

Report of the Head of Service (Major Works) to the meeting of the Executive to be held on 18 September 2003

Subject:

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**Aire Valley Transport Strategy
Re-evaluation of Historic Road Construction Proposals**

Summary statement:

This report re-evaluates historic road construction schemes in the Shipley area in the light of the imminent opening of Bingley Relief Road. The proposals are considered in the context of current conditions and Bradford's strategic transport objectives. Schemes are ranked according to their viability as local road improvements following the proposed de-trunking of the A650/A629.

A series of Local Transport Strategy measures is identified to relieve traffic congestion and public transport delays whilst facilitating environmental improvements on existing roads. Short term improvements which could be introduced to minimise potential problems following the opening of Bingley Relief Road are also identified.

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Aire Valley Transport Strategy Re-evaluation of Historic Road Construction Proposals

EXECUTIVE SUMMARY

1) Matter for Consideration

Development of a transport strategy for the Shipley/Saltaire/North Bradford area in the light of the imminent opening of Bingley Relief Road, subsequent de-trunking of the A650, previous public consultations and historic major construction road proposals for the A650/A657 corridor.

2) Background Information

- a) The Executive has previously considered a report on consultations carried out in 2002 with residents of the Aire Valley affected by current and future transport problems in the A650/A657 corridor. A strong level of support had been expressed for public transport and major traffic management improvements. Considerable support had also been given to new carriageway construction as well as significant opposition to such work. As a result, this report re-evaluates historic construction proposals against current conditions and strategic transport objectives.
- b) Bingley Relief Road is due to open in the autumn of 2003 followed by de-trunking of the A650/A629 in April 2004. Constraints to further construction, including the Saltaire World Heritage Site, are shown in Figures 1 & 2.
- c) Previous proposals to solve the *trunk road* problems of the area are summarised in Figures 3 – 12. A Local Transport Strategy to follow *de-trunking* is shown in Figures 14 & 15. Short-term bus priority and environmental / safety measures are also possible.
- d) The aim of the Local Transport Strategy would be to meet transport and planning objectives at an affordable cost whilst minimising the environmental impact. The strategy includes a number of possible small-scale highway & public transport measures as well as new single carriageway construction to provide relief to existing congested parts of Shipley and the opportunity for environmental improvements.

3) Key Issues

- a) The historic schemes shown in Figures 3 -12 are all very costly and/or have a very damaging impact on the local environment, particularly the Saltaire World Heritage Site. They would be unlikely to receive Government support as improvements to the *local* highway network.
- b) The Local Transport Strategy options shown in Figures 14 & 15 would be less costly/environmentally damaging although many adverse impacts would remain. Some of these proposals would impact on charitable land and may require the provision of replacement playing fields & recreational areas.
- c) The Executive is asked to:
 - i) Abandon further consideration of historic schemes at the present time;
 - ii) Agree to proceed with more detailed investigation of the proposed Local Transport Strategy with a view to public consultation in 2004 and the submission of a funding bid in 2005;

Aire Valley Transport Strategy Re-evaluation of Historic Road Construction Proposals

1. Summary

- 1.1 This report presents a re-evaluation of historic road construction proposals in the Shipley area in the light of the imminent opening of Bingley Relief Road. The viability of these and a number of other improvements to the highway network are considered in the context of current conditions and Bradford's strategic transport objectives.

2. Background

- 2.1 At its meeting on 23 July 2002, the Council's Executive considered a report on consultations with residents of the Aire Valley affected by current and future transport problems in the A650/A657 corridor. The consultations had identified a strong level of support for public transport and major traffic management improvements in the area. There was also considerable support for new carriageway construction within the corridor but also significant opposition to such construction. As a result, Executive resolved that officers re-evaluate historic road construction proposals in the corridor linking the new Bingley Relief Road to the road system south of Shipley and Saltaire. The identification of possible and affordable highway improvements was requested to provide enhancements for private car use without detriment to public transport and other road users. Such improvements were to be evaluated against current conditions and Bradford's strategic transport aims and objectives. The Executive recognised the strong public support for public transport and major traffic management improvements as well as the significant support for new road building
- 2.2 The A650 road through Bingley and Shipley is a trunk road and is the responsibility of the Government through the Highways Agency. Bingley Relief Road is currently under construction by the Highways Agency and is due to open to traffic in the autumn of 2003. Responsibility for the maintenance of this road and the rest of the trunk road network in the Aire Valley is due to pass to the Council in spring 2004 on de-trunking of the A650/A629.
- 2.3 A large number of major road schemes for the lower Aire Valley and Bradford Beck Valley (Otley Road/Valley Road/Canal Road corridor) have been considered over the past 25 years. Some of these schemes have been promoted by the Highways Agency or its predecessors and some by the Council as local highway authority. The intended purpose of them all has been to solve the traffic problems of the A650 trunk road and other major feeder roads through Saltaire and Shipley (Figure 1 in Appendix A). This report combines, updates and summarises those schemes as a number of route options between Bingley Relief Road and Canal Road just south of Bradford Outer Ring Road and assesses them against various constraints, opportunities and current transport strategies.
- 2.4 Some of the planning constraints and opportunities within the area are shown on Figure 2 in Appendix A. Other opportunities are recognised in Bradford's 2020 Vision. The vision for Airedale includes the following detail: "*A quality environment is a key factor in attracting and retaining the skilled knowledge workers that the area will need. The opportunities created by the completion of the Aire Valley trunk road*

will have brought about major environmental improvements in the valley towns and villages. The River Aire will improve to become one of the areas greatest assets, providing a habitat for an increasing variety of wildlife. These changes will not only make this area a beautiful place to live but a major attraction for tourists.”

- 2.5 Plans of the various historic route options are included in Appendix A, as follows: -
- Figure 3 Public Inquiry Route
 - Figure 4 Railway Route
 - Figure 5 Coach Road Route
 - Figure 6 Valley Bottom Route
 - Figure 7 Gordon Terrace Route
 - Figure 8 Saltaire Gyrotory Route
 - Figure 9 Playing Fields Route
 - Figure 10 Saltaire Tunnel Route
 - Figure 11 Shipley Tunnel Route
 - Figure 12 High Bank Route
- 2.6 A Local Transport Strategy is included as Figures 14 & 15 in Appendix A. This strategy includes a number of large and smaller-scale possible highway & public transport measures which may help to alleviate some of the current transport problems of the area.
- 2.7 Appendix B provides a brief description of the various route options and Appendix C compares costs and benefits. Routes are grouped according to the degree of viability they are considered to have.

3. Other considerations

- 3.1 Figure 1 shows the location of the Saltaire World Heritage Site and River Aire as well as the routes of the Leeds – Liverpool Canal and Skipton - Leeds / Bradford railway lines, all of which will act as important constraints on any proposed new transport infrastructure.
- 3.2 A number of particularly relevant planning constraints and opportunities, extracted from the Replacement Unitary Development Plan (UDP), are shown on Figure 2. A full list of Adopted and Replacement UDP designations for the area is given in Appendix D.
- 3.3 The strategic transport objectives of the Council are set out in the West Yorkshire Local Transport Plan. They are summarised in Appendix E. Discussions with Government officers indicate that, in putting forward schemes for funding, they will expect the more local function of the A650 following de-trunking to be recognised.

4. Options

- 4.1 Comments on the viability of the various routes and the degree to which they meet the Council's objectives are set out below. Routes have been categorised by their viability. Zero viability routes have little or no chance of being accepted for funding by the Government due to previous Ministerial decisions concerning them. Low viability routes are highly unlikely to receive funding support due to their environmental impact, public opposition or high cost. Medium viability routes have

either less environmental impact or are less costly but there remain doubts that the Government would fund such extensive schemes for improvement of the local highway network following de-trunking of the A650. Higher viability proposals take account of this change of status and likely Government attitude.

ZERO VIABILITY ROUTES

- 4.2 **Public Inquiry Route** (Fig 3): Given that a substantial part of this route was rejected by the Government following the 1980 public inquiry into the Airedale trunk road proposals, it is most unlikely that this option would succeed in overcoming all the procedural and funding hurdles necessary for its implementation.
- 4.3 **Railway Route** (Fig 4): This route attempts to reduce some of the landscape impacts of the Public Inquiry route but it would still have a devastating impact on the Saltaire World Heritage Site. It was rejected by the Government following public opposition at an exhibition in 1984.
- 4.4 **Coach Road Route** (Fig 5): This has a similar impact to the Railway Route and has zero viability in view of its rejection at the same time.

LOW VIABILITY ROUTES

- 4.5 **Valley Bottom Route** (Fig 6): This route would reduce some of the environmental disadvantages of the Coach Road Route by running in tunnel beneath Roberts Park. However, the scheme has a high capital cost and significant annual running costs. It would still have a substantial environmental impact within the Saltaire World Heritage Site Buffer Zone, including the loss of playing fields, and would require a new junction with Bingley Relief Road. The Leeds – Liverpool Canal Conservation Area would also be severely affected and recreational open space in the Bradford Beck Valley would be lost. The provision of compensatory washlands would be essential to prevent an increased risk of flooding in the area resulting from the scheme. This would be difficult to achieve without further damage to the landscape character of the area. The route would conflict with a number of Local Transport Plan objectives and Unitary Development Plan policies, particularly as a local road following A650 de-trunking.
- 4.6 **Gordon Terrace Route** (Fig 7): General road widening of the A650 to increase traffic capacity with this route would not comply with the current strategic transport objectives of the Council. The substantial loss of residential properties would not be appropriate for a local road scheme. The works would have a severe impact on the Gordon Terrace local centre and the Saltaire World Heritage Site would also be affected by associated alterations at Saltaire roundabout. Recreational open space in the Bradford Beck Valley would also be lost. The scheme would provide only limited improvements in road safety. There was little public support for the proposals when exhibited in 1986 and such works were not favoured by respondents to the recent consultation.
- 4.7 **Saltaire Gyrotory Route** (Fig 8): This option suffers from a number of the same disadvantages as the Gordon Terrace Route and would reduce the potential for environmental improvements within the Saltaire World Heritage Site. It would also involve the loss of the playing fields on the north side of Gordon Terrace at its eastern end. There was little public support for the proposals when exhibited in 1986.
- 4.8 **Playing Fields Route** (Fig 9): Although this was a relatively inexpensive option when considered in the late 1980's, it did little to solve the traffic problems of the Shipley area. Construction of Challenge School has further undermined its feasibility.

