

# SWITCH Rail Strategy Executive Summary



Top Left: Tenby, Top Right: Pontarddulais  
Middle: Briton Ferry  
Bottom Left: Swansea, Bottom Right: Fishguard & Goodwick



## Background to the Strategy

AECOM has been appointed by the South West Wales Integrated Transport Consortium (SwwITCH) which comprises four authorities (Carmarthenshire, Neath Port Talbot, Pembrokeshire and Swansea) to prepare an updated rail strategy. The timescales for undertaking this study are opportune. The number of rail passengers in the SwwITCH study area has increased by 27% during the last 5 years, whilst capacity has also been increased following the completion of a £48m project to replace the Loughor viaduct near Swansea, as well as redoubling the line between Cockett west of Swansea and Duffryn east of Llanelli.

Funding for an ambitious programme of rail investment has also been committed with the electrification of the Great Western Main Line (GWML) from Paddington to Swansea due for completion by 2018. This will deliver faster journey times plus a range of environmental benefits. This committed investment should provide a catalyst to support other service changes, helping to distribute the potential benefits more widely across the SwwITCH area. The designation of the Swansea Bay City Region during 2013 reinforces the economic importance of the SwwITCH area especially as the designation of this status is the first of its kind in Wales.

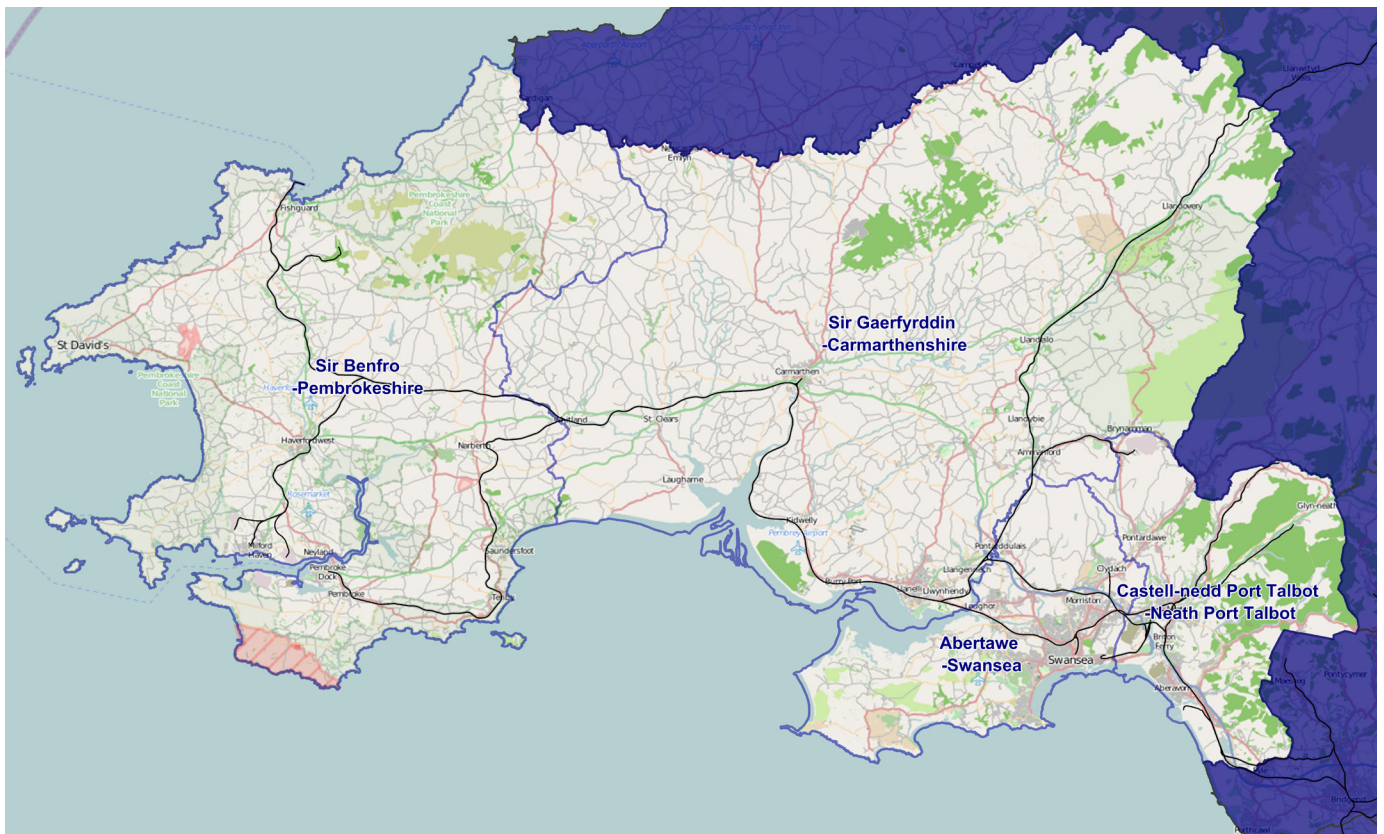
Outputs from the SwwITCH rail strategy should:

- Contribute to the Welsh Government Planning Framework and influence the next National Transport Plan;
- Inform Network Rail's Long Term Planning Process;
- Influence the forthcoming Great Western and Wales & the Borders franchise specifications;
- Support the growth of Swansea Bay City Region;
- Input to the multi-modal Regional Transport Plan.

### Study Area

Figure 1 illustrates the study area covering the four SwwITCH authorities.

