

## Sewta Rail Strategy Review 2013

### Extension of Bedlinog Line to Dowlais Top

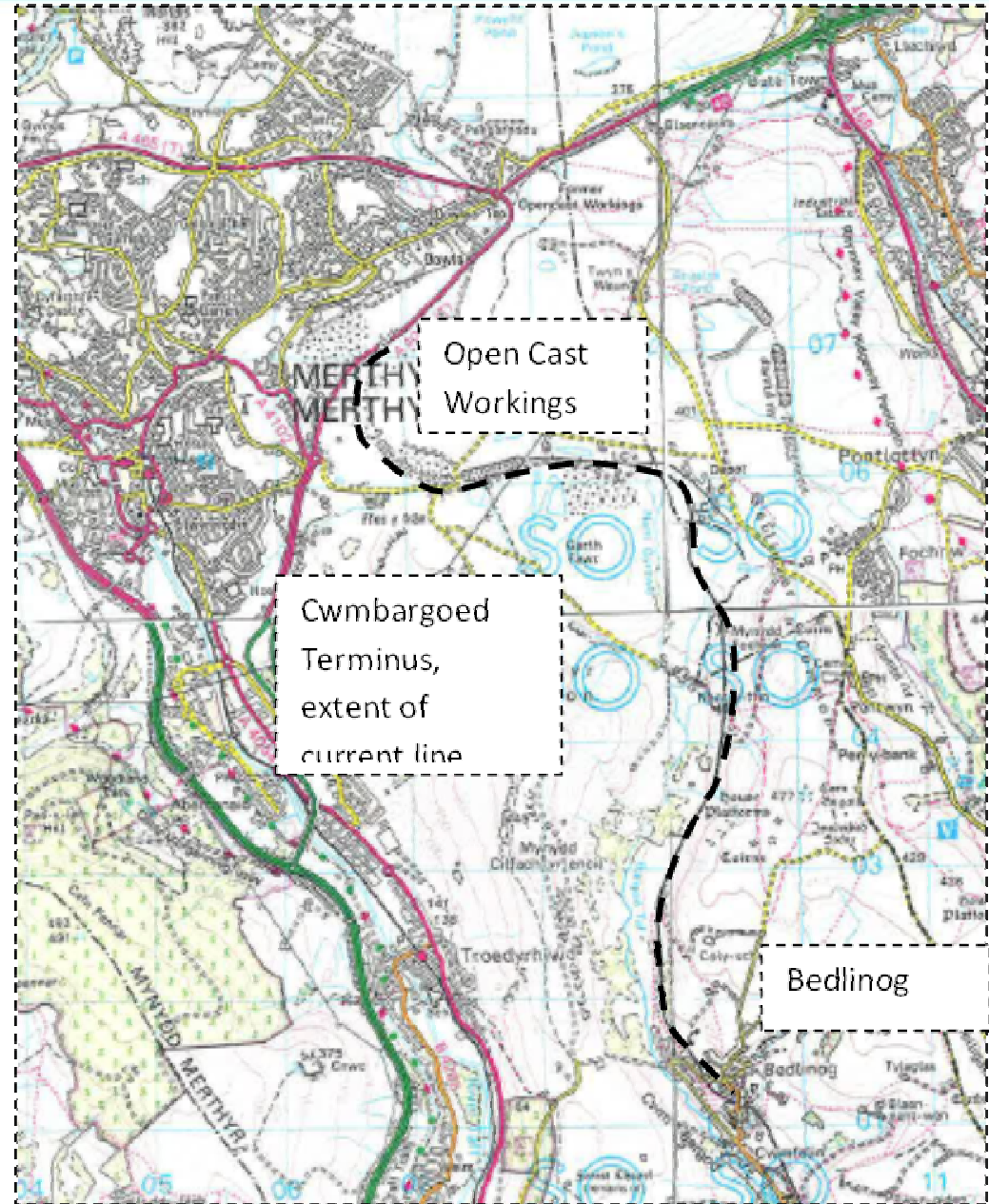
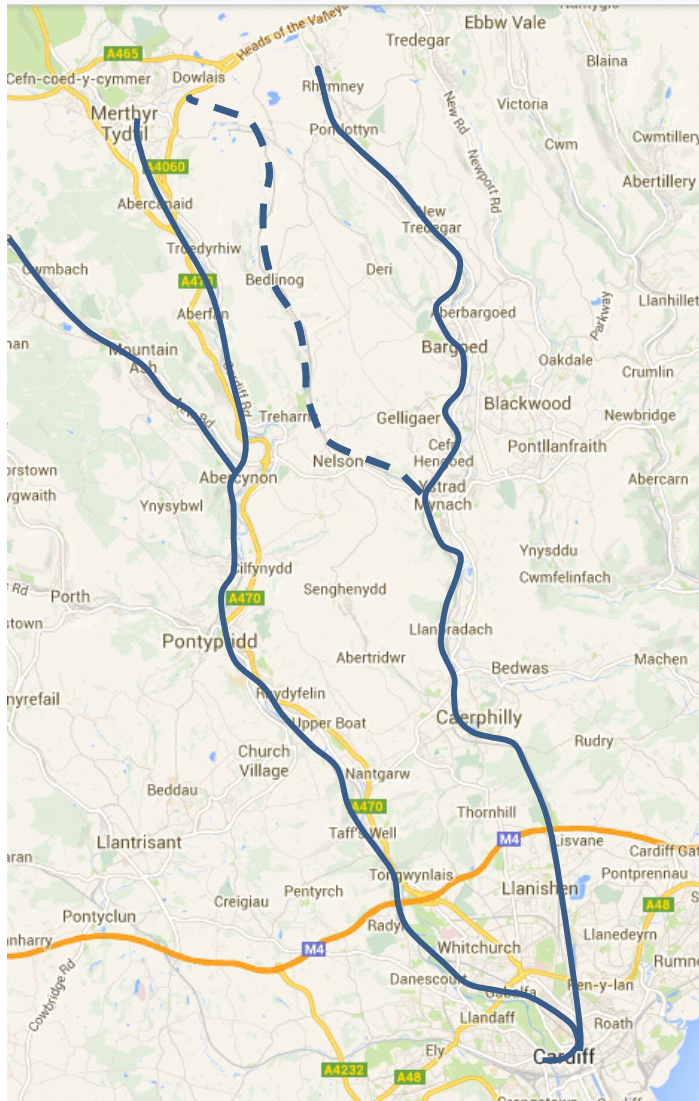
#### Summary of Key Findings



