

Capital Cost and Business Case

£m Real May 09		1	2	3	4	5
Option	Scope	NR Capital Cost (£m)	NR Capital Cost incl 30% contingency (£m)	NR Capital cost incl 30% contingency + 50% OB (£m)	NR Capital cost incl 30% contingency + 66% OB (£m)	Economic Business Case on basis of Column 4
GWMML 2	Paddington to Oxford, Newbury, Bristol TM, Pk way	297	386	578	640	No net cost to govt in PV terms
GWMML 3	Paddington to Oxford, Newbury, Bristol TM, Pk way and Swansea	459	596	894	990	high vfm (BCR 2.5 to 3)
MML	St Pancras to Corby, Nottingham, Sheffield	332	431	647	716	No net cost to govt in PV terms
GWMML 3 + MML		790	1028	1541	1706	

- Costs at GRIP 2-3 detail but not yet formalised in GRIP
- NR 30% contingency validated by QRA (potential upside)
- 50% OB applies at GRIP 2
- For prudence 66% OB applied to cash flow

Taken forward to
cash flow

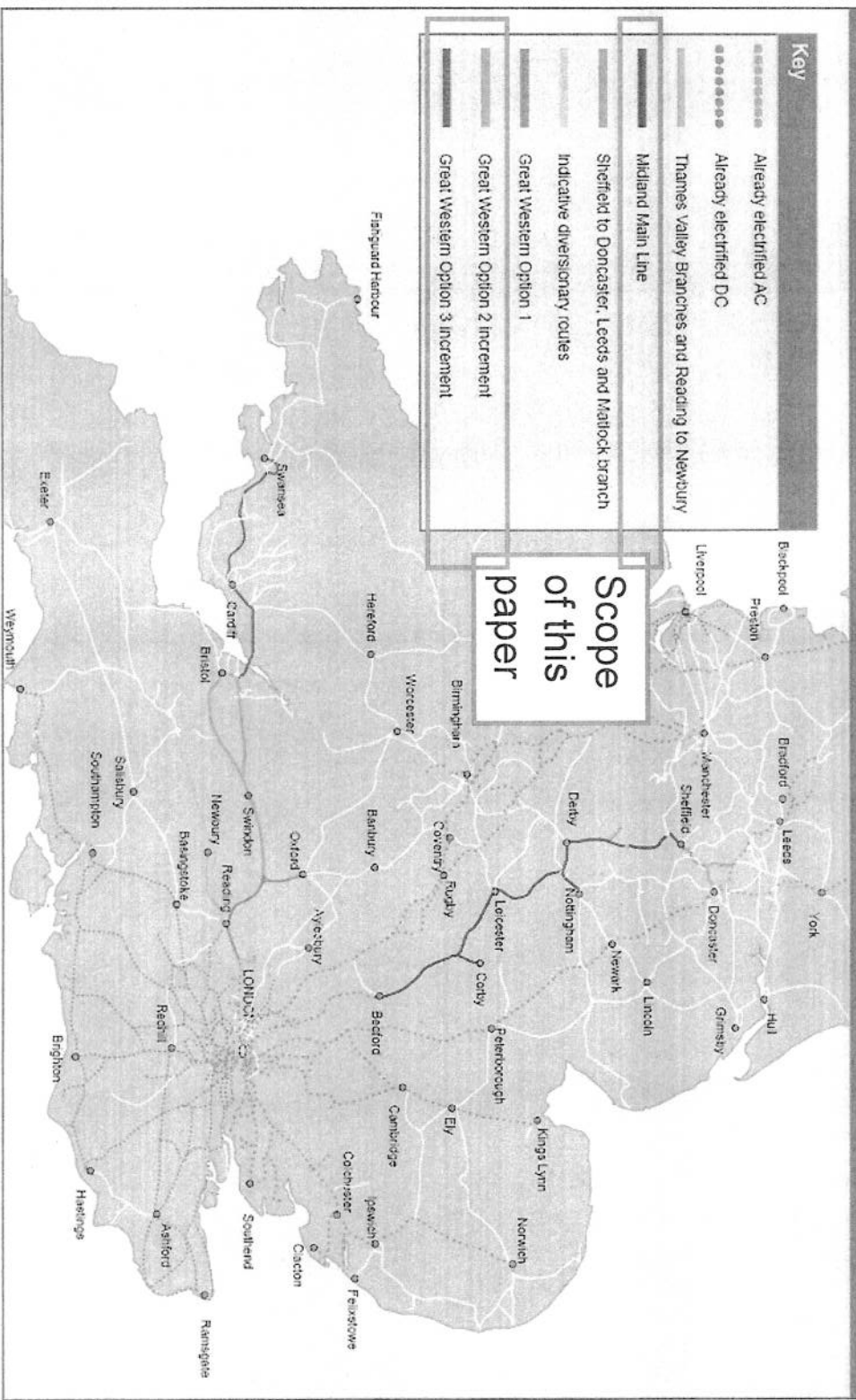
WAG/ DfT electrification briefing
13th May 2009