**Figure 1: Rail Network in the SwwITCH Study Area**



### Strengths and Weaknesses of Rail

The objectives underpinning the SWWITCH Regional Transport Plan provides useful context for this rail study. Furthermore, awareness of rail's strengths and weaknesses has helped to identify the main priorities:

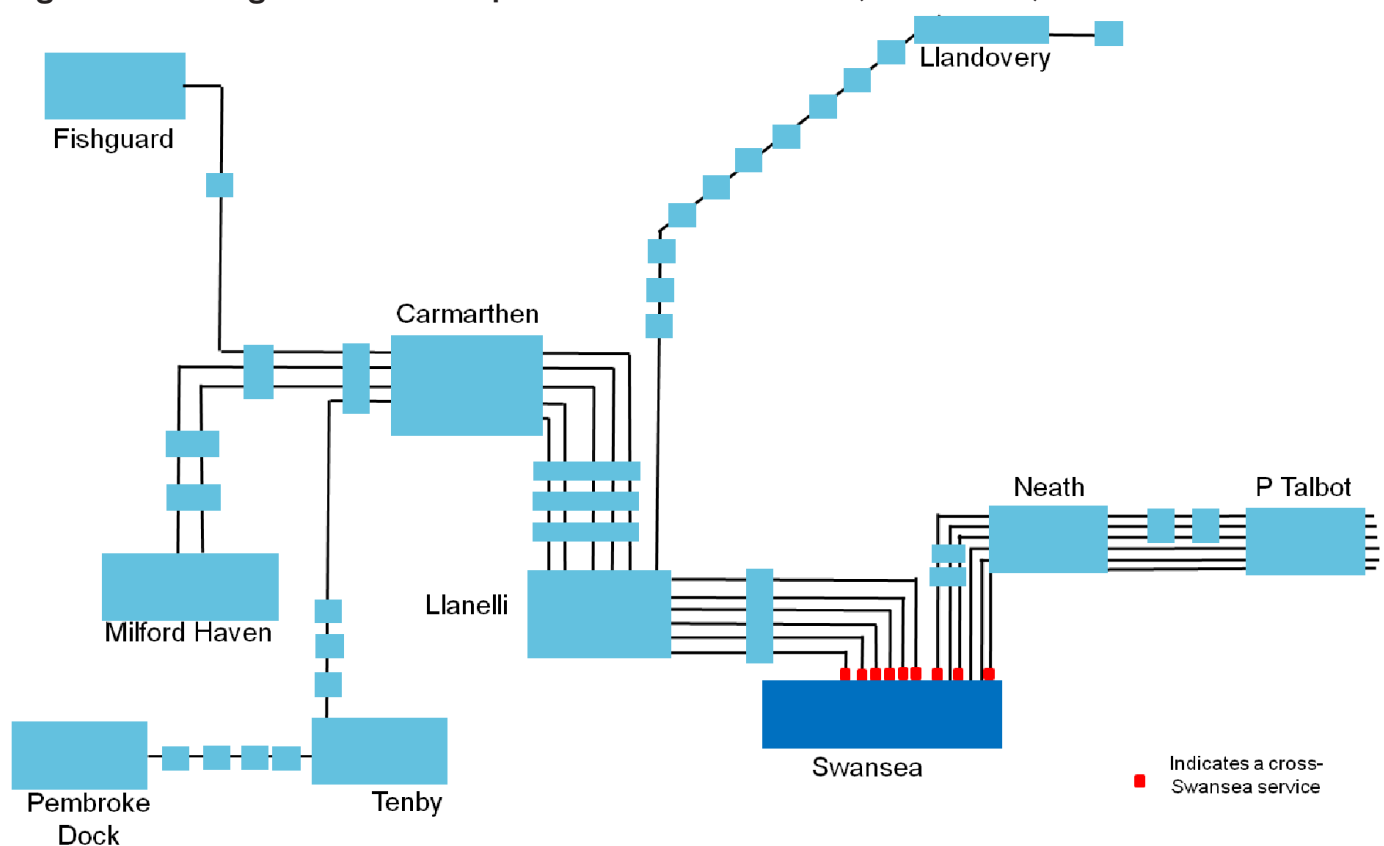
- **Strengths:** connectivity to the main employment centres (primarily Swansea and Cardiff) to facilitate economic growth, facilitating inter-urban travel between the largest population centres, providing access to key settlements including Haverfordwest and Carmarthen from rural areas, generating some environmental and safety benefits, encouraging rail freight and promoting tourist travel by rail;
- **Weaknesses:** limited coverage of the existing network, high operating costs, low frequencies from several stations, slow rail journey times versus car, the challenges associated with serving small low density population catchments, inconvenient timing of some services, low rolling stock quality and stations which are poorly connected with their hinterlands.

Rail may be less suitable to serve some travel markets, so it is important to acknowledge there may be alternative modes which are more appropriate to serve these journeys.

### Baseline Analysis

A baseline analysis was completed to understand the current problems and issues which are described in terms of the timetable specification, timing and frequencies of services, station usage and journey patterns, passenger growth, the competitiveness of rail journey times versus car and the role of rail freight in the study area.

**Figure 2: Morning Peak Service Specification to Swansea (07.00-10.00)**



• Source: Analysis of National Rail Timetable



### *Service Specification*

The specification of passenger services during the morning peak period is summarised in Figure 2. Trains towards Swansea via Llanelli or Port Talbot are shown separately. From the west, there are six trains from Llanelli to Swansea between 07.00 and 10.00, comprising two services from Milford Haven, plus one from Carmarthen, Pembroke Dock, Fishguard and the Heart of Wales Line. Trains call at all intermediate stations and operate as cross-Swansea services.

