

# MetroWest 2 – Henbury only

## Client cost risk exposure for MW2 project (Henbury) (Advisory)

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# Workshop details

**Date of workshop:** 22 September 2022, via MS Teams. **Attendees:**

Name	Role	Organisation
Alex White	Junior Project Manager - Rail	West of England Combined Authority
David Jarman	Rail Programme Manager	West of England Combined Authority
Jason Porter	Project Manager	West of England Combined Authority
Clare Zubovic	Sponsor	Network Rail
Mark Radford	Project Manager	Network Rail
Orla Dunn	Risk and Value Manager	Network Rail

The objectives of the workshop were to:

- Review the client risk register;
- Identify additional risks to the achievement of the project objectives;
- Provide an output to advise the client on their cost risk exposure for the project.

This report relates solely to WECA-owned risks and excludes risks owned by Network Rail (NR). NR risks are modelled and reported separately.

Each risk was analysed to understand the probability of occurrence and the impact of the risk on the project outcome. The information was provided by the client and has not been verified by NR prior to modelling.

Evaluation was conducted using Monte Carlo analysis, using @Risk software and 10,000 simulations.

This report is provided to the client on an advisory basis.

# Recommendations

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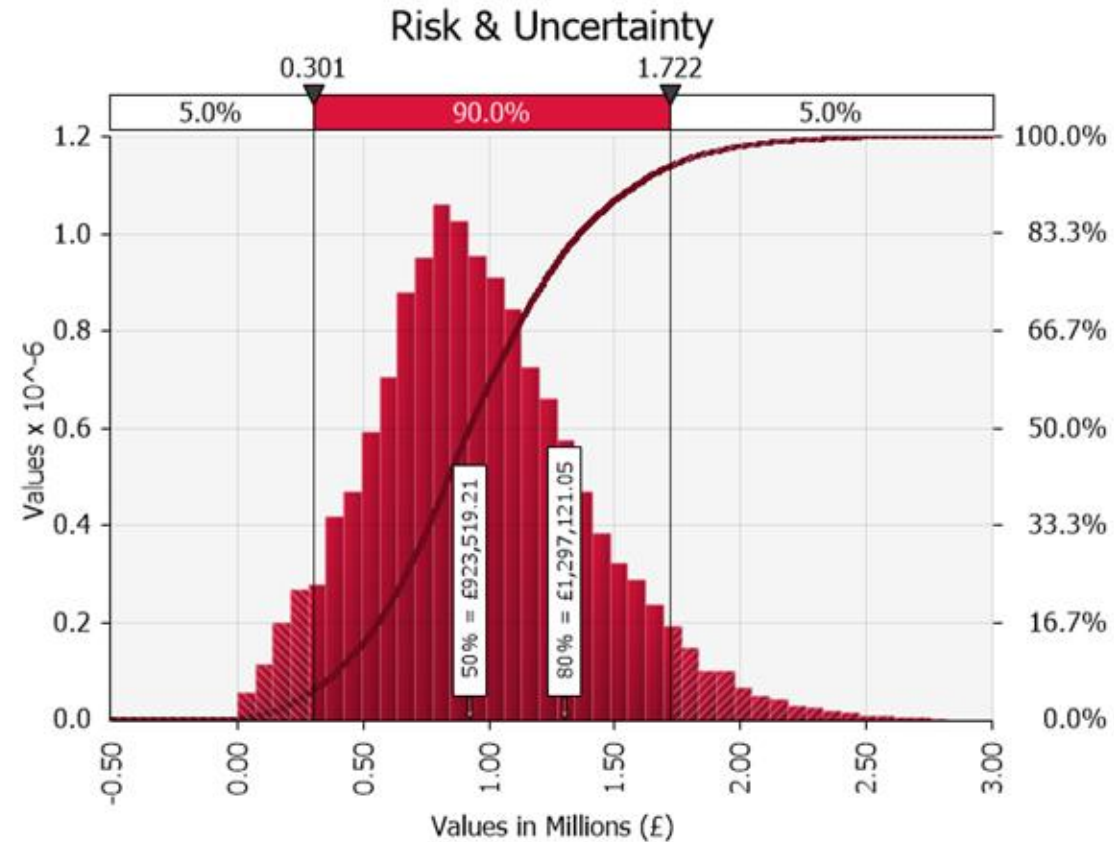
## Recommendations

- 1) The client holds responsibility for some key exclusions and risks, including the integration of NR's project plans with those of the developer at Henbury. It is recommended that key assumptions and risks are regularly reported within integration meetings to ensure early visibility and support in preventing those risks impacting the project, as far as is reasonably practicable.
- 2) For most of the last 20 years, inflation has been about 2% (source: [www.bankofengland.co.uk](http://www.bankofengland.co.uk)). As of 15 November 2022, inflation is 10.1%. The Bank of England expect inflation in the UK to fall sharply from the middle of next year, but uncertainty and the impact on prices of goods and services remains uncertain. It is recommended that the client reviews inflation risks regularly.

