

Midland Metro

2.8 Consideration of Alternatives

2.8.1 Overview

Parliamentary Powers for a scheme were secured for the majority of the route previously in the Midland Metro (No. 2) Act 1992, which authorised a route from Wolverhampton via Walsall and Wednesbury to Brierley Hill. Powers for the section of the line from Wolverhampton via Walsall were however, relinquished in 1999. Powers for the remainder of the route, between Wednesbury and Brierley Hill, were retained but expired in March 2002.

In developing the scheme, alternatives were considered for two further elements of the project: transport mode and route alignment. A summary of the findings of the option appraisal process is provided below.

2.8.2 Transport Mode

An assessment of modal alternatives, based upon the rail corridor alignment described above, was carried out. Four modal alternatives were examined ⁽³⁴⁾:

- the 'do nothing' option;
- the use of wire-guided trolley buses/conventional buses;
- a heavy rail scheme; and
- a light rail scheme.

The 'do nothing' option was compared to the public transport alternatives, but was considered to be less sustainable because of its reliance on car use.

Bus schemes were discounted because they would require a modal interchange and more complicated ticketing arrangements. In addition, it was considered that the lower levels of comfort would attract fewer motorists. Buses also have a lower passenger capacity and their journey time is affected by congestion on the roads. Bus schemes were also considered to be less attractive in terms of meeting the requirements of the Disability Discrimination Act 1995 (DDA).

Heavy rail schemes were discounted because they would require a modal interchange and more complicated ticketing arrangements. In addition, it was considered that they would reduce the ability to develop the Midland Metro Network, and not be able to penetrate Dudley and Brierley Hill town centres. It was also considered that they would attract in terms of meeting the requirements of the Disability Discrimination Act 1995 (DDA).

Track sharing was considered as a way of combining light and heavy rail services on the same sections of track. This was discounted on the basis that that it might restrict future heavy rail and Midland Metro movements, and pose a risk to the heavy rail Train Operating Company (TOC) and Midland Metro operator. Track sharing would also require Centro to become a TOC, imposing additional regulatory burdens. For these reasons, parallel running (ie light and heavy track segregation) was selected as the preferred option for those sections where the light rail scheme would be within the existing rail corridor.

In summary, the study of modal alternatives concluded that the proposed light rail scheme was more sustainable than bus or heavy rail alternatives because it would attract more car users and develop the Midland Metro Network. The preferred scheme was also considered to be a more effective catalyst for future development and urban regeneration in the corridor. An assessment of specific route options has also been carried out. The results are reported below.

2.8.3 Route Selection

Overview

Route options have been considered for the following sections:

- in the Wednesbury area (providing the connection to the existing Line 1);
- the existing rail corridor (Wednesbury – Dudley);
- Tipton Road to Castle Hill, Dudley;
- Dudley town centre;
- the existing rail corridor (Dudley – Round Oak Rail site);
- Round Oak Rail site to the Waterfront development site; and
- Merry Hill to Brierley Hill.

A description of the options considered in these sections is provided below. For each route section, details of the rejected options, and the reasons for their rejection, are presented in *Table 2.6*.

Alignment Options for Wednesbury (Line 1 Connection)

Options considered addressed the connection between the existing Line 1 and the existing South Staffordshire rail corridor. Options were required

to cater for all movements between the three approach routes (ie the Wednesbury to Brierley Hill Extension scheme and to and from both Birmingham and Wolverhampton on Line 1). In addition to the preferred scheme, two options were examined. One option provided a connection to the east of the existing rail corridor, the other to the south west.

Existing Rail Corridor Alignment Options (Wednesbury to Dudley)

These options addressed the incorporation of the light rail scheme within the existing rail corridor, whilst maintaining provision for the future reinstatement of the heavy rail route between Bescot and Round Oak. In addition to the preferred scheme, two options were examined. One option involved a parallel track arrangement, the other involved track sharing.