- 4.9 ***Saltaire Tunnel Route*** (Fig 10): Construction of a Saltaire Tunnel would provide some local benefits in the vicinity of Saltaire roundabout when compared with the Gordon Terrace Route but would result in a substantial increase in capital and maintenance costs. There would also be significant disruption during construction and some long term adverse environmental impacts at the tunnel entrances.
- 4.10 ***Dual Carriageway Shipley Tunnel Route*** (Fig 11): Construction of this scheme would provide significant safety and journey time benefits as well as providing many environmental advantages, particularly for Saltaire World Heritage Site. It could, however, attract traffic to the A650 corridor and this, combined with the major construction work at the tunnel portals, would have a damaging effect on other parts of the area. This scheme was being investigated and developed by the Government as the favoured trunk road option until the mid-1990's when a change of road construction policy, coupled with the scheme's high capital and maintenance costs, resulted in its abandonment. It is unlikely that funding support from the Government would be forthcoming for this option.

MEDIUM VIABILITY ROUTES

- 4.11 ***Single Carriageway Shipley Tunnel Route*** (Fig 11): A single carriageway Shipley Tunnel would provide many of the benefits of the dual carriageway tunnel but with reduced expenditure, less likelihood of traffic generation and reduced, though still significant, impact at the tunnel portals. Nevertheless, capital and operating costs would still be substantial and there would be some safety concerns with two-way traffic operation. One-way operation may overcome these concerns and the direction of travel could possibly be altered within each day to correspond with traffic flow patterns. With this arrangement, traffic travelling in the opposite direction would continue to use the existing surface road network. Current construction levels for Bingley Relief Road could make the tunnel's feasibility more uncertain than when the route was previously considered in the mid-1990's. Conversely, the levels necessary at the Shipley entrance for the route to pass under the railway and over Bradford Beck suggest that the scheme could hinder the Urban Renaissance mixed-use development of the Bradford Beck valley south of Leeds Road (A657). Recreational open space in the Bradford Beck Valley would also be lost and the high cost component north of Leeds Road would have an adverse impact on the Leeds-Liverpool Canal Conservation Area.
- 4.12 ***High Bank Route*** (Fig 12): As a trunk road proposal, this option suffered from additional journey lengths and steep gradients on the section between Bingley Relief Road and The Branch Public house when compared with other alternatives. This section would also have an adverse impact on playing fields and recreation open space. Similar areas in the Bradford Beck Valley would also be lost and the section north of Leeds Road would have an adverse conservation area impact. Residential properties would be required but the relatively modest cost and remoteness of the scheme from most of the high profile protected features of the Aire Valley mean that this option may be more viable than previous alternatives.

HIGHER VIABILITY PROPOSALS

- 4.13 ***Local Transport Strategy*** (Figs 14 & 15): With the partial exception of the Shipley Tunnel Route, all previous proposals were developed as dual carriageway *trunk* roads. This new option is put forward as a strategy more appropriate to the *local* nature of the road network following de-trunking of the A650. Therefore, any new carriageway construction would be developed as single carriageway. Such construction would relieve existing congested parts of Shipley, including Fox Corner and Saltaire roundabout, thus providing the opportunity for bus priority, safety and

environmental measures on other parts of the road network. The aim of the strategy would be to meet transport and planning objectives at an affordable cost whilst minimising the environmental impact.

- 4.14 Figure 14 shows the Northcliffe Option which omits major road construction north of Leeds Road (A657) and south of the Valley Road railway bridge (A6037). The proposals between these points could serve the planned mixed-use development site and Shipley Station, as well as providing general traffic relief. West of these points, this option would have an alignment similar to the High Bank Route crossing Northcliffe Playing Fields. Its design would seek to reduce the disadvantages of the High Bank Route but gradients of about 8% (1 in 12) would be required and many adverse impacts would remain. In particular, the option crosses playing fields and recreational open space held by the Council as charitable land. Consequently, such a scheme would require the approval of the Charity Commissioners and the provision of replacement land might be required.
- 4.15 In view of these adverse impacts, other options for new carriageway construction need to be considered. The Long Tunnel Option (single carriageway) similar to Shipley Tunnel would merit further investigation and is indicated in Figure 15. Whilst its high cost reduces the likelihood of securing funding for construction and maintenance, it would have a minimal impact on the Saltaire World Heritage Site. Major road construction would be omitted north of Leeds Road and south of Valley Road railway bridge but this option could have a significant adverse impact on the proposed Urban Renaissance mixed use development east of Shipley Station.
- 4.16 Each of these options could be combined with bus priority, safety and environmental measures aimed at providing enhancements for public transport without detriment to private car and other road users. Junction improvements at a number of locations experiencing public transport delays could be part of the package. Additional park & ride sites could also be considered. Bus priority measures worthy of further investigation include a replacement Salts Mill Bridge for bus, cycle and pedestrian use only to provide improved access to Saltaire station. Figures 14 & 15 indicate a range of possible measures to be considered. Other measures which could be investigated include minor road improvements, improved bus shelter provision and public transport operational efficiency improvements, particularly better bus/rail integration.

STRATEGY DEVELOPMENT

- 4.17 Further investigation, traffic modelling and evaluation work is required before any meaningful public consultation can be undertaken on the proposed Local Transport Strategy for the Aire Valley. The evaluation would include consideration of measures to relieve the Fox Corner junction in line with previous Council resolutions. The results of this evaluation could be available for reporting to the Executive in about 12 months time, after the impact of Bingley Relief Road has become clearly evident. Subsequent public consultation should include Do Nothing / Do Minimum options. Depending on the results of the consultation, a bid for funding could be submitted in the new Local Transport Plan in July 2005.
- 4.18 In the short term, subject to funding and procedures by the Highways Agency, further bus priority measures may be introduced on the A650 between Bingley Relief Road and Saltaire roundabout. Such measures would have no detrimental impact on other traffic but could minimise the potential for public transport delays following the opening of the relief road. Other public transport improvements, led by

Metro and the operating companies, may also be achievable in the shorter term, including improved information and marketing of services.

- 4.19 Early consideration may also be given to the introduction of minor safety and environmental measures in the Nab Wood and Saltaire areas to mitigate the possible effects of the opening of the new road on local communities. Such measures might include road closures, traffic calming and “access only” orders to deter the inappropriate use of residential roads by through traffic. Their introduction would require extensive consultations with local residents & businesses, in association with the World Heritage Site Management Plan.
- 4.20 In view of their poor performance in meeting the Council’s transport objectives and planning policies as non-trunk road proposals, it would not be appropriate at the current time to develop any of the zero, low and medium viability options described.

5. Financial and resource appraisal

FINANCIAL

- 5.1 The initial development of the Aire Valley Transport Strategy can be met from within existing revenue resources. Further development of the strategy will be subject to discussions with Government Office regarding the funding of such work in advance of approval to a Local Transport Plan scheme.
- 5.2 Development and construction of bus priority measures between Bingley Relief Road & Saltaire Roundabout can be met from Highways Agency funds secured through the Local Transport Plan for the Council to deal with problems on the A650 prior to and immediately following de-trunking. Subject to negotiations with the Highways Agency, the provision of safety/environmental measures in the Nab Wood & Saltaire areas can be met from similar funds or from the Local Safety Schemes allocation in the Council’s Integrated Transport Capital Programme. Costs will be managed within existing budgets.
- 5.3 The funding sources referred to are identified in the report on the Local Transport Plan Settlement for 2003/04 approved by the Executive on 11 March 2003.

STAFF RESOURCES

- 5.4 The indicative scheme costs given in this report include design and supervision costs. The development of the strategy can be delivered through a combination of existing staff resources and outsourcing specialist design services. The costs will be managed within existing budgets.

6. Legal appraisal

- 6.1 The development of a Local Transport Strategy would require the exercise of legal powers available to the Council as Highway Authority.

7. Other implications

7.1 Equal Rights

7.1.1. The West Yorkshire Local Transport Plan has been developed to promote equal access to transport systems for all users and one of the key themes is social inclusion. The Local Transport Strategy proposed would be developed in compliance with that theme as well as the Council's Equal Rights statement.

7.2 Sustainability implications

7.2.1. The proposed Local Transport Strategy is based on the development of sustainable transport modes (public transport, cycling and walking) and associated traffic management improvements. Any highway construction would seek to enhance the existing network to allow further development of public transport.

7.3 Community safety implications

7.3.1. The proposed strategy would aim to control traffic movements within the community and to enhance safety for vulnerable road users. Any highway construction would be designed to remove traffic from critical points on the network and thus remove conflicts between vehicles and vulnerable road users.

7.4 Human Rights Act

7.4.1. There are no direct Human Rights implications arising from this report.

7.5 Trade Union

7.5.1. There are no Trade Union implications arising from this report.

8. Not for publication documents

8.1 None

9. Recommendations

9.1 That any further consideration at the present time of the historic road improvement proposals for the Shipley, Saltaire and North Bradford area shown on Figures 3 – 12 in Appendix A and described as Zero, Low and Medium Viability in Appendix B to this report be abandoned in the light of the imminent de-trunking of the A650/A629 road and the damaging impact they would have on the local environment.

9.2 That a full evaluation be undertaken of a Local Transport Strategy for the Aire Valley, as indicated on Figures 14 & 15 in Appendix A, comprising:

- a number of possible junction improvements at sites experiencing public transport delays;
- possible new road construction between Bingley Bypass, A657 (Leeds Road) and A6037 (Valley Road);

- other possible minor road improvements, enhancements to public transport, including integration, marketing information & bus priority improvements and the possible future development of park & ride services;
- environmental and safety measures on residential roads in the Nab Wood and Saltaire areas.

9.3 That the results of this evaluation be reported to the Executive prior to public consultations and a subsequent funding bid in the new Local Transport Plan in 2005

~~9.4~~—9.4 That, in view of the past history of trunk road proposals considered but not implemented in the area, an approach be made to Government to contribute funds to the investigation and development of the Aire Valley Transport Strategy .

