

Allander Rail Halt

**Rail Consultancy Report for
Bearsden North Community
Council**



Compiled by David Archer

25th February 2014

Introduction

This report has been prepared by David Archer in response to the remit to investigate the impact of a new stop at “Allander Rail Halt”, within the current Working Timetable (WTT or Base Timetable). In developing the potential for this new station, we have used the Rail Industry Standard “Network Code” and the cross-industry agreed “Train Planning Rules” applicable to this route, and assuming current train stock would be utilised. The objective has been to provide a “Standard Hour Timetable” to include the new stop and allowing for all other services on the route, giving realistic, accurate timings for the new stop. The report has not considered the engineering feasibility of the proposed new station and, where indications of possible location are given here, they are purely illustrative so as to allow the timetable option work to be carried out.

All data (*except the proposed Sectional Running Times for stopping & starting at the proposed Allander Rail Halt*) has been taken from the latest publications owned by Network Rail and which are available in the public domain.

Remit Item 1

The ORS team will assess the local geography, existing track layout and current Timetable to ascertain the effects of inserting an additional station at the above location. It will assess the effects of a single platform, particularly accounting for the gradient, on this section of single line and whether a train stop can be accommodated at the proposed location.

Local geography and track layout

The Proposed Allander Rail Halt (ARH) would be built on the single line section of track between Milngavie and Hillfoot stations. This section of line has a maximum speed of 50mph. Appendix 2 shows the track layout and gradients measured from 6 miles 19 chains to 9 miles 35 chains. It is also measured from 0 kilometres to 5 km 130 metres. This report will use metric measurements to allow easier interpretation of Appendix 2.

ARH would be situated adjacent to the site of the existing Allander Leisure Centre. It would comprise one platform, trains stopping in both directions, with direct and level access to the proposed Park and Ride parking area to be built alongside. The platform length could need to be circa 130 metres to allow for two 3-car units of Class 318 and 320, and to allow for two 3-car units of Class 334.

Gradients and implications for station siting

The gradients on this section of track are varied and fairly steep in places. The proposed ARH could be sited between the 4 km point and the 3 km 650 metre point as measured on Appendix 2. That is at a point between at least 120 metres south of the Craig Dhu Burn Bridge (NR Structure number 010) and the underbridge (NR Structure number 008).

N.B. A site survey would be required to ascertain the best site from a civil engineering viewpoint. All measurements are approximate, being taken from the current Network Rail publications and matched against Ordnance Survey maps.

This could mean building all or part of a platform on a gradient of 1 in 232. The platform should be sited as far south from the commencement of the 1 in 92 gradient as is practical. The new platform could be constructed of modern, lightweight materials which will allow for the existing culvert and drain on that section. Network Rail and the train operator will need to be involved in evaluation of the station site – an evaluation that will need to consider whether its location on a gradient is acceptable. It should be noted that Hillfoot station is on a 1 in 262 gradient and Bearsden station is on a 1 in 150 gradient (easing to 1 in 200 part way along the platform), so the proposed new station, being sited on a 1 in 232 gradient, poses no further issues for traction than are currently managed at other stations on this route. Network Rail and First Scotrail will also wish to consider the performance implications of the extension of travel time along the single track section and whether a new station would cause unacceptable loss of resilience in the operation of the network.

Network Rail's position is, generally, that no new stations will be built on a gradient steeper than 1 in 500. However, the 1 in 232 gradient is only for approx. 110 metres. Running north, it is preceded by a long (some 700 metres) 1 in 732 gradient, so stopping and starting should pose no further issues than are managed at Bearsden station. Similarly, running south, a long downhill gradient of 1 in 92 changes to an uphill gradient of 1 in 232 before, or at, the proposed ARH station, with only a short pull uphill for starting trains (less gradient than at Bearsden) before it too eases off to 1 in 732. Among the issues for consideration, Network Rail may consider moving the siting of the "Sand" Board further towards Milngavie station to allow adhesion materials to be laid through the proposed new station. Appendix 3, Page 8

Conclusion

A new station at the site of the Allander Leisure Centre will require investigation with Network Rail and the train operator. There is a case to be investigated that it should pose no further traction issues than are currently managed at other stations elsewhere on this line. Modern Electric Multiple Units (EMUs) are capable of handling these gradients. Discussion with Rail Industry colleagues raised several contenders for the steepest station gradient. However, when looking at currently serviced stations on the public network, Network Rail and First Scotrail will be fully conversant with the issues to be considered in managing stations on gradients.