Alignment Options from Tipton Road to Castle Hill, Dudley

These options considered the incorporation of the scheme within the existing rail corridor between a point northeast of Tipton Road and Dudley town centre (Castle Hill), through the Former Dudley Freightliner site, which is a prospective development site. In addition to the preferred scheme, four options were examined.

Alignment Options for Dudley Town Centre

Alternative route options were considered within the town centre, between the Former Dudley Freightliner site and the Dudley Southern Bypass. In addition to the preferred scheme, four options were examined. These comprised three options for the integration of the light rail scheme within Castle Hill and an alternative alignment in the vicinity of Flood Street.

Alignment Options for the Existing Rail Corridor (Dudley to Round Oak Rail site)

The options considered the incorporation of the light rail scheme within the existing rail corridor between Dudley and Round Oak Rail whilst maintaining provision for the future reinstatement of the heavy rail route between Bescot and Round Oak. In addition to the preferred scheme, two options were examined. One option involved a parallel track arrangement, the other involved track sharing.

Alignment Options from the Round Oak Rail Site to the Waterfront Development site

Alternative route options were considered in the vicinity of the Round Oak Rail site, between the existing rail corridor and the Waterfront development site (including offices and a car park). This section of the route corridor is dictated by established development, infrastructure and topography. In addition to the preferred scheme, seven options were examined.

Alignment Options from Merry Hill to Brierley Hill

A number of route options were identified for this section of the route between Merry Hill and Brierley Hill. In addition to the preferred scheme, seven options were examined.

Table 2.6 Alternative Route Options

Route Section	Option	Description	Reasons for Rejection
Wednesbury (connection to the existing Line 1)	1A	Connection to Line 1 would be sited to the east of the existing rail corridor, within an existing industrial area (Newby Foundry). Existing Line 1 overbridge would be retained. Extensive retaining walls would be required to minimise land take and address the significant level differences associated with the site. Landtake would only affect an area of open space and part of an existing car park.	<ul style="list-style-type: none"> · An extensive viaduct would be required to maintain a grade separated link across the heavy rail route. · Landtake would be required from the Newby Foundry site.
	1B	Option formulated to address issue of land take from the Newby Foundry site. Connection to Line 1 would be situated approximately 480 m southwest of the existing rail corridor, between crossings of the River Tame and the Tame Valley canal. Route would cross derelict/industrial land to the west, following the boundary of the Newby Foundry site, prior to rejoining the existing rail corridor to the north of Tame Valley canal.	<ul style="list-style-type: none"> · Demise of development aspirations for the Newby Foundry site. · A viaduct with extensive approach embankments would be required to maintain a grade separated connection across the heavy rail route. · Potential conflict with the Broadhurst site. · Significantly greater third party land would be required.

