TAG Unit 3.3.13 – Journey Ambience

Baseline Conditions

1.1. Journey ambience is assessed in terms of traveller care, traveller views in terms of extent and quality visibility and traveller stress factors. Both traveller care and traveller stress are primarily based on the transit mode chosen by the user and design of the road, and therefore no baseline conditions are known at this stage. In terms of traveller views, the baseline conditions include existing landscape in Leeds City Centre, industrial areas and suburban residential areas.

Impact of Do Minimum

1.2. The impact of the Do Minimum scenario on journey ambience is likely to be minimal and has therefore been assessed as **neutral**.

Impact of Preferred Scheme

1.3. The impact of the Preferred Scheme on journey ambience has been assessed as **strong beneficial** due to enhanced transit mode and associated infrastructure.

1.4. **Effects during Construction:** Works required for the Preferred Scheme may result in some short term adverse effects on journey ambience due to disturbance in road conditions during construction.

1.5. **Effects during Operation:** The benefits of the Preferred Scheme include better road conditions and smoother ride quality with reduced fear of potential accidents resulting from conflict with other road users. The Preferred Scheme would involve the use of electrically powered trolleybuses which when compared to diesel powered buses significantly reduces the amount of internal vehicle noise providing a beneficial effect on traveller care. The visual aspect of the Preferred Scheme on the North Line would provide beneficial effects in terms of traveller views as the Scheme would introduce an additional viewing feature of new urban space between Headingley Hill and Headingley Centre stops.

Impact of Next Best Alternative

1.6. The impact of the Next Best Alternative on journey ambience has been assessed as **moderate beneficial** due to enhanced transit mode and associated infrastructure; however, the effects of these improvements are not expected to be as beneficial as the Preferred Scheme.

1.7. **Effects during Construction:** Works required for the Next Best Alternative may result in some short term adverse effects on journey ambience due to disturbance in road conditions during construction.

1.8. **Effects during Operation:** The new fleet of hybrid buses included in the Next Best Alternative would provide beneficial effects for traveller care. The upgrades to bus lanes include improved pavements which would also

provide a beneficial effect on traveller care. The hybrid buses would run on a combination of diesel and electricity so there would be periodic engine and exhaust noise which may be audible to passengers on the bus and having a slight adverse effect on traveller stress.

Impact of Lower Cost Alternative

1.9. The impact of the Lower Cost Alternative on journey ambience has been assessed as **slight beneficial** due to improvements in public transport, however, there would only be minimal improvements to existing supporting infrastructure.

1.10. **Effects during Construction:** Minimal construction works would be required for the Lower Cost Alternative resulting in a neutral impact on journey ambience.

1.11. **Effects during Operation:** The Lower Cost Alternative includes provision of a new fleet of diesel buses of high quality modern design. This would result in slight beneficial impact on traveller care in terms of passenger comfort. There are no plans to upgrade pavements or road surfaces, to result in a smoother ride meaning the Lower Cost Alternative would have a neutral impact on traveller stress.

TAG Unit 3.3.13 - Journey Ambience: Worksheets

Methodology

Journey quality is largely affected by journey ambience. Under WebTAG Unit 3.3.13, this is assessed in terms of traveller care, traveller's views and traveller stress (frustration, fear of potential accidents, route uncertainty). These factors have been assessed from the perspective of the passenger rather than the driver. It should be noted that factors associated with journey times, public transport delay and provision of information at stations and bus stops are assessed under other WebTAG sub-objectives.

Traveller care includes:

- Cleanliness
  - Internal and external
  - Vehicle condition
- Facilities - luggage racks and storage on vehicles
- Information
  - General information including provision of timetables
  - Condition of advertising
- Environment
  - Overcrowding
  - Ventilation
  - Smoothness of ride.

New vehicles of a high standard and modern technology would be provided for the Scheme, which would contribute to traveller care. Details including interior décor and upholstery and seat vehicles have not been designed at this stage so these have not been assessed.

