

Tay Estuary Rail Study

Working Paper B

Constraints and Development of Options

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1.0 Introduction

As part of the Tay Estuary Rail Study a number of potential service options to improve rail services in the Tay Estuary corridor have been identified. David McIntosh, an expert in train operation with the Railway Consultancy, has contributed to this investigation.

This paper develops and assesses the options identified against the current timetable. Any timetabling, operating or commercial issues are highlighted and discussed.

This paper also discusses the infrastructure enhancements required to deliver the options.

2.0 Existing Services and Constraints

2.1 Existing Timetable

A timetable for all existing services, based on the Winter 2002 timetable, is included in Appendix A. From this we can see that the main stations at Montrose, Arbroath, and Dundee are well served by 2 No. per hour Scotrail Express services in each direction between Edinburgh and Glasgow and Aberdeen. Perth has an hourly service from Dundee as part of the hourly Aberdeen – Glasgow Queen Street service. In addition to the ScotRail services GNER and Virgin provide through services to and from Aberdeen and Dundee to Edinburgh and beyond.

A summary of existing services at each of the stations considered in this Study is given in Section 5.

2.2 Existing Infrastructure Constraints

There are two key line capacity constraints on the Tay Estuary corridor between Dundee and Montrose. These are the signalling headways between Carnoustie and Arbroath and the single line section between Usan and Montrose South.

The lack of any intermediate signals between Carnoustie and Arbroath results in a signalling headway of 8.5 minutes for a train not stopping at Carnoustie, or 11 minutes for a train calling, or a freight train. This means that there is currently only capacity for one additional train with respect to existing services in most hours over the Carnoustie-Arbroath section.

This constraint is exacerbated by the location of Arbroath Signal Box north of the station. Currently the signalman at Arbroath Signal Box must be able to confirm by sight that a train from Carnoustie has passed with a tail light. (i.e. that the whole train has cleared the signalling section). The Down Outer Home signal (the first signal approached from Carnoustie) is not within sight of the signalman thus increasing the length of time a train is “in section” and compromising line capacity. It might be possible to improve on this situation through discussion with Network Rail by the provision of tail light CCTV cameras at the Down Outer Home signal at Arbroath and at the Up Outer Home signal at Carnoustie. This could reduce the effective headway by 2.5mins in each direction in a very cost effective manner.

A more robust, but more expensive, solution would be the provision of Intermediate Block signals in each direction between Carnoustie and Arbroath. This would continue the 5-minute signal headway applicable between Dundee and Carnoustie throughout from Carnoustie to Arbroath.

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The long-term but much more expensive solution would be to extend the area controlled from Dundee signal box through to Arbroath by closing Carnoustie signal box and the providing additional signals between Carnoustie and Arbroath.

The 50mph single line section of 1.75 miles length over the South Esk viaduct between Usan and Montrose South is recognised as a significant capacity constraint. A train takes 2.5mins to clear this section and with a Network Rail imposed margin of 5 minutes between trains at Usan, gives capacity for 6 trains per hour. The existing timetable varies between 4 and 6 trains per hour.

2.3 The Base Service Pattern

For the purposes of this study, service levels and times have been taken from the Winter 2002/3 Network Rail Working Timetable. It should be noted that a major timetable review for ScotRail services, to be effective from 2004, is currently being undertaken. As such any minor conflicts highlighted as part of this study may be removed. Conversely, new conflicts with proposed services may arise.

Currently stations at Golf Street, Barry Links and Balmossie are served by only one service in each direction per day. It should be noted that these service frequencies are the minimum requirements for ScotRail to meet under the Passenger Service Requirements (PSR). The PSR specifies times of first and last trains of the day with service intervals and are based on pre-privatisation services levels. It is expected however that the PSR is to be abolished and new requirements set by the SRA. The new requirements are likely be based on current timetable levels and as such there is potential that there shall be no change in the minimum service requirements to be met at these stations.

For the purposes of the study into service improvement, it is helpful to consider the services in terms of an East West Axis from Perth to Montrose and a North South Axis from Ladybank to Dundee.

This is in recognition of the existing route layout at Dundee, which diverges from the north at Dundee Central Jn to the south via either Perth (via Invergowrie), the East West axis, and to Edinburgh (via the Tay Bridge), the North-South axis. This means that any proposed local service considered from north of Ladybank to Perth would have to turnback at Dundee.

2.4 Current Capacity Usage

An Assessment of current capacity usage was carried out for the East-West Axis from Perth to Dundee, Dundee to Carnoustie, and Carnoustie to Arbroath as well as for the North-South Axis from Dundee to Ladybank. The results are presented in the tables overleaf.

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a) East West Axis

Perth to Dundee Line capacity utilisation Monday-Friday 0700-1900.

Time	Utilisation%	
	Up Line	Down Line
07:00	17.5%	17.5%
08:00	35.0%	35.0%
09:00	17.5%	42.5%
10:00	17.5%	17.5%
11:00	17.5%	17.5%
12:00	17.5%	17.5%
13:00	42.5%	17.5%
14:00	17.5%	17.5%
15:00	17.5%	17.5%
16:00	17.5%	17.5%
17:00	42.5%	17.5%
18:00	17.5%	17.5%

Dundee to Carnoustie line capacity utilisation Monday-Friday 0700-1900.

Time	Utilisation (%)	
	Up Line	Down Line
07:00	9.0%	15.0%
08:00	23.0%	7.0%
09:00	15.0%	23.0%
10:00	21.0%	15.0%
11:00	15.0%	21.0%
12:00	23.0%	15.0%
13:00	13.0%	15.0%
14:00	15.0%	13.0%
15:00	30.0%	15.0%
16:00	21.0%	13.0%
17:00	15.0%	23.0%
18:00	15.0%	32.0%

Carnoustie to Arbroath line capacity utilisation Monday-Friday 0700-1900.

Time	Utilisation%	
	Up Line	Down Line
07:00	37.0%	62.0%
08:00	32.0%	13.0%
09:00	32.0%	32.0%
10:00	47.0%	43.0%
11:00	51.0%	47.0%
12:00	32.0%	32.0%
13:00	29.0%	32.0%
14:00	51.0%	29.0%
15:00	47.0%	32.0%
16:00	47.0%	29.0%
17:00	32.0%	37.0%
18:00	47.0%	47.0%

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Network Rail generally consider 70% capacity utilisation as a planning maximum. It can be seen from the above tables that the only section approaching this level is the Carnoustie to Arbroath section between 0700-0800, which reaches 62% on the Down line. The critical section is Broughty Ferry to Barry Links, which takes 4 minutes for non-stop passenger, 5 minutes with a stop at Carnoustie and 5mins for a through freight train. An all-stations local takes 10 minutes for this section.

It can also be noted that each all-stations Dundee to Carnoustie local train consumes 17% capacity in the hour it runs.

As previously highlighted, for trains operating between Carnoustie and Arbroath and because of the manual signalling and the location of signal boxes relative to platforms, the signalling headway is 8.5mins for a train not calling at Carnoustie, but 11mins for a call at Carnoustie or for a freight train.

For Perth to Dundee, the Barnhill to Errol section, which has 10.5 minutes signalling headway for passenger trains and 12 to 15 minutes for freight, determines the line capacity between Perth and Dundee.

b) North South Axis

An Assessment of current capacity usage was carried out for the line between Dundee and Ladybank in a similar manner to the East West Axis. Clearly, this did not include for Leuchars to St Andrews, as this line does not exist at present. The results are presented in the tables below.

Ladybank to Dundee line capacity utilisation Monday-Friday 0700-1900

Time	Utilisation%	
	Up Line	Down Line
07:00	17.5%	17.5%
08:00	35.0%	17.5%
09:00	35.0%	17.5%
10:00	17.5%	17.5%
11:00	35.0%	35.0%
12:00	17.5%	17.5%
13:00	17.5%	17.5%
14:00	17.5%	17.5%
15:00	17.5%	35.0%
16:00	35.0%	0.0%
17:00	17.5%	35.0%
18:00	17.5%	35.0%

It can be seen that at no time does the line usage at up to 35% approach its capacity of around 70%. The critical section is Cupar to Leuchars with 10.5-minute signalling headway.

It is important to note that line utilisation is based on total time a section of line is occupied within an hour period and does not indicate times within the hour period that are available. Therefore, for the purposes of identifying regular hourly paths for new services that take a longer time to clear sections with respect to existing services, a low utilisation with respect to a 70% maximum does not necessarily indicate available paths.

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3 Service Options

3.1 The Options

The Train Service options selected for study are outlined below:

- **Option A** Dundee Carnoustie (hourly)
- **Option B** Dundee Arbroath (hourly)
- **Option C** Dundee Montrose (hourly)
- **Option D** Montrose Brechin (hourly)
- **Option E** Perth Carnoustie / Arbroath (hourly)
- **Option F** Perth Montrose (hourly)
- **Option G** Arbroath Ladybank (hourly)
- **Option H** Ladybank Dundee / Perth (hourly)
- **Option I** Dundee West Leuchars (hourly)
- **Option J** Leuchars St. Andrews (hourly)

In addition to assessing each of the options for an hourly service we also examined the feasibility of extending options A - F to include a new station at Dundee West. Option H includes provision for a new station at Dundee West.

3.2 The Service Frequency

The basic minimum service frequency for each of the options above is a one-hour service frequency. However, it is clearly desirable to have a more frequent service and as such we have also assessed the feasibility of a half-hour service for each option.

3.2.1 The Hourly service

Paths have been identified for an hourly service such that there is minimum conflict with existing services.

For Option A, assessing services between Dundee and Carnoustie, the following Down and Up paths have been identified as being optimal.

Dundee	dep xx32	Carnoustie	depxx57
Broughty Ferry	xx39	Golf Street	xx59
Balmossie	xx42	Barry Links	xx01
Monifieth	xx45	Monifieth	xx06
Barry Links	xx49	Balmossie	xx09
Golf Street	xx51	Broughty Ferry	xx14
Carnoustie	arr xx52	Dundee	arr xx20

For all other Options assessing services north of Dundee (Options B, C, D and F) the same Down path is used and extended in the Down (north) direction. As the Option A Up path (south) was based on a minimum turnaround time at Carnoustie an alternative Up path has had to be identified in order not to incur significant turnaround times at Arbroath.

The basic model for the Down and Up paths for services north of Carnoustie are highlighted overleaf;

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		Arbroath	Xx41
Dundee	dep xx32	Carnoustie	xx46
Broughty Ferry	xx39	Golf Street	xx48
Balmossie	xx42	Barry Links	xx50
Monifieth	xx45	Monifieth	xx55
Barry Links	xx49	Balmossie	xx58
Golf Street	xx51	Broughty Ferry	xx02
Carnoustie	xx52	Dundee	arr xx11
Arbroath	arrxx59		

3.2.2 The Half-Hourly service

The optimum path for a half-hour service for Option A with respect to the hourly Option A service would be as follows;

Dundee	Dep xx02	Carnoustie	Dep xx27
Carnoustie	Arr xx22	Dundee	Arr xx50

A xx02 departure from Dundee however conflicts with the existing xx01 departure from Dundee of the hourly Glasgow Queen Street – Aberdeen service. With a 5 minute minimum signalling headway between Dundee and Carnoustie this would give the earliest available departure at xx06. This in turn gives a xx26 arrival in Carnoustie and, with a minimum 5 minute turnround, a xx31 departure from Carnoustie and xx54 arrival in Dundee.

This half-hourly service frequency for Option A cannot be delivered without a number of significant infrastructure works due to a high number of timetabling conflicts in both the Down and Up directions.

In the Down direction with a service turnround at Carnoustie on the Down line and a 5 minute signalling headway there would be a conflict with the following hourly Edinburgh – Aberdeen service which passes Carnoustie at xx32 / 34. In addition to this hourly conflict there are additional conflicts with 4 No. existing services (GNER / Virgin) which would preclude operation in the Down direction in the hours 07xx, 16xx, 18xx and 20xx.

Similarly in the Up direction there is a conflict throughout the operating day between Carnoustie and Dundee with the hourly Aberdeen – Glasgow (Queen Street) service. The Aberdeen – Glasgow (Queen Street) service passes Carnoustie at xx44 and has a xx51 arrival in Dundee. The proposed half hourly path would have an earliest departure of xx31 from Carnoustie and a corresponding xx54 arrival in Dundee thus conflicting every hour with the Aberdeen – Glasgow (Queen Street) service. There are also additional timetabling conflicts with existing services in the Up direction such that the proposed half-hourly Up service cannot be delivered into Dundee in the AM Peak.

In order to mitigate conflicts with the half hourly frequency in the Down direction a loop or turnback facility and corresponding signalling works would have to be provided at Carnoustie. Even with such works, a Down service could not operate in the hour 18xx due to conflict with an existing Virgin Aberdeen service.

In order to mitigate conflicts in the Up direction and to give the latest possible arrival time in Dundee ahead of the Aberdeen – Glasgow (Queen St.) service a time saving of 8 minutes would be required to give a reduced journey time of 15 minutes from Carnoustie to Dundee. This could be achieved by omitting the 4No. service stops at Barry Links, Golf Street, Balmossie and Broughty Ferry.

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An alternative would be to hold the return stopping service in a new loop or turnback siding at Carnoustie until after the Aberdeen – Glasgow (Queen St.) service had passed. This would delay departure from Dundee in the return Down direction and as such further compromise the timetabling conflict in the Down direction highlighted above. This would also require a 5 minute turnround at Dundee, which may not be possible. The return Down service could only stop at 1 No. station in order not to conflict with existing services which is clearly undesirable for the proposed local service.

As such it is considered that a half hourly frequency local service between Dundee and Carnoustie cannot be delivered within the existing timetable.

For all service options north of Carnoustie (Options B, C, D and F) the optimum paths for a half-hourly frequency with respect to the hourly paths identified above would be as follows;

Dundee	dep	xx06	Arbroath	dep	xy11
Arbroath		Xx33	Dundee		xx41

As these options extend the Option A Down path from Carnoustie the same constraints are applicable between Dundee and Carnoustie as highlighted above. This option cannot be delivered without signalling improvements to reduce the signalling headway between Carnoustie and Arbroath. This is because there is not enough time between a departure (xx06) from Dundee at the minimum signalling headway of 5 minutes behind the hourly Glasgow Queen St. – Aberdeen service and an all stops arrival (xx33) in Arbroath in advance of the following hourly Edinburgh – Aberdeen service with existing headways between Carnoustie and Arbroath.

In order not to conflict with the Edinburgh – Aberdeen service (non-stop Dundee – Arbroath) a Down local train leaving at the minimum headway behind a preceding hourly Glasgow Queen St. – Aberdeen service and extended to Arbroath would have to be looped at Carnoustie. This is because of the existing 8.5 minutes (through) and 11 minute (stopping) signalling headway between Carnoustie and Arbroath. With no change to the current signalling infrastructure between Carnoustie and Arbroath a looped local train would only then be able to proceed to Arbroath 8.5 minutes after the passing of the Edinburgh – Aberdeen service (xx32/34) at Carnoustie. This would give an xx43 departure from Carnoustie and an xx50 arrival in Arbroath. This would give a journey time from Dundee to Arbroath with this option of 44 minutes, or 16 minutes slower than optimum.

Omitting stops at 3 No. stations (Golf Street, Barry Links, Balmossie) would allow local service arrival in Arbroath in advance of the Edinburgh – Aberdeen service, removing the requirement for a loop at Carnoustie and any signalling improvements, however delay margins between services would be very restricted. This would give a high risk of delay to the Edinburgh – Aberdeen service and thus will be operationally undesirable.

With provision of Intermediate Block signals between Carnoustie and Arbroath the minimum signalling headway could be reduced to 5 minutes. Similarly with CCTV Tail Light provision at the Down Outer Home signal at Arbroath the minimum signalling headway could be reduced to 6.5 minutes.

This would allow the local train to proceed to Arbroath in advance of the following hourly Edinburgh – Aberdeen service without being looped at Carnoustie and give an arrival in Arbroath of xx33.

Conflicts with the proposed standard half hourly additional Up path varies with respect to Option A due to the amended standard hourly Up path. The optimum path

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identified above would give an xx11 departure from Arbroath and xx41 arrival in Dundee.

An xx11 departure would conflict with the following hourly xx15 departure of the Aberdeen – Edinburgh service. IB signals would have to be provided to give an earliest departure from Arbroath at xx20. Note this is only 21 minutes prior to departure of the standard hourly local path. With an xx20 departure there would also be a need for a loop between Carnoustie and Dundee to avoid a conflict with the following hourly Aberdeen – Glasgow (Queen Street) service. With a loop between Carnoustie and Dundee and a minimum 5-minute signalling headway would give an arrival in Dundee at least 10 minutes after the Aberdeen – Glasgow (Queen Street) service i.e. an xx01 arrival. This is only 7 minutes in advance of the following hourly local service and is clearly not a feasible option.

An earlier departure in advance of the xx15 departure from Arbroath of the hourly Aberdeen – Edinburgh service would give an xx06 departure (no signalling works) or xx10 departure (IB signals). The xx10 departure would require a 10 minute layover at Carnoustie to allow the following Aberdeen – Edinburgh service to pass. As highlighted above the local service would then conflict with the following Aberdeen – Glasgow (Queen Street) service between Carnoustie and Dundee. As discussed previously with an earliest arrival in Dundee behind the Aberdeen – Glasgow (Queen Street) service of xx01 and a proposed return working at xx06 from Dundee and a following hourly local service with an arrival in Dundee at xx11 cannot be delivered. The xx06 departure could be delivered with a loop between Carnoustie and Dundee to allow the following Aberdeen – Edinburgh service to pass. Given a minimum 5-minute signalling headway between Carnoustie and Dundee gives an earliest arrival in Dundee at least 10 minutes after the Aberdeen – Edinburgh service i.e. an xx41 arrival.

As a minimum therefore to provide a half hourly option in the off peak for Options B, and C would require either a loop on the Up line at Carnoustie or associated signalling works to provide 5 minutes headway between Carnoustie and Arbroath. In order to deliver the Up service a loop would have to be provided either at Carnoustie or between Carnoustie and Dundee.

Critically, this proposed additional half-hourly frequency service could not operate in the 08xx Up peak or the 18xx Down peak due to conflicts in these hours. Other major constraints preclude extension of the half hour service to Montrose.

We conclude therefore that an increase in service frequency to half hourly services for any of the Options is not feasible. On this basis we have not considered this possibility for any other service options in addition to the hourly service.

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4 Assessment of Options

4.1 The East West Axis

The six key service options for the EW Axis are as follows;

Option A	Dundee – Carnoustie	(hourly)
Option B	Dundee – Arbroath	(hourly)
Option C	Dundee – Montrose	(hourly)
Option D	Montrose – Brechin	(hourly)
Option E	Perth – Carnoustie / Arbroath	(hourly)
Option F	Perth – Montrose	(hourly)

Dundee West service extensions for each of the service options above are also considered.

It should be recognised that Option D: Montrose to Brechin is of course a special case as this line has been abandoned for many years and is currently used over half its length as a Heritage Railway.

4.1.1 Option A: Dundee - Carnoustie

4.1.1.1 Timetabling and Conflicts

The optimum standard hourly Down and Up paths identified for this service option and highlighted in Section 3.2 are as follows;

Dundee	dep xx32	Carnoustie	depxx57
Broughty Ferry	xx39	Golf Street	xx59
Balmossie	xx42	Barry Links	xx01
Monifieth	xx45	Monifieth	xx06
Barry Links	xx49	Balmossie	xx09
Golf Street	xx51	Broughty Ferry	xx14
Carnoustie	arr xx52	Dundee	arr xx20

The local service in the Down direction with an xx32 departure from Dundee and an xx52 arrival in Carnoustie can be delivered within the existing timetable and with existing infrastructure throughout the operating day.

The service in the Up direction with an xx57 departure from Carnoustie and an xx20 arrival in Dundee can, with the exception of two services conflicts, be delivered within the existing timetable and with existing infrastructure throughout the operating day.

The Up timetable in Appendix A highlights a conflict at Dundee with the existing 0550 Aberdeen–Edinburgh Waverley service and the proposed 0657 Carnoustie–Dundee service. However, this need not be an issue as with the local service in operation, the existing 0550 Aberdeen – Edinburgh service calling at all stations between Arbroath and Dundee could cut out these stops. The stations at which the express need not stop at would be Golf Street, Barry Links and Monifieth, Balmossie, and Broughty Ferry. This time saving of around ten minutes is greater than the three minutes necessary to remove the conflict.

Again on the Up-Timetable, a further conflict exists at Dundee with the proposed 0757 Carnoustie – Dundee service and the existing 0707 Aberdeen – Glasgow

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Queen Street service. Either omitting some stops on this particular service or bringing forward the departure from Carnoustie by around 5 minutes could resolve this.

The omission of a minimum of 3 stations, perhaps at Golf Street, Barry Links and Balmossie, would achieve the minimum headway of 5 minutes on arrival at Dundee. However, given that this service is the key morning peak service into Dundee this solution is not considered desirable.

The preferred option of bringing forward the departure from Carnoustie by 5 minutes to 0752 would accommodate the minimum 5-minute turnround at Carnoustie but would obviously require an earlier arrival of the 0732 Dundee–Carnoustie service. This could be achieved either by re-timing to give an earlier departure from Dundee or by omitting stops on the 0732 Dundee–Carnoustie service.

4.1.1.2 Service Connections

For service connections, the xx32 local departure from Dundee in the Down Direction (or north) would give a good connection from the preceding hourly Edinburgh Waverley–Aberdeen service, which has an xx24 (sometimes xx22 or xx25) departure from Dundee.

Connections from the hourly Glasgow Queen Street – Aberdeen service would require an approximate 30 minute wait at Dundee.

The xx20 arrival in Dundee with this local service option in the Up direction would give a good connection to the following hourly Aberdeen - Edinburgh Waverley service which has an xx32 (sometimes xx29 or xx31) departure from Dundee. Connections to the hourly Aberdeen - Glasgow Queen Street service would be approximately 30 minutes.

4.1.1.3 Train Operations

This service option from Dundee to Carnoustie requires only one Diesel Multiple Unit (DMU) as the timetabled service and turnround times fit within a one hour period. This results in a very efficient utilisation of rolling stock.

4.1.1.4 Infrastructure Requirements

This is the simplest and most basic option and it requires no rail infrastructure improvements.

At Carnoustie, trains would be able to turnround in the Down platform under the control of an existing signal.

At Dundee trains are able to shunt from Platform 1 to Platform 4 via Central Junction, for which the 12-minute proposed margin is more than adequate. It is possible to reverse in Platform 1 North, with the following train using platform 1 South. However, punctual departure of this service on the xx32 slot could however be prejudiced by any lateness of the following train from Aberdeen. This is because the return Down local service of an incoming Up service departing from Platform 1 North would have to reverse for a distance of 1122 yards over the Up line before crossing to the Down line at Camperdown.

4.1.1.5 Infrastructure and Operational Costs

There are no identified infrastructure costs for the Dundee to Carnoustie service.

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Option A: Dundee to Carnoustie			
Description of Infrastructure	Approximate Cost (£)	Description of Operations	Approximate Cost (£)
None		One train unit	300,000
		Fuel & Maintenance	100,000
		Staffing	375,000
		Total	£775,000

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4.1.2 Option B: Dundee – Arbroath

4.1.2.1 Timetabling and Conflicts

The optimum standard hourly Down and Up paths identified for this service option and highlighted in Section 3.2 are as follows;

		Arbroath	dep xx41
Dundee	dep xx32	Carnoustie	xx46
Broughty Ferry	xx39	Golf Street	xx48
Balmossie	xx42	Barry Links	xx50
Monifieth	xx45	Monifieth	xx55
Barry Links	xx49	Balmossie	xx58
Golf Street	xx51	Broughty Ferry	xx02
Carnoustie	arr xx52	Dundee	arr xx11
Arbroath	xx59		

As highlighted in Section 3.2 the service in the Down direction is a straightforward extension of the Option A service to Arbroath with an xx32 departure from Dundee and an xx59 arrival in Arbroath. This service can be delivered within the existing timetable and with existing infrastructure throughout the operating day.

Again as highlighted in Section 3.2 a different Up path from the Option A service is necessary giving a xx41 departure from Arbroath and an xx11 arrival in Dundee. There are however timetabling conflicts with six existing Up services on the Line. These conflicts in the Up direction are with the proposed 0841, 0941, 1041, 1541, 1841 and 2141 Arbroath – Dundee local service. Each of these services conflict between Arbroath and Dundee with following Aberdeen to Glasgow Queen Street ScotRail Express services.

Possible timetable alterations to mitigate these conflicts are constrained by minimum headway requirements at both Arbroath and Dundee. As such it is not possible, even with the standard 5-minute headway between Dundee and Carnoustie extended to Arbroath, to have a standard hour departure for this service throughout the operating day within the existing timetable.

Conflicts could be mitigated by provision of a loop on the Up line at Carnoustie in order to allow following conflicting trains to pass.

In order to run an hourly service therefore between Arbroath and Dundee a loop would be required at Carnoustie. Existing signalling between Carnoustie and Arbroath would be sufficient but a reduction in headway of 2.5 minutes through provision of CCTV Tail Light cameras would allow a significant increase in delay margins.

4.1.2.2 Service Connections

As with the Carnoustie Option A, the xx32 departure from Dundee for the Arbroath service option in the Down Direction would give a good connection to the preceding hourly Edinburgh Waverley – Aberdeen service which has an xx24 (sometimes xx22 or xx25) departure from Dundee. Connection time to the hourly Glasgow Queen Street – Aberdeen service would be approximately 30 minutes.

The xx11 arrival in Dundee with this amended service option in the Up direction would give an adequate connection to the following hourly Aberdeen - Edinburgh Waverley service which has an xx32 (sometimes xx29 or xx31) departure from Dundee. Connections to the hourly Aberdeen - Glasgow Queen Street service would be approximately 30 minutes.

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4.1.2.3 Train Operations

This service option to Arbroath requires two diesel multiple units. Turnround times of 21 minutes at Dundee and 42 minutes at Arbroath make very poor utilisation of the required rolling stock.

The hourly Up-service between Arbroath and Dundee would rely on operating at minimum headways between preceding and following services. This would not be a very robust operating timetable and would involve likely transfer of delay between services.

The only added benefit of this service option would be to cater for any demand for trips between stations at Broughty Ferry, Balmossie, Monifieth, Barry Links and Golf Street and Arbroath.

4.1.2.4 Infrastructure Requirements

No permanent way work is required at Arbroath as a reversing siding is available on the up side beyond the signal box.

However, to operate this service in the Up direction a loop at Carnoustie would be required, and this has been included in the strategy costs. Signalling enhancements through provision of CCTV tail light camera, as discussed in Section 2.2, would offer benefit to delay margins and timetable robustness by reducing the existing 8.5-minute signalling headway for passenger trains between Carnoustie and Arbroath by 2.5 minutes.

For operational reasons it is proposed that the loop on the Up line is located between Carnoustie Station and Golf Street Station. It is understood that provision of a loop on the Up side will require land outwith the railway boundary and to this end further work will be required to confirm the most suitable location for the loop. Further, it is understood that there are no implications of the loop position with respect to the potential disposal of Network Rail land at Carnoustie. The CCTV tail light camera would be required adjacent to the Up Outer Home signal in advance of Carnoustie Station and could be accommodated within existing railway land boundaries.

A more comprehensive, but much more expensive solution would be the provision of Intermediate Block signals in each direction between Carnoustie and Arbroath. This would continue the 5-minute signal headway applicable between Dundee and Carnoustie throughout from Carnoustie to Arbroath.

The long-term but much more expensive solution would be to extend the area controlled from Dundee signal box through to Arbroath by abolishing Carnoustie signal box and the provision of additional signals between Carnoustie and Arbroath. This option would only be of benefit if existing headways of 5 minutes were reduced throughout between Dundee and Arbroath. This would involve completely re-signalling the route north from Dundee and would have significant cost.

4.1.2.5 Infrastructure and Operational Costs

The approximate costs for the necessary infrastructure improvements are given in the following table. It should be noted that these costs are based on previous experience of similar work in Scotland and are indicative only.

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Option B: Dundee to Arbroath			
Description of Infrastructure	Approximate Cost (£)	Description of Operations	Approximate Cost (£)
Loop & Tail Light Camera	300,000	Two train units	600,000
Intermediate Block Signals	750,000	Fuel & Maintenance	200,000
Dundee Control & IBS	Several Millions	Staffing	750,000
Total	£300,000 - several millions	Total	£1,550,000

It should be noted that the costs indicated for Loop and Tail Light Camera does not include for any land purchase required.

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4.1.3 Option C: Dundee – Montrose

4.1.3.1 Timetabling and Conflicts

4.1.3.1.1 Line Capacity Constraints

It is necessary to highlight at the outset that the 50mph bi-directional single line section of 1.75 miles length between Usan and Montrose South is a major capacity constraint. Enhancement is constrained as this section is routed through a rock cutting and over a single-track South Esk Viaduct. Capacity is further constrained as there is a Network Rail imposed junction margin of 5 minutes at Usan Signalbox between Up (southbound) train off the single line and following Down (northbound) onto single line. This gives a maximum capacity for 6 No. services per hour on this section.

The existing timetable varies between 4 and 6 trains per hour. An hourly service will increase trains per hour through this single line section by two per hour. It is for this reason that with the existing single line section and a two-hourly Aberdeen services in each direction there is no scope at all for any increase in service frequency to Montrose above the hourly service proposed. Even then, when there is 5 or 6 trains operating it is not possible to operate the local hourly service.

The table below summarises existing service frequencies with the corresponding path availability over the single line section for each hour period. Note not all services through this section are timetabled to stop at Montrose.

Time	Number of existing Trains		Trains per Hour	Virgin XC changes May 2003	Available Train paths	Additional Services Prohibited
	Up	Down				
0600-0700	2	3	5		1	X
0700-0800	2	1	3		3	
0800-0900	4	2	6	- 1	1	X
0900-1000	2	2	4		2	
1000-1100	2	2	4		2	
1100-1200	2	2	4		2	
1200-1300	2	3	5		1	X
1300-1400	2	2	4		2	
1400-1500	2	2	4		2	
1500-1600	4	2	6		0	X
1600-1700	2	2	4		2	
1700-1800	1	1	2		4	
1800-1900	2	4	6		0	X
1900-2000	2	2	4		2	
2000-2100	2	4	6	- 1	1	X
2100-2200	2	1	3	- 1	4	
2200-2300	2	2	4		2	
2300-2400	0	1	1		5	

The table highlights the hours during which the local hourly service, which requires two train paths per hour, cannot operate. From the above table it is highlighted that it would not possible to run an additional hourly Up and Down path in 6 hours out of 18 hours in the operating day. Critically this includes peak hour arrivals and departures from/to Dundee.

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It should be noted that a small number of timetabled freight services shall also have to be accommodated further compromising line capacity. (2 No. daytime Up services, 1 No. daytime Down service, 1 Up and Down Mondays only)

4.1.3.2 Timetabling and Conflicts

The optimum standard Down and Up paths in available hours are as follows;

		Montrose	depXx24
		Arbroath	Xx41
Dundee	dep xx32	Carnoustie	xx46
Broughty Ferry	xx39	Golf Street	Xx48
Balmossie	xx42	Barry Links	Xx50
Monifieth	xx45	Monifieth	Xx55
Barry Links	xx49	Balmossie	Xx58
Golf Street	xx51	Broughty Ferry	Xx02
Carnoustie	xx52	Dundee	arr xx12
Arbroath	xx59		
Montrose	arr xx14		

The service in the Down direction is an extension of the Option A and Option B service with an xx32 departure from Dundee and an xx14 arrival in Montrose. This service can be delivered within the existing timetable throughout the operating day with the exception of the proposed 0732, 1132, 1532 and 1932 Dundee – Montrose local services.