<i>Existing Rail Corridor (Wednesbury – Dudley)</i>	2A	Parallel track arrangement, comprising four tracks (twin light rail and twin heavy rail) provided throughout the section between Wednesbury and Dudley. Extensive works would be required to accommodate the formation width, particularly within the existing narrow corridor between Walsall Canal and Tipton Road. Substantial permanent landtake would be required outside of the existing rail corridor.	<ul style="list-style-type: none"> · This element of the scheme was deemed uneconomical. · Recent development, including new housing, has utilised the additional land required to implement the option.
	2B	Twin track arrangement following rejection of the parallel four track scheme (Option 2A). Requirements for both the tram and heavy rail routes addressed by a track share agreement over the common tracks between Wednesbury and Dudley. Alignment would generally be accommodated within the existing rail corridor, with only significant works required for the remediation of existing structures, access provision to stops and reinstatement of the track formation. Connections onto the segregated light rail and heavy rail tracks at each end of the section would involve specific junction and signalling arrangements.	<ul style="list-style-type: none"> · Railtrack/Strategic Rail Authority (SRA) intentions for the reinstated Bescot to Round Oak Rail heavy rail (freight) route, with an increased level of service, were incompatible with the shared track scheme criteria. · Obtaining an appropriate agreement with Railtrack/SRA proved difficult.
<i>Tipton Road to Castle Hill, Dudley</i>	3A	Grade separated crossing of Tipton road, requiring the partial demolition of a tunnel and a new skewed overbridge. To the southwest of Tipton Road, the route would enable an at-grade crossing of Station Drive. Alignment would then turn east through a public car park, past Krushh night club and would enter Castle Hill, adjacent to the main entrance to Dudley Zoo. Latter section of the route comprises two locations with scope for siting alternative or additional stops.	<ul style="list-style-type: none"> · Between Station Drive and entry onto Castle Hill, the route conflicts with the current aspirations for redevelopment of the Former Dudley Freightliner development site. · Potential conflict and safety issues arising from close proximity of the scheme to the Krushh night club. · The disruption and substantial works (including a temporary highway diversion) required during construction of the proposed overbridge on Tipton Road
	3B	Moving away from the existing rail corridor, the route would utilise the tunnel to the existing Tipton Road overbridge, to enable a grade separated crossing into the Former Dudley Freightliner development site. As only a limited width would be available through the tunnel, a single (bi-directional) track arrangement would be adopted over a length of approximately 500m, including both approaches. To the south of Tipton Road, the alignment would be similar to Option 3A.	<ul style="list-style-type: none"> · The required length of single (bi-directional) track was deemed unacceptable to the overall operation and anticipated level of service of the scheme. · The alignment and single track arrangement would be unsuitable for accommodating a stop in the vicinity of Tipton Road. · This option also gave rise to potential access problems on Station Drive. · Potential conflict and safety issues arising from close proximity of the scheme to the Krushh night club.
	3C	Shared track arrangement within the existing rail corridor would	<ul style="list-style-type: none"> · The disruption and substantial works, including a temporary highway

		continue to the south of Tipton Road, utilising the existing overbridge. Though the existing structure provides adequate clearance, substantial works would be required to strengthen or replace the deck and address the current weight restriction imposed on Tipton road traffic. South of Tipton Road, the route would deviate from the rail corridor, adopting a similar alignment to Options 3A and 3B.	<p>diversion, required during reconstruction of the existing overbridge on Tipton Road.</p> <ul style="list-style-type: none"> · The alignment would be unsuitable for accommodating a stop in the vicinity of Tipton Road. · This option also gave rise to potential access problems on Station Drive. · Potential conflict and safety issues arising from close proximity of the scheme to the Krushh night club.
	3D	Option developed through discussions with Dudley MBC to define a northern/western boundary for alternative routes across the Former Dudley Freightliner site, thereby retaining flexibility for any future development. Moving away from the existing rail corridor, the alignment would cross Tipton Road approximately 70 m north of the existing bridge and continue across the Former Dudley Freightliner site. Following the existing boundary to Dudley Zoo and Castle, the demolition of an outbuilding and electricity substation would be required, prior to adopting a similar alignment to Option 3A in the vicinity of the nightclub. Alternative vertical alignments were considered to enable both at-grade (signal controlled) and grade separated (bridge) crossings of the elevated Tipton Road, requiring substantial embankments and cuttings, respectively, on the approaches.	<ul style="list-style-type: none"> · The route conflicts with the current aspirations for the redevelopment of the Former Dudley Freightliner site. · The route alignment would impact on the proposed redevelopment of the Ashmore / Guest Hospital sites to the northeast of Tipton Road. · A zoo outbuilding and electricity sub-station would require demolition.
<i>Dudley Town Centre</i>	4A	Segregated track arrangement, with the light rail corridor utilising the existing eastbound carriageway of Castle Hill (dual two lane road) between entry/exit points at the Trindle Road and Birmingham Street (N) junctions. Highway would be reduced to a single carriageway width and would be locally realigned within the existing westbound carriageway. Both the Trindle Road and Birmingham Street (N) junctions would be signal controlled and would incorporate pedestrian crossing facilities. All on-street parking would be removed while access to frontages on the southern boundary of Castle Hill would be maintained via local uncontrolled at-grade crossings of the light rail route.	<ul style="list-style-type: none"> · Restrictions on access to existing retail and commercial premises on the southern boundary of Castle Hill, including the Station Hotel. · Potential for traffic impacts on Castle Hill. · Concerns over safety raised by HMRI.
	4B	Similar to Option 4A, involves a segregated track arrangement, although the light rail corridor would utilise the existing westbound carriageway of Castle Hill between entry/exit points at the existing Trindle Road and Birmingham Street (N) junctions. Highway	<ul style="list-style-type: none"> · Restrictions on access to the existing retail and commercial premises on the northern boundary of Castle Hill, in particular, the Dudley Zoo main entrance. · Potential for traffic impacts on Castle Hill.