Travellers' views are characterised by the extent to which travellers can see (i.e. no views, restricted views, intermittent view and open view), along with the quality of these views (i.e. green open space, historical area, industrial area). It is not considered that travellers' views would significantly differ between each Scheme as, except for running through open space between Headingley Hill and Alma Road and along Brewery Wharf on the South Line for the Preferred Scheme and Next Best Alternative, the majority of the route for the options follows the similar alignment. Where the route does differ, it runs through a built-up urban area of similar view quality.

Traveller stress is influenced by:

- Frustration
  - Ride quality – road condition and perceived smoothness, performance characteristics and noise
  - Access and egress
- Fear of potential accidents
  - Presence of other vehicles
  - Presence of other vehicles (if sharing the road)
  - Possibility of pedestrians accessing the route
  - Physical separation of traffic flow
  - Width of carriageway
  - High speeds (combined with other factors)
  - Inadequate site distances
  - Inadequate lighting and visibility
- Route uncertainty and availability of route information.

For this assessment, traveller stress has been assessed based on the presence of other vehicles on the route and the potential for pedestrians and cyclists to access the route. Site distances, visibility and other factors have not been considered for this assessment as it is based on passenger rather than driver comfort.

It is anticipated that overall traveller stress would be reduced with the improvements to the services which includes provision of one or a combination of dedicated lanes, localised improvements to existing bus lanes and priority measures at signalised junctions.

The level of improvement and degree of the journey ambience benefits varies considerably between the three options. Details of the specific Scheme options are assessed in the worksheets below. Scoring is comparative between the three options and has been given using a three point scale of **Better, Neutral** or **Worse** and non-quantified assumptions about overall change are included. Qualitative comments are also provided.

Reference Sources

- Mott MacDonald (2009), NGT Project Preferred Route, Drawing nos. 236834/PRF/001 and 236834/PRF/002.
- Mott MacDonald (2009), NGT Project Next Best Alternative (NBA), Drawing nos. 236834/NB/001 and 236834/NB/002.
- Mott MacDonald (2009), NGT Project Lower Cost Alternative (LCA), Drawing nos. 236834/LC/001 and 236834/LC/002.
- Mott MacDonald (2009), NGT Constraints Mapping Book 1.
- Aerial photography/mapping.
- Steer Davies Gleave (August 2009), Leeds New Generation Transport – Interim Consultation Results.

Scheme: **Preferred Scheme**

Factor	Sub-factor	Better	Neutral	Worse
Traveller Care	**Cleanliness** The Preferred Scheme includes provision of a new trolleybus network. The trolleybuses would be designed to meet customer comfort, safety and security requirements and ease of maintenance whilst being economically viable. This includes seating and brightness of internal lighting. Vehicle cleanliness would be determined by the promoter's measures in prevention and maintenance of the facilities. Control would secure the performance of the system allowing this element to be rated better than the other the Next Best and Lower Cost Alternatives.	Better		
	Facilities The trolleybuses would be of an aspirational high quality modern design with provision for seating and handles to meet customer comfort and safety requirements.	Better		
	Information It is envisaged that general travel information including PA announcements would be provided on-board.		Neutral	
	Environment Depending on the final design, each trolleybus could have a carrying capacity of 120 to 160 passengers and at peak times, 10 trolleybuses would run an hour. It is assumed that the preferred scheme would be a mutually exclusive system on separate route profile to current services resulting in approximately 7.63 million user boardings per annum in 2016 (see below in the Journey Ambience Worksheet Supplementary Information for an explanation of the assumptions regarding this data). It can be assumed that there would be sufficient number of trolleybus services which would make the service efficient, however preventing overcrowding. It is anticipated that the modern transport mode would provide adequate ventilation and temperature control, and vehicle luggage racks and storage provision equivalent to the Next Best and Lower Cost Alternatives. The trolleybus is run on electricity rather than diesel which reduces the engine noise and eliminates exhaust noise, thereby reducing the internal noise from this source. The trolleybus mostly runs on designated lanes which allows new sections of alignment to be engineered specifically for this mode (with allowance for future provision for conversion to tram). On segregated sections the alignment would not be affected by other vehicular movements i.e. heavy traffic, so would likely maintain smoothness of ride for passenger comfort with less need for maintenance.	Better		
Traveller Views	The Preferred Scheme runs at street level. The quality of the views along specific lines where it differs is scored below. **North Line (Headingley Hill to Bodington) –** Slightly better as the route runs through urban open space between the Headingley Hill and Headingley Centre NGT stops. **North Line (City Hub to Headingley Hill) –** Neutral. **South Line –** Better as the route runs near the canal.	Better		