There are also six arrivals from Port Talbot over the same time period, with three running non-stop between Port Talbot and Neath, and Neath to Swansea. In addition there are nine arrivals at Cardiff from Swansea, with the majority extended to London Paddington or Manchester. There are frequent trains from Neath and Port Talbot Parkway towards Cardiff, but departures from the intermediate stations between Swansea and Port Talbot are limited.

During the inter-peak, there are fewer arrivals per hour at Swansea via Llanelli, with two-hourly services from Carmarthen, Milford Haven (both trains continue to Manchester) and Pembroke Dock, plus less frequent trains from Fishguard and the Heart of Wales Line. East of Swansea, there are hourly trains from London and Manchester, plus a two hourly service from Cardiff which calls at the intermediate stations between Port Talbot and Swansea.

### *Timing of Services and Frequencies*

With the exception of Swansea, Port Talbot and Neath benefit from the highest service frequencies in the SWWITCH area, with two fast services per hour between Swansea and Newport which are then extended to London and Manchester. Llanelli and Carmarthen are served by an irregular pattern of departures, given the two hourly services from Pembroke Dock, Carmarthen and Milford Haven, plus the infrequent trains from the Heart of Wales Line and Fishguard Harbour.

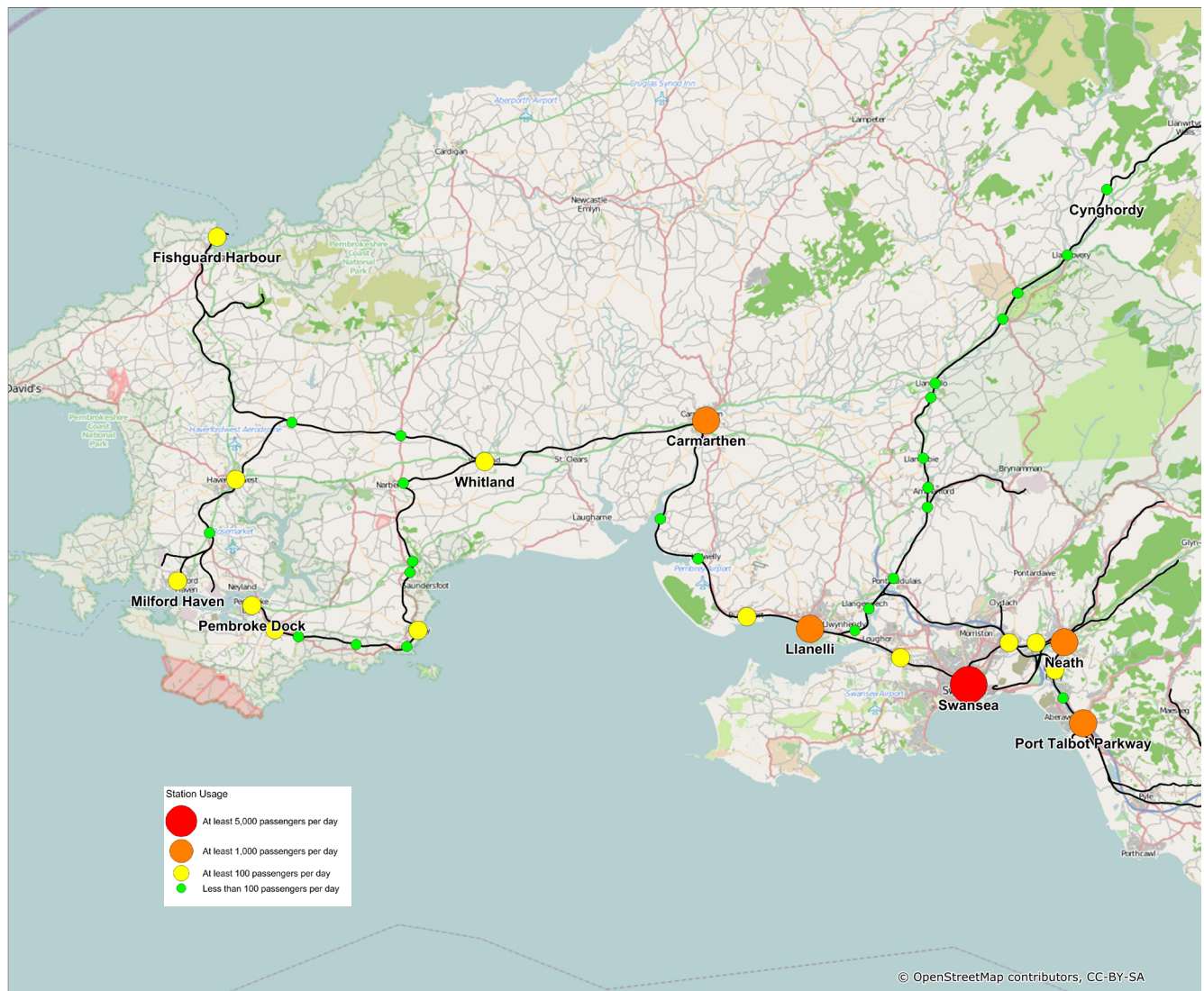
Passengers from several stations do not have the opportunity to arrive / depart at Swansea between 08.00 and 09.00 or 17.00 to 18.00 respectively. For example, passengers from the Pembroke Dock Line west of Whitland or the Heart of Wales Line have no travel opportunities during these times. Furthermore, there is no departure from Swansea towards Milford Haven and Haverfordwest between 17.00 and 18.00. Journey opportunities are also restricted by the timing of the first and last services. For example, the arrival time of the first train arriving at Swansea from the Pembroke Dock Line is 09.23, whilst the latest departure time from Swansea for stations on the Heart of Wales Line is 18.21.