		would be reduced to a single carriageway width and locally realigned within the existing eastbound carriageway. All other arrangements would be as Option 4A.	<ul style="list-style-type: none"> Concerns over safety raised by HMRI.
	4C	A shared track alignment, with the tram tracks diverged and utilising the existing nearside lanes of both carriageways on Castle Hill, between the entry/exit points at the existing Trindle Road/Birmingham Street (N) junctions. Within the nearside lanes the alignment would be street-running, shared with buses only. Both the Trindle Road and Birmingham Street (N) junctions would be signal controlled, incorporating pedestrian crossing facilities. All on street parking would be removed, with access to frontages on the northern boundary of Castle Hill maintained via uncontrolled at-grade crossing of the tram route.	<ul style="list-style-type: none"> Restrictions on access to existing retail and commercial premises on the northern boundary of Castle Hill. Potential for traffic impacts on Castle Hill. Concerns over safety raised by HMRI.
	4D	Option utilises a greater length of the existing highway, with the light rail corridor realigned further west. The route would be located closer to existing frontages to the west of Flood Street, including a fencing contractor, commercial offices and a retail outlet, with restrictions on access to these premises.	<ul style="list-style-type: none"> Discussions with affected parties to the west of Flood Street indicated that the route would compromise existing access arrangements and thereby compromise the viability of the businesses.
<i>Existing Rail Corridor (Dudley – Round Oak Rail site)</i>	5A	As with Option 2A, Option 5A involved a parallel track arrangement comprising four tracks (twin light rail and twin heavy rail) provided throughout the section between Dudley and Round Oak Rail. Extensive works would be required to accommodate the formation width including a new viaduct (Parkhead Locks), retaining structures and the widening of cuttings and embankments. To accommodate these works, substantial permanent landtake would be required outside the existing rail corridor.	<ul style="list-style-type: none"> Following a review of the proposed Midland Metro network, this element of the scheme was deemed uneconomical. Recent development including new housing, has utilised the additional land required to implement the option.
	5B	As with Option 2B, Option 5B involved a twin track arrangement with the requirements for the light rail and heavy rail routes addressed by a track share agreement over the common tracks between Dudley and Round Oak Rail. Alignment would generally be accommodated within the existing rail corridor. Significant works would be required for the remediation of existing structures, access provision to stops and the reinstatement of the track formation. Connections onto the segregated tram and heavy rail tracks at each end of the section would involve specific junction and	<ul style="list-style-type: none"> Railtrack/Strategic Rail Authority (SRA) intentions for the reinstated Bescot to Round Oak Rail heavy rail (freight) route, with an increased level of service, were incompatible with the shared track scheme criteria. Attaining an appropriate agreement with Railtrack/SRA proved difficult.