10. Appendices

10.1 Appendix A - Figures 1 - 15 (Figure 13 not used)

10.2 Appendix B - Description of Route Options

10.3 Appendix C – Indicative Performance of Route Options

10.4 Appendix D – Unitary Development Plan Designations

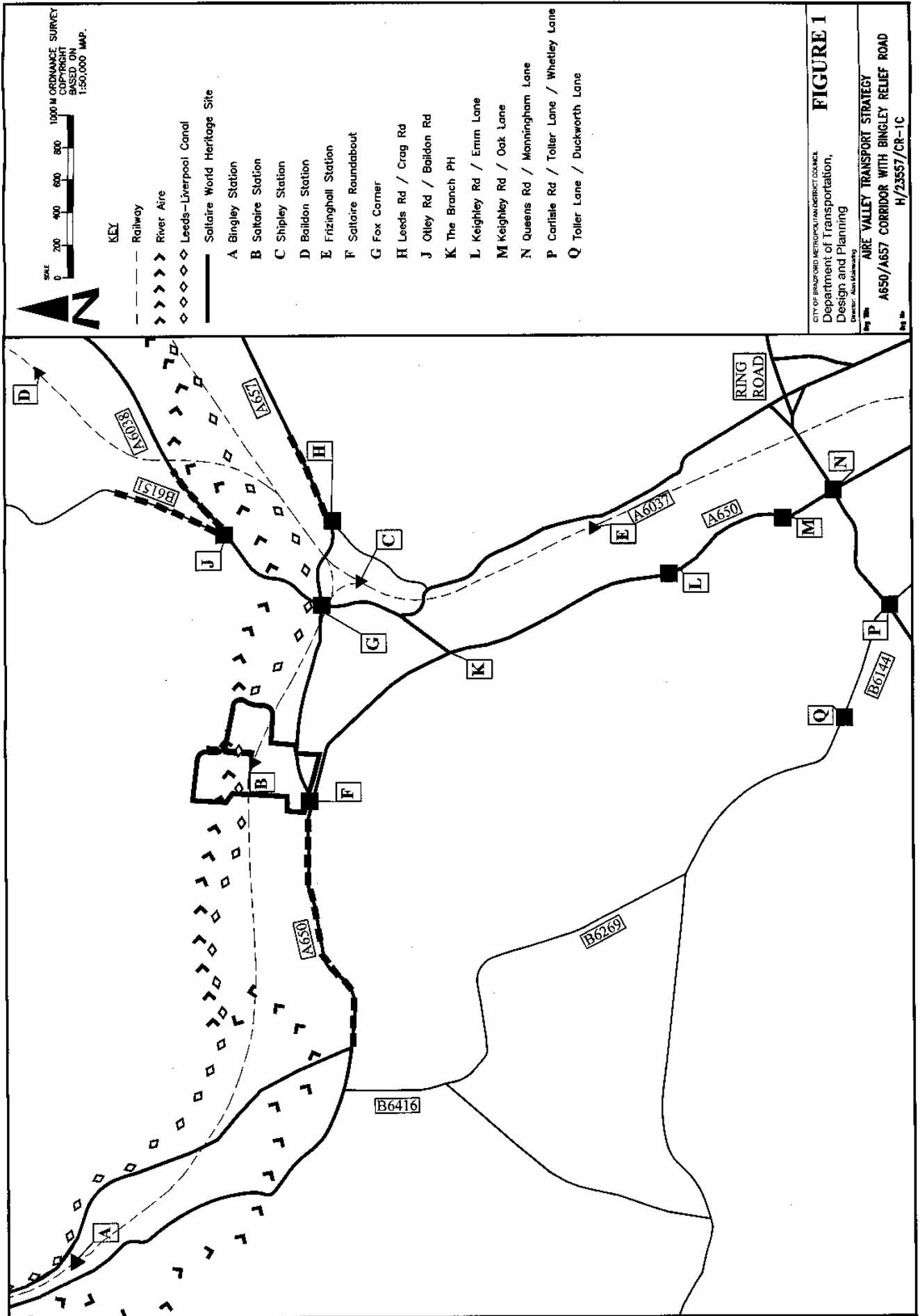
10.5 Appendix E – Local Transport Plan Objectives

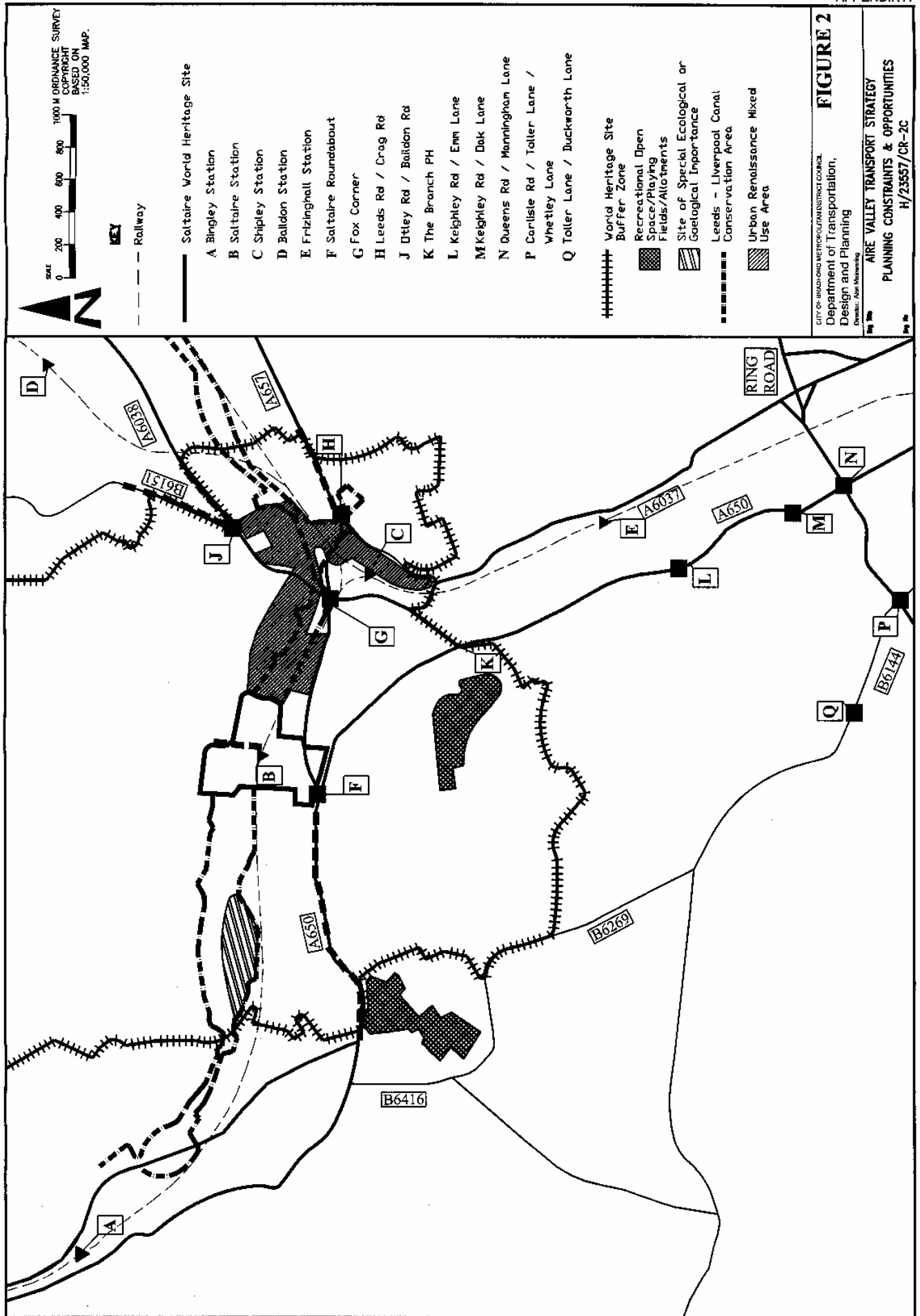
11. Background documents

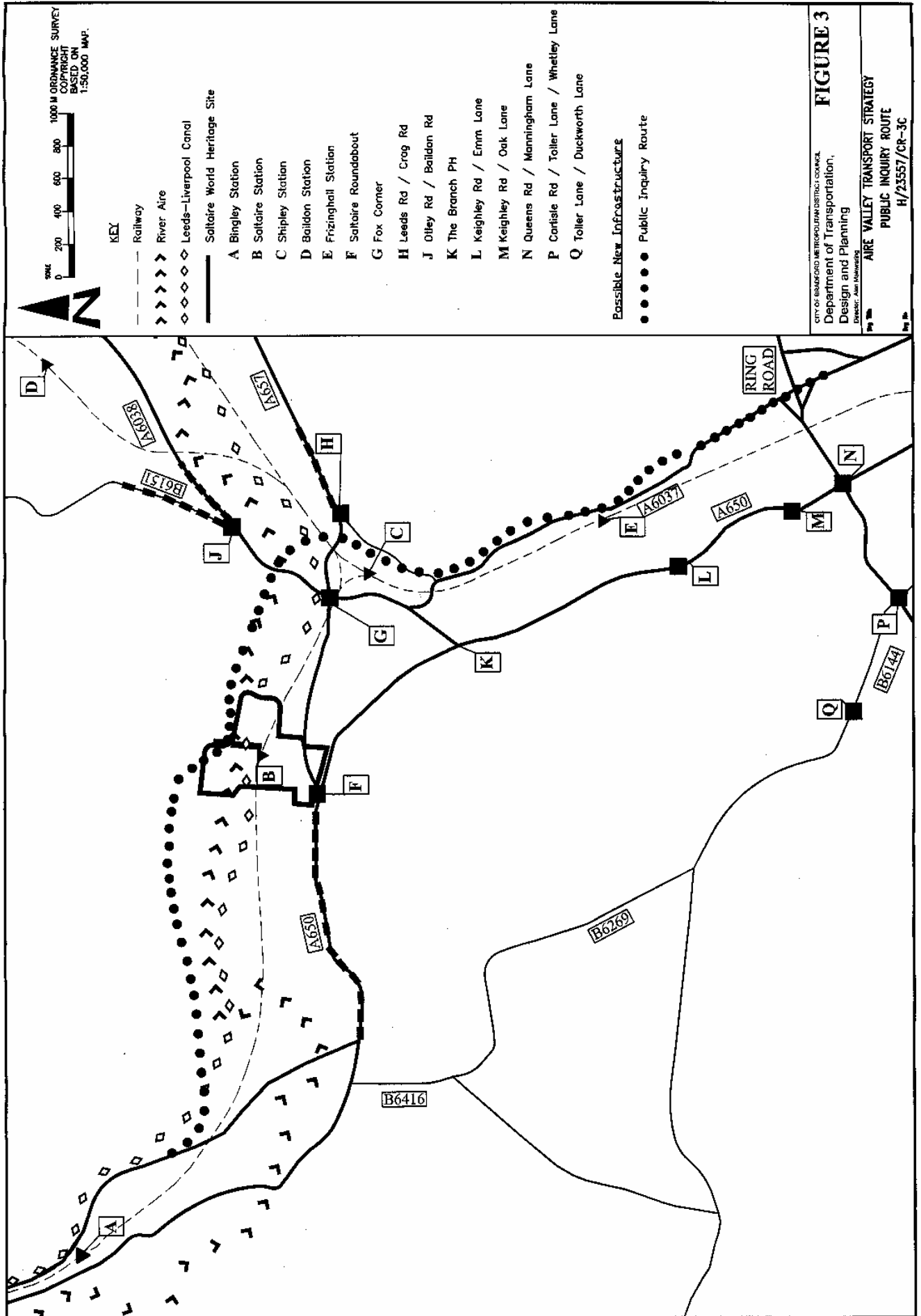
11.1 Report to Executive 23 July 2002: A650/A657 Corridor Multi-Modal Improvements Study.