### *Station Usage and Journey Patterns*

The number of passengers using each station is plotted in Figure 3 based on 2011/12 data collated by the Office of Rail Regulation (ORR). The annual ORR totals have been converted to a daily total, with four categories used to differentiate between the stations:

- Major stations: Swansea, with 6,900 passengers per day;
- Large stations: Neath (about 2,600 per day), Port Talbot Parkway (1,550) Carmarthen (1,350), Llanelli (1,300);
- Medium: Haverfordwest (460 / day), Pembrey and Burry Port (420), Tenby (360), Gowerton (250), Milford Haven (200), Whitland (170), Pembroke Dock (155), Fishguard Harbour (125), Skewen (120), Llansamlet (105), Briton Ferry (105);
- Other smaller stations: there are 26 stations within this category in the SWWITCH study area which are used by fewer than 100 passengers per day.

**Figure 3: Summary of Station Usage**



Source: AECOM analysis of ORR data, 2011/2012

The journey patterns from selected stations have been examined to illustrate the main trends and include:

- **Swansea:** nearly 50% of journeys are to / from intermediate stations towards Cardiff. Nearly one-third of trips from Swansea have a destination beyond South Wales, including London, Bristol and Reading. About 15% of trips are made between Swansea and the intermediate stations to Whitland;
- **Neath:** nearly 90% of trips are completed to Swansea or the intermediate stations to Cardiff, with just 10% to other destinations outside South Wales. The proportion of trips to stations in South West Wales west of Swansea or the Heart of Wales Line is negligible;
- **Llanelli:** Similar to Neath, about 85% of trips from Llanelli are completed to stations between Whitland and Cardiff. Despite the direct services to the Heart of Wales Line, just 2% of trips are made to these stations, with fewer than 10% of trips to external stations;
- **Other stations:** almost two-thirds of trips to/ from Fishguard Harbour have an origin or destination outside South Wales. This reflects the longer distance nature of passenger journeys to the ferry port. About 50% of passengers from Pembroke Dock station are traveling to intermediate stations to Narberth which demonstrates that the line is serving a local need. About 60% of trips from Llandovery are made to stations on the Heart of Wales Line, reinforcing its self-contained nature.





South of Pantyffynon: ATW Shrewsbury - Swansea



Near Swansea Loop East Junction: ATW Milford Haven - Manchester

### *Passenger Growth Rates*

Stations between Cardiff and Swansea have achieved the highest growth rate between 2008 and 2013 in the SWITCH area, with a 31% increase. There was a 28% increase in passengers using the Milford Haven Line between 2008 and 2013 (about 5% per annum), with Pembroke Dock achieving 4% per annum over the same period. In the 5 years to 2013, the number of passengers using the Heart of Wales Line increased by just 1%. The number of passengers using the First Great Western service from Swansea has increased for the section between Baglan and Port Talbot at a comparable rate to the Milford Haven Line.

### *Seasonality Issues – Rail Travel Patterns*

Four weekly rail ticket data has been reviewed to understand seasonality trends. Passenger numbers using trains between Cardiff and Swansea are about 20% higher during the autumn compared with the totals during the summer. This highlights the role of commuters using this line (usage of these routes is usually lower during the summer to reflect holiday periods). This is broadly consistent with the overall trend for Arriva Trains Wales. In contrast, demand during the summer period is 20-40% higher compared with December and January for the routes to Milford Haven / Fishguard and Pembroke Dock, reinforcing the importance of seasonal tourist flows. This variation in passenger numbers between the summer versus other times of the year can result in overcrowding problems if 1 or 2-car trains are deployed on the busiest services, especially with trains operating at just two hourly intervals.

### *Journey Time Competition – Rail versus Car*

Table 1 compares car journey times versus rail for a sample of journeys from SWITCH stations to Swansea and Cardiff. Car journey times are generally faster than the equivalent timing by rail, although the impact of peak travel congestion may not be fully represented. Peak travel congestion is likely to deteriorate in the future, leading to an increase in the car journey times shown. Furthermore, journey time reliability will become an increasingly important consideration, with some car drivers including an larger allowance to reflect the uncertainty of travel time. This will strengthen the competitiveness of rail versus car.

The examples with the largest differences between car and rail journey times include the Pembroke Line where rail is up to 45 minutes slower than car. This trend also applies to the Milford Haven / Fishguard Lines, plus the Heart of Wales Line. The slow rail timings are further exacerbated by the relatively low frequencies, as Table 1 does not include waiting time. The two exceptions are Llanelli and Neath which are less convenient to the strategic road network. Rail passengers from Port Talbot and Neath experience a small journey time saving



versus car for trips to Cardiff. These differences increase when peak congestion is taken into account. Similar to the results for stations west of Llanelli to Swansea, the journey time comparisons to Cardiff indicate rail is significantly slower compared with car.

