

## Guide to Railway Infrastructure Costs

Rail offers high quality congestion free transport. This report gives some indicative costs of recent rail infrastructure projects to help comparison with other infrastructure schemes, and to help identify what would be appropriate to fund, or help fund, from City Deal investment.

The projects referenced are:

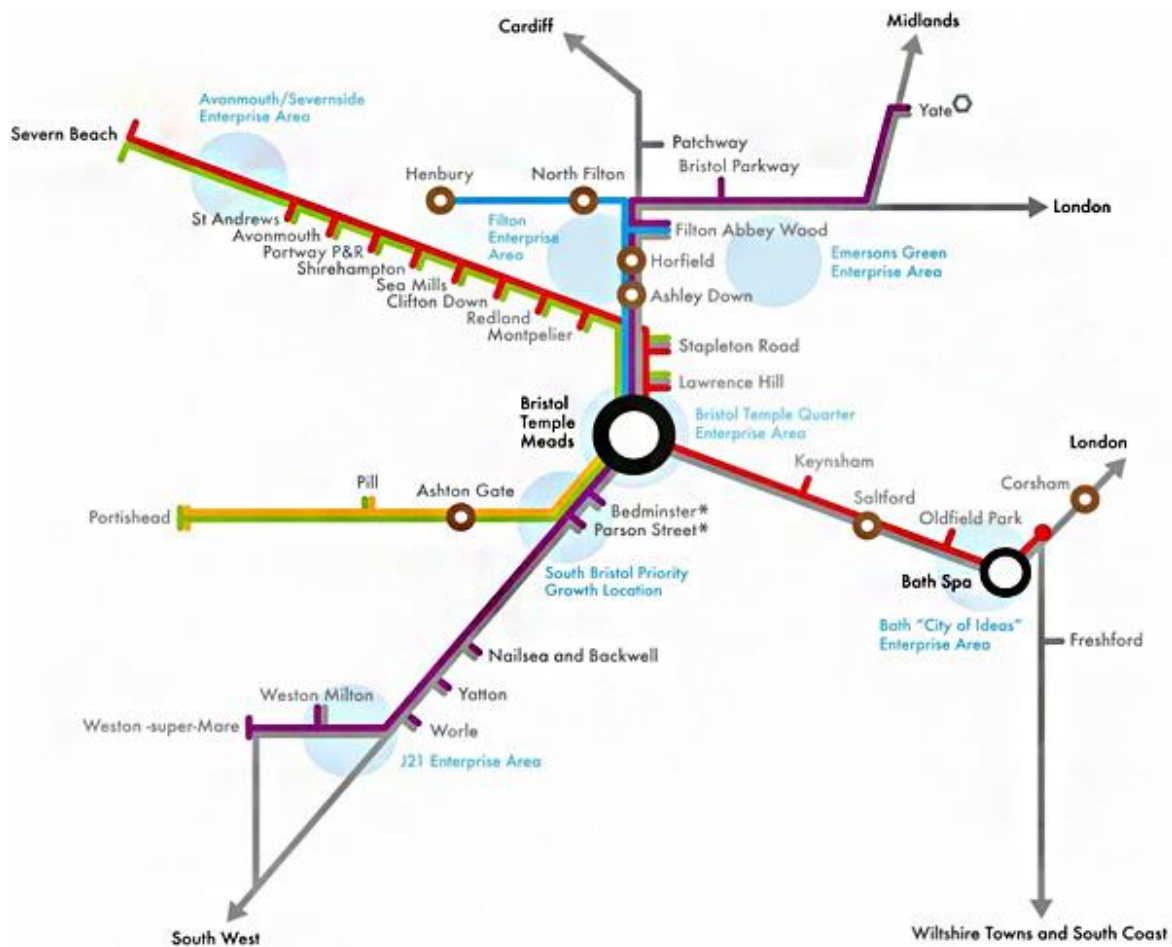
- Metro West – the 2 phase £100m investment by the Bristol City Deal
- Wisbech reopening study
- Borders railway
- Station car parking
- Footbridges for Step free Access

- Costs are summarised in red highlighted boxes throughout the report

Note that costs for individual projects can vary widely due to local conditions such as the cost of land, the existing railway infrastructure, and the amount of contingency added (which can be tens of percent). The costs in this document therefore only give an approximate guide.

