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Gowerton Redoubling Project: Evaluation Report

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Gowerton Redoubling Project: Evaluation Report

AECOM

Views expressed in this report are those of the researcher and not necessarily those of the Welsh Government

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Glossary of acronyms

ATW	Arriva Trains Wales
ERDF	European Regional Development Fund
GRIP	Guide to Rail Investment Process
NR	Network Rail
PMB	Project Management Board
SWWITCH	South West Wales Integrated Transport Consortium
WEFO	Welsh European Funding Office
WG	Welsh Government

Executive Summary

AECOM was commissioned by the Welsh Government (WG) in June 2015 to undertake a final evaluation of the Gowerton Redoubling Project. The £24.3m project, funded jointly by the European Regional Development Fund (ERDF) and WG, was developed with the aim of upgrading an 8km single section of track between Duffryn West (Llanelli area) and Cockett West (Gowerton, Swansea area) to double track and implementing improvements to Gowerton station.

The project sought to overcome a key pinch point in the rail network within south west Wales, facilitated an improvement over the previous maximum frequency of two trains per hour, enabled improvements to operational performance and facilitated more frequent stops at Gowerton station.

Additional services have now been made available following project completion:

1) Additional train service(s);
2) Additional stops on existing services (which were previously non-stop or request services);
3) Capacity for further additional services on the route between Swansea and Carmarthen.

The project was completed in May 2013 and was delivered alongside the £16m replacement of the grade 2 listed Loughor Viaduct, which was funded and delivered by Network Rail and is not within the scope of this evaluation.

The Final Evaluation has considered the impacts of the project for users of the station, as well as services passing through the new double track section based upon the analysis of key patronage data and market research surveys with users of the station. The key processes utilised to deliver the project have also been considered based upon interviews with key project staff and a review of key project information. This has informed the identification of key lessons learnt for future projects.

As planned, alongside the delivery of additional track and station facilities the project has also contributed to additional vehicle kilometres being created/improved, as well as additional passenger kilometres on public transport.

The Business Plan calculation of additional vehicle and passenger kilometres delivered, prepared following scheme implementation, cannot be compared to the original justification of the scheme, as the latter was made on the basis of rolling stock being available to operate additional services over the re-doubled line and WG subsidy to cover the cost of operating those services. The risks of non-availability of rolling stock, and lack of funding were recorded in the risk registers accompanying both the business case for the new services and the separate case for the re-doubled infrastructure (which assumed the additional services would operate). These risks had already transpired at the time the Business Plan was written.

The passenger satisfaction survey undertaken at Gowerton sampled the opinions of 291 station users and determined that 50 per cent of respondents thought that the improvements made at the station had increased their levels of train use. Both the changes to train timetables and the changes to station facilities were considered beneficial improvements that had contributed to increases in use.

The survey also indicated that prior to using Gowerton station, 73 per cent of those surveyed would have undertaken comparable trips by car (either as driver or passenger). This indicates that the station has had a positive impact in promoting modal shift. Additionally, only 4 per cent of respondents would previously have used a different station, indicating a low level of abstraction from other local stations.

The process evaluation determined that the project was delivered to target costs, with minor additional costs relating to additional items of scope, such as platform resurfacing. A pain/gain arrangement within the contract helped to ensure the project was delivered within the available budget, whilst a series of audits were undertaken to ensure only eligible costs were included within the final project accounts and in preparation for the Business Plan and post-award funding claims. Synergies with the Loughor Viaduct project were a key means of keeping project costs down.

Risk was managed throughout the project as part of the GRIP process and through the utilisation of quantified risk assessments. The key risks identified at project inception included those associated with delivery of the project alongside the Loughor Viaduct project and the tight timescales of the available track blockage. The evaluation determined that the risk management processes were successful in managing this risk. However, issues that occurred during the project included the collapse of an embankment and the poor condition of the existing platform.

The project was managed with the WG undertaking the role of project sponsor, Network Rail providing project management, whilst utilising the contractor Colas Rail Morgan Sindall to deliver the works. Regular meetings were held between appointed project team members representing a cross-section of functional/stakeholder interests and the relationships between these partners during the delivery of the project were considered to be good. A Programme Management Board has since been initiated to strengthen and formalise the high level management control of WG rail projects further.

1 Introduction

Project Overview

1.1 AECOM was commissioned by the Welsh Government (WG) in June 2015 to undertake a final evaluation of the Gowerton Redoubling Project. The project, funded jointly by the European Regional Development Fund (ERDF) and WG, was developed with the aim of upgrading an 8km single section of track between Duffryn West (Llanelli area) and Cockett West (Gowerton, Swansea area) to double track and implementing improvements to Gowerton station.

1.2 The project facilitated an improvement over the previous maximum frequency of two trains per hour, enabled improvements to operational performance and facilitated more frequent stops at the Gowerton station. The twin tracks enable this by allowing trains to operate in both directions independently i.e. a train stopping at Gowerton on the up track does not impede trains on the down track. This improved rail capacity was designed to enable potential future increased rail passenger demand to be met and enhance access for goods and labour to major markets in Swansea, Cardiff and beyond.

1.3 The planned project deliverables were:

- 8km of railroads created or reconstructed
- 1 intermodal facility created or improved
- 300,000km of vehicle kilometres of rail public transport created or improved
- 100,000,000 additional gross passenger kilometres on public transport.

1.4 The objectives of the project were to:

- Improve rail service capacity into and out of south west Wales by addressing the significant pinch-point through redoubling the existing single track section between Llanelli and Swansea;
- Improve resilience of this key part of the South Wales Main Line into and out of south west Wales.
- Address and accommodate rail passenger growth in south west Wales, forecast by the South West Wales Integrated Transport Consortium (SWWITCH) to grow by between 22 per cent and 32 per cent in the ten years to March 2019. The project will provide sufficient infrastructure capacity to meet longer term demand for rail journeys on this part of the TEN-T rail network.
- In conjunction with an upgraded train station at Gowerton (which includes a new second platform facility), and more timetabled stops at Gowerton, improve accessibility to rail services and take-up utilising the potential commuting demand from the local catchment that includes popular residential areas including Gowerton, Gorseinon area and north/east Gower.
- Improve access to rail services for impaired users including disabled drivers by providing better services to facilitate demand.
- Provide improved rail services and facilities west of Swansea to facilitate agglomeration effects for existing rail users and non-rail users who commute from west of Swansea to the City and beyond for employment, training, education, leisure and social community opportunities and needs.

1.5 The project consisted of infrastructure enhancements, and did not include any funding for rolling stock. Any timetable alterations were therefore made within the operator's existing fleet resources, and subject to their requirements to meet franchise obligations and cater for demand elsewhere on their network.

1.6 The Gowerton Redoubling project was delivered alongside the £16m replacement of the grade 2 listed Loughor Viaduct. This work was funded and delivered by Network Rail and is not within the scope of this evaluation.

Project Inputs

1.7 Table 1.1 outlines the capital expenditure on the project, as presented in the Gowerton Redoubling Business Plan, totalling £24.3m. As this project was retrospectively funded this represents the outturn costs of the project, excluding the planned expenditure on audit and evaluation activities, which were forecast within the Business Plan. Table 1.2 presents the breakdown of funding sources utilised to deliver the project. This consisted of £11.3m of WG Department for Economy, Science and Transport (EST) funding as well as the £13.0m funded by the ERDF Structural Funds.

Table 1.1: Funding Profile

Project Expenditure	**Y/E 31/12/14**	**Y/E 31/12/15**	**Project Total**
	£	**£**	**£**
Construction	24,251,702	-	**24,251,702**
Legal & Professional Fees - Audit	-	10,000	**10,000**
Legal & Professional Fees - Evaluation		50,000	**50,000**
Total Capital Costs	24,251,702	60,000	**24,311,702**
Total Project Costs	**24,251,702**	**60,000**	**24,311,702**

Source: Gowerton Redoubling Business Plan

Table 1.2: Funding Sources

	Total
Total Project Cost	£24,311,702
Financed By:	
Welsh Government - EST	11,270,905
ERDF	13,040,797
Total Project Funding	24,311,702

Source: Gowerton Redoubling Business Plan

Project Outputs

1.8 The key outputs of the Gowerton Redoubling project were:

- Installation of an additional 8.48km of track between Duffryn West junction and Cockett West junction creating a continuous section of double track between Swansea and Clarbeston Road Station in Pembrokeshire.
- Relocation of track signals and upgrading the level crossing at Duffryn to a fully Automatic Half Barrier Crossing (AHBC).
- Upgrading of route infrastructure including reconstruction of Rhosog (Culfor Road) Bridge, and major refurbishment of Traffle Mill and Gypsy Cross Bridges.
- Slewing of existing track, relocating 3 miles of troughing and improving drainage.
- Reinstatement of the disused eastbound platform at Gowerton Station including the provision of a new Disability Discrimination Act (DDA) compliant footbridge to access the platform.
- Additional station facilities including new passenger shelters, upgraded CCTV, customer information services and upgraded lighting; and
- Additional car park capacity at the station.

1.9 Figures 1.1 to 1.8 show the original Gowerton Station before the project improvements, as well as the improvements implemented as part of the project and listed above.

Figure 1.1: Before – Existing Single Track and Platform

Figure 1.2: Before – Existing Platform and Redundant Platform

Figure 1.3: After – indicating track and second platform eastbound, improved lighting, passenger information and ticketing machine.

Figure 1.4: After – indicating second platform and DDA compliant footbridge, improved CCTV and passenger waiting facilities

Figure 1.5: After – indicating car park and DDA compliant footbridge

Figure 1.6: After – Traffle Mill Road Bridge

Figure 1.7: After – Rhosog Road Bridge

Figure 1.8: After – Dufrryn Automatic Half Barrier Crossing

Scope of this Evaluation

1.10 As required under ERDF arrangements for projects receiving in excess of £2m support, the Gowerton Redoubling project has to be independently evaluated. The specification for this final evaluation identified that the following requirements be investigated:

- How and to what extent did project activity reflect the commitments set out in the Business Plan?
- What are the perceived outcomes/results of the project from the perspective of beneficiaries?
- To determine which aspects of project delivery have led to positive outcomes/results, or could be viewed as good practice.
- What barriers and constraints has the project faced? What are the lessons learnt from dealing with such barriers and constraints?

Structure of this report

1.11 This report presents the key findings of this evaluation and includes the following sections:

- **Section Two - Impact Assessment:** Evaluating the impacts of the project for users of the station as well as services passing through the double track based upon the analysis of key patronage data as well as market research surveys with users of the station.
- **Section Three - Process Evaluation:** This section evaluates the processes used to deliver the project, focusing on the below topic areas confirmed at the scoping phase:
    - Finance;
    - Stakeholder Engagement;
    - Risk Management;
    - Project Management;
    - Equal Opportunities and Environmental Sustainability;

  This is based upon interviews with key project staff and a review of key project information. This has informed the identification of key lessons learnt for future projects.
- **Section Four – Recommendations and Conclusions:** Concluding on the overall success of the project, key lessons learnt and recommendations for future projects.

2 Impact Assessment

Introduction

2.1 This section considers the key impacts of the Gowerton Redoubling project in terms of the following:

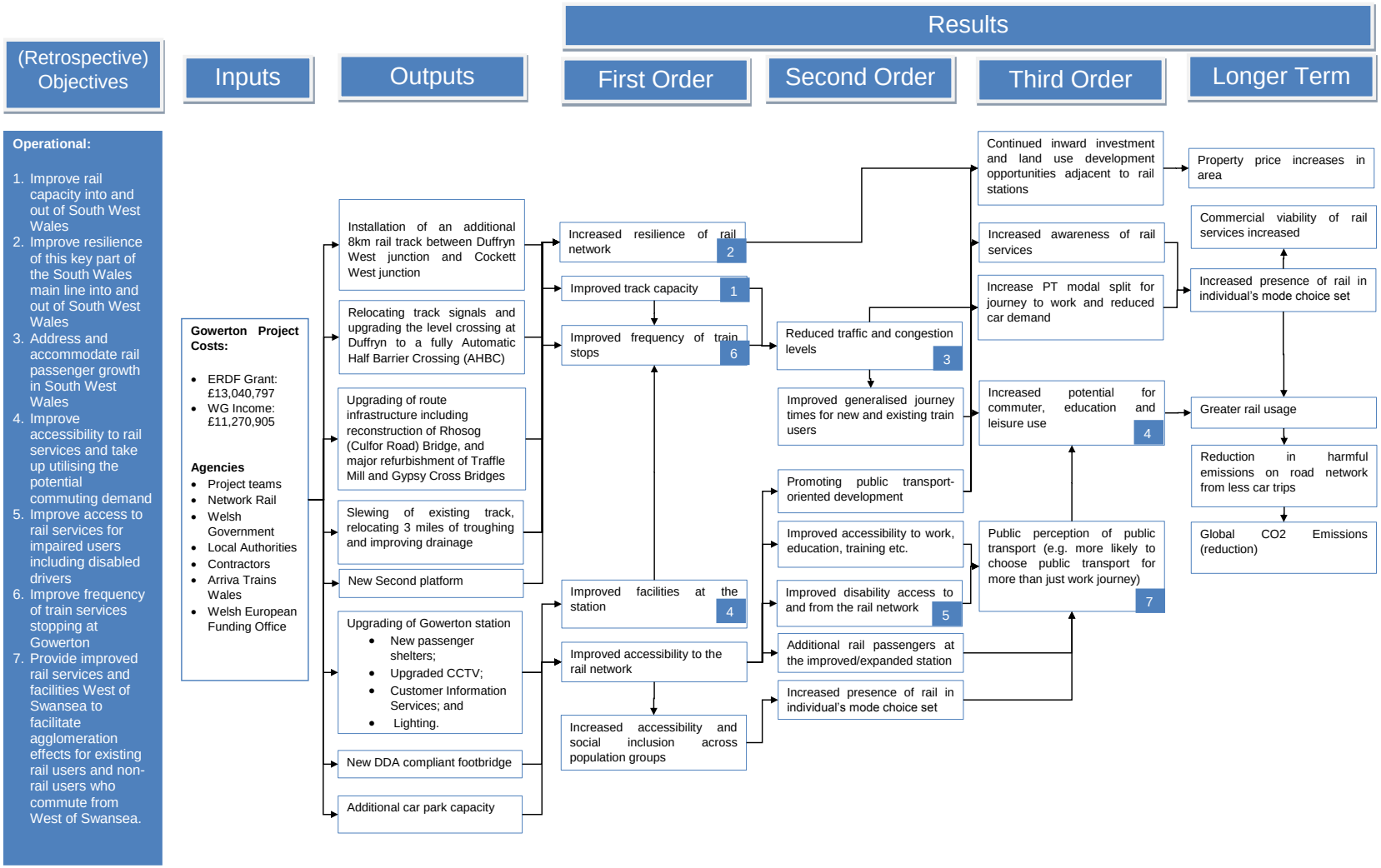
- The delivery of planned outputs and outcomes/results.
- The impacts achieved for end users when compared to the situation if the improvements had not been implemented.
- Whether the project has delivered its planned objectives.

2.2 The following impact evaluation questions were defined:

- How and to what extent did project activity reflect the commitments set out in the Business Plan?
- What are the perceived outcomes/results of the project from the perspective of beneficiaries?
- How and to what extent is this making a difference compared to if the improvements had not been implemented?

2.3 To support the evaluation of project impacts Figure 2.1 presents a logic map of the Gowerton Redoubling Project. This has been discussed and validated with the project team as part of the process evaluation interviews undertaken and is considered to accurately reflect the planned outcomes/results of the project.

Figure 2.1: Gowerton Logic Map



Project Outputs

2.4 The Gowerton Redoubling project Business Plan states the following planned direct outputs from the project:

- 8km of railroads created or reconstructed.
- One (1) intermodal facility created or improved.