**Table 1: Comparison of Car and Rail Journey Times to / from Swansea and Cardiff (minutes)**

Station	Timings to Swansea			Timings to Cardiff		
	Typical rail journey time	Car journey times	Difference	Typical rail journey time	Car journey times	Difference
Carmarthen	48-52	41	+7 to 11	105	75	+30
Fishguard	111	95	+16	150-160	132	+18 to 28
Llanelli	16 to 23	31	-8 to -15	77	71	+6
Llandovery	78	60	+18	150-163	78	+72 to 85
Milford Haven	101	92	+9	169	128	+41
Neath	12-17	17	0-5	40	49	-9
Pembroke Dock	126	81	+45	214	117	+97
Port Talbot	19 to 28	16	+3 to 12	34	42	-8
Swansea	N/A	N/A	N/A	54-68	51	+3 to 17

Source: AECOM analysis of the National Rail Timetable and car speeds from Google

### *Comparison of Rail versus Car Mode Share*

An analysis of road traffic flows and rail trips has been carried out for different parts of the SWWITCH area and these results have been compared with selected areas in Northern England since consultants have access to these datasets. The rail mode share ranges from 1% near Pembroke Dock to 8% near Whitland or Carmarthen / Llanelli for the SWWITCH area. Low frequencies and slow journey times are the contributory factors for the low mode share near Pembroke Dock, whereas the higher service frequencies near Carmarthen and Llanelli mean rail is more competitive. The results for South West Wales have been compared with the results for Northern England. This demonstrates rail could achieve a higher mode share (for example 10-20%) if there are services are faster or more frequent, and / or adjacent roads become more affected by congestion. The results indicate there is potential to increase the rail mode share in South West Wales if service changes were delivered, although the scope to grow the rail market needs to take account of the number of car trips using the parallel road network.

### *Freight*

The rail network in the SWWITCH area supports the movement of freight to other parts of Wales as well as other destinations in the UK and Europe. There are a number of freight flows to / from terminals adjacent to the GWML, as well as freight only lines at Robeston, Gwaun-cae-Gurwen, Swansea Docks, plus the lines north of Neath. The three main operators in the SWWITCH area are DB Schenker (commodities include bulk metals, coal, oil, intermodal, and

wagonload traffic), Freightliner (intermodal traffic between Wentloog (Cardiff) and various destinations in England) and Colas Direct which operates a timber flow from Briton Ferry. Other markets include petroleum from Milford Haven, metals from TATA near Port Talbot to Trostre and Llanwern and coal from some open cast sites to/from the coal washing plant at Onllwyn, Neath. The highest number of freight trains in the SWWITCH area operate east of Port Talbot. The Wales Route Utilisation Strategy (RUS) produced by Network Rail in 2007 highlights the tonnages and total train movements. There was a maximum of 8m tonnes per annum near Port Talbot (up to 24 trains per day), up to 4m tonnes per annum near Swansea (up to 12 trains per day) and up to 2m tonnes per annum between Milford Haven and Llanelli (up to 12 trains per day).



Bynea: DBS Trostre - Margam Scrap



Briton Ferry: DBS Onllwyn - Immingham Coal

## Drivers of Change

### *Context and Possible Service Changes*

The future rail strategy for SWWITCH needs to take account of recent growth trends and the potential to grow the market during the next 10-15 years. This includes Network Rail's committed investment and background growth. Potential changes to the freight market are also examined, recognising these flows are more subject to change compared with passenger services. Outputs from the Freight Route Utilisation Strategy have been collated alongside discussions with the industry stakeholders to understand the potential changes.

- **GWML Electrification and Intercity Express Programme (IEP) Trains:** There is committed funding to electrify the GWML to Swansea by 2018. Timetable changes and improved rolling stock performance are expected to cut journey times to London from Swansea by around 15-20 minutes. There is a daily service to / from Carmarthen which will need to operate using 5-car bi-mode units. Network Rail and other stakeholders are presently finalising timetables;
- **Local services between Swansea and Cardiff:** it is assumed the local stopping trains will be operated using electric traction from 2018. These trains only operate every two hours for most of the day, with extra services towards Swansea during the morning peak. This proposal would deliver capacity benefits for passengers since the current diesel sets are likely to be replaced by 4-car trains;
- **Station improvements:** A package of measures has been delivered at Carmarthen and Swansea using the National Station Improvement Programme funding. 'NSIP+' funding for Port Talbot Parkway has also been secured comprising measures to address accessibility constraints at the station for the mobility impaired, as well as enhancing the general station environment. NSIP+ funding has also been sought for schemes at Pembroke Dock, Milford Haven, Llanelli and Neath.

### Background Growth

Previous studies included the Wales Planning Assessment and the Wales Route Utilisation Strategy have estimated the change in demand that could be generated over time. However, these studies reported relatively pessimistic growth compared with observed changes during the last five years. In response to these issues, Network Rail will adopt an evidence-based approach known as the Long Term Planning Process to better understand the economic factors that influence changes in demand over the next 10 to 30 years. By undertaking a gap analysis and then identifying value for money solutions, it is envisaged the LTPP will help inform the next High Level Output Specification for 2019-24. The rising costs of motoring, especially fuel are included in these assumptions. Table 2 illustrates the total number of new jobs that could be created in the Swansea Bay City Region by the proposed major developments, alongside the population changes for each SWWITCH area.

**Table 2: Summary of Major Development Sites**

Major Development Site		Population Change
Description	Impact	
1. Felindre Business Park	3,400 jobs	<b>Carmarthenshire:</b> 2013 population of 187,400. Annual population growth of 0.71% pa equating to an extra 13,500 by 2023
2. Swansea West Business Park	3,400 jobs	<b>Neath Port Talbot:</b> 2013 population of 140,400. Annual growth in population of 0.42% pa equates to 6,100 people by 2023
3. Swansea Vale	1,200 jobs, 1,600 people	<b>Pembrokeshire:</b> 2013 population of 120,500. Annual growth in population of 0.47% pa equates to 5,600 people by 2023
4. Cross Hands	1,600 - 1,700 jobs	<b>Swansea:</b> 2013 population of 237,400. Annual growth in population of 0.70% p.a. equating to 17,900 extra people by 2023
5. Baglan Energy Park	1,400 jobs	
6. Haven Waterway Enterprise Zone	1,500 jobs	

Source: AECOM analysis of Regional Economic Strategy

In addition to these six major developments, a new Bay Campus of Swansea University is being constructed on Fabian Way. This is intended to create a research and innovation hub around which existing and new businesses can grow and agglomeration impacts can develop. The number of employees is yet to be finalised, but it is likely to represent a major development.