## MetroWest – Bristol

“The first phase of this project will involve, among others, the introduction of half-hourly train services on all routes within the main Bristol commuting area. A rail station will be built at Portishead and Pill and the rail link between Portishead and Bristol city centre will be restored. In addition, the programme includes enhancements to Bathampton and Avonmouth, as well as improving services between local stations to and from Bath Spa by May 2019.”



## MetroWest – Phase 1



[travelwest.info/projects/metrowest/metrowest-phase-1](http://travelwest.info/projects/metrowest/metrowest-phase-1)

Phase 1 of MetroWest now has a preliminary business case containing a high level summary of the total scheme cost. The railway aspects of this have basic costs for preparation and construction of £3.6m + £29.0m = £32.6m, although by the time contingency, inflation, and further fees have been added the total cost comes to £55.4m.

[travelwest.info/project/metrowest-phase-1-preliminary-business-case](http://travelwest.info/project/metrowest-phase-1-preliminary-business-case)

[travelwest.info/wp-content/uploads/2015/03/metrowest-phase-1-preliminary-business-case-3-september-2014.pdf](http://travelwest.info/wp-content/uploads/2015/03/metrowest-phase-1-preliminary-business-case-3-september-2014.pdf)

**TABLE 5.2**  
**Estimated Scheme Capital Out-turn Central Case – Cost Summary**

Cost type	Cost
Preparation * - Council costs Programme Entry to Full Approval excl GRIP 4&5	£2,419,817
Preparation * - Railway costs GRIP 4&5 incl Industry Fee @7%	£3,660,988
Construction - Highway costs inc land	£2,320,065
Construction - Railway cost inc land	£29,006,962
Site Supervision	£145,600
Contingency - Highway construction @30%	£696,020
Contingency - Railway construction @30%	£8,699,689
<b>Total Base Cost</b>	<b>£46,953,140</b>
Inflation - Highway construction @3.2% pa using ROSSI	£404,759
Inflation - Railway construction @3.2% pa using ROSSI	£5,059,159
Inflation – Site Supervision @3.2% pa using ROSSI	£19,540
Rail Industry Fee GRIP 6-8 @7%	£2,961,877
<b>Out-turn cost</b>	<b>£55,398,474</b>
* Preparation costs include allowance for inflation	

The infrastructure which is delivered in phase 1 is described here:

[travelwest.info/wp-content/uploads/2016/01/metrowest-strategic-overview-november-2015.pdf](http://travelwest.info/wp-content/uploads/2016/01/metrowest-strategic-overview-november-2015.pdf)

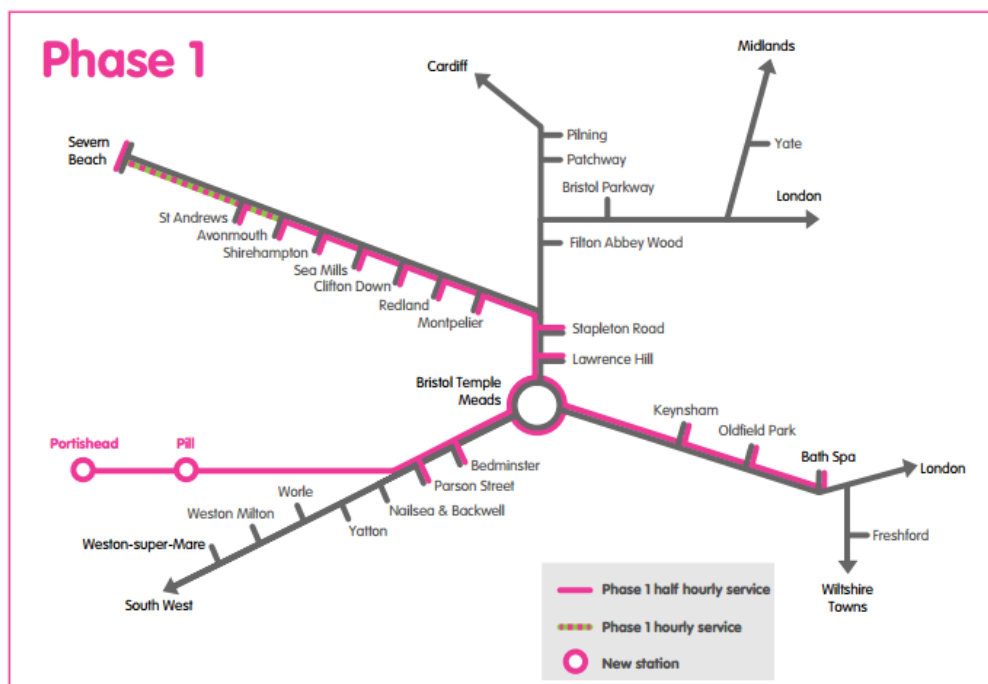
This covers the following:

