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cc without  
attachments  
to Mr Gov, please.

DEPARTMENT OF TRANSPORT  
2 MARSHAM STREET LONDON SW1P 3EB

Michael Scholar Esq  
Private Secretary  
10 Downing Street  
Whitehall

28 March 1983

Dear Michael,

HASTINGS-TONBRIDGE RAIL SERVICE

Thank you for your letter of 14 March about the renewal of the Hastings to Tonbridge rail service. You asked to see the base papers on which my Secretary of State had reached his conclusion. The two sets of papers that I think you would find most useful are enclosed. They are the Railways Board's submission and the summary of the Department's economic evaluation of the options. I also attach a map of the line.

Timing

The timing of modernisation has been one of the questions to which we have given particular attention. The line goes through a number of unusually narrow tunnels and bridges. The services on it are, therefore, currently provided by specialty-built narrow rolling stock. This is now approaching the end of its useful life. The Railways Board say that if the services are to be kept going, they must begin work within the next few months on modernisation or on the renewal of the existing stock to keep it going for another 30 years or to "life-extend" the existing stock for perhaps another 5 years.

The Board's preferred electrification option would cost some £24 millions. "Life extension" (patching up the vehicles for another 5 years) would cost £18m; it would be so expensive because of the need to remove asbestos from the vehicles. The Secretary of State's conclusion - given what is said below about the suitability of this case for innovation - is that the potential benefits of delay are not large enough to justify holding up the decision on the form of replacement.

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The Options

There are three main alternatives to the electrification scheme preferred by the Board. Two of them involve diesel replacement. If the diesel units were available now they might well be more attractive than electrification. But neither of them has actually been developed: producing them would inevitably take some time and there is no guarantee that they would be less expensive in the event. So we do not know when they would be available or at what cost. By contrast, electrification involves the use of standard electric stock which already exists.

The Board's investment submission identifies two electrification options. One of them would involve making about 18 miles of the route south of Tunbridge Wells into a single track. That would produce a less expensive scheme than the Board's preferred solution, which is to single the track only where this is necessary to allow the present standard electric vehicles to get through the narrow tunnels and bridges.

Naturally, the Secretary of State considered very carefully the merits of the cheaper electrification option. He concluded that he should not require the Board to adopt it for two main reasons. First, during the peak hours, the "maximum singling" option would put commuters at a real risk of long delays. A hitch of only a very few minutes in the timing of trains, not only on the Hastings-Tonbridge stretch but also north of Tonbridge, could put out the whole timetable, involving commuters in delays of up to 15 minutes. Delays of that kind could turn passengers away from the railway, so worsening the line's financial performance. Second, and related to that point, the Secretary of State has had considerable success recently in pushing the Board to adopt a far more business-oriented approach. He intends to increase this pressure. To substitute his commercial judgement for the Board's in this case would run clear contrary to his intentions and would be an example of the conduct by the Department which is criticised in both the Majority and Minority Reports of the Serpell Committee. His intention, therefore, is to approve the Board's preferred option but to impress upon BR his wish that they should find ways to reduce the cost of the project while securing comparable benefits.

Suitability for Innovation

There are a wide variety of possibilities for innovation. One to which the Secretary of State attaches particular importance is the attraction of private capital into the running of services. The most attractive prospect for this approach at present involves the development of a new air terminal and



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associated facilities at Victoria Station, in association with the running of the rail link between Victoria and Gatwick. But the advice received so far from Morgan Grenfell is that even this development would be unlikely to secure the support of private investors unless safeguards for them were written into the deal which could conflict with the criteria identified by the NEDC and agreed by the Treasury in 1981. The Hastings-Tonbridge service is not profitable and would be far less attractive to private investors than schemes such as that for Victoria-Gatwick.

Another possibility the Secretary of State has in mind would involve private operators taking over the running of services and, where necessary, receiving grants - at a lower level than BR needs - for doing so. But that would require legislation, and raises some formidable problems about long-term responsibility for the assets, what happens in the event of default by the operator, and so on. These are real, practical difficulties to which solutions must be found to enable this initiative to go ahead. There is, however, no prospect of finding the solutions and obtaining the necessary legislation on the timescale required for decisions on the renewal of the Hastings-Tonbridge service.

As the Prime Minister knows, the Secretary of State also wishes to introduce technological innovation onto the railway. But this line does not represent a good test case because, for example, of the narrowness of the bridges and tunnels and the fact that many of the services from Hastings run through Tonbridge to London on lines north of Tonbridge shared with other, conventional services.

It was for these reasons that the Secretary of State reluctantly concluded that this was neither the right case nor the right time-scale for the application of the radical innovations he wants to pioneer.

The Secretary of State is already taking steps to remedy the weaknesses in the Board's investment procedures which were identified by the Serpell Committee and are exemplified by this particular case. He has instructed the Department to hold discussions with the Board at an early stage in the preparation of all major projects, to ensure that alternatives are properly considered and evaluated.

I am sending a copy of this letter and the enclosures to Margaret O'Mara.

Yours sincerely,

*Richard Bird*

R. BIRD  
Private Secretary

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TONBRIDGE TO HASTINGS ROUTE.

1. Objective.

Renewal of traction for London-Tonbridge-Hastings service by most economical method.

2. Proposal.

Route clearance, electrification at 750 v DC and resignalling between Tonbridge and St. Leonards (Bo-Peep Junction) to permit passage of all standard rolling stock.

3. Financial Summary.

Net Outlay for authorisation (Q3/82 prices) £23.925m.

NPV at 7% TDR £41.577m

The calculated Net Present Values embrace all the relevant cash flows for each option and the results are therefore comparable. They do not, however, include those infrastructure costs that are common to all options.

Effect on revenue account, 1995,  
compared with 1982 (See Appendix B Page 3) £1.461m (B).

4. INTRODUCTION.

4.1 The section of line between Tonbridge and St. Leonards (Bo-Peep Junction) was constructed to very restrictive clearances, and severe restrictions exist on the working of locomotives and freight vehicles over the line.

4.2 The only passenger carrying vehicles authorised to run over the throughout route are specially constructed narrow-bodied diesel electric units in Classes 201/2/3 which work the service between Charing Cross/Cannon Street and Hastings, comprising 122 vehicles built in 1957/8. Many of these were built on old underframes as an economy measure. They constitute a special fleet, purpose built for the restricted clearances operative on the Tonbridge-Hastings line. As no other passenger carrying stock is authorised to work between Tunbridge Wells (Grove Junction) and St. Leonards (Bo-Peep Junction), the maintenance of passenger services between those points is presently wholly dependent upon the continued existence of this stock.







5 The results from the 1982 Business Report of the principal profit centres using the line are:-

	Earnings	Train Service and Terminal Expenses	Net Contribution	Operating Ratio
	fm	fm	fm	
Passenger London-Hastings	8.0	5.9	2.1	74
Freight Mountfield-Northfleet	0.3	0.1	0.2	33

5.6 The condition of the existing signalling installation between Tonbridge and Hastings is such that substantial renewal will be necessary before 1988 at a total estimated cost of £2.9m.

Options Examined.

- 6.1 Continue the existing service by life extending the Class 201/2/3 DEMU's.
- 6.2 Class 141 DMU shuttle Tunbridge Wells - Hastings and electrification Tonbridge to Tunbridge Wells.
- 6.3 Electrification Tonbridge - Tunbridge Wells with DEMU shuttle Tunbridge Wells - Hastings until 1991 when replaced by Cl. 141 DMUs.
- 6.4 Electrification Tonbridge - Tunbridge Wells with DEMU shuttle Tunbridge Wells - Hastings until 1991, then electrification between these points.
- 6.5 Create structural clearances for standard stock and electrification.
- 6.6 Create structural clearances, electrification and more extensive line-singling.
- 6.7 Create structural clearances and introduce diesel locomotive push-pull service.

The above options were evaluated. The following options were considered and discarded for other good reasons.

- 6.8 Run down the Hastings service with closure in 1987.
- 6.9 Construct new narrow bodied stock
- 6.10 Bus bodies on Mk. 1 underframes with haulage by Cl. 33/2 diesel locomotives..



6.11 Sub-options involving closure of the line between Tunbridge Wells and St Leonards.

- (i) Electrification Tonbridge to Tunbridge Wells.
- (ii) Reinstatement of Polegate Spur
- (iii) Increased electric service via Lewes.