The 0732 and 1532 Dundee – Montrose services conflict with existing Up services on the single line section between Usan and Montrose South. The local 0732 conflicts with the 0730 Aberdeen – Bournemouth Virgin service and the local 1532 conflicts with the 1538 Aberdeen – Glasgow Queen Street service. It might be possible in both these circumstances to hold the Dundee – Montrose service at Usan to let the existing services clear the single-track section, although this would reduce turnaround time at Montrose. In the case of the conflict with the 1538 Aberdeen – Glasgow Queen Street service it may be possible to put back the departure time from Montrose by 1 minute.

The 1132 and 1932 Dundee – Montrose services conflict with the preceding 0710 Leeds – Aberdeen GNER service and the 1400 London KX – Aberdeen GNER service respectively.

In the Up direction the service operates in the same path originally identified for the Option B service and has a xx24 departure from Montrose and an xx12 arrival in Dundee. This service cannot be delivered within the existing timetable throughout the operating day because of the timetable conflict with the six existing services highlighted in previously.

In addition, the 0724 local service conflicts with the 0630 Perth – Aberdeen service Down service on the single line section between Usan and Montrose South. This conflict may be resolved by running the local service in an earlier path to Arbroath.

Options for increasing Line Capacity

Discussions with Network Rail have indicated that there is very limited scope for increasing the “Practical Capacity” of the line as there would be significant performance issues for Network Rail associated with any such increase. This is as a consequence of the reduced delay margins and the increased requirement for the punctual presentation of services at Usan. This is compromised by a number of

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network constraints including Perth-Barnhill single line section, Tay Bridge effective single line section and Glasgow Queen Street and Edinburgh Waverley approaches.

In addition Network Rail have indicated that there is no scope for decreasing the timetable margins at Usan (5 minutes) or Montrose South (2 minutes). Given these restrictions line capacity can only be increased through alterations to the timetable and through provision of additional infrastructure.

Timetable changes to 'flight' Up and Down services in succession as opposed to existing alternating cycle would optimise the potential line capacity over the single line section. This solution is compromised / constrained however at Usan by the minimum signalling headway on the route either side of the single line section (assumed as 8.5 minutes) such that it would allow no increase from the existing 6 tph.

4.1.3.3 Service Connections

As with Option A and B the xx32 departure from Dundee with this service option in the Down Direction would give a good connection from the preceding hourly Edinburgh Waverley – Aberdeen service which has an xx24 (sometimes xx22 or xx25) departure from Dundee. Connections from the hourly Glasgow Queen Street – Aberdeen service would be approximately 30 minutes.

Similarly the xx11 arrival in Dundee with this service option in the Up direction would give a reasonable connection to the following hourly Aberdeen - Edinburgh Waverley service which has an xx32 (sometimes xx29 or xx31) departure from Dundee. Connections to the hourly Aberdeen - Glasgow Queen Street service would be approximately 30 minutes.

4.1.3.4 Train Operations

This hourly service option requires 2 No. Diesel Multiple Units and with turnround times of 21 minutes at Dundee and 10 minutes at Montrose makes good utilisation of the required rolling stock.

4.1.3.5 Infrastructure Requirements

Montrose station is not currently signalled for trains from the south to reverse and as a minimum, signalling works to allow an up train to depart from the down platform would be required. However, in operational terms this is not desirable because of restrictions to other services. A new track crossover at Montrose North signal box is the optimum solution as the nearest existing crossover is some 5 miles north at Craigo.

The single line constraint dictates capacity on the route and as such no signalling upgrades between Arbroath and Montrose to increase capacity would be effective without capacity increase on the single line section.

Network Rail have indicated potential to increase the speed restriction through the single line section to 70 mph. This would allow only marginal increases especially as most services stop at Montrose. To this end it is considered that this solution would be used to increase timetable reliability as opposed to facilitating additional services.

The constraining headways either side of the single line could be reduced by providing Intermediate Block signals and amending the timetable to flight services through the single line section. This would allow an increase in line capacity to 8 tph. This option would however require a complete re-write of the Central Scotland and Scotrail Express timetables and would allow no increase in line capacity with an alternating service cycle (as existing) since the minimum time between services at Usan (12 minutes) would be greater.

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Other infrastructure works to increase line capacity include doubling the single track section either parallel to existing single track or on new alignment. This would cost many million pounds (approx £100m) and involve potential environmental and land take issues. A new estuary crossing would also be required. The cost of removing these restrictions is many millions and is not considered further in this Study.

4.1.3.6 Infrastructure and Operational Costs

The approximate costs for the necessary infrastructure improvements are given in the following table. It should be noted that these costs are based on previous experience of similar work in Scotland and are indicative only. The costs shown are inclusive of the previous costs for Option A.

Option C: Dundee to Montrose			
Description of Infrastructure	Approximate Cost (£)	Description of Operations	Approximate Cost (£)
Track doubling Usan - Montrose	£100m+		
Tail Light Cameras	60,000	Two train units	600,000
Intermediate Block Signals	750,000	Fuel & Maintenance	200,000
Dundee Control & IBS	Several Millions	Staffing	750,000
Track Crossover	300,000		
Signals at Montrose Station	750,000		
Total	£Several Millions	Total	£1,550,000

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4.1.4 Option D: Montrose – Brechin

4.1.4.1 Timetabling and Conflicts

The 4 miles between Brechin and Bridge of Dun has been re-opened as a seasonal tourist railway by the Caledonian Railway (Brechin) Ltd. The remaining 3.5 miles to a new junction with the Main Line at Hillside South, 1.25 miles north of Montrose, would require re-instatement of track on the abandoned formation. Brechin would thus be 8.75 miles and approximately 15 minutes from Montrose.

As confirmed for Option C: Dundee to Montrose, it is not considered feasible to provide a local hourly service to Montrose. Therefore, we have not examined possible timetabling conflicts in detail.

It should be possible to construct a Brechin branch to run parallel with the ECML to Montrose Station to operate as a shuttle service into the little used platform adjacent to Montrose Basin. This would remove the interface with mainline signalling.

4.1.4.2 Service Connections

A shuttle service could make connections with the existing main line services as necessary.

4.1.4.3 Train Operations

This service would require only one train unit if operated as a shuttle between Brechin and Montrose. If it was an extension to the Perth - Montrose service it would require 4 units.

4.1.4.4 Infrastructure Requirements

The permanent way including ballast and track over the full length of the 8.75 miles between Brechin and the Main Line at Hillside South would have to be reconstructed. The 4 miles being used for the Heritage Railway from Brechin is unsuitable for modern day passenger use and the earthworks over half the remaining 5.75 miles has been lost to agriculture.

Drainage problems over much of the route require attention and it is safe to assume at this stage that the railway line must be completely rebuilt.

4.1.4.5 Infrastructure and Operational Costs

The scale of the works means that the best way of cost estimating is to use current examples of similar work.

The budget cost for the reopening, without major earthworks, is estimated at around £1.0 million per kilometre or £1.6 million per mile. This leads to a cost for Montrose to Brechin of approximately £18 million for the railway line and station works. The running costs will be similar to Leuchars St. Andrews at around £0.75m per annum.

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4.1.5 Option E: Perth to Carnoustie and Arbroath

4.1.5.1 Timetabling and Conflicts

Existing line capacity between Dundee and Perth allows extension of the previous hourly options to Perth from Carnoustie and Arbroath. Of course, Option C: Dundee to Montrose has particular problems that need to be resolved before an extension can be considered.

The optimum standard hourly Down and Up paths identified for an extension to Option A: Dundee to Carnoustie as discussed in Section 3.2 is as follows;

Perth	Dep xx07		
Invergowrie	Xx23		
<i>Dundee West</i>	Xx28		
Dundee	Xx32	Carnoustie	dep xx57
Broughty Ferry	Xx39	Golf Street	xx59
Balmossie	Xx42	Barry Links	xx01
Monifieth	Xx45	Monifieth	xx06
Barry Links	Xx49	Balmossie	xx09
Golf Street	Xx51	Broughty Ferry	xx14
Carnoustie	Xx52	Dundee	dep xx22
		<i>Dundee West</i>	Xx26
		Invergowrie	xx31
		Perth	arr xx47

Extension of Option A in the Down direction would give a xx22 departure from Dundee to Perth. With station stops at the proposed Dundee West Station and at Invergowrie the estimated running time between Dundee and Perth would be 25 minutes. This would give an xx47 arrival in Perth. Some limited increase in journey time may be necessary to avoid conflict with the Up hourly xx40 departure from Perth to Aberdeen (Glasgow Queen St. – Aberdeen) in order allow time for this service to clear the single line section between Perth Station and Barnhill.

In order to extend into the xx32 departure from Dundee a departure time of xx07 departure from Perth would be required. If this conflicts with the xx13 arrival from Aberdeen (Aberdeen – Glasgow Queen Street) it could be brought forward. This would result in a slightly longer journey time than the optimum. Solutions would be to either hold the service at Dundee Central / Dundee Station (if platform capacity available) or to omit stops at either Invergowrie or Dundee West. It is suggested that the former is the more attractive option.

Extension of Option B: Dundee to Arbroath would give the optimal timetable below;

Perth	Dep xx07		
Invergowrie	Xx23		
<i>Dundee West</i>	Xx28	Arbroath	xx41
Dundee	xx32	Carnoustie	xx46
Broughty Ferry	xx39	Golf Street	Xx48
Balmossie	xx42	Barry Links	Xx50
Monifieth	xx45	Monifieth	Xx55
Barry Links	xx49	Balmossie	Xx58
Golf Street	xx51	Broughty Ferry	Xx02
Carnoustie	xx52	Dundee	xx12
Arbroath	xx59	<i>Dundee West</i>	xx16
		Invergowrie	xx18
		Perth	arr xx34

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With stops at Dundee West and Invergowrie this would give an estimated arrival time in Perth of xx34. This does not conflict with any existing services.

The return service from Perth would be required to depart Perth at xx07 in order to enable the xx32 departure from Dundee. Again this does not conflict with any existing services.

Timetabling conflicts east of Dundee for these options clearly remain as highlighted in the specific Option appraisals for Carnoustie and Arbroath.

4.1.5.2 Service Connections

Invergowrie has a very restricted service of 3 trains in each direction. Invergowrie, 3.5 miles and 6 minutes from Dundee, marks the western extremity of the Dundee built-up area. Dundee airport is adjacent to the line approximately one mile east of Invergowrie and has been suggested as a possible new station site.

Currently, there is only an hourly Glasgow to Aberdeen service on the route so any local service would require to service the station.

4.1.5.3 Train Operations

The Option A: Dundee to Carnoustie extension to Perth would require 1 No. additional unit. This would give a total requirement for a Perth to Carnoustie service of 2 No. units.

The Option B: Dundee to Arbroath extensions to Perth would also require 1 No. additional unit and would give a total requirement for a Perth to Arbroath service of 3 No. units.

4.1.5.4 Infrastructure Requirements

There would be no infrastructure requirements associated with an extension of these options to Perth. Obviously, if the new station at Dundee West was to be progressed more investment is required. Section 4.1.7 below discusses this option in more detail.

4.1.5.5 Infrastructure and Operational Costs

The approximate costs for the necessary infrastructure improvements and operational costs are given in the following table.

Option E(1) : Perth to Carnoustie				
Description of Infrastructure addition to Option A	of in	Approximate Cost (£)	Description of Operations	Approximate Cost (£)
			Two train units (minimum)	600,000
Nil			Fuel & Maintenance	200,000
			Staffing	750,000
			Total	£1,550,000

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Option E(2) : Perth to Arbroath				
Description of Infrastructure addition to Option B	of in	Approximate Cost (£)	Description of Operations	Approximate Cost (£)
			Three train units (minimum)	900,000
Nil			Fuel & Maintenance	300,000
			Staffing	1,125,000
			Total	£2,325,000

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4.1.6 Option F: Perth to Montrose

4.1.6.1 Timetabling and Conflicts

Building on service groups C & E gives the following pattern, with the core service A Dundee to Carnoustie shown shaded. The optimum standard hourly Down and Up paths identified for this service option are thus as follows;

Perth	dep. xx07	Montrose	Xx24
Invergowrie	xx24	Arbroath	Xx41
Dundee	xx32	Carnoustie	xx46
Broughty Ferry	xx39	Golf Street	Xx48
Balmossie	xx42	Barry Links	Xx50
Monifieth	xx45	Monifieth	Xx55
Barry Links	xx49	Balmossie	Xx58
Golf Street	xx51	Broughty Ferry	Xx02
Carnoustie	xx52	Dundee	xx12
Arbroath	xx59	Invergowrie	Xx18
Montrose	arr xx14	Perth	arr xx34

The service in the Down direction is an extension of the Option A and Option B and C services with an xx06 departure from Perth and an xx14 arrival in Montrose. This service can be delivered between Perth and Dundee within the existing timetable throughout the operating day. However, the same timetabling conflicts between Dundee and Montrose apply as in Option C to Arbroath.

The service in the Up direction operates in the same path originally identified for the Option B and C service and has a xx24 departure from Montrose and an xx34 arrival in Perth. This service can be delivered between Dundee and Perth within the existing timetable throughout the operating day. However, the same timetabling conflicts occur between Montrose and Dundee as in Option C to Arbroath.

4.1.6.2 Service Connections

As with Option A, B and C the xx32 departure from Dundee with this service option in the Down Direction would give a good connection from the preceding hourly Edinburgh Waverley – Aberdeen service which has an xx24 (sometimes xx22 or xx25) departure from Dundee. Connections from the hourly Glasgow Queen Street – Aberdeen service would be approximately 30 minutes at either Perth or Dundee.

The xx11 arrival in Dundee with this service option in the Up direction would give a reasonable connection to the following hourly Aberdeen - Edinburgh Waverley service which has an xx32 (sometimes xx29 or xx31) departure from Dundee. Connections to the hourly Aberdeen - Glasgow Queen Street service at Dundee or Perth would be approximately 30 minutes.

4.1.6.3 Train Operations

This service option requires 3 No. DMU and with turnround times of 27 minutes at Perth and 10 minutes at Montrose makes reasonable utilisation of the required rolling stock.

4.1.6.4 Infrastructure Requirements

The infrastructure provision is the summation of the works required for Options C Dundee to Montrose and Option E Dundee to Perth. These are:

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- signalling and crossover provision at Montrose,
- intermediate Block Signals between Montrose and Arbroath

As with Option C the key infrastructure constraint associated with this is the single track section between Usan and Montrose. Please refer to Section 4.1.3.1.1 for a discussion on this constraint.

4.1.6.5 Infrastructure and Operational Costs

Option C: Perth to Dundee to Montrose			
Description of Infrastructure	Approximate Cost (£)	Description of Operations	Approximate Cost (£)
Tail Light Cameras	60,000	Three train units	900,000
Intermediate Block Signals	750,000	Fuel & Maintenance	300,000
Dundee Control & IBS	Several Millions	Staffing	1,125,000
Track Crossover	300,000		
Signals at Montrose Station	750,000		
Track doubling Usan - Montrose	£100m+		
Total	£1,860,000 to £Several Millions	Total	£2,325,000

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4.1.7 Dundee West Service Extensions

4.1.7.1 Timetabling and Conflicts

Existing line capacity between Dundee and Perth allows extension of all Options B, C and D to Dundee West or Invergowrie.

The optimum standard hourly Down and Up paths identified for an extension to Option B,C and D is as follows;

Invergowrie	Dep xx24	Montrose	Xx24
Dundee West	Xx28	Arbroath	Xx41
Dundee	xx32	Carnoustie	xx46
Broughty Ferry	xx39	Golf Street	Xx48
Balmossie	xx42	Barry Links	Xx50
Monifieth	xx45	Monifieth	Xx55
Barry Links	xx49	Balmossie	Xx58
Golf Street	xx51	Broughty Ferry	Xx02
Carnoustie	xx52	Dundee	xx12
Arbroath	Xx59	Dundee West	Xx14
Montrose	Xx14	Invergowrie	arr xx18

The service in the Down direction is an extension of the Option B and C services with an xx12 departure from Dundee and an xx14 arrival in Dundee West and xx18 arrival in Invergowrie. This service can be delivered between Perth and Dundee within the existing timetable throughout the operating day.

The service in the Up direction operates in the same path originally identified for the Option E service for Option B, C and D extensions and has a xx24 departure from Invergowrie and an xx28 departure from Dundee West with arrival in Dundee at xx30. This service can be delivered between Dundee and Perth within the existing timetable throughout the operating day. However, the same timetabling conflicts occur between Montrose and Dundee as in Option C to Arbroath.

4.1.7.2 Service Connections

As with Option B, C and D the xx32 departure from Dundee with this service option in the Down Direction would give a good connection from the preceding hourly Edinburgh Waverley – Aberdeen service which has an xx24 (sometimes xx22 or xx25) departure from Dundee. Connections from the hourly Glasgow Queen Street – Aberdeen service would be approximately 30 minutes at either Perth or Dundee.

The xx11 arrival in Dundee with this service option in the Up direction would give a reasonable connection to the following hourly Aberdeen - Edinburgh Waverley service which has an xx32 (sometimes xx29 or xx31) departure from Dundee. Connections to the hourly Aberdeen - Glasgow Queen Street service at Dundee would be approximately 30 minutes.

4.1.7.3 Train Operations

The Option B, C and D extensions to Invergowrie or Perth would require 1 No. additional unit with respect to existing Option B, C and D requirements.

4.1.7.4 Infrastructure Requirements

The infrastructure provision is the summation of the works required for Options C Dundee to Montrose and Option E Dundee to Perth. These are:

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- signalling and crossover provision at Montrose,
- intermediate Block Signals between Montrose and Arbroath
- and signalling and crossover provision at Invergowrie

4.1.7.5 Infrastructure and Operational Costs

Dundee West / Invergowrie Extensions			
Description of Infrastructure	Approximate Cost (£)	Description of Operations	Approximate Cost (£)
Description of Infrastructure in addition to Option B, C and D		Three train units	900,000
		Fuel & Maintenance	300,000
New Station at Dundee West	£2,000,000	Staffing	1,125,000
Infrastructure and contingency costs for turnback works at Dundee West	£2,000,000	Station Operations	£100,000
Total	£4,000,000	Total	£2,425,000

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4.2 The North South Axis

The key service options for the EW Axis are as follows;

Option G	Arbroath – Ladybank	(hourly)
Option H	Ladybank – Dundee - Perth	(hourly)
Option I	Dundee West – Leuchars	(hourly)
Option J	Leuchars – St Andrews	(hourly)

4.2.1 Option G: Arbroath - Ladybank

4.2.1.1 Timetabling and Conflicts

Extension to Ladybank of service Option B - Arbroath to Dundee requires that this service must allow the two-hourly Up Virgin Cross Country services through at Dundee and the hourly Up Aberdeen – Edinburgh Scotrail Express service through at Ladybank. Given an assumed minimum headway between Dundee and Leuchars of 7 minutes this would give an xx19 departure from Dundee and xy47 arrival in Ladybank.

Estimated running time for an Arbroath to Ladybank service calling at Wormit, Leuchars, Cupar and Springfield is 54 minutes.

For the return service from Ladybank there would be a path available at xx04 arriving in Dundee at xx35 and Arbroath at xx04. This option requires a slightly amended departure time from Dundee from the Option B timetable as the Down path between Ladybank and Dundee must be accommodated between the two-hourly Down Virgin Cross Country paths and the xx10 Edinburgh – Aberdeen paths. An earlier departure from Ladybank would result in a significant layover at Dundee.

The same timetabling conflicts between Dundee and Arbroath apply as outlined in Option B.

4.2.1.2 Service Connections

The only Scotrail service on the Dundee to Ladybank route is the hourly Edinburgh to Aberdeen express service. The time penalty of additional stops should be avoided although there may be a case for a new station at Wormit to serve Newport on Tay. Springfield station is served by only two Up and three Down trains daily, in part as a consequence of the long-distance nature of most of the services which pass through. The previous Fife Study had identified the opportunity for some modest line speed improvements, which could potentially negate the effects of an additional call at Wormit.

4.2.1.3 Train Operations

This hourly service option requires 4 No. Units to provide a robust service and with turnround times of 17 minutes at Ladybank and 37 minutes at Arbroath makes reasonable utilisation of the required rolling stock.

4.2.1.4 Infrastructure Requirements

If the proposed station at Wormit is not progressed then with the exception of improved turnback infrastructure at Ladybank the existing infrastructure is satisfactory. If it is decided to proceed with the construction of Wormit Station then additional signalling at the station will be required.

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4.2.1.5 Infrastructure and Operational Costs

The approximate costs for the necessary infrastructure improvements are given in the following table. It should be noted that these costs are based on previous experience of similar work in Scotland and are indicative only.

Option G: Arbroath to Ladybank			
Description of Infrastructure	Approximate Cost (£)	Description of Operations	Approximate Cost (£)
New Wormit Station	2,000,000	Four train units	1200,000
Signals at Wormit Station and Ladybank	1,000,000	Fuel & Maintenance	400,000
Crossover at Ladybank	300,000	Staffing	1,500,000
	£3,300,000		£3,100,000

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4.2.2 Option H: Perth – Dundee - Ladybank

4.2.2.1 Timetabling and Conflicts

Potential standard hourly Up paths and a standard Down path identified for this option are as follows;

Perth	Dep xx52	Xx14	Ladybank	Xx30
Dundee West	Xx10	Xx33	Dundee	Xx53
Dundee	ArrXx12	Xx35		Xx58
	DepXx19	Xx40	Dundee West	Xx00
Ladybank	Xx47	Xx08	Perth	Xx25

Estimated running time for a Perth to Ladybank service calling at Invergowrie, Dundee West, Dundee, Wormit, Leuchars, Cupar and Springfield is 55 minutes.

Both timetabling options highlighted require 48/49 minute layovers at either Ladybank or Perth. Shorter turnround times are constrained by conflicts with existing services. The xx52 Perth – Ladybank service has potential timetable performance issues associated with reversal at Ladybank given that the hourly Aberdeen – Edinburgh ScotRail Express service is timetabled 10 minutes behind this service.

4.2.2.2 Train Operations

Either timetabling option requires 4 No. units and associated traincrew to deliver this service option.

4.2.2.3 Infrastructure Requirements

In order to facilitate the proposed turnround at Ladybank the existing Up siding would have to be upgraded, new crossovers provided north of Ladybank station and appropriate signalling alterations to allow Down departures from the Up platform. The Down platform is the preferred platform for turnround however it's use is constrained by conflicts with other services.

4.2.2.4 Infrastructure and Operational Costs

The approximate costs for the necessary infrastructure improvements are given in the table below. It should be noted that these costs are based on previous experience of similar work in Scotland and are indicative only.

Option H: Perth to Dundee to Ladybank			
Description of Infrastructure	Approximate Cost (£)	Description of Operations	Approximate Cost (£)
New Wormit Station	2,000,000	Four train units	1,200,000
Crossover and Signalling at Ladybank	1,000,000	Fuel & Maintenance	400,000
		Staffing	1,500,000
	£3,000,000		£3,100,000

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4.2.3 Option I: Dundee West – Dundee - Leuchars

4.2.3.1 Timetabling and Conflicts

Potential service options between Dundee West and Leuchars would be as follows;

Leuchars – Dundee – Dundee West

		Edb-Abd	potential path A	Abd-Gla	potential Path B
Leuchars	d	Xx11	Xx23		Xx39
<i>Wormit</i>	d	-	Xx31		Xx47
Dundee	a	Xx24	Xx37		Xx53
	d		Xx42	Xx51	Xx58
Dundee West	d		Xx46	-	Xx01
Invergowrie	d			-	
Perth	a			Xx12	

Dundee West – Dundee - Leuchars

		potential path C	Gla-Abd	potential path D	Abd-Edb
Perth	d		Xx40		
Invergowrie	d		-		
Dundee West	d	Xx51	-	Xx07	
Dundee	a	Xx54	Xx01	Xx10	
	d	Xx59		Xx15	Xx32
<i>Wormit</i>	d	Xx05		Xx21	-
Leuchars	a	Xx13		Xx29	Xx44

Estimated running time for a Dundee West to Leuchars service calling at Dundee and Wormit is 22 minutes. There would be no timetabling conflicts in delivering either of these options.

Using both paths A and C requires turnback and return path from Dundee West just in advance of hourly Glasgow – Aberdeen express service. There would be a minimum turnround at Dundee West of 5 minutes.

Using paths B and D is similar to the above with the exception that turnback at Dundee West, and paths in each direction, between Dundee and Dundee West are behind the hourly Glasgow - Aberdeen express services.

4.2.3.2 Train Operations

Either timetabling option requires 1 No. unit and associated traincrew to deliver this service option.

4.2.3.3 Infrastructure Requirements

These options would require a new crossover and associated S&T (Signalling and Telecommunications) work at Dundee West and S&T modifications to allow turnback from the Up platform (platform 1) onto Down line at Leuchars.

The more robust option using paths B and D would in addition require either upgrade of Up sidings at Leuchars or provision of crossovers and associated S&T from Up line to Down platform (platform 2) at Leuchars in order to facilitate turnback.

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4.2.3.4 Infrastructure and Operational Costs

The approximate costs for the necessary infrastructure improvements are given in the following table. It should be noted that these costs are based on previous experience of similar work in Scotland and are indicative only.

Option I: Dundee West to Leuchars			
Description of Infrastructure	Approximate Cost (£)	Description of Operations	Approximate Cost (£)
Infrastructure and contingency costs for turnback at Dundee West	2,000,000	One train unit	300,000
Crossover and Signalling work at Leuchars	750,000	Fuel & Maintenance	100,000
		Staffing	375,000
	£2,750,000		£775,000

* paths B and D option only

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4.2.4 Option J: Leuchars – St. Andrews

4.2.4.1 Timetabling and Conflicts

The estimated running time from St. Andrews to Dundee with a stop at Leuchars and proposed Wormit station is 24 minutes.

The timetable options in the Down direction to extend into the proposed xx32 departure from Dundee are constrained by the hourly Edinburgh – Aberdeen ScotRail service. This service has an xx24 departure from Dundee and as such gives 8 minutes to accommodate the signalling headway between Leuchars and Dundee including any station stops, such as the proposed Wormit Station.

In order to avoid this constraint the St. Andrews – Leuchars service could precede the Edinburgh – Aberdeen service into Dundee. This option requires a significant layover in Dundee and corresponding platform capacity issues.

A path for either option would be available throughout the operating day.

In the Up direction the service from Dundee is similarly constrained by the following Aberdeen – Edinburgh service. Given confirmation of minimum signalling headway between Dundee and Leuchars it would be possible to extend the Option A arrival to give an xx22 departure from Dundee and an xx45 arrival in St. Andrews.

This could be delivered through the operating day with the exception of 06xx, 07xx, 08xx and 09xx. Clearly this compromises the effectiveness of this option.

An alternative option would be to provide a shuttle service only between St. Andrews and Dundee. With a journey time of 24 minutes and return trip of 55 minutes this could be provided by 1 No. Unit. Indicative times are given below.

Dundee	dep xx40	St. Andrews	dep xx10
Leuchars	xx54	Leuchars	xx20
St. Andrews	XX04	Dundee	arr xx34

4.2.4.2 Service Connections

This 5 mile/10minutes route has long been proposed for re-opening owing to the growth of St Andrews as a resort and University town. A Dundee to St Andrews service could solve the problem of a service to call at Wormit and at 24minutes journey time, 55 minutes round trip, could be a single unit free standing hourly shuttle or linked to services A, B or C. A simple St Andrews to Leuchars single unit shuttle could provide 2 trains per hour and would provide maximum connectional opportunities with the main line at Leuchars.

4.2.4.3 Infrastructure Requirements

Previous Reports from 1998 have identified possible routes and locations for the line and station.

4.2.4.4 Infrastructure and Operational Costs

The approximate costs for the necessary infrastructure improvements are given in the following table. It should be noted that these costs are based on previous experience of similar work in Scotland as well as taken from previously issued Reports and are indicative only.

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Option J: Leuchars to St Andrews			
Description of Infrastructure	Approximate Cost (£)	Description of Operations	Approximate Cost (£)
New Station	2,000,000	One train unit	300,000
Signals at Station and Junction	2,000,000	Fuel & Maintenance	100,000
P-way Construction	30,000,000	Staffing	350,000
	£34,000,000		£750,000

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5 Station Appraisals

5.1 General Discussion

Using the information gathered from the Station Audit and subsequent site visits we can make an assessment of works that would significantly improve the environmental ambience of the station with a resulting increase in customer satisfaction in use of the station.

The intention is to provide customers with an improved travelling experience but there is no guarantee that these improvements will result in additional train usage.

We firstly give a description of the 16No. stations in the Study Area and their urban or rural setting, followed by a summary of the Station Audit findings. We then present the development proposals and the estimated costs. These cost have been developed from previous experience of similar projects elsewhere in Scotland and are therefore approximate. They do not include for maintenance costs.

The stations under consideration are listed below:

The East West Axis Stations
Montrose
Arbroath
Carnoustie
Golf Street
Barry Links
Monifieth
Balmossie
Broughty Ferry
Dundee
Dundee West (proposed)
Invergowrie
Perth
The North South Axis Stations
Leuchars
Cupar
Springfield
Ladybank

The Station Proformas for each station are given in Appendix B.

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5.2 The East West Axis Stations

5.2.1 Montrose

5.2.1.1 Station Description

This station is located at Basin View, about a half mile west of the High Street of Montrose, which forms part of the A92 linking Dundee with Aberdeen along the East coast. It faces onto the Montrose Basin (a popular wildlife reserve) and access is gained off the roundabout on Basin View.

A large Summerfield Supermarket is to the north and east of the station and the station car park has 30 spaces including 2No. disabled. There is a taxi rank for five vehicles and the bus stop is within 30m of the station building

The station building is a single storey steel framed structure located on platform one and was constructed in the late 1980's. There are two flank platforms in use, namely platforms 1 on the Up line and platform 2 on the down line. A third platform and siding between platform two and the basin is relatively unused.

The platform lengths are recorded for the Up Platform 1 as 258 metres and for the Down Platform 2 as 217 metres. The station is manned from 05.15 hrs until 23.30 hrs

There are goods sidings to the south and east of the station building. Part of this area is being considered for redevelopment, possibly creating additional car parking spaces for station patrons.

Location Data: OS Grid Ref:- N.S. 580,713; Engineers Line Reference:- ECN (East Coast North), and Site Mileage:- 30m 1210yds

5.2.1.2 Station Train Departures

To assist understanding of existing train services at Montrose Station overleaf is the departure times each way from the station.