2.5 The achievement or otherwise of these outputs is discussed in turn below.

<u>8 km of railroad created or reconstructed</u>

2.6 As part of the project 8.48 km of new track was laid on the South Wales Main Line between Cockett West Junction and Duffryn West Junction, which re-instated double track on the former single-line section (Figure 2.2). This means trains can run both east- and west-bound simultaneously, without having to await clearance for a train coming in the opposite direction. There is now double track all the way from the Swansea East junction to Clarbeston Road (near both Fishguard and Milford Haven). Gowerton station is roughly mid-way along the re-doubled section.

Figure 2.2: Situation prior to re-doubling work

2.7 In addition to the re-instatement of the track upgrading works also took place including:

- Relocating track signals and upgrading the level crossing at Duffryn to a fully Automatic Half Barrier Crossing (AHBC).
- Upgrading of route infrastructure including reconstruction of Rhosog (Culfor Road) Bridge, and major refurbishment of Traffle Mill and

Gypsy Cross Bridges to cope with increased loadings from double track capability and installation of new crash protection barriers.

- Slewing of existing track, relocating 3 miles of troughing and improving drainage.
- Associated civil works infrastructure and other essential developments (e.g. power supplies and telecoms).

2.8 As part of process evaluation interviews Network Rail have confirmed that the above has taken place and Welsh Government provided as-built drawings of the 8.48km of track. The images in Figure 1.1 – 1.8 also demonstrate the improvements delivered.

<u>One intermodal facility created or improved</u>

2.9 This consisted of the re-construction of the east-bound platform at Gowerton station to enable usage of the new east-bound track. This also required additional works to enable safe access to the new platform. A DDA compliant footbridge connecting both platforms was therefore constructed. The following were also installed as part of the station improvement (see also Figures 2.3 and 2.4):

- New Customer Information Systems
- CCTV
- Improved station lighting
- Additional disabled parking spaces.

Figure 2.3: Platform facilities at Gowerton station

Figure 2.4: Disabled parking provision and DDA compliant footbridge

2.10 Table 2.1 summarises the project outputs achieved against those planned, indicating that the planned outputs have been achieved.

Table 2.1: Summary of Outcomes measures

Output	Target Output	Achieved Output
Kilometers of railroads created or reconstructed	8km	8km
Intermodal facilities created or improved	1	1

Project Outcomes/Results

2.11 The Gowerton Redoubling project Business Plan states the following key planned outcomes/results from the project, which are discussed below in turn:

- 300,000 km of vehicle kilometres of rail public transport created or improved, across the whole rail network.
- Additional 100,000,000 gross passenger kilometres on public transport.

<u>300,000 km of vehicle kilometres of rail public transport created or improved, across the whole rail network</u>

2.12 AECOM reviewed two previously commissioned business cases as part of this study; the 2009 report for SWWITCH[1] which looked at the case for running additional services (on the assumption the infrastructure was already funded and in place) and the 2009 report by Open Business Consulting[3], which looked at the case for investment in upgraded infrastructure (on the assumption the additional services would be funded in line with the optimal option from the other study). Both documents recognised that there were risks related to a national shortage of rolling stock and subsidy requirements.

[1] West of Swansea Train Service Enhancement Appraisal Study, SWWITCH (2009)
[3]Rail Improvements for West of Swansea Business Justification Case, Open Business Consulting for Welsh Assembly Government (2009)

2.13 As the risks relating to the shortage of rolling stock had already transpired at the time the retrospective Business Plan was developed, the calculated outturn vehicle kilometres contained in that document cannot be compared to the forecast in the previous business cases which assumed that rolling stock would be available.

2.14 Information supplied by WG demonstrates the Business Plan target was arrived at, retrospectively, by summing the total route kilometres for all trains passing through Gowerton in the May 2012 timetable, and comparing this figure with the equivalent for the May 2013 timetable (the first major timetable change opportunity after the completion of the project). The calculations indicate an additional **301,346** route kilometres per annum were operated on trains running through Gowerton in May 2013, compared with May 2012. This exceeds the 300,000 target in the Business Plan.

2.15 The relationship between this figure and the outcome of the project are based on the assumptions that:

a) all timetable changes affecting trains running through Gowerton can be attributed to the project.

b) where additional services ran through Gowerton, the whole route mileage from the origin station was 'additional' and attributable to the project.

2.16 AECOM met with representatives of Arriva Trains Wales (ATW) on 5th October 2015, as part of the evaluation process. They confirmed that only one change in the May 2013 timetable increasing total mileage was enabled as a direct result of the re-doubling project. This was the extension of the 10:40 Holyhead to Swansea service to Llanelli. There was sufficient time in the traincrew and rolling stock schedules to extend the service and still return to Swansea in time to meet the booked 'path' eastwards on the main line to Cardiff. The additional cost of operating this extended service was borne by ATW, with no additional subsidy.

2.17 ATW took advantage of the new infrastructure provided by the project to increase the number of services stopping at Gowerton, which were previously passing Gowerton without stopping. This was promoted as '95 extra services' although in reality these were existing services and 'extra' only for those using Gowerton station. However, there was no formal obligation through a revised franchise agreement for the additional stops to be provided.

2.18 A further additional westbound train in the May 2013 timetable stopping at Gowerton at 23:21 did operate over the re-doubled section; however this could have operated with the single line in place, therefore was not a direct result of the project.

2.19 Analysis of the May 2012 and May 2013 timetables indicates that Gowerton was the only station in west Wales where a perceptible change took place in terms of levels of service provision. The project enabled some off-peak services that previously passed through Gowerton to call at the station, although the peak service was largely unchanged. ATW also took the opportunity at the May 2013 timetable change to convert all timetabled stops at Gowerton from 'request' stops (where the train only stops if the driver sees there is a passenger waiting to board or a passenger on the train advises the conductor they wish to alight) to permanent ones (where the train always stops).

2.20 Details of the timetable at Gowerton prior to and post implementation of the redoubling project are presented in Tables 2.2 and 2.3 overleaf.

Table 2.2: Weekday timetable before and after re-doubling - Westbound

Gowerton Before Re-doubling (May 2012)		Gowerton After Re-doubling (May 2013)	
Westbound			
Time		**Time**	
pass	Swansea to Shrewsbury	04.41	Swansea to Shrewsbury
05.59	Swansea to Pembroke Dock	05.54	Swansea to Pembroke Dock
07.02	Cardiff Central to Milford Haven	07.02	Cardiff Central to Milford Haven
07.59	Cardiff Central to Pembroke Dock	07.59	Cardiff Central to Pembroke Dock
09.16	Crewe to Milford Haven	09.17	Crewe to Milford Haven
pass	Cardiff Central to Shrewsbury	09.25	Swansea to Shrewsbury
10.10	Crewe to Carmarthen	10.10	Crewe to Carmarthen
pass	Manchester Piccadilly to Milford Haven	11.11	Manchester Piccadilly to Milford Haven
pass	Manchester Piccadilly to Carmarthen	pass	Manchester Piccadilly to Carmarthen
12.09	Swansea to Pembroke Dock	12.09	Swansea to Pembroke Dock
pass	Manchester Piccadilly to Milford Haven	12.50	Manchester Piccadilly to Milford Haven
pass	Swansea to Shrewsbury	13.24	Swansea to Shrewsbury
pass	Manchester Piccadilly to Carmarthen	13.47	Manchester Piccadilly to Carmarthen
14.09	Swansea to Pembroke Dock	pass	Swansea to Pembroke Dock
pass	Manchester Piccadilly to Milford Haven	14.50	Manchester Piccadilly to Milford Haven
pass	Manchester Piccadilly to Carmarthen	15.47	Manchester Piccadilly to Carmarthen
16.09	Swansea to Pembroke Dock	16.10	Swansea to Pembroke Dock
		16.33	Holyhead to Llanelli
16.50	Manchester Piccadilly to Milford Haven	16.50	Manchester Piccadilly to Milford Haven
17.15	Gloucester to Fishguard Harbour	17.15	Gloucester to Fishguard Harbour
17.44	Swansea to Carmarthen	17.44	Swansea to Carmarthen
18.19	Manchester Piccadilly to Tenby	18.19	Manchester Piccadilly to Tenby
pass	Swansea to Shrewsbury	18.31	Swansea to Shrewsbury
18.51	Manchester Piccadilly to Milford Haven	18.51	Manchester Piccadilly to Milford Haven
19.44	Swansea to Carmarthen	19.44	Swansea to Carmarthen
20.21	Manchester Piccadilly to Pembroke Dock	20.21	Manchester Piccadilly to Carmarthen
pass	London Paddington to Carmarthen	pass	London Paddington to Carmarthen
pass	Manchester Piccadilly to Milford Haven	21.02	Manchester Piccadilly to Milford Haven
22.37	Cardiff Central to Milford Haven	22.37	Cardiff Central to Milford Haven
		23.21	Manchester Piccadilly to Carmarthen
23.55	Swansea to Fishguard Harbour	23.55	Swansea to Fishguard Harbour
00.55	Manchester Piccadilly to Carmarthen	00.55	Manchester Piccadilly to Carmarthen

Table 2.3: Weekday timetable before and after re-doubling – Eastbound

Gowerton Before Re-doubling (May 2012)		Gowerton After Re-doubling (May 2013)	
Eastbound			
Time		**Time**	
pass	Fishguard Harbour to Swansea	pass	Fishguard Harbour to Swansea
06.23	Carmarthen to Cardiff Central	06.23	Carmarthen to Cardiff Central
06.49	Carmarthen to Manchester Piccadilly	06.49	Carmarthen to Manchester Piccadilly
07.27	Milford Haven to Manchester Piccadilly	07.27	Milford Haven to Manchester Piccadilly
pass	Carmarthen to London Paddington	pass	Carmarthen to London Paddington
08.35	Milford Haven to Manchester Piccadilly	08.35	Milford Haven to Manchester Piccadilly
08.52	Shrewsbury to Cardiff Central	09.03	Shrewsbury to Cardiff Central
09.07	Pembroke Dock to Cardiff Central	pass	Pembroke Dock to Cardiff Central
pass	Fishguard Harbour to Manchester Piccadilly	09.34	Fishguard Harbour to Manchester Piccadilly
pass	Milford Haven to Manchester Piccadilly	pass	Milford Haven to Manchester Piccadilly
11.03	Pembroke Dock to Swansea	11.03	Pembroke Dock to Swansea
11.36	Carmarthen to Manchester Piccadilly	11.37	Carmarthen to Manchester Piccadilly
pass	Milford Haven to Manchester Piccadilly	12.35	Milford Haven to Manchester Piccadilly
pass	Shrewsbury to Cardiff Central	pass	Shrewsbury to Cardiff Central
13.05	Pembroke Dock to Swansea	pass	Pembroke Dock to Swansea
pass	Carmarthen to Manchester Piccadilly	13.36	Carmarthen to Manchester Piccadilly
14.35	Milford Haven to Manchester Piccadilly	14.35	Milford Haven to Manchester Piccadilly
pass	Pembroke Dock to Swansea	pass	Pembroke Dock to Swansea
pass	Carmarthen to Manchester Piccadilly	15.37	Carmarthen to Manchester Piccadilly
16.35	Milford Haven to Manchester Piccadilly	16.35	Milford Haven to Manchester Piccadilly
		pass	Llanelli to Chester
17.03	Pembroke Dock to Swansea	17.03	Pembroke Dock to Swansea
pass	Carmarthen to Manchester Piccadilly	17.36	Carmarthen to Manchester Piccadilly
17.56	Shrewsbury to Swansea	17.54	Shrewsbury to Swansea
pass	Milford Haven to Manchester Piccadilly	18.42	Milford Haven to Manchester Piccadilly
19.03	Pembroke Dock to Swansea	19.04	Pembroke Dock to Swansea
pass	Carmarthen to Cardiff Central	19.28	Carmarthen to Cardiff Central
pass	Milford Haven to Cardiff Central	20.35	Milford Haven to Cardiff Central
pass	Tenby to Cardiff Central	21.25	Tenby to Cardiff Central
21.49	Shrewsbury to Swansea	21.49	Shrewsbury to Swansea
23.11	Pembroke Dock to Swansea	23.11	Pembroke Dock to Swansea

2.21 Other changes in the provision of capacity across the wider network took place at the May 2013 timetable change, but were independent of the Gowerton project. With a fixed fleet already fully utilised (subject to maintenance requirements), ATW cannot readily create new capacity, and endeavour to move it around within other operational constraints to match supply to demand. In May 2013, in line with the normal timetable

development process, the deployment of the two and three carriage trains was revised to, where possible, alleviate overcrowding on the busiest trains on the network (those serving Manchester and Birmingham).

2.22 Such changes often result in a 'swap' of origin and destination. For example, a Carmarthen-Chester (through Gowerton) and Swansea-Manchester (not through Gowerton) service could swap and become a Carmarthen-Manchester and Swansea-Chester service. The total route mileage is the same, however the train running through Gowerton now operates further than the one that does not run through Gowerton. The methodology used to derive the Business Plan target assumes this mileage has been created by the re-doubling project, whereas in practice it has instead been re-distributed, with the basis behind the re-distribution unrelated to the project. In this instance the methodology used over-estimates the impact of the project. In other cases a swap could have the reverse effect which would imply a negative impact of the project.

2.23 As described in the scoping report, for the purposes of this evaluation 'vehicle kilometres created' has also been calculated by summing up the additional route length of any service enhancements enabled by the project. This is for comparison with the aforementioned methodology to provide additional granularity to the analysis.

2.24 In this instance the only truly additional timetable element enabled is an extension from Swansea to Llanelli. This additional journey by rail is 11.25 miles[2] (18.1 km) per day each way. The service operates Monday-Saturday, creating an additional **11,294 km** per year.

[2] National Rail Timetable Table 128

2.25 The unit type normally allocated to the extended train service has 142 seats, therefore an additional 1.6m 'seat kilometres' of passenger-carrying capacity are considered to have been created.

2.26 The Business Plan assumption that the whole 466km journey from Holyhead to Llanelli was enabled as a direct result of the project (not simply the extended portion) also potentially over-estimates the impact of the project. The Business Plan target was only 'vehicle kilometres created'; it did not refer to any 'vehicle kilometres improved'.

2.27 The improved track section is just over 8km long. It could be argued that the 30 trains per Monday-Saturday (17 on Sundays) that previously used the single line and now use the new track have therefore been subject to improvement, not just from the replacement track but also new signalling. This equates to:

(6 days x 30 trains) + (1 day x 17 trains) = 197 trains per week

197 trains per week x 52 weeks x 8km = 81,952 km

In summary**:**

Vehicle kilometres created pa:	11,294
Vehicle kilometres improved pa:	81,952
Total	**93,246**

2.28 This is below the 300,000 target result, which is due to the different assumptions applied for those used to calculate the target, which has been achieved, as discussed in section 2.11 to 2.13 of this report.

2.29 The outturn figure of 93,246 represents 5 per cent of the total route mileage for trains running through Gowerton. This reflects the realities of the current franchise specification for services to/from west Wales and resource constraints both locally and nationally. Any additional services would require the acquisition of additional vehicles, either through leasing or purchase, as well as the funding of a subsidy for the

difference in fare revenue and operating costs for running those services.

Additional 100,000,000 gross passenger kilometres on public transport

2.30 As discussed in Section 2.11 to 2.12, new timetabled services over the re-doubled infrastructure that were assumed in the business case documents were known not to have been delivered when the retrospective Business Plan was produced.

2.31 The target 'gross passenger kilometres on public transport' was therefore derived from the vehicle kilometre calculations described earlier, applying the maximum passenger carrying capacity to the overall route mileage of every train that ran through Gowerton. For example, a 3-carriage train with capacity for a maximum of 289 passengers travelling the 350.83km from Crewe to Carmarthen 5 days a week for 52 weeks would generate 91,215 'maximum passenger carrying route kilometres' per annum.

2.32 Under this interpretation, the difference in maximum passenger carrying route kilometres for trains running through Gowerton between May 2012 and May 2013 was **105,583,986**. This has exceeded the 100,000,000 Business Plan target.

2.33 The methodology used to derive Business Plan passenger target is based on the same underlying assumptions as the vehicle target discussed previously. The same comments on the potential for this methodology to over or under-estimate the impact of the re-doubling apply here.

