

NORTH ACTON TO DENHAM (REPORT TO STANDING JOINT COMMITTEE RESPECTING THE WEST LONDON ELECTRIFICATION)

Dated 22 January 1937

With reference to Standing Joint Committee Minutes Nos. 97, 107 and 236(F), further consideration has been given jointly by the Officers of the Great Western Company, the London and North Eastern Company and the London Passenger Transport Board to the scheme for improving the rail facilities in the above area by widening the line between North Acton and Denham and electrifying the new tracks.

The Committee will remember that the scope of the original scheme was, by agreement, extended from Northolt to Ruislip (GW&GC Joint) and included in the programme of new works to be carried out under the provisions of the London Passenger Transport (Agreement) Act of 1935.

Later, consideration was given to the desirability of further extending the scheme to Denham, in consequence of the recent developments in the Cinema Film industry at that place and other general development.

As a result it is now jointly recommended that the scheme should include Denham and the Standing Joint Committee on 14 September 1936 authorised the promotion of a Bill by the Great Western Company in the ensuing session of Parliament for that purpose.

The complete programme of works is therefore:

1. The widening of the line from two to four tracks between North Acton (GW) and Denham (GW&GC Joint).
2. The electrification of the new lines on the low voltage, fourth rail system.
3. The projection over the new lines of a proportion of the Board's trains from the Central London line, thus placing Denham, Ruislip, Northolt, Greenford and intermediate stations in direct rail communication with the West End and City.
4. The quadrupling of the Ealing and Shepherd's Bush line from Wood Lane to North Acton to accommodate the existing non-passenger steam service now operated by the Great Western Company over the present lines.

The principal works include the construction of a flying junction at North Acton between the proposed new lines and the Ealing and Shepherd's Bush (GW) line, and a 'fly over' the Great Western Company's Castlebar loop line at Greenford.

The works include also, as indicated later, the provision of a new car depot at Ruislip, the closing of the stations at Park Royal, Park Royal West and Brentham, the provision of a new station at Hanger Lane in lieu of Brentham and Park Royal West, and also the construction of a new station on the Harefield Road about mid-way between Ruislip and Denham.

A survey of the line and territory to be served has been made and the following recommendations are submitted:

The distance from North Acton to Denham is 11.1 miles and from North Acton to Marble Arch 5.4 miles – total distance Denham to Marble Arch 16.5 miles.

The electric widened lines will proceed in their entirety upon the south side of the Great Western and GW&GC Joint lines. They will be self-contained and reserved for the use of the Central London trains, having no interceptions except at Ruislip, where a siding connection to the Royal Air Force depot crosses both electric tracks.

STATIONS

Park Royal (0.8 of a mile from North Acton station).

This station was built in 1903 for the Royal Agricultural Show held in that year at Park Royal. The station has received little or no public support since, and as there are three other stations in the area and also adequate road transport, it is recommended that this station be abandoned entirely.

Park Royal West Halt (1.2 miles from North Acton station)

Brentham Halt (1.7 miles from North Acton station)

Park Royal West halt is situated immediately west of the bridge which carries the District and Piccadilly lines over the Great Western Railway and is 670 yards east of Hanger Lane bridge. It was built primarily for the exchange of traffic between the Great Western and Piccadilly trains, but the traffic dealt with is negligible.

The Transport Board has under consideration the provision of an escalator exchange at Notting Hill Gate station which will facilitate the exchange of traffic between the Central London Line and the other Underground Lines. Also, should the Castlebar loop be electrified and operated by through trains either from the Central London or District Line, (as mentioned at the end of this report) further improvement in the means of exchange between the proposed Extension Line and the Underground will result.

Proposed new station at Hanger Lane (1.5 miles from North Acton station)

It is proposed, therefore, to close Park Royal West halt and also the next halt (Brentham) and to construct an entirely new station at the junction of Western Avenue and Hanger Lane, both of which are becoming important surface traffic arteries. The station in this position will be prominent, and should attract considerable traffic, both locally from the direction of Twyford, where lack of transport facilities is complained of, and also by buses which will pass the doors of the station in the east to west and north to south directions. The distance from the proposed new station at Hanger Lane to North Acton is 1½ miles, a distance somewhat longer than is desirable on a railway of this type, but there appears to be no satisfactory point at which a station could, with advantage, be retained or introduced intermediately.

Perivale (1.3 miles from Hanger Lane)

This station stands back from the main road (Western Avenue) about 400 yards, but is situated to allow of access from Horsenden Lane, which crosses under the line and runs from Western Avenue to Sudbury Hill.

The new platform serving the electric lines will be of the island type and situated on the east side of Horsenden Lane and the present platforms for the steam trains will be removed.

Greenford (1.1 miles from Perivale)

It is proposed to build the electric line platforms at a point east of the present steam platforms. The entrance to the station and station premises will be located on the south side of the line.