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# Client cost risk exposure (Advisory) - Henbury

Results	P20	P50	Mean	P80	P90
Exposure	£610,397	£923,519	£961,814	£1,297,121	£1,528,788



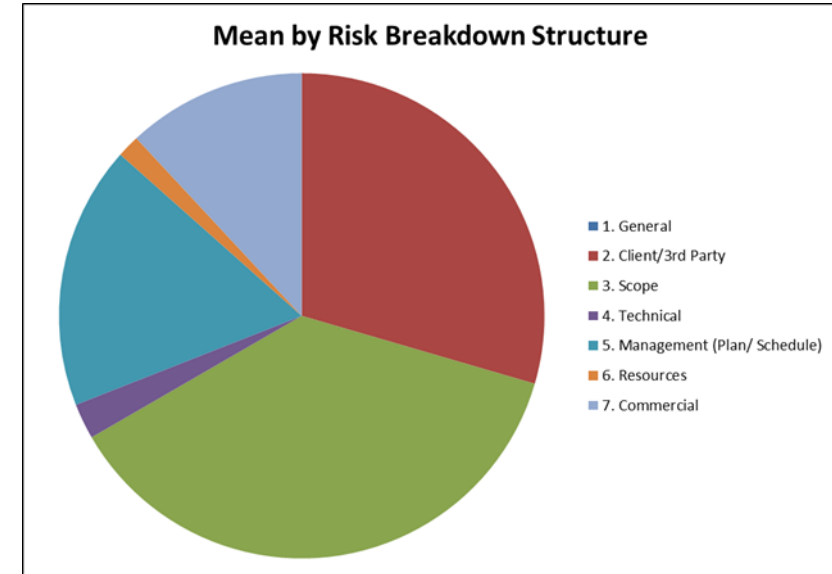
# Client cost risk exposure (Advisory) - Henbury

## Risk mean by probability grouping



Probability	Number of Risks	Mean exposure
Issues	0	£0
90% to 100%	0	£0
80% to 90%	0	£0
70% to 80%	1	£351,034
60% to 70%	0	£0
50% to 60%	1	£122,533
40% to 50%	2	£99,412
30% to 40%	1	£22,819
20% to 30%	4	£111,183
10% to 20%	4	£193,419
0% to 10%	14	£61,415
<b>Totals</b>	<b>27</b>	<b>£961,814</b>

## Mean by risk breakdown structure



Risk Breakdown Structure	Mean exposure
1. General	£0
2. Client/3rd Party	£283,926
3. Scope	£357,133
4. Technical	£22,819
5. Management (Plan/ Schedule)	£168,774
6. Resources	£14,462
7. Commercial	£114,700
<b>Total</b>	<b>£961,814</b>

# Client cost risk exposure (Advisory) - Henbury

## Top 10 threats by cost (estimated mean value)

Rank	Risk ID	Title	Mean
1	541569	HENBURY - Requirement to achieve 10 % Biodiversity Net Gain	£351,034
2	541329	HENBURY - Unforeseen planning conditions	£122,533
3	541327	HENBURY - Higher than anticipated inflationary pressures	£102,474
4	523835	HENBURY - Planning application refusal	£59,052
5	541587	HENBURY – Adverse weather (greater than 1 in 10-year event)	£53,331
6	SGC033	HENBURY - Additional requirements due to integration of station and development designs	£46,081
7	541589	HENBURY – Persimmon delay impacting NR's works	£44,935
8	541592	HENBURY – Archaeological/heritage artifacts found	£43,741
9	541278	HENBURY –Adjacent landowners' operations/works impact the site works (Persimmon)	£23,168
10	541553	HENBURY – Unforeseen ground obstructions	£22,819

# Client assumptions – Henbury

The following Client assumptions underpin the risk register.

Assumption ID	Henbury Station - assumptions	Aligned to risk ID or retained?
NFH1	North Filton and Henbury Stations will open at the same time.	Need to open together or North Filton first, otherwise a turnback at N Filton will be required. Exclusion.
NFH2	Network Rail will procure North Filton and Henbury Stations as a package for detailed design and construction.	Retained as an assumption.
NFH9	Henbury Station – The project does not need to achieve 10 % net positive biodiversity.	541569
NFH10	Henbury Station – Changes to the Persimmon development designs do not adversely impact the station design/estimate.	541589
NFH11	Henbury Station – Detailed designs for the station and Persimmon development can be successful integrated.	SGC033
NFH12	Henbury and North Filton Stations – Planning approvals are returned within typical timescales.	541589, 541579
NFH13	Henbury and North Filton Stations – Persimmon and YTL grant necessary land access for station construction works (as per current agreement in principle).	541278
NFH14	Henbury and North Filton Stations – The station construction works can be successfully integrated with the construction of Persimmon and YTL developments (as per current agreement in principle).	541278

# Client assumptions – Henbury

The following Client assumptions underpin the risk register.