Factor	Sub-factor	Better	Neutral	Worse
	East Line – Neutral. **City Hub –** Neutral.			
Traveller Stress	**Frustration** As the majority of the route on offline sections would not be shared with other traffic it is anticipated that the quality of the alignment would not be affected by other road users therefore the condition of the road and ride quality would be maintained. The route geometry differs from the Lower Cost Alternative along the Brewery Wharf section of the route. This contains a number of bends which may slow down the journey and be considered uncomfortable for travellers. Alternatively, the bends could be seen as adding character to the journey and passengers may be distracted from the slower travel by the change in view along the canal. The trolleybus has level boarding and up to four double doors for access/egress.	Better		
	Fear of potential accidents The route is largely segregated running in offline sections and with priority at signalised traffic junctions. In other sections the lanes are shared with buses. Except for within the City Hub where the route is partly shared, the Preferred Scheme scored better overall in terms of presence of other vehicles and physical separation of traffic flow due to shared lanes than the Next Best Alternative and Lower Cost Alternative.	Better		
	Route uncertainty Modern user-friendly route signs and network maps would be made easily accessible pre-journey and en-route at NGT stops and within the vehicles. The permanent OHL infrastructure of the trolleybus would provide the perception of route familiarity and certainty.	Better		

Summary assessment score:

Better (strong beneficial) compared with Next Best and Lower Cost Alternatives.

Qualitative comments:

The trolleybus transit mode, designated lanes and associated infrastructure would provide a high quality aspirational system. The actual and perceived quality of ride would be superior to the Next Best Alternative and Lower Cost Alternative resulting in better journey ambience. This is further supported by the control that the service provider would have over maintenance and condition of the vehicles and stops.

In a consultation survey by Steer Davies Gleave for the Leeds NGT, the following points are noted:

- Almost 80% of respondents support/strongly support the Preferred Scheme;
- Over 50% of respondents indicated the most important feature for the overall public service is more reliable services. This was the highest rated feature; and
- 56% of respondents indicated the most important feature of new public transport vehicles as being more environmentally friendly vehicles.

Scheme: **Next Best Alternative**

Factor	Sub-factor	Better	Neutral	Worse
Traveller Care	**Cleanliness** The Next Best Alternative includes provision of a new fleet of hybrid buses. The buses would be designed to meet customer comfort, safety and security requirements and ease of maintenance whilst being economically viable. This includes seating and brightness of internal lighting. Vehicle cleanliness would be determined by the promoter's measures in prevention and maintenance of the facilities of which the promoters would not have control over so this element is rated as worse than the Preferred Scheme.		Neutral	
	Facilities The hybrid bus would be of a high quality modern design with provision for seating and handles to meet customer comfort and safety requirements.		Neutral	
	Information It is envisaged that general travel information including PA announcements would be provided on-board.		Neutral	
	Environment Each hybrid bus has a carrying capacity of 113 to 150 passengers. It is assumed that the Next Best Alternative would incorporate High Quality improvements to vehicles, service corridor, infrastructure and priority measures with the main base utilising current service network resulting in approximately 5.75 million user boarding's per annum in 2016 (see below in the Journey Ambience Worksheet Supplementary Information for an explanation of the assumptions regarding this data). The frequency of the Next Best Alternative is expected to result in a slight increase from the baseline scheme, however at this stage it is not possible to assess if this increased frequency could handle the predicted number of boarding's per annum outlined above. If the Next Best Alternative could not sufficiently handle the predicted number of boarding's per annum, this could result in overcrowding. It is anticipated that the modern transport mode would provide adequate ventilation and temperature control, and vehicle luggage racks and storage provision equivalent to the Preferred Scheme and Lower Cost Alternative. The hybrid bus runs on a combination of diesel and electricity so there would be periodic engine and exhaust noise which may be audible to passengers on the bus. The significant upgrades to the provision of bus lanes including improved carriageway surfacing should not be affected by other vehicular movements so would be more likely to maintain greater smoothness of ride for passenger comfort than for the Lower Cost Alternative, however less than for the Preferred Route.		Neutral	
Traveller Views	The entire route runs at street level. The quality of the views along specific lines where it differs is scored below. **North Line (Headlingley Hill to Bodington)** – Slightly worse than the Preferred Route which runs through open space for a short section. **North Line (City Hub to Headingley Hill)** – Neutral.		Neutral	