7. Proposal- Create Structural clearances for standard stock and Electrification (Option 6.5) .

7.1 Electrification Works.

Provide third rail electrification at 750 V DC suitable for operating 12 car trains between Tonbridge and Hastings. See Appendix A for route details.

7.2 Structural Clearance Works.

Tunnel, bridge and permanent way alterations, to permit passage of all stock likely to use the line by:-

- (a) singling the track in three tunnels  
Somerhill  
Strawberry Hill  
Wadhurst
- (b) provision of slab track in Grove Hill tunnel to accommodate double track.
- (c) provision of additional refuges in Wells tunnel and certain viaducts.
- (d) replacement of four overbridges for which Department of Transport dispensation for reduced clearances cannot be obtained.

7.3 Resignalling Works.

7.3.1 Multiple aspect colour light signalling and AWS equipment to be installed, and Track Circuit Block working introduced throughout.

7.3.2 Braking distances, to SR standards, to be provided to allow the increased line speed to be exploited, in conjunction with track improvements.

7.3.3 Six signalboxes, as listed in Appendix D will be closed. Control of the line to be exercised by Tonbridge, Robertsbridge and Bo-Peep Junction signalboxes.

The closure of the foregoing will permit a reduction in staff costs estimated at £0.15m p.a. (a reduction of 17 signalmen).



- 7.3.4 Modernisation of level crossing at Etchingam to AHB with supervision from Robertsbridge signalbox, and level crossing at Battle (Marley Lane) to CCTV, controlled from Bo-Peep Junction signalbox.
- 7.3.5 Transfer supervision of automatic half-barriers at Crowhurst Bridge to Tonbridge signalbox.
- 7.3.6 The maximum number of unstaffed level crossings will be reduced in status.
- 7.3.7 The minimum outlay needed for signalling alterations resulting from electrification amounts to £1.99m and, if centralised control was adopted, would mean a further £2.56m being spent on essential resignalling by 1988. The proposal provides for complete resignalling in modern form with centralised control from the year of introduction, at a total outlay of £3.55m, which produces an NPV surplus of £0.73m with an I.R.R. of 27.1%.

#### 7.4 Station Alterations.

General clearance work as shown in Appendix E will be carried out to permit all existing SR main line EMUs, locomotives and other stock likely to use the line, to pass over the route.

- 7.5 It is considered that this combination of singling and minor works represents the minimum action to provide the line capacity essential for operation of rolling stock at an acceptable level and pattern of service. Appendix F shows details of rolling stock which will be permitted to use the line.

#### 7.6 Rolling Stock.

- 7.6.1 Electrification will provide opportunities for more intensive programming of existing stock, by integrating Hastings services with the rest of the South Eastern Division. It will be possible to cover these services with only 86 additional electric multiple unit vehicles, and the means of providing these vehicles is shown in Appendix G.
- 7.6.2 The DEMU vehicles will start to be withdrawn between May 1985 and May 1986, as dictated by maintenance and service requirements, and it is forecast that no more than 104 vehicles will remain in service by May 1986, when all will be withdrawn. Some service adjustments will be necessary during the interim year, but it is confidently expected that passengers will be prepared to accept a reduced level of service during this period, in the knowledge that this is temporary.



### 7.7 Rolling Stock Servicing and Berthing.

Electric multiple units will be concentrated at Hastings and St. Leonards (West Marina), where some existing sidings will be electrified, to facilitate servicing and routine maintenance, with a net reduction of 12 posts.

### 7.8 Line Speed.

Raise ruling line speed from 70 mph to 90 mph, between Tonbridge and Bo-Peep Junction to improve journey times, as shown in Appendix H, and compensate for effect of singling in the tunnels. The cost amounts to £130,000 and produces revenue benefits of £26,000 which produces an NPV surplus of £90,000 with an IRR of 14%. Details of locations where achievement of full line speed would be prohibitively expensive and so is not proposed are shown in Appendix I.

### 7.9 Service Vehicles.

7.9.1 Certain specialised plant and equipment together with service vehicles will need to be provided for the duration of the construction works at a cost of £114,000.

7.9.2 It is the intention to convert existing vehicles which are surplus to requirements.

7.9.3 After completion of the scheme the vehicles will be available for any future electrification project or can be utilised in the work of replacing existing equipment on the Region's annual Traction Substation Equipment and Cables Renewals Programme.

## 8. Benefits.

8.1 Achievement of increased passenger receipts estimated at £0.77m p.a. at full fruition, resulting from electrification.

8.2 Improvement in safety standards, by the introduction of standard SR braking distances, to cater for the higher speeds, and AWS equipment.

8.3 Replacement of life-expired signalling equipment and rolling stock.

8.4 Net reduction of 11 staff as detailed in Appendix J.

8.5 Improvement in operational efficiency and flexibility by clearance of the route for all stock likely to pass over the lines, improvements to track layouts.

8.6 Reduction in the Regional fleet of DEMUs as a logical step towards the eventual objective of its complete elimination.

8.7 Minimisation of maintenance, repair and traction costs for rolling stock.



- 8.8 Affords a reduction of some 1.25m gallons per annum of diesel fuel oil.
- 8.9 Conforms to the Board Headquarters and Southern Region's rolling stock strategy report.

9. Alternatives.

- 9.1 Continue the existing service by life extension of Class 201/2/3 DEMU's.

Due to the age and physical condition of the existing vehicles, the maximum life extension considered possible is to 1991, at which point replacement vehicles of special narrow bodied design would have to be provided at an estimated cost of £39m, based on current forecasts for Class 210 vehicles.

In order to extend the life of the existing fleet, it will be necessary to strip all asbestos from the vehicles, make life extension repairs to some of the power units and the vehicle bodies which are extensively corroded. This alternative prevents these units being used as an effective source of engine spare parts for the remainder of the Region's fleet of DEMU's. The additional cost, compared with withdrawal by May 1986, of this overhaul programme and loss of spare parts is £17.6m. Moreover, it would provide no commercial betterment in terms of lighting, seating, internal decor and vehicle riding qualities.

The route would still be restricted to narrow bodied vehicles.

This alternative produces a Net Present Value of £15.591m and as the results are inferior to those for the proposal, this alternative has been rejected.

- 9.2 Class 141 DMU shuttle between Hastings and Tunbridge Wells with electrification between the latter and Tonbridge. During the peak hours the remaining DEMU service between Eridge and Tonbridge could not accommodate both the numbers of passengers discharged from the Hastings shuttle and the originating Tunbridge Wells passengers. A further interchange of trains at Tonbridge would be totally unacceptable. It would be essential, therefore, to electrify between Tunbridge Wells and Tonbridge to provide sufficient capacity and a through service to London.

An NPV of £32.865m is produced. This alternative has therefore been rejected.

- 9.3 Electrification between Tonbridge and Tunbridge Wells with DEMU shuttle Tunbridge Wells - Hastings until 1991 when replaced by Cl. 141 DMUs. This alternative perpetuates all the disadvantages inherent in 9.2 above together with the penalties imposed by the retention of DEMUs until their replacement in 1991.

An NPV of £29.019m is produced. This alternative has therefore been rejected.



- 9.4 Electrification between Tonbridge and Tunbridge Wells with DEMU shuttle Tunbridge Wells - Hastings until 1991, then electrification between these points. Although this alternative provides for the eventual electrification of the throughout route, the retention of the DEMU shuttle until 1991 results in continuing capacity and interchange problems.

This alternative produces an NPV of £32.495m and has therefore been rejected.

- 9.5 Structural clearances for standard stock, electrification and extensive singling (17.7 miles) of route.

This option would result in a less commercially attractive service and inhibit the growth of additional revenue. NPV of £40.544m is produced. This alternative has therefore been rejected.

- 9.6 Structural clearances for standard stock and introduction of push-pull service with diesel locomotive traction. The principal factor adversely affecting this alternative is the need, during the project life, for renewal of locomotives and coaches, with a consequent NPV of £9.943m. This alternative has therefore been rejected.

- 9.7 Other alternatives considered but not evaluated comprise:-

- 9.7.1 Run down the Hastings service with closure in 1987.