Remit Item 2

If a stop can be accommodated, we will seek to add the stop into the current Peak Hours Timetable and write a "Standard Hour (off peak)" Timetable between Westerton Junction and Milngavie to include the stop at Allander "Park and Ride" Rail Halt. Timings at Westerton Junction to remain as currently published.

Current Timetable

Every train journey is divided into Sectional Running Times (SRTs), measured between recognised points along the route. This will include stations, junctions and other relevant known points.

There are 4 types of SRT:

- Start to stop Timed starting at one point until stopping at the next, usually between local stations
- Pass to Pass Timed between 2 points where the train is not stopping at either location.

- Start to pass Timed as it starts at the first point until it passes the second point.
- Pass to stop Timed as it passes at the first point until it stops at the second point.

SRTs are currently only ever defined in multiples of minutes and half minutes. No smaller time amount is used so as to avoid over complicating the timetable, as well as keeping public times manageable. Public times are only ever advertised in whole minutes. This report uses the more accurate Working Timetable which includes half minutes. This is the timetable that the Railway runs and is signalled to, and from which the Public timings are extracted. When initially computing an accurate time between points, the result is shown in seconds, with the resultant SRT rounded up or down to the nearest half minute to reflect accurate running times. This exercise has erred on the side of caution having rounded up to the nearest half minute. When computing a Starting SRT in an uphill direction, and a stopping SRT in a downhill direction, the proposed SRTs are more generous to reflect any cautious driving. For example, to allow earlier braking when driving downhill towards ARH with a heavily loaded stopping train.

Appendix 4 gives the existing SRT information for the Westerton-Milngavie line. These values have been created by Network Rail and agreed with the Operating Company. They are specific to the type of train used to service that line. Each different type of traction is allocated a “Timing Load” which denotes its characteristics such as total weight, maximum speed, tractive effort, braking effort, acceleration and deceleration etc. Each SRT is created by various agreed methods, taking into account all these characteristics. You will note that in this case the Timing Load used is EMUAC Max speed capability of 75mph referred to as 75EMUAC.

Development of the option timetable

SRTs have been computed for the proposed ARH using a mixture of common sense and recognised methods. Network Rail will compute new SRTs using recognised methods and by modelling the train journey using their own “in-house” bespoke computer programming. Their results will be used by First Scotrail (who will also want to make their own computations) to create a formal timetable. However, I do not envisage any significant difference that will disallow my findings in Item 2 of this report.

Sectional Running Times to service a stop at the proposed new station Allander Rail Halt (ARH) are as follows:

Northbound (Down Direction)

- Hillfoot to ARH Stop to Stop 2mins
- ARH to Milngavie Stop to Stop 2mins 30secs

Southbound Up Direction

- Milngavie to ARH Stop to Stop 2mins
- ARH to Hillfoot Stop to Stop 2mins

In the Northbound direction, the current Stop to Stop SRT from Hillfoot to Milngavie is 3 minutes. With a 30 second dwell time at ARH, the new stop will therefore add 2 minutes into the overall journey time.

In the Southbound direction, the current Stop to Stop SRT from Milngavie to Hillfoot 2 minutes 30 secs. With a 30 second dwell time at ARH, the new stop will therefore add 2 minutes into the overall journey time.

Terminus Station “Turnround” times at Milngavie are 18 to 20 minutes in the current timetable throughout the day. This Turnround time must be sufficient to allow the driver to change ends and complete checks, also make alterations to indicators and train head and tail lights. Turnround times at all stations where a train is reversed are set and must be adhered to. All timetables must comply with Network Rail’s document “Operational Rules” which dictates certain standard timings and allowances (including Turnround times), as well as any exceptions to the standard values.

The Operational Rules for Scotland state that Turnround times for Electric Multiple Units (EMUs) are 5 minutes, shown in the current timetable Operational Rules, Version 4.0, dated 12th July 2013, page 62 of 199 . There is no separate value shown for Milngavie as an exception to this standard, so 5 minutes must be allowed.

The SRTs created for ARH increase the journey time by 2 minutes in each direction. As timings for this exercise must be the same as now at Westerton Jn, this has the effect of reducing the current Turnround time at Milngavie by 4 minutes. The current timetable gives a 20 minute Turnround time, which could be reduced to 16 minutes by stopping additionally at ARH. This new value of 16 minutes for Turnround remains well above the minimum standard of 5 minutes and so does not itself disallow a stop at ARH. Indeed, if First Scotrail and/or Network Rail should decide the values we have assumed for SRTs including a call at ARH are insufficient, they can be increased substantially without impacting on the standard Turnround time at Milngavie.