		signalling arrangements.	
<i>Round Oak Rail site to the Waterfront development site</i>	6A	Option would continue within the existing rail corridor south of the Canal Street underbridge and would cross the operational site (main access, rail siding and HGV parking/turning area) of the Round Oak Rail and Norish Food Care premises. To minimise impact on these operational areas, a viaduct with clear spans and highway clearance (5.1m) was proposed. The viaduct would extend across Dudley Canal, with the route crossing the realigned Waterfront Way and entering the adjacent car park at-grade. Alternative vertical alignments were considered to enable both at-grade (signal controlled) and grade separated crossings of Waterfront Way.	<ul style="list-style-type: none"> · From discussions with personnel at Round Oak Rail and Norish Food Care, this option was considered to be prohibitive to the current operation and future development of the sites, particularly during construction, resulting in the potential extinguishment of the businesses. · High construction cost associated with the extensive viaduct. · Potential for significant compensation and disturbance costs associated with Round Oak Rail and Norish Food Care.
	6B	Option would cross the Round Oak Rail and Norish Food Care sites, but would involve a reverse curve alignment to retain the current operational areas. Elevated alignment would be adopted to maintain grade separated (bridged) crossings of the rail sidings and main access to the Norish Food Care site, with the intermediate lengths on the retained embankment. Intention of this option was to redefine the boundary between the Round Oak Rail and Norish Food Care premises, requiring an exchange of land between the two parties. Without this boundary redefinition, additional access would be provided across the route to avoid sterilising tracts of land within each site. Option would also require the demolition of a vacant office building within the Round Oak Rail site. To the south of the Norish Food Care site, a curved structure would be required across Dudley Canal, with an at-grade crossing of a realigned Waterfront Way, prior to adopting a similar alignment to Option 6A within the adjacent car park.	<ul style="list-style-type: none"> · As with Option 6A, Option 6B was considered to be prohibitive to the current operation and future development of the site, particularly during construction and would result in the potential extinguishment of the businesses. · Option was dependant on the exchange of lands between the two premises, a transaction that cannot be empowered within the TWA Order. Could only be undertaken by agreement between the respective landowners. Considering their opposition to the scheme, such an agreement was considered unlikely. · High construction cost.
	6C	Moving away from the existing rail corridor to the north of the Canal Street underbridge, alignment would bisect the former Hill & Smith site on an embankment. A skewed bridge crossing of Dudley Canal would be required at the northeast corner of the Round Oak Rail premises. The alignment includes scope for locating a stop within the former Hill & Smith site, in place of the provisional Canal Street stop.	<ul style="list-style-type: none"> · Demise of development aspirations for the former Hill & Smith site. · Potential for loss of parking at the contract parking area.
	6D	Option would adopt a route within the vicinity of Dudley Canal and the Waterfront stop. Alignment is	<ul style="list-style-type: none"> · Demise of development aspirations adjacent to Dudley Canal.

		generally located at ground level, through the Victorian Engineering premises (to be demolished) and the Waterfront car park. Option would be dependant on a significant realignment and the extension of Waterfront Way to Pedmore Road to enable an at-grade crossing of the road.	<ul style="list-style-type: none"> The curtailing of the proposed scheme for the realignment and extension of Waterfront Way. Potential for loss of parking spaces at the Waterfront development site.
	6E	Deviating from the preferred scheme alignment, option follows the eastern boundary of the Round Oak Rail premises, prior to a skewed crossing of Dudley Canal. Option would affect the north eastern corner of the Round Oak Rail site, requiring the relocation of two existing temporary buildings. Extensive viaduct would be required to support the scheme above the steep cutting slope and across the canal. South of the canal, an at-grade crossing of the Round Oak Rail access road would be required, prior to adopting a similar alignment to the preferred scheme.	<ul style="list-style-type: none"> Construction works, particularly the viaduct, would require access into the Round Oak Rail premises and would affect operational areas of the site.
	6F	On leaving existing rail corridor to the south of the Pensnett Canal underbridge, option crosses the Jewson and former Hill & Smith sites on an embankment. Skewed bridged crossing of Dudley Canal would be required with a clear span of approximately 45m, before an alignment similar to the preferred scheme is adopted. Option would include scope for locating a stop within the former Hill & Smith site, in place of the provisional Canal Street stop.	<ul style="list-style-type: none"> Demise of development aspirations for the former Hill & Smith site. Significant impact on third party lands.
	6G	As with Option 6F, Option 6G crosses the Jewson and former Hill & Smith sites on an embankment. To the northeast of the Round Oak Rail premises, the option adopts a similar alignment to Option 6E. Option would include scope for locating a stop within the former Hill & Smith site, in place of the provisional Canal Street stop.	<ul style="list-style-type: none"> Demise of development aspirations for the former Hill & Smith site. Impact on third party lands.
<i>Merry Hill to Brierley Hill</i>	7A	Option would leave the preferred scheme to the west of Dudley Canal and would adopt a direct alignment through to the proposed terminus, located in the vicinity of the Little Cottage Street/Cottage junction. Option would require the demolition of three premises, namely the leisure centre, social services area office (temporary building) and a district housing office. Existing access road to the leisure centre would be blocked, with an alternative access to the residual site provided from Little Cottage Street. Alternative arrangements would be considered	The draft TWA Order and associated Limits of Deviation (LoD) encompass this option as a viable alternative to the preferred scheme, but only on the basis that the removal/replacement of the leisure centre is implemented by a third party.