### *Forecast Freight Growth*

The 2013 Freight Market Study 'Draft for Consultation' has been jointly developed by various industry stakeholders and assesses how individual sectors might change over a 10, 20 and 30 year planning horizon. The total tonne kilometres are forecast to increase by 2.2% per annum to 2033, with a further 2.1% increase per annum to 2043. This implies a near doubling of the market over this 30 year period. Two of the main rail freight markets in the SWWITCH area are petroleum and metals, although the likely reduction in the heavier coal flows will be offset by an increase in the lighter intermodal and energy related traffic. The forecasts above take account of a possible 20% increase in train loads by 2023, plus the electrification including the GWML to Swansea which could help to support new domestic inter-modal flows. There is up to two freight train paths on the GWML near Port Talbot during the daytime although these are not necessarily be used. Many freight train paths still only run on certain days or run only occasionally. On this basis, it is understood there is still some spare capacity in the current timetable to support modest freight growth. Other interventions may generate additional freight traffic, which are examined in the package of interventions.

### *Estimated Passenger Growth Forecasts*

Although the population and employment forecasts discussed above, along with an increase in fuel prices, provide some useful context that demonstrates the magnitude of growth, potential uncertainties between the traditional factors contributing to rail growth and the economic performance suggests an alternative approach may be advantageous. Two growth scenarios are proposed. The first is based on observed changes in passenger numbers over the last five years to inform the 'high' growth scenario. This assumes a continuation of growth rates observed during the past five years for 2014-2018, with a 50% reduction to 2026 to reflect future uncertainties. Outputs from the Wales RUS have been used to inform the 'central' growth scenario. Table 3 shows cumulative growth rates for the Central and High growth scenarios to 2026. Growth rates are presented separately for the four rail lines in the SWWITCH area, with a weighted average used in the scheme appraisal.



Landore Viaduct, Swansea: ATW Carmarthen - Manchester

**Table 3: High and Central Scenario Growth Rates versus 2013**

Year	'Central' Growth Scenario				'High' Growth Scenario			
	Swansea - M Haven	HoWL	Swansea-Pem. Dock	Swansea - Cardiff	Swansea - M Haven	HoWL	Swansea-Pem. Dock	Swansea - Cardiff
2014	2%	0%	2%	1%	5%	1%	4%	6%
2018	9%	1%	9%	6%	28%	7%	21%	31%
2023	18%	1%	18%	13%	45%	15%	34%	51%
2026	24%	1%	24%	17%	56%	20%	42%	64%

Source: AECOM calculation

## High Level Sifting Tool

The gaps identified from the baseline analysis have been used to develop of the long list of schemes. The consultants facilitated a workshop discussion with stakeholders to identify a range of possible options. The option generation phase was completed in two parts, an initial review using a high level sifting tool to identify the best performing options was completed. There are two main groups of themes which comprise:

- **Generic themes:** improved station facilities, promoting rail for tourists, introducing a regular interval timetable, enhanced modal integration, delivering more flexible ticketing, identifying service quality improvements, and securing rolling stock cascades;
- **Spatially specific themes:** infrastructure upgrades including signalling and line speed improvements, new or more frequent services to support growth, delivery of higher service quality, revisions to the existing stopping patterns, measures to reduce costs, promoting park and ride, identification of resource efficiencies for rolling stock, increased freight activities, improved timetable connectivity, delivery of new stations, the role for upgrading alignments, revised first / last timings of trains, new shuttle services, or using alternative technologies to serve wholly travel markets.

The suitability of these themes is examined below for several geographic areas including Swansea to Port Talbot, Swansea to Carmarthen, Carmarthen to Milford Haven, Whitland to Pembroke Dock, Clarbston Road to Fishguard Harbour, Heart of Wales Line, plus the scope

for new passenger corridors. The interface with freight is considered as an overarching intervention. The initial sifting tool has been developed to evaluate proposals using a selection of transparent criteria shown in Table 4 to identifying the best performing schemes. Each scheme has been appraised using a seven point scale from strongly positive (+3) to strongly negative (-3).



Llandovery: ATW Shrewsbury - Swansea



**Table 4: Summary of the Assessment Criteria**

Assessment Criteria	Number	Assessment Criteria	Number
Improves accessibility	(1)	Modal shift	(5)
Promotes rail use	(2)	Promoting the environment	(6)
Financial viability	(3)	Access to new development	(7)
Faster journeys	(4)	Encourage multi-modal journeys	(8)

The results from the high level sifting tool shown in Table 4 has identified a number of proposals that could potentially address a number of gaps identified by the baseline and the drivers of change. This sifting tool has been used to understand the options which provide the strongest alignment with the policy objectives. Whilst the majority of possible schemes have been shortlisted for further timetable analysis, a small number have not been recommended for further analysis, since the business case is likely to be relatively weak. Alternatively, there may be other solutions which may offer stronger value for money. Using the results from the high level sifting tool, the shortlisted proposals have been examined in more detail.

