

# MetroWest 2 – North Filton only

## Client cost risk exposure for MW2 project (North Filton) (Advisory)

Network Rail OP Reference: 139797

Version: 1.0

Publication Date: 23/11/2022

<b>Author:</b> Orla Dunn, Risk and Value Manager, Network Rail	
<b>Authorised by:</b> Clare Zubovic', Sponsor, Network Rail	
<b>Authorised by:</b> Paul Trow-Smith, Principal Risk & Value Manager, Network Rail	
<b>Accepted by:</b> David Jarman, Rail Programme Manager, West of England Combined Authority	



This document is the property of Network Rail. It shall not be reproduced in whole or part nor disclosed to a third party without written permission of Network Rail.

# 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.

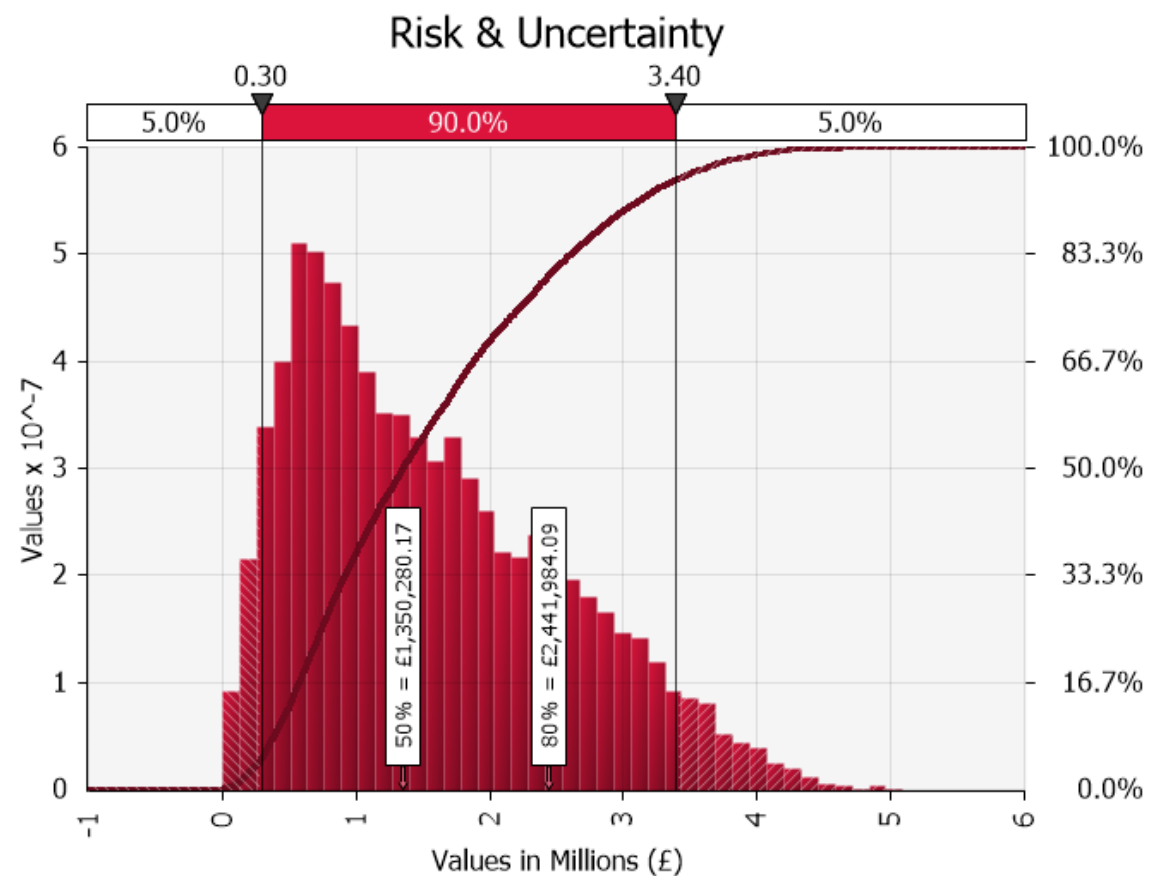
This report is provided to the client on an advisory basis.

# Recommendations

- 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.