- Bristol local railway network upgrade including reopening a line with 2 stations, further infrastructure work to allow increasing train frequencies on a network of 3 radial lines - £55m

## Summary of Phase 1

- Reopen the Portishead to Pill rail line
- New station at Portishead
- Reopen former station at Pill
- Double track works at Pill and Ashton Gate
- Improve maintenance road access at Pill tunnel
- Environmental mitigation measures
- Improve to Parson Street Junction and line works from the junction to Temple Meads
- Resignal the entire line between Portishead and Temple Meads and install a new signal at Avonmouth

Phase 1 is funded by the local councils and through the Local Enterprise Partnership Growth Deal



## MetroWest – Phase 2

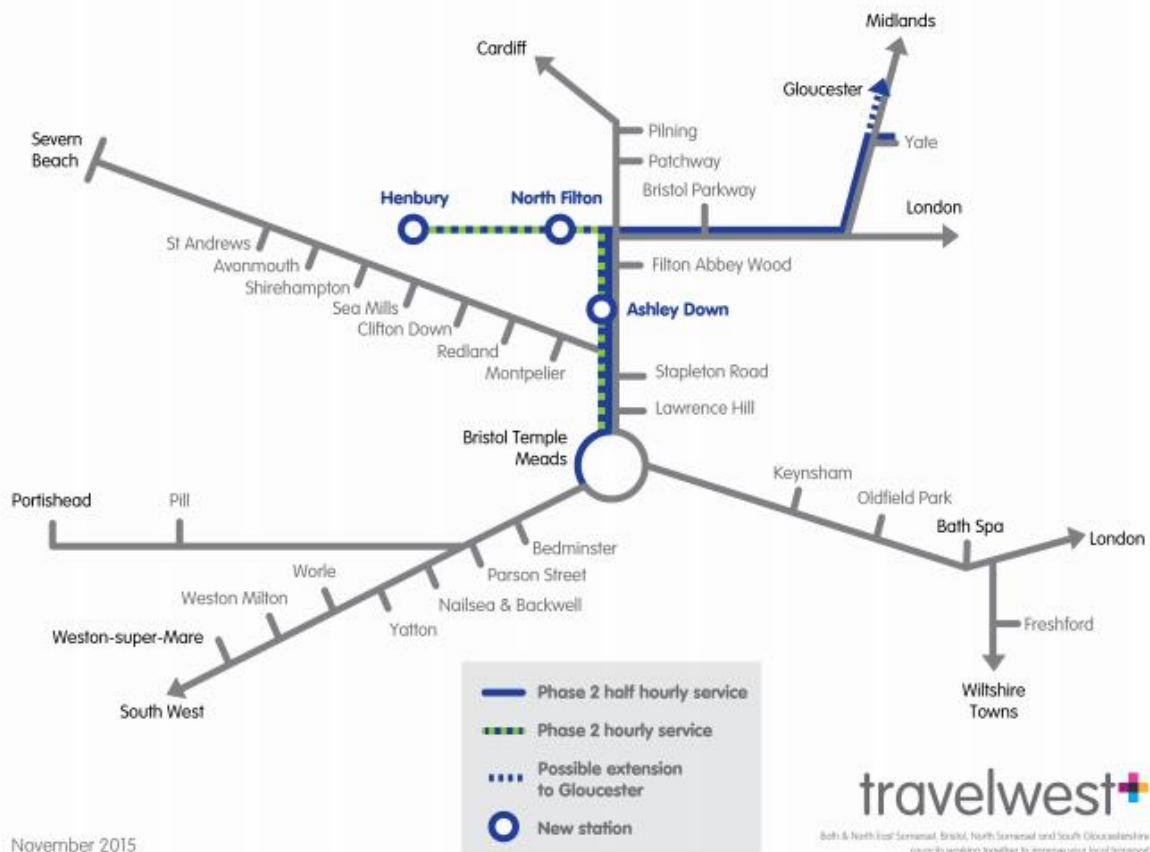
[travelwest.info/projects/metrowest/metrowest-phase-2](http://travelwest.info/projects/metrowest/metrowest-phase-2)