The electric line, in order to keep clear of the Castlebar loop at the east side of the station and the goods lines at the west side, is carried on viaducts, and this has the effect of elevating the electric platforms at Greenford 33 feet above road level. The plans, therefore, include the provision of an upward escalator. A car park will also be provided.

It is not considered that there will be any appreciable interchange of traffic to or from London between the Main Line steam and electric trains – passengers by the steam trains will prefer to proceed to Paddington by those trains and join the Underground line at that point, rather than change at Greenford or other point into the stopping (electric) trains.

Movement of traffic between the Castlebar trains and the electric trains is expected and platform interchange will be provided, a bay road being included between the running lines at this station.

A reversing siding will be necessary immediately west of the station for Central London trains, to enable part of the service to be reversed here. Provision is made for Castlebar trains to be projected through Greenford station to the Denham line in the future, if needed.

Northolt (1.0 miles from Greenford)

This station is situated upon the Northolt Road running from Hayes to Harrow. Some agitation has taken place for a special Racecourse station a quarter of a mile west of Northolt station. There should be considerable traffic to and from the Racecourse and at a time of day when trains are available without much additional operating expense.

It is proposed, therefore, in order to provide for the Racecourse traffic without erecting a special station, to resite Northolt station on the west side of Northolt Road and to double-end it.

South Ruislip & Northolt Junction (1.5 miles from Northolt station)

The electric tracks have been so arranged that complete avoidance of fouling movement with the Great Western and LNER lines is effected. The station buildings are planned to be situated on the south side of the line with a bus pull-in.

The previous remarks upon the interchange of traffic between the Great Western and Underground trains at Greenford apply equally to the interchange of traffic between the LNER or GWR and Underground trains at this station. Both Companies' steam trains make fast runs, with only one or two stops to London, so that few passengers, except purely local ones, will require to change before reaching the London termini. Convenient subway connection, however, will be available for whatever interchange traffic arises.

Ruislip Gardens (0.6 of a mile from Northolt Junction)

This is a comparatively new station, brought into use in July 1934. The ticket facilities will be enlarged and re-arranged, in view of the greatly increased traffic to be expected by the introduction of the electric service.

Ruislip & Ickenham (1.3 miles from Ruislip Gardens)

The new station buildings at Ruislip will be arranged to serve both the electric and steam services.

Proposed new station at Harefield Road (1.5 miles from Ruislip & Ickenham)

It is proposed to erect a new station at Harefield Road, to serve the village of Harefield, at a point about midway between Ruislip and Denham stations.

Denham (1.3 miles from Harefield Road)

The existing station will be adapted to the needs of the electric service.

CAR DEPOT

The car depot will be on the south side of the line between Ruislip and Ruislip Gardens stations. The proposal is that the depot be double ended, that is to say, trains may enter and leave by way of either Ruislip or Ruislip Gardens stations. The depot will provide for progressive maintenance of cars (*trains!* – *Ed.*), automatic washing and other machines, vacuum plant and modern improvements to reduce costs of maintenance and eliminate night shift labour. It is situated further from London than is ideal but there is no other land available of the dimensions required, the line being paralleled by houses and factories almost the whole way.

When the Central London Scheme of Extensions – East and West – is completed the train services will extend from Denham to Ongar and Hainault (L&NER) and a depot on similar lines to that proposed at Ruislip will be provided at Hainault, to share in the maintenance of the cars which will be required for the train service of the system.

WOOD LANE STATION AND DEPOT

This depot cannot be adapted for maintenance purposes to the new operating features of the railway as its location and layout become unsuitable. It is proposed, therefore, to re-arrange it in the form of traffic sidings accommodating about 25x8-car trains.

As the existing loop is too short for the trains which it is proposed to operate, it is recommended that new platforms and centre reversing facilities be provided immediately to the 'north' of the existing Wood Lane station.

LOADING GAUGE

The gauge is arranged to conform to the requirements of District rolling stock, in view of the possibilities of an extension of the District Line train service from Ealing Broadway, referred to later in this report.

PROPOSED TRAIN SERVICES

The following are particulars of the train services which it is proposed to provide at peak hours. (The service will be varied suitably on Sundays and at off peak hours).

Between

North Acton and Greenford	12 per hour
Greenford and Denham	6 per hour

CAR MILES TO BE RUN

The Car Miles to be run over the new lines, and additional car miles over existing lines are estimated at 5,253,344 per annum. (The additional car mileage over the line between Wood Lane and Liverpool Street is covered in the report upon the North East London scheme).

ROLLING STOCK

The extended train service is estimated to call for the provision of 76 additional cars between Wood Lane and Denham – the additional cars required between Wood Lane and Liverpool Street are covered in the report upon the North East London scheme.