Closure of the Tonbridge - Hastings line is inconsistent with the Department of Transport's declared objective of maintaining the service over the 25 or 30 year period under consideration.

- 9.7.2 Construction of new narrow bodied stock.

No design exists for an 8 ft. wide DEMU and design capacity is known to be fully allocated for several years. Additionally, BREL does not have the capacity to produce such replacement DEMU vehicles within the requisite timescales.

The initial outlay would be of the order of £39m with no compensating revenue benefits. These factors render this option impractical and financially unattractive.

- 9.7.3 Bus bodies on Mk. 1 underframes with haulage by Class 33/2 diesel locomotives.

Insufficient Class 33/2 locomotives exist to maintain the required level of service.



9.7.4 The following sub-options following closure between Tunbridge Wells and St. Leonards have been examined

- (i) Electrification to Tunbridge Wells
- (ii) Reinstatement of Polegate Spur.
- (iii) Additional electric services via Lewes.

As the option of closure (option 9.7.1) has been rejected these sub-options have not been pursued.

10. Associated Scheme.

10.1 Provision of a new station between Crowhurst and West St. Leonards is under consideration by the Local Authority, but this proposal is in the early stages of development, and no timescale has yet been established. No provision in this respect has been made in the electrification proposal.

10.2 Statutory procedures for the closure of the line between Grove Junction and Birchden Junction are being initiated and, if implemented before the latter stages of the works programme for this scheme, could result in savings in infrastructure costs of at least £0.5m. Should this closure be approved, the appropriate reduction in the amount authorised for the modernisation scheme will be proposed in the following progress report.

11. Financial Effect.

See Appendix B for the estimate of outlay, spread of expenditure and effect on revenue account statement.

12. Spread of Expenditure.

The desired spread of expenditure, based upon physical resources is:-

Total cost of project	1983	1984	1985	1986
£m	£m	£m	£m	£m
23.925	3.802	9.787	9.689	0.647

No investment provision has been made in the latest Rail Plan and Investment Programme. .

13. Contract Work.

The major portion of the signalling, power supply and civil engineering work other than permanent way, would be carried out under contracts to the value of £13.253m.



14. Advance Authority.

In order to achieve completion in May 1986, certain installation work must commence in 1983 which requires some long lead materials to be ordered at least 3 months prior to financial authorisation. These materials, valued at £1,062,000 are all standard items comprising:- conductor rail, "iron men" and concrete troughing for electric traction and signalling cable routes. At the same time, it will be necessary to let a contract for installing the CM & EE cable route, in accordance with the planned programme, at an estimated value of £584,000 of which £58,000 could become liable in event of cancellation. Advance authority is therefore required for £1,646,000 by not later than the fourth Quarter 1982.

15. Timescales.

British Railways Board	November 1982
Department of Transport approval	December 1982
Start of substantial expenditure	May 1983
Commencement of running trials and testing for service introduction	January 1986
Completion of work and introduction of service	May 1986

16. Consultation.

16.1 Board Headquarters Officers have been consulted and support the project in principle.

16.2 Preliminary staff consultation has taken place.

17. Project Management.

17.1 The implementation of this project will be controlled by a Project Manager, to be appointed, using conventional techniques. It will be the subject of regular progress reports to the Planning and Investment Committee.

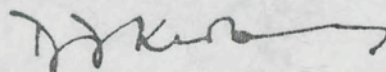
17.2 It is recommended that the Project Manager's delegated authority should be £25,000 for this project, and that individual variations authorised within this sum should not exceed £2,500.



18 Recommendations.

It is recommended that approval be given to:-

- 18.1 The fixed works described in the proposal at an estimated cost of £23,925,000  $\pm$  10% Q3 1982 price levels.
- 18.2 The issue of an advance authorisation for £1,646,000 as described in para. 14 above.
- 18.3 The delegations of authority to the Project Manager as set out in 17.2 above.



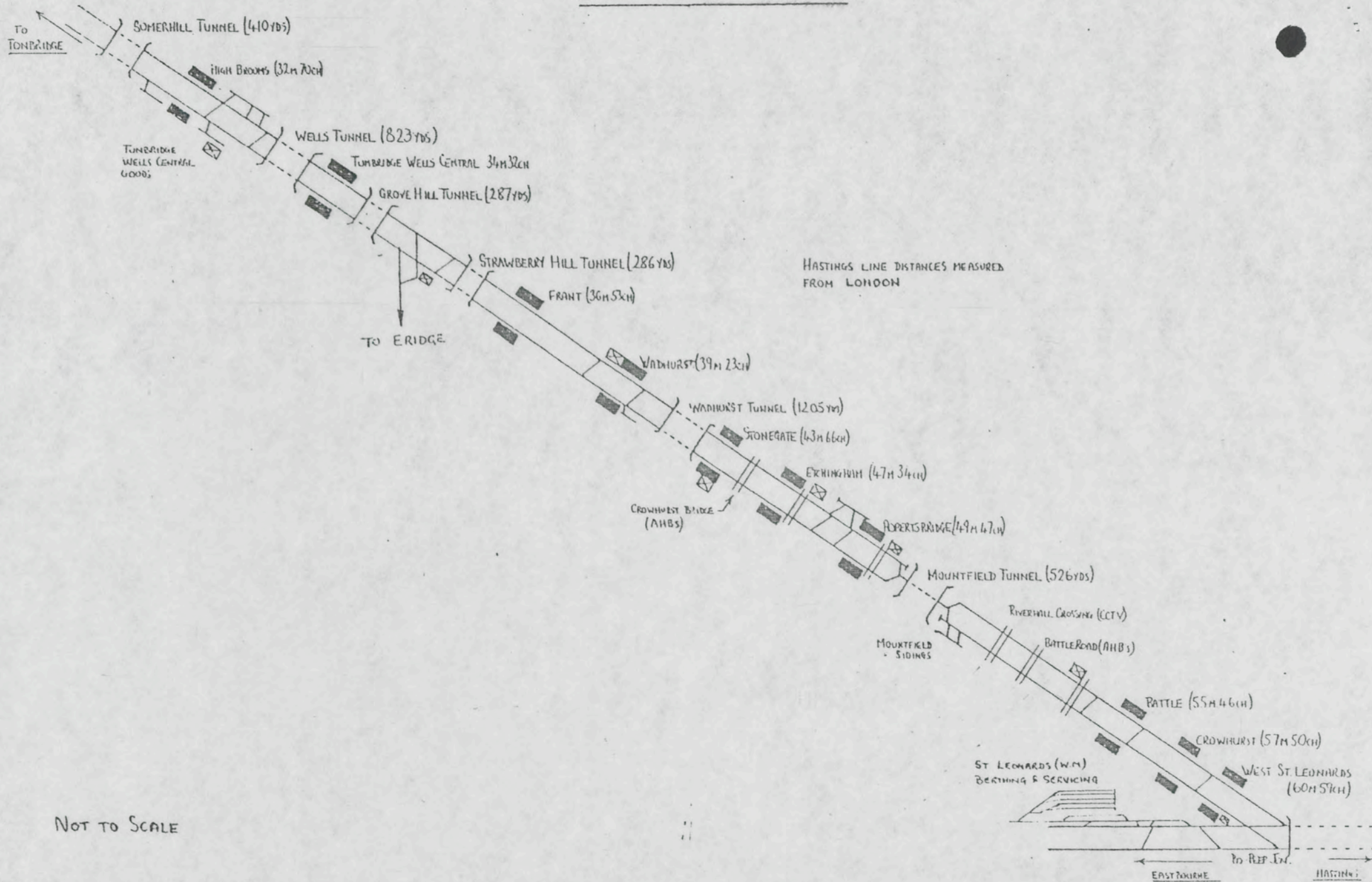
General Manager,  
(Southern Region).