2.34 The application of the capacity of a train (seats + 35 per cent standing) reflects a definition of maximum acceptable crowding normally applied in an urban context. In this situation, given the type of service, rolling stock and customer expectation, a measurement of capacity in purely terms of seats may be more appropriate.

2.35 As discussed in the scoping report, an alternative interpretation of 'gross additional passenger kilometres' is the change in actual passenger kilometres (passenger journeys multiplied by journey length). This is in line with the interpretation used in the evaluation of previous Welsh European Funding Office (WEFO) funded projects.

2.36 A measurement of actual passenger travel has the benefit of capturing the impact of the core service change resulting from the project; the additional stops at Gowerton. It also captures impacts arising from the enhanced station facilities. Neither of the above is captured in measurements of passenger-carrying capacity of trains running through the station. As mentioned earlier, there has only been a marginal capacity change across the wider network, driven by a variety of factors. However, Gowerton station itself has seen a considerable increase in the number of trains stopping.

2.37 High level data on station usage sourced from the Office of the Rail Regulator indicates background growth in rail travel between the May 2012 and 2013 timetables of around 3 per cent.

2.38 An issue with the use of ticket sales data to determine actual patronage is the impact of a new ticket machine, which was the case in this instance. Prior to the machine, passengers had to buy their tickets on the train, travel to the nearest staffed booking office (Swansea or Llanelli), or pay £6 postal charges to buy online and receive tickets through the post. The presence of the machine facilitates the purchase of best value train-specific Advance fares online, for collection at the station, hence can contribute towards making rail more attractive, but also results in capturing data which previously wasn't captured, or was captured incorrectly. For example, where previously the conductor was unable to get through the train to sell tickets, any passenger, fully intending to pay, who travelled but did not buy a ticket would not have been recorded as having made a journey. Analysis of other ATW

mainline unstaffed stations which have had a ticket machine installed at the same time (Lydney, Pyle, Pontyclun) suggest the impact is on the order of 10 per cent increase in recorded use of the station[3]. It is beyond the scope of this report to analyse the precise impact of the improved data capture at this particular location, however it should be noted that the Lennon outputs presented may over-estimate the true impact of the project.

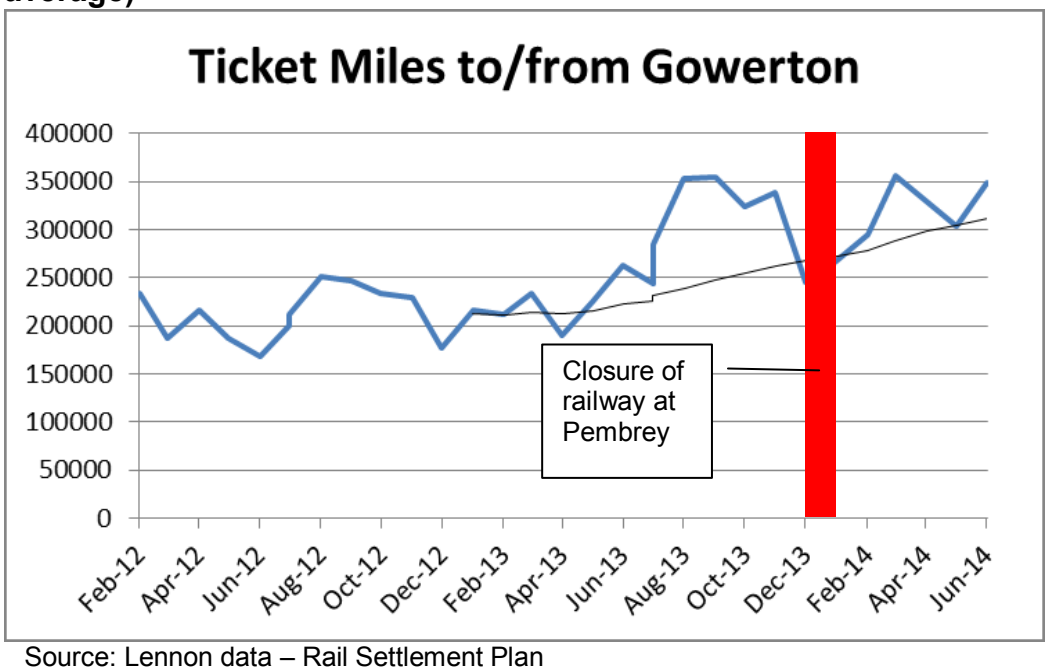
2.39 There is no evidence on the direct impact of converting request stops to permanent ones, although anecdotally several stakeholders mentioned this was a positive change.

2.40 Actual passenger kilometres for all rail travel to/from Gowerton was obtained from the rail industry Lennon ticket sales database (figure 2.5). Patronage at Gowerton has shown a considerable increase in the first year since the project was completed. A clear trend can be seen with growth fairly flat until May 2013 (when the project was completed), with steady growth thereafter. The dip in demand in December 2013/January 2014 was due to severe weather which closed the railway at Pembrey, west of Llanelli, for several days, leading to the cancellation of the majority of trains serving Gowerton.

2.41 Taking the years ending May 2013 and May 2014, recorded ticket miles for rail travel to/from Gowerton increased from 2.981 million to 4.184 million, up 1.203 million miles (over 40 per cent). This equates to an increase of 1.935 million passenger kilometres.

[3] Source: ATW Lennon ticket miles data

Figure 2.5: Ticket Miles to/from Gowerton (incl annual moving average)



Source: Lennon data – Rail Settlement Plan

2.42 A proportion of these additional journeys would be expected to be made by passengers who previously travelled to/from another station but now find Gowerton more convenient. The passenger survey carried out by AECOM (analysed in the next section) indicates that the abstraction from other stations is low at only 4 per cent. Further allowances were required for background growth (3 per cent), the ticket machine impact (10 per cent) and abstraction (4 per cent), generating a total of 17% of change attributable to other factors. Applying these adjustments to the total additional passenger kilometre figure gives an alternative gross additional passenger kilometres figure of:

1.935m x (1-0.17) = **1.606m**

2.43 This indicates a significant growth in demand of over 20 per cent which is considered to be attributable to the project.

2.44 This is significantly below the 100 million gross additional passenger kilometres target for the project presented in the Business Plan, which is due to a different interpretation of the outcome measure as one of actual passenger travel rather than maximum route passenger-carrying capacity.

Summary of Project Outcomes

2.45 Table 2.4 summarises the key outputs discussed above in relation to the targeted and delivered performance of the project. It can be seen that all Business Plan targets have been met by the project. It can also be seen that adopting alternative methodologies for the calculation of these measures indicate lower levels of performance attributable to the project.

Table 2.4 – summary of Outcomes measures

Measure (pa)	Target	Delivered	Comment
Additional route vehicle kilometres of all services through Gowerton	300,000	301,346	Includes impact of unrelated timetable changes.
Additional vehicle kilometres directly attributable to project	N/A	11,294	Reflects ATW clarification on drivers behind timetable change
Additional 'seat' kilometres directly enabled by project	N/A	1.6m	Capacity actually generated
Vehicle kilometres on improved track	N/A	81,952	Potential measure of 'improved'
Additional route kilometres maximum passenger-carrying capacity	100m	106m	Includes impact of unrelated timetable changes
Actual additional passenger kilometres travelled	N/A	1.6m	Captures extra stops and station enhancements

Objectives of the schemes

2.46 The objectives of the project as indicated within the Business Plan were to:

1. Improve rail service capacity into and out of south west Wales by addressing the significant pinch-point through redoubling the existing single track section between Llanelli and Swansea.
2. Improve resilience of this key part of the south Wales main line into and out of south west Wales.
3. Address and accommodate rail passenger growth in south West Wales forecast by SWWITCH to grow by between 22 per cent and 32 per cent in the ten years to March 2019. The Project will provide sufficient capacity to meet longer term demand for rail journeys on this part of the TEN-T rail network.
4. In conjunction with an upgraded train station at Gowerton (which includes a new second platform facility), and more timetabled stops at Gowerton, improve accessibility to rail services and take-up utilising the potential commuting demand from the local catchment that includes popular residential areas including Gowerton, Gorseinon area and north/east Gower.
5. Improve access to rail services for impaired users including disabled drivers by providing better services to facilitate demand.
6. Improve frequency of train services stopping at Gowerton.
7. Provide improved rail services and facilities west of Swansea to facilitate agglomeration effects for existing rail users and non-rail users who commute from west of Swansea to the City and beyond for employment, training, education leisure and social community opportunities and needs.

2.47 No quantified outcomes have been defined for these objectives. However, they are considered measurable to some extent. These are discussed in turn.

Aim 1: Improve rail service capacity into and out of south west Wales by addressing the significant pinch-point through redoubling the existing single track section between Llanelli and Swansea

2.48 There are two principle routes between Cardiff and south west Wales, the route via Gowerton and the Swansea District Line, as shown on Figure 2.6. The Swansea District line is double track and provides a faster link than the Gowerton route between Cardiff and west Wales. It is used by freight services in addition to some passenger trains such as the 'boat' trains connecting with ferries at Fishguard Harbour. The downside, however, is that it by-passes Swansea station. Consideration of the merits of using the Swansea District line (possibly with a new Swansea Parkway station to serve Swansea) was not considered in the Business Plan or earlier business cases.

2.49 The principal timetable change brought about by the re-doubling is one additional service per weekday in each direction. In addition to this the new infrastructure provides the potential capacity for more services to operate. The Network Rail Train Planning Rules extract shown in Figure 2.7 highlights that the minimum headway between Swansea and Llanelli is now 6 minutes. This means, theoretically, that trains can run every six minutes within this section (or every 9 minutes stopping at Gowerton).

Figure 2.6: The local rail network in the Gowerton Area

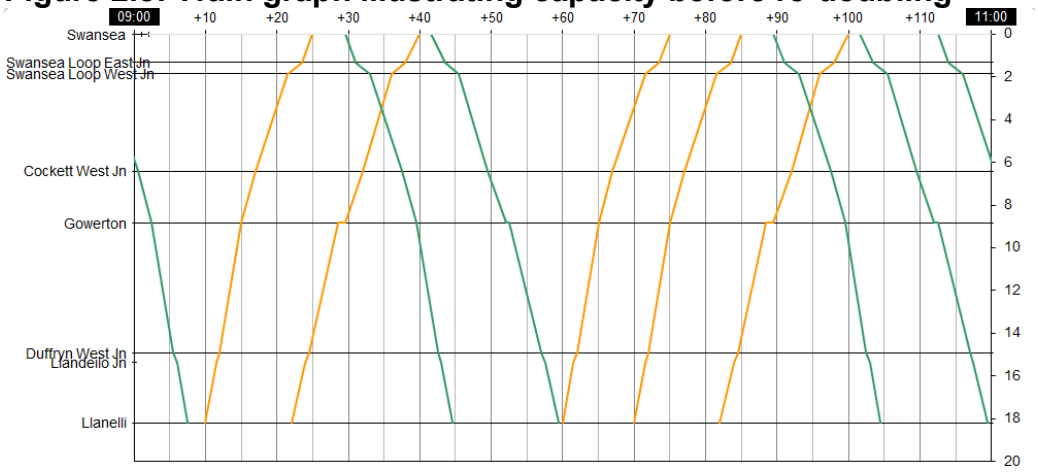
Figure 2.7: Network Rail Train Planning Rules post-redoubling

GW 900 PILNING TO FISHGUARD HARBOUR					
LOCATION	**DOWN MAIN**	**DOWN RELIEF**	**UP MAIN**	**UP RELIEF**	**NOTES**
Pilning to Severn Tunnel East	4		4		
Severn Tunnel East to Severn Tunnel West	5, 6a), 7b)		5, 6a), 7b)		a) following a preceeding freight b) following a preceeding freight that has left or will enter Pilning loop or has left Severn Tunnel Up Goods loop
Severn Tunnel Jn to Newport	4	5	4	5	
Newport to Cardiff	4	4	4	4	
Cardiff Central to Court Sart Junction	4		4		
Court Sart Junction to Swansea Loop West Junction	5		5		
Swansea Loop West Junction to Llanelli	6		6		9 minutes if preceding train calls Gowerton
Llanelli to Pembrey	AB		AB		
Pembrey to Kidwelly	AB		AB		
Kidwelly to Ferryside	AB		AB		
Ferryside to Carmarthen Bridge Junction	AB		AB		
Carmarthen Bridge Junction to Whitland	7		7		
Whitland to Clarbeston Road	8		8		
Clarbeston Road to Fishguard Harbour	One train working				Subject to trains shunting into the loop at Letterston and or Station siding at Fishguard Harbour siding and operating the ground frame(s)

Source: Network Rail Train Planning Rules

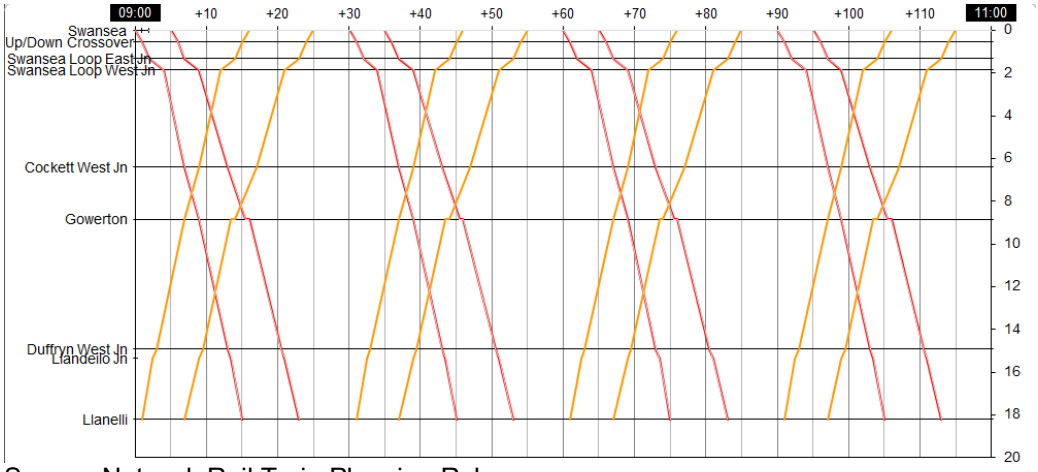
2.50 AECOM have taken the Network Rail Train Planning Rules for before and after the redoubling and produced a theoretical train graph for each, see figures 2.8 and 2.9. These show that in a 2-hour period, the maximum number of trains that could pass through Gowerton (both directions combined) has risen from 10 to 16.

Figure 2.8: Train graph illustrating capacity before re-doubling



Source: Network Rail Train Planning Rules

Figure 2.9: Train graph illustrating capacity post-re-doubling



Source: Network Rail Train Planning Rules

2.51 The objective of improving rail service capacity is therefore considered to have been met. The constraint to any further increase in capacity in this area is now considered to be the single lead junction at Swansea East.

Aim 2: Improve resilience of this key part of the south Wales main line into and out of south west Wales

2.52 Delays on the railway are measured by Network Rail. The creation of the re-doubled track has meant that late running trains no longer have to wait for their 'slot' and incur further delay in this area. There are a large number of reasons for delay, including weather, technical and operator-related problems which can vary from year to year, therefore it is difficult to quantify how much delay has been 'saved' with the re-doubled line.

What can be more easily measured is ‘secondary delay’ which is the ‘knock on’ effect of an initial problem. This analysis is not being carried out for this report.

Aim 3: Address and accommodate rail passenger growth in south West Wales forecast by SWWITCH to grow by between 22% and 32% in the ten years to March 2019. The Project will provide sufficient capacity to meet longer term demand for rail journeys on this part of the TEN-T rail network.