## Presenting the Short Term Interventions

The shortlisted options have been evaluated to understand the potential benefits and costs. A phased delivery plan comprising short, medium and long term interventions is described. The short term interventions will feature measures to 2018 to provide consistency with the estimated timescales of electrifying the GWML to Swansea, with the medium term covering the period to 2023, with the longer term post 2023. A series of interventions that could be delivered in each time period is identified which has been influenced by costs and complexity of the scheme. The implementation of the short term measures proposed will deliver an improved service to South West Wales with higher frequencies, faster journey times and good connections to stations east of Swansea.

Understanding the potential implications of the Base Case scenario is one of the initial tasks, given the current uncertainties. A further revision to the timetable has been identified that could influence the overall proposals. The hourly trains between Manchester and West Wales form one of the ‘fast’ services from Cardiff to Swansea, but departures are bunched into a relatively narrow period with the FGW services. There are a number of issues:

- the scope to modify the timing of trains between Manchester and West Wales to benefit passengers in South Wales is restricted due to various capacity bottlenecks;
- the business case for GWML electrification would be weakened if the diesel service described above operates ‘under the wires’;
- Welsh Government has committed to improving connectivity between South Wales and Greater Bristol.



Fishguard &amp; Goodwick: opening day



In response to these considerations, trains between Manchester and West Wales could be terminated at Cardiff post 2018. New electric services between Cardiff and Swansea would help to support the GWML electrification business case. It also offers scope to operate the second hourly fast train between these cities in the westbound direction 30 minutes apart from the London service to offer benefits for passengers. Furthermore, this pattern of services could provide much greater flexibility and the foundation for significantly improved services in terms of frequency and speed west of Swansea.

### *Short Term Proposals*

Table 5 summarises the short term proposals that could be delivered subject to each scheme demonstrating a robust financial and economic business case. Further work is needed to demonstrate there is a business case for these improvements, with SWWITCH working collaboratively with Network Rail and the train operators to understand the optimal package of improvements. The involvement with other stakeholders including bus operators is relevant in developing complementary measures.

The short term package of proposals covers a variety of measures, covering feasibility assessments, station improvements, marketing, review of the current land use strategy, measures to improve integration between rail and other modes. A varied package of schemes proposed for the short term should attract a range of funding sources and require participation from a range of stakeholders. Further detailed discussions are required to ascertain the scope of improvements and the opportunities for third party funding contributions. The scope to attract third party funding may influence the prioritisation of these short term measures. The implementation of these short term measures will help to stimulate further growth in rail travel to support the vibrant Swansea Bay City Region economy.

**Table 5: SWWITCH Rail Strategy Short Term Proposals**

Description	Supporting Information	Authorities expected to benefit	Timescale
Scheme development	Conduct preparatory work to define the future rolling stock strategy for the SWWITCH area and develop timetable proposals in more detail.	All	Ongoing
Package of station improvements	Initial package of improvements at Pembroke Dock, Milford Haven, Llanelli and Neath should be progressed building on the preparatory work has been completed for the first phase of schemes.  A second tranche of improvements at Tenby, Pembrey & Burry Port, Whitland, Skewen, Llansamlet and Briton Ferry is recommended. with an audit of facilities required to identify potential gaps.	All	To end of 2016

Improved modal integration	Co-ordinate bus services in larger urban areas to provide connections to railway stations and help expand the catchments. Examine the opportunities to co-ordinate bus and rail services in rural areas.	All	To mid 2015
Ticketing initiatives	Adopt a collaborative approach to introduce a fully integrated ticketing system which includes all bus and rail services	All	To end 2017
Marketing campaign	Targeted campaigns to promote rail services in the SWITCH area to ensure the recent patronage growth is continued.	All	To end 2017
Land use strategy	Examine the scope to accelerate development at sites adjacent to railway stations. Review the potential for further houses / jobs within 800m of a railway station to help expand the catchment.	All	To mid 2014
Complementary rapid transit network	Review journey patterns using radial corridors into Swansea and within the city centre to assess the scope for a complementary rapid transit network serving the main travel to work catchments.	Primarily Swansea	Ongoing
Level crossing improvements	Work collaboratively with Network Rail to deliver a package of level crossing improvements between Tenby and Pembroke Dock.	Pembrokeshire	By mid 2015
Retention of the extra Fishguard trains	Collate a compelling evidence base to demonstrate the benefits from the additional trains serving Fishguard to ensure the funding for these services is retained beyond the three year trial.	Pembrokeshire	Mid 2014 onwards
Procurement of additional rolling stock	Examine the scope to procure a small number of additional units which are cascaded following electrification schemes in the North West. These units could help to address short term timetable gaps, subject to funding.	Primarily Pembrokeshire and Carmarthenshire	From mid 2016
Infrastructure works	Deliver a package of infrastructure works to boost capacity at Swansea station, plus signalling works at Whitland / Carmarthen.	All	Ongoing to mid 2017
Depot strategy	Examine the feasibility of using Landore depot to maintain the SWITCH diesel fleet once HSTs cease to use this site from 2018.	All	Ongoing

### Medium Term Proposals

Table 6 presents the medium term proposals for the SWITCH rail strategy. In addition to the timetable changes, specifying changes to the internal rolling stock layout also forms a key task. A package of infrastructure works to improve signalling, and the development of a depot strategy following changes to Landore will also need to be devised.