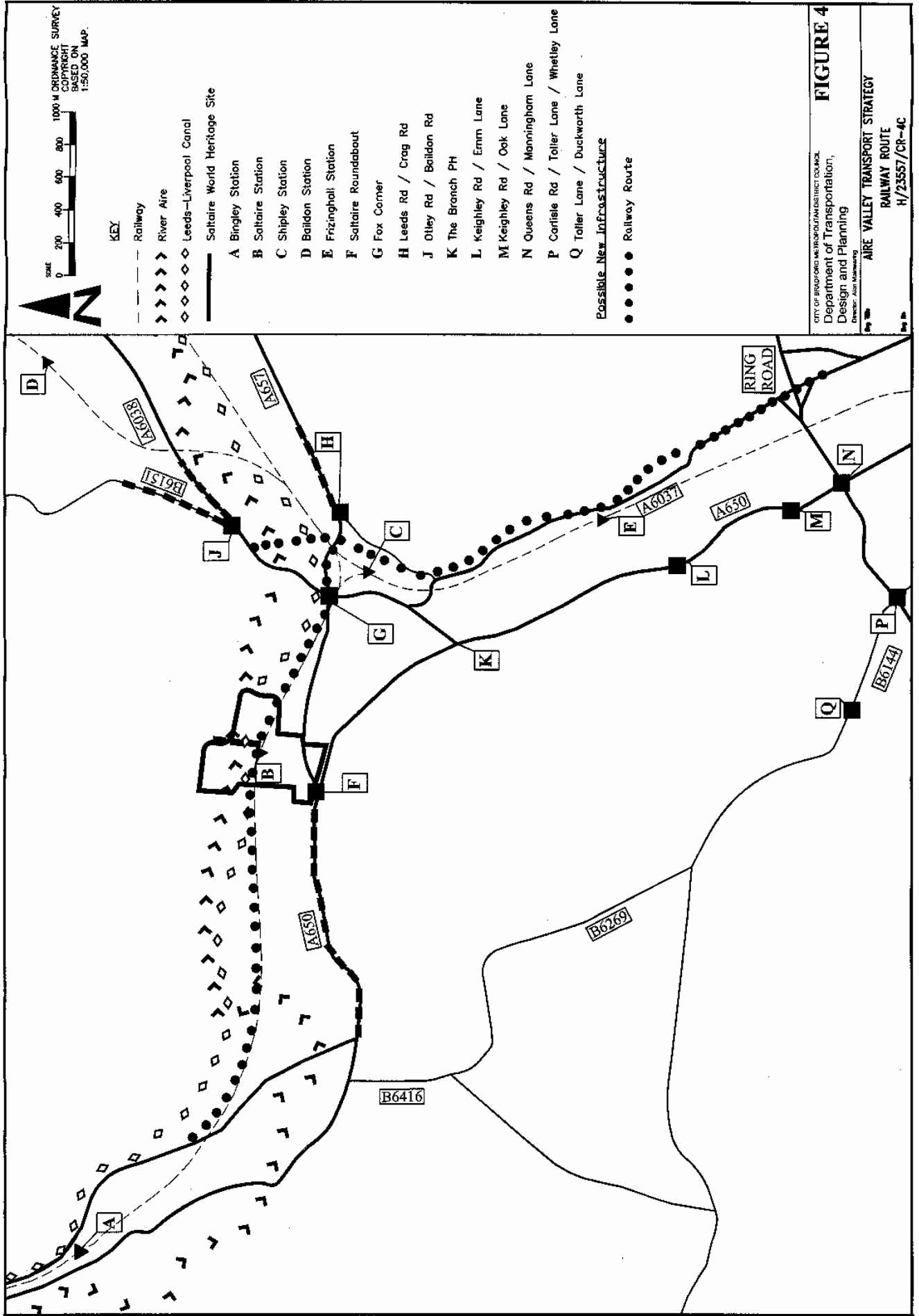
11.2 Report to Executive 11 March 2003: Local Transport Plan Settlement for 2003/04; Bradford Transport, Highway Maintenance and Bridges Capital Programmes for 2003/04 and Provisional Programmes for 2004/05 and 2005/06.

11.3 West Yorkshire Local Transport Plan 2001-2006 published July 2000.









SCALE 0 200 400 600 800 1000 M
 1000 M PERFORMANCE SURVEY
 COPYRIGHT
 BASED ON
 1:50,000 MAP.

KEY

- Railway
- River Aire
- Leeds-Liverpool Canal
- Saltair World Heritage Site

- A Bingley Station
- B Saltair Station
- C Shipley Station
- D Baildon Station
- E Frizinghall Station
- F Saltair Roundabout
- G Fox Corner
- H Leeds Rd / Crag Rd
- J Otley Rd / Baildon Rd
- K The Branch PH
- L Keighley Rd / Emm Lane
- M Keighley Rd / Oak Lane
- N Queens Rd / Manningham Lane
- P Carfisle Rd / Toller Lane / Whetley Lane
- Q Toller Lane / Duckworth Lane