Proposed Scope

GWML & MML Electrification

Key	
	Already electrified AC
	Already electrified DC
	Thames Valley Branches and Reading to Newbury
	Midland Main Line
	Sheffield to Doncaster, Leeds and Matlock branch
	Indicative diversionary routes
	Great Western Option 1
	Great Western Option 2 increment
	Great Western Option 3 increment

**Scope
of this
paper**



Electrification Benefits (GWML example)

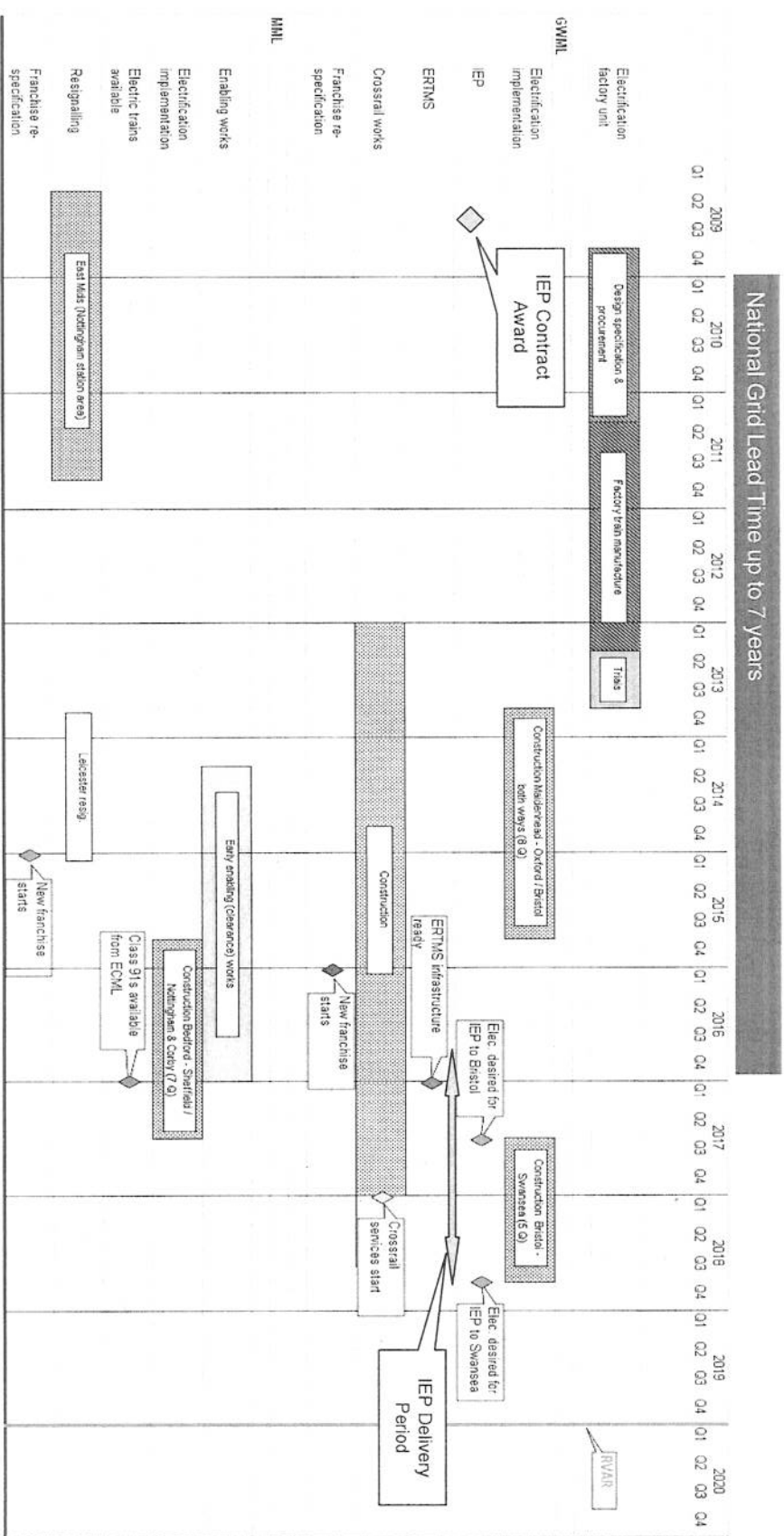
- **Passenger Benefits**
- Capacity
 - (18% more seats per full length train than Diesel IEP)
- Train reliability
 - 50% improvement
 - Route reliability >= today
- Journey Time
 - (4 mins faster London to Swansea)
- **Industry Benefits**
- Lower cost railway
 - (Financially positive business case to Bristol, high vfm case to Swansea)
 - (GWML element of IEP reduced by 7%/ £120m PV over 20 years)
- Lower carbon emissions
 - Typically 25 – 30% lower than diesel equivalent
 - BUT carbon saving is not material in business case (0.02% UK)
- Reduced track damage costs (27%)
- Electrification offers a step change in rail delivery and reduced cost on the busiest routes
- The optimum time to electrify is when rolling stock is life expired as is the case on GWML now