Factor	Sub-factor	Better	Neutral	Worse
	South Line – Better than the Lower Cost Alternative as the route runs near the canal. **East Line** – Neutral. **City Hub** – Neutral.			
Traveller Stress	**Frustration** The majority of the route runs along offline sections that will be upgraded to accommodate the Next Best Alternative. As the lanes would not be shared with other traffic it is anticipated that the quality of the alignment would not be affected by other road users i.e. heavy vehicles, thereby enhancing ride quality. The route geometry differs from the Lower Cost Alternative along the Brewery Wharf section of the route. This contains a number of bends which may slow down the journey and be considered uncomfortable for travellers. Alternatively, the bends could be seen as adding character to the journey and passengers may be distracted from the slower travel by the change in view along the canal. The hybrid bus has level boarding and up to three doors for easy access/egress.			Worse
	Fear of potential accidents The route will include bus lanes however less route segregation than the Preferred Route and more sharing with other buses. With regard to presence of other vehicles and physical separation of traffic flow this option scored worse than the Preferred Route but better than the Lower Cost Alternative which would use existing shared carriageways and bus lanes therefore greater potential for conflict with other vehicles and pedestrians utilising existing road crossings.		Neutral	
	Route uncertainty It is assumed that modern user-friendly route signs and network maps would be made easily accessible pre-journey and en-route at stops and within the vehicles. Signage may be competing with that of other buses in terms of space. Having two different bus service providers using the existing stops may result in passenger confusion.			Worse

Summary assessment score:

Neutral (moderate beneficial) i.e. better than the Lower Cost Alternative but more than the preferred option.

Qualitative comments:

The Next Best Alternative offering hybrid buses and significant upgrades to the provision of bus lanes and priority on certain routes is scored Worse than the Preferred Route but Better than the Lower Cost Alternative. This gives it an overall summary assessment score of neutral.

Scheme: **Lower Cost Alternative**

Factor	Sub-factor	Better	Neutral	Worse
Traveller Care	**Cleanliness** The option includes provision of a new fleet of single or bi-articulated diesel buses. The buses would be designed to meet customer comfort, safety and security requirements and ease of maintenance whilst being economically viable. This includes seating and brightness of internal lighting. Vehicle cleanliness would be determined by the promoter's measures in prevention and maintenance of the facilities of which the promoters would not have control over so this element is rated as worse than the Preferred Scheme.			Worse
	Facilities The diesel bus would be of a high quality modern design with provision for seating and handles to meet customer comfort and safety requirements.			Worse
	Information It is envisaged that general travel information including PA announcements would be provided on-board.		Neutral	
	Environment Each diesel bus would have a carrying capacity of 104 to 160 passengers. It is assumed that the Lower Cost Alternative would incorporate limited improvements to service corridor, infrastructure and priority measures with the main base utilising current service network resulting in approximately 0.44 million user boarding's per annum in 2016 (see below in the Journey Ambience Worksheet Supplementary Information for an explanation of the assumptions regarding this data). The frequency of the Lower Cost Alternative is expected to result in a slight increase from the baseline scheme, however at this stage it is not possible to assess if this increased frequency could handle the predicted number of boarding's per annum outlined above. If the Lower Cost Alternative could not sufficiently handle the predicted number of boarding's per annum, this could result in overcrowding. It is anticipated that the modern transport mode would provide adequate ventilation and temperature control, and vehicle luggage racks and storage provision equivalent to the other options. The engine and exhaust noise of the diesel bus would generally result in greater internal noise thereby reducing traveller comfort compared to the Preferred Scheme and Next Best Alternative. The option uses existing carriageway and existing bus lanes with no proposal to upgrade the carriageway. There would be no enhancement to smoothness of ride for passenger comfort, especially when compared with the other options.			Worse
Traveller Views	The Lower Cost Alternative runs at street level. **North Line (Headlingley Hill to Bodington)** – Slightly worse than the Preferred Scheme which runs through open space for a short section. **North Line (City Hub to Headingley Hill)** – Neutral. **South Line** – Worse as the route runs through an industrial			Worse