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UP Service Montrose		DOWN Service	
d	06:06 Glasgow (Queen St) - SC	d	07:27 Dyce - SC
d	06:28 Edinburgh (Waverley) - SC	d	07:41 Aberdeen - VT
d	07:15 Glasgow (Queen St) - SC	d	07:57 Dyce - SC
d	07:45 Glasgow (Queen St) - SC	d	08:55 Dyce - SC
d	08:00 Edinburgh (Waverley) - SC	d	09:33 Aberdeen - SC
d	08:10 Edinburgh (Waverly) - VT	d	10:33 Aberdeen - SC
d	08:35 London (Kings Cross) - GNER	d	10:53 Aberdeen - SC
d	09:17 Glasgow (Queen St) - SC	d	11:33 Aberdeen - SC
d	09:35 Edinburgh (Waverley) - SC	d	12:17 Aberdeen - GNER
d	10:17 Glasgow (Queen St) - SC	d	12:33 Aberdeen - SC
d	10:34 London (Kings Cross) - GNER	d	12:55 Dyce - SC
d	11:03 Edinburgh (Waverley) - SC	d	13:33 Aberdeen - SC
d	11:17 Glasgow (Queen St) - SC	d	14:33 Aberdeen - SC
d	12:01 Edinburgh (Waverley) - SC	d	14:55 Aberdeen - SC
d	12:17 Glasgow (Queen St) - SC	d	15:33 Aberdeen - SC
d	13:17 Glasgow (Queen St) - SC	d	16:32 Aberdeen - SC
d	14:01 Edinburgh (Waverley) - SC	d	16:45 Aberdeen - GNER
d	14:17 Glasgow (Queen St) - SC	d	17:34 Aberdeen - SC
d	15:17 Glasgow (Queen St) - SC	d	18:01 Dyce - SC
d	15:34 London (Kings Cross) - GNER	d	18:44 Aberdeen - VT
d	15:58 Edinburgh (Waverley) - SC	d	18:55 Dyce - SC
d	16:13 Glasgow (Queen St) - SC	d	19:44 Aberdeen - SC
d	17:16 Glasgow (Queen St) - SC	d	20:20 Aberdeen - GNER
d	18:02 Edinburgh (Waverley) - SC	d	20:32 Aberdeen - VT
d	18:33 Glasgow (Queen St) - SC	d	20:39 Aberdeen - SC
d	19:04 London (Kings Cross) - GNER	d	20:55 Aberdeen - SC
d	19:16 Glasgow (Queen St) - SC	d	21:33 Aberdeen - SC
d	20:18 Glasgow (Queen St) - SC	d	22:23 Aberdeen - GNER
d	21:17 Glasgow (Queen St) - SC	d	22:43 Aberdeen - SC
d	21:36 Edinburgh (Waverly) - VT	d	
d	22:00 Edinburgh (Waverley) - SC	d	
d	22:48 Edinburgh (Waverley) - VT	d	
d	23:10 Glasgow (Queen St) - SC	d	
d = Departure time GNER = Great North Eastern Railways SC = Scotrail Service VT = Virgin Trains Service			

5.2.1.3 Station Audit

The station audit was carried out at Montrose Station on 3 October 2002. The station audit addressed the following points.

- Quality of station environment
- Station Facilities
- Information at platforms
- Pedestrian /wheelchair access
- Security/Safety at stations
- Car parking/ taxis/bus services.

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The pro-forma for the Station is included in Appendix B. Findings and recommendations from the station audits are included in the development proposals in the following section.

5.2.1.4 Development Proposals and Estimated costs

Incorporated in these proposals are the findings and costs from the PTF Bid 2002 compiled by Colin Buchanan and Partners on behalf of Angus District Council

Montrose Station			
Item No.	Proposed Improvement	Estimated Cost	Cost Allocation
1.	Enhance lighting to platform, suggested 40-lux minimum.	20,000	C
2.	Provide adequate lighting to car park, bus stop, taxi stance and road entrance areas suggested 40-lux minimum.	8,000	D
3.	Enhance lighting to footbridge, suggested 100-150 lux minimum.	5,000	C
4.	Review current disabled access arrangements to Platform 2 (north bound). Currently accessed across tracks with assistance from staff.		
	Option a) Upgrade surfacing, reduce end ramps to 1 in 12 maximum, upgrade lighting to minimum 100 lux.	10,000	A
	Option b) Provide lifts and new footbridge to SRA Guidelines as proposed by Angus Council	500,000	B
5.	Provide CCTV coverage to platform, footbridge, station building, car park, roadway entrance, bus stance and taxi stance areas.	130,000	B
6.	Provide railway CIS (Customer Information System) to platforms, ticket office and booking hall areas.	90,000	C
7.	Provide local bus CIS to bus stance area. Link system with railway CIS.	Unknown	D
8.	Extend existing car park to provide 90 spaces (30 at present). Consider closing dock platform to assist with car park extension.	80,000	B
9.	Raise platform and entrance ground level around station building at public entrance to eliminate step at entrances. Change floor finish in canopy areas to slip resistant surface.	8,000	D
10.	Look to run more frequent train service both north and south (currently hourly to Glasgow and hourly to Edinburgh – 15 minutes apart).		

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11.	Provide litterbins on platforms, in buildings and in car park.	5,000	C
12.	Provide lockable cycle sheds on Platform 1.	6,000	D
13.	Provide additional seating on both platforms.	15,000	C
14.	Provide open feature fencing at rear of Platform 2 to allow view of bay.	5,000	C
15.	Provide new heated waiting room on Platform 2.	110,000	C
16.	Upgrade screening around electrical cabin at rear of Platform 2.	10,000	C
17.	Provide proper soft landscaping and tree/shrub planting along Platform 1, particularly to rear of Somerfield's retail unit.	25,000	C
18.	Upgrade floor/wall and ceiling finishes to public toilets and booking hall areas.	50,000	C
19.	Provide tactiles behind platform copes. Upgrade/replace copes to eliminate trip hazard.	60,000	A
20.	Check gauging of platforms. Upgrade as necessary.	230,000	A
21.	Consider general maintenance scheme for all stations to deal with soft landscaping, litterbin emptying, small localised painting and decoration and small handy man jobs.	30,000pa split	D
22.	Full redecoration of station required.	8,000	C
	Estimated Station Cost	£1,375,000	
	Station Cost Allocation		
A	Network Rail Backlog Investment		300,000
B	Existing funding applications/in hand		710,000
C	Tay Estuary Rail Study – PO3		343,000
D	Tay Estuary Rail Study – PO4		22,000

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5.2.2 Arbroath

5.2.2.1 Station Description

Arbroath Station is located at Keptie Street, 500 yards from the dual carriageway that forms part of the A92 Dundee to Aberdeen east coast main road.

The station was built in the early 1900s although more recent refurbishment to the main station building was carried out in 1997. The station is located on two levels with the upper level taking access from Keptie street and comprising the ticket office, passenger/ freight lifts, toilets and a disused retail unit. The lower level is accessed from Catherine Street and forms Platform No. 1 and platform No. 2. Platform No.2 is reached from the lower level by the footbridge.

On both platforms only the waiting rooms are in use and the remaining room spaces are unused. The goods yard adjacent to platform No 2 is no longer in use although possibilities exist for re development of this area. The unused ground adjacent to platform No.1 has already been identified for future car parking bays.

The platform lengths are recorded for the Up Platform 1 as 232 metres and for the Down Platform 2 as 230 metres. The station is manned from 05.30 hrs until 23.15 hrs

Location Data: OS Grid Ref:-N.S. 639,410; Engineers Line Reference:- ECN (East Coast North); and Site Mileage:- 16m 990 yds.

5.2.2.2 Station Train Departures

To assist understanding of existing train services at Arbroath Station overleaf are the departure times each way from the station.

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UP			DOWN		
Service	Arbroath		Service		
d	06:21	Glasgow (Queen St) - SC	d	07:12	Dyce - SC
d	06:43	Edinburgh (Waverly) - SC	d	07:27	Aberdeen - VT
d	07:29	Glasgow (Queen St) - SC	d	07:42	Dyce - SC
d	07:59	Glasgow (Queen St) - SC	d	08:40	Dyce - SC
d	08:14	Edinburgh (Waverly) - SC	d	09:19	Aberdeen - SC
d	08:27	Edinburgh (Waverly) - VT	d	09:43	Aberdeen - SC
d	08:50	London (Kings Cross) - GNER	d	10:19	Aberdeen - SC
d	09:11	Edinburgh (Waverly) - SC	d	10:38	Aberdeen - SC
d	09:31	Glasgow (Queen St) - SC	d	11:19	Aberdeen - SC
d	09:52	Edinburgh (Waverly) - SC	d	11:39	Aberdeen - SC
d	10:31	Glasgow (Queen St) - SC	d	12:01	Aberdeen - GNER
d	10:49	London (Kings Cross) - GNER	d	12:19	Aberdeen - SC
d	11:17	Edinburgh (Waverly) - SC	d	12:40	Dyce - SC
d	11:31	Glasgow (Queen St) - SC	d	13:19	Aberdeen - SC
d	12:15	Edinburgh (Waverly) - SC	d	13:38	Dyce - SC
d	12:31	Glasgow (Queen St) - SC	d	14:19	Aberdeen - SC
d	13:15	Edinburgh (Waverly) - SC	d	14:40	Aberdeen - SC
d	13:31	Glasgow (Queen St) - SC	d	15:19	Aberdeen - SC
d	14:15	Edinburgh (Waverly) - SC	d	15:38	Dyce - SC
d	14:31	Glasgow (Queen St) - SC	d	16:17	Aberdeen - SC
d	15:15	Edinburgh (Waverly) - SC	d	16:29	Aberdeen - GNER
d	15:31	Glasgow (Queen St) - SC	d	17:19	Aberdeen - SC
d	15:49	London (Kings Cross) - GNER	d	17:47	Dyce - SC
d	16:12	Edinburgh (Waverly) - SC	d	18:17	Aberdeen - SC
d	16:27	Glasgow (Queen St) - SC	d	18:30	Aberdeen - VT
d	17:12	Edinburgh (Waverly) - SC	d	18:39	Dyce - SC
d	17:30	Glasgow (Queen St) - SC	d	19:28	Aberdeen - SC
d	18:16	Edinburgh (Waverly) - SC	d	19:41	Dyce - SC
d	18:47	Glasgow (Queen St) - SC	d	20:04	Aberdeen - SC
d	19:19	London (Kings Cross) - GNER	d	20:16	Aberdeen - VT
d	19:30	Glasgow (Queen St) - SC	d	20:26	Aberdeen - SC
d	20:15	Edinburgh (Waverly) - SC	d	20:40	Aberdeen - SC
d	20:32	Glasgow (Queen St) - SC	d	21:19	Aberdeen - SC
d	21:31	Glasgow (Queen St) - SC	d	22:07	Aberdeen - GNER
d	21:52	Edinburgh (Waverly) - VT	d	22:27	Aberdeen - SC
d	22:14	Edinburgh (Waverly) - SC	d	23:17	Aberdeen - SC
d	23:05	Edinburgh (Waverly) - VT			
d	23:24	Glasgow (Queen St) - SC			

d = Departure time
GNER = Great North Eastern
 Railways Service
SC = Scotrail Service

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5.2.2.3 Station Audit

The station audit was carried out at Arbroath station on 3rd October 2002. The station audit addressed the following points:

- Quality of station environment
- Station facilities
- Information at platforms
- Pedestrian /wheelchair access
- Security/safety at stations
- Car parking/ taxis/ bus services

The pro-forma for the Station is included in Appendix B. Findings and recommendations from the station audits are included in the development proposals in the following section.

5.2.2.4 Development Proposals and Estimated costs

Incorporated in these proposals are the findings and costs from the PTF Bid 2002 compiled by Colin Buchanan and Partners on behalf of Angus District Council.

	Arbroath Station		
Item No.	Proposed Improvement	Estimated Cost	Cost Allocation
1.	Enhance lighting to platform suggested, 40 lux minimum (period light fittings).	25,000	C
2.	Provide adequate lighting to car park, bus stop, taxi stance and road entrance areas, suggested 40-lux minimum (period light fittings).	8,000	D
3.	Enhance lighting to footbridge, suggested 100-150 lux minimum (period light fittings).	3,000	C
4.	Review current disabled access to Platform 1. Change goods lift to passenger lift.	100,000	B
5.	Alter access to lift serving Platform 2 at booking hall level. Lift should access directly into booking hall.	50,000	C
6.	Provide CCTV coverage to platform, footbridge, station building, car park, roadway entrance, bus stance and taxi stance areas.	115,000	B
7.	Provide railway CIS (Customer Information System) to platforms, ticket office and booking hall areas.	90,000	C
8.	Provide local bus CIS to taxi/bus stop area. Link system with railway CIS.	Unknown	D
9.	Extend existing car park at side of Platform 1. This will involve possible purchases of ground from adjacent owner (currently 18 parking spaces).	80,000	B

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10.	Look to run more frequent train service both north and south (currently hourly to Glasgow and hourly to Edinburgh – 15 minutes apart).	Unknown	
11.	Provide litterbins on platforms, in buildings and car park.	8,000	C
12.	Provide lockable cycle sheds on Platform 1.	6,000	D
13.	Provide additional seating on both platforms.	15,000	C
14.	Fully upgrade booking hall floor, wall and ceiling finishes, alter entrance doors, and upgrade lifts.	100,000	C
15.	Upgrade waiting rooms to both platforms. Provide adequate heating.	7,500	C
16.	Upgrade public toilets off booking hall. Replan to enhance security.	50,000	C
17.	Remove overcladding of rear external walls to station building and footbridge. Reclad building sympathetically to historic building.	150,000	D
18.	Look to let space within large booking hall and adjacent entrance (serving lift to Platform 2).	Revenue	C
19.	Look to sell off all, or part of, vacant ground (former goods yard) for housing or other use.	Revenue	D
20.	Provide tactiles behind platform copes.	85,000	A
21.	Check gauging of platforms and regauge as necessary.	300,000	A
22.	Consider tying general maintenance scheme for all stations to deal with soft landscaping, litterbin emptying, small localised painting and decoration and small handy man jobs.	30,000pa split	D
23.	Full redecoration of station required.	20,000	C
	Total	£1,212,500	
	Station Cost Allocation		
A	Network Rail Backlog Investment		385,000
B	Existing funding applications/in hand		295,000
C	Tay Estuary Rail Study – PO3		368,500
D	Tay Estuary Rail Study – PO4		164,000

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5.2.3 Carnoustie

5.2.3.1 Station Description

This station is located on Station Road, Carnoustie. The main through road is Church Street, which is situated 300 yards from the station entrance. There are two flank platforms and access to Platform 2 northbound is via the steeply ramped area leading from Station road. Access to the southbound Platform 1 can be by the level crossing or over the local footbridge, although this does not provide wheelchair access. Both platforms have pre-fabricated shelters. The Carnoustie Signal Box is on and adjacent to the Up side of the level crossing.

The platform lengths are recorded for the Up Platform 1 as 154 metres and for the Down Platform 2 as 154 metres. The station is unmanned.

Location Data: OS Grid Ref:-N.S. 566,344; Engineers Line Reference:- ECN (East Coast North); and Site Mileage:- 10m 330 yds.

5.2.3.2 Station Audit

The station audit was carried out at Carnoustie station on 3rd October 2002. The station audit addressed the following points:

- Quality of station environment
- Station facilities
- Information at platforms
- Pedestrian /wheelchair access
- Security/safety at stations
- Car parking/ taxis/ bus services

The pro-forma for the Station is included in Appendix B. Findings and recommendations from the station audits are included in the development proposals in the following section.

5.2.3.3 Station Train Departures

To assist understanding of existing train services at Montrose Station overleaf are the departure times each way from the station.

UP Service Carnoustie			DOWN Service		
d	06:27	Glasgow (Queen St) - SC	d	07:05	Dyce - SC
d	06:50	Edinburgh (Waverly) - SC	d	07:35	Dyce - SC
d	07:36	Glasgow (Queen St) - SC	d	09:38	Aberdeen - SC
d	08:06	Glasgow (Queen St) - SC	d	11:12	Aberdeen - SC
d	08:21	Edinburgh (Waverly) - SC	d	12:12	Aberdeen - SC
d	09:38	Glasgow (Queen St) - SC	d	13:12	Aberdeen - SC
d	10:38	Glasgow (Queen St) - SC	d	15:12	Aberdeen - SC
d	11:38	Glasgow (Queen St) - SC	d	17:12	Aberdeen - SC
d	12:38	Glasgow (Queen St) - SC	d	17:40	Dyce - SC
d	14:38	Glasgow (Queen St) - SC	d	18:10	Aberdeen - SC
d	15:38	Glasgow (Queen St) - SC	a	19:10	Carnoustie - SC
d	17:19	Edinburgh (Waverly) - SC	d	19:21	Aberdeen - SC
d	18:54	Glasgow (Queen St) - SC	d	23:10	Aberdeen - SC
d	19:37	Glasgow (Queen St) - SC			

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5.2.3.4 Development Proposals and Estimated costs

Incorporated in these proposals are the findings and costs from the PTF Bid 2002 compiled by Colin Buchanan and Partners on behalf of Angus District Council

Carnoustie Station			
Item No.	Proposed Improvement	Estimated Cost	Cost Allocation
1.	Enhance lighting to platform, suggested 40-lux minimum.	20,000	C
2.	Provide adequate lighting to public car park, footbridge, level crossing area and public roadway at station entrances. Suggested 40-lux minimum, 150 lux to footbridge.	10,000	D
3.	Non-compliant ramp access to both platforms. Upgrade to maximum 1 in 12, preferably 1 in 20.	15,000	A
4.	Provide CCTV coverage to platforms, footbridge, level crossing, entrances and public car park.	110,000	B
5.	Provide railway CIS (Customer Information System) to platforms and entrances.	75,000	C
6.	Provide local bus CIS linked to railway system.		D
7.	Extend and upgrade existing public car park to sea front (Council owned).	80,000	B
8.	Look to run more frequent train service both north and south (currently hourly to Glasgow and hourly to Edinburgh – 15 minutes apart).	Unknown	
9.	Provide litterbins on platforms, in buildings and car park.	5,000	C
10.	Provide lockable cycle sheds on Platform 1.	6,000	D
11.	Provide additional seating on both platforms.	5,000	C
12.	Provide heated waiting room to Platform 1 (south bound).	110,000	B
13.	Provide disabled toilet to Platform 1.	75,000	B
14.	Provide waiting shelter to Platform 2.	75,000	C
15.	Provide proper soft landscaping to both platforms including trees and shrubs.	20,000	C
16.	Provide tactiles behind platform copes.	50,000	A
17.	Check gauging of platforms and upgrade as necessary.	200,000	A
18.	Consider general maintenance scheme for all stations to deal with soft landscaping, litter bin emptying, small localised painting and decoration and small handy man jobs.	30,000pa split	D
19.	Full redecoration of station required.	4,000	C
	Total	£860,000	
	Station Cost Allocation		

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A	Network Rail Backlog Investment		265,000
B	Existing funding applications/in hand		375,000
C	Tay Estuary Rail Study – PO3		204,000
D	Tay Estuary Rail Study – PO4		16,000

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5.2.4 Golf Street

5.2.4.1 Station Description

Golf Street Station is located on Taymouth Street, Carnoustie. The main through road is Dundee Street, which is situated 500 yards from the station entrance.

Access to the northbound platform is via the access gate leading from Taymouth Street. Access to the southbound platform is by the level crossing or over the footbridge, although this does not provide wheelchair access. Both platforms are of wood construction and a small shelter suitable for four persons is on the northbound platform.

The platform lengths are recorded for the Up Platform 1 as 66metres and for the Down Platform 2 as 66 metres. The station is unmanned.

Location Data: OS Grid Ref:-N.S. 558,342: Engineers Line Reference:- ECN (East Coast North); Site Mileage:- 9m 700 yds.

5.2.4.2 Station Audit

The station audit was carried out at Golf street station on 3rd October 2002. The station audit addressed the following points:

- Quality of station environment
- Station facilities
- Information at platforms
- Pedestrian /wheelchair access
- Security/safety at stations
- Car parking/ taxis/ bus services

The pro-forma for the Station is included in Appendix B. Findings and recommendations from the station audits are included in the development proposals in the following section.

5.2.4.3 Station Train Departures

To assist understanding of existing train services at Golf Street Station overleaf are the departure times each way from the station.

UP Services			Golf Street		DOWN Services
d	06:52	Edinburgh (Waverley) - SC	d	19:08	Carnoustie - SC

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5.2.4.4 Development Proposals and Estimated costs

Incorporated in these proposals are the findings and costs from the PTF Bid 2002 compiled by Colin Buchanan and Partners on behalf of Angus District Council.

Golf Street Station			
Item No.	Proposed Improvement	Estimated Cost	Cost Allocation
1.	This station has timber platforms of inadequate length. The platforms, footbridge and access ways are in poor condition. Rebuild and improve access.	500,000	
2.	Only one train stops per day north bound and one train south bound. Unless significant additional trains stop at this station, particularly at peak time, it is not recommended that this station be upgraded.		
3.	To fully rebuild station platforms and footbridge	£2,000,000	C
	Total	£2,000,000	
	Station Cost Allocation		
A	Network Rail Backlog Investment		0
B	Existing funding applications/in hand		0
C	Tay Estuary Rail Study – PO3		2,000,000
D	Tay Estuary Rail Study – PO4		0

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5.2.5 Barry Links

5.2.5.1 Station Description

This station is located on Station Road, Barry Links, nr Carnoustie. The main through road is Barry road, which is situated 1500 yards from the station entrance.

Access to the northbound platform is via the access gate leading from Station Road. Access to the southbound platform can be by the level crossing or over the local footbridge although this does not provide wheelchair access. Both platforms have pre-fabricated shelters.

The platform lengths are recorded for the Up Platform 1 as 242 metres and for the Down Platform 2 as 176 metres. The station is unmanned.

Location Data: OS Grid Ref:-N.S. 543,337; Engineers Line Reference:- ECN (East Coast North); Site Mileage:- 8m 1474 yds.

5.2.5.2 Station Audit

The station audit was carried out at Barry Links station on 3rd October 2002. The station audit addressed the following points:

- Quality of station environment
- Station facilities
- Information at platforms
- Pedestrian /wheelchair access
- Security/safety at stations
- Car parking/ taxis/ bus services

The pro-forma for the Station is included in Appendix B and findings and recommendations from the station audits are included in the development proposals in the following section.

5.2.5.3 Station Train Departures

To assist understanding of existing train services at Barry Links Station here below is the departure times each way from the station.

UP Services				DOWN Services			
Barry Links	d	06:54	Edinburgh (Waverley) - SC	Barry Links	d	19:06	Carnoustie - SC

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5.2.5.4 Development Proposals and Estimated costs

	Barry Links Station		
Item No.	Proposed Improvement	Estimated Cost	Cost Allocation
1.	The footbridge has no non-slip surfacing and the open treads are dangerous. The footbridge should be brought up to standard immediately on grounds of safety. To fully refurbish.	100,000	A
2.	Only one train stops per day north bound and one train south bound. Unless significant additional trains stop at this station, particularly at peak time, it is not recommended that this station be upgraded.		
	Total	£100,000	
	Station Cost Allocation		
A	Network Rail Backlog Investment		£100,000
B	Existing funding applications/in hand		£0
C	Tay Estuary Rail Study – PO3		£0
D	Tay Estuary Rail Study – PO4		£0

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5.2.6 Monifieth

5.2.6.1 Station Description

This station is located on Union Street, Monifieth. The main through road is Ferry Road, which is situated 300 yards from the station entrance.

Access to the northbound platform is via the ramped area leading from Union Street. Access to the southbound platform can be by the underpass or over the local footbridge although this does not provide wheelchair access. Both platforms have pre-fabricated shelters.

The platform lengths are recorded for the Up Platform 1 as 137metres and for the Down Platform 2 as 137 metres. The station is unmanned.

Location Data: OS Grid Ref:-N.S. 515,322; Engineers Line Reference:- ECN (East Coast North): Site Mileage:- 5m 1584 yds.

5.2.6.2 Station Audit

The station audit was carried out at Monifieth station on 3rd October 2002. The station audit addressed the following points:

- Quality of station environment
- Station facilities
- Information at platforms
- Pedestrian /wheelchair access
- Security/safety at stations
- Car parking/ taxis/ bus services

The pro-forma for the Station is included in Appendix B. Findings and recommendations from the station audits are included in the development proposals in the following section.

5.2.6.3 Station Train Departures

To assist understanding of existing train services at Monifieth Station overleaf are the departure times each way from the station with highlighted services.

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UP Services			DOWN Services		
		Monifieth			
d	06:33	Glasgow (Queen St) - SC	d	19:02	Carnoustie - SC
d	06:59	Edinburgh (Waverley) - SC			

5.2.6.4 Development Proposals and Estimated costs

Incorporated in these proposals are the findings and costs from the PTF Bid 2002 compiled by Colin Buchanan and Partners on behalf of Angus District Council.

Monifieth Station			
Item No.	Proposed Improvement	Estimated Cost	Cost Allocation
1.	This station, despite being located in a town with commuting potential to Dundee, has only two train stops south bound and one train stop northbound.		
2.	Enhance lighting to platform, suggested 40-lux minimum.	20,000	C
3.	Provide adequate lighting to car park and station entrances, 40-lux minimum.	10,000	D
4.	Provide adequate lighting to car park, bus stop, taxi stance and road entrance areas, suggested 40-lux minimum.	10,000	D
5.	Disabled access is merely adequate at present. User figures would have to significantly increase before a lift and new footbridge could be justified.		
6.	Provide CCTV coverage to platforms, footbridge, car park and roadway entrances.	110,000	C
7.	Provide CIS to platforms and entrances.	90,000	C
8.	Provide local bus CIS linked to railway system.		D
9.	Provide litterbins on platforms, in buildings and car park.	5,000	C
10.	Provide lockable cycle sheds on Platform 1.	6,000	D
11.	Provide additional seating on both platforms.	5,000	C
12.	Provide new heated waiting room and disabled toilet on Platform 1 (remove existing shelter).	110,000	C
13.	Provide soft landscaping to both platforms including trees and shrubs.	20,000	D
14.	Repair work and handrails required to disabled ramp to Platform 1.	5,000	A

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15.	Provide handrails to footbridge.	5,000	A
16.	Provide new car park on opposite side of Union Street on waste ground.	80,000	D
17.	Install tactiles to both platforms and upgrade/repair copes to eliminate trip hazards.	50,000	A
18.	Check platform gauge and regauge if necessary.	200,000	A
19.	Consider tying general maintenance scheme for all stations to deal with soft landscaping, litterbin emptying, small localised painting and decoration and small handy man jobs.	30,000pa split	D
20.	General full redecoration scheme required to station.	2,000	C
	Total	£718,000	
	Station Cost Allocation		
A	Network Rail Backlog Investment		260,000
B	Existing funding applications/in hand		0
C	Tay Estuary Rail Study – PO3		342,000
D	Tay Estuary Rail Study – PO4		116,000

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5.2.7 Balmossie

5.2.7.1 Station Description

The station is located on South Balmossie Street, Monifieth. The main through road is Dalhousie Road, which is situated 150 yards from the station entrance.

Access to the northbound platform is via the access gate leading from Union Street. Access to the southbound platform can be by the local footbridge, which does provide wheelchair access although not to DDA standard. The southbound platform has an un-heated pre-fabricated shelter.

The platform lengths are recorded for the Up Platform 1 as 55 metres and for the Down Platform 2 as 55 metres. The station is unmanned.

Location Data: OS Grid Ref:-N.S. 485,317; Engineers Line Reference:- ECN (East Coast North): Site Mileage:- 5m 0 yds.

5.2.7.2 Station Audit

The station audit was carried out at Monifieth station on 3rd October 2002. The station audit addressed the following points:

- Quality of station environment
- Station facilities
- Information at platforms
- Pedestrian /wheelchair access
- Security/safety at stations
- Car parking/ taxis/ bus services

The pro-forma for the Station is included in Appendix B. Findings and recommendations from the station audits are included in the development proposals in the following section.

5.2.7.3 Station Train Departures

To assist understanding of existing train services at Balmossie Station here below is the departure times each way from the station.

UP Services				DOWN Services			
Balmossie	d	07:02	Edinburgh (Waverley) - SC	Balmossie	d	18:59	Carnoustie - SC

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5.2.7.4 Development Proposals and Estimated costs

	Balmossie Station		
Item No.	Proposed Improvement	Estimated Cost	Cost Allocation
1.	Despite being located in a town with commuting potential to Dundee, only one train stops south bound and one train stop north bound. Significant improvement in frequency is essential, particularly during peak hours; otherwise, upgrading works serve no purpose.		
2.	This station has timber platforms of inadequate length. These platforms and lighting columns are in poor condition. Rebuild.	500,000	
3.	The footbridge is a continuous ramp at a very steep gradient. This is dangerous and should be either removed or replaced with a compliant bridge/ramp.		
4.	A full new station is required.	2,000,000	C
	Total	£2,000,000	
	Station Cost Allocation		
A	Network Rail Backlog Investment		0
B	Existing funding applications/in hand		0
C	Tay Estuary Rail Study – PO3		2,000,000
D	Tay Estuary Rail Study – PO4		0

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5.2.8 Broughty Ferry

5.2.8.1 Station Description

This station is located on Gray Street, Broughty Ferry. The main through road is Queen Street, which is situated 100 yards from the station entrance.

Access to the northbound platform is via the ramped area leading from Grey Street. Access to the southbound platform can be by the underpass or over the local level crossing although this does not provide wheelchair access.

Both platforms have waiting shelters. Recent renovation of the existing buildings has improved both the facilities and overall appearance of the station.

The platform lengths are recorded for the Up Platform 1 as = 215 metres and for the Down Platform 2 as = 215 metres. The station is unmanned.

Location Data: OS Grid Ref:-N.S. 462,309; Engineers Line Reference:- ECN (East Coast North); Site Mileage:- 3m 380 yards.

5.2.8.2 Station Audit

The station audit was carried out at Broughty Ferry station on 4th October 2002. The station audit addressed the following points:

- Quality of station environment
- Station facilities
- Information at platforms
- Pedestrian /wheelchair access
- Security/safety at stations
- Car parking/ taxis/ bus services

The pro-forma for the Station is included in Appendix B. Findings and recommendations from the station audits are included in the development proposals in the following section.

5.2.8.3 Station Train Departures

To assist understanding of existing train services at Broughty Ferry Station here below is the departure times each way from the station.

UP Services			DOWN Services		
	Broughty Ferry				
	d 06:37	Glasgow (Queen St) - SC	Broughty Ferry	d 17:33	Dyce - SC
	d 07:06	Edinburgh (Waverley) - SC		d 18:56	Carnoustie - SC
	d 10:44	Glasgow (Queen St) - SC			

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5.2.8.4 Development Proposals and Estimated costs

Broughty Ferry Station			
Item No.	Proposed Improvement	Estimated Cost	Cost Allocation
1.	This station has been refurbished recently following extensive alterations.		
2.	Only three trains travelling southbound and two trains travelling north bound stop per day. This must be significantly increased otherwise upgrading works serve no purpose.		
3.	Provide heated waiting room and disabled toilet on Platform 1.	180,000	C
4.	Provide additional shelter on Platform 2.	70,000	C
5.	Contribution toward improved grade separated pedestrian crossing facility	100,000	C
6.	Upgrading of lighting to access ways and underpass required 100-150 lux.	10,000	C
7.	Provide CCTV coverage to platforms, underpass and entrances.	120,000	C
8.	Provide railway CIS to platforms and entrances.	90,000	C
9.	Provide bus CIS to entrances linked to railway CIS.		D
10.	Provide litter bins on platforms, in buildings and car park.	5,000	C
11.	Provide lockable cycle sheds on Platform 1.	6,000	D
12.	Provide additional seating on both platforms.	5,000	C
13.	Provide enhanced landscaping to both platforms including trees and shrubs.	15,000	C
14.	Provide bird mesh and guards to existing canopy on Platform 1 to prevent pigeons perching on ledges.	10,000	C
15.	Look to let floor space within disused station building.	Revenue	C
16.	Provide tactiles behind copes.	70,000	A
17.	Check gauging of platforms and regauge as necessary.	230,000	A
18.	Consider tying general maintenance scheme for all stations to deal with soft landscaping, litter bin emptying, small localised painting and decoration and small handy man jobs.	30,000pa split	D
19.	Full redecoration of station required.	4,000	C
	Total	£915,000	
	Station Cost Allocation		
A	Network Rail Backlog Investment		300,000
B	Existing funding applications/in hand		0
C	Tay Estuary Rail Study – PO3		609,000
D	Tay Estuary Rail Study – PO4		6,000

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5.2.9 Dundee

5.2.9.1 Station Description

Dundee Station is located at the east end of Riverside Drive adjacent to the A92 Dundee to Aberdeen east coast main road.