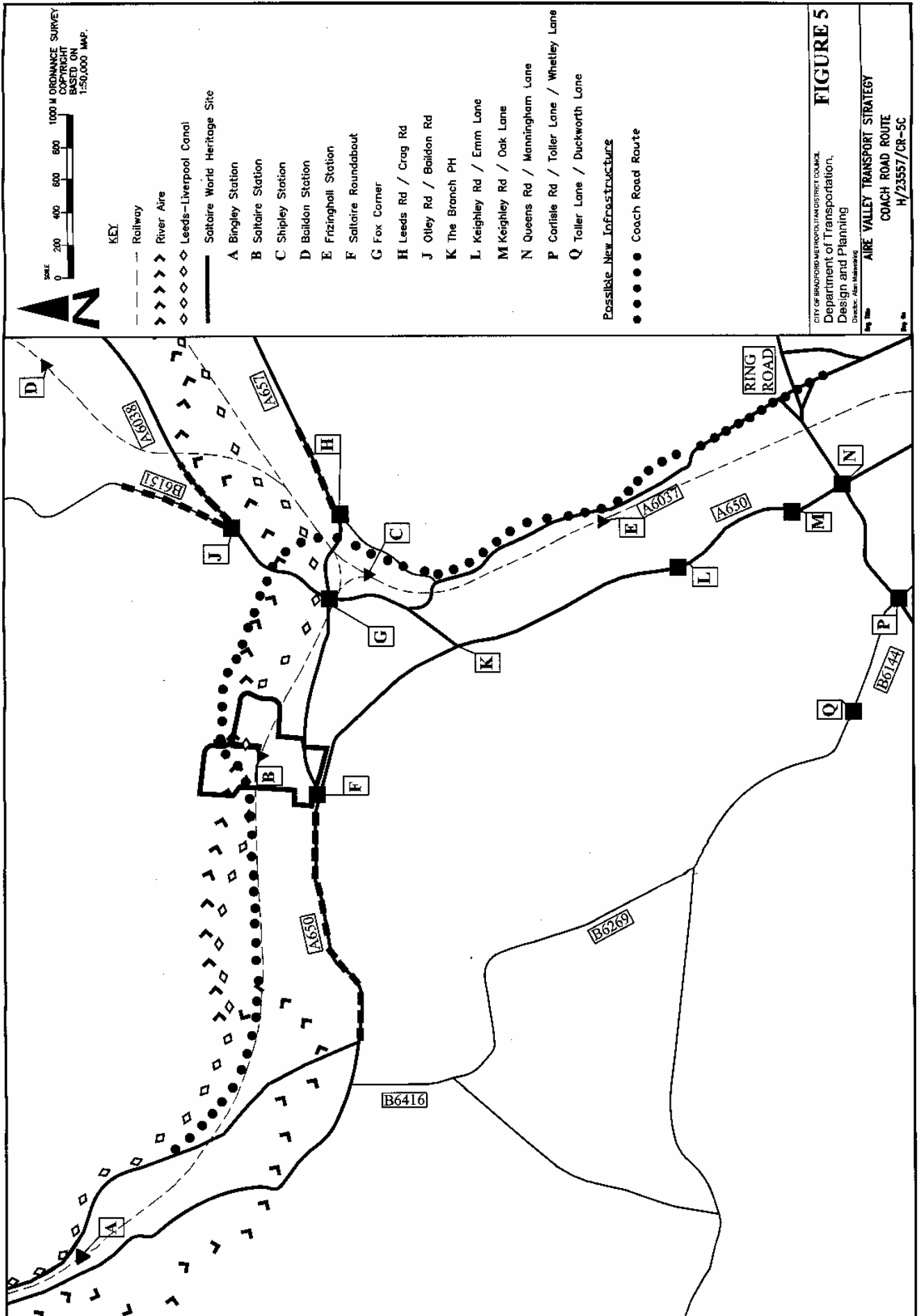
Possible New Infrastructure

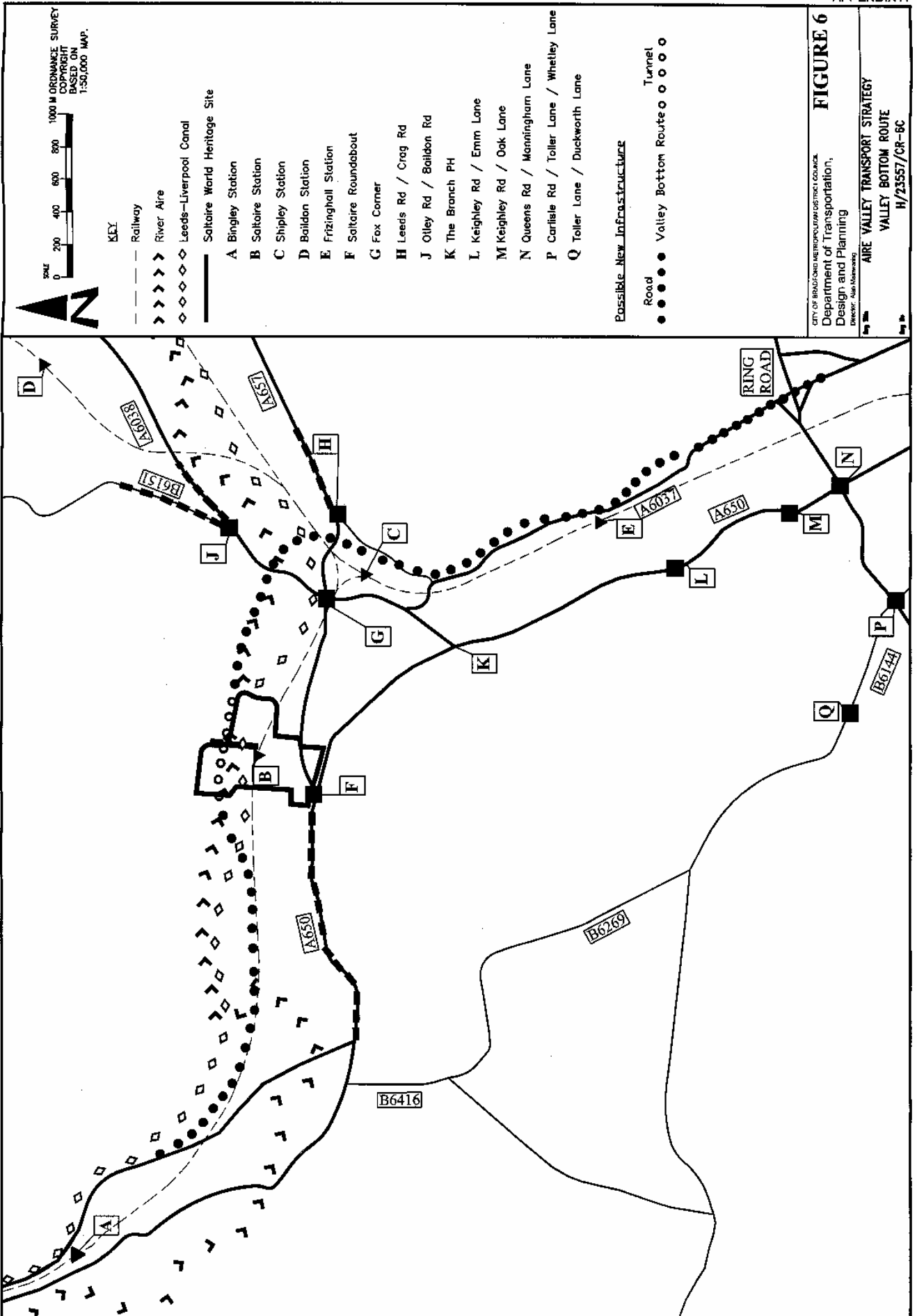
- Railway Route

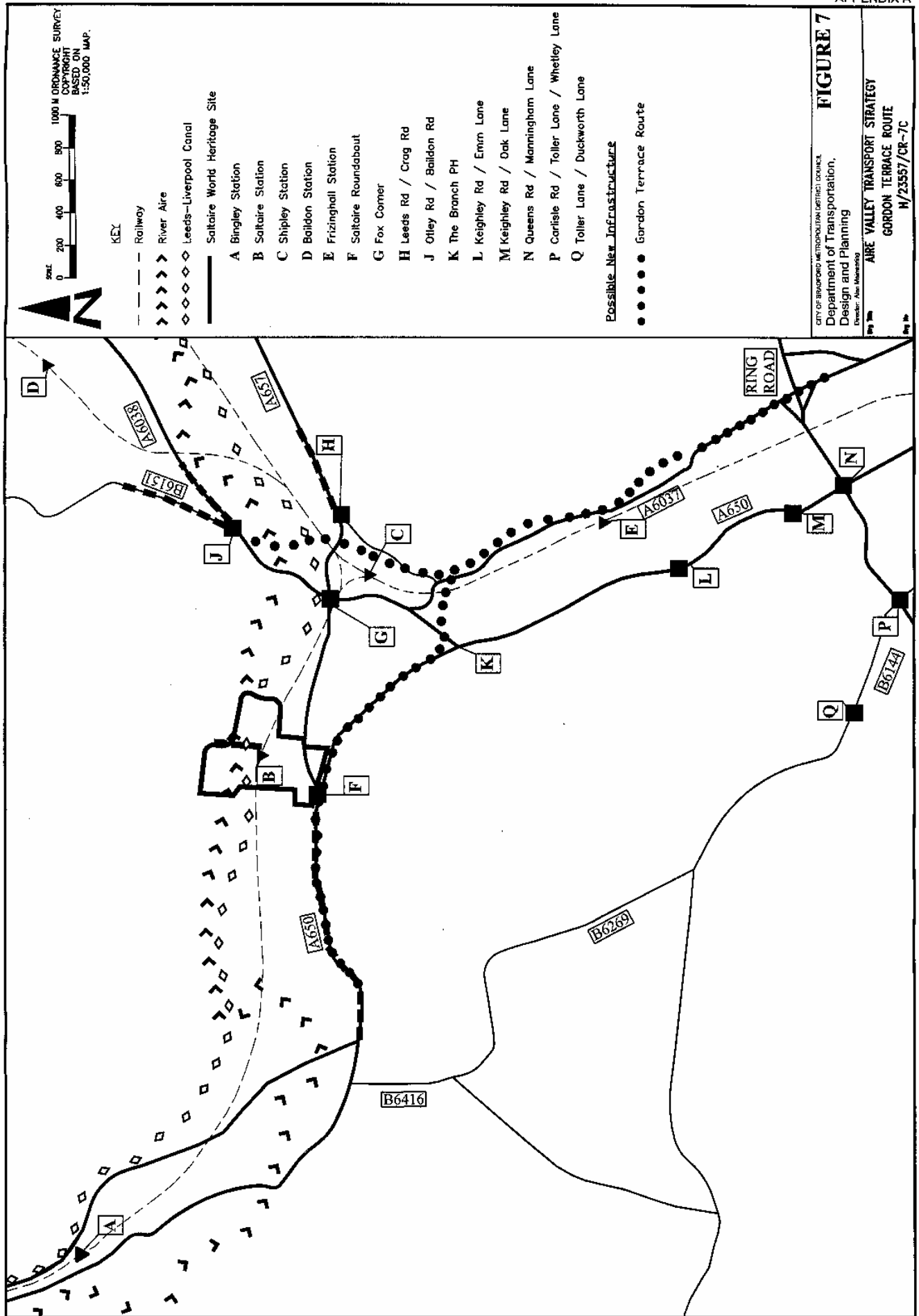
FIGURE 4

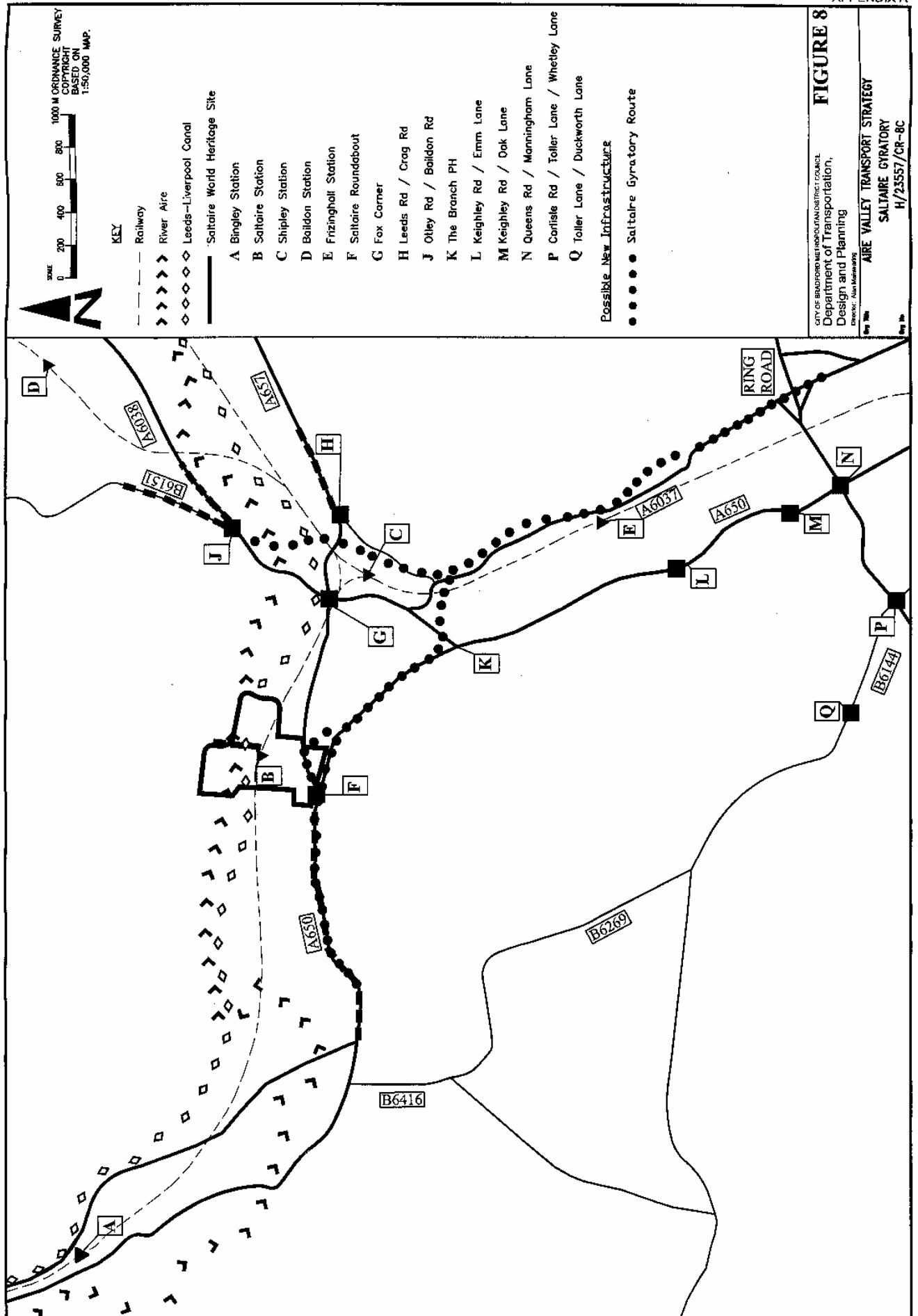
CITY OF BRADFORD METROBOURNE DISTRICT COUNCIL
 Department of Transportation,
 Design and Planning
 Director: Alan Manning

