatively low capital cost with no impact on existing parking and servicing requirements and no residential land acquisition/demolition. The design of the tram route on the former railway corridor will require careful consideration to mitigate any impacts on adjacent properties, but there is generally sufficient scope within the existing railway corridor to provide landscaping mitigation and to accommodate a pedestrian route along the corridor.

Both route alternatives are significantly slower and costlier than the core route. They would also be subject to potential journey time unreliability due to general traffic interface. Both routes require residential land acquisition and demolition, and impact on existing parking and servicing arrangements and on existing traffic calming measures.

These issues apply particularly on the Main Road option, where there would be difficulties in providing an acceptable solution on the southern section of Main Road in particular. We recommend that this option is not pursued further.

Subject to the findings of environmental and patronage studies, we recommend the core option as the preferred route.

## Appendix A: Drawings

61985/NWD/TN13/01/P1      Clifton route options