The section of line between Milngavie and Hillfoot is Single Line. As the proposed timings are only altered between Milngavie and ARH, there should be no effect on the Single Line operation which can only allow one train in that section at any one time.

For the purposes of this report, Empty Coaching Stock or Departmental (Sandite trains etc.) moves have not been included.

As well as allowing sufficient time for each train unit arrived at Milngavie to prepare to reverse direction to travel back from Milngavie (Turnround time – as described above), sufficient time must also be allowed between services arriving at Milngavie and other services departing Milngavie to allow for the signalling “Token” to be exchanged by GSM Radio from the arriving train to the departing train, thereby giving permission to travel on the single line safely. This time must also allow for the physical changing of the points at the mouth of Milngavie station. In this timetable 3 minutes has been allowed for this activity to take place between arrivals and departures, with the new stop added into the trains to and from Lanark/Motherwell via Glasgow Central Low Level.

This solution could allow use of the new station within the current timetable structure, both peak and off-peak. Once the station is built and established, passenger use can be monitored and will indicate whether it will become necessary to alter the timetable further to allow stops on more services.

Within the current timetable, stops at ARH would occur throughout the day. It is proposed that all Lanark/Motherwell – Milngavie services should include this stop. At off peak times the service would regularise to 2 trains in each direction per hour which would seem a reasonable and favourable service level to attract passengers onto rail and off the road network, particularly through to Glasgow.

Timings south of, and at, Hillfoot remain as current.

The table below provides a summary of a possible weekday standard hour train service calling at, or passing through, a new station at ARH. N.B. Timings are given to half minutes as a Working Timetable. Public times will vary by half a minute. The Public timings will be managed by First Scotrail.

EXAMPLE STANDARD HOUR TIMETABLE

Based on current Working Timetable

December 2013 to May 2014

Monday to Friday services

	ARH	Milngavie	<i>Milngavie</i>	<i>Milngavie</i>	Milngavie	ARH	
Origin	Dep	Arr	<i>Arr (Current)</i>	<i>Dep (Current)</i>	Dep	Dep	Final Destination
Edinburgh	No stop	12.07	12.07	12.27	12.27	No stop	Edinburgh
Lanark	12.21½	12.24	12.22	12.42	12.40	12.42	Lanark
Edinburgh	No stop	12.37	12.37	12.57	12.57	No stop	Edinburgh
Motherwell	12.51½	12.54	12.52	13.12	13.10	13.12	Motherwell
Edinburgh	No stop	13.07	13.07	13.27	13.27	No stop	Edinburgh
Lanark	13.21½	13.24	13.22	13.42	13.40	13.42	Lanark

Whilst this report concentrates on weekday services, Saturday, Sunday and Bank Holiday services should present no further difficulty in adding this new stop as these services are generally less frequent.

Conclusion

In conclusion, in timetable terms it is possible to allow the additional stop at ARH, albeit initially approximately every half an hour on the Lanark/Motherwell services. There is public and political will for this station to be created and it is part of the Local Authorities transport strategies. This report demonstrates that even if Network Rail and/or First Scotrail, having progressed through their own timetabling processes, present different timings it is feasible for this new station to be serviced to the benefit of the local area and road networks and further afield to Glasgow.

APPENDICES

Appendix 1 Report Specification

Appendix 2 Track Diagram and Gradients

Appendix 3 Technical Track description (Network Rail's Sectional Appendix)

Appendix 4 Westerton to Milngavie Sectional Running Times - Current

Appendix 5 Beaully and Connon Bridge stations

Appendix 6 Consultant Overview

[Report ends].

Appendix 1

BEARSDEN NORTH COMMUNITY COUNCIL

REPORT SPECIFICATION

1.1 Introduction

Bearsden North Community Council (BNCC) has requested a study of the rail potential for an additional Rail Halt at the site of the Allander Leisure Centre, Bearsden Road, Milngavie, G61 3DF.

Oxford Rail Strategies (ORS) is able to offer the following service/output using three consultants. As under:

- David Archer, Timetable Planning, until Dec 2012 a Senior Train Planner with Network Rail. For the last year, as an ad-hoc Rail Timetable Planning Consultant.
- John Holwell, formerly a market manager with a rail freight company and part time rail development manager with W H Malcolm Ltd.
- Nigel Fulford, Director ORS.

1.2. Project Scope

The ORS team will assess the local geography, existing track layout and current Timetable to ascertain the effects of inserting an additional station at the above location.