2.53 As discussed earlier, additional passenger-carrying capacity supplied as a direct result of the project has been limited to one train each way between Llanelli and Swansea, resulting in an additional 1.6m seat kilometres per year. Passenger growth has taken place in west Wales, although not to the extent that trains in 2015 were routinely overcrowded**.** Data from ATW shows that the average loading of trains (in 2015) at Gowerton was less than 30 per cent, with even the busiest peak train having 40 spare seats, plus space for standing. At current occupancy and growth levels, it is not expected any additional trains will be needed to meet demand by March 2019. However, the availability of two lines provides the infrastructure to accommodate long term demand, subject to rolling stock availability. Passenger-carrying capacity can also be increased through this section through lengthening trains prior to running additional services.

2.54 As passenger demand is well within the capacity supplied, it can be confirmed that rail passenger growth has been accommodated.

Aim 4: In conjunction with an upgraded train station at Gowerton (which includes a new second platform facility), and more timetabled stops at Gowerton, improve accessibility to rail services and take-up utilising the potential commuting demand from the local catchment that includes popular residential areas including Gowerton, Gorseinon area and north/east Gower.

2.55 As discussed in section 2.40 take-up for rail travel has been improved, with recorded rail passenger miles up 40 per cent in the year following the completion of the project. Details of the location of users of Gowerton station, and their journey purpose can be found as part of the survey results presented in section 2.71 to 2.72 of this report.

Aim 5: Improve access to rail services for impaired users including disabled drivers by providing better services to facilitate demand.

2.56 Improved facilities at Gowerton included a DDA compliant bridge, additional disabled car park spaces and new tactile platform surfacing.

Aim 6: Improve frequency of train services stopping at Gowerton.

2.57 This has been the principle change resulting from the re-doubling works. As shown in tables 2.1 and 2.2, an additional 11 westbound services stop at Gowerton, and 7 eastbound. Potentially more services could call in the future, subject to rolling stock availability and a revised franchise agreement. All stops are now permanent stops, not request stops.

Aim 7: Provide improved rail services and facilities west of Swansea to facilitate agglomeration effects for existing rail users and non-rail users who commute from west of Swansea to the City and beyond for employment, training, education leisure and social community opportunities and needs.

2.58 Agglomeration effects, such as those discussed within the above objective would not be expected within a year post-project implementation. As the peak timetable is largely unchanged, opportunities for additional commuting for employment by rail into Swansea are limited; however the off-peak timetable enhancements will have facilitated new rail journey opportunities. Actual journey purpose was measured with a small sample of users during survey work carried at the station, which is discussed in section 2.73 of this report. One

possible indication of potential growth in Gowerton is the construction of a new, larger primary school, in anticipation of increased development in the village and surrounding area.

Passenger Impacts

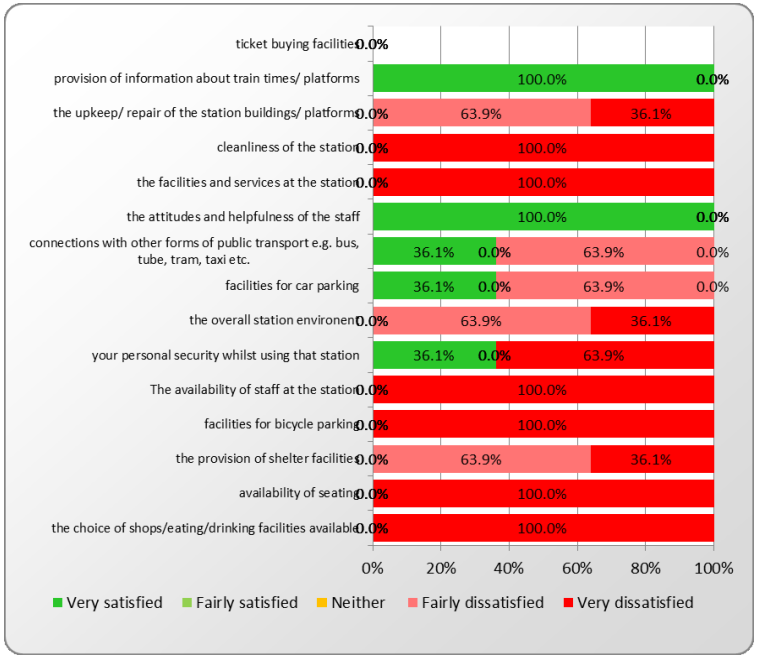
2.59 There are a number of benefits and other consequences arising from the project which cannot be directly measured utilising ticket sales and other patronage data.

2.60 Analysis of the Transport Focus National Rail Passenger Survey (NRPS) before (Spring 2012) and after (Spring 2013) the implementation of the Gowerton project (shown in Figure 2.10) indicated that the changes made as part of the project have been received positively. Improvements in satisfaction were also noted in relation to the following:

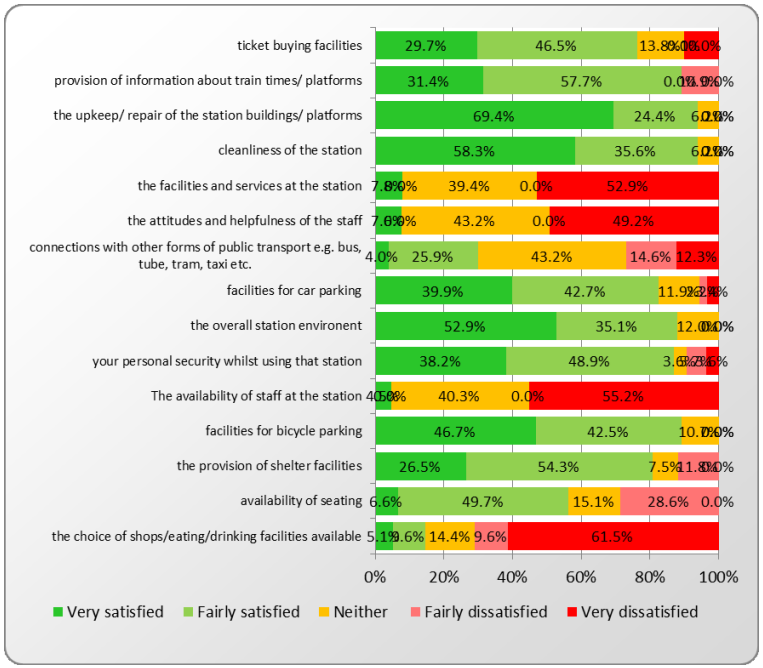
- Ticket buying facilities (none available previously)
- The upkeep of the station and platforms
- Cleanliness of the station
- Facilities for car parking
- The overall station environment
- Personal security whilst using the station
- Facilities for bike parking.

2.61 This section presents the methodology adopted to analyse the NRPS survey data and the detailed results by topic.

Figure 2.10: NRPS Passenger Satisfaction with Gowerton Station – before and after the project (Spring 2012 to Spring 2013)



Spring 2012 to Spring 2013 Surveys



Autumn 2013 – Spring 2015 Surveys

2.62 The sample sizes in NRPS at Gowerton station were below 10 per 'wave', therefore insufficient to draw robust conclusions regarding this project.

2.63 Face to Face questionnaire surveys with station users have therefore been undertaken as part of this evaluation to help identify:

- The number of additional trips as a result of the extra services
- Mode shift
- Abstraction from other rail stations
- Satisfaction with extra services and new, upgraded station facilities
- Improved accessibility for disabled users
- Improved access to employment/key centres.

2.64 The information required would apply to anyone who has used the station since May 2013. As well as undertaking surveys at the station itself, surveys were therefore also undertaken with people in Gowerton village centre, via on-street surveys. As part of these on-street surveys, respondents were screened to ensure only those who had used Gowerton rail station since May 2013 were included in the sample.

2.65 Appendix A contains the questionnaires utilised both at the station and on-street as part of this project, which was available in both English and Welsh.

2.66 Both at-station and on-street surveys were undertaken over three days in October 2015. Alongside the surveys a count of all passenger boarding's was also undertaken. Table 2.5 indicates the survey sample achieved both at the station and on-street. A total of 291 survey responses were achieved across both survey formats.

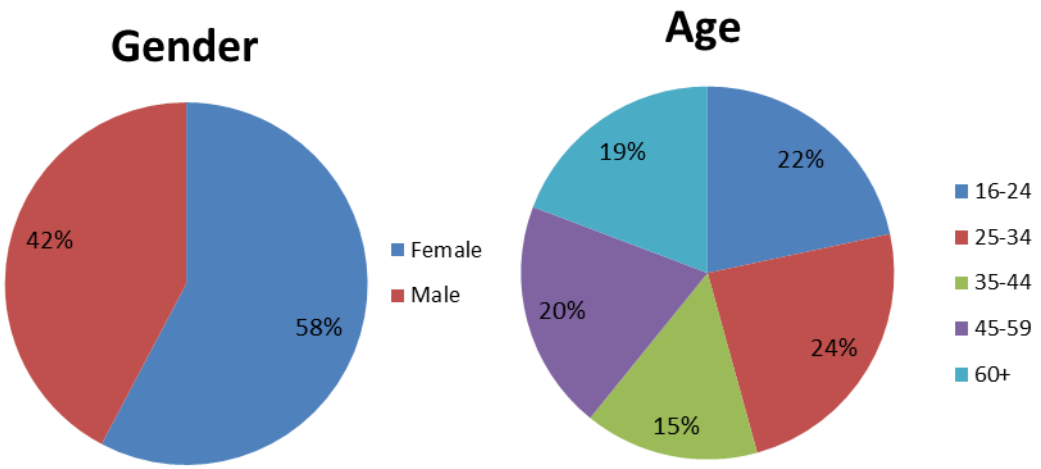
Table 2.5: Gowerton Survey responses

Survey format	Date	Responses
At station	21st October	92 (of 153 boarders)
	22nd October	72 (of 150 boarders)
On street	22nd October	70
	23rd October	57
	Total	**291**

Source: AECOM Surveys

2.67 The survey sample of 291 people contained a 42:58 split between men and women and a relatively even breakdown of age groups, as shown in Figure 2.11. The 2011 Census data for the Gowerton ward reported a 48:52 gender split, and an older population with 57 per cent of adults over 45 (compared with 39 per cent of the survey respondents).

Figure 2.11: Survey Results – Gender and Age Breakdown

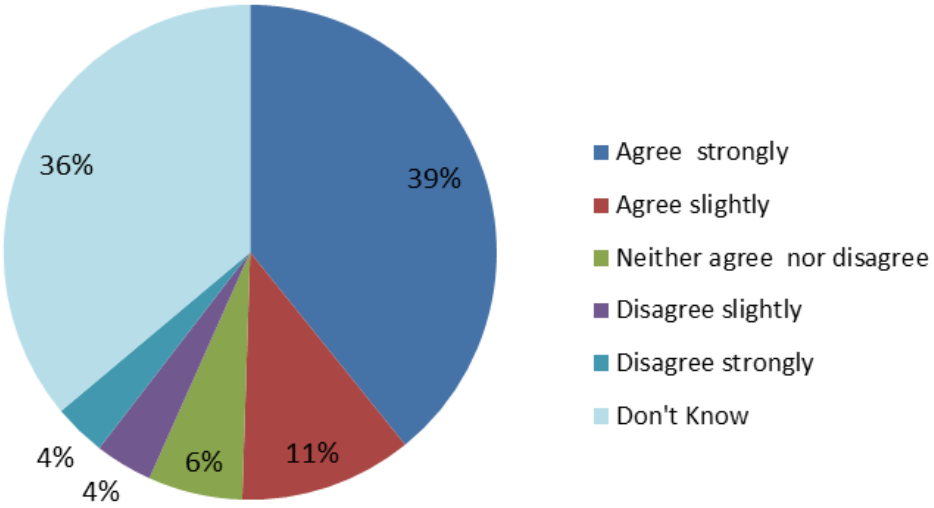


Sample: 291

Additional trips using the station

2.68 As part of both the on-street and at-station survey's, respondents were asked whether the improvements made at Gowerton station had led to an increase in their train use. As indicated in Figure 2.12, 50 per cent of respondents felt that the improvements had increased their train use, with 39 per cent of these strongly agreeing with the statement.

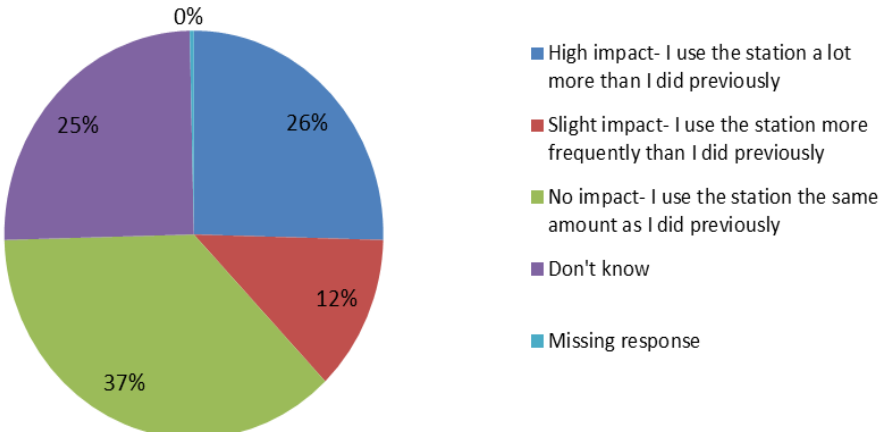
Figure 2.12: Survey Results – To what extent do you agree that the improvements at Gowerton Station have increased your train use



Sample: 291

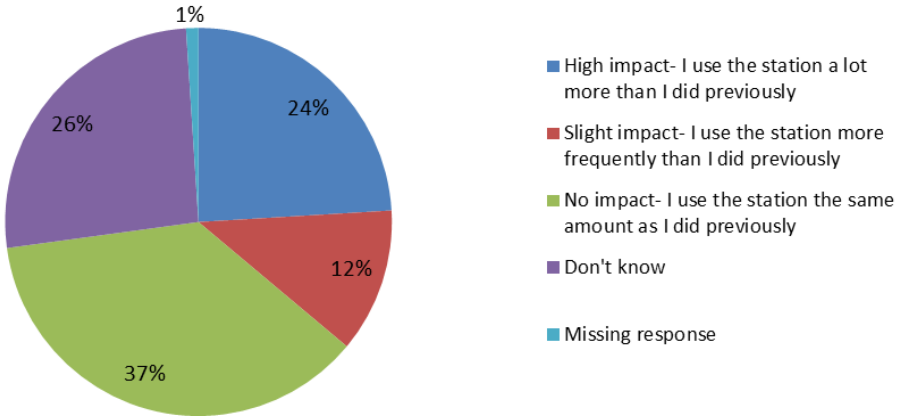
2.69 Passengers were also asked specifically about the impact of changes to train timetables and station facilities at Gowerton station, as shown in Figures 2.13 and 2.14. 38 per cent of respondents thought that timetable changes have had a slight or high impact on their use of the station facilities, whilst 36 per cent thought that the changes to station facilities had similarly impacted their use of the station. 37 per cent of respondents thought that neither the timetable changes, nor the changes to station facilities had impacted their levels of use of the station.

Figure 2.13: Survey Results – What impact have the Changes to Train Timetables had on your frequency of use of Gowerton station.



Sample: 291

Figure 2.14: Survey Results – What impact have the Changes to Station Facilities had on your frequency of use of Gowerton station.