Assumption ID	Henbury Stations - assumptions	Aligned to risk ID or retained?
NFH15	Henbury and North Filton Stations – Persimmon and YTL access works are completed to a suitable standard to enable the stations to be opened on time.	541278
NFH16	Henbury and North Filton Stations – Sufficient possession access can be secured by Network Rail to support the efficient delivery of both stations and associated rail systems works.	NR risk
NFH17	Henbury and North Filton Stations - Critical resources (materials and personnel) are available to support key activities (e.g. signalling commissioning).	NR risk
NFH18	Henbury and North Filton Stations - Station car parks will be taken into Network Rail ownership and Great Western Railway will be responsible for their operation.	Retained as an assumption.
NFH19	Henbury and North Filton Stations - No working time restrictions imposed on the construction works.	541598
NFH20	Section 106 agreements with Persimmon / YTL are agreed in required timescales based on the latest station layout, designs/red line drawings.	541573



# Client assumptions - Henbury

The following Client assumptions underpin the risk register.

Assumption ID	General assumptions	Aligned to risk ID or retained
Gen1	Future station operating costs (post-opening) are to be funded by GWR/DfT rather than the project.	Retained as an assumption.
Gen2	The operation of the new rail services will be funded by DfT after the first 3 years.	Retained as an assumption.
Gen3	The transition from Network Rail / GWR to Great British Railways does not impact the project.	Retained as an assumption.
Gen4	The supply chain has the capacity and capability to deliver in line with the proposed programmes of work.	Retained as an assumption.
Gen5	Inflation is assumed at 11 % for 2022/23 and 23/24 and 4 % for future years after that.	541327

# Client Risk Register – Henbury

ID	Record Title	% Probability	Minimum	Most likely	Maximum	Estimated mean value
541569	HENBURY - Requirement to achieve 10 % Biodiversity Net Gain	75	£250,000	£400,000	£750,000	£350,000
541329	HENBURY - Unforeseen planning conditions	60	£15,000	£100,000	£500,000	£123,000
541327	HENBURY - Higher than anticipated inflationary pressures	20	£100,000	£400,000	£1,000,000	£100,000
523835	HENBURY - planning application refusal	15	£50,000	£150,000	£1,000,000	£60,000
541587	HENBURY - Adverse weather (Greater than 1 in 10-year event)	50	£20,000	£50,000	£250,000	£53,333
SGC033	HENBURY - Additional requirements due to integration of station and development designs	50	£25,000	£50,000	£200,000	£45,833
541589	HENBURY - Persimmon delay impacting NR's works	25	£20,000	£120,000	£400,000	£45,000
541592	HENBURY - Archaeological / heritage artifacts found	25	£2,000	£75,000	£450,000	£43,917
541278	HENBURY - Adjacent landowners' operations/works impact the site works (Persimmon)	15	£10,000	£50,000	£400,000	£23,000
541553	HENBURY - Unforeseen ground obstructions	35	£5,000	£40,000	£150,000	£22,750
541280	HENBURY - Car park location not acceptable (ecological mitigation works)	5	£25,000	£400,000	£500,000	£15,417
SGC005	HENBURY - Unforeseen ecological issue - protected species	10	£2,000	£50,000	£400,000	£15,067
541321	HENBURY - Materials not available within timescales or at additional cost (WECA elements)	25	£5,000	£50,000	£120,000	£14,583

# Client Risk Register – Henbury

ID	Record Title	% Probability	Minimum	Most likely	Maximum	Estimated mean value
541331	HENBURY - Material price increases (not related to inflation)	20	£5,000	£50,000	£75,000	£8,667
541548	HENBURY - Contaminated land (including asbestos)	25	£2,000	£20,000	£75,000	£8,083
541565	HENBURY - Higher costs associated with Section 106 agreement with Persimmon	10	£5,000	£40,000	£150,000	£6,500
541598	HENBURY - Current planning restriction enforced resulting from section 61 requirements	10	£10,000	£40,000	£100,000	£5,000
541299	HENBURY - Change in WECA governance/assurance requirements	5	£500	£10,000	£250,000	£4,342
541573	HENBURY - Section 106 agreement not agreed in time with Persimmon	5	£2,000	£50,000	£200,000	£4,200
541602	HENBURY - Incorrect OPEX provision for GWR	5	£20,000	£85,000	£85,000	£3,167
541544	HENBURY - Unforeseen environmental issue (e.g. Japanese knotweed/ Himalayan Balsam)	10	£2,000	£20,000	£40,000	£2,067
541560	HENBURY - potential road closures needed for utilities works	5	£1,000	£20,000	£75,000	£1,600
541579	HENBURY - Delay due to need to discharge WECA specific planning conditions	5	£5,000	£15,000	£60,000	£1,333
541590	HENBURY - Archaeological issue identified	2	£5,000	£20,000	£120,000	£967
541577	HENBURY - Unexploded ordnance identified on site	1	£6,000	£25,000	£200,000	£770
SGC021	HENBURY - Direct action by protestors related to the works	2	£500	£10,000	£75,000	£570
523886	HENBURY - Legal fees are higher than expected	5	£1,000	£5,000	£15,000	£350