It will assess the effects of a single platform, particularly accounting for the gradient, on this section of single line and whether a train stop can be accommodated at the proposed location.

If a stop can be accommodated, we will seek to add the stop into the current Peak Hours Timetable and write a “Standard Hour (off peak)” Timetable between Westerton Junction and Milngavie to include the stop at Allander “Park and Ride” Rail Halt. Timings at Westerton Junction to remain as currently published.

This would be the ideal and desired output from this project.

However, if the stop cannot be accommodated in all or any of these timetables, we will look at alternative solutions, and issues to be considered should a re-written timetable be required between Milngavie and Westerton Junction/Glasgow accommodating the new stop.

1.3. Detailed Activity and Output

Create a new stop at “Allander Rail Halt” within the current Working Timetable (WTT or Base Timetable), within the bounds of the Rail Industry Standard “Network Code” and the cross-industry agreed “Train Planning Rules” applicable to this route, and assuming current geography and train stock would remain as current.

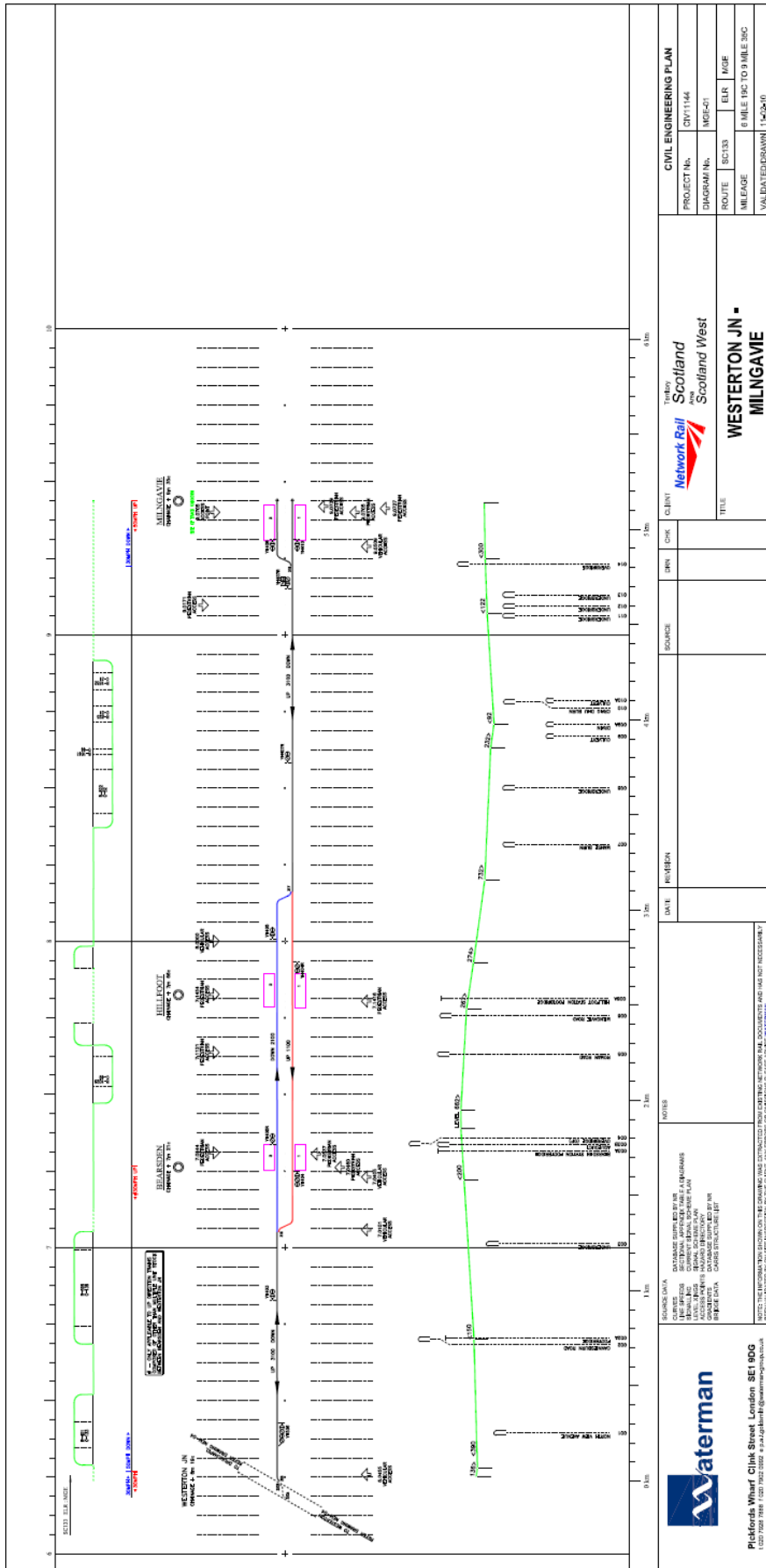
Provide a “Standard Hour Timetable” to include the new stop allowing for all other services on the route, giving realistic, accurate timings for the new stop.