## Background and Study Objectives

- Cardiff – Bedlinog via Nelson and Trelewis
  - Sewta recommended scheme since 2005/06.
- Merthyr Tydfil Local Development Plan
  - Opportunity – rail connected employment land
- Remediation of Open Cast Site – former rail alignment
- Business Case?

## Study Area Issues



## Study Process

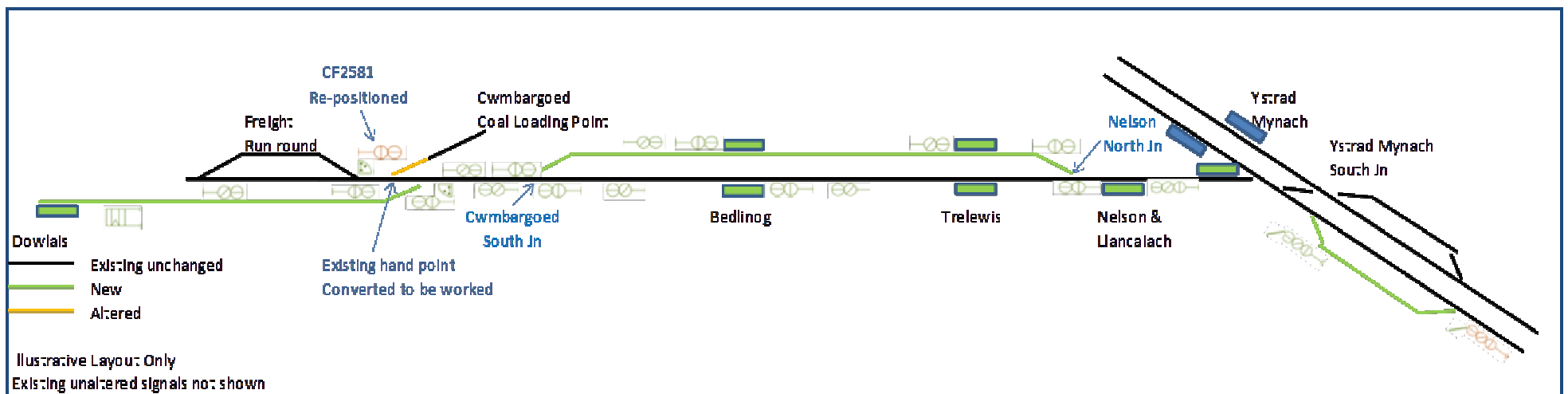
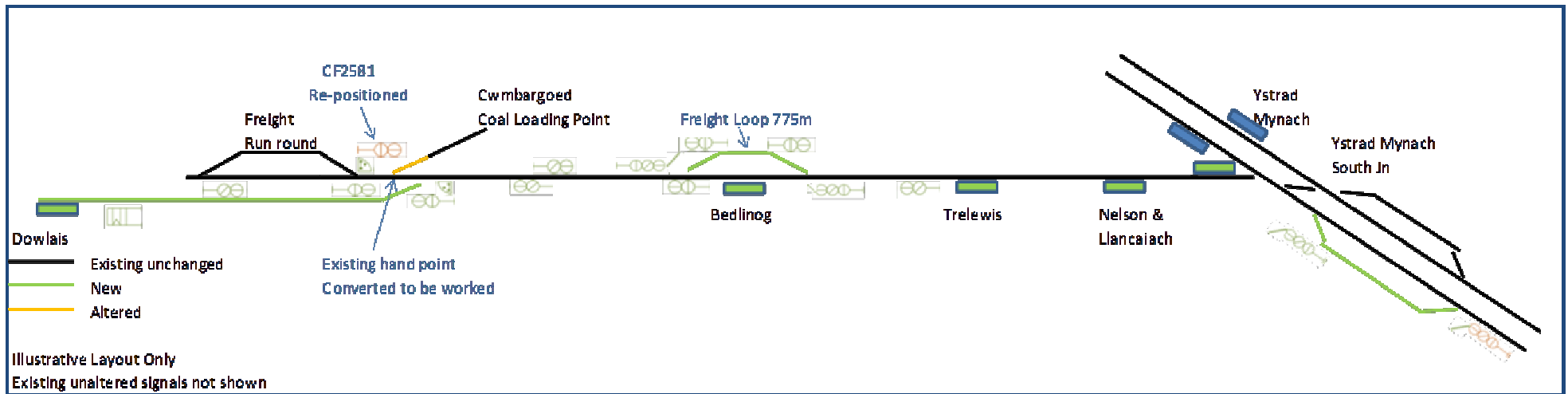
- Operations and Operating Costs
  - One and two trains per hour
  - Diesel and electric options
- Engineering assessment and Capital Costs
- Demand and Revenue Forecasts
- Economic Appraisal



## Operations

- Assumed continued rail freight operations
- 11 miles section from Ystrad Mynach South Junction
- Assumed 40mph passenger (20mph freight)
- Single track
- Hourly passenger – limited additional infrastructure
- 49 minutes to Cardiff Queen Street
- 2 additional trains required