This covers the following:

- Half hourly train services to Yate
- Hourly services on a reopened Henbury Line with two new stations at North Filton and Henbury
- New station at Ashley Down

The cost of Phase 2 is estimated to be £42.3 million (Preliminary Business Case and GRIP Stage 2 Feasibility Study, July 2015).

### Phase 2



The GRIP 2 study gives the following cost estimates.

- 4 double track stations varying from £6m up to £19m
- Remodelling of a railway junction £7m
- Siding to allow trains to reverse £3m

[travelwest.info/projects/metrowest/metrowest-phase-2](http://travelwest.info/projects/metrowest/metrowest-phase-2)

[travelwest.info/project/mw2-pbc](http://travelwest.info/project/mw2-pbc)

[travelwest.info/wp-content/uploads/2015/07/2-appendix-a-grip-2-report.pdf](http://travelwest.info/wp-content/uploads/2015/07/2-appendix-a-grip-2-report.pdf)

## 11. Cost Estimate

### Summary Table

Scheme element	Cost Estimate (nearest £m 2015 prices)
North Filton Station	£7m
Henbury Station	£6m to £9m
Constable Road	£19m
Ashley Hill	£11m
Hallen Marsh Junction	£7m
Yate Turnback	£3m
Exclusions: <ul style="list-style-type: none"> <li>• Local authority costs</li> <li>• Land acquisition</li> <li>• DNO or principle supply points</li> <li>• Disposal off site of contaminated excavated material including spent ballast with the exception of North Filton</li> <li>• Ground treatment or other geotechnical work for the Civil element of the works</li> <li>• Connecting the proposed car parking areas to the main highway network at North Filton and Henbury Stations (all options)</li> <li>• S&amp;C lift costs do not include ground preparation for cranes etc.</li> <li>• Work to the level crossings in the Avonmouth area</li> <li>• Any costs associated with environmental and ecological consents or any work that may be required by such consents</li> </ul>	

Refer to Appendix D.

## Wisbech Rail Reopening

The Wisbech Rail re-opening project covers the line from the existing station at March through to Wisbech along a 7 mile line where the track is still in place along the full length of the line although unused since 2000. The line would require station work at March to serve the new line, the line itself with an optional passing loop to increase capacity, and a station in Wisbech. The final section to the city centre is presented as an option to identify the cost of the line crossing the A47 bypass.

The project has reached GRIP 2 feasibility stage so cost estimates are available:

[www.cambridgeshire.gov.uk/info/20006/travel\\_roads\\_and\\_parking/68/transport\\_funding\\_bids\\_and\\_studies/3](http://www.cambridgeshire.gov.uk/info/20006/travel_roads_and_parking/68/transport_funding_bids_and_studies/3)

[www.cambridgeshire.gov.uk/download/downloads/id/3886/appendix\\_b\\_cost\\_estimate\\_detail.pdf](http://www.cambridgeshire.gov.uk/download/downloads/id/3886/appendix_b_cost_estimate_detail.pdf)

Page 2:

Cambridgeshire County Council  
March to Wisbech Rail Reopening  
GRIP 2 Cost Estimate Rev 1  
26th June 2015