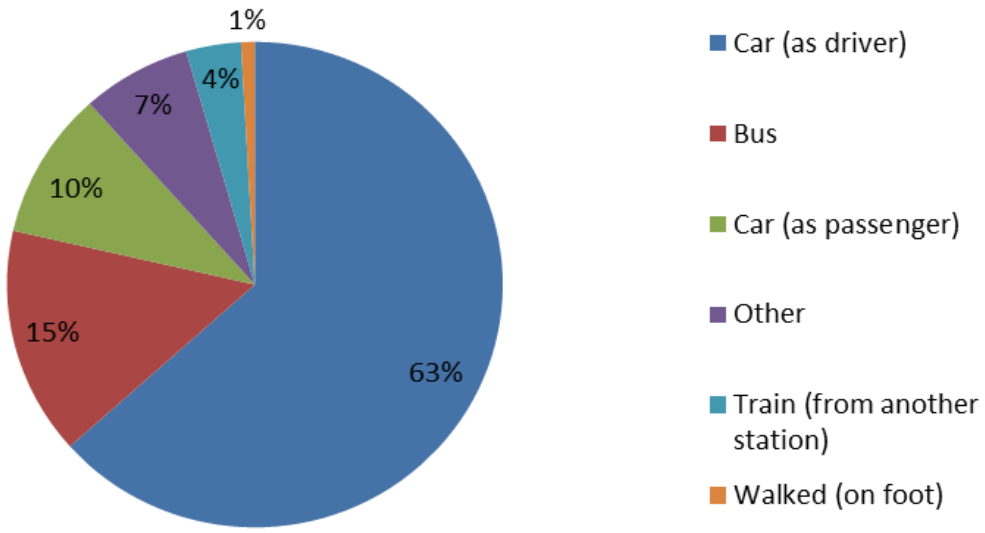
Sample: 291

Mode Shift and abstraction from other rail stations

2.70 As part of the at-station survey, passengers were asked how they would previously have made the journey they were undertaking and the reasons for changing their behaviour. Of those who hadn't always used Gowerton station the largest shift has been from travelling by car (63 per cent as driver, with an additional 10 per cent as passenger), see Figure 2.15. This indicates that the station has been successful in encouraging modal shift away from car use.

2.71 Only 4 per cent of respondents indicated that they previously travelled by train from another station, indicating that the level of abstraction to Gowerton from other rail stations has been low.

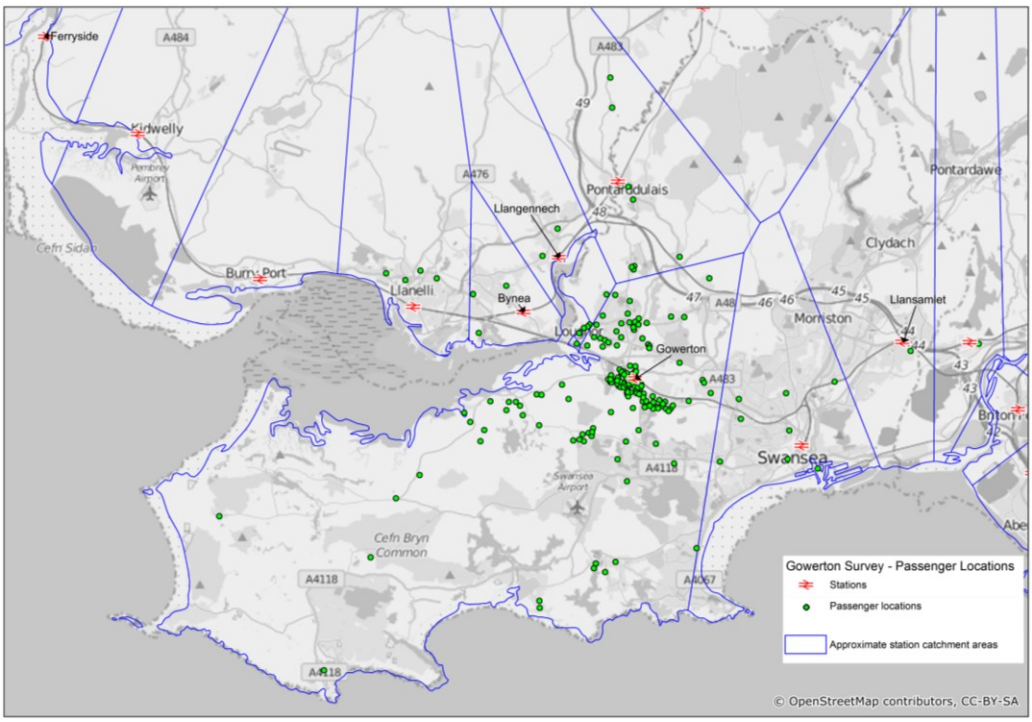
Figure 2.15: Survey Results – How did you previously make this journey before you started using this station.



Sample: 164

2.72 Figure 2.16 shows the home locations of the surveyed users of Gowerton Station. This map also shows the approximate geographic catchment areas of Gowerton station and nearby stations. This confirms that the majority of users of Gowerton station come from the stations geographic catchment including Gowerton, Gorseinon and the Gower Peninsula. However, some passengers from outside of this area including Swansea, Llanelli and Portarddulais also choose to use Gowerton station.

Figure 2.16: Survey Results – Home locations of Gowerton Station Users (using postcode data)



Source: AECOM Surveys

2.73 Table 2.6 below indicates the most common reasons for commencing use of Gowerton station. The most popular reasons were getting (or seeking) a new job opportunity (43 responses), the convenience offered by the station (35 responses, with a further 20 related to the convenience in relation to a place of education) or moving to the area (20 responses). Better timetabling and more trains stopping (improvements delivered as an outcome of the project) were cited as key reasons for starting to use Gowerton station by 5 respondents.

Table 2.6: Survey Results – Why did you start using this station.

Reason for starting to use the station	Frequency of responses
New job/ potential job opportunity (e.g. interview)	43
Convenience	35
Convenient for place of education (school/college etc.)	20
Moved house	20
Visiting family	12
Holiday	7
Other	7
Better timetable/more trains stopping	5
Work trip	4
Cheaper to use train	3
Cost saving (petrol)	2
Personal business	2
Free parking	1

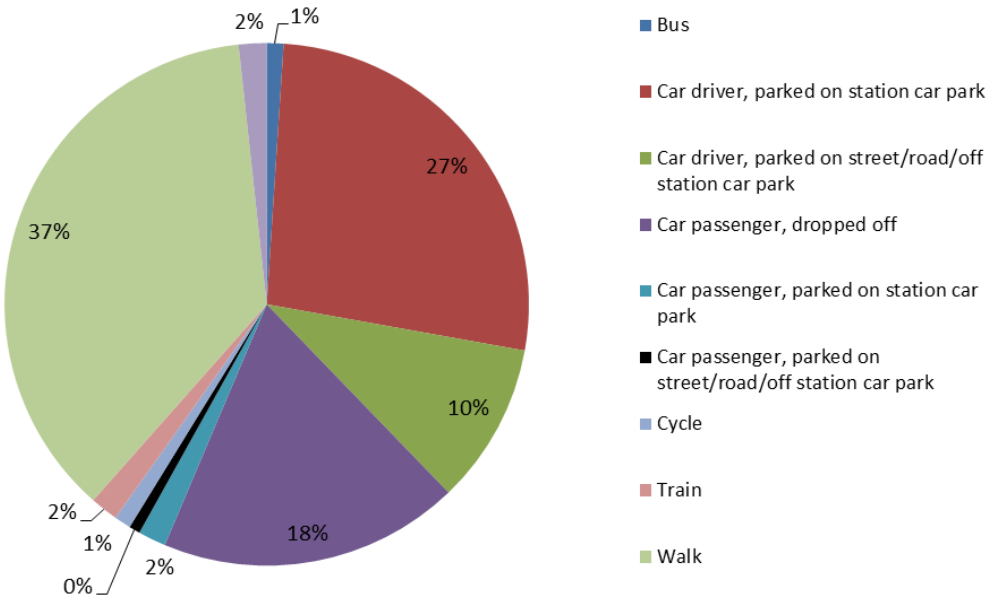
Sample: 164

Note: This was a multiple choice question with the option to specify other reasons. These reasons have been grouped in the above table.

2.74 Respondents were also asked how they travelled to the station usually/today (usually, in the case of the on-street survey and today, in the case of the station survey), see Figure 2.17. In total 58 per cent (168) of those surveyed travelled to the station by car, either as a driver or passenger. Of these, 49 per cent (83) parked at the station car park, with a further 18 per cent (31) parking on-street and 32 per cent (54) being dropped off at the station. The relatively high levels of on-street parking may indicate a lack of parking capacity at the station, something which has also been mentioned by stakeholders interviewed as part of the evaluation.

2.75 Walking was the next most common means of getting to the station, utilised by 37 per cent of respondents. Levels of bus and cycle use to access the station were both low, each representing 1 per cent of journeys to the station.

Figure 2.17: Survey Results – How have you travelled to this station and today and if you arrived by car where have you parked.

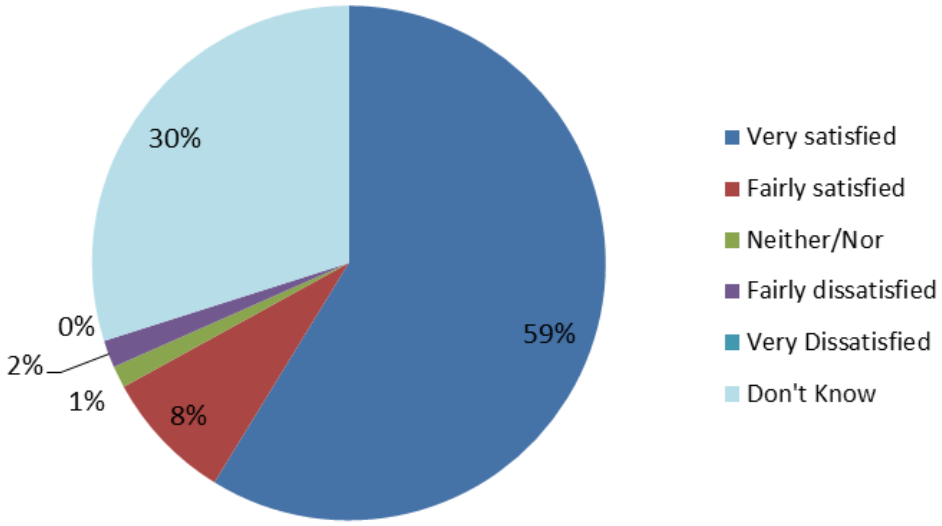


Sample: 291

Satisfaction with extra services and new, upgraded station facilities

2.76 Respondents were asked how satisfied they were with the changes made to the timetabled service at Gowerton as a result of the project, see Figure 2.18. 59 per cent were very satisfied, with a further 8 per cent fairly satisfied. Only 2 per cent were dissatisfied with the timetabling changes made.

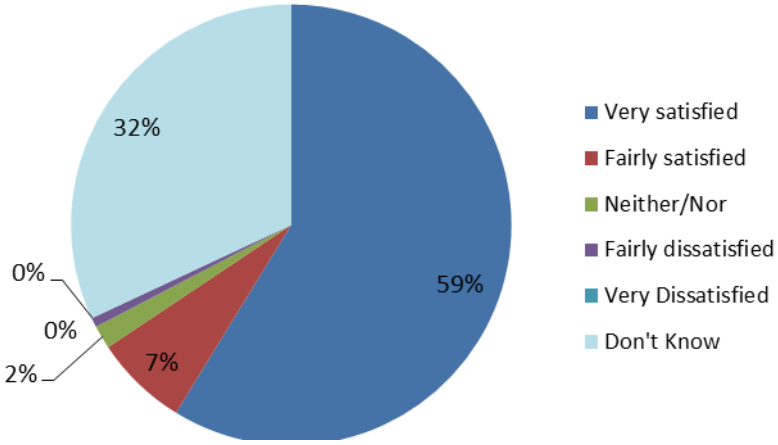
Figure 2.18: Survey Results – How satisfied are you with the changes to train timetables



Sample: 291

2.77 Similarly, respondents were asked to rate their satisfaction with the changes to station facilities made as part of the project, as shown in Figure 2.19. 66 per cent were either very or fairly satisfied.

Figure 2.19: Survey Results – How satisfied are you with the changes to station facilities

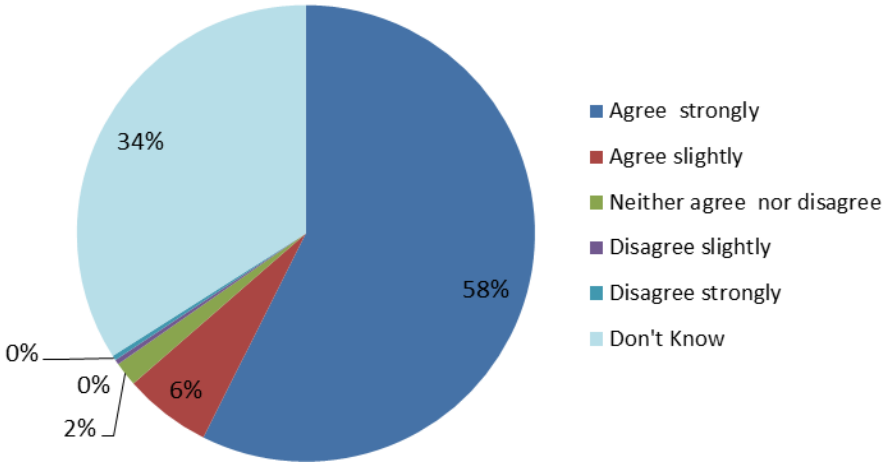


Sample: 29

2.78 Overall the majority of those able to comment were satisfied with the changes made to both the timetable and station facilities at Gowerton Station.

2.79 Respondents were also asked whether the changes made had made the station safer, see Figure 2.20. 64 per cent strongly or slightly agreed that the improvements made at the station had made it feel safer. Only 1 per cent or respondents disagreed with this statement.

Figure 2.20: Survey Results – To what extent to you agree that the improvements made to Gowerton station have made the station safer



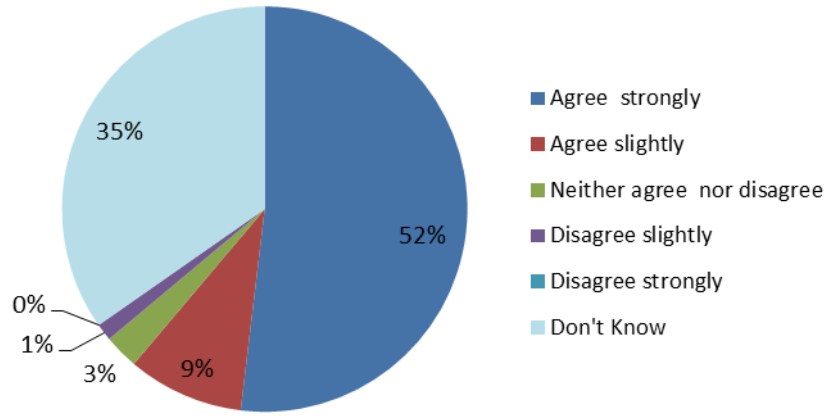
Sample: 291

Improved accessibility for disabled users

2.80 Respondents were asked to indicate whether they had a physical disability which limits their mobility. Across both the on-street and at-station surveys 11 respondents (4 per cent) indicated that they had a physical disability. This sample was considered too small to allow any statistically significant subsequent analysis of the accessibility impacts of the project for this group.

2.81 All users of the station were asked the extent to which they agreed with the statement that the improvements made at the station had improved their ability to access rail services, see Figure 2.21. 61 per cent either strongly or slightly agreed with this statement, indicating that the scheme was considered to have had a positive impact in terms of access to rail services.

Figure 2.21: Survey Results – To what extent to you agree that the improvements made at Gowerton station have improved your ability to access rail services

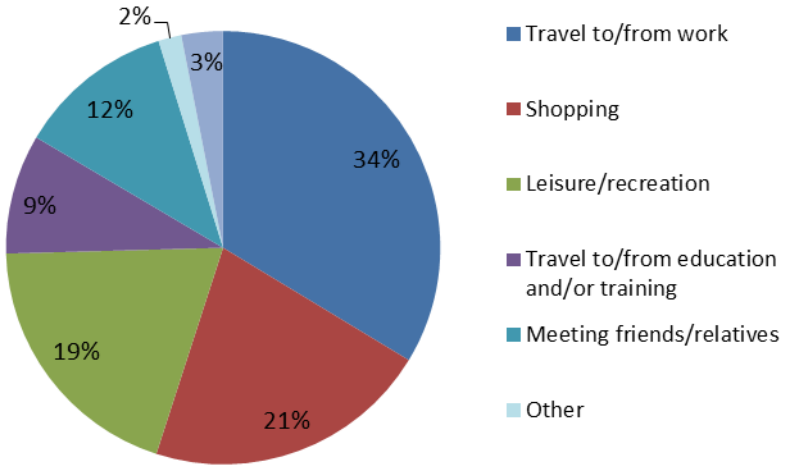


Sample: 291

Improved access to employment/key centres

Figure 2.22 indicates the journey purposes of respondents using the station. This indicates that travel to or from work was the most common reason for using the station (34 per cent), followed by shopping (21 per cent) and leisure or recreation (19 per cent).