The station was built in the early 1900s although more recent refurbishment to the main station building was carried out in the 1990s. This station is located on two levels.

The upper level (main building) with access from Riverview Drive forms the ticket office, passenger/ freight lifts and a retail unit. The lower level is accessed by the stairs or passenger lift and forms an island platform with the 4 No platforms provided being accessed from the same level.

Platform No.1 and No.4 run the full length of the island platform. Platforms No.2 and No.3 are dock platforms, which are located at the south end of the station.

At the north end of the platforms is the station concourse building. This comprises a heated waiting area, a refreshment kiosk, a public bar and the platform information display board. There are further waiting rooms and public toilets between platform No.1 and No.4.

A 300m long covered walkway links the station to Union Street shopping area, although there is no wheelchair access to this walkway. The nearest car parking is a council run pay and display and is situated adjacent to the main station building.

The station is manned from 05.00 hrs until 01.00 hrs.

The Platform lengths are: No 1 - 362 metres (No 2) 198 metres
(No 3) 123 metres (No 4) 316 metres

Location Data: OS Grid Ref:-N.S. 403,298; Engineers Line Reference:- ECN (East Coast North); Site Mileage:- 59m 308 yds.

5.2.9.2 Station Audit

The station audit was carried out at Dundee station on 4th October 2002. The station audit addressed the following points:

- Quality of station environment
- Station facilities
- Information at platforms
- Pedestrian /wheelchair access
- Security/safety at stations
- Car parking/ taxis/ bus services

The pro-forma for the Station is included in Appendix B. Findings and recommendations from the station audits are included in the development proposals in the following section.

5.2.9.3 Station Train Departures

To assist understanding of existing train services at Dundee Station here overleaf are the departure times each way from the station.

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UP Service Dundee			DOWN Service		
d	06:00	Edinburgh (Waverley) - VT	d	06:53	Dyce - SC
d	06:20	Edinburgh (Waverly) - SC	d	07:11	Aberdeen - VT
d	06:43	Edinburgh (Waverley) - VT	d	07:23	Dyce - SC
d	06:50	Glasgow (Queen St) - SC	a	08:30	Dundee - SC
d	07:18	Edinburgh (Waverly) - SC	d	08:24	Dyce - SC
d	07:51	Glasgow (Queen St) - SC	d	09:02	Aberdeen - SC
d	08:00	Edinburgh (Waverly) - SC	d	09:24	Aberdeen - SC
d	08:10	Edinburgh (Waverley) - VT	d	10:02	Aberdeen - SC
d	08:20	Glasgow (Queen St) - SC	d	10:22	Aberdeen - SC
d	08:32	Edinburgh (Waverly) - SC	d	11:02	Aberdeen - SC
d	08:45	Edinburgh (Waverley) - VT	a	11:23	Dundee - VT
d	09:07	London (Kings Cross) - GNER	d	11:24	Aberdeen - SC
d	09:29	Edinburgh (Waverly) - SC	d	11:44	Aberdeen - GNER
d	09:51	Glasgow (Queen St) - SC	d	12:02	Aberdeen - SC
d	10:09	Edinburgh (Waverly) - SC	d	12:24	Dyce - SC
d	10:51	Glasgow (Queen St) - SC	d	13:02	Aberdeen - SC
d	11:06	London (Kings Cross) - GNER	a	13:19	Dundee - VT
d	11:32	Edinburgh (Waverly) - SC	d	13:25	Dyce - SC
d	11:51	Glasgow (Queen St) - SC	d	14:02	Aberdeen - SC
d	12:10	Edinburgh (Waverley) - VT	d	14:24	Aberdeen - SC
d	12:31	Edinburgh (Waverly) - SC	d	15:02	Aberdeen - SC
d	12:51	Glasgow (Queen St) - SC	a	15:23	Dundee - VT
d	13:32	Edinburgh (Waverly) - SC	d	15:24	Dyce - SC
d	13:51	Glasgow (Queen St) - SC	d	16:01	Aberdeen - SC
d	14:10	Edinburgh (Waverley) - VT	d	16:12	Aberdeen - GNER
d	14:31	Edinburgh (Waverly) - SC	d	17:01	Aberdeen - SC
d	14:51	Glasgow (Queen St) - SC	a	17:22	Dundee - VT
d	15:32	Edinburgh (Waverly) - SC	d	17:25	Dyce - SC
d	15:51	Glasgow (Queen St) - SC	d	17:58	Aberdeen - SC
d	16:06	London (Kings Cross) - GNER	d	18:14	Aberdeen - VT
d	16:15	Edinburgh (Waverley) - VT	d	18:22	Dyce - SC
d	16:29	Edinburgh (Waverly) - SC	d	18:50	Carnoustie - SC
d	16:46	Glasgow (Queen St) - SC	d	19:09	Aberdeen - SC
d	17:32	Edinburgh (Waverly) - SC	d	19:24	Dyce - SC
d	17:51	Glasgow (Queen St) - SC	d	19:47	Aberdeen - GNER
d	18:10	Edinburgh (Waverley) - VT	d	20:00	Aberdeen - VT
d	18:32	Edinburgh (Waverly) - SC	d	20:10	Aberdeen - SC
d	19:09	Glasgow (Queen St) - SC	d	20:24	Aberdeen - SC
d	19:36	London (Kings Cross) - GNER	d	21:02	Aberdeen - SC
d	19:51	Glasgow (Queen St) - SC	a	21:21	Dundee - VT
d	20:32	Edinburgh (Waverly) - SC	a	21:44	Dundee - SC
d	20:51	Glasgow (Queen St) - SC	d	21:50	Aberdeen - GNER
d	21:28	Edinburgh (Waverly) - SC	d	22:10	Aberdeen - SC
d	21:51	Glasgow (Queen St) - SC	a	22:54	Dundee - SC
d	22:16	Edinburgh (Waverley) - VT	d	22:59	Aberdeen - SC
d	22:28	Edinburgh (Waverly) - SC	a	00:04	Dundee - SC
d	23:22	Edinburgh (Waverley) - VT	a	00:36	Dundee - SC
d	23:43	Glasgow (Queen St) - SC			

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5.2.9.4 Development Proposals and Estimated costs

	Dundee Station		
Item No.	Proposed Improvement	Estimated Cost	Cost Allocation
1.	Enhance lighting to platforms, period style. Increase lux level above 100 lux to ensure ease of visibility out from waiting areas. Coloured up-lighters to canopy structure.	70,000	C
2.	Upgrade lighting to station entrances and car park areas.	40,000	D
3.	Upgrade lighting levels to walkway bridge to centre of Dundee (eliminate glare).	40,000	D
4.	Upgrade signage throughout station. Upgrade to DDA standards and provide foreign language sign guides either pictogram or translation.	30,000	C
5.	Provide CCTV coverage to all areas including car parks.	153,000	C
6.	Provide CIS link to local bus transportation.		D
7.	Provide litterbins on platforms, in buildings and car park.	6,000	A
8.	Provide lockable cycle sheds outside station entrance.	10,000	D
9.	Provide additional seating on both platforms.	8,000	C
10.	Upgrade cutting stone walls – consider full cleaning, overcladding, murals, lighting.	150,000	C
11.	Full refurbishment and replacement of floors, walls, ceilings, doors, windows, heating, and seating to all waiting rooms.	400,000	C
12.	Review train stop points to ensure visibility from main waiting room.		
13.	Upgrade all finishes to staircases from platform level to footbridge link to Dundee.	50,000	D
14.	Fully redecorate station incorporating period painting styles.	8,000	C
15.	Replace all platform doors and windows to period style elements with improved heat retention and U-values.	5,000	C
16.	Refurbishment of finishes to upper level booking hall and footbridge stair tower internally. Review height clearance to stair in centre of upper concourse.	200,000	C
17.	Consider full refurbishment of the building externally with modern style cladding systems to reflect modern, forward thinking city.	350,000	D
18.	Look to provide soft landscaping at Platforms 2 and 3 (planters adequate).	10,000	C
19.	Fully upgrade public toilets and provide proper private baby change areas.	100,000	C
20.	Provide tactiles behind all copes.	160,000	A
21.	Check platform gauge and regauge as necessary.	400,000	A
22.	Consider tying general maintenance scheme for all stations to deal with soft landscaping	30,000pa split	D

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	for all stations to deal with soft landscaping, litterbin emptying, small localised painting and decoration and handy man jobs.	split	
	Total	£2,190,000	
	Station Cost Allocation		
A	Network Rail Backlog Investment		566,000
B	Existing funding applications/in hand		0
C	Tay Estuary Rail Study – PO3		1,134,000
D	Tay Estuary Rail Study – PO4		490,000

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5.2.10 Dundee West

5.2.10.1 Station Description

There is no station at this location although present and future development of the area suggests that a new railway station is worthy of consideration.

The preferred location for the new station would be adjacent to Riverside Drive next to existing underbridge UB 134/005. This is located approximately 2m 1000yards from Dundee Station and is in a position that optimises the minimum distances to both Dundee Airport and the recently extended Ninewells Hospital. A plan outlining the proposed location is included in Appendix C.

The underbridge is considered a key benefit for pedestrian access to and from the station. There is a large number of residential housing within a 800m radius of the proposed station site. Similarly both Ninewells Hospital and Dundee Airport are estimated to be 800m from the proposed station site.

Road access to the proposed station location would be via the A85 Riverside Drive. This route is well connected to both city centre route and the access routes to the west of Dundee. It is considered that land availability for car parking between Riverside Drive and the railway would not be practical however parking facilities could be provided on land on the opposite side of Riverside Drive. Confirmation will be required with land owners as to the feasibility of this proposal.

5.2.10.2 Infrastructure Issues

From a review of signalling plans for this section of route there would appear to be no conflicts associated with the proposed station location.

The local trackside area has been subjected to rock stabilisation works on behalf of Network Rail, this should be considered when deciding on the final location of the new station.

5.2.10.3 Station Facilities Requirements

It is considered that the station at Dundee West will be unstaffed given the likely passenger throughput and corresponding station facilities required.

The new station will have to comply fully with the requirements of the Disability Discrimination Act 1995 and all appropriate industry standards. This includes Railway Group Standards, Network Rail Line Standards and SRA Code of Practice on Disabled Access.

As a minimum the new station would be required to provide the following facilities;

- 2 No. Platforms of 80m nominal length
- DDA compliant access between platforms (i.e. DDA compliant footbridge)
- Clocks (visible from each platform)
- Real time information (either CIS screens or Long Line Public Address)
- Public pay-phone (within station boundary or no further than 10m from station entrance)
- CCTV
- Passenger help-point
- Station signing
- Sheltered accommodation on platforms with integral seating
- Platform lighting (minimum 40 lux)
- Stair, ramps and footbridge lighting (minimum 150 lux)

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Further it is considered that the new station should have a minimum of 50 No. car parking spaces. Lockable cycle sheds would also be desirable.

5.2.10.4 Estimated costs

Taking account of the above and benchmark costs for similar new stations it is considered that the new station at Dundee West would cost £2m.

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5.2.11 Invergowrie

5.2.11.1 Station Description

This station is located on Bayview Road, Invergowrie. The main through road is Riverview Avenue, which is situated 500 yards from the station entrance.

Access to the northbound platform is via the access gate from Bayview Road. Access to the southbound platform is by the footbridge although this does not provide wheelchair access. Both platforms have waiting shelters. Recent renovation of the station entrance gates has improved the appearance of the station but deficiencies remain

The platform lengths are recorded for the Up Platform 1 as = 64 metres and for the Down Platform 2 as = 70 metres. The station is unmanned.

Location Data: OS Grid Ref:-N.S. 349,299; Engineers Line Reference:- SCM (Scottish Central Main): Site Mileage:- 3m 1100 yards.

5.2.11.2 Station Audit

The station audit was carried out at Invergowrie Station on 4th October 2002. The station audit addressed the following points:

- Quality of station environment
- Station facilities
- Information at platforms
- Pedestrian /wheelchair access
- Security/safety at stations
- Car parking/ taxis/ bus services

The pro-forma for the Station is included in Appendix B. Findings and recommendations from the station audits are included in the development proposals in the following section.

5.2.11.3 Station Train Departures

To assist understanding of existing train services at Invergowrie Station here below is the departure times each way from the station.

UP Services			Invergowrie	DOWN Services		
	d	08:48	Dundee - SC	d	08:18	Glasgow (Queen St) - SC
	d	16:52	Aberdeen - SC	d	20:03	Glasgow (Queen St) - SC
	d	22:49	Aberdeen - SC	d	22:04	Perth - SC

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5.2.11.4 Development Proposals and Estimated costs

	Invergowrie Station		
Item No.	Proposed Improvement	Estimated Cost	Cost Allocation
1.	Only three trains stop per day north bound and three trains south bound. Unless significant additional trains stop at this station, particularly during peak hours, upgrading works serve no useful purpose.		
2.	Upgrade lighting to both platforms and entrances.	25,000	C
3.	Upgrade surfacing at all entrances.	5,000	D
4.	Provide tactiles behind copes and upgrade/refurbish copes to eliminate trip hazards. Resurface platforms completely.	60,000	A
5.	Check platform gauge and regauge if necessary.	230,000	A
6.	Provide CCTV coverage to platforms, footbridge and entrances.	120,000	C
7.	Provide railway CIS to platforms and entrances.	90,000	C
8.	Replace footbridge with DDA compliant footbridge.	250,000	C
9.	Provide litterbins on platforms and at entrances.	5,000	A
10.	Provide lockable cycle sheds to Platform 2.	6,000	D
11.	Provide additional seating on platforms.	5,000	C
12.	Provide new waiting room and disabled toilet to Platform 2 and waiting shelter to Platform 1.	250,000	C
13.	Upgrade soft landscaping and fencing around station.	15,000	D
14.	Consider tying general maintenance scheme for all stations to deal with soft landscaping, litterbin emptying, small localised painting and decoration and small handy man jobs.	30,000pa split	D
15.	Full redecoration of station required.	2,000	C
	Total	£1,063,000	
	Station Cost Allocation		
A	Network Rail Backlog Investment		290,000
B	Existing funding applications/in hand		0
C	Tay Estuary Rail Study – PO3		747,000
D	Tay Estuary Rail Study – PO4		26,000

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5.2.12 Perth

5.2.12.1 Station Description

Perth Station is located at Station Square, Leonard Street, Perth. The station is 700 yards from Glasgow Road, which is the main through road linking Perth with the A9.

The station was built in the early 1890s although more recent refurbishment to platform No. 1 and platform No. 2 was carried out in 2002. This station is located on one level although a series of footbridges, lifts and underpasses connect the seven platforms.

The main entrance off station square leads to the station concourse housing the ticket office, refreshment kiosk, public bar/café, toilets, and platform information display board. There are further heated waiting rooms at platform No.1 No.2 and No.4.

The nearest car parking is in the Scotrail car park and is situated outside the station entrance. Further Council-run pay and display car parking is available at the Glasgow road entrance to the rear of the station.

Platform lengths- Platform (No 1) 219 metres
(No 2) 181 metres
(No 3) 122 metres
(No 4) 473 metres
(No 5) 200 metres
(No 6) 172 metres
(No 7) 433 metres

The station is manned from 05.00 hrs until 01.00 hrs.

Location Data: OS Grid Ref:-N.S. 113,230; Engineers Line Reference:- SCM (Scottish Central Main) ; Site Mileage:- 20m 1406 yds.

5.2.12.2 Station Audit

The station audit was carried out at Perth Station on 15th October 2002. The station audit addressed the following points:

- Quality of station environment
- Station facilities
- Information at platforms
- Pedestrian /wheelchair access
- Security/safety at stations
- Car parking/ taxis/ bus services

The pro-forma for the Station is included in Appendix B. Findings and recommendations from the station audits are included in the development proposals in the following section.

5.2.12.3 Station Train Departures

To assist understanding of existing train services at Perth Station here overleaf are the departure times each way from the station.

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UP Service Perth			DOWN Service		
d	07:05	Edinburgh (Waverley) - SC	d	06:30	Dyce - SC
d	07:15	Glasgow (Queen St) - SC	d	07:01	Dyce - SC
d	08:12	Glasgow (Queen St) - SC	d	08:00	Dundee - SC
d	08:42	Glasgow (Queen St) - SC	d	08:40	Aberdeen - SC
d	10:13	Glasgow (Queen St) - SC	d	09:40	Aberdeen - SC
d	11:13	Glasgow (Queen St) - SC	d	10:40	Aberdeen - SC
d	12:13	Glasgow (Queen St) - SC	d	11:40	Aberdeen - SC
d	12:49	Edinburgh (Waverley) - SC	d	12:40	Aberdeen - SC
d	13:13	Glasgow (Queen St) - SC	d	13:40	Aberdeen - SC
d	14:13	Glasgow (Queen St) - SC	d	14:40	Aberdeen - SC
d	14:47	Edinburgh (Waverley) - SC	d	15:39	Aberdeen - SC
d	15:13	Glasgow (Queen St) - SC	d	16:40	Aberdeen - SC
d	16:13	Glasgow (Queen St) - SC	d	17:36	Aberdeen - SC
d	16:55	Edinburgh (Waverley) - SC	d	18:47	Aberdeen - SC
d	17:10	Glasgow (Queen St) - SC	d	19:46	Aberdeen - SC
d	18:13	Glasgow (Queen St) - SC	d	20:40	Aberdeen - SC
d	19:10	Edinburgh (Waverley) - SC	d	21:46	Aberdeen - SC
d	19:30	Glasgow (Queen St) - SC	d	22:38	Aberdeen - SC
d	20:13	Glasgow (Queen St) - SC			
d	20:54	Edinburgh (Waverley) - SC			
d	21:13	Glasgow (Queen St) - SC			
d	22:13	Glasgow (Queen St) - SC			
d	00:06	Glasgow (Queen St) - SC			

5.2.12.4 Development Proposals and Estimated costs

Perth Station			
Item No.	Proposed Improvement	Estimated Cost	Cost Allocation
1.	The main building between platforms 4 and 5/6 is predominantly empty. There is extensive ground to the west of Platform 7. A feasibility study, in conjunction with the Local Enterprise Board and the Planning Department, should be actioned to ascertain if an alternative usage could be found for this building and vacant land. Access could be a problem.	Revenue	
2.	Reglazing of glazed canopy to Platforms 5, 6 and 7 including structural canopy repairs and repainting.	500,000	A
3.	Reinstate glazed canopy roof and fully repair/refurbish canopy to Platforms 3 and 4.	2,000,000	A
4.	Upgrade ramp accesses to Platforms 1, 2, 3 and 4 to be fully DDA compliant.	750,000	C
5.	Upgrade footbridge crossings and lifts to Platforms 3 and 4.	400,000	C
6.	Provide new heated waiting rooms and public toilets in a historic building style to Platforms 1,	500,000	C

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	2, 3 and 4 (consider using existing buildings on Platform 4).		
7.	Enhance lighting to full station, minimum 40 lux on platforms, 150 lux on stairs, ramps, bridges, etc. Period style lighting to be used.	90,000	C
8.	Refurbish main station entrance, booking hall, ticket office and shop situated between Platforms 2 and 3. Refurbish in period style.	500,000	C
9.	Refurbish glazed timber walkway between Platforms 2 and 3.	200,000	C
10.	Provide CCTV coverage to all platforms, footbridges, station buildings, entrances, taxi rank and car park.	240,000	C
11.	Provide enhanced CIS (Customer Information System) to cover full station. (Limited installation at present due to size and usage of station)	120,000	C
12.	Provide local bus CIS to bus stance area. Link system with railway CIS.	Unknown	D
13.	Provide litterbins on platforms, in buildings and in car park.	10,000	C
14.	Provide lockable cycle sheds in position to be agreed.	6,000	D
15.	Provide additional seating on all platforms.	25,000	C
16.	Upgrade station signage from street accesses through to all areas. Consider foreign language signage.	25,000	D
17.	Provide tactiles behind platform copes. Upgrade/replace copes to eliminate trip hazard. Resurface platforms.	190,000	A
18.	Check gauging of platforms. Upgrade as necessary.	1,500,000	A
19.	Consider tying general ongoing maintenance scheme for all stations to deal with soft landscaping, litter bin emptying, small localised painting and	30,000/yr	D
	decoration and small handyman jobs.	Split cost	
20	Full decoration of station required.	40,000	C
	Total	£7,096,000	
	Station Cost Allocation		
A	Network Rail Backlog Investment		4,190,000
B	Existing funding applications/in hand		0
C	Tay Estuary Rail Study – PO3		2,875,000
D	Tay Estuary Rail Study – PO4		31,000

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5.3 The North South Axis Stations

5.3.1 Leuchars

5.3.1.1 Station Description

This station is located on Station Road Leuchars. Access to the island platform, serving both northbound and southbound trains is by the footbridge. This is suitable for wheelchair access. A heated waiting room and fully serviced toilets serve the platforms. Recent renovation of the existing buildings has improved the appearance of the station.

The station is manned and its opening times are 05.30 until 24.00

Platform lengths Down = 287 metres Up = 209 metres

Location Data: OS Grid Ref:-N.S. 449,207; Engineers Line Reference:- ECN (East Coast North); Site Mileage:- 50m 1496 yards.

5.3.1.2 Station Audit

The station audit was carried out at Leuchars Station on 10th October 2002. The station audit addressed the following points:

- Quality of station environment
- Station facilities
- Information at platforms
- Pedestrian /wheelchair access
- Security/safety at stations
- Car parking/ taxis/ bus services

The pro-forma for the Station is included in Appendix B. Findings and recommendations from the station audits are included in the development proposals in the following section.

5.3.1.3 Station Train Departures

To assist understanding of existing train services at Leuchars Station overleaf are the departure times each way from the station.

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UP Services Leuchars			Down Services	
d	06:13	Edinburgh (Waverley) - VT	06:56	Aberdeen - VT
d	06:32	Edinburgh (Waverley) - SC	08:11	Dyce - SC
d	06:56	Edinburgh (Waverley) - VT	09:10	Aberdeen - SC
d	07:30	Edinburgh (Waverley) - SC	10:09	Aberdeen - SC
d	08:12	Edinburgh (Waverley) - SC	11:04	Dundee - VT
d	08:23	Edinburgh (Waverley) - VT	11:11	Aberdeen - SC
d	08:44	Edinburgh (Waverley) - SC	11:27	Aberdeen - GNER
d	08:58	Edinburgh (Waverley) - VT	12:11	Dyce - SC
d	09:21	London (Kings Cross) - GNER	13:00	Dundee - VT
d	09:41	Edinburgh (Waverley) - SC	13:11	Dyce - SC
d	10:23	Edinburgh (Waverley) - SC	14:11	Aberdeen - SC
d	11:20	London (Kings Cross) - GNER	15:04	Dundee - VT
d	11:44	Edinburgh (Waverley) - SC	15:11	Dyce - SC
d	12:23	Edinburgh (Waverley) - VT	15:58	Aberdeen - GNER
d	12:43	Edinburgh (Waverley) - SC	17:03	Dundee - VT
d	13:44	Edinburgh (Waverley) - SC	17:13	Dyce - SC
d	14:23	Edinburgh (Waverley) - VT	18:01	Aberdeen - VT
d	14:43	Edinburgh (Waverley) - SC	18:08	Dyce - SC
d	15:44	Edinburgh (Waverley) - SC	18:33	Carnoustie - SC
d	16:20	London (Kings Cross) - GNER	19:11	Dyce - SC
d	16:29	Edinburgh (Waverley) - VT	19:33	Aberdeen - GNER
d	16:41	Edinburgh (Waverley) - SC	19:46	Aberdeen - VT
d	17:44	Edinburgh (Waverley) - SC	20:13	Aberdeen - SC
d	18:23	Edinburgh (Waverley) - VT	21:01	Dundee - VT
d	18:44	Edinburgh (Waverley) - SC	21:30	Dundee - SC
d	19:49	London (Kings Cross) - GNER	21:36	Aberdeen - GNER
d	20:44	Edinburgh (Waverley) - SC	22:40	Dundee - SC
d	21:40	Edinburgh (Waverley) - SC	23:49	Dundee - SC
d	22:29	Edinburgh (Waverley) - VT	00:22	Dundee - SC
d	22:40	Edinburgh (Waverley) - SC		
d	23:35	Edinburgh (Waverley) - VT		

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5.3.1.4 Development Proposals and Estimated costs

	Leuchars Station		
Item No.	Proposed Improvement	Estimated Cost	Cost Allocation
1.	Enhance lighting to platform, station building and entrance, 40 lux minimum.	25,000	C
2.	Enhance lighting to footbridge, 150 lux.	10,000	C
3.	Enhance lighting to car park, 40 lux.	10,000	D
4.	Provide CCTV coverage to platforms, footbridge, car park and roadway entrances.	130,000	B
5.	Provide CIS to platforms and entrances.	90,000	B
6.	Provide local bus CIS linked to railway system.	unknown	D
7.	Provide litter bins on platforms, in buildings and car park.	5,000	C
8.	Provide lockable cycle sheds on Platform 1.	6,000	D
9.	Provide additional seating on both platforms.	5,000	C
10.	Consider alternative use for unused station rooms.	revenue	
11.	Look to increase size of car park on adjacent vacant ground on opposite side of road entrance (additional 50 spaces).	80,000	D
12.	Consider tying general ongoing maintenance scheme for all stations to deal with soft landscaping, litter bin emptying, small localised painting and	30,000/yr	D
	decoration and small handy man jobs.	Split cost	
13.	General full redecoration scheme required to station.	2,000	C
	Total	£363,000	
	Station Cost Allocation		
A	Network Rail Backlog Investment		0
B	Existing funding applications/in hand		220,000
C	Tay Estuary Rail Study – PO3		47,000
D	Tay Estuary Rail Study – PO4		96,000

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5.3.2 Cupar

5.3.2.1 Station Description

This station is located on South Road Cupar and is manned and its opening times are 05.30 until 24.00.

Access to the northbound platform is gained from roadside and through the station building. Access to the southbound platform is gained via a road overbridge and down two flights of stairs. There is no wheelchair access to the southbound platform.

The station building on the northbound platform houses the ticket office a heated waiting room and fully serviced toilets. Recent renovation of the existing buildings has improved the appearance of the station.

Both Up and Down platform are of 153 metres length.

Location Data: OS Grid Ref:-N.S. 639,410, Engineers Line Reference:- ECN (East Coast North) Site Mileage:- 44m 1100 yards.

5.3.2.2 Station Audit

The station audit was carried out at Cupar Station on 10th October 2002. The station audit addressed the following points:

- Quality of station environment
- Station facilities
- Information at platforms
- Pedestrian /wheelchair access
- Security/safety at stations
- Car parking/ taxis/ bus services

The pro-forma for the Station is included in Appendix B. Findings and recommendations from the station audits are included in the development proposals in the following section.

5.3.2.3 Station Train Departures

To assist understanding of existing train services at Cupar Station here overleaf are the departure times each way from the station.

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UP Services			Cupar	DOWN Services		
d	06:20	Edinburgh (Waverley) - VT		d	06:49	Aberdeen - VT
d	06:39	Edinburgh (Waverley) - SC		d	08:04	Dyce - SC
d	07:03	Edinburgh (Waverley) - VT		d	09:03	Aberdeen - SC
d	07:38	Edinburgh (Waverley) - SC		d	10:02	Aberdeen - SC
d	08:20	Edinburgh (Waverley) - SC		d	10:57	Dundee - VT
d	08:30	Edinburgh (Waverley) - VT		d	11:04	Aberdeen - SC
d	08:52	Edinburgh (Waverley) - SC		d	12:04	Dyce - SC
d	09:49	Edinburgh (Waverley) - SC		d	12:53	Dundee - VT
d	10:30	Edinburgh (Waverley) - SC		d	13:04	Dyce - SC
d	11:52	Edinburgh (Waverley) - SC		d	14:04	Aberdeen - SC
d	12:30	Edinburgh (Waverley) - VT		d	14:57	Dundee - VT
d	12:51	Edinburgh (Waverley) - SC		d	15:04	Dyce - SC
d	13:52	Edinburgh (Waverley) - SC		d	16:56	Dundee - VT
d	14:30	Edinburgh (Waverley) - VT		d	17:06	Dyce - SC
d	14:51	Edinburgh (Waverley) - SC		d	17:54	Aberdeen - VT
d	15:52	Edinburgh (Waverley) - SC		d	18:01	Dyce - SC
d	16:36	Edinburgh (Waverley) - VT		d	18:25	Carnoustie - SC
d	16:48	Edinburgh (Waverley) - SC		d	19:04	Dyce - SC
d	17:52	Edinburgh (Waverley) - SC		d	19:39	Aberdeen - VT
d	18:30	Edinburgh (Waverley) - VT		d	20:04	Aberdeen - SC
d	18:52	Edinburgh (Waverley) - SC		d	20:54	Dundee - VT
d	20:52	Edinburgh (Waverley) - SC		d	21:23	Dundee - SC
d	21:48	Edinburgh (Waverley) - SC		d	22:33	Dundee - SC
d	22:47	Edinburgh (Waverley) - SC		d	23:42	Dundee - SC
				d	00:15	Dundee - SC

5.3.2.4 Development Proposals and Estimated costs

Cupar Station			
Item No.	Proposed Improvement	Estimated Cost	Cost Allocation
1.	Enhance lighting to platforms, stairs and site entrances, 40 lux minimum. Period light fittings throughout.	40,000	C
2.	Provide adequate lighting to car park area, 40 lux minimum. Period light fittings throughout.	10,000	D
3.	Provide disabled access to Platform 1.	40,000	C
4.	There is currently no disabled access between platforms. Consideration should be given to provision of lifts and new footbridge. As this is a listed building, careful design considerations must be given to this work	650,000	C
5.	Provide CCTV coverage to platform, footbridge, station building, car park, roadway entrance, bus and taxi stance	140,000	B
6.	Provide railway CIS (Customer Information System) to platforms, ticket office and	100,000	B

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	booking hall areas.		
7.	Provide local bus CIS to bus stance area. Link system with railway CIS.	unknown	D
8.	Undertake white lining to car park.	10,000	D
9.	Consider extending car park surfacing to car park area.	50,000	D
10.	Upgrade floor, wall, ceiling finishes and heating and lighting in existing waiting rooms on both platforms.	60,000	C
11	Provide litter bins on platforms, in buildings and in car park.	5,000	C
12	Provide lockable cycle sheds on Platform 2.	6,000	D
13	Provide additional seating on both platforms.	15,000	C
14	Provide disabled toilet facilities within existing buildings on both platforms.	20,000	C
15	Upgrade soft landscaping around full station and car park including weeding of area between tracks.	30,000	D
16	Remove station signage at entrance and upgrade main entrance to station including canopy and entrance screens.	20,000	D
17	Provide tactiles behind platform copes.	60,000	A
18	Check gauging of platforms.	230,000	A
19	Repair/replace timber fencing.	15,000	A
20	Consider tying general ongoing maintenance scheme for all stations to deal with soft landscaping, litter bin emptying, small localised painting and decoration and handyman jobs	30,000/yr	D
		Split cost	
21	Full redecoration of station required.	10,000	C
	Total	£1,511,000	
	Station Cost Allocation		
A	Network Rail Backlog Investment		310,000
B	Existing funding applications/in hand		240,000
C	Tay Estuary Rail Study – PO3		835,000
D	Tay Estuary Rail Study – PO4		126,000

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5.3.3 Springfield

5.3.3.1 Station Description

This station is located on Station Road, Springfield and is unmanned. The village is situated 500 yards from the station entrance.