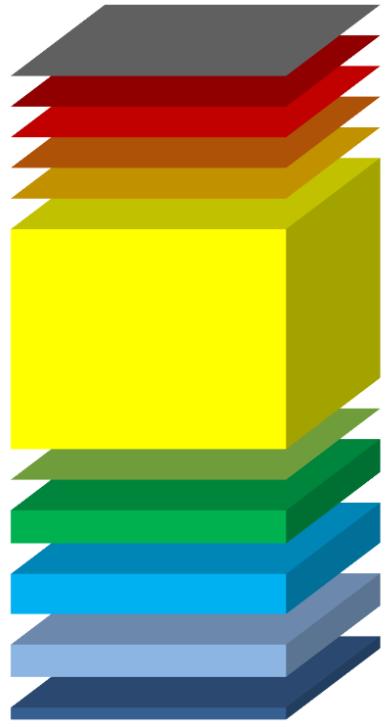
# Client cost risk exposure (Advisory) – North Filton

Results	P20	P50	Mean	P80	P90
Exposure	£642,009	£1,350,280	£1,546,919	£2,441,984	£2,994,709



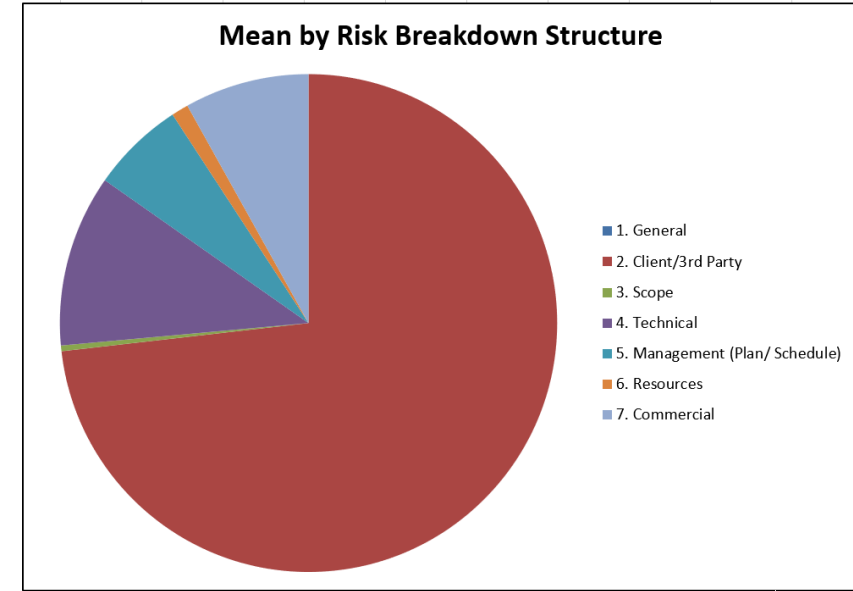
# Client cost risk exposure (Advisory) – North Filton

## Risk mean by probability grouping



Probability	Number of Risks	Mean exposure
Issues (100%)	0	£0
91% to 99%	0	£0
81% to 90%	0	£0
71% to 80%	0	£0
61% to 70%	0	£0
51% to 60%	2	£1,009,013
41% to 50%	0	£0
31% to 40%	2	£151,118
21% to 30%	6	£183,606
11% to 20%	4	£148,129
0% to 10%	15	£55,054
<b>Totals</b>	<b>29</b>	<b>£1,546,919</b>

## Mean by risk breakdown structure



Risk Breakdown Structure	Mean exposure
1. General	£0
2. Client/3rd Party	£1,132,238
3. Scope	£5,691
4. Technical	£172,701
5. Management (Plan/ Schedule)	£93,852
6. Resources	£17,115
7. Commercial	£125,323
<b>Total</b>	<b>£1,546,919</b>

# Client cost risk exposure (Advisory) – North Filton

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

Rank	Risk ID	Risk title	Mean
1	541279	NORTH FILTON - Additional requirements resulting from the new Brabazon Arena	£849,538
2	541571	NORTH FILTON - New NR fire standard may lead to change in design	£159,475
3	541328	NORTH FILTON - Higher than anticipated inflationary pressure	£99,714
4	SGC031	NORTH FILTON - Unforeseen planning conditions	£87,934
5	541586	NORTH FILTON - Adverse weather (Greater than 1 in 10-year event)	£63,184
6	541584	NORTH FILTON - YTL costs higher than budgeted	£62,645
7	541277	NORTH FILTON - Adjacent landowners' operations/works impact the site works (YTL/Airbus)	£50,967
8	541568	NORTH FILTON - Delay/lack of progress achieved on YTL design work	£29,710
9	541330	NORTH FILTON - Material price increases (not related to inflation)	£22,071
10	541566	NORTH FILTON - Higher costs associated with Section 106 agreement with YTL	£17,662

# Client assumptions – North Filton

The following Client assumptions underpin the risk register.

Assumption ID	North Filton 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.
NFH3	North Filton Station - No requirement to accelerate the station works to align with the arena opening.	Retained as an assumption.
NFH4	North Filton Station – No requirement to enhance the current design for emergency / fire refuge areas on the Southern side due to standards changes.	541571
NFH5	North Filton Station – The current station design is suitable to meet the additional demand/patronage associated with the arena with crowd control for events managed in the public realm area.	541279
NFH6	North Filton Station – Design and construction of the public realm and permanent / temporary car parks will be undertaken by YTL.	Retained as an assumption.