October 1982



# TONBRIDGE - HASTINGS / ERIDGE

## LINE DIAGRAM - EXISTING

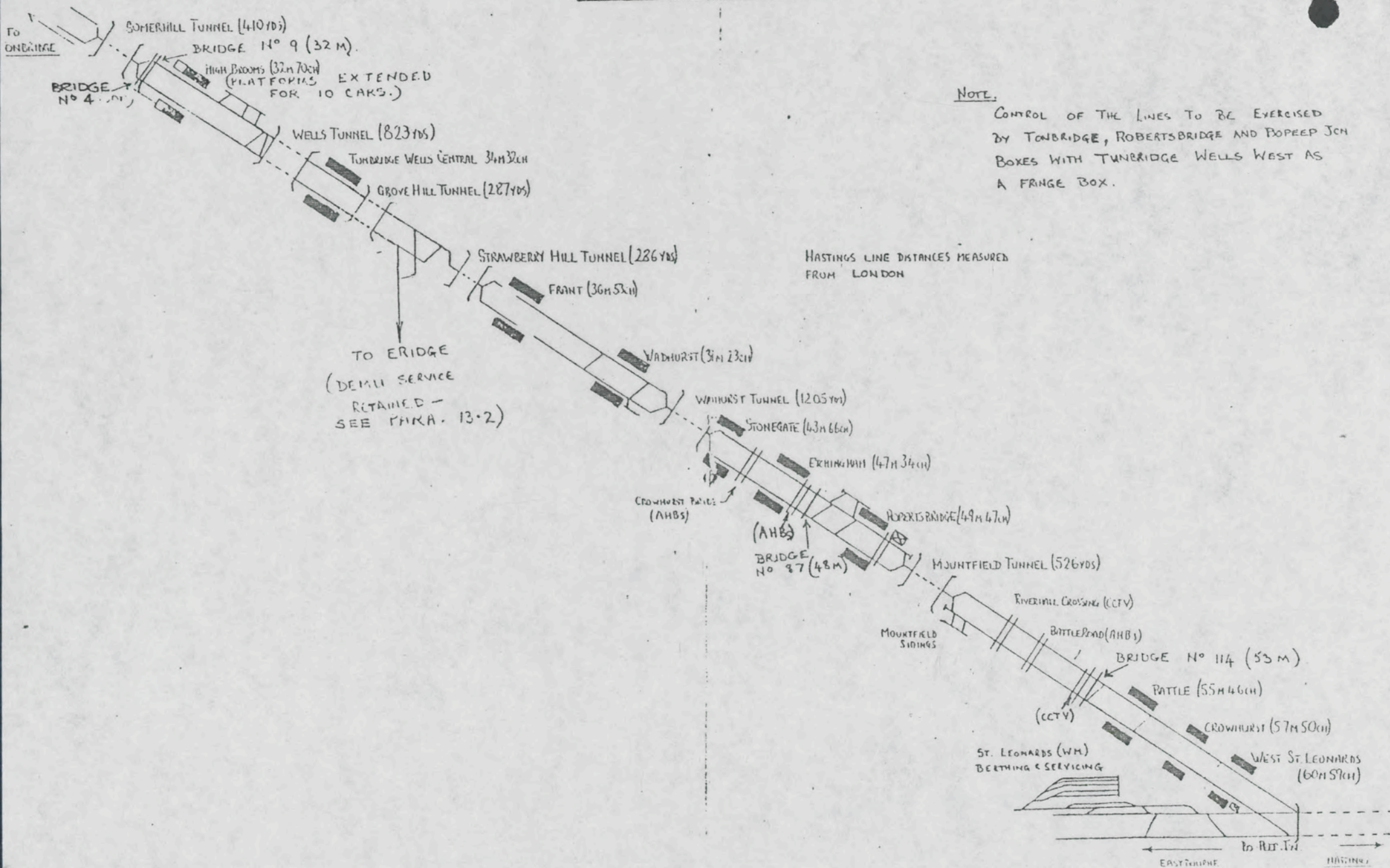


NOT TO SCALE



# TONBRIDGE - HASTINGS / ERIDGE LINE DIAGRAM - PROPOSED

APPENDIX 'A1'





FINANCIAL APPRAISAL.

PROJECT : ROUTE CLEARANCE, RESIGNALLING AND ELECTRIFICATION OF THE  
LINE BETWEEN TONBRIDGE - ST. LEONARDS (BO-PEEP JUNCTION).

ESTIMATES OF OUTLAY(3rd Quarter 1982 price levels)  $\pm$  10%

£000

£000

REGIONAL ARCHITECT

Relay Room and Signing

54

CHIEF CIVIL ENGINEER

Permanent Way including Berthing

2,023

Station Alterations

492

Additional Fencing

264

Refuges in Tunnels

22

Clearances, Level Crossings etc.

255

Singling through Tunnels

1,360

Tunnel Alterations

1,121

Bridge Alterations

1,095

Conductor Rail and ETE

5,137

Substations and TP Huts

861

Works for CS &amp; TE

221

Temporary Depots

244

13,095

CHIEF MECHANICAL & ELECTRICAL ENGINEER.

Conductor Rail (ETE only)

648

Substations (Equipment only)

2,864

HV &amp; Pilot Cables

3,637

Berthing

136

Point Heaters, Power Supplies etc.

67

Station and Depot Lighting

153

Road Service Vehicles

18

Rail Service Vehicles

114

7,637

CHIEF SIGNAL & TELECOMMUNICATIONS ENGINEER.

Electrical Signalling

1,472

Cables and Cable Routes

740

Road Service Vehicles

26

Telecommunications &amp; Supervisory System

820

Level Crossings

35

Stage Works

11

AWS

91

New Depot

22

3,217

BR PROPERTY BOARD

Land Acquisition

2

Statutory Compensation

27

29

Less value of recovered material

24,032

Net Outlay for authorisation

107

23,925



ACCOUNTING ALLOCATION.

	£000	£000
- Capital Account - Depreciable Type Assets	-	
- Way and Structure Type Assets	14,206	
- Operational Land	2	
Working Expenses Accounts	<u>9,717</u>	<u>23,925</u>

SPREAD OF EXPENDITURE.

	1983 £000	1984 £000	1985 £000	1986 £000	Total £000
Modernisation Scheme	3,802	9,787	9,689	647	23,925

BUDGET PROVISION - No investment provision has been made in the latest Rail Plan and Investment Programme.



EFFECT ON REVENUE ACCOUNT

Compared with the estimated position for year 1982, the effect on Revenue Account of the Proposal and Principal Alternative at 3 Quarter 1982 wage and price levels as follows :

	1983 £000	1984 £000	1985 £000	1986 £000	1987 £000	1988 £000	1989 £000	1990 £000	1991 £000	1992 £000	1993 £000	1994 £000	1995 £000
<u>PROPOSAL</u>													
Receipts Passenger	-	-	-	(B) 146	(B) 223	(B) 283	(B) 426	(B) 477	(B) 534	(B) 591	(B) 650	(B) 713	(B) 772
Maintenance - Rolling Stock	(W) 207	(W) 207	(W) 103	(B) 1136	(B) 1223	(B) 1223	(B) 1223	(B) 1223	(B) 1223	(B) 1223	(B) 1223	(B) 1223	(B) 1223
- Fixed Works	-	-	-	(W) 161	(W) 247	(W) 247	(W) 247	(W) 247	(W) 247	(W) 247	(W) 247	(W) 247	(W) 247
Diesel Fuel	-	-	-	(B) 601	(B) 902	(B) 902	(B) 902	(B) 902	(B) 902	(B) 902	(B) 902	(B) 902	(B) 902
Electric Current for Traction	-	-	-	(W) 606	(W) 909	(W) 909	(W) 909	(W) 909	(W) 909	(W) 909	(W) 909	(W) 909	(W) 909
Staff Costs - Traffic	-	-	-	(B) 97	(B) 146	(B) 146	(B) 146	(B) 146	(B) 146	(B) 146	(B) 146	(B) 146	(B) 146
	(W) 207	(W) 207	(W) 103	(B) 1213	(B) 1338	(B) 1398	(B) 1541	(B) 1592	(B) 1649	(B) 1706	(B) 1765	(B) 1828	(B) 1887
Amortisation - Fixed Works	-	(W) 74	(W) 240	(W) 419	(W) 426	(W) 426	(W) 426	(W) 426	(W) 426	(W) 426	(W) 426	(W) 426	(W) 426
Outlay as incurred	(W) 1332	(W) 4251	(W) 3720	(W) 414	-	-	-	-	-	-	-	-	-
	(W) 1539	(W) 4532	(W) 4063	(B) 380	(B) 912	(B) 972	(B) 1115	(B) 1166	(B) 1223	(B) 1280	(B) 1339	(B) 1402	(B) 1461