Figure 2.22: Survey Results – What was the main purpose of your journey today from this station



Sample: 291

2.82 Of those using the station for accessing employment 42 per cent felt that the improvements made had increased their train use, with 47 per cent stating that the improvements made had made it easier to change between modes of transport.

Summary of Passenger Impacts

2.83 Overall the market research survey has indicated that the changes made as part of the project have been received positively, leading to additional use of the station. The station is also contributing towards reducing levels of car use through encouraging people to switch to rail travel.

3 Process Evaluation

3.1 A process evaluation was undertaken to determine the following key aspects of project delivery for the Gowerton Redoubling project:

- To determine which aspects of project delivery have led to positive outcomes, or could be viewed as good practice?
- What barriers and constraints has the project faced?
- What are the lessons learnt from dealing with such barriers and constraints?

3.2 This process evaluation has drawn on evidence from a number of different sources of evidence, thereby permitting the triangulation of findings. Sources include interviews with the project team and key local and national stakeholders, as well as available project information in the form of reports and working documents. This has allowed us to undertake a comprehensive assessment of the processes utilised as part of the project.

3.3 Table 3.1 outlines the key documents utilised as part of this process evaluation.

Table 3.1: Documents Used in Process Evaluation

Project Area	Coverage
Finance	• Network Rail 4-weekly finance reports • Business Plan outturn costs • Business Plan Annex 5.2 providing GRIP Stage 3 cost estimates
Schedule/ Programme	• Network Rail Delivery Programme
Team/Skills	• Roles and responsibilities outlined in Business Plan
Governance	• Governance arrangements outlined in Business Plan
Risk Management	• Business Plan Quantified Risk Assessment provided
Stakeholder Engagement	• Outlined in Business Plan. Wales Route Utilisation Strategy Consultation list provided
Procurement	• Procurement process outlined as part of Business Plan.
Equal Opportunities and Environmental Sustainability	• Benefits related to cross cutting themes outlined in Business Plan

Interviews

3.4 Interviews have been undertaken with the key members of the project delivery team to ascertain the key issues experienced during the project and areas for potential future improvement. The following key project team members have been interviewed:

- Network Rail Programme Commercial Manager
- Network Rail Project Manager
- Welsh Government Transport EU Project Development Officer
- Welsh Government Rail Development and Delivery Manager.

3.5 In addition to the project team, interviews have been undertaken with representatives of the following stakeholder organisations:

- City and County of Swansea Council
- Arriva Trains Wales.

Scope of Evaluation

3.6 A scoping exercise was undertaken as part of the scoping phase and a separate report produced for the evaluation team. This identified the scope of the process evaluation undertaken with the project team and stakeholders and identified the key questions to be covered as part of the interviews under the following project areas:

- Project Identification and Inception
- Finance
- Stakeholder Engagement
- Risk Management
- Project Management
- Cross Cutting Themes.

3.7 These areas are those where sufficient information was deemed to be available to undertake an analysis of delivery against forecasts, thereby supporting inclusion in interview discussions.

Project Identification and Inception

3.8 A literature review has been undertaken alongside interviews with key personnel to establish how the project was formed and the key decisions that determined the scheme as planned as part of this project.

3.9 The Gowerton Redoubling project has its origins in the SWWITCH Rail Strategy (2005) and subsequent Regional Transport Plan 2010-2015 (2009). These documents identified the redoubling of the line west of Swansea as a top priority rail scheme for the local authorities in south west Wales, to secure improved services to west Wales, including three trains per hour between Swansea, Gowerton and Llanelli. Stakeholder interviews have indicated that this was a particular aspiration for the local authorities west of Swansea (Pembrokeshire and Carmarthenshire) who aspired to additional service provision to Swansea and south east Wales. This was also a long standing objective of Welsh Government, addressing a key pinch-point in the network between Cardiff and Carmarthen[4]. The need for the project was also outlined by Network Rail in the Wales Route Utilisation Strategy (2008).

3.10 The project was further facilitated by the identified need for Network Rail to undertake maintenance renewal work on the Loughor Viaduct to avoid the potential failure of this aging and listed structure. The need to undertake costly maintenance work on the viaduct, which was due for renewal by 2012/13, presented an opportunity and period of track closure for Network Rail to add a second track to the viaduct structure at a reduced cost when compared to undertaking this task separately.

Example of Best Practice: At the inception phase of the project the Welsh Government and Network Rail identified an opportunity created by the need to undertake maintenance renewal work on a nearby Loughor Viaduct, which facilitated the cost effective implementation of this project, whilst limiting disruption for rail users through maximising the utility of the planned blockage of the affected section of railway track.

[4] Wales Rail Planning Assessment (2007) Welsh Government/Department for Transport

3.11 A study was commissioned by SWWITCH in 2009 to establish the business case for enhanced passenger rail services west of Swansea[5] which considered a number of different options for service improvements, including additional service frequencies at Gowerton station. This study identified a preferred option and timetable including 3.5 trains per hour at Gowerton (requiring additional rolling stock to achieve this). The economic case for such an improvement including the cost of provision of additional rolling stock was presented as part of this report.

3.12 Alongside the above SWWITCH study, Network Rail undertook a GRIP Stage 3 Option Selection Assessment in 2008 of the infrastructure options to facilitate passenger service enhancements west of Swansea. This considered a number of different options for infrastructure improvements which could facilitate the desired levels of service enhancements and recommended a preferred option which consisted of:

- A redoubled track between Duffryn West and Cockett West
- Station works at Gowerton, including a footbridge, lighting, customer information systems and refurbished platform
- Car park works at Gowerton station.

3.13 This preferred option was taken forward for delivery and forms the basis of the Gowerton Redoubling project which this evaluation considers.

Finance

3.14 A review has been undertaken of the Gowerton project finances, and considered the following key questions:

- Whether the project was delivered to the forecast cost, and if not what were the main causes for variation?

[5] West of Swansea Train Service Enhancements Appraisal Study, SWWITCH, 2009

- Which areas of project delivery experienced the greatest level of cost variance, and why?
- What mitigation was developed to minimise cost variance and how effective were they?
- How the financial spend was managed to ensure project delivery?
- What lessons can be learnt regarding project costing assumptions?

Identification of Funding

3.15 The project was initially delivered utilising Welsh Government Department for Economy, Science and Transport (EST) funds. However, through dialogue between WEFO and the Welsh Government it was established that potential ERDF match funding for the project could be accessed retrospectively, subject to the submission and approval of an appropriate Business Plan.

Project Costs

3.16 The Business Plan for the Gowerton Redoubling project was undertaken post-factum on completion of the majority of project works as a means of allowing the project to retrospectively gain ERDF funding. The project finances presented in the Business Plan can therefore be considered outturn costs.

3.17 The Network Rail Option Selection Report provides an indication of forecast project costs at GRIP Stage 3 (2008), ahead of the inception of the project. This included an allowance of 30 per cent of project costs to cover project risks and uncertainties.

3.18 Comparison of the outturn project costs from the Business Plan (Table 3.3) and planned costs from GRIP Stage 3 (Table 3.2) indicates that the outturn project costs were ca.£5m less than those predicted at GRIP Stage 3, although the GRIP Stage 3 estimate included costs considered ineligible for ERDF funding, and hence have been excluded from the costs presented within the final Business Plan document.

Table 3.2: GRIP Stage 3 Cost Estimate (2008)

Activity	Cost
Contractors Design GRIP stages 4-6	£1.5m
Network Rail cost GRIP stages 4-6	£1.5m
Construction cost (all disciplines)	£17.6m
Risk for all stages	£5.5m
Network Rail fee and Industry Risk fee	£3.2m
Total Cost	**£29.3m**

Source: Network Rail Option Selection Report

Table 3.3: Outturn Project Costs (2014)

Project Expenditure	Y/E 31/12/14	Y/E 31/12/15	Project Total
Construction	£24,251,702	-	**£24,251,702**
Legal & Professional Fees - Audit	-	£10,000	**£10,000**
Legal & Professional Fees - Evaluation		£50,000	**£50,000**
Total Capital Costs	£24,251,702	£60,000	**£24,311,702**
TOTAL PROJECT COSTS	**£24,251,702**	**£60,000**	**£24,311,702**

Source: Gowerton Redoubling Business Plan

3.19 Discussion with the Network Rail Project Manager has indicated that the project was delivered within the target cost set at the commissioning phase of the project, with the exception of items of additional scope agreed during the project. The following major changes of project scope were identified during the project:

- Need for additional car parking
- Re-surfacing and extension of existing platform.

3.20 These items were added to the project as it was recognised that they would assist in future-proofing the station against potential changes, such as the use of longer trains and additional demand for car parking. These additional items of scope were agreed with Welsh Government via existing project meeting arrangements.

Methods of managing costs

3.21 ERDF funds for this project were managed by Welsh Government, in accordance with its own internal financial regulations and procedures, including internal and external audit arrangements and following the accounting and expenditure eligibility guidance published by WEFO in relation to ERDF contracts. An Implementation Agreement was put in place between the Welsh Government and Network Rail with a fixed fee to deliver the project utilising a contractor, with Welsh Government acting as project sponsor. Welsh Government undertook an audit of Network Rail project costs at the end of the project to ensure the accuracy of its expenditure on the project and to reliably identify eligible expenditure for Business Plan funding purposes and post-award claims submissions.

3.22 Costs on the project were managed by Network Rail through utilisation of an NR12 Target Cost Commission Contract between the contractor (Colas Rail Morgan Sindall Joint Venture) and Network Rail as client, based upon an agreed set of target costs worked up via the pre-determined MAFA framework process in collaboration between the contractor and Network Rail. A contractor 'gainshare' mechanism was utilised to financially incentivise both the contractor and Network Rail to work efficiently. This arrangement was considered by the project team to offer the 'right level' of flexibility for the project and helped to ensure the project was delivered to the target cost. No 'pain' mechanism was utilised on this project as all work was delivered within the agreed target costs.

3.23 In terms of managing contractor costs, Network Rail undertook regular audits of its contractor to give consideration to any disallowable costs requested by the contractor (e.g. pension contributions) to ensure that any costs beyond the agreed scope of works were not covered by Network Rail. Monthly meetings between Network Rail and project contractors were also held to evaluate project accounts and end of life forecasts costs on an ongoing basis.

Example of Best Practice: Strong audit arrangements, both within Welsh Government and Network Rail have ensured that disallowable costs have been excluded from the final accounts, helping to minimise project spend for the client.

3.24 An additional method of managing costs on this project, and ensuring value for money, was through identifying and pursuing synergies with the Loughor Viaduct project. Cost savings were largely achieved through the use of a shared track possession, which limited compensation costs to the operator for separate track possessions. This continuous possession also led to efficiencies and cost savings as it offered the opportunity to undertake works within standard hours in a 'high street' environment, as opposed to the alternative of multiple four hour blockages during night time, which would have been less operationally efficient and more costly.

Recommendation: For future projects where timing, location and/or design synergies exist between projects it would be beneficial at the project planning stage to investigate whether shared activities could be undertaken to reduce costs, save time or reduce project complexity, such as the shared track possessions utilised for this project. Examples could include shared contractor procurement arrangements, materials purchasing and waste disposal arrangements. Consideration should also be given to the risks associated with these synergies and the identification of appropriate means of mitigating these risks.

Stakeholder Engagement

3.25 To evaluate the success of the project in relation to stakeholder engagement the following key questions have been considered:

- Who were the key stakeholders and why? What were their roles and responsibilities?
- What were the different approaches to stakeholder engagement? Which were the most effective at engaging with their target audience and why?
- What lessons were learnt regarding stakeholder management and engagement?

Key stakeholders

3.26 As with any major infrastructure project a number of stakeholders have been involved in the delivery of the Gowerton Redoubling project. Table 3.4 shows the key organisations and groups who have had a stakeholder role on the project and their interest and involvement in the project.

Stakeholder Engagement Activities

3.27 The following key activities were undertaken at the project planning and feasibility stage to provide input into the concept and designs for the project:

- Engagement between Network Rail, DfT, Welsh Government and SWWITCH as part of the confirmation of the project as a shared key priority.
- Engagement with rail stakeholders including the train operating companies and freight operating companies.[6]
- Consultation with local residents at Gowerton Station, local DDA steering group and the City and County of Swansea on the proposed scheme.

[6] Wales Route Utilisation Strategy (2008): Consultation Process

Table 3.4: Key stakeholders

Organisation/Group	Role	Interest/Involvement
Network Rail	Project Managers	Overseeing the management of the project and the key group responsible for wider stakeholder engagement on the project, cost management and project delivery responsibility.
Welsh Government	Project Client	Regular meetings with project team and involved with publicising the project during construction and upon completion. Project cost management, project delivery achievement, taxpayer value for money.
Arriva Trains Wales	Station owner and rail operator of routes through	Interested in minimising the disruption of track possessions and ensuring assets are handed back as and when agreed. Also interested in ensuring the smooth delivery of the project for passengers especially timetable changes, promoting and delivering improved services.
City and County of Swansea Council	Local Planning and Highway Authority	Responsible for overseeing local highway impacts of the project and representing the views of local residents and councillors.
Residents	Interested Parties	Interested in minimising disruption caused by the project and maximising the benefits of the project. Particular areas of interest included construction noise/disruption, the visual impacts of the planned pedestrian bridge and minimising existing antisocial behaviour issues.
Rail users/general public	Interested Parties	Interested in disruption impacts during construction and the benefits of the planned improvements offered by the project.

3.28 The following activities were undertaken to raise public awareness of the project in the lead up to the start of construction and during delivery of the project:

- Joint press release (Network Rail, Welsh Government and ATW)
- Awareness that the scheme is under construction via WG public website
- Site boards outlining the planned works and impacts (updated weekly during the project)
- Letter drops for affected residents (repeated as required during delivery of the project)
- Display boards in local community halls and libraries
- Social media to publicise the project, including the production of YouTube time-lapse videos showing progress on the project.

3.29 In addition to the above activities, which were maintained and updated during the construction phase, Table 3.5 indicates the activities which were undertaken to reactively respond to issues identified during the delivery of the project, indicating the changes made to plans as a result of this.

3.30 In terms of engagement between Network Rail and Welsh Government during the delivery of the project this took the form of monthly programme level meetings covering finance, delivery progress and tactical issues, as well as the monthly Programme Board meetings and ad-hoc project meetings, as required.

Table 3.5: Reactive Issues and Outcomes

Issue	Approach	Outcome
Construction noise affecting local residents	Meeting held between Network Rail, contractor and local residents.	Changes were made to the construction timetable to minimise the impacts of this work including relocated individuals to a nearby hotel during the period of greatest disruption.
Antisocial behaviour at the station and the visual impact of the planned pedestrian bridge	Meeting held between Network Rail, local Councillor, Swansea Council representative (acting as mediator) and local residents.	Trees were added to minimise visual impact and additional CCTV added to deter antisocial behaviour.

3.31 On completion of the project the following activities were undertaken to raise awareness of the project:

- An official opening ceremony was held in July, 2013, attended by the Minister for Economy, Science and Transport, Edwina Hart, see Figure 3.1.
- A joint (Welsh Government, Network Rail, ATW) press release was produced and promoted within the local and national media.
- improvements to facilities and services at Gowerton station were publicised on ATW's website.
- A plaque was installed at the station entrance indicating the ERDF funding support for the project.
- The project was publicised online via the Welsh Government website.