# Client assumptions – North Filton

The following Client assumptions underpin the risk register.

Assumption ID	North Filton Station - assumptions	Aligned to risk ID or retained?
NFH7	North Filton Station - Changes to the YTL development designs do not adversely impact the station design/estimate.	Retained as an assumption.
NFH8	North Filton Station – The public realm and temporary car park works are completed to a suitable standard to enable the station to open on time.	541583
NFH12	Henbury and North Filton Stations – Planning approvals are returned within typical timescales.	523834, 541585
NFH13	Henbury and North Filton Stations – Persimmon and YTL grant necessary land access for station construction works (as per current agreement in principle).	541277
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).	541277
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.	541277



# Client assumptions – North Filton

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.	541328

# Client Risk Register – North Filton

ID	Record Title	% Probability	Minimum	Most likely	Maximum	Estimated mean value
541279	NORTH FILTON - Additional requirements resulting from the new Brabazon Arena	60	£50,000	£650,000	£3,500,000	£840,000
541571	NORTH FILTON - New NR fire standard may lead to change in design	60	£50,000	£250,000	£500,000	£160,000
541328	NORTH FILTON - Higher than anticipated inflationary pressure	20	£100,000	£400,000	£1,000,000	£100,000
SGC031	NORTH FILTON - Unforeseen planning conditions	40	£15,000	£150,000	£500,000	£88,667
541586	NORTH FILTON - Adverse weather (Greater than 1 in 10-year event)	40	£20,000	£50,000	£400,000	£62,667
541584	NORTH FILTON - YTL costs higher than budgeted	25	£50,000	£200,000	£500,000	£62,500
541277	NORTH FILTON - Adjacent landowners' operations/works impact the site works (YTL/Airbus)	30	£10,000	£100,000	£400,000	£51,000
541568	NORTH FILTON - Delay/lack of progress achieved on YTL design work	25	£2,000	£100,000	£250,000	£29,333
541330	NORTH FILTON - Material price increases (not related to inflation)	20	£5,000	£75,000	£250,000	£22,000
541566	NORTH FILTON - Higher costs associated with Section 106 agreement with YTL	10	£5,000	£40,000	£500,000	£18,167
523883	NORTH FILTON - Materials not available within timescales or at additional cost (WECA elements)	25	£5,000	£40,000	£160,000	£17,083
541582	NORTH FILTON - Unforeseen costs associated with GWR car park operation	25	£10,000	£50,000	£100,000	£13,333
541554	NORTH FILTON - Unforeseen ground obstructions	20	£5,000	£40,000	£150,000	£13,000
541333	NORTH FILTON - Unforeseen ecological issue - protected species	15	£2,000	£50,000	£200,000	£12,600

# Client Risk Register – North Filton



ID	Record Title	% Probability	Minimum	Most likely	Maximum	Estimated mean value
541549	NORTH FILTON - Contaminated land (including asbestos)	30	£2,000	£20,000	£75,000	£9,700
523834	NORTH FILTON - planning application refusal	5	£10,000	£75,000	£250,000	£5,583
541583	NORTH FILTON - Temporary car park not ready (by YTL) for station opening	2	£80,000	£160,000	£480,000	£4,800
541300	NORTH FILTON - Change in WECA governance/assurance requirements	5	£500	£10,000	£250,000	£4,342
541572	NORTH FILTON - Section 106 agreement not agreed in time with YTL	5	£2,000	£50,000	£200,000	£4,200
541578	NORTH FILTON - Construction works impacted by YTL arena events	5	£6,000	£25,000	£200,000	£3,850
541546	NORTH FILTON - Unforeseen environmental issue (e.g. Japanese knotweed/ Himalayan Balsam)	10	£2,000	£20,000	£75,000	£3,233
541603	NORTH FILTON - Incorrect OPEX provision for GWR	5	£20,000	£85,000	£85,000	£3,167
541593	NORTH FILTON - Archaeological /heritage artifacts found	10	£2,000	£20,000	£60,000	£2,733
541585	NORTH FILTON - Delay due to need to discharge WECA specific planning conditions	5	£5,000	£20,000	£75,000	£1,667
541561	NORTH FILTON - potential road closures needed for utilities works	5	£1,000	£20,000	£75,000	£1,600
541576	NORTH FILTON - Unexploded ordnance identified on site	3	£6,000	£25,000	£100,000	£1,310
541599	NORTH FILTON - Current planning restriction enforced resulting from section 61 requirements	2	£10	£40	£100,000	£667
541555	NORTH FILTON - Direct action by protestors related to the works	2	£500	£20,000	£60,000	£537
541307	NORTH FILTON - Legal fees are higher than expected	5	£1,000	£5,000	£15,000	£350