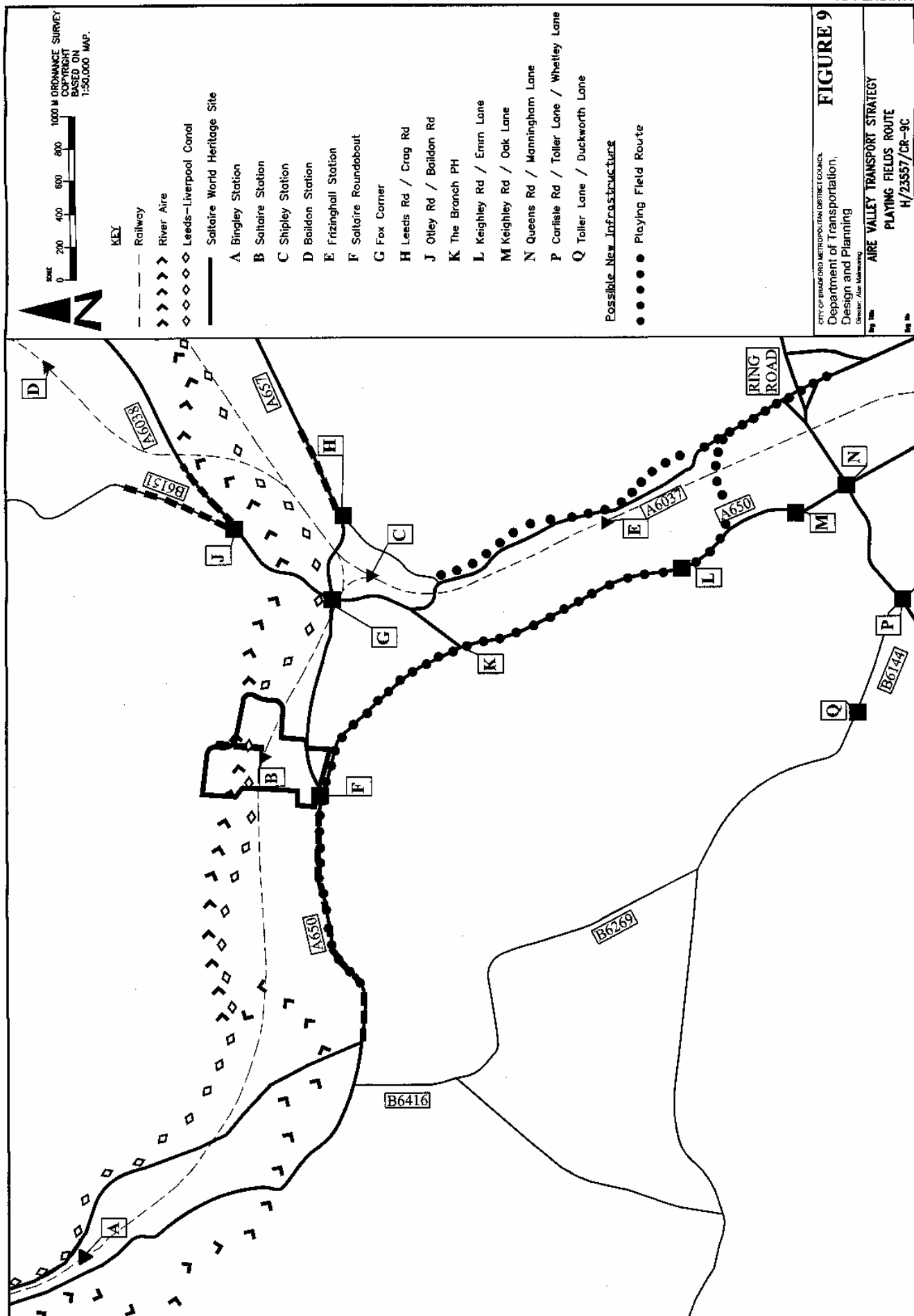
AIRE VALLEY TRANSPORT STRATEGY
RAILWAY ROUTE
H/23557/CR-4C

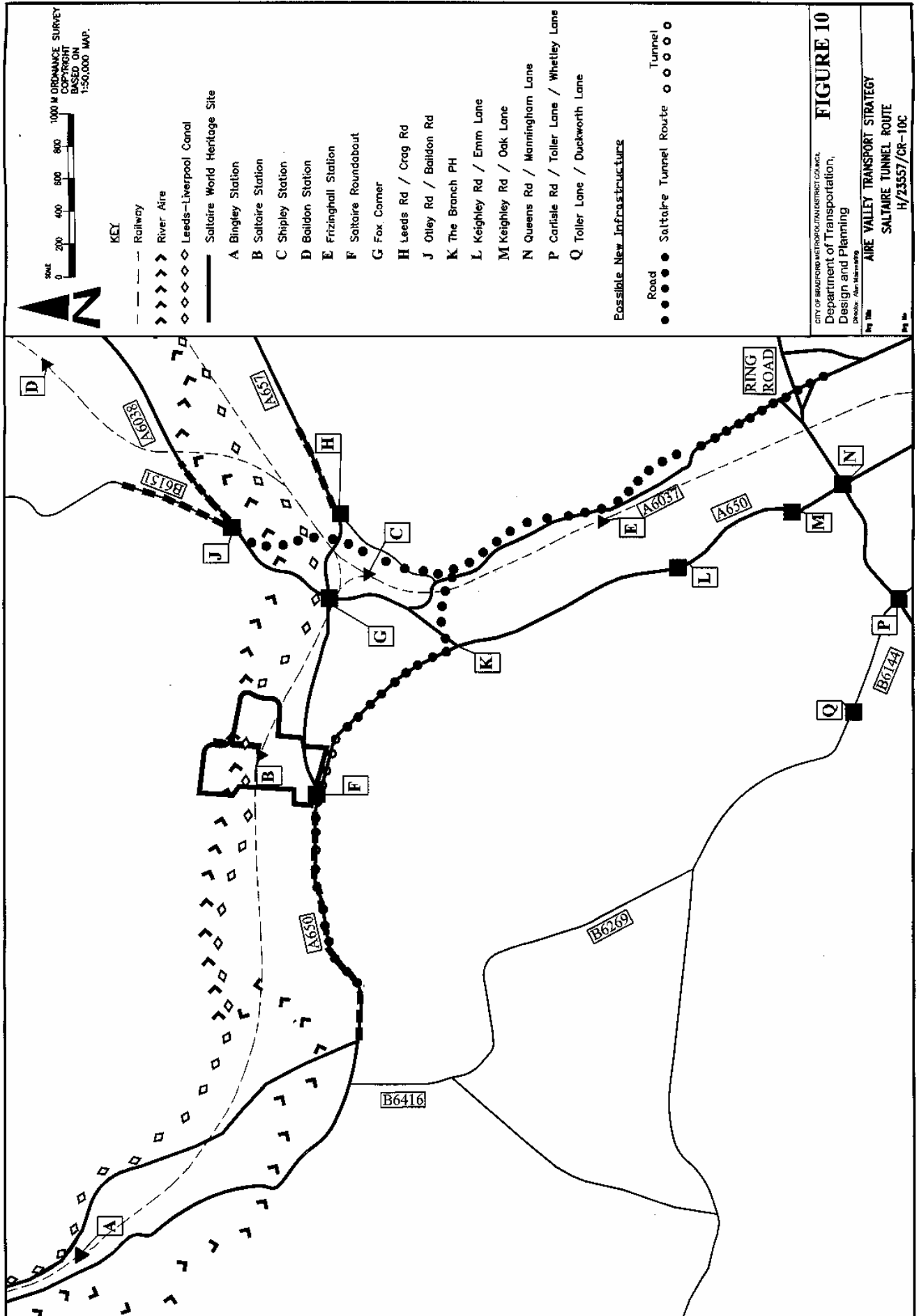


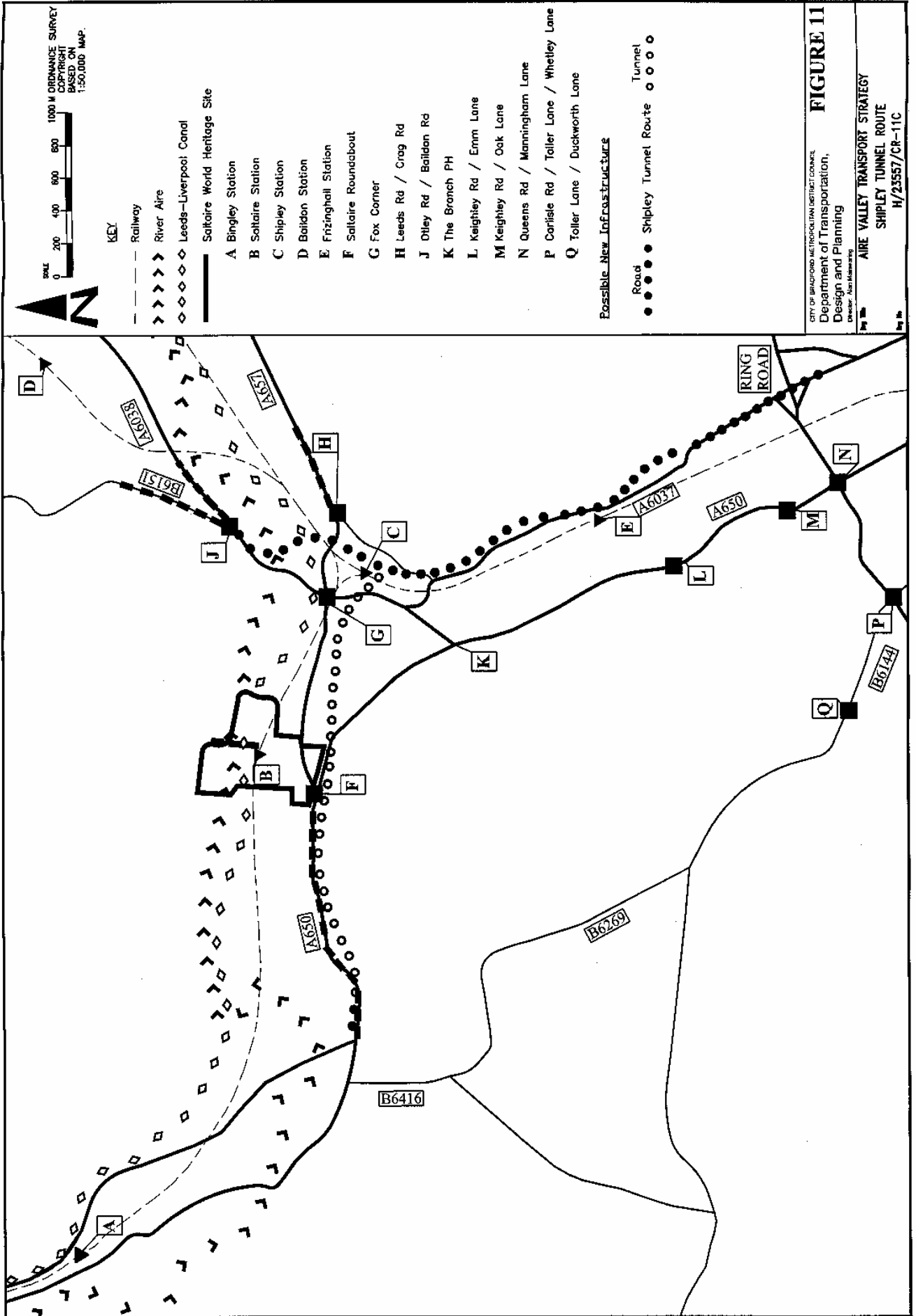


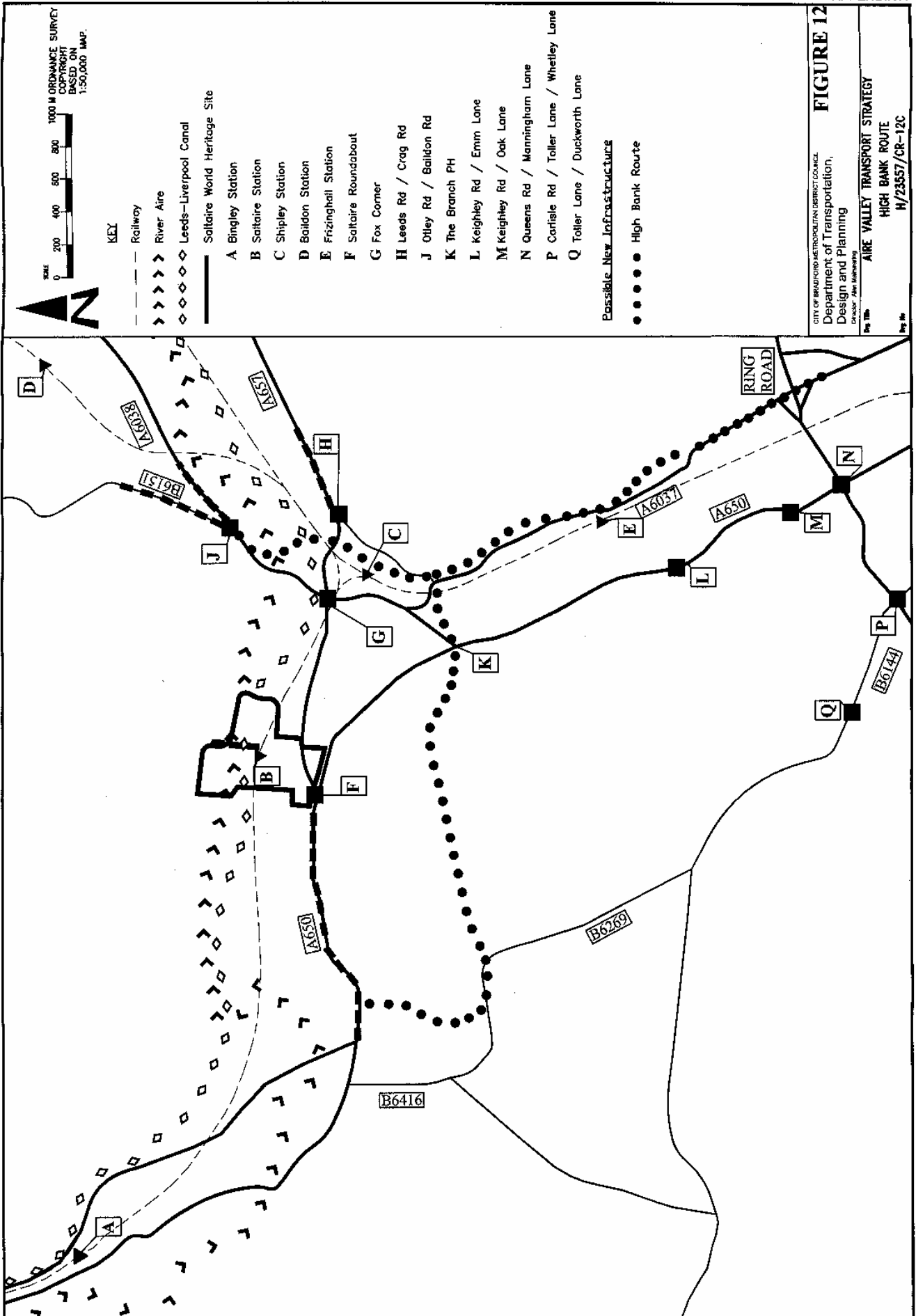


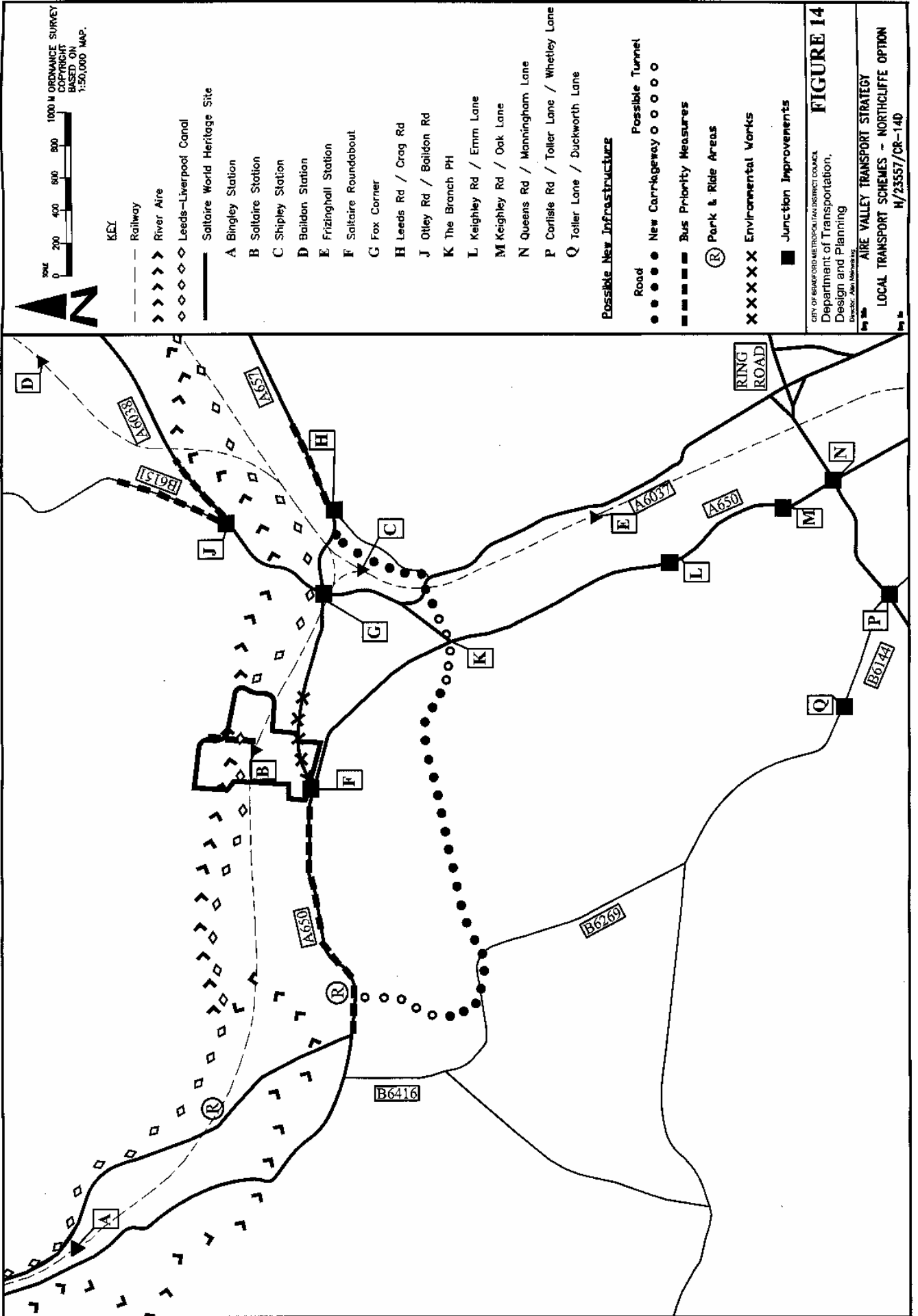


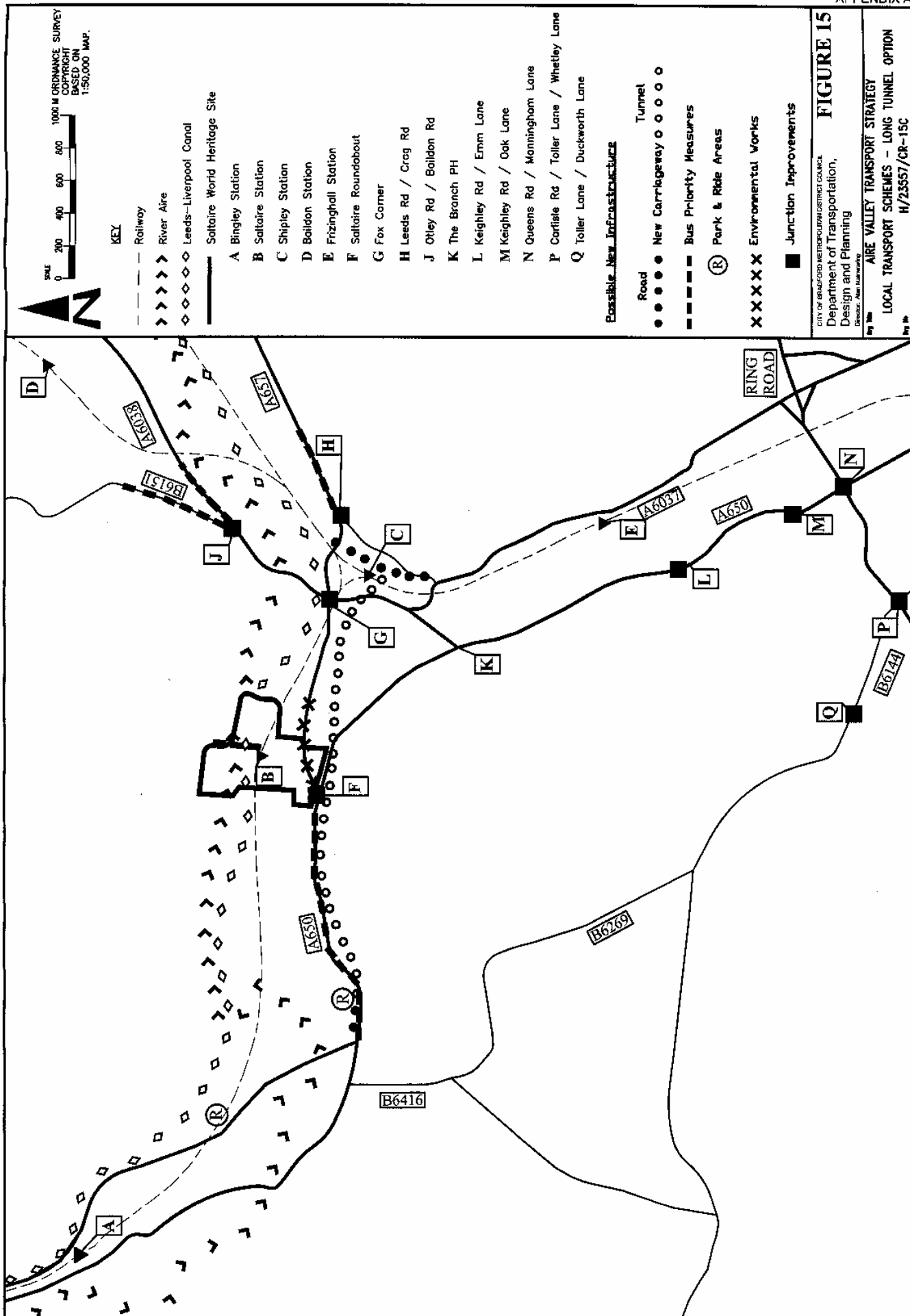












Aire Valley Transport Strategy
Re-Evaluation of Historic Road Construction Proposals
Description of Route Options

Viability <i>Fig No</i>	Route Name	Brief Description of Route & Environmental Impact SSSI/SEGI=Site of Special Scientific Interest / Ecological or Geological Importance; WHS= World Heritage Site.
Zero <i>Fig 3</i>	Public Inquiry Route	New junction with Bingley Relief Rd leads to canal crossing then route through countryside on north side of river affecting SSSI, playing fields, Salts School and washlands. Also takes part of Roberts Park / WHS. Route turns south to cross river, canal and railway through conservation area then along Bradford Beck valley through urban greenspace to join Canal Rd which would be up-graded north of ring road.
	<i>Fig 4</i> Railway Route	New junction with Bingley Relief Rd leads to route alongside railway through conservation area, SEGI, playing fields and washlands. New structures over railway through WHS. New junction at Fox Corner and north-south route crossing river, canal and railway through conservation area. Route alongside Bradford Beck through urban greenspace to join Canal Rd which would be up-graded north of ring road.
	<i>Fig 5</i> Coach Road Route	As Railway Route west of WHS and Public Inquiry Route east of WHS. Bridge over canal and river through Saltaire WHS / Roberts Park.
Low <i>Fig 6</i>	Valley Bottom Route	Similar to Coach Road Route but canal / river bridges further west and route in 500 metre long tunnel beneath Roberts Park. Variants include route under Salts Mill.
	<i>Fig 7</i> Gordon Terrace Route	Road widening along A650 between Bingley Relief Rd and The Branch public house, including through the Gordon Terrace local centre. New link road from The Branch PH would require residential property. North-south route would cross the river, canal and railway through conservation area then run alongside Bradford Beck through urban greenspace to join Canal Rd which would be up-graded north of ring road.
	<i>Fig 8</i> Saltaire Gyratory Route	As Gordon Terrace Route except that two-way traffic through Gordon Terrace would be replaced with a one-way gyratory using Gordon Terrace, Saltaire Road through the World Heritage Site and a new road across the adjoining small playing field.