POWER SUPPLY AND SUB-STATIONS

It is desirable to provide for a possible service of 20 trains per hour and four substations will be required at the following sites, on the understanding that heavy conductor rails (about 130 lbs. per yard) are used:

- Brentham – adjoining the east side of the existing station.
- Greenford – inside the railway triangle preferably at the western end.
- Northolt – about half a mile west of Northolt station, on GWR property, adjoining line.
- Ruislip – at the point where the GW&GC Joint line crosses the Board's Uxbridge line.

All these substations will be on the south side of the lines. It is also desirable for the Ruislip substation to be designated to give, if necessary, a supply jointly to the GW&GC Joint line and the Board's Uxbridge Line.

The increased service on the section from Wood Lane to North Acton will be met by increasing the capacity of the existing GWR substation at Old Oak Common.

An agreement has been concluded between the Great Western Company and the Metropolitan Electric Supply Company for the supply of current. For the purpose of the estimates in this report, however, the charges for current have been calculated at the latest rate applicable to the Board's line generally.

CASTLEBAR LOOP LINE

The Central London Line and District Line being already electrified to Ealing Broadway, and the proposed new line to be electrified to Greenford etc., the line connecting Greenford and West Ealing known as the Castlebar Loop and now operated at varying intervals by a service of GWR steam rail cars (4 or 5 per hour) should be taken into consideration when dealing with the West London area.

The distance from Ealing Broadway to Greenford over which the rail cars work is about 3½ miles. It would appear to be convenient at some future date to project the Central London trains, now terminating at Ealing Broadway, through the district of Castlebar to terminate at Greenford, and exchange with the Ruislip line by platform at this point. This would necessitate extending the Central London line from Ealing Broadway station, alongside the present GW tracks, to join up with the Castlebar Loop at West Ealing.

The district between West Ealing and Greenford would, it is considered, respond to a through electric service to London.

This would leave for future consideration the question of a further extension of the electric lines (to which the Great Western Company have already given consideration) to the area which lies west of the Castlebar Loop, bounded on the north side by Western Avenue and on the south side by the Uxbridge Road, and it is suggested that the District Line trains might, at some future date, be projected to Castlebar, together with the Central London trains, the latter proceeding to Greenford, and the District trains bifurcating to the west by means of a new line through the neighbourhoods of Hayes and Yiewsley.

The area to the west of Castlebar Park halt is developing rapidly, and it is suggested that the matter should be followed up without delay, as otherwise the cost of the land necessary for such a scheme might prove prohibitive.

Annexed hereto is an appendix giving the estimated capital cost of the scheme and a summary of the estimated working expenses.

(Signed)

J.P. Thomas

GENERAL MANAGER (RAILWAYS)

LONDON PASSENGER TRANSPORT BOARD

SUMMARY OF CAPITAL EXPENDITURE

£

1. Construction and equipment of two new tracks from Wood Lane to Denham (GW&GC Joint) including £36,000 for land and £40,000 for alteration of position of positive conductor rail and provision of negative rail on the Ealing & Shepherd's Bush Line.	1,973,000
2. Rolling stock for ditto.	370,000
3. Reconstruction of Wood Lane station and alterations to depot.	93,000
	£2,436,000