## Infrastructure Required (hourly / Half-hourly)



## Engineering Assessment and Costs

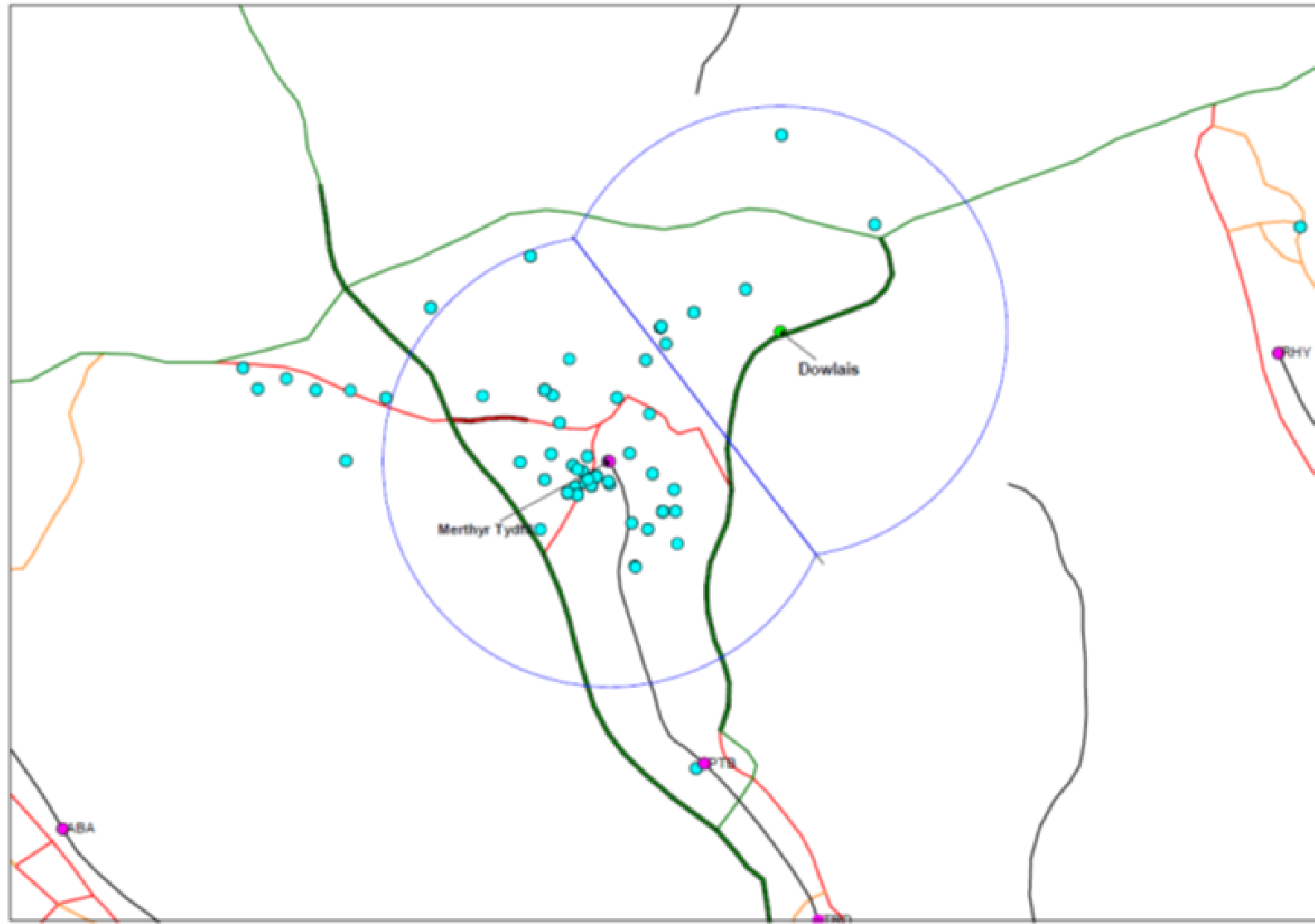
- Stations / Platforms practical
  - Ystrad Mynach, Nelson, Trelewis, Bedlinog and Dowlais
- Cwmbargoed – Dowlais alignment lost
- Bogey Road Bridge – practical subject to levels / gradients.
- MTCBC  $\approx$ 300m reverse curve practical if station located further north.
- £9.3m for hourly and £22.9m for half-hourly.