	<i>Fig 9</i> Playing Fields Route	Similar to Gordon Terrace Route NW of The Branch PH but with narrower lanes / less land take. Continues SE along A650 to join Canal Rd by crossing Bradford Grammar School playing fields and the site of the recently opened Challenge School.
	<i>Fig 10</i> Saltaire Tunnel Route	As Gordon Terrace Route but 800 metre long tunnel beneath existing A650 to bypass Saltaire roundabout.
	<i>Fig 11</i> Shipleigh Tunnel Route (D)	Dual carriageway 2500 metre long tunnel from end of Bingley Relief Road to junction with north-south route near Shipleigh Station. Possible ventilation chimney in Nab Wood and on eastern WHS boundary. North-south route as Gordon Terrace Route.
Medium <i>Fig 11</i>	Shipleigh Tunnel(S)	As Shipleigh Tunnel Route (D) but single carriageway.
	<i>Fig 12</i> High Bank Route	Climbs through countryside south of Shipleigh from end of Bingley Relief Rd to north-south route in Bradford Beck valley. Crosses playing fields / recreational open space and would require residential property. North-south route as Gordon Terrace Route.
Higher <i>Figs 14 & 15</i>	Local Transport Strategy	Package of measures including junction improvements, bus priority measures, environmental improvements, possible new roads and park & ride sites. New roads would be limited in extent and width with possible long or short tunnel sections to limit impact on Saltaire World Heritage Site, recreation areas and residential property.

Aire Valley Transport Strategy
Re-Evaluation of Historic Road Construction Proposals
Indicative Performance of Route Options

Viability	Route Name	Accident Savings	Journey Time Savings	Current Cost Estimate	Annual Operating Costs	Benefit / Cost Ratio
		Score 1-10	Score1-10	£m	£m	
Zero	Public Inquiry Route <i>Figure 3</i>	-	-	95		-
	Railway Route <i>Figure 4</i>	-	-	90		-
	Coach Road Route <i>Figure 5</i>	-	-	95		-
Low	Valley Bottom Route <i>Figure 6</i>	10	9	130	1.5	1.6
	Gordon Terrace Route <i>Figure 7</i>	4	8	85		2.1
	Saltaire Gyratory Route <i>Figure 8</i>	4	8	85		2.1
	Playing Fields Route <i>Figure 9</i>	3	7	25		2.8
	Saltaire Tunnel Route <i>Figure 10</i>	5	9	110	1.0	1.7
	ShIPLEY Tunnel Route (Dual) <i>Figure 11</i>	10	10	250	4.0	1.1
Medium	ShIPLEY Tunnel Route (Single) <i>Figure 11</i>	8	10	165	2.5	1.4
	High Bank Route <i>Figure 12</i>	6	7	120		1.5
Higher	Local Transport Strategy Northcliffe Option <i>Figure 14</i>	5	6	80		2.3
	Local Transport Strategy Long Tunnel Option <i>Figure 15</i>	7	9	125	2.5	1.9

**Aire Valley Transport Strategy
Re-Evaluation of Historic Road Construction Proposals
Unitary Development Plan (UDP) Designations**

Adopted UDP Designations

- Saltaire Conservation Area
- Leeds/Liverpool Canal Conservation Area
- Hirst Wood SEGI