PRINCIPAL ALTERNATIVE  
LIFE EXTENSION OF DEMUS

Receipts Passenger	-	-	-	-	-	-	-	-	(B) 116	(B) 132	(B) 149	(B) 170	(B) 193
Maintenance - Rolling Stock	(W) 1564	(W) 1471	(W) 1379	(W) 1242	(W) 1273	(B) 306	(B) 92	(B) 298	(B) 852	(W) 119	(W) 119	(W) 119	(W) 119
- Fixed Works	-	-	-	-	-	-	-	(W) 20	(W) 20	(W) 20	(W) 20	(W) 20	(W) 20
Diesel Fuel	-	-	-	-	-	-	-	-	-	(W) 301	(W) 301	(W) 301	(W) 301
Staff Costs - Traffic	-	-	-	-	-	-	(B) 146	(B) 146	(B) 146	(B) 146	(B) 146	(B) 146	(B) 146
	(W) 1564	(W) 1471	(W) 1379	(W) 1242	(W) 1273	(B) 306	(B) 238	(B) 421	(B) 1001	(W) 160	(W) 160	(W) 124	(W) 101
Amortisation - Fixed Works	-	-	-	-	-	-	-	(W) 60	(W) 60	(W) 60	(W) 60	(W) 60	(W) 60
Depreciation - Rolling Stock	-	-	-	-	-	-	-	-	-	(W) 1965	(W) 1965	(W) 1965	(W) 1965
Outlay as incurred	-	(W) 43	(W) 110	(W) 561	(W) 1200	(W) 927	-	-	-	-	-	-	-
	(W) 1564	(W) 1514	(W) 1489	(W) 1803	(W) 2473	(W) 621	(B) 238	(B) 364	(B) 1034	(W) 2187	(W) 2170	(W) 2110	(W) 2126

NET EFFECT PROPOSAL V PRINCIPAL ALTERNATIVE

(B) 25 (W) 3018 (W) 2574 (B) 2183 (B) 3385 (B) 1593 (B) 877 (B) 802 (B) 189 (B) 3167 (B) 3509 (B) 3501 (B) 3507

EFFECT ON GRANT

The year by year Effect on Revenue Account as shown above can be deemed to represent the effects on the total grant support of B.R.



PROFIT CONTRIBUTION

NON INVESTMENT (See Note 1)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
	£000	£000	£000	£000	£000	£000	£000	£000	£000	£000	£000	£000	£000	£000
Earnings	8304	8304	8304	8304	8304	8304	-	-	-	-	-	-	-	-
Train Working Expenses	5058	5058	5058	5058	5058	5058	-	-	-	-	-	-	-	-
Terminal Expenses	984	984	984	984	984	984	-	-	-	-	-	-	-	-
	6042	6042	6042	6042	6042	6042	-	-	-	-	-	-	-	-
Margin Before Interest	2262	2262	2262	2262	2262	2262	-	-	-	-	-	-	-	-

NON INVESTMENT (See Note 2)

Earnings	-	-	-	-	-	-	4911	4911	4911	4911	4911	4911	4911	4911
Train Working Expenses	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Terminal Expenses	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	4911	4911	4911	4911	4911	4911	4911	4911
Margin Before Interest	-	-	-	-	-	-	4911	4911	4911	4911	4911	4911	4911	4911

PROPOSAL

Earnings	8304	8304	8304	8304	8450	8527	8587	8730	8781	8838	8895	8954	9017	9076
Train Working Expenses	5058	5265	5265	5161	4013	3972	3972	3972	3972	3972	3972	3972	3972	3972
Terminal Expenses	984	984	984	994	1002	1003	1003	1003	1003	1003	1003	1003	1003	1003
	6042	6249	6249	6155	5015	4975	4975	4975	4975	4975	4975	4975	4975	4975
Margin Before Interest	2262	2055	2055	2149	3435	3552	3612	3755	3806	3863	3920	3979	4042	4101

PRINCIPAL ALTERNATIVE

Earnings	8304	8304	8304	8304	8304	8304	8304	8304	8304	8420	8436	8453	8474	8497
Train Working Expenses	5058	6622	6529	6437	6300	6331	4752	4966	4810	4286	7523	7523	7523	7523
Terminal Expenses	984	984	984	984	984	984	984	838	838	838	838	838	838	838
	6042	7606	7513	7121	7284	7315	5736	5804	5678	5124	8361	8361	8361	8361
Margin Before Interest	2262	698	791	883	1020	989	2568	2500	2626	3296	75	92	113	136

COMPARISONS (B) BETTER OR (W) WORSE

PROPOSAL V NON INVESTMENT	-	(W) 207	(W) 207	(W) 113	(B) 1173	(B) 1290	(W) 1299	(W) 1156	(W) 1105	(W) 1048	(W) 991	(W) 932	(W) 869	(W) 810
PROPOSAL V PRINCIPAL ALTERNATIVE	-	(B) 1357	(B) 1264	(B) 1266	(B) 2415	(B) 2563	(B) 1044	(B) 1255	(B) 1180	(B) 567	(B) 3845	(B) 3887	(B) 3929	(B) 3965

NOTE 1. Based upon 1982 PP&CCA dated January 1982 - Passenger Service - London-Hastings (via Tonbridge) and Freight Services-Mountfield-Northfleet (Freightliner, Speedlink, Parcels and Residual Freight have been excluded.)

NOTE 2. Consequent upon cessation of services on the Tonbridge-Hastings line this Profit Centre will be closed but it is anticipated that the earnings shown is the business retained and which will be transferred to other Profit Centres.

For CHIEF FINANCE OFFICER  
*[Signature]*  
 PROJECT APPRAISAL ASSISTANT  
 8-10-81



SUMMARY OF DISCARDED ALTERNATIVES EVALUATED

<u>DESCRIPTION</u>	<u>NPV</u> <u>£m</u>
Continue the existing service by life extending Cl. 201/2/3 DEMUs.	15.591
Cl. 141 shuttle Tunbridge Wells - Hastings and electrification Tonbridge to Tunbridge Wells.	32.865
Electrification Tonbridge - Tunbridge Wells with DEMU shuttle Tunbridge Wells - Hastings until 1991 when replaced by Cl. 141 DMUs.	29.019
Electrification Tonbridge - Tunbridge Wells with DEMU shuttle Tunbridge Wells - Hastings until 1991, then electrification between these points.	32.495
Create structural clearances, electrification and more extensive line-singling.	40.544
Create structural clearances and introduce diesel locomotive push-pull service.	9.943



SIGNALBOXES - PROPOSED FOR CLOSURE.

Tunbridge Wells Central Goods  
Grove Junction  
Wadhurst  
Stonegate  
Etchingham  
Battle

LEVEL CROSSINGS PROPOSED FOR MODERNISATION.

<u>CROSSING</u>	<u>PROPOSAL</u>
Etchingham	Automatic Half-Barrier, supervised by Robertsbridge
Battle (Marley Lane)	CCTV Controlled from Bo-Peep Junction

TRANSFER OF CONTROL/SUPERVISION OF EXISTING CROSSINGS

<u>CROSSING</u>	<u>TYPE</u>	<u>TO</u>
Crowhurst Bridge	Automatic Half-Barrier	Tonbridge



STATION ALTERATIONS.

General clearance work will be carried out to improve clearances on the line.

The station platforms at High Brooms will be extended for 10 cars.

The usual safeguards will be applied where trains operated over the route are longer than the existing platforms at stations between Grove Junction and Bo-Peep Junction.

These platform extensions will be constructed to a standard height of 915mm (3'0") above rail level and where existing platforms are less than 750mm (2'6") high they will be raised to 915mm (3'0") in conjunction with the extension work. Platforms between 750mm (2'6") and 915mm (3'0") high will be raised to the standard 915mm (3'0") above rail level as and when maintenance or renewal is required to maintain safety standards.

FOOTBRIDGE ALTERATIONS.

Provide new footbridges at Frant and Stonegate.

PLATFORM CLEARANCES.

Set back Up platform at West St. Leonards.

Partial setting back of both platforms at Tunbridge Wells Central.