Access to the northbound platform is via the access gate from Station Road. Access to the southbound platform is by the footbridge although this does not provide wheelchair access. Both platforms have waiting shelters. Current renovation of the station entrance gates shall improve the access to the station.

Both Up and Down platforms are 115m in length.

Location Data: OS Grid Ref:-N.S.349,119, Engineers Line Reference:- ECN (East Coast North), Site Mileage:- 42m 572 yards.

5.3.3.2 Station Audit

The station audit was carried out at Springfield Station on 10th October 2002. The station audit addressed the following points:

- Quality of station environment
- Station facilities
- Information at platforms
- Pedestrian /wheelchair access
- Security/safety at stations
- Car parking/ taxis/ bus services

The pro-forma for the Station is included in Appendix B. Findings and recommendations from the station audits are included in the development proposals in the following section.

5.3.3.3 Station Train Departures

To assist understanding of existing train services at Springfield Station here below is the departure times each way from the station.

UP Services				DOWN Services			
			Springfield				
	d	07:43	Edinburgh (Waverley) - SC		d	08:59	Aberdeen - SC
	d	16:53	Edinburgh (Waverley) - SC		d	18:21	Carnoustie - SC
					d	23:39	Aberdeen - SC

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5.3.3.4 Development Proposals and Estimated costs

	Springfield Station		
Item No.	Proposed Improvement	Estimated Cost	Cost Allocation
1.	Only three trains travelling north bound and two trains travelling south bound stop at this station each day. This must be significant increased, otherwise upgrading works serve no purpose.	unknown	
2.	Upgrade lighting to platforms and footbridge.	25,000	C
3.	Upgrade lighting to entrance areas.	10,000	D
4.	Improve entrance surfacing and remove stairs and replace with DDA compliant ramps.	90,000	C
5.	Look to create public car park on adjacent vacant land.	100,000	D
		plus purchase	
6.	Provide litter bins on platforms, in buildings and car park.	5,000	C
7.	Provide lockable cycle sheds on Platform 1.	6,000	D
8.	Provide additional seating on both platforms.	5,000	C
9.	Provide new heated waiting room and disabled toilet on north bound platform.	180,000	C
10.	Provide new waiting shelter on south bound platform.	70,000	C
11.	Provide CCTV coverage to platforms, footbridge, new car park and entrances.	120,000	C
12.	Provide CIS to platforms and entrances.	90,000	C
13.	Provide local bus CIS linked to railway system.	unknown	D
14.	Install tactiles and resurface platforms including upgrading of copes.	100,000	A
15.	Check platform gauge and regauge if necessary.	250,000	A
16.	Consider tying general ongoing maintenance scheme for all stations to deal with soft landscaping, litter bin emptying, small localised painting and decoration and small handy man jobs.	30,000/yr	D
		Split cost	
18.	General full redecoration scheme required to station.	2,000	C
	Total	£1,053,000	

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	Station Cost Allocation		
A	Network Rail Backlog Investment		350,000
B	Existing funding applications/in hand		0
C	Tay Estuary Rail Study – PO3		587,000
D	Tay Estuary Rail Study – PO4		116,000

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5.3.4 Ladybank

5.3.4.1 Station Description

This station is located off Commercial Road, Ladybank, and is unmanned.

Access to the northbound platform is gained from roadside and through an entrance gate. Access to the southbound platform is gained via a footbridge. There is no wheelchair access to the southbound platform.

There are no waiting shelters however a 40m canopy is provided on both platforms. Wooden benches provide seating accommodation on both platforms.

The Up is 136m in length and the Down platform is 161m metres length.

Location Data: OS Grid Ref:-NO 303,097, Engineers Line Reference:- ECN (East Coast North) Site Mileage:- 39m 80 yards.

5.3.4.2 Station Audit

The station audit was carried out at Ladybank Station on 10th October 2002. The station audit addressed the following points:

- Quality of station environment
- Station facilities
- Information at platforms
- Pedestrian /wheelchair access
- Security/safety at stations
- Car parking/ taxis/ bus services

The pro-forma for the Station is included in Appendix B. Findings and recommendations from the station audits are included in the development proposals in the following section.

5.3.4.3 Station Train Departures

To assist understanding of existing train services at Ladybank Station here overleaf are the departure times each way from the station.

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UP Services				DOWN Services			
Ladybank							
	d	06:27	Edinburgh (Waverley) - VT		d	07:30	Dundee – SC
	d	06:46	Edinburgh (Waverley) - SC		d	07:58	Aberdeen - SC
	d	07:10	Edinburgh (Waverley) - VT		d	10:45	Dundee – VT
	d	07:28	Edinburgh (Waverley) - SC		d	10:58	Aberdeen - SC
	d	07:48	Edinburgh (Waverley) - SC		d	12:58	Aberdeen – SC
	d	08:27	Edinburgh (Waverley) - SC		d	14:58	Aberdeen – SC
	d	08:59	Edinburgh (Waverley) - SC		d	16:59	Aberdeen – SC
	d	09:56	Edinburgh (Waverley) - SC		d	18:17	Arbroath – SC
	d	12:58	Edinburgh (Waverley) - SC		d	18:58	Aberdeen – SC
	d	13:13	Edinburgh (Waverley) - SC		d	19:58	Aberdeen – SC
	d	14:58	Edinburgh (Waverley) - SC		d	21:16	Dundee – SC
	d	16:58	Edinburgh (Waverley) - SC		d	22:26	Dundee – SC
	d	17:21	Edinburgh (Waverley) - SC				
	d	17:59	Edinburgh (Waverley) - SC				
	d	19:35	Edinburgh (Waverley) - SC				
	d	20:59	Edinburgh (Waverley) - SC				
	d	21:19	Edinburgh (Waverley) - SC				
	d	21:55	Edinburgh (Waverley) - SC				
	d	22:55	Edinburgh (Waverley) - SC				

5.3.4.4 Development Proposals and Estimated costs

Ladybank Station			
Item No.	Proposed Improvement	Estimated Cost	Cost Allocation
1.	Enhance lighting to platform suggested, 40 lux minimum.	25,000	C
2.	Provide adequate lighting to car park, bus stop, taxi stance and road entrance areas, suggested 40-lux minimum.	8,000	D
3.	Enhance lighting to footbridge, suggested 100-150 lux minimum.	3,000	C
4.	There is currently no disabled access between platforms. Consideration should be given to provision of lifts and new footbridge.	650,000	C
5.	Provide CCTV coverage to platform, footbridge, station building, car park, roadway entrance, bus stance and taxi stance areas.	115,000	C
6.	Provide railway CIS (Customer Information System) to platforms.	90,000	B
7.	Provide heated waiting room to Platform 2 (north bound).	110,000	C
8.	Provide disabled toilet to Platform 1.	75,000	C
9.	Extend existing car parking provision.	80,000	D

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10.	Provide litterbins on platforms, in buildings and car park.	8,000	C
11.	Provide lockable cycle sheds.	6,000	D
12.	Provide additional seating on both platforms.	15,000	C
13.	Provide waiting facilities to both platforms.	7,500	C
14.	Look to sell off all, or part of, vacant ground (former goods yard) for housing or other use.	Revenue	D
15.	Provide tactiles behind platform copes.	85,000	C
16.	Check gauging and height of platforms and regauge as necessary.	300,000	A
28.	Full redecoration of station required.	20,000	C
Total		£1,597,500.00	
Station Cost Allocation			
A	Network Rail Backlog Investment		300,000
B	Existing funding applications/in hand		90,000
C	TERS – PO3		1,113,500
D	TERS – PO4		94,000

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6 Summary of Options and Costs

6.1 The Constraints on the Local Service

6.1.1 Assumptions

We have assumed that for analysis of available train paths and track capacity the current timetable is appropriate. However, we are aware that a Timetable Review is scheduled for 2004.

6.1.2 Infrastructure

There is no infrastructure constraint on an hourly service from Dundee to Carnoustie. However, a half hourly service needs a turnback loop at Carnoustie with associated signalling.

For Dundee to Arbroath, the infrastructure constraints on an hourly and a half-hourly local service include the lack of Intermediate Block Signals (IBS) between Carnoustie and Arbroath. This signal arrangement gives an 8.5-minute headway, which limits the available train paths. It is possible to reduce this sufficiently for the hourly service by the installation (with Network Rail's approval) of rear signal CCTV system feeding to the signal box at Carnoustie for the UP direction and Arbroath in the Down direction. However, although the provision of CCTV is common elsewhere in the network it is unusual in Scotland and Network Rail Scotland might prefer to install IBS signals controlled from Carnoustie SB or, in the longer term, to move control to Dundee SB.

A passing loop and associated signalling works on the Down line at Carnoustie would also be required to allow "fast" services to pass "slow" services. The loop is only required on the Up line (i.e coast side) for 6 No. movements each day.

There are no implications with respect to the proposed Network Rail land disposal on the Down side (i.e land side), but additional land would likely to be required for the loop. The estimated capital costs for the loop (£300k) do not include any allowance for any land purchase required.

The single line from Usan to the River Esk Viaduct south of Montrose is a major constraint, which restricts capacity to at most six train paths per hour. For large parts of the day and particularly at peak times the railway is operating to capacity it is currently not possible to operate an hourly service or of course, a half-hourly service without major civil engineering work to provide dual track over the River Esk Viaduct and associated rock cuttings.

There are no infrastructure constraints to the half-hourly or the hourly service between Dundee and Perth. However, if the train was required to turnaround at Invergowrie or the proposed Dundee West, a turnback crossover and associated signalling would be required.

6.1.3 Timetable

The current timetable structure is to remain in place until 2004 when amendments may be introduced as a result of the current Scotland Zone timetable review. This is a very complex procedure and changes made to long distance train times have a knock on effect throughout the Network. A strong business case is required in support of changes proposed for local services, which might be viewed as detrimental to other services.

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The existing timetable produces a number of problems for the operation of the proposed local service. This applies to the hourly service but clearly more so to the half-hourly service.

For the Dundee to Carnoustie hourly service, there are only minor conflicts in the Up direction. These can be resolved through discussion with Network Rail and Scotrail. However, for the half hourly service there are timetable conflicts throughout the day, which can be assisted but not resolved by the provision of a turnback loop at Carnoustie.

The Dundee to Arbroath hourly service can operate well in the Down direction over the day but in the Up direction, it is necessary to alter the path. Unfortunately, a requirement to loop services at Carnoustie to avoid conflict adds ten minutes to the journey time in the Down direction. The half-hourly service is conflicted by existing services throughout the day and it is not currently possible to run it at all in the morning and evening peak hours.

The Dundee to Montrose hourly service is constrained by the infrastructure deficiencies described above to such a degree that it is not possible to operate the service over most of the day. Obviously, the half hourly service is even more constrained. This means of course that it is not feasible to consider the Brechin Branch to be part of the local service. Instead, it can only be considered as a shuttle service.

For the Dundee to Perth service, which can be considered independently or as an extension to the Carnoustie or Arbroath services, there are no timetable conflicts that cannot be resolved by discussion with Network Rail.

6.1.4 Summary of Constraints and Costs

To assist in the understanding of the issues involved in the Options and the approximate cost to deliver them, reference should be made to the table below.

		Infrastructure Constraints	Infrastructure Improvements	Timetable Constraints	Timetable Changes	Approximate Cost
Option A: Dundee to Carnoustie	Hourly	5 minute signalling headway and turnback at Carnoustie from Down Platform only.	None required.	2 minor conflicts in the Up direction	Cut out all stations Carnoustie – Dundee on 0550 from Aberdeen	1 x unit & traincrew @ £775K pa No infrastructure cost
	<i>Half Hourly</i>	As hourly.	Turnback loop and associated signalling required on Down line at Carnoustie.	Conflicts through day	Omit all Express stops except one to avoid conflict. Not considered feasible	Not applicable
Option B - Dundee -	Hourly	Turnback siding on Up line at Arbroath. No spare platform capacity off the through lines for service turnaround.	Loop required and associated signalling works on the Down line at Carnoustie. CCTV on Up Distant at Arbroath or provision of Intermediate Block signals.	Different path required from Option A	Looping of all Up services at Carnoustie will add a minimum of 10 minutes to journey time	2 x unit & traincrew @ £1,550,000 pa Down Loop+S&T, CCTV @£300K

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	Half Hourly	As hourly	Provide either CCTV at Arbroath or Intermediate Block signals between Carnoustie & Arbroath. or Provide loop on Down and Up lines at Carnoustie and loop at Carnoustie	Conflicts all day	Cannot deliver service in peak hours. Service not feasible	4 x unit & traincrew @ £3,100,000pa IBS+Up Loop@£1.05m Or Up and Down Loops@ £600K
Option C - Dundee - Montrose	Hourly	Single line section at Montrose South. Maximum capacity for 6 tph through section. No crossover at Montrose.	Double track existing 1.75m single line section. New crossover and associated signalling at Montrose Station This constraint determines capacity. No other measures would have any benefit.	Conflicts all day	Infrastructure is the constraint. No timetable changes worthwhile.	Infrastructure- £100 million+ Option B hourly infrastructure cost 2 x unit traincrew @ £1,550,000
	Half Hourly	As hourly.	As hourly.	Conflicts all day	Cannot deliver service without double tracking single line section.	N/a
Option D – Montrose - Brechin	Hourly	No railway between Montrose and Bridge of Dun. Existing Heritage railway in poor condition.	Complete reconstruction from Brechin to Montrose	Shuttle service to Montrose only	No timetable changes required for shuttle service operation.	Construction cost £18m 1 x unit traincrew @ £775,000
	Half Hourly	As Hourly	As Hourly	As Hourly	As Hourly	Construction cost £18m 2 x unit traincrew @ £1,550,000
Option E – Perth – Carnoustie and Arbroath	Hourly	Signalling headway of 10.5 minutes between Barnhill and Errol determines capacity	None required from Dundee to Perth	No significant timetabling constraints		No additional Infrastructure cost w.r.t Option A and B Carnoustie: 2 x units/traincrew: £1,550,000. Arbroath: 3 x units/traincrew: £2,325,000.
	Half Hourly	No constraints on hourly service.		Conflicts all day on Arbroath Service	Not assessed as Option A and Option B half hourly services cannot be reasonably delivered.	N/a
Option F – Perth to Montrose	Hourly	As Option C cannot be reasonably delivered due to infrastructure and corresponding timetabling constraints between Arbroath and Montrose the extension to Perth has not been assessed at this stage.				N/a

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	<i>Half Hourly</i>					N/a
Dundee West Service Extensions	Hourly	<p>For each Option extension all infrastructure constraints north of Dundee remain as detailed.</p> <p>Lack of crossover on route before Errol (7 m beyond Invergowrie)</p> <p>No station at Dundee West</p>	<p>Provision of new crossover and associated signalling at either Dundee West or Invergowrie depending on preferred service destination.</p> <p>New turnback siding required for Option A extension.</p>	<p>An additional unit required</p> <p>No timetable constraints for extension of Option B.</p>	<p>None required but needs a 50-minute layover at Invergowrie.</p>	<p>As Option A, B and D infrastructure costs</p> <p>New station at Dundee West @ £2m Turnback</p> <p>Infrastructure and contingency for turnback @£2m</p> <p>£50K additional station operating cost</p> <p>1 x additional unit/traincrew w.r.t Option B,C and D @ £0.8m</p>
	<i>Half Hourly</i>	<p>As Option B cannot be delivered at a service frequency greater than hourly due to infrastructure and corresponding timetabling constraints between Arbroath and Dundee the extension to Dundee West / Invergowrie has not been assessed.</p>	<p>Option A only 6 minutes in front of the hourly service therefore not worthwhile. Cannot fit into Peaks.</p>			N/a
Option G – Arbroath – Ladybank	Hourly	<p>No turnback or crossover facilities at Ladybank. No station at Wormit</p> <p>Signalling headway between Cupar and Leuchars determines line capacity.</p>	<p>Provision of new crossover and associated signalling at Ladybank.</p> <p>New Station at Wormit.</p>	<p>Option A extension would require 19 minute layover in Dundee to avoid conflict but cannot remove conflict in the hours 06xx, 08xx, 11xx and 19xx.</p>	<p>Remove Express services or completely renew signalling. Otherwise, cannot amend to deliver in the hours highlighted</p>	<p>As Option B hourly infrastructure cost plus Crossover and signalling - £1,300K</p> <p>New station at Wormit £2m</p> <p>£50K additional station operating cost</p> <p>Incremental cost for 2 No. additional units. £1,550,000.</p>
	<i>Half Hourly</i>	As hourly	As hourly	Increased conflicts.		N/a

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Option H – Perth – Dundee - Ladybank	Hourly	No suitable infrastructure at Ladybank to allow turnback proposals	Crossovers and associated S&T work at Ladybank.	No critical timetable constraints for operation of an hourly service.	None required for hourly service.	Crossover and signalling work - £1m New station at Wormit £2m £50K additional station operating cost Incremental cost for 4 No. additional units. £3,100,000.
	<i>Half Hourly</i>	N/a	N/a	N/a	N/a	N/a
Option I – Dundee West - Leuchars	Hourly	No suitable infrastructure at Dundee West or Leuchars to allow turnback proposals	Crossovers and associated S&T work at Dundee West and Leuchars.	No critical timetable constraints for operation of an hourly service.	None required for hourly service.	Crossover and signalling work at Leuchars £750k Dundee West infrastructure works and contingency £2m New station at Wormit £2m New station at Dundee West £2m Incremental cost for 1 No. additional unit/traincrew £800k. £100K additional stations operating cost
	<i>Half Hourly</i>	N/a	N/a	N/a	N/a	N/a

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Option J – Leuchars – St. Andrews	Hourly	No existing line between Leuchars and St. Andrews.	New line with all necessary works between Leuchars and St. Andrews.	No timetable constraints for operation of a shuttle service.	None required for shuttle service.	Line re-opening and all associated works; £34m
		No station at St. Andrews.	New Station at St. Andrews. New junction with ECML.	Paths for extension into all Options conflicted by Edinburgh – Aberdeen services. Cannot deliver into Dundee in the hours 06xx, 07xx, 08xx and 09xx.	Remove Express services or completely renew signalling. Otherwise, cannot amend to deliver in the hours highlighted Long layover required in Dundee for all other services if extending into Option A.	As Option A hourly infrastructure costs plus 1 No. Unit £775,000

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Working Paper B – Constraints and Development of Options

Appendices

Appendix A – Base Timetables

Appendix B – Station Audit Proformas

Appendix C – Dundee West – Proposed Station Location

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Appendix A - Base Timetables

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Base Timetable

Winter 2002/3

UP

Aberdeen	a	05:28	05:50	06:35	07:07	07:22	07:30	07:55	08:20	08:42	08:55	09:39	09:55	10:25	10:42
Portlethen	d			06:44											
Stonehaven	a	05:45	06:07	06:53	07:23	07:38	07:49	08:13	08:37		09:12	09:55	10:12	10:41	
Montrose	d	06:06	06:28	07:15	07:45	08:00	08:10	08:35		09:17	09:35	10:17	10:34	11:03	11:17
Arbroath	a	06:21	06:43	07:29	07:59	08:14	08:27	08:50	09:11	09:31	09:52	10:31	10:49	11:17	11:31
Carnoustie	d	06:27	06:50	07:36	08:06	08:21				09:38		10:38			11:38
Golf Street			06:52												
Barry Links	a		06:54												
Monifieth		06:33	06:59												
Balmossie			07:02												
Broughty Ferry	(ecs)	06:37	07:06		(ecs)						10:44				(11:15)
Dundee	06:00	06:20	06:43	06:50	07:18	07:51	08:00	08:10	08:20	08:32	08:39	08:45	09:07	09:29	09:51
Wormit															11:06
Leuchars	06:13	06:32	06:56	07:30	08:12	08:23	08:20	08:30	08:44	08:52	10:23	11:20	11:44	12:23	12:30
Cupar	06:20	06:39	07:03	07:38	08:20	08:30			09:41	09:49	10:30				
Springfield				07:43											
Dundee West															
Invergowrie															
Perth			07:05	07:15	08:12	08:42	08:48	09:04	10:13	11:13	12:13				
Ladybank	06:27	06:46	07:10	07:28	07:48	08:27	08:59	09:56							
Markinch	06:34	06:53	07:18	07:35	07:56	08:35	08:41	10:04	10:41	10:41	12:04	12:41			
Kirkcaldy	06:43	07:03	07:27	07:44	08:05	08:44	08:50	09:13	09:20	09:44	10:13	10:50	11:43	12:13	12:50
Inverkeithing	06:58	07:25	07:43	08:01	08:27	08:59	09:05		09:35	10:00	10:29	11:05	11:59	13:05	13:21
Haymarket	07:16	07:45	07:58	08:20	08:47	09:16	09:22	09:45	09:50	10:18	10:45	11:29	12:17	12:45	13:21
Edinburgh	07:19	07:48	08:05	08:24	08:50	09:19	09:25	09:48	09:53	10:23	10:48	11:32	12:22	12:48	13:24

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11:23	11:42	12:22	12:42	13:23	13:42	14:25	14:42	14:55	15:20	15:38	16:22	16:41	17:22	17:53	18:25	18:41	19:25	19:41	20:42				
		12:32											17:32	18:03				19:50					
11:39		12:41	12:58	13:39		14:41		15:11	15:36		16:38	16:57	17:41	18:12	18:42		19:41	19:58	20:58				
12:01	12:17	13:17	14:01	14:17	14:17	15:17	15:34	15:58	16:13	16:13	17:16	18:02	18:33	19:04	19:16		20:18	20:32	21:17				
12:15	12:31	13:15	13:31	14:15	14:31	15:15	15:31	15:49	16:12	16:27	17:12	17:30	18:16	18:47	19:19	19:30	20:15	20:32	21:31				
	12:38				14:38		15:38				17:19			18:54		19:37							
12:31	12:51	13:32	13:51	14:10	14:31	14:51	15:32	15:51	16:06	16:15	16:29	16:46	17:32	17:51	18:10	18:32	19:09	19:36	19:51	20:32	20:51	21:28	21:51
			(13:14)						(15:18)						(17:17)								
12:43		13:44		14:23	14:43		15:44	16:20	16:29	16:41		17:44	18:23	18:44			19:49	20:44		21:40			
12:51		13:52		14:30	14:51		15:52		16:36	16:48	16:53	17:52	18:30	18:52			20:52			21:48			
12:49	13:13	14:13	14:47	15:13	16:13	16:55	17:10	17:59	18:13	19:10	19:30	20:13	20:54	21:13	21:55	22:03	22:12	22:35	22:57	23:00			
12:58	13:13			14:58		16:58	17:21	18:04	18:41	19:04	19:43	20:12	20:59	21:19	21:55	22:03	22:12	22:35	22:57	23:00			
13:04		14:05	14:41	15:04	15:15	16:04	17:04	17:29	18:04	18:13	18:50	19:13	19:53	20:12	21:13	21:33	21:49	22:06	22:27	23:00			
13:13	13:27	14:13	14:50	15:13	15:24	16:13	16:43	16:54	17:13	17:38	18:13	19:05	19:29	20:09	20:28	21:29	21:49	22:06	22:27	23:00			
13:29	13:43		15:05	15:29	15:40	16:29	16:59	17:09	17:29	17:54	18:11	19:22	19:45	20:27	20:45	21:45	22:06	22:27	23:00				
13:45	14:00	14:45	15:24	15:45	15:56	16:45	17:17	17:24	17:44	18:11	18:45	19:25	19:48	20:30	20:50	21:48	22:09	22:27	23:00				
13:49	14:03	14:48	15:27	15:48	15:59	16:48	17:22	17:27	17:49	18:14	18:48	19:25	19:48	20:30	20:50	21:48	22:09	22:27	23:00				

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20:55 21:22 22:10 22:30 22:40
21:12 21:38 22:27 22:49
21:36 22:00 22:48 23:10
21:52 22:14 23:05 23:24

22:16 22:28 23:22 23:43
22:29 22:40 23:35
22:47

22:55 23:49
23:03 00:06
22:51 22:12 23:58
23:06 22:35 00:20
23:21 22:57 00:36
23:29 23:00 00:44

Working Paper B – Constraints and Development of Options

Base Timetable

Invergowrie 08:18

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14:10	14:57	16:00	16:10	16:59	17:05	17:14	18:10	18:31	18:42	19:10	20:00	20:15	20:29	21:25
14:14	15:03	16:05	16:14	17:04	17:09	17:18	18:14	18:36	18:47	19:14	20:05	20:19	20:34	21:29
	15:17	16:18	16:27	17:18	17:22	17:37	18:27	18:51	19:01	19:27	20:18	20:37	20:49	21:47
14:42	15:34	16:35	16:43	17:33	17:39	18:00	18:42	19:09	19:16	19:42	20:33	20:59	21:05	22:09
14:51		16:44	16:52	17:42	17:48	18:09	18:51	19:25		19:51	20:42	21:08		22:18
14:58			16:59		18:17	18:47	18:58		19:25	19:58	20:40	21:16		22:26
	15:39	16:40		17:36					19:46	20:03			21:46	22:38
		16:52											22:04	
15:04			16:56	17:06	17:54	18:01	18:25	19:04	19:39	20:04	20:54	21:23		22:33
15:11	15:58		17:03	17:13	18:01	18:08	18:33	19:11	19:33	19:46	20:13	21:01	21:30	22:40
15:24	16:01	16:12	17:22	17:25	17:58	18:14	18:22	18:50	19:09	19:24	19:47	20:00	20:24	21:02
			(18:10)	17:33				18:56				(22:16)	21:44	21:50
								18:59					22:10	22:54
								19:02						22:59
								19:06						
								19:08						
15:38	16:17	16:29	17:12	17:40	18:10	18:39	19:10	19:21						23:10
	16:32	16:45	17:34	17:47	18:17	18:30	19:28	19:41	20:04	20:16	20:26	20:40	21:19	23:17
16:15				18:01		18:44	18:55	19:44	20:20	20:32	20:39	20:55	21:33	23:31
		17:07	17:54	18:23	18:51	19:07	19:17	20:06	20:14	20:42	20:52	21:16	21:55	23:53
								20:25						00:02
16:33	17:09	17:32	18:14	18:43	19:10	19:27	19:36	20:27	20:37	21:07	21:14	21:18	21:37	00:15
													23:10	23:26

Tay Estuary Rail Study

Working Paper B – Constraints and Development of Options

Appendix B - Station Audit Proformas

ARBROATH RAILWAY STATION

GENERAL					
	Details				
Station name:	Arbroath				
Station Address:	Arbroath Train Station, Keptie Street, Arbroath, Angus.				
Station hours:	06:00 - 23:30				
Station manned / unmanned:	Manned				
No of Platforms:	3, only two in use to the public, Platform 1, island platform.				
Platform types (side / island):	Platform1, island Platform, Platform 2, side platform, an additional platform on the other side of the Platform 1 island is currently unused.				
Platform Lengths:	Platform 1: 232m (From Railtrack records) Platform 2: 230m (Form Railtrack records)				
Access between platforms (Footbridge / Subway):	Footbridge				
Disabled access to station from car parking/bust stop etc?	Yes				
Disabled access between platforms (Y / N): Ramp/Lift?	Yes, this would be done by using the lift on Platform 1 leaving the station building and re-entering through the Catherine Street entrance, a distance of approximately 80m.				
QUALITY OF STATION ENVIRONMENT					
	Details	Poor	Adequate	Good	Additional Information
Well lit?			✓		
Area feel secure?			✓		
Surfaces of good quality?			✓		
Overall impression?			✓		
Rail/bus/taxi/car interchange?	Y				Bus, car and taxi interchange available.
Time between platform and car park (minutes)	1mins				
Time between platform and bus stops (minutes)	3mins				
Time between platform and taxi rank (minutes)	3mins				
Dropped kerbs from bus stop/ car park to station building	Y				Yes, but on day of survey dropped kerbs were blocked off by parked cars.
Provision of K & R Facilities?	Y				
Time between platform and K & R provision (minutes)	3mins				

STATION FACILITIES					
		Poor	Adequate	Good	Additional comments
Overall impression of platform environment			✓		
	Y/N	Quantity	Details (record as poor/adequate/good wherever practicable)		
Entrance doors	Y	3	Main entrance: 2 doorways at 1.1m wide. Catherine Street entrance: Steel gates, total width 5.3m wide.		
Waiting rooms on Platforms	Y	1	Platform 1: 6m by 5.5m, clock, heated, 3 steel benches, clean, unpleasant odour. Platform 2: 2.5m by 3mwide, no clock 2 steel benches, clean, one window smashed on day of visit.		
Waiting shelters on Platforms	N	0	Overhanging canopy of about 50m in length on both platforms.		
Seats provided			Platform 1: 6 four seater wooden benches, good condition. Platform 2: 4 four seater wooden benches, good condition.		
Trains visible from waiting area	N		Trains are not visible from waiting rooms		
Provision of food and drinks dispenser	Y	1	Coca Cola vending machine present at front door. Out of order on day of survey.		
Provision of litter bins	Y	5			
Provision of public payphones	N	0			
Covered and secure cycle racks	Y	1	Located at the front entrance, coin and card operated.		
Provision of bike lockers	N	0			
Retail units	N	0			
Public toilets	Y	2	Male and female toilet facilities present but closed on day of survey.		
Disabled toilets	Y	1	3.2m by 1.8m in size. Located next to main entrance.		
Provision of taxi rank	Y	1			
Distance to taxi rank (m)	50m				
Number of spaces available at rank	4				
Provision of 'K and R' facilities	Y	1			
INFORMATION AT PLATFORMS					
		Poor	Adequate	Good	Additional comments
General Provision of Information at Platforms		✓			No static timetabling on Platform 2.
	Platform 1	Platform 2			
Information available in different formats	N	N			
Platforms numbered	Y	Y			
Timetables (static display)	N	Y			Static timetabling on footbridge and Platform 2 only.
Help points available	N	N			
Platform Information Loudspeaker	Y	Y			
CIS monitors (dynamic display)	N	N			
You are Here' Information	N	N			
Clock	Y	Y			

INFORMATION AT CENTRAL POINTS					
	Y/N	Poor	Adequate	Good	Additional Information
General Provision of Information at Central Points			✓		
Timetables of all services (static display)	Y				Accurate and up to date.
CIS monitors (dynamic display)	N				
Provision of local area map	Y				Located on overbridge between platforms.
You are Here' Information	Y				Located on overbridge between platforms.
Staffed enquiry office / ticketing provision	Y				
Clock	Y				
PEDESTRIAN / WHEELCHAIR ACCESS (within/around station)					
	Y/N	Poor	Adequate	Good	Additional Information
Level access to station					
Level access within station	N				Disabled users wishing to change platforms would have to do so by a 70m transfer, leaving the building through the Main Entrance and by turning down on to Catherine Street and entering through the Catherine Street entrance.
Floor surface even / anti-slip	N				
Ramp	Y				Floor surface even, though no tactile paving present.
Stairs			✓		Stairs in good condition, nosing present.
Lifts		✓			Located on Platform 1, lift clean, but very poorly lit.
Provision of controlled crossing places	N				
Dropped kerbs at crossing points	N				
Direct, short well lit wheelchair access	Y				Only to Platform 2.
Identification of possible hazards on walking routes	Y				No painted pedestrian walkway in St Catherine Street entrance.
SECURITY					
	Y/N	Poor	Adequate	Good	Additional Information
Lighting throughout station			✓		Car park and Station appear to have adequate amounts of lighting, unable to check if light effectiveness as survey was carried out during daylight hours.
Walking routes and walking areas			✓		
Graffiti and vandalism present	Y				Cracked window on waiting room on Platform 1.
Staff on duty	Y				Station manned between 06:00 and 23:30.
Provision of CCTV	N				
Amount of CCTV cameras in operation	N				

CAR PARKING					
		Poor	Adequate	Good	Details
General standard of provision		✓			Tarmac surfaced car park on Catherine Street
	Y/N				
On street parking readily available	N				Nearest on street car parking is 200m away.
Car park provided at station	Y				Car park situated adjacent to Platform 2.
Number of parking spaces	15				
% Occupancy (1 PM)	100%				
Number of disabled car parking spaces	3%				
% Occupancy (1 PM)	100%				
Charging Structure and length of stay	Y				70p per day, £3 per week, £7 month.
ACCESSIBILITY (to station)					
	Y/N	Poor	Adequate	Good	Additional Information
General provision of access			✓		
General description of adjacent roads / pavements		✓			Pavements uneven and of poor quality at the Main Entrance to station.
Level access to station	N				Gradient at St Catherine Street entrance, no dropped kerbs at Main entrance.
PEDESTRIAN ACCESS					
	Y / N	Additional Information			
Pedestrian xing/islands within visibility or 100m	N				
Dropped kerbs at pedestrian crossing	N				
Even pavement in non slip materials	N				
BUS SERVICES					
	Details	Additional Information			
Frequency of service (buses per hour):	2	Hourly Service to Dundee and Montrose, bi-hourly service to Auchmithie.			
Proximity of bus stop (m)	50m	Located right outside the Main Entrance.			