Figure 3.1: Gowerton Station Official Opening Ceremony

Key Lessons

3.32 There was a consensus among the project team and key stakeholders that the above stakeholder engagement exercises were appropriate and effective at engaging with their intended audiences. It is also evident that the project team were also able to react to issues that occurred during the project and mitigate the issues successfully. Key success factors identified by interviewees include:

- The importance of maintaining a single point of contact between stakeholder organisations to build up successful working relationships and ensure a consistent message is given.
- The importance of ensuring active engagement of the Welsh Government throughout the project.

Recommendation: For future projects it was recommended that earlier engagement is made with the public, particularly those likely to be impacted by the project, to ensure that final designs meet all user needs. This approach would reduce the scale of the task involved in responding to issues reactively during the delivery of the project and may assist in limiting costs and delays associated with mitigating issues reactively.

Risk Management

3.33 As part of the evaluation of the Risk Management processes utilised on this project, the following key questions have been considered:

- What were the main risks identified in the Business Case, and did they materialise?
- What was the cost associated with key risks and how accurate were the cost estimates?
- What were the main risk mitigation methods and how well did they work?
- Which areas of project delivery generated the most risks and why?
- What approach was taken to risk management and how effective was it?

Anticipated Risks

3.34 Risk registers were produced at each stage of the GRIP process to establish the key risks to the delivery of the project. The detailed GRIP Stage 3 risk register was not available for review as part of this evaluation. However, the following risks were identified within the GRIP Stage 3[7] report itself:

- The renewal of Loughor Viaduct with double track capacity
- The track renewal cost and programme is based on a blockage associated with the closure of the route for Loughor Viaduct

[7] Source: Network Rail Grip Stage 3 Report, 2008

- The retaining wall at Loughor, adjacent to the A484 which extends onto the former formation
- The cutting at Cockett is stabilised prior to construction of the station.

3.35 Interaction with the Loughor Viaduct project and the potential shared blockage for both projects were identified as key risks at the inception of the project. These key risks were reiterated by the project team as part of the process interviews.

Risk Management Process

3.36 During the delivery of the project, risks were proactively managed by the project team as a central part of the project management approach utilised by Network Rail. This process was led by the Project Management team at Network Rail, but all key stakeholders within the project were able to provide input into this process. Two key elements of the risk management process were undertaken during the delivery of the project:

- Quantified Cost Risk Assessment (QCRA)
- Quantified Schedule Risk Assessment (QSRA).

3.37 These processes, led by risk analysts within Network Rail's Central Management Team, allowed risks which could impact upon project costs or programme to be quantified. In turn this allowed sufficient risk contingency to be maintained within budgets, and the project schedule to be managed mitigate potential risks. QCRA and QSRA documents were reviewed by the project team at regular intervals aligned to key project reviews, such as the T-minus reviews which were undertaken in the build up to the key period of works during the track blockade.

3.38 An undated example QCRA from the Gowerton project was available for review as part of this evaluation. Table 3.6 indicates the top five risks identified in terms of the level of financial risk exposure. Key risks included the slippage of the Lougher Viaduct project and unspecified

construction related risks. An overall risk exposure of £970,877 was identified across the 50 risks identified within the QCRA document.

Table 3.6: Top 5 risks within example QCRA from Gowerton project

Risk Heading	Action	Mean Risk Exposure
Construction related risks not covered elsewhere	Monitor through progress meetings	£163,297
Slippage in Loughor Viaduct programme causes slippage in Gowerton programme	Ongoing communication with Loughor Project team	£118,333
ORR prohibits adjacent open line working	Review of final ALO adjudication when issued	£116,700
Cable theft, vandalism and trespass	Commercial Manager to confirm if cable theft is covered by Network Rail corporate insurance. Liason with NDS Ops ongoing	£116,493
Engineering trains	Set possession reviews according to WIP standard.	£47,438

Source: Gowerton Redoubling QCRA – Date unknown.

3.39 Risks of a potential cost escalation on the project were also managed through the form of contract entered into with the contractor. The 'target cost' contract utilised provided a financial incentive to the contractor to manage cost and programme risks in order to avoid activating a 'pain' mechanism within the contract. This mechanism was not required during this project as project risks were managed within the agreed target cost of the project.

Key transpired risks (issues)

3.40 Interviews with the project team have indicated that the following key risks transpired (thereby becoming issues) during the delivery of the project, outlined in Table 3.7.

Table 3.7: Key transpired risks and solutions

Issue	Solution
Management of construction contractor, including delays in the 'ramp up' of project staffing levels	NR made internal resource changes to facilitate stronger management of its contractor including utilisation of recovery plans.
Embankment collapse as a result of adjacent track works	Need for additional support to sure up the embankment
Poor condition of existing platform identified during station works	Resurfacing work required
Electric cable breakages due to disruption from adjacent works or cable strikes	Replacement of broken cables
Poor drainage of footbridge	Amendments to footbridge design
Ponding on platform surface	Resurfacing of platform surface
Failure of lighting within pedestrian hand rails	Revised lighting design

3.41 An analysis of the above issues confirmed that the key potential risks relating to the interaction with the Loughor Viaduct project did not transpire, indicating that these issues were adequately mitigated. As the project was completed to the planned cost and programme it can also be concluded that risks were managed adequately throughout the project.

Example of Best Practice: Through the use of ongoing risk management processes including the use of QCRA and QSRA reports and ongoing reviews, particularly in the build up to and during the period of works during the track blockade the key risks identified for this project were successfully mitigated, ensuring the project was predominantly delivered to the planned programme and cost.

3.42 Some of the issues that did occur could have been identified ahead of undertaking the project. For example, the poor condition of existing electric cables and the existing station platform could have been identified via additional ground investigations before commencement of construction works. The Project Manager has indicated that a risk contingency pot of £1.6m was maintained throughout the project and was sufficient to cover the issues identified in delivering the project.

3.43 Issues were experienced with the station pedestrian footbridge and hand rail lighting. As standard and tested designs were utilised for these items the issues may have been known from previous projects. Better communication between those responsible for the delivery of these projects could have potentially facilitated the resolution of these issues ahead of their installation at Gowerton.

3.44 Other risk related issues indicated as part of interviews with the project team and stakeholders included:

- The service improvements implemented by ATW to utilise the additional infrastructure provided by this project and agreed as part of the Spring 2013 timetable do not form part of the formal Passenger Service Requirements (PSR) for which the operator must comply. There is therefore a risk that the operator may simply remove these additional services in the future, should it make operational sense to do so.

- The project was delivered alongside other major rail signalling projects, including a level crossing being provided at Port Talbot. Network Rail maintains a single source record documenting all signalling information for the network. Only one copy of this exists to prevent multiple conflicting changes being made to this document, and consequently to the rail network. Multiple projects present a competing demand upon this document. To overcome this risk necessitated the establishment of overlapping design agreements between projects, adding significantly to the complexity of the project.
- Welsh Government would seek to have greater involvement in the risk management process of projects for which it is client in future to ensure reputational risks to Welsh Government are highlighted and sufficiently mitigated.
- Since completion of this project Network Rail have identified a need for a local resource to oversee the risk management process for smaller local projects, recognising the importance of the work done by the risk managers within their central management team, who focus on major projects only.

Project Management

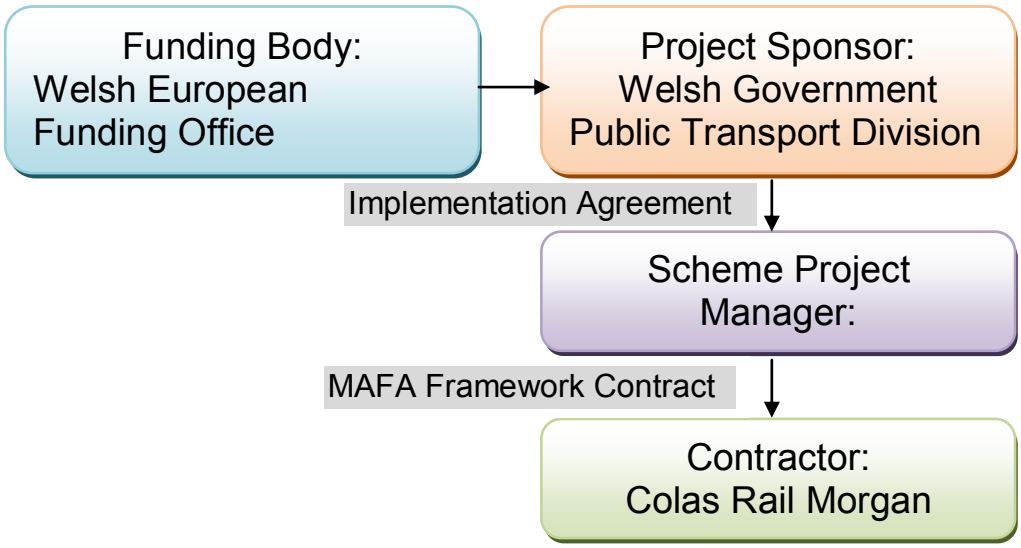
3.45 In evaluating the Project Management approaches adopted on this project the following key questions have been considered:

- How effective were the various project management procedures?
- How effective was communication between the delivery partners? Which approaches worked well and what lessons were learnt?
- How effective were the monitoring and evaluation activities?

Project Management Structure

Figure 3.2 indicates the project management structure adopted, based upon information provided as part of the Business Plan. The Implementation Agreement between Welsh Government and Network Rail, as well as the MAFA contract between Network Rail and its contractor outline the key roles and responsibilities of these organisations.

Figure 3.2: Gowerton Project Management Structure



3.46 As indicated in relation to stakeholder management, regular monthly meetings were held between Welsh Government as project sponsor and Network Rail as scheme project manager. Feedback from interviewees has indicated that this relationship was positive and meeting frequencies were appropriate.

3.47 Since completion of this project a Programme Management Board (PMB) was created. This introduced formalised management and reporting arrangements between senior staff at the Welsh Government and Network Rail, and was beneficial in providing additional oversight and coordination between projects at a programme level.

Monitoring and Evaluation

3.48 As the project was retrospectively funded by WEFO the Business Plan for the project does not indicate plans for project monitoring and evaluation activities to be undertaken, beyond the intention to undertake a final evaluation.

3.49 In terms of evaluating the impacts of the project a number of data sets were available on request to allow the impacts of the scheme to be assessed. For future projects it would be beneficial if this data was monitored on an ongoing basis alongside the delivery of the project. This would allow any negative impacts during the construction period to be understood and would also allow the project team to maximise the passenger utilisation of the scheme on completion, for example through additional publicity activities if required.

3.50 To assess the impacts of the scheme in terms of passenger satisfaction and passenger behaviour this evaluation has utilised a retrospective questionnaire survey to establish the impacts that the project has had. For future projects it would be beneficial to undertake both ex-ante and ex-post surveys of passenger views. This would ensure that the views given in relation to the situation prior to the project are accurate. An ex-ante survey would also provide a useful means of informing passengers of the upcoming project and its benefits, as well as providing an opportunity to tailor the project to customer requirements.

3.51 For large projects an interim process evaluation would be beneficial in providing a systematic review of project delivery, allowing improvements to be made during the duration of project delivery. This would also enhance the availability and quality of data for analysis in the final evaluation.

3.52 Due to significant changes in staff at both Welsh Government and Network Rail since delivery of the project it has not been possible to interview a number of key members of staff responsible for delivery of

the scheme; particularly those involved in the early stages of the project. Staff turnover is inevitable; therefore to capture the thoughts of these individuals it would be beneficial for project staff to maintain a 'lessons learnt' log during the delivery of projects to capture key findings from the project on an on-going basis, to benefit future projects.

Cross Cutting Themes

3.53 The European Commission requires that all projects qualifying for EU funding must incorporate the following cross-cutting themes to help contribute towards a well-balanced, sustainable and innovative economy:

- Equal opportunities
- Environmental Sustainability
- Value for money.

3.54 This section of the report brings together the evidence presented elsewhere in this evaluation to establish how the project has contributed towards each of these themes.

Equal Opportunities

3.55 Equality is at the heart of Welsh Government and European policy and this placed requirements on contractors to ensure that correct processes were in place for engaging with equality interest groups. As part of the design stages of this project local access groups, such as Swansea Access for Everyone were consulted to consider any access issues resulting from the works. The evaluators have not been made aware of any specific issues identified as part of this process.

3.56 No evidence was available to the evaluators through which to assess the extent or quality of equal opportunities monitoring undertaken as part of this project. However, a qualitative assessment of the key equality benefits delivered has been undertaken, based upon the evidence presented in process interviews and documentation.

3.57 Key physical accessibility benefits of the project are considered to include:

- The provision of a DDA compliant footbridge (see figure 3.3) with shallow gradient access ramps to facilitate access to both platforms.
- Electronic customer information provision including audio as well as visual notification of arriving and departing trains.
- A remodelled car park including disabled car parking spaces.
- Revised station access arrangements to maximise accessibility for all users.

Figure 3.3: The DDA compliant footbridge provided as part of the project

3.58 In addition, the scheme has also been beneficial in improving access to key destinations. This has been achieved through:

- Converting the station from a request stop to an automatic stopping station, providing additional reassurance to passengers using the station that trains will stop.
- Additional trains stopping at Gowerton as part of the April 2013 timetable, providing improved opportunities to travel.

- Additional trains utilising the section of dual track, providing improved accessibility to/from west Wales.
- Improved resilience within the network provided by the section of dual track, helping the operator to recover from service delays.
- The provision of CCTV and improved lighting at the station helps to reduce antisocial behaviour which may have been a factor discouraging use of the station.

Environmental Sustainability

3.59 A number of environmental sustainability measures have been put in place as part of the project. These included measures to limit the environmental impacts of construction and provide long term operational sustainability benefits. Key measures of limiting construction impacts included:

- The re-use of excavated materials on site
- Construction materials were hauled to site via rail, rather than road
- Locally sources materials were utilised where possible
- The Project Manager has indicated that ca.90 per cent of the workforce was locally based and local sub-contractors were utilised where possible
- Utilisation of a two phased approach to vegetation removal to reduce impacts on animal habitats
- A reptile pen was created to facilitate relocation
- A site office was created utilising existing empty local Council offices as opposed to bringing in site cabins.

3.60 As outlined in the logic map presented in Section 2 of this report a number of the key outcomes/results should, in the long term, lead to environmental benefits. These include:

- Modal shift from car use to rail, reducing CO2 emissions

- Reduced levels noise and air quality impacts resulting from road transport
- Promotion of public transport orientated development.

Value for Money

3.61 The following key activities have been undertaken to ensure that the project represents value for money. These include activities undertaken at the planning, procurement and construction phases:

- The project was planned to be delivered alongside the nearby Loughor Viaduct project. This provided significant efficiency savings due to the use of a shared track possession when compared to the additional cost of undertaking this project in isolation.
- A competitive tender process was utilised to ensure the chosen contractor, and planned approach, represented best value for money.
- The contract was based upon a target cost, with a 'gainshare' mechanism in place to incentivise both Network Rail and its contractor to identify cost savings during the delivery of the project.
- The Broadoak tramway underpass element of the project was redesigned to allow re-use of the existing decking beams, providing a saving to the project.
- The use of local materials and staff and re-use of site materials were also approaches which represented value for money.
- The completion of audits by Welsh Government of project costs, to ensure that accuracy of project expenditure.

4 Conclusions

4.1 This final evaluation of the Gowerton Redoubling project has considered performance in relation to stated aims and objectives, and determined which aspects of project delivery led to positive outcomes/results. The barriers and constraints that the project experienced and the lessons learnt in dealing with these were also assessed. The process evaluation considered five key areas of project performance; Finance, Stakeholder Engagement, Risk Management and Project Management and Equal Opportunities and Environmental Sustainability.

4.2 The planned creation of 8km of railroad and one improved intermodal facility have been achieved. Additional vehicle and passenger kilometres have been created which exceed the retrospective targets set in the Business Plan under the interpretation of the outcome measure used to determine those targets. Alternative measures have been derived, which reflect interpretations of the outcomes used in previous WEFO evaluations. A major issue affecting outcomes relative to the original business case for the project in 2009 is the lack of additional services utilising the new infrastructure; this is limited by constraints on the acquisition of additional rolling stock and a requirement for revenue subsidy. However, there should be opportunities to consider this further in negotiations leading to the award of the new rail franchise in October 2018.