SUMMARY OF ALL ROLLING STOCK PERMITTED  
TO USE THE LINES AFTER IMPLEMENTATION

MULTIPLE UNIT STOCK		LOCO-HAULED STOCK	
CODE	CLASS	TYPE	CODE
<u>TRAILER CORRIDOR</u>		<u>LOCO-HAULED VEHICLES</u>	
4TC	491	Restaurant Kitchen Cars	RB RMB
<u>DIESEL-ELECTRIC</u>		Open Stock	FO TSO
3T	204		
3H	205		
3R	206		
3D	207		
<u>ELECTRIC</u>		Corridor Stock	FK CK BCK SK BSK
4 Sub	405		
4 Bep.	410		
4 Cep	411		
2 Hap	414		
4 EPB	415	Post Office Vehicles	POS POT
2 EPB	416		
2 Sap	418		
4 Big	420	Brake and	
4 Cig	421	Miscellaneous	NJA NJV NDV NQV NFV NOV NQV NJV
4 Vep	423	Traffic Vans	
4 Veg	427		
4 Rep	430		
	508		
	(series I & II)		
	510		
MLV	419		

(PROVISION OF CLEARANCES WILL ENCOMPASS REQUIREMENTS FOR MARK I, II & III VEHICLES)

LOCOMOTIVES.

Class	33
"	47
"	50
"	56
"	73/0
"	73/1
"	08
"	09



PROVISION OF ROLLING STOCK FROM "INVERTED CASCADE".

86 EMU vehicles are required to operate and provide maintenance cover for the Hastings service. These can be provided by reallocating units within the Regional fleet to enhance that of the South Eastern Division by 7 class 414 and 18 class 423 units.

This is achieved through service revisions, reduced requirements for maintenance cover following completion of the class 411 refurbishing scheme, and reallocation of units after completion of the South Western suburban and Gatwick rolling stock schemes.

The effect is to retain in service class 414 units which would otherwise have been withdrawn from the Central and South Eastern Division. Sufficient class 414 vehicles have already been stripped of asbestos to satisfy all Regional requirements, including those for this proposal, after the end of 1987. 72 of the initial 86 class 414 vehicles retained will be replaced by class 423 units, as deliveries of new stock progress in accordance with the Board's building programme and Regional rolling stock strategy. None of these retained class 414 vehicles are to be refurbished.

No units are to be allocated to the Hastings service alone and it is possible only to identify those costs associated with an increase of 86 EMU vehicles in the South Eastern Division fleet. This has been built into the Regional Rolling Stock Strategy and, whilst the composition of the fleet will vary over the life of the project, the class 423 vehicles used have a life compatible with it and no units will be built or refurbished specifically for this service. For the purpose of evaluation, the replacement of the 7 class 414 units (14 vehicles) in 2003 is assumed.



APPENDIX H.

EFFECT ON JOURNEY TIMES.

Comparison of journey times DEMU/EMU Charing Cross - Hastings using CM & EE schedules updated for 90 mph line speed proposals.

	"FAST"		"SLOW"	
	DEMU	EMU	DEMU	EMU
Charing Cross- Tonbridge	39.50A	38.00	46.00D	42.00
Tonbridge-Hastings	50.50B	45.00C	63.00E	56.00
	90.00	83.00	109.00	98.00
	= -7.00		= -11.00	

	"FAST"		"SLOW"	
	DEMU	EMU	DEMU	EMU
Hastings-Tonbridge	48.50B	45.50C	63.00E	56.00
Tonbridge-Charing Cross	41.50A	38.50	49.00D	42.00
	90.00	84.00	112.00	98.00
	= -6.00		= -14.00	

All times include station allowances.

A Calls Waterloo (East) and Tonbridge

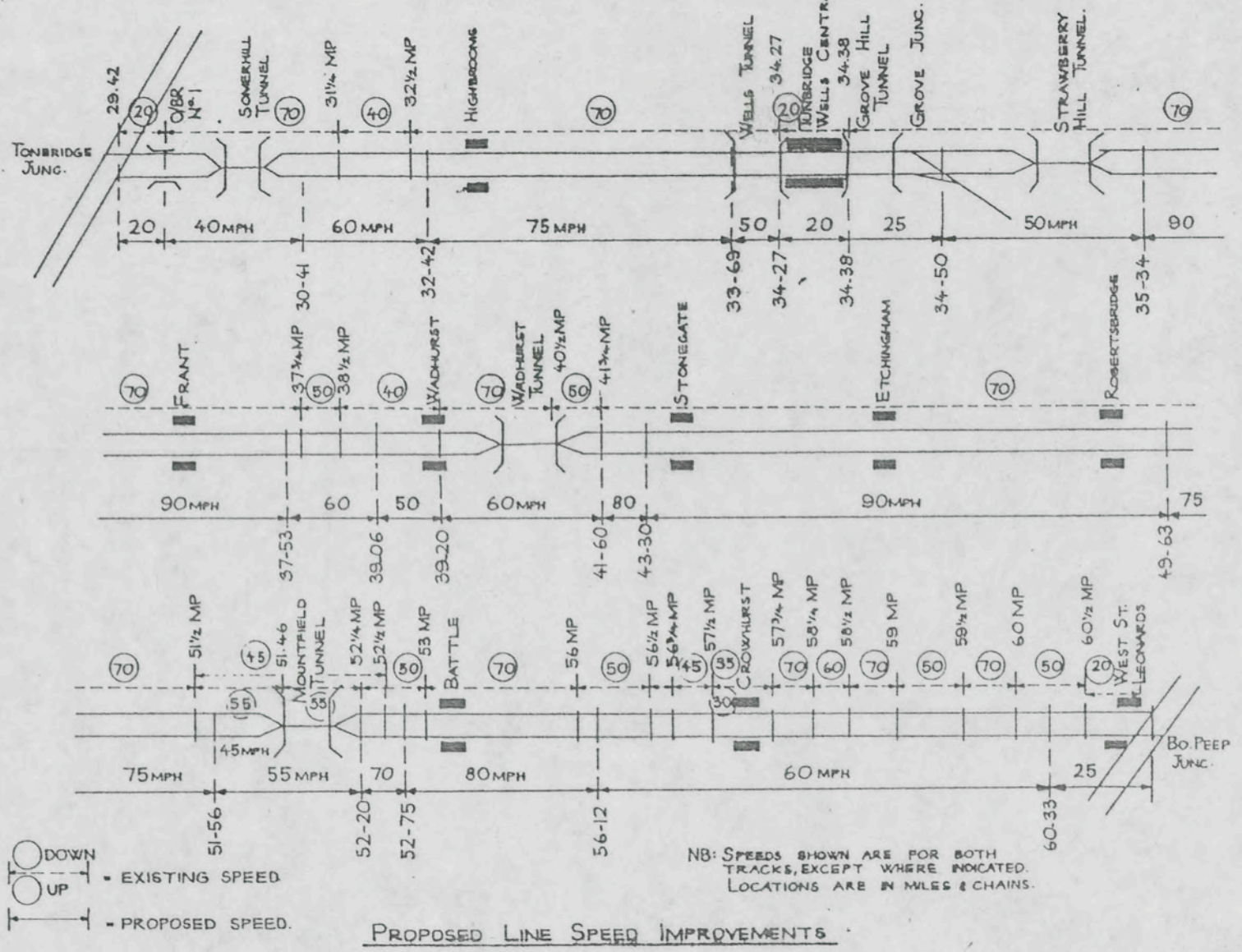
B Calls at Tunbridge Wells Central, Battle and St. Leonards  
(Warrior Square)

C Calls as B plus High Brooms

D Calls Waterloo (East), Orpington, Sevenoaks and Tonbridge

E Calls all stations





NB: SPEEDS SHOWN ARE FOR BOTH TRACKS, EXCEPT WHERE INDICATED. LOCATIONS ARE IN MILES & CHAINS.

PROPOSED LINE SPEED IMPROVEMENTS



EFFECT ON MANPOWER.