Factor	Sub-factor	Better	Neutral	Worse
	area compared to the Preferred Scheme and the Next Best Alternative which run near the canal. **East Line** – Neutral. **City Hub** – Neutral.			
Traveller Stress	**Frustration** The route runs along existing carriageway and existing bus lanes as a priority Scheme option. Buses would likely be delayed by other buses at stops and lanes would likely be of poorer condition which may affect ride quality. The diesel bus has level boarding and up to three doors for easy access/egress.			Worse
	Fear of potential accidents The route would use existing shared carriageways and bus lanes therefore there would be greater potential for conflict with other vehicles, cyclists and pedestrians utilising existing road crossings. The route geometry differs from the Preferred Scheme and Next Best Alternative along the Brewery Wharf section of the route. The route is generally straighter except for a sharp bend at the junction of the A61 and Meadow Lane which may be uncomfortable for travellers.			Worse
	Route uncertainty It is assumed that modern user-friendly route signs and network maps would be made easily accessible pre-journey and en-route at stops and within the vehicles. Signage may be competing with that of other buses in terms of space. Having two different bus service providers using the existing stops may result in passenger confusion.			Worse

Summary assessment score:

Worse (slight beneficial), i.e. worse than Preferred Scheme and Next Best Alternative.

Qualitative comments:

The Lower Cost Alternative scores worse than the Preferred Route and Next Best Alternative due to minimal improvements to existing infrastructure and the provision of diesel buses. Both of which would provide minimal enhancements to improve journey ambience.

WebTag Journey Ambience Worksheet Supplementary Information

Assumptions in undertaking this assessment	• In undertaking the qualitative assessment for the journey ambience worksheet one worksheet was completed for each option – 'Preferred Scheme', 'Next Best Alternative', 'Lower Cost Alternative'. • The specific theme assessed is journey ambience of travellers on the Scheme and not for the driver. How the Scheme effects other travel modes, including by walking and vehicle, has not been included as part of the assessment, however a limited assessment of cycle routes has been included.
Limitations of the Assessment	• The assessment is based on desk-top material only, a site visit has not been undertaken to view the route. • The proposal includes enhancement of cycleways for the trolleybus option, however specific detail of what this would include is not available at this stage.
Assumptions made with regards to the data	• No data is available for weekends and early AM / late PM journeys • Annualisation factors used and supplied by SDG: o AM & PM Peak Time – 551 o IP Peak Time – 2001 • Trip Data supplied from SDG (07/10/09 – NGT Forecasting) and supplied as boarding figures which have been used in the assessment. It is assumed that users are assumed to make 2 trips (equivalent to 2 boardings) and where trips in AM Peak return in PM Peak and IP period incorporates return trips. Although this is simplified no further assessment has been possible and therefore boardings have been used instead of users. In reality; trips would not be as balanced across the time periods with some users making 1 single trip while others returning between time periods.
Summary of Assessment	• The Preferred Scheme has an overall scoring of Better compared to the Next Best Alternative and Lower Cost Alternative. The trolleybus transit mode, designated lanes and associated infrastructure would provide a high quality aspirational system. The actual and perceived quality of ride would be more superior resulting in a better journey ambience than the other options. This is further supported by the control that the service provider would have over maintenance of the vehicles and stops. • The Next Best Alternative offering hybrid buses and significant upgrades to the provision of bus lanes and priority on certain routes is scored Worse than the Preferred Scheme but Better than the Lower Cost Alternative. • The Lower Cost Alternative scores worse than the Preferred Scheme and Next Best Alternative due to minimal improvements to existing infrastructure and the provision of diesel buses. Both of which would provide minimal enhancements to improve journey ambience.