		for the terminus and immediate approach, to address the (possible) implementation of a new link road ('Brierley Hill Parallel Route') by the local highway authority (Dudley MBC). Though there are no current planning requirements, an indicative alignment could be considered between Mill Street and Level Street, with an at-grade crossing of the light rail route in the vicinity of the leisure centre/Cottage Street.	
	7B	Deviating from the preferred scheme to the south of Level Street roundabout, the Dudley Canal bridge and approach embankments would be relocated approximately 60m to the north. Beyond the crossing, the alignment would be parallel to the canal, but with a significant difference in level. Option includes scope for locating a stop to the west of the canal, in place of the Merry Hill stop. Access to the eastern side of the canal, including the canal side plateau and shopping centre, would be provided via separate pedestrian bridges.	<ul style="list-style-type: none"> · Demise of development aspirations for the vacant site. · The geometry of the alignment required to facilitate this route would not be desirable in operational terms.
	7C	Deviating from the preferred scheme in a similar location to Option 7B, Option 7C requires a skewed bridge, with a clear span of approximately 65m, across Dudley Canal. The route would then cross through the former Brier school playing fields, and would require a substantial cutting towards the Brierley Hill terminus. Throughout this section, the alignment is dictated by existing development, in particular Wheeler Tubes (industrial premises), the leisure centre, health centre and social services area office, with retaining walls required to minimise any landtake. To attain the existing ground level, an at-grade crossing of Cottage Street could be provided on the immediate approach to the terminus.	<ul style="list-style-type: none"> · Demise of development aspirations for the vacant site. · Significant impact on third party development lands.
	7D	Option would run parallel to Dudley Canal. Option would utilise existing canalside plateau and would require the use of a retaining wall. Throughout this section, the alignment is dictated by a proposed cinema development (with plans for the Merry Hill Cinema stop) and retaining walls would be required to minimise landtake. The alignment would be supported by the existing cinema multi-deck structure. The proposed Dudley Canal underbridge would provide direct access to Brierley Hill. A steep climb towards the existing leisure centre annex (which would be demolished) would follow. The terminus would be located within the ASDA car park,	<ul style="list-style-type: none"> · Demise of the development aspirations for the existing canalside plateau, particularly as part of the enabling works and support structures addressed by the proposed development. · Potential impacts on the Leisure Centre.