STAFF	PROPOSAL
FULL ELECTRIFICATION	
<u>TRAFFIC</u>	
- Signalling	-17
- Station	No change
- Train Crew	No change
- Servicing	No change
<u>CM &amp; EE</u>	
- Power Supply Maintenance	+8
- Rolling Stock Maintenance	-12
<u>CCE</u>	
- Maintenance Staff	+10
<u>CS &amp; TE</u>	
- Maintenance Staff	No change
Net Effect on Manpower	-11



PASSENGERS USING THE STATIONS ON LINE OF ROUTE

<u>Station</u>	<u>Average daily number of passenger journeys</u>	<u>Number of Season Ticket Holders to or Via London</u>
Hastings	1,900	176
St. Leonards (Warrior Square)	2,700	124
West St. Leonards	600	100
Crowhurst	130	28
Wattle	750	168
Robertsbridge	300	67
Witchingham	750	197
Tongate	250	72
Radhurst	1,000	344
Grant	<u>130</u>	61
	8,510	
Tonbridge Wells Central	5,200	1,721
High Brooms	1,350	297
Tonbridge	12,500	2,529
	<u>19,050</u>	
	<u>27,560</u>	

A proportion of these passengers travel on the Hastings, Tonbridge, London line.



# THE TONBRIDGE-HASTINGS AND TONBRIDGE WELLS-ERIDGE

## RAILWAYS





Background

1. The present Southern Region service between London (Charing Cross or Cannon Street) and Hastings diverges from the main line to Ashford and Dover at Tonbridge. Between that point and St. Leonards the line has very restricted clearances. This section was not electrified in the late 1950s with the remainder of the Kent Coast lines. Instead the service was provided from about that time with special narrow bodied diesel electric multiple units, DEMUs. No other BR passenger vehicles are able to use the line between Tunbridge Wells and Hastings. Between Tunbridge Wells Central and Tonbridge additional trains are provided by the Tonbridge to Eridge service, now the subject of a closure proposal. The capacity currently provided by the present Tonbridge-Hastings service is not sufficient by itself to carry the peak loads between Tonbridge and Tunbridge Wells.

2. Hastings line DEMUs have suffered badly from corrosion. If they are to continue in service until the early 1990s the Board say that extensive remedial works are required and, to cover all of the 122 vehicles involved, it would be necessary to commence this work shortly to avoid:

- a. having too many vehicles out of service at the same time;
- b. the risk of a rising incidence of failures and reduced availability.

Alternatively the clearances on the line could be eased and the line rendered suitable for existing BR rolling stock including, if traction current supplies were provided, standard SR electric stock.

The Board's Submission

3. In their submission the Board evaluated seven options:

- 1. Continue the existing service by life extending the present DEMUs. Replace with new stock of a similar type in 1992.
- 2. Class 141 lightweight DMU shuttle between Tunbridge Wells and Hastings with electrification from Tonbridge to Tunbridge Wells West.
- 3. Early electrification from Tonbridge to Tunbridge Wells West, with DEMU shuttle between Tunbridge Wells and Hastings until 1991, when the DEMUs would be replaced by Class 141 lightweight DMUs.



4. Early electrification from Tonbridge to Tunbridge Wells West with DEMU shuttle between Tunbridge Wells and Hastings until 1991 then electrification between these points.
5. Create structural clearances for standard stock and electrification, the major work being singling of the track through the tunnels.
6. Create structural clearances, electrification, and more extensive line singling.
7. Create structural clearances mainly involving singling of the track through the tunnels, and introduce a push-pull service, using diesel locomotives and conventional coaches.

Four further options were considered but were discarded for various reasons without any evaluation being presented.

8. Run down the Hastings service with closure in 1987.
9. Construct new narrow bodied stock by 1987.
10. Bus bodies on Mk I underframes with haulage by Class 33/2 diesel locomotives.
11. Sub-options involving closure between Tunbridge Wells and St. Leonards:
  - i. Electrification to Tunbridge Wells
  - ii. Reinstatement of the Polgate Spur
  - iii. Increased electric service via Lewes

4. In their submission the Board made estimates of the financial impact of each of options 1 to 7 by calculating over a 30 year period from 1982 to 2011 the following:

- a. Revenue attributable to the line including freight, car parks and parcels,  
less the costs of:
- b. rolling stock capital costs,
- c. fixed works including third rail electrification where appropriate,
- d. maintenance and fuel for existing rolling stock, including any life extension work,
- e. maintenance and fuel /power for replacement rolling stock,
- f. maintenance of fixed works,  
with a credit for:
- g. scrap value including re-usable spares of existing rolling stock.

It was not clear from their text however, that the net present values quoted actually incorporated all these elements.



5. We consider that the Board's evaluation and their presentation of it in their submission were seriously deficient and in some respects positively misleading. The main problems are as follows:

- (i) In the case of those options (2 to 6) involving electrification of part or all of the line, no costs were included for EMUs (between 76 and 86 vehicles) because, it was argued, the vehicles would be provided by retaining 20 year old vehicles which would otherwise have been scrapped in 1987. Of these only 14 would have actually been used on this service, the remainder being used elsewhere in the Region. The only capital costs then included for EMUs in these options were for 14 vehicles in 2003. We must emphasise that rolling stock can be treated as free only if in the absence of electrification of Tonbridge-Hastings it would be scrapped prematurely. Normally it cannot be free at any time when new stock is being built. It is therefore difficult to reconcile the assumption that rolling stock is free with the continuation of a rolling programme, unless the rolling programme itself involves premature scrapping in the immediate future, which is justified by cost savings from a steady level of building rather than a building programme which is peaked. We cannot accept that premature scrapping will continue to 2011 or beyond, which is implied by the Board's assumption that no capital costs need to be included for 72 of the <sup>vehicles</sup> until that date. We also note that the Board's assessment, while assuming that stock which would otherwise be scrapped after 20 years is retained for 40 years, makes no allowance for rising maintenance costs and states that mid-life refurbishment would not be required.
- (ii) The cost of option 1, replacement with new narrow bodied multiple units, is significantly inflated by the assumption that only the expensive class 210 DEMU rolling stock would be available. Its low carrying capacity leads to a larger fleet incurring higher capital, maintenance and fuel costs than appear to be justified. Cheaper DMUs are now being actively designed, but were not considered at all in the submission.



- (iii) Similarly, option 7 involving standard clearance locomotives and coaches, appears to be an unnecessarily expensive diesel option. It is said to require 17 diesel locomotives to operate eight diagrams which seems extravagant given push-pull operation and availability which ought to reach 70%. The maintenance and fuel costs are also high.
- (iv) Option 10 narrow bus bodies on Mark I bogies was rejected on the grounds that "the rolling stock is an untried concept" and that insufficient narrow bodied locomotives were available. In fact, a prototype coach is certainly under construction. Eight passenger locomotive diagrams are required, while at present three locomotives are used for freight. Twelve locomotives exist. This is certainly not quite enough to cover breakdowns and maintenance, but there is no evidence that consideration was given to the possibility of minor adjustments to the service or the methods of freight operation to make this a practical option. Had the option been evaluated, it should have indicated that a viable replacement for the existing rolling stock to work within the existing limited clearances was worthy of more detailed investigation.
- (v) The methods of forecasting revenues under the various options were significantly out of line with those agreed for other electrification proposals. The result was, we believe, misleading for the purpose of estimating both capacity requirements in later years and the financial improvement attributable to service quality changes.
- (vi) The submission did not identify which were the major components of the present values and did not draw sufficient attention to the uncertainties. Our attempt to show how the present values are built up has revealed some apparent inconsistencies in the estimates of costs for the different options.
- (vii) No account was taken of rising fuel prices or of residual values at the end of the appraisal period.
- (viii) The submission did not specifically relate the service patterns to the provisional objectives of the sector.
- (ix) Finally the "revenue minus costs" method of presenting the financial evaluation combined with the treatment of electric rolling stock as basically free, tended to give the misleading impression of an investment making a high return, with a large financial benefit in relation to the capital costs included.



We should add that most of the problems listed became evident only when we attempted to isolate the major components of the benefit and the key assumptions. They were therefore not obvious in the submission approved by Board members and sent to the Department.

#### The Department's Evaluation

6. In view of the weaknesses in the Board's submission we felt it necessary to put together our own evaluation of those options costed by the Board together with other options which seemed to us worthy of at least outline consideration. Our basic approach has been to estimate for each option the present value of future capital and operating costs of those items which were likely to vary between options. In the first instance the objective was to identify minimum cost solutions, but we recognise that some options which may be more expensive provide a better quality of service. We have therefore made tentative estimates of how each option could change the present levels of revenue, so that we can consider whether differences in revenue would be sufficient to off set differences in costs.