## Demand and Revenue Forecasts - Approach

- **Existing stations** additional passengers
  - MOIRA – Rail Industry elasticity model
- **New Stations** – generated new passengers
  - Sewta Trip Rate Model – locally calibrated, census data
- **Abstraction** from existing stations
  - National Rail Passenger Survey – Catchment Analysis
- **Electrification** uplift factor
  - Valley Lines Electrification Report



## Abstraction Issue



# Annual Demand Forecast - Summary

Element	Hourly	Half-hourly
Dowlais (Ffos – Y – Fran)#	470k	783k
Abstraction Merthyr Tydfil	-40k	-81k
Bedlinog	34k	60k
Trelewis	47k	87k
Nelson	40k	74k
Abstraction Ystrad Mynach	-13k	-26k
Existing Stations new	18k	36k
Total	556k	932k

# includes Terminus (Heads of the Valleys) Station Factor

## Key Flows Forecast

Flow	%
Cardiff	74%
Caerphilly	7%
Ystrad Mynach	2%
Bridgend	2%
Llanishen	2%
Aber	2%
Cardiff Bay	1%
Hengoed	1%
Heath High Level	1%
Bargoed	1%
London	1%
Total	91%

## Forecast Subsidy Requirements – Diesel Options

Scenario	Subsidy 2015	Subsidy 2025
Bedlinog Hourly	£580k	£28k
Bedlinog Half-hourly	£1,094k	£123k
Dowlais Hourly	£557k	-£319k
Dowlais Half-hourly	£1,405k	-£47k



## Economic Appraisal Assumptions

- User Time Savings
  - Existing stations (and abstraction) MOIRA model
  - New Stations – average 12 minutes GJT / journey – checked against car journey times
- External (Non-User) Benefits
  - Traffic Decongestion
  - Infrastructure Maintenance
  - Environment (air quality, noise, greenhouse gases)
  - Accidents
- Rail Safety Costs – increased rail use

## Economic Appraisal - Summary

	Bedlinog hourly	Bedlinog Half-hourly	Dowlais Hourly	Dowlais Half-hourly
Present Value Costs (PVC)	£13m	£35m	£15m	£37m
Present Value Benefits (PVB)	£54m	£178m	£89m	£140m
Net Present Value (NPV)	£41m	£143m	£74m	£103m
Benefit Cost Ratio (BCR)	4.2	5.1	6.0	3.8

Diesel Services – No Operating Cost Optimism Bias

## Terminus Station (Heads of the Valley) Factor

Level of Factor	BCR Hourly Dowlais Option
100%	6.0
56%	2.0
50%	1.7
47%	1.5

## Appraisal Conclusions

- Electrification Options Lower BCR than Diesel
- Sensitive to operating cost optimism bias assumption (subsidy implication)
- BCR Bedlinog half-hourly higher than hourly (except when terminus station factor removed)
- BCR of Dowlais Option higher than Bedlinog and can justify some of Heads of Valley factor



## Study Conclusions

- Practical to extend passenger railway / service.
- Opportunity - park and ride and business park access.
- Complementary to Merthyr Tydfil Station
- Dowlais has more developed catchment.
- Business case for diesel rather than electric
- Hourly best VfM but good case for half-hourly with reasonable share of terminus station factor

## Recommendations

- Seek restoration of the rail alignment in remediation of open cast site at Ffos – y – Fran.
- Gradient key issue – minimise further works at bridge.
- Change aspiration to Dowlais (further than Bedlinog)
- Further investigation post CASR timetable – local stopping trains to Cardiff.
- Shortage of diesel rolling stock – retain electrification
- Further analysis of Dowlais passenger demand
- Protect the land to preserve the opportunity.