NR Capital Cost and Business Case

£m Real May 09		NR Capital Cost (£m)	NR Capital cost + 66% OB (£m)	Business Case on basis of Column 4
Option	Scope			
GWML 2	Paddington to Oxford, Newbury, Bristol TM and Bristol Parkway	386	640	No net cost to govt in PV terms
GWML 3	Paddington to Oxford, Newbury, Bristol TM, Bristol Parkway and Swansea	596	990	high vfm (BCR 2.5 to 3)
GWML 3a	Incremental Bristol to Swansea	210	350	Poor/ Med vfm (BCR <=1.5 dependent on fleet)
MML	St Pancras to Corby, Nottingham, Sheffield	431	716	No net cost to govt in PV terms
GWML 3 + MML		1028	1706	

- Costs at GRIP 2-3 detail but not yet formalised in GRIP
- NR capital cost includes 30% contingency validated by QRA
- 50% OB applies at GRIP 2 which NR anticipate reaching in July 2010
- In absence of formal GRIP status 66% OB applied

Network Rail Proposed Programme



- The break in GWML installation is to allow both MML and GWML to be completed to match rolling stock availability dates

Affordability: RAB funding for base programme

£m Nominal Option	Scope	CP4 Total	CP5 Total	CP6 Total	Total	CP 4						CP 5						CP 6									
						12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22
GWML 2	Paddington to Oxford, Newbury, Bristol TM, PWay	12	309	353	1993	1	11	37	62	70	70	70	70	70	70	70	71	71	71	71	71	71	71	71	71	71	71
GWML 3	Paddington to Oxford, Newbury, Bristol TM, PWay and Swansea	12	365	531	3006	1	11	39	65	75	86	101	106	106	106	106	106	106	106	106	106	106	106	106	106	107	
GWML 3 a	Incremental Bristol to Swansea	1	56	178	1013	0	0	2	3	5	16	30	35	36	36	36	36	36	36	36	36	36	36	36	36	36	
MMML	St Pancras to Corby, Nottingham, Sheffield	0	204	394	2232	0	0	1	10	44	71	78	78	79	79	79	79	79	79	79	79	79	79	79	79	79	
GWML 2 + MMML		12	513	747	4225	1	11	37	73	113	141	148	149	149	150	150	150	150	150	150	150	150	150	150	150	150	
GWML 3 + MMML		12	569	925	5238	1	11	39	76	119	157	179	184	185	185	185	185	185	185	185	185	185	185	186	186	186	

- RAB funded assuming 6% return, 66% Optimism Bias
- Capital costs only, excludes OLE Maintenance
- Cumulative benefits exceed cumulative costs in CP11/12 i.e. Payback is 2045 to 2055

Affordability: Long Term Cash Flow

	CP4	CP5	CP6	CP7	CP8	CP9	CP10
	09/10-14/14	14/15-18/19	19/20-23/24	24/25-28/29	29/30-33/34	34/35-38/39	39/40-43/44

MML

Infrastructure Costs	0	-210	-420	-430	-430	-420	-390
Operating Cost Savings & Revenue	0	40	230	300	360	430	520
Net Impact	0	-170	-190	-130	-70	10	130

GWML OPTION 2 (Bristol)

Infrastructure Costs	-10	-320	-390	-390	-390	-380	-340
Operating Cost Savings & Revenue	0	90	260	300	360	420	500
Net Impact	-10	-230	-130	-90	-30	40	160

GWML OPTION 3 (Swansea)

Infrastructure Costs	-10	-380	-560	-590	-590	-570	-530
Operating Cost Savings & Revenue	0	90	300	350	420	490	580
Net Impact	-10	-290	-260	-240	-170	-80	50

INCREMENT (Bristol to Swansea)

Infrastructure Costs	0	-60	-190	-200	-200	-190	-190
Operating Cost Savings & Revenue	0	0	40	50	60	70	80
Net Impact	0	-60	-150	-150	-140	-120	-110

- Includes OLE Maintenance in Infrastructure Costs
- Cumulative benefits exceed cumulative costs in CP11/12 i.e. Payback is 2045 to 2055