7. Our basic assumption is that broadly the current level of service should continue. The present load factors are in line with the provisional objectives for the sector, and we see no reason to expect significant underlying growth in demand.

8. In costing the options set out below we have made extensive use of the Board's working documents made available at meetings, held after we received the submission. Where possible we have corrected for the criticisms made in paragraph 5 above. Our methodology is more fully described in annex 1.

9. In Table 1 we have set out a brief description of each of the options which we have evaluated. To avoid confusion we have used letters rather than the option numbers used by the Board. A detailed description in the order shown is at annex 2 of this paper. One point which we must emphasise here is that many of the costs of options G and H, both of which involve narrow-bodied rolling stock not evaluated by the Board, have involved guesswork on our part, and must therefore be regarded as notional. This does not mean that the actual costs would inevitably be higher. In many respects our costings are conservative; for example, we have assumed that the narrow-bodied multiple unit vehicle based on the Class 150 would cost the same to maintain and would consume as much fuel as a vehicle based on the Class 210.



TABLE 1

Evaluations of Options for the Tonbridge-Hastings Service

	Present value of costs (£M)	Present value of revenue impact (£M)
A. Closure between Tunbridge Wells Central and Hastings	Not evaluated	
B. Electrification with minimal single track	69	2 to 3
C. Electrification with maximum single track	63	Small overall decline
D. Electrification between Tonbridge and Tunbridge Wells West with Class 141 shuttle service from Tunbridge Wells to Hastings	67	Small overall decline
E. Life extension of existing sets and replacement with similar stock in 1992. Based on class 210 design	73	Small increase no disruption
F. <u>Locomotive hauled Push-Pull Service from 1986</u>	86	Small increase
G. Life extension of existing units and replacement by new narrow bodies diesel multiple units in 1992. Based on class 150 design.	<u>63</u>	Small increase no disruption
H. Replacement with <u>New Coaches</u> consisting of bus bodies on <u>Mark I</u> frames. Hauled by class 33/2 narrow bodied locomotives	<u>63</u>	Small increase no disruption

- Notes:
1. The costs cover only those costs likely to differ between options, not all costs associated with the service.
  2. The revenue effects represent effects on current revenue levels.
  3. All figures are present values in 1982 at 1982 price levels.



10. It is evident from our estimates of costs that there exists a wide range of options for providing a continuing service on the line. We can safely rule out options E and F, the diesel options evaluated by the Board, as being significantly more expensive than the others. Option D, the best of the shuttle options, can also be ruled out, because it provides a poorer quality of service than other options without offering a significant saving in costs. The choice would appear to lie between electrification as proposed by the Board (B) which, though relatively expensive, does provide a better service, electrification with maximum single track (C), and a continuing diesel service, probably within existing clearances, (G or H) which has not been evaluated by the Board.

11. We now have to consider whether the rankings based on those costs which we have been able to consider might be altered by other factors, and in particular by the differing effects of the options on revenue. We have started by reviewing the evidence which is available to indicate the revenue improvement over the present quality of service we might expect from option B. Journey speeds would be raised by between 6 and 11 per cent, depending on the station at which the journey commenced and the time of day. We doubt whether a journey time improvement of this magnitude excluding any "image effects" could raise revenue by more than 2½%. If we applied to all travel, both commuting and off-peak, the journey time elasticity agreed by the Board to be appropriate to Inter-City services the revenue improvement would be only about 4%. For a short period there could be an additional revenue improvement equivalent to an annual average of up to 50% of the journey time effect and attributable to the improved image of an electric service. In the same period over which we have estimated the costs the present value of the revenue improvements might amount to £2 to £3m. The Board have suggested that they would be able to increase revenue further by raising prices on this service following electrification. However selective real pricing on Southern Region at the moment is only applied to one or two stations with a particularly good service, and prices on the Hastings-Tonbridge line are not currently below those on electric services. We therefore assume no selective real pricing.

12. Option C with maximum single track would offer the same time-tabled journey time improvements as the minimum singling option for those 60% of users who travel between Tunbridge Wells and intermediate points to London. For the remainder there would be little overall change in journey time though peak frequencies would be somewhat irregular. In practice we accept the Board's view that this performance would not be achieved. The siting of the single line sections is not ideal, being dictated by the location of tunnels and other



structures in order to save capital costs. The result is very low tolerances to late running of more than a few minutes and a risk of an overall worsening of the service. However, the journey time improvements if achieved, would give a revenue benefit of the order of £1M in present value terms. This means that the loss in revenue attributable to unreliability and the loss of 3 peak trains between Tunbridge Wells and Hastings would have to be £4 to £5M in present value terms before the Board's preferred minimum singling option could be said to offer the same financial performance/<sup>es</sup> maximum singling. The sum of £4 to £5M is equivalent to £0.3 - 0.4M, which is about 4 or 5% of the existing revenue (or 5% to 7% of the current level of direct expenses). Once the potential for saving direct expenses is taken into account the loss in revenue attributable to unreliability and reduced frequency would need to be around 10% before minimum singling would perform as well in financial terms as maximum singling.

13. The issue to be faced in choosing between the electrification options is therefore whether, with maximum singling, the service could be as reliable as the present service, and, if not, whether the loss of reliability could be enough to reduce revenue levels by as much as perhaps 10%. Although the Board do mention the problem of unreliability in the maximum singling option and reduce the revenue by 3% compared with a continuation of the present service to take account of it they have not offered any description of the likely impact on the service by showing, for example, what proportion of trains they would expect to be on time, five minutes late and ten minutes late and comparing this with the present position.

14. At this point it is necessary to rely virtually entirely on personal, subjective judgements. In our view the reliability problems associated with maximum singling would need to be serious before the more expensive minimum singling option could be justified in financial terms. However, there does seem to us to be a possibility that the problems could be serious. If a train in one direction is more than about three minutes late during the peak it is almost certain to affect the timing of a number of other trains which will be forced to wait for access to a single line section. Once a train is perhaps 5 minutes late trains in the other direction will be allowed to proceed onto the single track section with the result that the first train will rapidly become 10 to 15 minutes late. Given that there are four separate sections of single track the problem would rapidly escalate. In view of this we feel that a decision to support this option is not justifiable without a more detailed examination of the likely operating performance of the service.



15. Now we must consider how the diesel options would compare with the electrification options above. The service offered should be broadly comparable with the present service; at least there should be no major improvement in or loss of revenue. Indeed for the first few years after investment the service would have new rolling stock, whereas the electric options use twenty year old stock, Additionally there would be no disruption to the service during fixed works and electrification, which could involve closures in the Tunbridge Wells area for several months. In view of the above we believe that the diesel options appear £3 to £4M better than the Board's preferred scheme, and as good as the maximum singling option if the latter loses any revenue because of unreliability. The major uncertainties are:

- a. the costs, which for the moment are largely notional;
- b. when the rolling stock will be available;
- c. the exact form which the rolling stock will take.

The diesel options would necessitate some additional capacity, currently provided by the Bridge service, between Tonbridge and Tunbridge Wells, which has not been costed. Additionally, if it were accepted that, because of benefits from a steady rate of building, the EMU rolling programme will involve premature replacement of EMUs for the five years from 1985 to 1990, the free use of surplus rolling stock for this period would broadly bridge the gap between the electrification and diesel options. On the other hand it would be dangerous to assume that until the forthcoming case for a rolling programme has been considered. (In particular a diesel building programme may obviate any need for using BREL capacity to build EMUs). There must remain some doubt as to whether further consideration of these notional diesel options would offer a real expectation of financial benefits. On the other hand there might be a potential saving of £3 to £4 in present value terms.

16. The only decision which could be made immediately is to agree to the scheme proposed by the Board. The risk is that this could result in a loss of £4m or £5m in present value terms in comparison with the maximum singling electrification option or a loss of £3m or £4m in comparison with possible cheap diesel options not evaluated by the Board. A present value of £3m is equivalent to just over £200,000 a year, £5m is equivalent to about £350,000 a year. The present revenue from this service is about £8M a year. The minimum singling option would generate additional benefits to travellers, but the risk is that each additional passenger mile generated could involve a subsidy of anything between five and twenty pence a passenger mile.



28 MAR 1983

0 1 2 3 4 5  
6 7 8 9  
10 11 12 13 14 15