BUS STOP /FACILITIES					
	Y / N	Details			
Flag attached to flag post in contrasting colour	N				
Displays bus route number of all routes which stop at stop	N				
Displays the stop name	N				
Direction of travel displayed	N				
Flag is illuminated by light from shelter or street lights	N				
Flag is visible to bus drivers/peds from a reasonable distance	N				
Bus shelter provided	Y	Bus shelter 2.5m by 1.5m in size.			
Provides protection from weather & spray and traffic	Y				
Seating is provided	Y				
Internal illumination provided	N				
Can person in shelter see approaching bus	Y				
Is a timetable provided	Y				
Is Real-time info provided	N				
Is there a help / contact number provided	Y				
ROAD ACCESS (In immediate proximity to Station)					
	Y/N	Poor	Adequate	Good	Additional Information
General standard of access			✓		
Station sign posted on approach	Y				
Directions to car park clear	N				
Junctions clear and easy to negotiate	N				Tight junctions present in side streets surrounding the station.
Condition of the highway good, with no ponding evident	Y				
Bus stop cage marked	N				Double yellow lines present.

BALMOSSIE RAILWAY STATION

1b

GENERAL					
	Details				
Station name:	Balmossie station				
Station Address:	South Balmossie Street, Balmossie, Angus				
Station hours:	24 hour access				
Station manned / unmanned:	Unmanned				
No of Platforms:	2				
Platform types (side / island):	Side				
Platform Lengths:	Platform 1: 55m (From Railtrack records)				
	Platform 2: 55m (From Railtrack records)				
Access between platforms (Footbridge / Subway):	Footpath to footbridge				
Disabled access to station from car parking/bust stop etc?	Disabled access to Platform 2 only.				
Disabled access between platforms (Y / N): Ramp/Lift?	No				
QUALITY OF STATION ENVIRONMENT					
	Details	Poor	Adequate	Good	Additional Information
Well lit?		✓			
Area feel secure?		✓			
Surfaces of good quality?		✓			Large degree of deflection on both platforms, liable to hold standing water after rain.
Overall impression?		✓			
Rail/bus/taxi/car interchange?	N				
Time between platform and car park (minutes)	N/A				
Time between platform and bus stops (minutes)	10mins				Nearest bus stop is on Monifeith Road ½ mile away.
Time between platform and taxi rank (minutes)	N/A				
Dropped kerbs from bus stop/ car park to station building	N				
Time between platform and K & R provision (minutes)	N				

STATION FACILITIES					
		Poor	Adequate	Good	Additional comments
Overall impression of platform environment		✓			Platforms in very poor condition.
	Y/N	Quantity	Details (record as poor/adequate/good wherever practicable)		
Entrance doors	Y	2	Entrance to each platform is by 1.4m wide wooden swing gates.		
Waiting rooms on Platforms	N	0			
Waiting shelters on Platforms	Y	1	Platform 1: unheated, 6m by 1m, wooden shelter poor protection from rain, floor uneven.		
Seats provided	Y	2	Platform 1: 5.5m bench along the back of the shelter on platform 1, too high for use. Platform 2: 1 two seater wooden bench.		
Trains visible from waiting area	Y				
Provision of food and drinks dispenser	N	0			
Provision of litter bins	N	0			
Provision of public payphones	N	0	Nearest payphone is 1km away in Ramsey Street.		
Covered and secure cycle racks	N	0			
Provision of bike lockers	N	0			
Retail units	N	0			
Public toilets	N	0			
Disabled toilets	N	0			
Provision of taxi rank	N	0			
Distance to taxi rank (m)	N/A				
Number of spaces available at rank	N/A				
Provision of 'K and R' facilities	N	1			
INFORMATION AT PLATFORMS					
		Poor	Adequate	Good	Additional comments
General Provision of Information at Platforms		✓			
	Platform 1	Platform 2			
Information available in different formats	N	N			
Platforms numbered	Y	Y			Numbering present but signs are in poor condition.
Timetables (static display)	N	Y			Located at entrance gate.
Help points available	N	N			
Platform Information Loudspeaker	N	N			
CIS monitors (dynamic display)	N	N			
You are Here' Information	N	N			
Clock	N	N			

INFORMATION AT CENTRAL POINTS					
	Y/N	Poor	Adequate	Good	Additional Information
General Provision of Information at Central Points		✓			
Timetables of all services (static display)	Y				Located at entrance gate to Platform 2.
CIS monitors (dynamic display)	N				
Provision of local area map	N				
'You are Here' Information	Y				Located at entrance gate to Platform 2.
Staffed enquiry office / ticketing provision	N				
Clock	N				
PEDESTRIAN / WHEELCHAIR ACCESS (within/around station)					
	Y/N	Poor	Adequate	Good	Additional Information
Level access to station	N				Footbridge required to access Platform 1. Ramped access to Platform 2.
Level access within station	N				Footbridge and footpath required to change platforms.
Floor surface even / anti-slip	N				Platform surface severely deformed.
Ramps	Y	✓			Platform 1: Ramped access to Platform 1, 6m long by 1m high.
		✓			Platform 2: Ramp access to Platform 2. Wooden ramp with felt surfacing.
		✓			Footbridge: Ramp access to footbridge very steep, no non slip.
Stairs	N				
Lifts	N				
Provision of controlled crossing places	N				
Dropped kerbs at crossing points	N				
Direct, short well lit wheelchair access	N				No disabled access to Platform 1.
Identification of possible hazards on walking routes	Y				Slip hazard on ramp to Platform 1.
SECURITY					
	Y/N	Poor	Adequate	Good	Additional Information
Lighting throughout station		✓			No Lighting on footpath to Platform 1. No lighting on footbridge, unable to tell if platform lights are working as survey was carried out in daylight.
Walking routes and walking areas		✓			No Lighting on footbridge or footpath to Platform 1.
Graffiti and vandalism present	Y				Shelter on Platform 1 has graffiti present.
Staff on duty	N				
Provision of CCTV	N				
Amount of CCTV cameras in operation	N				

CAR PARKING					
		Poor	Adequate	Good	Details
General standard of provision		✓			No car parking available.
	Y/N				
On street parking readily available	N				
Car park provided at station	N				
Number of parking spaces	N/A				
% Occupancy	N/A				
Number of disabled car parking spaces	N/A				
% Occupancy	N/A				
Charging Structure and length of stay	N/A				
ACCESSIBILITY (to station)					
	Y/N	Poor	Adequate	Good	Additional Information
General provision of access		✓			
General description of adjacent roads / pavements		✓			No dropped kerbs for pedestrians.
Level access to station	N				Ramped access to Platform 2. Footbridge access to Platform 1.
PEDESTRIAN ACCESS					
	Y / N	Additional Information			
Pedestrian xing/islands within visibility or 100m	N				
Dropped kerbs at pedestrian crossing	N				
Even pavement in non slip materials	N				
BUS SERVICES					
	Details	Additional Information			
Frequency of service (buses per hour):	8	On average a 7 minute service to Dundee, provided by Strathtay Buses Nos. 73, 73A, 75, 76.			
Proximity of bus stop (m)	300m				

BUS STOP /FACILITIES					
	Y / N	Details			
Flag attached to flag post in contrasting colour	Y				
Displays bus route number of all routes which stop at stop	Y				
Displays the stop name	N				
Direction of travel displayed	N				
Flag is illuminated by light from shelter or street lights	Y				
Flag is visible to bus drivers/peds from a reasonable distance	Y				
Bus shelter provided	Y				
Provides protection from weather & spray and traffic	Y	3.25m by 1.1m shelter ¼ mile from station.			
Seating is provided	N				
Internal illumination provided	N				
Can person in shelter see approaching bus	Y				
Is a timetable provided	Y	Accurate and up to date			
Is Real-time info provided	N				
Is there a help / contact number provided	Y				
ROAD ACCESS (In immediate proximity to Station)					
	Y/N	Poor	Adequate	Good	Additional Information
General standard of access			✓		
Station sign posted on approach	N				
Directions to car park clear	N/A				
Junctions clear and easy to negotiate	Y				
Condition of the highway good, with no ponding evident	Y				
Bus stop cage marked	N/A				

BARRY LINKS RAILWAY STATION

GENERAL					
	Details				
Station name:	Barry Links station				
Station Address:	Station road, Barry, Angus				
Station hours:	24 hour access				
Station manned / unmanned:	Unmanned				
No of Platforms:	2				
Platform types (side / island):	Side (Platform 1 formerly appears to have formerly been an island)				
Platform Lengths:	Platform 1: 242m (From Railtrack records)				
	Platform 2: 176m (from Railtrack records)				
Access between platforms (Footbridge / Subway):	Footbridge				
Disabled access to station from car parking/bust stop etc?	Disabled access to Platform 2, only				
Disabled access between platforms (Y / N): Ramp/Lift?	No disabled access between platforms				
QUALITY OF STATION ENVIRONMENT					
	Details	Poor	Adequate	Good	Additional Information
Well lit?			✓		Lighting appears to be adequate. No check could be made as survey was carried out in daylight.
Area feel secure?			✓		
Surfaces of good quality?		✓			Footbridge surface in very poor condition
Overall impression?		✓			
Rail/bus/taxi/car interchange?	N				
Time between platform and car park (minutes)	N/A				
Time between platform and bus stops (minutes)	15mins				Nearest bus stop is on Monifeith Road ½ mile away.
Time between platform and taxi rank (minutes)	N/A				
Dropped kerbs from bus stop/ car park to station building	N				
Time between platform and K & R provision (minutes)	N				

STATION FACILITIES					
		Poor	Adequate	Good	Additional comments
Overall impression of platform environment		✓			No seating in shelters
	Y/N	Quantity	Details (record as poor/adequate/good wherever practicable)		
Entrance doors	Y	0	No method of restricting access to station, previous gate has been removed.		
Waiting rooms on Platforms	N	0			
Waiting shelters on Platforms	Y	2	Platform 1: unheated, 3.25m by 1.1m. Platform 2: unheated, 2.5mx 1.1m.		
Seats provided	Y	2	Platform 1: 1 three seater wooden bench, in need of repainting / surface treatment. Platform 2: 1 three seater wooden bench, in need of repainting / surface treatment.		
Trains visible from waiting area	Y				
Provision of food and drinks dispenser	N	0			
Provision of litter bins	N	0			
Provision of public payphones	N	0	Nearest payphone is 1km away in Ramsey Street.		
Covered and secure cycle racks	N	0			
Provision of bike lockers	N	0			
Retail units	N	0			
Public toilets	N	0			
Disabled toilets	N	0			
Provision of taxi rank	N	0			
Distance to taxi rank (m)	N/A				
Number of spaces available at rank	N/A				
Provision of 'K and R' facilities	N	1			
INFORMATION AT PLATFORMS					
		Poor	Adequate	Good	Additional comments
General Provision of Information at Platforms			✓		
	Platform 1		Platform 2		
Information available in different formats	N		N		
Platforms numbered	N		N		No numbering on Platforms. Only information is small sign stating which platforms are for northbound / southbound services)
Timetables (static display)	Y		Y		
Help points available	N		N		
Platform Information Loudspeaker	N		N		
CIS monitors (dynamic display)	N		N		
'You are Here' Information	N		Y		Located on Platform 2.
Clock	N		N		

INFORMATION AT CENTRAL POINTS					
	Y/N	Poor	Adequate	Good	Additional Information
General Provision of Information at Central Points			✓		
Timetables of all services (static display)	Y				Located on both Platforms.
CIS monitors (dynamic display)	N				
Provision of local area map	N				
'You are Here' Information	Y				Located on Platform 2
Staffed enquiry office / ticketing provision	N				
Clock	N				
PEDESTRIAN / WHEELCHAIR ACCESS (within/around station)					
	Y/N	Poor	Adequate	Good	Additional Information
Level access to station	N				Footbridge required to access Platform 1. Ramped access to Platform 2.
Level access within station	N				Footbridge required to change platforms.
Floor surface even / anti-slip	N				No non-slip on Footbridge. Platform surfaces are of good quality.
Ramp	Y		✓		Platform 1: Ramped access to Platform 1, 6m long by 1m high.
Stairs	Y	✓			Footbridge stairs have no non-slip treads and are very hazardous when wet.
Lifts	N				
Provision of controlled crossing places	N				
Dropped kerbs at crossing points	N				
Direct, short well lit wheelchair access	N				No disabled access to Platform 1.
Identification of possible hazards on walking routes	Y				No pavements.
SECURITY					
	Y/N	Poor	Adequate	Good	Additional Information
Lighting throughout station			✓		Lighting appears to be adequate. No check could be made as survey was carried out in daylight.
Walking routes and walking areas			✓		Three spotlights the level crossing at western end of the station.
Graffiti and vandalism present	N				
Staff on duty	N				Station unmanned
Provision of CCTV	N				Level crossing nearby has CCTV coverage.
Amount of CCTV cameras in operation	N				

CAR PARKING					
		Poor	Adequate	Good	Details
General standard of provision		✓			No car parking available
	Y/N				
On street parking readily available	N				
Car park provided at station	N				
Number of parking spaces	N/A				
% Occupancy	N/A				
Number of disabled car parking spaces	N/A				
% Occupancy	N/A				
Charging Structure and length of stay	N/A				
ACCESSIBILITY (to station)					
	Y/N	Poor	Adequate	Good	Additional Information
General provision of access		✓			
General description of adjacent roads / pavements			✓		
Level access to station	N				Ramped access to Platform 2. Footbridge access to Platform 1.
PEDESTRIAN ACCESS					
	Y / N	Additional Information			
Pedestrian xing/islands within visibility or 100m	N				
Dropped kerbs at pedestrian crossing	N				
Even pavement in non slip materials	N				
BUS SERVICES					
	Details	Additional Information			
Frequency of service (buses per hour):	4	On average 15 minute service to Dundee provided by Strathtay buses no. 73, 73A, and 75.			
Proximity of bus stop (m)	1000m				

BUS STOP /FACILITIES					
	Y / N	Details			
Flag attached to flag post in contrasting colour	N/A	No bus stop in the vicinity of the station.			
Displays bus route number of all routes which stop at stop	N/A				
Displays the stop name	N/A				
Direction of travel displayed	N/A				
Flag is illuminated by light from shelter or street lights	N/A				
Flag is visible to bus drivers/peds from a reasonable distance	N/A				
Bus shelter provided	N/A				
Provides protection from weather & spray and traffic	N/A				
Seating is provided	N/A				
Internal illumination provided	N/A				
Can person in shelter see approaching bus	N/A				
Is a timetable provided	N/A				
Is Real-time info provided	N/A				
Is there a help / contact number provided	N/A				
ROAD ACCESS (In immediate proximity to Station)					
	Y/N	Poor	Adequate	Good	Additional Information
General standard of access			✓		Steps misaligned, new access ramp on Platform 2 unsuitable for use
Station sign posted on approach	Y				
Directions to car park clear	N/A				
Junctions clear and easy to negotiate	Y				No junctions nearby.
Condition of the highway good, with no ponding evident	Y				
Bus stop cage marked	N/A				

BROUGHTY FERRY RAILWAY STATION

GENERAL					
	Details				
Station name:	Broughty Ferry Station				
Station Address:	Gray Street, Brought Ferry, Angus				
Station hours:	24 hour access				
Station manned / unmanned:	Unmanned				
No of Platforms:	2				
Platform types (side / island):	Side				
Platform Lengths:	Platform 1: 215m (From Railtrack records)				
	Platform 2: 215m (From Railtrack records)				
Access between platforms (Footbridge / Subway):	Subway				
Disabled access to station from car parking/bust stop etc?	Yes				
Disabled access between platforms (Y / N): Ramp/Lift?	Yes, though disabled passengers wishing to change platforms would have to do so by using the level crossing				
QUALITY OF STATION ENVIRONMENT					
	Details	Poor	Adequate	Good	Additional Information
Well lit?				✓	Station has had new platform and canopy lights installed.
Area feel secure?			✓		
Surfaces of good quality?				✓	Platforms have recently been resurfaced.
Overall impression?			✓		Station has been recently refurbished.
Rail/bus/taxi/car interchange?	Y				Rail, bus and taxi interchange possible.
Time between platform and car park (minutes)	5mins				
Time between platform and bus stops (minutes)	5mins				Nearest bus stop is Brook street.
Time between platform and taxi rank (minutes)	5mins				
Dropped kerbs from bus stop/ car park to station building	Y				
Time between platform and K & R provision (minutes)	N				

BROUGHTY FERRY RAILWAY STATION

STATION FACILITIES					
		Poor	Adequate	Good	Additional comments
Overall impression of platform environment				✓	
	Y/N	Quantity	Details (record as poor/adequate/good wherever practicable)		
Entrance doors	Y	0	No method of restricting access to station, previous gate has been removed.		
Waiting rooms on Platforms	N	0	Entrance by ramped path on both platforms.		
Waiting shelters on Platforms	Y	2	Platform 1: waiting canopy provided, no seating, approx 15 x 5m in size.		
			Platform 2: waiting canopy provided, 7 seats provided, approx 6m by 2m in size.		
Seats provided	Y	7	Platform 2: 7 single seats provided against wall under waiting canopy.		
Trains visible from waiting area	Y				
Provision of food and drinks dispenser	N	0			
Provision of litter bins	N	0			
Provision of public payphones	Y	1	Card operated payphone available under waiting canopy on Platform 1.		
Covered and secure cycle racks	N	0			
Provision of bike lockers	N	0			
Retail units	N	0			
Public toilets	N	0	Public toilets are provided in the council car park adjacent to the station.		
Disabled toilets	N	0	Public toilets are provided in the council car park adjacent to the station.		
Provision of taxi rank	Y	1	Taxi rank is located in Brook Street.		
Distance to taxi rank (m)	100m				
Number of spaces available at rank	5				
Provision of 'K and R' facilities	N				
INFORMATION AT PLATFORMS					
		Poor	Adequate	Good	Additional comments
General Provision of Information at Platforms			✓		
	Platform 1	Platform 2			
Information available in different formats	N	N			
Platforms numbered	N	Y			Platform 1 is not numbered.
Timetables (static display)	Y	Y			Accurate and up to date.
Help points available	Y	N			Scotrail helpdesk available through the public phone on Platform 1.
Platform Information Loudspeaker	N	N			No Loudspeakers system present in station.
CIS monitors (dynamic display)	N	N			
You are Here' Information	Y	N			Located under waiting canopy on Platform 1.
Clock	N	N			

BROUGHTY FERRY RAILWAY STATION

1b

INFORMATION AT CENTRAL POINTS					
	Y/N	Poor	Adequate	Good	Additional Information
General Provision of Information at Central Points			✓		
Timetables of all services (static display)	Y				Accurate and up to date.
CIS monitors (dynamic display)	N				
Provision of local area map	N				
'You are Here' Information	Y				Locate under waiting canopy on Platform 1.
Staffed enquiry office / ticketing provision	N				
Clock	N				
PEDESTRIAN / WHEELCHAIR ACCESS (within/around station)					
	Y/N	Poor	Adequate	Good	Additional Information
Level access to station	N				Ramped access on both platforms.
Level access within station	N				Subway or Level crossing required to change platforms.
Floor surface even / anti-slip	Y				Surfaces are even, and non slip.
Ramp	Y			✓	Platform 1: access ramp is of light gradient and even slope.
				✓	Platform 2: access ramp is of good quality, gentle gradient and of even surface.
Stairs	Y	✓			Subway stairs: no painted edge, no non slip, poorly lit.
Lifts	N				
Provision of controlled crossing places	N				
Dropped kerbs at crossing points	N				
Direct, short well lit wheelchair access	N				No disabled access to Platform 1.
Identification of possible hazards on walking routes	Y				No pavements.
SECURITY					
	Y/N	Poor	Adequate	Good	Additional Information
Lighting throughout station				✓	Lighting has been recently upgraded. Survey was carried out in daylight so unable to check if all lights are working.
Walking routes and walking areas			✓		Lighting in subway could be improved.
Graffiti and vandalism present	N				
Staff on duty	N				Station unmanned
Provision of CCTV	N				
Amount of CCTV cameras in operation	N				

BROUGHTY FERRY RAILWAY STATION

CAR PARKING					
		Poor	Adequate	Good	Details
General standard of provision			✓		No car parking provided directly for station users. Council car is situated adjacent to station.
	Y/N				
On street parking readily available	Y				On street car parking available in the streets around the station about 25m away.
Car park provided at station	Y				Council car park available.
Number of parking spaces	72				
% Occupancy (12 midday)	75%				Car parking mainly used by local shoppers.
Number of disabled car parking spaces	0				
% Occupancy (12 midday)	N/A				
Charging Structure and length of stay	Y				40p per hour, £1.20 for 3 hours £2.50 for 10 hours.
ACCESSIBILITY (to station)					
	Y/N	Poor	Adequate	Good	Additional Information
General provision of access			✓		
General description of adjacent roads / pavements		✓			Narrow cobblestone Streets.
Level access to station	N				Ramped access to Platform 2. Footbridge access to Platform 1.
PEDESTRIAN ACCESS					
	Y / N	Additional Information			
Pedestrian xing/islands within visibility or 100m	N				
Dropped kerbs at pedestrian crossing	N				
Even pavement in non slip materials	N	Pavements made of standard surfacing.			
BUS SERVICES					
	Details	Additional Information			
Frequency of service (buses per hour):	8	On average a 7 minute service to to Dundee, provided by Strathtay Buses Nos. 73, 73A, 75, 76.			
Proximity of bus stop (m)	100m				

BUS STOP /FACILITIES					
	Y / N	Details			
Flag attached to flag post in contrasting colour	N				
Displays bus route number of all routes which stop at stop	Y				
Displays the stop name	N				
Direction of travel displayed	N				
Flag is illuminated by light from shelter or street lights	Y				
Flag is visible to bus drivers/peds from a reasonable distance	Y				
Bus shelter provided	Y				
Provides protection from weather & spray and traffic	Y				
Seating is provided	N				
Internal illumination provided	Y				
Can person in shelter see approaching bus	Y				
Is a timetable provided	Y	Accurate and up to date.			
Is Real-time info provided	N				
Is there a help / contact number provided	Y				
ROAD ACCESS (In immediate proximity to Station)					
	Y/N	Poor	Adequate	Good	Additional Information
General standard of access			✓		
Station sign posted on approach	Y				
Directions to car park clear	Y				
Junctions clear and easy to negotiate	Y				
Condition of the highway good, with no ponding evident	Y				
Bus stop cage marked	Y				

CARNOUSTIE RAILWAY STATION

GENERAL					
	Details				
Station name:	Carnoustie				
Station Address:	Station Road				
Station hours:	24 hour access				
Station manned / unmanned:	Unmanned				
No of Platforms:	2				
Platform types (side / island):	Side				
Platform Lengths:	Platform 1: 154m (From Railtrack records)				
	Platform 2: 154m (From Railtrack records)				
Access between platforms (Footbridge / Subway):	Footbridge or level crossing.				
Disabled access to station from car parking/bust stop etc?	Yes				
Disabled access between platforms (Y / N): Ramp/Lift?	Yes, though disabled passengers wishing to change platforms would have to do so by using the level crossing				
QUALITY OF STATION ENVIRONMENT					
	Details	Poor	Adequate	Good	Additional Information
Well lit?			✓		Lighting appears to adequate. Survey was carried out in daylight so unable to check if platform and footbridge lights are working.
Area feel secure?		✓			Station situated in open area.
Surfaces of good quality?		✓			Uneven, cracked and misaligned.
Overall impression?		✓			Needs upgrading.
Rail/bus/taxi/car interchange?	Y				Bus only, bus stop approx 60m from station.
Time between platform and car park (minutes)	N/A				
Time between platform and bus stops (minutes)	3mins				
Time between platform and taxi rank (minutes)	N/A				
Dropped kerbs from bus stop/ car park to station building	N				
Provision of K & R Facilities?	N/A				
Time between platform and K & R provision (minutes)	N/A				

STATION FACILITIES					
		Poor	Adequate	Good	Additional comments
Overall impression of platform environment		✓			
	Y/N	Quantity	Details (record as poor/adequate/good wherever practicable)		
Entrance doors	N	0	No facility for restricting access to station		
Waiting rooms on Platforms	N	0			
Waiting shelters on Platforms	Y	2	Platform 1: 6m by 3.5m shelter provided. Platform 2: 4m by 1.1m bus style shelter provided		
Seats provided	Y	6	Platform 1: 4 three seater wooden benches inside waiting shelter, all in good condition, 2 three seater wooden benches outside on the platform. Platform 2: 1 three seater wooden bench inside waiting shelter, in good condition, 1 three seater wooden bench outside on the platform.		
Trains visible from waiting area	Y				
Provision of food and drinks dispenser	N	0			
Provision of litter bins	Y	1	Located in waiting shelter on Platform 1.		
Provision of public payphones	N	0	Nearest payphone is on station road, approx 60m from station.		
Covered and secure cycle racks	N	0			
Provision of bike lockers	N	0			
Retail units	N	0			
Public toilets	N	0			
Disabled toilets	N	0			
Provision of taxi rank	N	0			
Distance to taxi rank (m)	N				
Number of spaces available at rank	N				
Provision of 'K and R' facilities	N				
INFORMATION AT PLATFORMS					
		Poor	Adequate	Good	Additional comments
General Provision of Information at Platforms			✓		
	Platform 1	Platform 2			
Information available in different formats	N	N			
Platforms numbered	Y	Y			
Timetables (static display)	Y	Y			Accurate and up to date.
Help points available	Y	N			Direct phone line to Dundee station provided.
Platform Information Loudspeaker	Y	Y			Unable to determine if audible on day of survey.
CIS monitors (dynamic display)	N	N			
'You are Here' Information	N	Y			Located on Platform 2.
Clock	N	N			

INFORMATION AT CENTRAL POINTS					
	Y/N	Poor	Adequate	Good	Additional Information
General Provision of Information at Central Points			✓		
Timetables of all services (static display)	Y				Accurate and up to date.
CIS monitors (dynamic display)	N				
Provision of local area map	N				
'You are Here' Information	Y				Located on Platform 2.
Staffed enquiry office / ticketing provision	N				
Clock	N				
PEDESTRIAN / WHEELCHAIR ACCESS (within/around station)					
	Y/N	Poor	Adequate	Good	Additional Information
Level access to station	N				Ramped access on both platforms.
Level access within station	N				Footbridge or Level crossing required to change platforms.
Floor surface even / anti-slip	N				Platform surface uneven.
Ramp	Y		✓		Platform 1: access ramp non slip and hand rail provided. Ramp is 2 directional, part 1 is 4m long by 0.5m high, part 2 is 5m long by 0.5m high.
		✓			Platform 2: surface cracked and uneven, no handrail. Ramp 10m long by 1m high.
Stairs	Y			✓	Footbridge: stairs are non slip and have a painted edge.
Lifts	N				
Provision of controlled crossing places	N				
Dropped kerbs at crossing points	N				
Direct, short well lit wheelchair access	N				No disabled access to Platform 1.
Identification of possible hazards on walking routes	Y				No pavement at bottom of footbridge on Platform 2.
SECURITY					
	Y/N	Poor	Adequate	Good	Additional Information
Lighting throughout station			✓		No lighting on Footbridge.
Walking routes and walking areas		✓			No lighting at access ramps. Only 1 light on level crossing.
Graffiti and vandalism present	N				
Staff on duty	N				Station unmanned
Provision of CCTV	Y				CCTV camera only used to monitor the level crossing.
Amount of CCTV cameras in operation	1				

CAR PARKING					
		Poor	Adequate	Good	Details
General standard of provision		✓			No car parking available.
	Y/N				
On street parking readily available	N				
Car park provided at station	N				
Number of parking spaces	N/A				
% Occupancy (12 midday)	N/A				
Number of disabled car parking spaces	N/A				
% Occupancy (12 midday)	N/A				
Charging Structure and length of stay	N/A				
ACCESSIBILITY (to station)					
	Y/N	Poor	Adequate	Good	Additional Information
General provision of access		✓			
General description of adjacent roads / pavements			✓		
Level access to station	N				Ramped access to both platforms.
PEDESTRIAN ACCESS					
	Y / N	Additional Information			
Pedestrian xing/islands within visibility or 100m	N				
Dropped kerbs at pedestrian crossing	N				
Even pavement in non slip materials	N	Pavements are even made of standard surfacing, no non slip.			
BUS SERVICES					
	Details	Additional Information			
Frequency of service (buses per hour):	4	On average 15 minute service to Dundee, provided by Strathtay Buses Nos. 73, 73A, 75.			
Proximity of bus stop (m)	60m				