Cost Options	Total Nett Costs	Preliminaries Cost @ 25%	Overheads and Profit @ 10%	Total Construction Costs	Design Costs @ 12%	Client Costs @ 10%	Total Costs
Two Through Platforms at March (A)	£ 5,981,578.26	£ 1,495,394.57	£ 747,697.28	£ 8,224,670.11	£ 986,960.41	£ 822,467.01	£ 10,034,097.53
One Through Platform at March (B)	£ 4,887,790.60	£ 1,221,947.65	£ 610,973.83	£ 6,720,712.08	£ 806,485.45	£ 672,071.21	£ 8,199,268.73
One through platform and one Turnback Platform at March (C)	£ 7,716,243.38	£ 1,929,060.85	£ 964,530.42	£ 10,609,834.65	£ 1,273,180.16	£ 1,060,983.46	£ 12,943,998.27
One Bay Platform at March (D)	£ 1,859,015.05	£ 464,753.76	£ 232,376.88	£ 2,556,145.69	£ 306,737.48	£ 255,614.57	£ 3,118,497.75
Re Open Line (E)	£ 18,666,048.64	£ 4,666,512.16	£ 2,333,256.08	£ 25,665,816.88	£ 3,079,898.03	£ 2,566,581.69	£ 31,312,296.59
Two Bay Platforms at Wisbech (F)	£ 2,876,595.74	£ 719,148.94	£ 359,574.47	£ 3,955,319.14	£ 474,638.30	£ 395,531.91	£ 4,825,489.35
One Bay Platform at Wisbech (G)	£ 1,546,059.36	£ 386,514.84	£ 193,257.42	£ 2,125,831.62	£ 255,099.79	£ 212,583.16	£ 2,593,514.58
Extend Line to Wisbech Centre (H)	£ 9,525,609.65	£ 2,381,402.41	£ 1,190,701.21	£ 13,097,713.27	£ 1,571,725.59	£ 1,309,771.33	£ 15,979,210.19
Intermediate Passing Loop (J)	£ 2,338,666.55	£ 584,666.64	£ 292,333.32	£ 3,215,666.51	£ 385,879.98	£ 321,566.65	£ 3,923,113.14

The scheme's total cost comprises:

- A or B or C or D (the station options at March)
- E (the 7 mile line)
- J (an optional passing loop)
- H (extending the line to Wisbech Centre assuming the project is saddled with the cost of an A47 bridge to replace the existing level crossing)
- F or G (station options for Wisbech)

The lowest cost of this would D + E + G = £37.0m

The highest cost would be C + E + J + H + F = £68.9m

The costs indicate the following broad costs for railway infrastructure:

- Reopening a single track railway – open line £4.5m per mile
- Single platform terminus station £2.5m
- Double track terminus station £5m
- Passing loop £4m

## Borders Railway

[en.wikipedia.org/wiki/Borders\\_Railway](http://en.wikipedia.org/wiki/Borders_Railway)

[www.bordersrailway.co.uk/](http://www.bordersrailway.co.uk/)

The borders railway has recently reopened running from Edinburgh to Tweedbank. The line is predominantly single track, but with passing loops including some of substantial length (dynamic loops) so trains can pass without stopping.

The line covers the following:

- Length 31 miles, 9 ½ miles of which is double track arranged as 3 dynamic loops
- 42 new bridges and 95 refurbished bridges (the line runs over a large number of bridges)
- 2 refurbished tunnels
- 7 stations
- Total cost £350m – approximately £11m per mile for all infrastructure including stations

## Double Deck Car Park

Station car parks are often full to capacity but capacity can be doubled by adding a second deck. This has been done at Manningtree taking the car park capacity from 230 to 450 vehicles at a cost of £3m.

[www.ipswichstar.co.uk/news/should\\_ipswich\\_s\\_crown\\_car\\_park\\_be\\_doubled\\_in\\_size\\_or\\_quadrupled\\_1\\_4326414](http://www.ipswichstar.co.uk/news/should_ipswich_s_crown_car_park_be_doubled_in_size_or_quadrupled_1_4326414)

- Second deck to increase 230 space car park to 450 spaces for £3m

## Accessible Stations

The DfT's "Access for All" funding targets station infrastructure enhancements for step free access. Fully accessible footbridges with ramps or lifts cost in the region of £1m.

[www.gov.uk/government/collections/access-for-all-programme](http://www.gov.uk/government/collections/access-for-all-programme)

[www.gov.uk/government/publications/access-for-all-mid-tier-funding](http://www.gov.uk/government/publications/access-for-all-mid-tier-funding)

The full 'mid-tier' series of projects from the 2011 programme are shown in the table below. Note that the figures in the table are the level of DfT support and are not necessarily the complete cost of the project which may receive funding from other sources.