		with an at-grade crossing of the light rail route in the vicinity of the leisure centre/Cottage Street. Option would necessitate the demolition of three premises – the leisure centre annex, social services area office (a temporary building) and the district housing office. The existing access road to the leisure centre would be blocked with an alternative access to the residual site provided from Little Cottage Street.	
	7E	Option would run on a section of existing road called The Embankment. Option would leave The Embankment utilising the existing canalside plateau. It would acquire the establishment of the plateau with the use of the retaining wall. Throughout this section, the alignment would be dictated by proposed development plans and existing development. Similarly to Option 7D, alignment would take a direct approach to Brierley Hill with a steep climb at Dudley Canal underbridge (retaining walls would be required to minimise any landtake). Alignment would then head towards the existing leisure centre annex and approach the terminus within the ASDA car park. An at-grade crossing of the light rail route would be required in the vicinity of the leisure centre/Cottage Street. Option would necessitate the demolition of three premises – the leisure centre complex, social services area office and the district housing office. The existing access road to the leisure centre would be blocked, with an alternative access to the residual site provided from Little Cottage Street.	<ul style="list-style-type: none"> · Impact in third party lands. · Fit with development aspirations for the canalside area.
	7F	Option would run along existing development and alongside The Embankment, providing a stop near Merry Hill Shopping Centre. The existing KFC development would be demolished to enable the route to approach The Boulevard and join Mill Street. The existing highway, The Boulevard, Mill Street and roundabout would be realigned to accommodate the option. The alignment would approach the terminus located within the ASDA car park with an at-grade crossing of the tram route. Option would necessitate the demolition of four premises – KFC, the properties between the health centre and Mill Street, the social services area office and a district housing office.	<ul style="list-style-type: none"> · Operational constraints. · Potential for traffic impacts on Mill Street. · Significant capital costs required. · Fit with development aspirations for the canalside area.
	7G	Similarly to Option 7F, Option 7G route would run alongside the existing highway. Land would be obtained from adjacent properties to accommodate the light rail	<ul style="list-style-type: none"> · Operational constraints. · Potential for traffic impacts on Mill Street.

		route. The route would share the same alignment as Option 7F once the route crosses Little Cottage Street.	<ul style="list-style-type: none"> · Significant capital costs required. · Fit with development aspirations for the canalside area.
	7H	For this option, the route crosses over the existing roundabout at Level Street on a structure (requiring revisions to the junction), then turns westwards crossing Dudley Canal on a further structure. The alignment then continues parallel and at grade to Level Street crossing the access to Swallows Rise Business Park and the access into Williams & Son furniture store and the junction with Old Bush Street. On reaching the northerly ASDA car park access road it turns southwest along this road and into and through the car park dissecting it before reaching Little Cottage Street where it terminates at the junction of southerly ASDA access road. The terminus would be located within ASDA car Park.	<ul style="list-style-type: none"> · Land take required from properties fronting the south side of Level Street between the junction at The Embankment and the northerly ASDA access road. · Access to these commercial properties and those in Old Bush Street would be affected by this alignment. · Route would require the stopping up of the both north and south access roads to ASDA and alternative access and replacement alternative parking would have to be provided. · Two new structures would be required over the Level Street/Waterfront roundabout and over Dudley Canal, including a steep climb.

2.8.4 The Preferred Route

A number of route alignment options have been considered during the development of the scheme, as described above in *Table 2.6*. A number of these options have been investigated in response to ongoing consultation with the SMBC, DMBC, Network Rail and landowners. In summary, the justification for selecting the preferred route has been based on a balance between engineering, economic, transport, planning and regeneration issues.

The preferred route corridor for the Wednesbury to Brierley Hill scheme was selected as it offered a number of significant advantages:

- The corridor utilises a mothballed rail alignment ⁽¹³⁵⁾ (the South Staffordshire Junction Line and the Oxford, Worcester and Wolverhampton Line) for the majority of its length. Compared with a new corridor, the use of an existing rail alignment reduces the landtake necessary for the construction of the scheme and also minimises impacts on other modes of transport.
- The corridor is well integrated into both current and future land uses, minimising impacts on existing residential and commercial areas.

The scheme provides public transport access to areas where there is currently limited provision; it is also well located to provide public transport to future development sites.

(11) Although the rail corridor has not been in use for several years, it is not formally designated as being disused. For the purpose of this ES, 'corridor' is taken to mean all of the land under Network Rail's ownership, referred to as the South Staffordshire Junction Line and the Oxford, Worcester and Wolverhampton Line.