BUS STOP /FACILITIES					
	Y / N	Details			
Flag attached to flag post in contrasting colour	N				
Displays bus route number of all routes which stop at stop	N				
Displays the stop name	N				
Direction of travel displayed	N				
Flag is illuminated by light from shelter or street lights	Y				
Flag is visible to bus drivers/peds from a reasonable distance	Y				
Bus shelter provided	N				
Provides protection from weather & spray and traffic	N/A				
Seating is provided	N/A				
Internal illumination provided	N/A				
Can person in shelter see approaching bus	N/A				
Is a timetable provided	Y	Accurate and up to date.			
Is Real-time info provided	N				
Is there a help / contact number provided	Y				
ROAD ACCESS (In immediate proximity to Station)					
	Y/N	Poor	Adequate	Good	Additional Information
General standard of access			✓		
Station sign posted on approach	Y				
Directions to car park clear	N/A				No car park available.
Junctions clear and easy to negotiate	Y				
Condition of the highway good, with no ponding evident	Y				
Bus stop cage marked	N				

CUPAR RAILWAY STATION

GENERAL					
	Details				
Station name:	Cupar				
Station Address:	Station Road, Cupar, Fife.				
Station hours:	24 hour access to station, Station manned between 06:00 and 20:30.				
Station manned / unmanned:	Unmanned				
No of Platforms:	2				
Platform types (side / island):	Side				
Platform Lengths:	Platform 1: 153m (From Railtrack records)				
	Platform 2: 153m (From Railtrack records)				
Access between platforms (Footbridge / Subway):	Footbridge				
Disabled access to station from car parking/bust stop etc?	Yes, to Platform 2 only.				
Disabled access between platforms (Y / N): Ramp/Lift?	No disabled interchange between Platforms.				
QUALITY OF STATION ENVIRONMENT					
	Details	Poor	Adequate	Good	Additional Information
Well lit?			✓		Lighting appears to be adequate. Survey was carried out in daylight so unable to check effectiveness of lighting.
Area feel secure?			✓		
Surfaces of good quality?				✓	
Overall impression?				✓	
Rail/bus/taxi/car interchange?	Y				Bus and car interchange only.
Time between platform and car park (minutes)	1min				
Time between platform and bus stops (minutes)	3mins				
Time between platform and taxi rank (minutes)	N/A				
Dropped kerbs from bus stop/ car park to station building	Y				
Time between platform and K & R provision (minutes)	1minute				

STATION FACILITIES					
		Poor	Adequate	Good	Additional comments
Overall impression of platform environment				✓	
	Y/N	Quantity	Details (record as poor/adequate/good wherever practicable)		
Entrance doors	Y	4	Platform 1: Gate at top of overbridge 2m wide.		
			Platform 2: Gate at top of overbridge 1.5m wide.		
			Platform 2: 2.5m gate at northern end of the platform.		
			Platform 2: Main entrance to the station building 0.84m wide.		
Waiting rooms on Platforms	Y	2	Platform 1: 5.5m by 3.5m, clean, heated, level floor.		
			Platform 2: 6.5m by 5.5m, clean, heated, level floor.		
Waiting shelters on Platforms	N	0	No waiting shelters, but a 20m canopy is provided on Platform 1 and 40m canopy is provided on Platform 2.		
Seats provided	Y	4	Platform 1: 2 four seater wooden benches, good condition.		
			Platform 2: 2 four seater wooden benches, good condition.		
Trains visible from waiting area	Y				
Provision of food and drinks dispenser	N	0			
Provision of litter bins	Y	1	Litter bin present in waiting room on Platform 1.		
Provision of public payphones	Y	1	Located on Platform 2, 850mm high, card operated, working.		
Covered and secure cycle racks	Y	3	Three uncovered cycle racks are provide outside the main entrance to the ticket office on Platform 2.		
Provision of bike lockers	N	0			
Retail units	N	0			
Public toilets	Y	2	Ladies and Gents provided on Platform 2, clean and well maintained.		
Disabled toilets	Y	1	Disabled toilet provided on Platform 2, 950mm door, access by key only, well maintained.		
Provision of taxi rank	N	0	Nearest taxi rank is 1km away in the town centre.		
Distance to taxi rank (m)	1km				
Number of spaces available at rank	N/A				
Provision of 'K and R' facilities	Y	1	K and R facility located outside the main entrance on Platform 2.		
INFORMATION AT PLATFORMS					
		Poor	Adequate	Good	Additional comments
General Provision of Information at Platforms			✓		
	Platform 1		Platform 2		
Information available in different formats	N		N		
Platforms numbered	Y		Y		
Timetables (static display)	Y		Y		Accurate and up to date.
Help points available	N		Y		Telephone link to Scotrail provided.
Platform Information Loudspeaker	Y		Y		In good working condition.
CIS monitors (dynamic display)	N		N		
'You are Here' Information	N		Y		Located on Platform 2..
Clock	N		N		

INFORMATION AT CENTRAL POINTS					
	Y/N	Poor	Adequate	Good	Additional Information
General Provision of Information at Central Points				✓	
Timetables of all services (static display)	Y				Timetables available on Platforms, Timetable leaflets for all services available in ticket office.
CIS monitors (dynamic display)	N				
Provision of local area map	Y				Local area map present in car park.
'You are Here' Information	Y				Located on Platform 2.
Staffed enquiry office / ticketing provision	Y				
Clock	Y				
PEDESTRIAN / WHEELCHAIR ACCESS (within/around station)					
	Y/N	Poor	Adequate	Good	Additional Information
Level access to station	Y				To Platform 2 only.
Level access within station	N				Footbridge required to change platforms.
Floor surface even / anti-slip	N				Platform surfaces even. Non-slip surfacing provided on approximately ¾ of platform 1 and ½ of Platform 2.
Ramp	N				
Stairs	Y		✓		Platform 1: Double flight of stairs (16 each flight) present on footbridge, no painted edge.
		✓			Platform 2: 24 step flight of stairs on Footbridge, heavily worn, no painted edge.
Lifts	N				
Provision of controlled crossing places	N				
Dropped kerbs at crossing points	N				
Direct, short well lit wheelchair access	N				No disabled access to Platform 1.
Identification of possible hazards on walking routes	N				No hazards identified.
SECURITY					
	Y/N	Poor	Adequate	Good	Additional Information
Lighting throughout station			✓		Lighting appears to be adequate. Survey was carried out in daylight so unable to check effectiveness of lighting. No lighting on Footbridge.
Walking routes and walking areas			✓		No lighting on lower section of car park.
Graffiti and vandalism present	N				
Staff on duty	Y				Station manned from 06:30 to 20:30.
Provision of CCTV	N				
Amount of CCTV cameras in operation	0				

CAR PARKING					
		Poor	Adequate	Good	Details
General standard of provision				✓	Car park in two sections Upper section recently resurfaced, Lower section has uneven gravel surface. Adding space designation markings would improve car park capacity.
	Y/N				
On street parking readily available	N				
Car park provided at station	Y				
Number of parking spaces	70				Approximately 70 spaces, no space marking exists.
% Occupancy (3 PM)	80%				
Number of disabled car parking spaces	0				
% Occupancy (3 PM)	N/A				
Charging Structure and length of stay	Y				70p per day, £3 per week.
ACCESSIBILITY (to station)					
	Y/N	Poor	Adequate	Good	Additional Information
General provision of access			✓		
General description of adjacent roads / pavements			✓		
Level access to station	Y				On Platform 2 only.
PEDESTRIAN ACCESS					
	Y / N	Additional Information			
Pedestrian xing/islands within visibility or 100m	Y	Dropped kerbs and tactiles present at pedestrian crossing.			
Dropped kerbs at pedestrian crossing	Y				
Even pavement in non slip materials	Y	Pavement in good condition.			
BUS SERVICES					
	Details	Additional Information			
Frequency of service (buses per hour):	5	On Average 5 buses per hour to and from all over Fife.			
Proximity of bus stop (m)	50m				

BUS STOP /FACILITIES					
	Y / N	Details			
Flag attached to flag post in contrasting colour	N				
Displays bus route number of all routes which stop at stop	N				
Displays the stop name	N				
Direction of travel displayed	N				
Flag is illuminated by light from shelter or street lights	Y				
Flag is visible to bus drivers/peds from a reasonable distance	Y				
Bus shelter provided	N				
Provides protection from weather & spray and traffic	N/A				
Seating is provided	N/A				
Internal illumination provided	N/A				
Can person in shelter see approaching bus	N/A				
Is a timetable provided	N				
Is Real-time info provided	N				
Is there a help / contact number provided	N				
ROAD ACCESS (In immediate proximity to Station)					
	Y/N	Poor	Adequate	Good	Additional Information
General standard of access				✓	
Station sign posted on approach	Y				
Directions to car park clear	Y				
Junctions clear and easy to negotiate	Y				
Condition of the highway good, with no ponding evident	Y				
Bus stop cage marked	Y				Clearly marked and monoblock paved.

DUNDEE RAILWAY STATION

GENERAL					
	Details				
Station name:	Dundee				
Station Address:	Dundee Tay Bridge Station, Dundee.				
Station hours:	05:45 - 01:00				
Station manned / unmanned:	Manned				
No of Platforms:	4				
Platform types (side / island):	All Platforms are side platforms.				
Platform Lengths: (All from Railtrack records)	1: 362m	3: 123m			
	2: 198m	4: 316m			
Access between platforms (Footbridge / Subway):	All Platforms are on the same island.				
Disabled access to platforms from car parking/bust stop etc?	Yes, by use of lift within station.				
Disabled access between platforms (Y / N): Ramp/Lift?	Yes, all platforms are on the same island.				
QUALITY OF STATION ENVIRONMENT					
	Details	Poor	Adequate	Good	Additional Information
Well lit?				✓	
Area feel secure?				✓	
Surfaces of good quality?				✓	
Overall impression?				✓	
Rail/bus/taxi/car interchange?	Y				bus, car and taxi possible.
Time between platform and car park (minutes)	7mins				
Time between platform and bus stops (minutes)	3mins				
Time between platform and taxi rank (minutes)	3mins				
Dropped kerbs from bus stop/ car park to station building	Y				
Time between platform and K & R provision (minutes)	3mins				

DUNDEE RAILWAY STATION

STATION FACILITIES					
		Poor	Adequate	Good	
Overall impression of platform environment				✓	
	Y/N	Quantity	Details		
Entrance doors	Y	3	Three automatic entrance doors at station entrance.		
Waiting rooms on Platforms	Y		Waiting room 1: 40m by 15m, heated, clean, catering facilities. Waiting room 2: 15m by 6m, heated, clean.		
Waiting shelters on Platforms	N	0	No waiting shelters but, canopy provided along the length of each platform.		
Seats provided	Y	7	Main waiting room: 5 four seater wooden benches, 2 Three seater wooden benches.		
Trains visible from waiting area	Y				
Provision of food and drinks dispenser	Y	3	Coke machine in central waiting room, 2 chocolate machines on Platforms.		
Provision of litter bins	N	0			
Provision of public payphones	Y	4	Both card and coin operated machines available in the main waiting room.		
Covered and secure cycle racks	Y	4	Located on the platform island, next to the smaller waiting room.		
Provision of bike lockers	N	0			
Retail units	Y	3	The 'Tay Bar' public bar located on the platform area. WH Smith located next to the ticket office. Café / Shop located in main waiting room on the platforms.		
Public toilets	Y	2	Male and female toilets provided on platform area, clean.		
Disabled toilets	Y	1	Access key must be obtained from office on Platform 4.		
Provision of taxi rank	Y	1			
Distance to taxi rank (m)	50m		Taxi rank is located outside the main entrance.		
Number of spaces available at rank	8				
Provision of 'K and R' facilities	Y	1	Located outside main entrance.		
INFORMATION AT PLATFORMS					
	Y/N	Poor	Adequate	Good	
General Provision of Information at Platforms				✓	
	All Platforms		Additional Information		
Information available in different formats	N				
Platforms numbered	Y				
Timetables (static display)	Y		Accurate and up to date.		
Help points available	N		Not really required, as station is manned.		
Platform Information Loudspeaker	Y		In good working condition.		
CIS monitors (dynamic display)	Y		Good provision CIS monitors (9 in total), present at short intervals all along the platform area.		
'You are Here' Information	Y				
Clock	Y		8 Clocks present on platform area.		

INFORMATION AT CENTRAL POINTS					
	Y/N	Poor	Adequate	Good	Additional Information
General Provision of Information at Central Points				✓	
Timetables of all services (static display)	Y				
CIS monitors (dynamic display)	Y				
Provision of local area map	Y				
You are Here' Information	Y				
Staffed enquiry office / ticketing provision	Y				Induction loop present but no lower counter.
Clock	Y				
PEDESTRIAN / WHEELCHAIR ACCESS (within/around station)					
	Y/N	Poor	Adequate	Good	Additional Information
Level access to station	Y				
Level access within station	Y				Yes, by using the lift to access the platform area.
Floor surface even / anti-slip	Y				
Identification of possible hazards on walking routes	N				None identified.
Ramp	N				
Stairs	Y		✓		Platform access stairs: non slip surface and nosing present.
Lifts	Y		✓		Lift located on Platform 1.
SECURITY					
	Y/N	Poor	Adequate	Good	Additional Information
Lighting throughout station				✓	
Walking routes and walking areas			✓		
Graffiti and vandalism present	N				
Staff on duty	Y				Station manned from 05:45: to 01:00. Closed outwith these times.
Provision of CCTV	N				
Amount of CCTV cameras in operation	N/A				

DUNDEE RAILWAY STATION

CAR PARKING					
		Poor	Adequate	Good	Details
General standard of provision			✓		Car Parking is provided by council adjacent to station.
	Y/N				
On street parking readily available	N				
Car park provided at station	Y				
Number of parking spaces (Figures for main car park only)	200				Spaces are poorly laid out, surfacing gravel, uneven.
% Occupancy (1 PM)	80%				
Number of disabled car parking spaces	3				
% Occupancy (1 PM)	100%				
Charging Structure and length of stay	Y				£1.50 for 4 hours, 4 - 6 hours £2.50, 6 -10 hours £4.
ACCESSIBILITY (to station)					
	Y/N	Poor	Adequate	Good	Additional Information
General provision of access			✓		Covered walkway for pedestrians to the city centre, unsuitable for disabled persons. Footpath from car park.
General description of adjacent roads / pavements			✓		
Level access to station	Y				
ACCESS TO WIDER COMMUNITY FACILITIES					
	Details				
Nearest Shopping?	Shopping centre 500m away using the covered walkway.				
Nearest leisure facilities?	Leisure centre 500m away using the covered walkway.				
Significant employers?	Main employers in area are retailing units.				
PEDESTRIAN ACCESS					
	Y / N	Additional Information			
Pedestrian xing/islands within visibility or 100m	Y				
Dropped kerbs at pedestrian crossing	Y				
Even pavement in non slip materials	Y				
BUS SERVICES					
	Details	Additional Information			
Frequency of service (buses per hour):	4	Approximately 4 buses per hour at the Rail Station bus stop. Dundee Seagate Bus station is 10 mintes walking distance away, providing frequent local, regional and National services.			
Proximity of bus stop (m)	50 / 100	50m to bus stop just outside station entrance, 100m to bus stop on main road.			

[illegible]

GOLF STREET RAILWAY STATION

1b

GENERAL					
	Details				
Station name:	Golf Street Station				
Station Address:	Golf Street, Carnoustie, Angus				
Station hours:	24 hour access				
Station manned / unmanned:	Unmanned				
No of Platforms:	2				
Platform types (side / island):	Side				
Platform Lengths:	Platform 1: 66m (From Railtrack records)				
	Platform 2: 66m (From Railtrack records)				
Access between platforms (Footbridge / Subway):	Footbridge				
Disabled access to station from car parking/bust stop etc?	No				
Disabled access between platforms (Y / N): Ramp/Lift?	No				
QUALITY OF STATION ENVIRONMENT					
	Details	Poor	Adequate	Good	Additional Information
Well lit?			✓		Lighting appears to adequate. Survey was carried out in daylight so unable to check if platform and footbridge lights are working.
Area feel secure?			✓		
Surfaces of good quality?		✓			Platform surface sloping
Overall impression?		✓			
Rail/bus/taxi/car interchange?	N				
Time between platform and car park (minutes)	N/A				
Time between platform and bus stops (minutes)	3mins				Nearest bus stop is on High Street 250m away.
Time between platform and taxi rank (minutes)	N/A				
Dropped kerbs from bus stop/ car park to station building	N				
Time between platform and K & R provision (minutes)	N				

STATION FACILITIES					
		Poor	Adequate	Good	Additional comments
Overall impression of platform environment		✓			Platforms uneven and in poor condition.
	Y/N	Quantity	Details (record as poor/adequate/good wherever practicable)		
Entrance doors	Y	2	1.25m Wooden gates on each Platform, good condition.		
Waiting rooms on Platforms	N	0			
Waiting shelters on Platforms	Y	1	Platform 2: unheated, 3m by 1m, steel shelter.		
Seats provided	Y	2	Platform 1: 3m bench along the back of the shelter on platform 1, too high for use. Platform 2: 1 two seater wooden bench, good condition.		
Trains visible from waiting area	N		Unable to see through plexiglass		
Provision of food and drinks dispenser	N	0			
Provision of litter bins	N	0			
Provision of public payphones	N	0	Nearest payphone is 250m away, coin operated.		
Covered and secure cycle racks	N	0			
Provision of bike lockers	N	0			
Retail units	N	0			
Public toilets	N	0			
Disabled toilets	N	0			
Provision of taxi rank	N	0			
Distance to taxi rank (m)	N/A				
Number of spaces available at rank	N/A				
Provision of 'K and R' facilities	N	0			
INFORMATION AT PLATFORMS					
		Poor	Adequate	Good	Additional comments
General Provision of Information at Platforms			✓		
	Platform 1		Platform 2		
Information available in different formats	N		N		
Platforms numbered	Y		Y		
Timetables (static display)	N		Y		Located at entrance gate.
Help points available	N		N		
Platform Information Loudspeaker	Y		Y		One Loudspeaker on each platform only. Unable to determine if working on day of survey.
CIS monitors (dynamic display)	N		N		
You are Here' Information	Y		N		
Clock	N		N		

INFORMATION AT CENTRAL POINTS					
	Y/N	Poor	Adequate	Good	Additional Information
General Provision of Information at Central Points			✓		
Timetables of all services (static display)	Y				Located at entrances to both Platforms.
CIS monitors (dynamic display)	N				
Provision of local area map	N				
'You are Here' Information	Y				Located at entrance gate to Platform 1.
Staffed enquiry office / ticketing provision	N				
Clock	N				
PEDESTRIAN / WHEELCHAIR ACCESS (within/around station)					
	Y/N	Poor	Adequate	Good	Additional Information
Level access to station	N				Stair access to Platform 2. Footbridge access to platform 1.
Level access within station	N				Footbridge required to change platforms.
Floor surface even / anti-slip	N				Platform surface sloping, uneven.
Ramps	Y	✓			Platform 1: 13m Long by 1m high, uneven surface.
		✓			Platform 2: 13m Long by 1m high, uneven surface.
Stairs	Y			✓	Footbridge: Non slip surface, hand rail provided.
		✓			Access stairs to Platform 2: Steps are very steep, no painted edge.
Lifts	N				
Provision of controlled crossing places	N				
Dropped kerbs at crossing points	N				
Direct, short well lit wheelchair access	N				No disabled access to Platform 1.
Identification of possible hazards on walking routes	N				
SECURITY					
	Y/N	Poor	Adequate	Good	Additional Information
Lighting throughout station			✓		No Lighting on footpath to Platform 1. No lighting on footbridge, unable to tell if platform lights are working as survey was carried out in daylight.
Walking routes and walking areas		✓			No lighting at Platform access ramps.
Graffiti and vandalism present	N				
Staff on duty	N				
Provision of CCTV	N				
Amount of CCTV cameras in operation	N				

GOLF STREET RAILWAY STATION

1b

CAR PARKING					
		Poor	Adequate	Good	Details
General standard of provision		✓			No car parking available.
	Y/N				
On street parking readily available	N				
Car park provided at station	N				
Number of parking spaces	N/A				
% Occupancy	N/A				
Number of disabled car parking spaces	N/A				
% Occupancy	N/A				
Charging Structure and length of stay	N/A				
ACCESSIBILITY (to station)					
	Y/N	Poor	Adequate	Good	Additional Information
General provision of access		✓			
General description of adjacent roads / pavements		✓			Narrow road, poor condition.
Level access to station	N				Stair access to Platform 2. Footbridge and ramp access to Platform 1.
PEDESTRIAN ACCESS					
	Y / N	Additional Information			
Pedestrian xing/islands within visibility or 100m	N				
Dropped kerbs at pedestrian crossing	N				
Even pavement in non slip materials	N				
BUS SERVICES					
	Details	Additional Information			
Frequency of service (buses per hour):	4	On average, a 15 minute service to Dundee is provided. By Strathtay Buses Nos. 73, 73A, and 75.			
Proximity of bus stop (m)	250m				

BUS STOP /FACILITIES					
	Y / N	Details			
Flag attached to flag post in contrasting colour	N				
Displays bus route number of all routes which stop at stop	N				
Displays the stop name	N				
Direction of travel displayed	Y				
Flag is illuminated by light from shelter or street lights	Y				
Flag is visible to bus drivers/peds from a reasonable distance	Y				
Bus shelter provided	Y				
Provides protection from weather & spray and traffic	Y				
Seating is provided	Y				
Internal illumination provided	N				
Can person in shelter see approaching bus	Y				
Is a timetable provided	Y	Accurate and up to date.			
Is Real-time info provided	Y	Under construction.			
Is there a help / contact number provided	Y				
ROAD ACCESS (In immediate proximity to Station)					
	Y/N	Poor	Adequate	Good	Additional Information
General standard of access		✓			
Station sign posted on approach	N				
Directions to car park clear	N/A				
Junctions clear and easy to negotiate	N				Tight bends, Residential parking narrows street space.
Condition of the highway good, with no ponding evident	N				Several potholes present.
Bus stop cage marked	N/A				

INVERGOWRIE RAILWAY STATION

GENERAL					
	Details				
Station name:	Invergowrie				
Station Address:	Station Road, Invergowrie				
Station hours:	24 hour access				
Station manned / unmanned:	Unmanned				
No of Platforms:	2				
Platform types (side / island):	Side				
Platform Lengths:	Platform 1: 80m (From Railtrack records)				
	Platform 2: 70m (From Railtrack records)				
Access between platforms (Footbridge / Subway):	Footbridge				
Disabled access to station from car parking/bust stop etc?	No, Access at north end of Platform 2, in an unsuitable state for disabled access				
Disabled access between platforms (Y / N): Ramp/Lift?	No disabled access between platforms				
QUALITY OF STATION ENVIRONMENT					
	Details	Poor	Adequate	Good	Additional Information
Well lit?		✓			No lighting on footbridge, survey was carried out in daylight so unable check if platform lights are working. Lampposts and light fittings appear to be in a bad state of repair.
Area feel secure?		✓			
Surfaces of good quality?		✓			Platform surfaces uneven and covered in moss, trip and slip hazards
Overall impression?		✓			
Rail/bus/taxi/car interchange?	bus only				
Time between platform and car park (minutes)	N/A				
Time between platform and bus stops (minutes)	1				Nearest bus stop is Station Road less than 1 minute away
Time between platform and taxi rank (minutes)	N/A				
Dropped kerbs from bus stop/ car park to station building	N				
Provision of K & R Facilities?	N				
Time between platform and K & R provision (minutes)	N				

INVERGOWRIE RAILWAY STATION

1b

STATION FACILITIES					
		Poor	Adequate	Good	
Overall impression of platform environment		✓			
	Y/N	Quantity	Details (record as poor/adequate/good wherever practicable)		
Entrance doors	Y	1	Entrance gate on Platform 2, 1100mm wide		
Waiting rooms on Platforms	N	0			
Waiting shelters on Platforms	Y	2	Platform 2: unheated, 2.5mx 1.1m, 1 two seater wooden bench in shelter, uneven floor		
Seats provided	Y	2	Platform 1: 1 two seater wooden bench, good condition, inside shelter. Platform 2: 1 two seater wooden bench, good condition.		
Trains visible from waiting area	Y				
Provision of food and drinks dispenser	N	0			
Provision of litter bins	N	0			
Provision of public payphones	Y	1	Located in waiting shelter on Platform 2, card operated only, good condition.		
Covered and secure cycle racks	N	0			
Provision of bike lockers	N	0			
Retail units	N	0			
Public toilets	N	0			
Disabled toilets	N	0			
Provision of taxi rank	N	0			
Distance to taxi rank (m)	N/A				
Number of spaces available at rank	N/A				
Provision of 'K and R' facilities	N	1			
INFORMATION AT PLATFORMS					
		Poor	Adequate	Good	Additional comments
General Provision of Information at Platforms		✓			
	Platform 1	Platform 2			
Information available in different formats	N	N			
Platforms numbered	Y	Y			
Timetables (static display)	N	Y			Info up to date, no timetables on Platform 1
Help points available	N	N			
Platform Information Loudspeaker	N	N			
CIS monitors (dynamic display)	N	N			
You are Here' Information	N	Y			Available on Platform 2 only.
Clock	N	N			

INVERGOWRIE RAILWAY STATION

INFORMATION AT CENTRAL POINTS					
	Y/N	Poor	Adequate	Good	Additional Information
General Provision of Information at Central Points		✓			No timetable on Platform 2
Timetables of all services (static display)	Y				Located on Platform 1, up to date
CIS monitors (dynamic display)	N				
Provision of local area map	N				
'You are Here' Information	Y				Located on Platform 1
Staffed enquiry office / ticketing provision	N				
Clock	N				
PEDESTRIAN / WHEELCHAIR ACCESS (within/around station)					
	Y/N	Poor	Adequate	Good	Additional Information
Level access to station	N				Stair access and uneven ramp access to Platform 2. No access to Platform 1.
Level access within station	N				Footbridge required to change platforms
Floor surface even / anti-slip	N				Wide variety of surfaces present possible trip hazard
Ramp	Y		✓		Platform 2: Ramped access under construction at north end of platform
Stairs	Y	✓			Platform 2: Access stairs adjacent to centre of platform, no non slip surface or painted edge
			✓		Footbridge: non slip treads on footbridge
Lifts	N				
Provision of controlled crossing places	N				
Dropped kerbs at crossing points	N				
Direct, short well lit wheelchair access	N				No disabled access to station
Identification of possible hazards on walking routes	N				No hazards identified on walking routes to station
SECURITY					
	Y/N	Poor	Adequate	Good	Additional Information
Lighting throughout station		✓			No lighting on footbridge, survey was carried out in daylight so unable check if platform lights are working. Lampposts and light fittings appear to be in a bad state of repair.
Walking routes and walking areas		✓			No lighting on access stairs, streetlights provide adequate lighting on walking routes
Graffiti and vandalism present	Y				Graffiti present in waiting shelter on P2 and along the back wall on P1
Staff on duty	N				Station unmanned
Provision of CCTV	N				
Amount of CCTV cameras in operation	N				

INVERGOWRIE RAILWAY STATION

1b

CAR PARKING					
		Poor	Adequate	Good	Details
General standard of provision		✓			No car parking available
	Y/N				
On street parking readily available	N				
Car park provided at station	N				
Number of parking spaces	N/A				
% Occupancy	N/A				
Number of disabled car parking spaces	N/A				
% Occupancy	N/A				
Charging Structure and length of stay	N/A				
ACCESSIBILITY (to station)					
	Y/N	Poor	Adequate	Good	Additional Information
General provision of access		✓			
General description of adjacent roads / pavements		✓			Narrow pavements and no dropped kerbs
Level access to station	N				Access by stairs only
PEDESTRIAN ACCESS					
	Y / N	Additional Information			
Pedestrian xing/islands within visibility or 100m	N				
Dropped kerbs at pedestrian crossing	N				
Even pavement in non slip materials	N				
BUS SERVICES					
	Details	Additional Information			
Frequency of service (buses per hour):	2	Half hourly service to Monifeith via Dundee, provided by Strathtay Buses No. 76.			
Proximity of bus stop (m)	25m				

BUS STOP /FACILITIES					
	Y / N	Details			
Flag attached to flag post in contrasting colour	Y				
Displays bus route number of all routes which stop at stop	N				
Displays the stop name	N				
Direction of travel displayed	Y				
Flag is illuminated by light from shelter or street lights	Y				
Flag is visible to bus drivers/peds from a reasonable distance	Y				
Bus shelter provided	N				
Provides protection from weather & spray and traffic	N/A				
Seating is provided	N/A				
Internal illumination provided	N/A				
Can person in shelter see approaching bus	N/A				
Is a timetable provided	Y	Accurate and up to date			
Is Real-time info provided	N				
Is there a help / contact number provided	Y				
ROAD ACCESS (In immediate proximity to Station)					
	Y/N	Poor	Adequate	Good	Additional Information
General standard of access		✓			Steep Gradient on Station Road.
Station sign posted on approach	N				
Directions to car park clear	N/A				
Junctions clear and easy to negotiate	N				
Condition of the highway good, with no ponding evident	Y				
Bus stop cage marked	N				

LADYBANK RAILWAY STATION

GENERAL					
	Details				
Station name:	Ladybank				
Station Address:	Commercial Road, Ladybank, Fife.				
Station hours:	24 hour access to station.				
Station manned / unmanned:	Unmanned				
No of Platforms:	2				
Platform types (side / island):	Side				
Platform Lengths:	Platform 1: 136m (From Railtrack records)				
	Platform 2: 161m (From Railtrack records)				
Access between platforms (Footbridge / Subway):	Footbridge				
Disabled access to station from car parking/bust stop etc?	No				
Disabled access between platforms (Y / N): Ramp/Lift?	No disabled interchange between Platforms.				
QUALITY OF STATION ENVIRONMENT					
	Details	Poor	Adequate	Good	Additional Information
Well lit?		✓			No lighting in car park and poor lighting in underpass.
Area feel secure?		✓			
Surfaces of good quality?				✓	
Overall impression?			✓		
Rail/bus/taxi/car interchange?	Y				Bus and car interchange only.
Time between platform and car park (minutes)	1min				
Time between platform and bus stops (minutes)	2mins				
Time between platform and taxi rank (minutes)	N/A				
Dropped kerbs from bus stop/ car park to station building	Y				
Time between platform and K & R provision (minutes)	1min				K and R facility not formally laid out.