- Green Belt at Northcliffe, Cottingley, Nab Wood and Saltaire
- Washlands alongside River Aire within Green Belt
- Regeneration Area (Canal Road/Shipleigh/Saltaire Corridor)
- Playing Fields (north east side of Gordon Terrace on A650, Saltaire)
- Gaisby Lane–Briggate, Shipleigh - Major Urban Greenspace and Recreation Open Space
- Park & Ride Site, Shipleigh Station

Replacement UDP Designations

- World Heritage Site – Saltaire
- World Heritage Site Buffer Zone
- Saltaire Conservation Area
- Leeds/Liverpool Canal Conservation Area
- Hirst Wood SEGI
- Northcliffe – Playing Fields, Recreation Open Space, Allotments, Green Belt
- Nab Wood – Playing Fields, Green Belt
- Washlands alongside River Aire within Green Belt and Playing Fields
- Mixed Use Area – Shipleigh/Saltaire Corridor
- Roberts Park – Historic Park/Garden
- Saltaire Local Centre
- Playing Fields (north east side of Gordon Terrace on A650, Saltaire)
- Trench Meadows SSSI, Playing Fields within Green Belt and Baildon Bank Urban Greenspace
- Gaisby Lane–Briggate, Shipleigh - Urban Greenspace and Recreation Open Space
- Rail Freight Facility north of Valley Road Bridge
- Park & Ride Site, Shipleigh Station

**Aire Valley Transport Strategy
Re-Evaluation of Historic Road Construction Proposals
Local Transport Plan Objectives**

Primary Objectives		
ECONOMIC	SOCIAL	ENVIRONMENTAL
<ul style="list-style-type: none"> • to provide opportunities for fostering a strong, competitive economy and sustainable economic growth; • to improve operational efficiency within the transport system; • to maintain the transport infrastructure to standards to allow safe and efficient movement of people and goods. 	<ul style="list-style-type: none"> • to improve safety, security and health, in particular to reduce the number and severity of road casualties; • to promote social inclusion and equal opportunities for access to transport. 	<ul style="list-style-type: none"> • to improve environmental quality and reduce the impacts of transport on air quality and noise; • to contribute to national and international efforts to reduce the contribution of transport to overall greenhouse gas emissions.
Subsidiary Objectives		
<ul style="list-style-type: none"> • to reduce the general rate of growth in road traffic and, where feasible, to reduce absolute traffic levels; • to encourage a greater proportion of journeys to be made by public transport, cycling and walking as alternative modes to the private car; • to encourage more use of rail and waterways as alternatives to lorries; • to improve integration between transport modes, between various policy areas and the strategies of different relevant organisation. 		