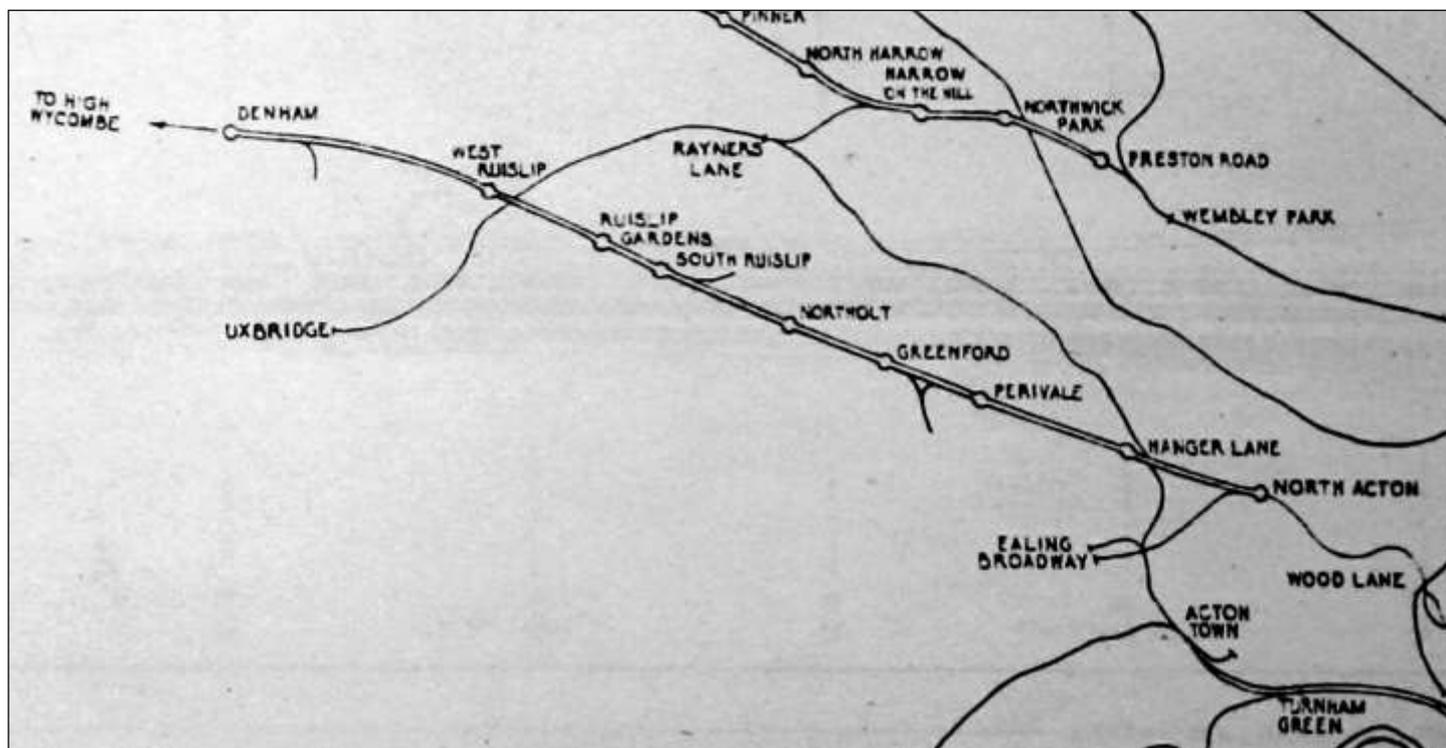
ADDITIONAL ANNUAL EXPENSES

	£	£
4,333,159 Car miles on new lines at 5/5d per car mile.	99,301	
1,031,878 Car miles by additional trains between Wood Lane and North Acton @ 4d per car mile.	17,197	
		116,498
LESS: Estimated cost of present rail car services (steam) to be withdrawn, viz: 233,345 car miles by steam rail cars @ 17.75d per car mile.	17,300	
111,693 fewer car miles between North Acton and Ealing @ 4d per car mile.		19,161
	1,861	
		£97,337

ESTIMATED NET INCREASE IN ANNUAL WORKING EXPENSES

POSTSCRIPT – by MRFS

Careful examination of the 1944 New Works Civil Surveys indicates that the London-side leg of the triangle for Uxbridge High Street (near Denham) was planned to be lifted (*Below*).



We are also fortunate in that the complete submission to the Ministry for the extension to West Ruislip survives in the LTM collection, and it is clear that West Ruislip was to be signalled as a through station, with a third platform to the south side of the existing line.

It was originally thought that Denham would have been controlled from West Ruislip, much like Ruislip Gardens, with a route-setting section of the lever frame. However, further analysis suggests that this is unlikely.

At opening there were several 'blocks' of levers left spare in West Ruislip. These were as follows, with their likely apportionment:

1-4 signals on the approach to West Ruislip, London-bound trains.

10/11 points on the Denham side of the station, giving access between the platforms.

20-23 departure signals for Denham-bound trains.

29-31 possibly shunt signals at the country end of the platforms.

It is also clear that there were no separate 'Warning' signals, unlike those planned for the Northern Heights at Edgware, and discs underneath Junction Home signals would carry the same number, but with a different suffix – i.e. be controlled by the same lever. It is presumed that this arrangement was chosen to permit a separate lever to be utilised for the 'Calling On' disc.

Denham itself is still very much a mystery, but a likely layout would have been just a two platform terminus with crossovers and control over the single GW line crossing to Uxbridge High Street. A tentative signalling suggestion is appended, using the 'standard' unit of 11 levers. Given that the suggested traffic density is only 6tph, it is unlikely that provision would have been made at Denham for attaching and detaching.

It is of note that the 1937 report comments thus: "The electric widened lines will proceed in their entirety upon the south side of the Great Western and GW&GC Joint lines. They will be self-contained and reserved for the use of the Central London trains, having no interceptions except at Ruislip, where a siding connection to the Royal Air Force depot crosses both electric tracks".

This would suggest that the line to Uxbridge High Street was envisaged to be closed completely in the 1937 thinking, but by 1944 (the date of the survey) the northern leg of the connection was still intended to remain. It is possible that an arrangement similar to Shoreditch may have been envisaged with an end-on connection for the goods workings. It is unfortunately impossible to determine if a similar remote route-setting arrangement was planned.