To include all necessary notations required by Train Planning staff. Timings will be rounded to the nearest ½ minute as standard practice when using the WTT, which may differ slightly from the published “public” timings.

The output report should be clear and understandable to both Train Planning representatives and all other interested parties.

Review output and compile report and any associated copy & appendices.

Appendix 2 TRACK DIAGRAM AND GRADIENTS



These Appendices have been supplied electronically:

**Appendix 3 TECHNICAL TRACK DESCRIPTION
(NETWORK RAIL'S SECTIONAL APPENDIX)**

**Appendix 4 WESTERTON TO MILNGAVIE
SECTIONAL RUNNING TIMES - CURRENT**

Appendix 5 CASE STUDY –

BEAULY AND CONNON BRIDGE STATIONS

Highlands and Islands Enterprise appointed a Rail Development Manager at the end of the last millennia.

One of the first projects undertaken by this manager was the development of passenger services north of Inverness.

As part of this work it became evident that there was market potential for additional stations at Beauly and Connon Bridge between Dingwall and Inverness. However, fare revenues would not justify investment in a large station.

As a result a small 'one coach' platform was designed and constructed for both stations. This was only really achieved because of the comparatively low number of services and passengers (though in the case of Beauly this number has risen significantly).

Beauly station opened in 2002 at a remarkably low cost of £247K. This included a single car platform (length 15.06m) with a small passenger shelter, lighting and car parking for 15 cars. The car park has subsequently been extended to 30 spaces). Current usage is 55,000 pa or over 1,000 per week which illustrates that a low investment can generate a substantial return in passenger numbers.

In the case of Conon Bridge this station was opened on 8th February 2013 with a forecast usage of 24,000 pa. Length of platform is 15.08m and car parking for 8 cars is provided along with a cycle park, lighting and shelter. Capital cost was higher at £600K (partly due to inflation). An estimate for a 6 car platform had come out around £1m.

This all illustrates that innovation and creativity is possible in a railway context, given co-operation from Network Rail and other bodies.

John Holwell

February 2014

Appendix 4 CONSULTANT OVERVIEW

Report principal author - David Archer

David Archer has had a career in the Rail Industry spanning the last 28 years. Most of this time has been spent in Operations and Planning. The last 10 years were spent at Network Rail in the Operational Planning department, planning current and future timetable changes and enhancements and resolving performance related issues. He has wide experience of managing the commercial requirements of Network Rail and its customers to achieve practical and robust solutions to answer the needs of all parties. Latterly, he was responsible for the large team producing the amended national freight timetable, including specialist work such as heritage Charter trains, the Royal Train and security sensitive trains for the Ministry of Defence.

David is widely known and respected in the Rail Planning Community. Previous employment included Eurostar (UK) Ltd as Logistics Operations Manager. In 2006 he was National Winner in Network Rail's internal award "You Make the Difference" in categories Pride and Teamwork.

Contributor - John Holwell

John Holwell is a rail freight specialist with extensive experience in operations and commercial matters, relationships with road and rail freight operators and expertise in meeting the needs of customers to facilitate the switch of traffic from road to rail.

John's background is in railway operations and business management. He has worked as rail development manager for a very large UK logistics company. In this role he has seen the introduction of new intermodal freight trains serving the retail sector. As a consultant he has worked on projects relating to the transfer of freight from road to rail in highly competitive markets where quality, reliability and cost are key requirements if rail is to be successful. They have involved tackling issues of incompatibility of gauge with traffic requirements and, working with freight forwarders, wagon providers to identify solutions.

ORS Director - Nigel Fulford

Nigel has specialist expertise in rail operations, making best use of network capacity and in improving rail surface access to airports where he has represented public and private sector clients in the development of rail projects for major UK airports. He is a Geography graduate with 30 years management experience in British Rail, the private sector and support to government, spanning passenger and freight operations, customer service, commercial and planning roles as a senior manager. Nigel is a Director of Oxford Rail Strategies, a company which specialises in making best use of rail network capacity, rail commercial, operations and rolling stock matters