4.3 A passenger satisfaction survey has been undertaken at Gowerton to establish the views and changes in behaviour of passengers using this station. 291 people were surveyed as part of this survey, which indicated that 50 per cent of respondents thought that the improvements made at the station had increased their levels of train use. Both the changes to train timetables and the changes to station facilities were considered beneficial improvements that had contributed to increases in use for some.

4.4 The survey also indicated that prior to using Gowerton station 73 per cent of those surveyed would have undertaken comparable trips by car (either as driver or passenger). This indicates that the station has had a positive impact in promoting modal shift. Additionally, only 4 per cent of respondents would previously have used a different station, indicating a low level of abstraction from other stations.

4.5 Driving was the most popular means of getting to the station, with half of those travelling by car choosing to park at the station, but a further 18 per cent parking on street, indicating a possible lack of capacity at the on-station car park.

4.6 The most common reason for using Gowerton station was to access work, followed by shopping, leisure trips and education or training. Of those using the station to access employment 42 per cent had increased their train use as a result of the improvements made.

4.7 A process evaluation was undertaken to determine which elements of project delivery led to positive outcomes or could be considered best practice, the key barriers and constraints the project faced and any lessons learnt in dealing with these. To determine this a series of interviews were undertaken with the project team and stakeholders, as well as review of key project documentation.

4.8 The process evaluation determined that the project was delivered to target costs, with minor additional costs relating to additional unplanned items of scope, such as resurfacing the existing platform. A pain/gain arrangement within the contractor contract helped to ensure the project was delivered within the available budget, and a series of audits were undertaken to ensure only eligible costs were included within the final project accounts and subsequent ERDF claims. Synergies with the Loughor Viaduct project were a key means of keeping project costs down.

4.9 Extensive stakeholder consultation was undertaken during the project planning and construction phases, and to raise awareness of the completed project. Key stakeholders included Arriva Trains Wales, the City and County of Swansea Council, local residents and the general public. Different methods were utilised to inform and engage these groups, with those interviewed as part of the process evaluation considered to have worked well. There were some stakeholder issues which the project team had to react to including the impacts of construction noise on local residents and the visual impact of the planned pedestrian bridge. These issues were overcome through meetings with those affected and the establishment of appropriate mitigating measures.

4.10 Risk was managed throughout the project as part of the GRIP process and through the utilisation of quantified risk assessments. The key risks identified at project inception included those associated with delivery of the project alongside the Loughor Viaduct project and the tight timescales of the planned track blockage. The evaluation determined that the risk management processes were successful in managing this risk. However, issues that occurred during the project included the collapse of an embankment and poor condition of the existing platform.

4.11 The project was managed with Welsh Government undertaking the role of project sponsor, Network Rail managing the delivery of the project utilising the contractor Colas Rail Morgan Sindall to deliver the works. Regular meetings were held between the different members of the project team and the relationships between these groups during the delivery of the project were considered to be good. A Programme Management Board has since been initiated to further strengthen and formalise the management of WG rail projects.

4.12 Equality benefits have been achieved through the delivery of physical access features at Gowerton Station, such as the DDA compliant footbridge and car parking spaces for disabled users. The project has

also benefited all users at Gowerton through the additional trains now stopping at this station.

4.13 The project has sought to improve environmental sustainability and limit negative impacts as part of the construction process, for example through the re-use of excavated materials and use of local staff. In the long term the project will also contribute to modal shift away from car use, with associated carbon, air quality and noise benefits.

5 Recommendations

Introduction

5.1 This final evaluation has identified a number of lessons for future projects which could help in improving project delivery for future rail projects in Wales. These recommendations are listed below in relation to the key areas of project delivery analysed as part of this evaluation.

Impacts

5.2 At the concept design stage it was anticipated that the Gowerton Redoubling project would be delivered alongside significant improvements to service frequency; necessitating additional rolling stock and revenue funding support. ERDF funds are generally not an appropriate source of continuous revenue support and no bid for revenue funding was made.. Additionally, there is a shortage of rolling stock within the industry. The anticipated service improvements have therefore not been delivered.

5.3 The Business Plan for this project utilises non-standard interpretations of vehicle and gross passenger kilometres in the targets chosen for the project. This approach was chosen due to the lack of additional rolling stock to deliver the service improvements originally planned to be delivered alongside project in the short term. For future projects standard methodologies should be utilised to allow the accurate assessment and benchmarked of rail projects across Wales and amongst EU funded projects.

5.4 In future it is recommended that scheme promoters assess the benefits of planned infrastructure schemes both with and without the anticipated service improvements for which they are planned to cater. In this way it can be determined whether the scheme would still represent value for money if additional planned service provision does not transpire. Additional long term planning should also be undertaken between those responsible for rail infrastructure and delivery of rail services to ensure that revenue funding can be allocated to service improvements in line with planned infrastructure works.

Project Identification and Inception

5.5 The Gowerton Redoubling project was planned in recognition of an opportunity for cost and operational efficiencies created by the planned renewal of the Loughor Viaduct. This is an example of joined up planning which helped to achieve cost savings for both projects. Network Rail has since adopted an 'Integrated Planning Programme' to allow it to identify opportunities for integration of planned track possessions. It is recommended that further detailed analysis of planned infrastructure programmes is undertaken to help identify further opportunities for shared working. In addition to track possessions this could include shared contractor procurement arrangements, materials purchase or waste disposal arrangements.

Finance

5.6 Network Rail undertook regular audits of its contractor's spend to ensure that only agreed costs were paid within the final accounts. Similarly, Welsh Government undertook an audit of Network Rail's accounts at the end of the project to ensure accuracy and cost eligibility in accordance with WEFO guidance. Such processes helped to ensure only eligible costs were included within the final accounts of project expenditure, helping to limit the project spend for the client organisation and the mitigate the risk of forfeiting ERDF from claiming project expenditure that may be deemed ineligible or may not be supportable with adequate and sufficient evidence during audit. Such approaches should be adopted on future projects.

Stakeholder Engagement

5.7 Some stakeholder engagement issues were identified during the delivery of the project, which the project team had to react to and resolve. Earlier engagement at the design stage, particularly with those likely to be directly impacted by a project, would be beneficial to ensure that final designs meet the needs of all users. This approach could reduce staff time required in reacting to issues and potential rework costs in amending designs or built structures.

Risk Management

5.8 Robust and suitable risk management processes were used on this project and were considered effective by stakeholders. The use of

quantified risk registers is applied to all large Network Rail projects, but the project team also recognise the value of applying these approaches to smaller projects in the future. This approach is endorsed by the evaluators.

Project Management

5.9 The Project Management approaches utilised on the project were considered effective in ensuring the delivery of the project to time and budget. Key recommendations for future projects include the use of a pain/gain mechanism within the planned contracting arrangement, regular meetings between the project team to ensure good working relationships and a clear scope to ensure everyone is clear on the objectives of the project.

Cross Cutting Themes

5.10 Limited information was available to facilitate the evaluation of cross cutting themes as part of this project. For future projects it is recommended that the following records are maintained during the delivery of the project to facilitate the evaluation of cross cutting themes:

- Records of equalities impact assessment findings undertaken at the project planning stage.
- Records of consultation activities undertaken with equalities or environmental groups including the concerns expressed and how these issues/concerns were addressed.
- Records of any construction plans indicating how environmental sustainability has been maximised as part of the construction process.
- Records of any value engineering exercises and the outcomes of these in reducing project costs.

1. Appendix A: Sample Questionnaire

Survey

GOWERTON PASSENGER PROFILE SURVEY - ON STATION QUESTIONNAIRE

We are collecting this information on behalf of the Welsh Government in order to assess use of Gowerton station. The information collected will be reported at an aggregated level and no individual responses will be identifiable.

Int Initials		**Time**	
Date		**Station**	

Q1 How long have you been using this station for ?

Less than 1 year ..... ☐ 1 *1 to 2 years*..... ☐ 2 *2 to 3 years*..... ☐ 3 *3 years or more* ..... ☐ 4

Q2. Why did you start using this station? *Please select all that apply from below*

New job/ potential job opportunity (e.g. interview) ..... ☐ 1
Moved house ..... ☐ 2
Convenient for place of education (school/college etc.) ..... ☐ 3
Other mode no longer available ..... ☐ 4
Better timetable/more trains stopping... ☐ 5
Improvements made to station ..... ☐ 6
Other ..... ☐ 7

Other reason not listed- please write in:

Q3. How did you previously make this journey before you started using this station?
Please select one answer from the below

Not applicable- have always made this journey by train from Gowerton station ..... ☐ 1
Car (as driver) ..... ☐ 2
Car (as passenger) ..... ☐ 3
Bus ..... ☐ 4
Walked (on foot) ..... ☐ 5
Bicycle ..... ☐ 6
Train (from another station-includes those who drove to another station) ..... ☐ 7
Other ..... ☐ 8

Other mode - please write in

Which train station did you use previously if applicable?

Q4 Have you noticed any changes to Gowerton station in the last three years?
(Please write in those you have noticed)

Q5 **What impact have the following changes made had on your frequency of use of Gowerton station?**

	Changes to train timetables (increased frequency of services)	*Changes to station facilities (Improved access, new footbridge etc.)*
No impact- I use the station the same amount as I did previously	☐	☐
Slight impact- I use the station more frequently than I did previously	☐	☐
High impact- I use the station a lot more than I did previously	☐	☐
Don't know	☐	☐

Q6 **And why do you say that?**

Q7 **How satisfied are you with the following changes made at Gowerton station?**

	Very satisfied	*Fairly Satisfied*	*Neither satisfied nor dissatisfied*	*Fairly dissatisfied*	*Very dissatisfied*	*Don't know*
Changes to train timetables	☐	☐	☐	☐	☐	☐
Changes to station facilties	☐	☐	☐	☐	☐	☐

Q8 **To what extent do you agree with the following statements: The improvements made to Gowerton station have:**

	Agree strongly	*Agree slightly*	*Neither agree nor disagree*	*Disagree slightly*	*Disagree strongly*	*Don't know*
Made the station safer	☐	☐	☐	☐	☐	☐
Improved my ability to access rail services	☐	☐	☐	☐	☐	☐
Made it easier to change between modes of transport (e.g. train and bus)	☐	☐	☐	☐	☐	☐
Increased my train use	☐	☐	☐	☐	☐	☐

Q9 **Do you have any further comments to make about Gowerton station and the timetable?**

Q10 What is the main purpose of your journey today from this station?
(Tick one box only)

Travel to/from work	☐ 1	*Meeting friends/relatives*	☐ 5
Travel to/from education and/or training	☐ 2	*Personal business*	☐ 6
Shopping	☐ 3	*Other*	☐ 7
Leisure/recreation	☐ 4		

Other - please specify ☐

Q11 How have you travelled to this station today and if you have arrived by car where have you parked? *(Tick one box only)*

Walk	☐ 01	*Car passenger, parked on street/road/ off station car park*	☐ 06
Car driver, parked on station car park	☐ 02	*Bus*	☐ 07
Car driver, parked on street/road/ off station car park	☐ 03	*Taxi*	☐ 08
Car passenger, dropped off	☐ 04	*Cycle*	☐ 09
Car passenger, parked on station car park	☐ 05	*Other*	☐ 10

Other, please specify ☐

Q12 To which of these age groups do you belong?

16-24	☐ 1	*35-44*	☐ 3	*60+*	☐ 5
25-34	☐ 2	*45-59*	☐ 4		

Q13 Which of these best describes your current working status? *(Tick one box only)*

In full time employment	☐ 1	*Volunteer*	☐ 5
In part time employment	☐ 2	*Unemployed*	☐ 6
In full/part time education	☐ 3	*Other*	☐ 7
Retired	☐ 4		

Other- specify ☐

Q14 Do you have a physical disability which limits your mobility?

Yes	☐ 1	*No*	☐ 2

Q15 Please tell us your home postcode: ☐

Q 15a Please tell us your destination train station: ☐

Q16 Gender *Male* ☐ 1 *Female* ☐ 2

Thank you for your time

GOWERTON PASSENGER PROFILE SURVEY - ON STREET QUESTIONNAIRE

We are collecting this information on behalf of the Welsh Government in order to assess use of Gowerton station. The information collected will be reported at an aggregated level and no individual responses will be identifiable.

Int initials if applicable		Time	
Date		Note location	

Q1 Have you travelled from Gowerton station since May 2013?

Yes	☐	1
No	☐	2

Thank you this survey is for those who have used Gowerton station

Q2 In the last year how often have you used Gowerton station?

Every day	☐	1
Two to four times a week	☐	2
Once or twice a week	☐	3
Once every few weeks	☐	4
Once a month	☐	5
Less than once a month	☐	6

Q3 Have you noticed any changes to this station in the last 3 years?

Q4 **What impact have the identified changes had on your frequency of use of Gowerton station?**

	Changes to train timetables (increased frequency of services)	*Changes to station facilities (Improved access, new footbridge etc.)*
No impact- I use the station the same amount as I did previously	☐	☐
Slight impact- I use the station more frequently than I did previously	☐	☐
High impact- I use the station a lot more than I did previously	☐	☐
Don't know	☐	☐

Q5 **And why do you say that?**

Q6 **How satisfied are you with the improvements made at this station?**

	Very satisfied	*Fairly Satisfied*	*Neither satisifed nor disatisfied*	*Fairly dissatisfied*	*Very dissatisfied*	*Don't know*
Changes to timetables	☐	☐	☐	☐	☐	☐
Changes to station facilties	☐	☐	☐	☐	☐	☐

Q7 **To what extent do you agree with the following statements:**
The improvements made at this station have:

	Agree strongly	*Agree slightly*	*Neither agree nor disagree*	*Disagree slightly*	*Disagree strongly*	*Don't know*
Made the station safer	☐	☐	☐	☐	☐	☐
Increased my awareness of the rail services available at this station	☐	☐	☐	☐	☐	☐
Improved my ability to access rail services	☐	☐	☐	☐	☐	☐
Made it easier to change between modes of transport (e.g. train and bus)	☐	☐	☐	☐	☐	☐
Increased my train use	☐	☐	☐	☐	☐	☐

Q8 Is Gowerton your 'first choice' train station? If no please tell us which station you prefer to use and why.

Q9 Do you have any further comments to make about this station?

Q10 What is the main purpose of the journeys you make from this station?
Tick one box only

- *Travel to/from work* ☐ 1
- *Travel to/from education and/or training* ☐ 2
- *Shopping* ☐ 3
- *Leisure/recreation* ☐ 4
- *Meeting friends/relatives* ☐ 5
- *Personal business* ☐ 6
- *Other* ☐ 7

Other, please specify

Q11 To which of these age groups do you belong?

- *16-24* ☐ 1
- *25-34* ☐ 2
- *35-44* ☐ 3
- *45-59* ☐ 4
- *60+* ☐ 5

Q12 Which of these best describes your current working status? *(Tick one box only)*

- *In full time employment* ☐ 1
- *In part time employment* ☐ 2
- *In full/part time education* ☐ 3
- *Retired* ☐ 4
- *Volunteer* ☐ 5
- *Unemployed* ☐ 6
- *Other* ☐ 7

Other- please specify

Q13 How do you usually travel to Gowerton station, and if you travel there by car where do you park? *(Tick one box only)*

- *Walk* ☐ 01
- *Car driver, parked on station car park* ☐ 02
- *Car driver, parked on street/road/ off station car park* ☐ 03
- *Car passenger, dropped off* ☐ 04
- *Car passenger, parked on station car park* ☐ 05
- *Car passenger, parked on street/road/off station car park* ☐ 06
- *Bus* ☐ 07
- *Taxi* ☐ 08
- *Cycle* ☐ 09
- *Other* ☐ 10

Other - please specify

Q14 Do you have a physical disability which limits your mobility?

Yes ☐ 1 *No* ☐ 2

Q15 Please write in your residential postcode:

Q16 **Gender**

Male ☐ *Female* ☐

Thank you for your time