TOC/Organisation	Station(s)	Summary of work	DfT Funding requested
ATW	Radyr	New footbridge and 3 lifts	£1,000,000
ATW	Llandaf	New footbridge with ramps	£1,000,000
ATW	Ystrad Mynach	New footbridge with ramp and 1 lift	£791,386
ATW	Chirk	New ramped footbridge	£763,490
ATW	Machynlleth	New ramped footbridge with 2 lifts	£1,000,000
Centro	Acocks Green	2 new lifts and expansion of existing footbridge. New stairs	£1,000,000
Chiltern	Wendover	New footbridge and 2 lifts	£250,000
DLR (TfL)	Stratford	Ramped access between DLR, LUL and NXEA (Crossrail)	£975,000
East Coast	Wakefield Westgate	2 lifts into existing subway	£998,000
FCC	Stevenage	Replace 2 goods lifts with passenger lifts	£578,000
FCC	St.Neots	Footbridge & 5 lifts	£1,000,000
FGW	St.Austell	New footbridge with 2 lifts, waiting room, station entrance steps refurbishment	£697,000
FGW	Keynsham	Ramp from overbridge	£415,000
FGW	Swindon	Adapt existing goods lift for passenger use	£415,000
FGW	Nailsea & Backwell	Ramps to 2 platforms	£1,023,000
FGW	Theale	New footbridge with 3 lifts	£1,250,000
LB Bexley	Crayford	Footpath/ramp	£53,000
LB Enfield	Edmonton Green	2 lifts from existing station building to platforms	£850,000
London Rail (TfL)	Hampstead Heath	2 lifts to existing ticket hall and footbridge	£1,000,000
London Rail (TfL)	Crystal Palace	Lift to platform 1	£905,000
London Rail (TfL)	West Hampstead	Lifts to 2 platforms	£1,000,000
London Rail (TfL)	Kensal Rise	1 lift (eastbound platform)	£515,000
London Rail (TfL)	South Tottenham	Lifts to 2 platforms	£980,000
London Rail (TfL)	Blackhorse Road	Lifts to 2 platforms	£980,000
Merseyrail	Bebington, Birkenhead Park, Bromborough, Cressington, Eastham Rake, Fazakerley, Freshfield, Green Lane, Leasowe, Manor Road, Moreton (Merseyside), Old Roan, Orrell Park, St.Michaels, Seaforth & Litherland, Spital, Town Green	Accessible toilet	£625,000
Network Rail	Paddington	Provision of Changing Places, accessible and step free "standard" toilets	£725,000
Network Rail	Angmering, Appledore, Ashurst, Barnham, Battersea Park, Billingshurst, Bosham, Carshalton, Caterham, Dormans, Epsom, Falmer, Ham Street, Kenley, Lewes, Moulsecoomb, Newhaven Harbour, Newhaven Town, Norbury, Ore, Riddlesdown, Salfords, Southwick, Tadworth, Tattenham Comer, West Norwood, Winchelsea	Platform edge tactile	£502,000
Network Rail	Various (100 platforms)	"Easier Access" humps	£5,000,000
Network Rail	Bexleyheath	Add 2 lifts to renewed footbridge	£1,000,000
Southeastern	Bearsted	Add lifts to proposed renewed footbridge	£1,000,000
Southeastern	Paddock Wood	Add 2 lifts to proposed replacement footbridge	£1,000,000
Southern	Queen's Road Peckham	1 lift to island platform	£675,000
Southern	Redhill	1 lift from booking hall to existing subway, adjustable ticket counter	£980,000
Southern	Ewell East	Ramps to both platforms and adjustable ticket counter	£378,000
Southern	Hackbridge	Ramp to platform 2, adjustable ticket counter, automatic doors, new accessible toilet	£325,550
SWT	Wokingham	Add 2 lifts to existing footbridge	£1,000,000
SWT	Aldershot	New footbridge with 2 lifts	£1,000,000
SWT	Richmond	Improve access to existing lifts	£324,000
SWT	Alton	New footbridge with 2 lifts	£1,000,000
Vale of Glamorgan	Barry Island	New footbridge with ramps	£500,000
Warrington BC	Birchwood	New footbridge with 2 lifts	£1,000,000
Warwickshire CC	Stratford-Upon-Avon	New footbridge and 2 lifts	£1,000,000
<b>Total funding</b>			<b>£37,473,426</b>

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