Swansea station

**Table 6: SWITCH Rail Strategy Medium Term Proposals**

Description	Supporting Information	Authorities expected to benefit
Swansea to Cardiff	Improve the frequency of the stopping service to hourly to improve connectivity	Swansea and Neath Port Talbot.
Swansea to Milford Haven	Introduce an hourly service which provides connections to / from the London trains at Swansea. Confirm rolling stock strategy for the service (retain some Class 175s or refurbish Class 15Xs)	Swansea, Carmarthenshire, Pembrokeshire
Milford Haven to Clarboston Road	Proposal is dependent on potential growth of energy related traffic at Milford Haven. Package of enhancements will be required to boost capacity in the Haverfordwest area to minimise operational conflicts with passenger services	All
Swansea to Pembroke Dock	Retention of the two hourly service, albeit with faster journey times between Carmarthen and Pembroke Dock which is reliant on the delivery of various infrastructure schemes. Services timed to connect with the Bristol trains at Swansea. Confirm rolling stock strategy for the service (refurbished Class 150s). Revised service specification offers scope to reintroduce tourist trains	Swansea, Carmarthenshire, Pembrokeshire
Swansea to Fishguard Harbour	Replace current service pattern with a two-hourly service to Fishguard with all trains operating to / from Swansea. Services timed to connect with the Bristol trains at Swansea. Confirm rolling stock strategy for the service (refurbished Class 150s).	Swansea, Carmarthenshire, Pembrokeshire
Swansea to Carmarthen	Replace current services with an hourly fast service to Carmarthen which connect with Bristol services at Swansea. Confirm rolling stock strategy (refurbished Class 150s)	Swansea, Carmarthenshire



Swansea to Llandoverly	Supplement existing HoWL services with additional semi-fast trains between Llandoverly and Swansea serving the principal stations. This would deliver faster journey times and offer earlier / later trains to / from Swansea	Swansea, Carmarthenshire
St Clears Station	Delivery of a new station serving St Clears, although a robust business case is reliant controlling scheme costs and achieving the high growth scenario	Carmarthenshire
Rapid transit to Cwmgwrach and Onllwyn	Assuming the coal traffic ceases, examine the feasibility of converting these alignments to rapid transit to provide an attractive public transport alternative for the A465 / A4109 routes	Neath Port Talbot and Swansea



Landore Viaduct, Swansea: ATW Carmarthen - Manchester

### *Long Term Proposals*

Table 7 summarises the long term scheme proposals for the SWITCH area. Many of the interventions will require SWITCH to work collaboratively with other stakeholders, helping to collate the economic argument for each scheme and lobbying to ensure South West Wales receives some of the benefits. This collaborative approach will be essential, given the likely scale of investment associated with these long term proposals. A watching brief to identify future opportunities to expand the coverage of the electrified network is required which could include the network both west of Swansea or east of Newport.

**Table 7: SWWITCH Rail Strategy Long Term Proposals**

Description	Supporting Information	Authorities expected to benefit
Improved surface access links to Heathrow Airport	Lobby with other stakeholders to ensure the proposed new link is constructed. SWWITCH will need to collaborate closely with SEWTA to ensure there is a service to / from South Wales	All
High Speed Rail to West of England / South Wales	Support the construction of a new alignment to supplement the GWML to support future growth if capacity is absorbed following the delivery of the new IEP timetable in 2018	All
Freight landbridge to Southern Ireland	Assuming a business case for a fixed link between South West Wales and Southern Ireland is identified, stakeholders will need to lobby for a package of infrastructure improvements to support growth in freight traffic	All
Further incremental electrification	Support the incremental electrification of the rail network both west of Swansea and east of Newport (for example, via Shrewsbury, Chepstow or Taunton) which may enable a more comprehensive service pattern to / from South Wales	All
Upgrading the rapid transit network	Examine the requirement to upgrade the proposed rapid transit network, for example, light rail, for selected corridors	Primarily Swansea



Proposed Intercity Express Programme trains

## Economic Appraisal

An economic business case has been prepared for the medium term package which indicates the proposals would generate good value for money (a benefit cost ratio above 2.0), assuming the high growth scenario was achieved. This is a critical requirement, since the passenger benefits generated from the timetable changes would not be sufficient to achieve a benefit cost ratio above 2.0 if the central growth scenario was realised.

## Recommended Next Steps

The SWWITCH Rail Strategy describes a series of recommendations to be completed during the short, medium and long term. There are a number of tasks to be delivered collaboratively with stakeholders during the next five years which will help to maintain the recent growth trends achieved on several routes. The delivery of the short term actions will provide a framework to continue the recent success stories achieved, helping to attract additional passengers in advance of the major timetable improvements to be delivered in the medium term. Maintaining the recent growth trajectory which has been achieved over the last five years will be critical to achieving the longer term growth needed to support a positive economic business case.

Although many of the medium term interventions are dependent on securing the required additional rolling stock, there are a number of preparatory tasks that need to be completed to ensure the service improvements are delivered in a timely manner once the extra units become available. Engaging with Network Rail to describe the likely revisions to the track layout adjacent to Swansea station should be completed in a timely manner, since there is opportunity to influence this layout as part of the wider Port Talbot re-signalling programme. The proposed changes at Swansea station could be implemented in a cost effective manner if these changes are incorporated as part of the wider re-signalling programme. SWWITCH will also need to conduct a more detailed assessment of the timetable proposals to ensure it can be operated robustly. Discussions with Welsh Government will also be required. Extra rolling stock will need to be secured, whilst additional funding support will be required compared with the current situation. Demonstrating that the proposals represent good value for money in economic terms will be a critical part of the submission.

Many of the longer term proposals will require a watching-brief, with SWWITCH liaising with other stakeholders as necessary to demonstrate their support for these strategic improvements. SWWITCH may need to contribute to the compilation of an evidence base which helps to reinforce the economic importance of these proposals. A summary table illustrating the programme of short term actions and the likely timeline is shown in Table 5, particularly as there are a series of tasks to be completed to complement the 2018 electrification proposals east of Swansea and help reinforce the recent growth trends.





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