(12) Measures taken in order to avoid, reduce and, if possible, remedy any significant adverse effects on the environment.

(13) **The Transport and Works (Applications and Objections Procedures) (England and Wales) Rules 2000**, Statutory Instrument 2000 No. 2190.

(14) DETR and the National Assembly for Wales (November 2000) **Environmental Impact Assessment: A guide to procedures**.

(15) Department of the Environment, Transport and the Regions (2001) **A Guide to the Transport and Works Act 1992 Procedures**, DETR, HMSO.

(16) United Nations Economic Commission for Europe.

(17) Centro (2003) **Midland Metro Wednesbury Brierley Hill, Consultation Report**.

(18) Centro (2003) op. cit.

(19) ERM (2003) **Midland Metro Birmingham City Centre Extension Environmental Statement**, February.

(20) Light Rail Central: The North American Light Rail Information Site (www.lightrail.com/definition.htm)

(21) International Association of Public Transport (UITP) www.uitp.com.

(22) Clarke W (1987) **Light Rail for Liveable Cities**, UITP, (www.uitp.com).

(23) HSE and Her Majesty's Railway Inspectorate **Accident Database**, 1 April to 31 March 2001.

(24) DTLR (2001) **Transport Statistics Great Britain 2001 Edition** (www.transtat.detr.gov.uk)

- (15) International Association of Public Transport (www.uitp.com)
- (16) West Midlands Passenger Transport Authority and Centro (2000) **20 Year Public Transport Strategy**.
- (17) Government Office North West (November 2001) **The West Midlands Area Multi-Modal Study, Final Report**.
- (18) Draft Regional Planning Guidance (RPG 11) for the West Midlands, November 2001.
- (19) Centro (June 2000) **Midland Metro Future Routes Initial Outline Business Case: Extensions to Midland Metro Line 1, Birmingham City Centre Tramway and Wednesbury to Brierley Hill**.
- (20) West Midlands Joint Committee (August 2001) **West Midlands Local Transport Plan 2000**.
- (21) West Midlands Passenger Transport Authority/Centro (2000) **20 Year Public Transport Strategy**, March
- (22) For the purpose of this ES, the term 'formation' refers to the operational part of the corridor, which includes the top of the embankments, bottom of cuttings and land at grade, including the rails.
- (23) A metal basket, usually containing aggregate material, used for fortification and in engineering.
- (24) An at-grade crossing is one that is located at the level of the proposed alignment, as opposed to a grade separated crossing, which utilises an elevated structure such as a footbridge.
- (25) The Royal Fine Art Commission (now the Commission for Architecture and the Built Environment) (June 1999) **The Design of Light Rail Systems**, A Royal Fine Art Commission Circular.
- (26) Centro (2003) **Design Guidelines, Midland Metro**.
- (27) MVA (August 2000) **Midland Metro Future Routes Study - Birmingham City centre Tramway and Wednesbury to Brierley Hill Extension: Evaluation Report**.
- (28) Centro (2003) op cit.
- (29) A site located in the stabling area which can be used for internal cleaning of vehicles.
- (30) Midland Metro: Birmingham City Centre Extension and Wednesbury to Brierley Hill Extension, Code of Construction Practice, December 2002 (Draft 7).
- (31) Babbie Group (February 2003) **Midland Metro Line 3 (Wednesbury to Brierley Hill) Construction Strategy Report**.
- (32) CIRIA **Special Publication 32: Construction Over Abandoned Mine Workings**.
- (33) Based on information provided by Babbie Group, February 2003. The figures assume that around 45% of spoil arisings will be contaminated, with 55% non-contaminated material re-used on site, and an HGV capacity of 8 - 10 m3.
- (34) Centro (June 2000) Midland Metro Future Routes: **Initial Outline Business Case - Extensions to Midland Metro Line One Birmingham City Centre Tramway, Wednesbury to Brierley Hill**.
- (35) Although the rail corridor has not been in use for several years, it is not formally designated as being disused.