STATION FACILITIES					
		Poor	Adequate	Good	Additional comments
Overall impression of platform environment			✓		
	Y/N	Quantity	Details (record as poor/adequate/good wherever practicable)		
Entrance doors	Y	1	Entrance by gate on Platform 1, gate 1.4m wide.		
Waiting rooms on Platforms	N	0			
Waiting shelters on Platforms	N	0	No waiting shelters, but 40m canopy provided on both platforms.		
Seats provided	Y	3	Platform 1: 2 Four seater wooden benches, good condition. Platform 2: 1 Three seater wooden bench, good condition.		
Trains visible from waiting area	Y				
Provision of food and drinks dispenser	N	0			
Provision of litter bins	N	0			
Provision of public payphones	Y	1	Located on Platform 1, underneath waiting canopy, card operated only, 1m high.		
Covered and secure cycle racks	N	0			
Provision of bike lockers	N	0			
Retail units	N	0			
Public toilets	N	0			
Disabled toilets	N	0			
Provision of taxi rank	N	0			
Distance to taxi rank (m)	N/A				
Number of spaces available at rank	N/A				
Provision of 'K and R' facilities	Y	1	Not formally laid out.		
INFORMATION AT PLATFORMS					
		Poor	Adequate	Good	Additional comments
General Provision of Information at Platforms			✓		
	Platform 1	Platform 2			
Information available in different formats	N	N			
Platforms numbered	Y	Y			Signs would be better attached to lampposts, than hanging underneath the canopy.
Timetables (static display)	Y	Y			Accurate and up to date.
Help points available	N	N			
Platform Information Loudspeaker	Y	Y			Unable to determine if audible on day of survey.
CIS monitors (dynamic display)	N	N			
You are Here' Information	Y	Y			
Clock	N	Y			Clock not very clear as sited behind barred windows in the station building.

INFORMATION AT CENTRAL POINTS					
	Y/N	Poor	Adequate	Good	Additional Information
General Provision of Information at Central Points			✓		
Timetables of all services (static display)	Y				Accurate and up to date.
CIS monitors (dynamic display)	N				
Provision of local area map	N				
'You are Here' Information	Y				
Staffed enquiry office / ticketing provision	N				
Clock	Y				Clock not very clear as sited behind barred windows in the station building.
PEDESTRIAN / WHEELCHAIR ACCESS (within/around station)					
	Y/N	Poor	Adequate	Good	Additional Information
Level access to station	N				Flight of stairs of stairs required to access station.
Level access within station	N				Underpass required to change platforms
Floor surface even / anti-slip	Y				Platform surfacing non slip and tactiles present.
Ramp	N				
Stairs	Y	✓			Platform 2: Access stairs, no non slip surface, no painted edge.
		✓			Underpass, no non slip surfacing or painted edge, poorly lit.
Lifts	N				
Provision of controlled crossing places	N				
Dropped kerbs at crossing points	N				
Direct, short well lit wheelchair access	N				No disabled access to station.
Identification of possible hazards on walking routes	N				None identified.
SECURITY					
	Y/N	Poor	Adequate	Good	Additional Information
Lighting throughout station		✓			Poor lighting in underpass, several bulbs on platform lampposts are out.
Walking routes and walking areas		✓			
Graffiti and vandalism present	N				
Staff on duty	N				
Provision of CCTV	N				
Amount of CCTV cameras in operation	0				

CAR PARKING					
		Poor	Adequate	Good	Details
General standard of provision		✓			Gravel surfacing, very uneven, no markings and no lighting.
	Y/N				
On street parking readily available	Y				Nearby streets have space to accommodate a small amount of on street parking.
Car park provided at station	Y				
Number of parking spaces	17				
% Occupancy (12:30 PM)	100%				
Number of disabled car parking spaces	0				
% Occupancy (12:30 PM)	N/A				
Charging Structure and length of stay	N				
ACCESSIBILITY (to station)					
	Y/N	Poor	Adequate	Good	Additional Information
General provision of access			✓		
General description of adjacent roads / pavements			✓		No dropped kerbs at crossing points.
Level access to station	N				Stairs must be used to access the station
PEDESTRIAN ACCESS					
	Y / N	Additional Information			
Pedestrian xing/islands within visibility or 100m	N				
Dropped kerbs at pedestrian crossing	N				
Even pavement in non slip materials	N	Surfacing of car park very poor.			
BUS SERVICES					
	Details	Additional Information			
Frequency of service (buses per hour):	2	On average a 30minute service, Served by Fife Scottish X24, X54, 66, 67.			
Proximity of bus stop (m)	50m				

BUS STOP /FACILITIES					
	Y / N	Details			
Flag attached to flag post in contrasting colour	Y				
Displays bus route number of all routes which stop at stop	N				
Displays the stop name	N				
Direction of travel displayed	N				
Flag is illuminated by light from shelter or street lights	Y	Streetlights on opposite side of road only.			
Flag is visible to bus drivers/peds from a reasonable distance	Y				
Bus shelter provided	Y	Shelter is 4m by 1.5m in size, bench seat provided. Bus shelters on both sides of the road.			
Provides protection from weather & spray and traffic	Y				
Seating is provided	Y				
Internal illumination provided	N				
Can person in shelter see approaching bus	Y				
Is a timetable provided	Y				
Is Real-time info provided	N				
Is there a help / contact number provided	Y				
ROAD ACCESS (In immediate proximity to Station)					
	Y/N	Poor	Adequate	Good	Additional Information
General standard of access			✓		
Station sign posted on approach	Y				
Directions to car park clear	N				No directions, but car park obvious.
Junctions clear and easy to negotiate	Y				Quiet roads.
Condition of the highway good, with no ponding evident	Y				
Bus stop cage marked	Y				

LEUCHARS RAILWAY STATION

GENERAL					
	Details				
Station name:	Leuchars				
Station Address:	Station Road, Leuchars, Fife				
Station hours:	24 hour access possible				
Station manned / unmanned:	Manned, 05:30 - 24:00 Monday to Saturday, 08:00 - 24:00 Sunday.				
No of Platforms:	2				
Platform types (side / island):	Island				
Platform Lengths:	Platform 1: 209m (From Railtrack records)				
	Platform 2: 287m (From Railtrack records)				
Access between platforms (Footbridge / Subway):	Island station, level access between platforms				
Disabled access to station from car parking/bust stop etc?	Yes				
Disabled access between platforms (Y / N): Ramp/Lift?	Yes				
QUALITY OF STATION ENVIRONMENT					
	Details	Poor	Adequate	Good	Additional Information
Well lit?				✓	Lighting appears to be of good provision. Survey was carried out in daylight so unable to check if platform and footbridge lights are working.
Area feel secure?			✓		No CCTV.
Surfaces of good quality?				✓	
Overall impression?				✓	
Rail/bus/taxi/car interchange?	Y				Bus, car and taxi interchange.
Time between platform and car park (minutes)	2mins				
Time between platform and bus stops (minutes)	2mins				
Time between platform and taxi rank (minutes)	2mins				
Dropped kerbs from bus stop/ car park to station building	Y				
Time between platform and K & R provision (minutes)	2mins				

LEUCHARS RAILWAY STATION

STATION FACILITIES					
		Poor	Adequate	Good	Additional comments
Overall impression of platform environment				✓	
	Y/N	Quantity	Details (record as poor/adequate/good wherever practicable)		
Entrance doors	N	0	No entrance doors, but ramped footbridge 1.75m wide.		
Waiting rooms on Platforms	Y	1	Clean, heated, 10m by 6m in size.		
Waiting shelters on Platforms	N	0	No waiting shelters but, a canopy of approximately 50m is provided on both platforms.		
Seats provided	Y	13	Waiting room: 6 three seater benches provided in waiting room, good condition. Platform 1: 4 Four seater wooden benches, good condition. Platform 2: 3 Four seater benches all in good condition.		
Trains visible from waiting area	Y				
Provision of food and drinks dispenser	N	0	Cash machine available in ticket office.		
Provision of litter bins	Y	4	2 Bins provided on each platform.		
Provision of public payphones	Y	1	Located under canopy on platform 1, coin and card operated.		
Covered and secure cycle racks	Y	6	6 cycle racks available adjacent to taxi rank, uncovered.		
Provision of bike lockers	Y	5	5 bike lockers available adjacent to taxi rank.		
Retail units	N	0			
Public toilets	Y	2	Male and female toilets provided, clean and well maintained.		
Disabled toilets	Y	1	Clean and well maintained.		
Provision of taxi rank	Y	1			
Distance to taxi rank (m)	50m				
Number of spaces available at rank	7				
Provision of 'K and R' facilities	Y	1	2minute transfer from K and R to platforms.		
INFORMATION AT PLATFORMS					
		Poor	Adequate	Good	Additional comments
General Provision of Information at Platforms			✓		
	Platform 1	Platform 2			
Information available in different formats	N	N			
Platforms numbered	Y	Y			
Timetables (static display)	Y	Y			Accurate and up to date.
Help points available	N	N			
Platform Information Loudspeaker	Y	Y			In good working condition.
CIS monitors (dynamic display)	N	N			
'You are Here' Information	Y	Y			Located on Platform 2.
Clock	N	N			

INFORMATION AT CENTRAL POINTS					
	Y/N	Poor	Adequate	Good	Additional Information
General Provision of Information at Central Points				✓	Timetable leaflets available.
Timetables of all services (static display)	Y				Accurate and up to date.
CIS monitors (dynamic display)	N				
Provision of local area map	Y				
'You are Here' Information	Y				Located on Platform 2.
Staffed enquiry office / ticketing provision	Y				Induction loop, no lower counter.
Clock	Y				
PEDESTRIAN / WHEELCHAIR ACCESS (within/around station)					
	Y/N	Poor	Adequate	Good	Additional Information
Level access to station	N				Ramped footbridge required to access both platforms.
Level access within station	Y				
Floor surface even / anti-slip	Y				Platform surfaces are of good quality.
Ramp	Y			✓	Footbridge ramp has gradient of 1:10, non-slip surface and handrail present.
Stairs	Y			✓	Footbridge: stairs are non slip and have a painted edge.
Lifts	N				
Provision of controlled crossing places	Y				
Dropped kerbs at crossing points	Y				
Direct, short well lit wheelchair access	Y				
Identification of possible hazards on walking routes	N				No hazards identified
SECURITY					
	Y/N	Poor	Adequate	Good	Additional Information
Lighting throughout station				✓	Lighting appears to be of good provision. Survey was carried out in daylight so unable to check if platform and footbridge lights are working.
Walking routes and walking areas			✓		No CCTV.
Graffiti and vandalism present	N				
Staff on duty	Y				Station unmanned
Provision of CCTV	N				CCTV camera only used to monitor the level crossing.
Amount of CCTV cameras in operation	0				

CAR PARKING					
		Poor	Adequate	Good	Details
General standard of provision				✓	Tarmac surfaced car park available.
	Y/N				
On street parking readily available	N				
Car park provided at station	Y				Approximately 50m from station. Clearly laid out. Well lit.
Number of parking spaces	115				
% Occupancy (12 midday)	90%				
Number of disabled car parking spaces	4				
% Occupancy (12 midday)	25%				
Charging Structure and length of stay	Free				
ACCESSIBILITY (to station)					
	Y/N	Poor	Adequate	Good	Additional Information
General provision of access				✓	
General description of adjacent roads / pavements				✓	
Level access to station	N				Ramped access to both platforms.
PEDESTRIAN ACCESS					
	Y / N	Additional Information			
Pedestrian xing/islands within visibility or 100m	N				
Dropped kerbs at pedestrian crossing	N				
Even pavement in non slip materials	Y	Pavements are even made of standard surfacing, no non slip.			
BUS SERVICES					
	Details	Additional Information			
Frequency of service (buses per hour):	3	On average 3 buses per hour, provided by Fife Scottish Nos. 75, 76, 96A.			
Proximity of bus stop (m)	50m				

BUS STOP /FACILITIES					
	Y / N	Details			
Flag attached to flag post in contrasting colour	N				
Displays bus route number of all routes which stop at stop	N				
Displays the stop name	Y				
Direction of travel displayed	N				
Flag is illuminated by light from shelter or street lights	Y				
Flag is visible to bus drivers/peds from a reasonable distance	Y				
Bus shelter provided	Y	Shelter 5m by 1.2m in size.			
Provides protection from weather & spray and traffic	Y				
Seating is provided	Y				
Internal illumination provided	N				
Can person in shelter see approaching bus	Y				
Is a timetable provided	Y	Accurate and up to date.			
Is Real-time info provided	N				
Is there a help / contact number provided	N				
ROAD ACCESS (In immediate proximity to Station)					
	Y/N	Poor	Adequate	Good	Additional Information
General standard of access				✓	
Station sign posted on approach	Y				
Directions to car park clear	Y				No car park available.
Junctions clear and easy to negotiate	Y				
Condition of the highway good, with no ponding evident	Y				
Bus stop cage marked	Y				

MONIFEITH RAILWAY STATION

GENERAL					
	Details				
Station name:	Monifeith				
Station Address:	Union Street, Monifieth, Angus				
Station hours:	24 hour access				
Station manned / unmanned:	Unmanned				
No of Platforms:	2				
Platform types (side / island):	Side				
Platform Lengths:	Platform 1: 137m (From Railtrack records)				
	Platform 2: 137m (From Railtrack records)				
Access between platforms (Footbridge / Subway):	Footbridge				
Disabled access to station from car parking/bust stop etc?	Disabled access possible to both platforms, from pavement				
Disabled access between platforms (Y / N): Ramp/Lift?	No disabled access between platforms				
QUALITY OF STATION ENVIRONMENT					
	Details	Poor	Adequate	Good	Additional Information
Well lit?		✓			No lighting at access points
Area feel secure?		✓			
Surfaces of good quality?			✓		Many different surfaces present trip hazards to passengers
Overall impression?			✓		
Rail/bus/taxi/car interchange?	Car only				
Time between platform and car park (minutes)	N/A				
Time between platform and bus stops (minutes)	10				Nearest Bus stop is High Street approx 750m away
Time between platform and taxi rank (minutes)	N/A				
Dropped kerbs from bus stop/ car park to station building	N				
Time between platform and K & R provision (minutes)	1				

STATION FACILITIES					
		Poor	Adequate	Good	
Overall impression of platform environment			✓		
	Y/N	Quantity	Details (record as poor/adequate/good wherever practicable)		
Entrance doors	N	0	No facility for restricting access to station		
Waiting rooms on Platforms	N	0			
Waiting shelters on Platforms	Y	2	Platform 1: unheated, 3.25 x 1.1m, no seating, phone present		
			Platform 2: unheated, 2.5m x 1.1m, seating bench too high for use		
Seats provided	Y	1	Platform 1: 1 two seater wooden bench, reasonable condition		
Trains visible from waiting area	Y				
Provision of food and drinks dispenser	N	0			
Provision of litter bins	N	0			
Provision of public payphones	Y	1	Located in waiting shelter on Platform 1, card operated only, working, dirty and graffiti present		
Covered and secure cycle racks	N	0			
Provision of bike lockers	N	0			
Retail units	N	0			
Public toilets	N	0			
Disabled toilets	N	0			
Provision of taxi rank	N	0	No rank nearby, taxi phone inside nearby tesco supermarket 500m away		
Distance to taxi rank (m)	N/A				
Number of spaces available at rank	N/A				
Provision of 'K and R' facilities	Y	1	Interchange less than 1 minute from K and R area		
INFORMATION AT PLATFORMS					
		Poor	Adequate	Good	Additional comments
General Provision of Information at Platforms		✓			
	Platform 1	Platform 2			
Information available in different formats	N		N		
Platforms numbered	Y		Y		Numbering at the Eastern end of Platform, should be in a more central position
Timetables (static display)	Y		N		Info up to date, no timetables on platform 2
Help points available	N		N		
Platform Information Loudspeaker	Y		Y		Present, but nable to determine if working on day of survey
CIS monitors (dynamic display)	N		N		
You are Here' Information	Y		N		Available on Platform 1 only
Clock	N		N		

INFORMATION AT CENTRAL POINTS					
	Y/N	Poor	Adequate	Good	Additional Information
General Provision of Information at Central Points		✓			No timetable on Platform 2
Timetables of all services (static display)	Y				Located on Platform 1, up to date
CIS monitors (dynamic display)	N				
Provision of local area map	N				
'You are Here' Information	Y				Located on Platform 1
Staffed enquiry office / ticketing provision	N				
Clock	N				
PEDESTRIAN / WHEELCHAIR ACCESS (within/around station)					
	Y/N	Poor	Adequate	Good	Additional Information
Level access to station	N				Gradient into Platform 2
Level access within station	N				Footbridge required to change platforms
Floor surface even / anti-slip	N				Wide variety of surfaces present possible trip hazard
Ramp	Y		✓		Platform 1: Access ramp adjacent to centre of platform, 40m long 2.5 m high, gradient 1:16
Stairs	Y	✓			Platform 1: Access stairs adjacent to centre of platform, no non slip surface or painted edge
Lifts	N				
Provision of controlled crossing places	N				
Dropped kerbs at crossing points	Y				
Direct, short well lit wheelchair access	N				No lighting on ramp to Platform 1
Identification of possible hazards on walking routes	Y				Limited clearance on underbridge beneath station
SECURITY					
	Y/N	Poor	Adequate	Good	Additional Information
Lighting throughout station			✓		Lighting on Platforms and Footbridge, though not checked at darkness
Walking routes and walking areas		✓			No lighting on access stairs and ramp on platform 1
Graffiti and vandalism present	N				
Staff on duty	N				Station unmanned
Provision of CCTV	N				
Amount of CCTV cameras in operation	N				

CAR PARKING					
		Poor	Adequate	Good	Details
General standard of provision		✓			No car parking available
	Y/N				
On street parking readily available	N				
Car park provided at station	N				
Number of parking spaces	N/A				
% Occupancy	N/A				
Number of disabled car parking spaces	N/A				
% Occupancy	N/A				
Charging Structure and length of stay	N/A				
ACCESSIBILITY (to station)					
	Y/N	Poor	Adequate	Good	Additional Information
General provision of access			✓		
General description of adjacent roads / pavements			✓		Dropped kerbs, tactile paving?
Level access to station	N				
PEDESTRIAN ACCESS					
	Y / N	Additional Information			
Pedestrian xing/islands within visibility or 100m	N				
Dropped kerbs at pedestrian crossing	N				
Even pavement in non slip materials	N				
BUS SERVICES					
	Details	Additional Information			
Frequency of service (buses per hour):	8	On average a 7 minute service to Dundee, provided by Strathtay buses Nos. 73. 73A, 75. 76.			
Proximity of bus stop (m)	500m				

BUS STOP /FACILITIES					
	Y / N	Details			
Flag attached to flag post in contrasting colour	Y				
Displays bus route number of all routes which stop at stop	N				
Displays the stop name	N				
Direction of travel displayed	Y				
Flag is illuminated by light from shelter or street lights	Y				
Flag is visible to bus drivers/peds from a reasonable distance	Y				
Bus shelter provided	Y	6m by 1m Bus shelter			
Provides protection from weather & spray and traffic	Y				
Seating is provided	Y				
Internal illumination provided	N				
Can person in shelter see approaching bus	N	Advertisment board present on right side of shelter obscures vision			
Is a timetable provided	Y				
Is Real-time info provided	Y				
Is there a help / contact number provided	Y				
ROAD ACCESS (In immediate proximity to Station)					
	Y/N	Poor	Adequate	Good	Additional Information
General standard of access		✓			Tight underpass beneath railway only 6ft headroom, very narrow
Station sign posted on approach	N				
Directions to car park clear	N/A				
Junctions clear and easy to negotiate	N				
Condition of the highway good, with no ponding evident	Y				
Bus stop cage marked	N				

MONTROSE RAILWAY STATION

GENERAL					
	Details				
Station name:	Montrose				
Station Address:	Basin View				
Station hours:	Waiting room and station manned between 05:30 and 24:00.				
Station manned / unmanned:	Manned				
No of Platforms:	3				
Platform types (side / island):	Platform 1 - Side platform, Platform 2 - island Platform, Platform 3 currently out of use.				
Platform Lengths:	Platform 1: 258m (From Railtrack records)				
	Platform 2: 217m (From Railtrack records)				
Access between platforms (Footbridge / Subway):	Footbridge				
Disabled access to station from car parking/bust stop etc?	Yes, Disabled access to Platform 1 only.				
Disabled access between platforms (Y / N): Ramp/Lift?	No				
QUALITY OF STATION ENVIRONMENT					
	Details	Poor	Adequate	Good	Additional Information
Well lit?			✓		Lighting appears to adequate. Survey was carried out in daylight so unable to check if platform and footbridge lights are working.
Area feel secure?			✓		
Surfaces of good quality?			✓		
Overall impression?			✓		
Rail/bus/taxi/car interchange?	Y				Yes, taxi, bus and car interchange possible.
Time between platform and car park (minutes)	2mins				
Time between platform and bus stops (minutes)	2mins				
Time between platform and taxi rank (minutes)	1min				
Dropped kerbs from bus stop/ car park to station building	Y				Pavement runs from bus stop to station entrance.
Provision of K & R Facilities?	Y				K and R facility exists but not formally laid out.
Time between platform and K & R provision (minutes)	1min				

MONTROSE RAILWAY STATION

STATION FACILITIES					
		Poor	Adequate	Good	Additional comments
Overall impression of platform environment			✓		
	Y/N	Quantity	Details (record as poor/adequate/good wherever practicable)		
Entrance doors	Y	2	Entrance doors to ticket office are 1.1m wide manual hinged doors.		
Waiting rooms on Platforms	Y	1	Platform 1: heated waiting room, clean, well maintained, 6m by 8m in size.		
Waiting shelters on Platforms			Platform 2: unheated, 6m by 3m in size, clean.		
Seats provided			Platform 1: 6 plastic coated steel benches inside waiting room, 4 three seater wooden benches out on the platform Platform 2: 1 three seater bench in platform, 1 three seater wooden bench out on the platform.		
Trains visible from waiting area	Y				
Provision of food and drinks dispenser	N	0	Cash dispenser available in Platform 1, waiting room.		
Provision of litter bins	Y	5	5 Bins on Platform 1, 1 bin on Platform 2.		
Provision of public payphones	Y	1	Located in waiting room, coin operated, working condition, 1.2m high.		
Covered and secure cycle racks	N				
Provision of bike lockers	N				
Retail units	N				
Public toilets	Y	2	Male and female toilets provided, clean and well maintained.		
Disabled toilets	Y	1	Clean and well maintained, 2.4m by 1.9m in size. Door is 0.9m wide.		
Provision of taxi rank	Y	1			
Distance to taxi rank (m)	20m				
Number of spaces available at rank	6				
Provision of 'K and R' facilities	Y	1	Facilities for Kiss and Ride not formally laid out.		
INFORMATION AT PLATFORMS					
		Poor	Adequate	Good	Additional comments
General Provision of Information at Platforms			✓		No static timetabling on Platform 2.
	Platform 1	Platform 2			
Information available in different formats	N	N			
Platforms numbered	Y	Y			
Timetables (static display)	Y	Y			Accurate and up to date.
Help points available	N	N			Not required as station is manned for all train services.
Platform Information Loudspeaker	Y	Y			Loudspeaker system in good working condition.
CIS monitors (dynamic display)	N	N			
'You are Here' Information	Y	N			
Clock	N	N			

INFORMATION AT CENTRAL POINTS					
	Y/N	Poor	Adequate	Good	Additional Information
General Provision of Information at Central Points			✓		
Timetables of all services (static display)	Y				Accurate and up to date.
CIS monitors (dynamic display)	N				
Provision of local area map	Y				Located on wall of waiting room
'You are Here' Information	Y				
Staffed enquiry office / ticketing provision	Y				Induction loop present but no lower counter.
Clock	Y				Located in waiting room.
PEDESTRIAN / WHEELCHAIR ACCESS (within/around station)					
	Y/N	Poor	Adequate	Good	Additional Information
Level access to station	Y				
Level access within station	N				Footbridge required to change platforms.
Floor surface even / anti-slip	Y				Surfaces generally of good quality.
Ramp			✓		Platform 1: Ramp used to enter waiting room, 2.5m long by 0.2m high.
Stairs				✓	Footbridge: non slip surfacing and painted edge present.
Lifts	N				
Provision of controlled crossing places	Y				
Dropped kerbs at crossing points	Y				
Direct, short well lit wheelchair access	N				No lighting in car park and bus stop area.
Identification of possible hazards on walking routes	N				No hazards identified.
SECURITY					
	Y/N	Poor	Adequate	Good	Additional Information
Lighting throughout station	Y		✓		Lighting within station good.
Walking routes and walking areas		✓			No lighting at taxi rank, bus stop and car park.
Graffiti and vandalism present	N				
Staff on duty	Y				
Provision of CCTV	N				
Amount of CCTV cameras in operation	N				

CAR PARKING					
		Poor	Adequate	Good	Details
General standard of provision		✓			
	Y/N				
On street parking readily available	N				No on street parking nearby
Car park provided at station	Y				
Number of parking spaces	30				Definition poor, poor quality surfacing.
% Occupancy (1 PM)	100%				
Number of disabled car parking spaces	2				Disabled parking 15m from ticket office regularly policed
% Occupancy (1 PM)	100%				
Charging Structure and length of stay	N				Parking free to rail users
ACCESSIBILITY (to station)					
	Y/N	Poor	Adequate	Good	Additional Information
General provision of access			✓		
General description of adjacent roads / pavements			✓		
Level access to station	Y				Platform 1 only.
PEDESTRIAN ACCESS					
	Y / N	Additional Information			
Pedestrian xing/islands within visibility or 100m	Y	For access to High Street.			
Dropped kerbs at pedestrian crossing	Y	Yes, Good Condition, tactile surfacing.			
Even pavement in non slip materials	Y	Pavements are of good quality			
BUS SERVICES					
	Details	Additional Information			
Frequency of service (buses per hour):	2	Services to Stonehaven and Aberdeen provided by Bluebird Buses Nos. 101 and 107.			
Proximity of bus stop (m)	50m				

BUS STOP /FACILITIES					
	Y / N	Details			
Flag attached to flag post in contrasting colour	N				
Displays bus route number of all routes which stop at stop	N				
Displays the stop name	N				
Direction of travel displayed	N				
Flag is illuminated by light from shelter or street lights	N				
Flag is visible to bus drivers/peds from a reasonable distance	Y				
Bus shelter provided	Y	Bus shelter 1.5m wide by 4m long in size.			
Provides protection from weather & spray and traffic	Y				
Seating is provided	Y	Bar seat provided.			
Internal illumination provided	N				
Can person in shelter see approaching bus	Y				
Is a timetable provided	Y				
Is Real-time info provided	N				
Is there a help / contact number provided	Y				
ROAD ACCESS (In immediate proximity to Station)					
	Y/N	Poor	Adequate	Good	Additional Information
General standard of access				✓	New access road recently constructed
Station sign posted on approach	Y				
Directions to car park clear	Y				
Junctions clear and easy to negotiate	Y				
Condition of the highway good, with no ponding evident	Y				
Bus stop cage marked	N				

PERTH RAILWAY STATION

GENERAL					
		Details			
Station name:		Perth			
Station Address:		Station Square, Leonard Street, Perth, Perth and Kinross.			
Station hours:		05:00 - 01:00 Monday to Saturday, 08:00 -12:00 Sundays.			
Station manned / unmanned:		Manned			
No of Platforms:		7			
Platform types (side / island):		Platform 1 Side Platform. Platforms 2 and 3 located on the same island Platforms 4, 5, 6 and 7 located on the same island.			
Platform Lengths: (All from Railtrack records)		1: 219m	3: 122m	5: 200m	7. 433m
		2: 181m	4: 473m	6: 172m	
Access between platforms (Footbridge / Subway):		Platforms 2 and 3 are accessible via the Main Entrance, ramped footbridge required to change to other platforms. Platforms 4, 5, 6 and 7 are accessible via the Glasgow Road entrance without using the footbridge.			
Disabled access to platforms from car parking/bust stop etc?		Yes, From Both Station Car park in station square and Glasgow street car park			
Disabled access between platforms (Y / N): Ramp/Lift?		Disabled access between all platforms possible using the ramped footbridge.			
QUALITY OF STATION ENVIRONMENT					
	Details	Poor	Adequate	Good	Additional Information
Well lit?		✓			Lighting on Platforms 1 & 2 adequate, poor lighting on all the other Platforms.
Area feel secure?			✓		
Surfaces of good quality?		✓			Concreting uneven in most places.
Overall impression?		✓			Standing water on platform surfaces due to leaking roof.
Rail/bus/taxi/car interchange?	Y				Rail, bus, taxi and car interchange.
Time between platform and car park (minutes)	2mins				
Time between platform and bus stops (minutes)	5mins				
Time between platform and taxi rank (minutes)	2mins				
Dropped kerbs from bus stop/ car park to station building	Y				
Time between platform and K & R provision (minutes)	2mins				

PERTH RAILWAY STATION

STATION FACILITIES								
		Poor	Adequate	Good				
Overall impression of platform environment		✓						
	Y/N	Quantity	Details					
Entrance doors	Y	1	Entrance doors located at the Main entrance, automatic operation, 1.8m wide.					
Waiting rooms on Platforms	Y	1	Located next to Platform 4 and 5 on the Platform 4, 5, 6, and 7 island, clean, heated, no bins, 5 four seater wooden benches, people in waiting rooms cannot see approaching trains. Very hard to hear loudspeaker announcements inside the waiting room					
Waiting shelters on Platforms	Y	3	Platform 1: Shelter 3.6m by 3m in size, Heated clean, bus stop style benches provide seating, clean. Platform 2: Shelter 4.2m by 3m, door 1m wide, no seating, clean. Platform 4: Shelter 5m by 2.5m, heated, clean, no bins, 3 three seater steel benches.					
Seats provided	Y	25	Platform 1: 6 Four seater wooden benches, good condition. Platform 2: 7 Four seater wooden benches, good condition. Platform 3: 4 Four seater wooden benches, good condition. Platform 4: 8 Four seater wooden benches, good condition. Platform 5: 2 Four seater wooden benches, good condition.					
Trains visible from waiting area	Y							
Provision of food and drinks dispenser	N	0						
Provision of litter bins	N	0						
Provision of public payphones	Y	3	Located in main concourse, coin and card operated, 1m high.					
Covered and secure cycle racks	Y	6	Located on the North end of Platform 3.					
Provision of bike lockers	Y	5	Located outside the Main entrance next to station car park.					
Retail units	Y	2	WH smith newsagent, and café/bar, both located in the main concourse. Cash machine available in the main concourse.					
Public toilets	Y	2	Located on the station concourse, clean, well maintained.					
Disabled toilets	Y	1	Located on the station concourse, clean, well maintained.					
Provision of taxi rank	Y	1						
Distance to taxi rank (m)	50m		Located directly outside main entrance to the station.					
Number of spaces available at rank	6		Taxi's rank provided by Station Taxis.					
Provision of 'K and R' facilities	Y	1	K and R provided next to Main entrance, K and R also possible at Glasgow Road entrance but not formally laid out.					
INFORMATION AT PLATFORMS								
	Poor	Adequate	Good					
General Provision of Information at Platforms	✓							
Information available in different formats	Platform 1	Platform 2	Platform 3	Platform 4	Platform 5	Platform 6	Platform 7	
Platforms numbered	Y	Y	Y	Y	Y	Y	Y	
Timetables (static display)	Y	Y	Y	Y	N	N	N	
Help points available	N	N	N	N	N	N	N	
Platform Information Loudspeaker	Y	Y	Y	Y	Y	Y	Y	
CIS monitors (dynamic display)	1	1	N	Y	Y	N	N	
You are Here' Information	N	N	N	Y	N	N	N	
Clock	Y	Y	Y	Y	Y	N	N	
Additional Information	1 CIS monitor on Platforms 1 and 2. There are 4 CIS monitors on Platform 4, though 3 were out of order / not connected on day of survey. The CIS monitor on Platform 5 was also out of order / not connected.							

INFORMATION AT CENTRAL POINTS					
	Y/N	Poor	Adequate	Good	Additional Information
General Provision of Information at Central Points				✓	
Timetables of all services (static display)	Y				Accurate and up to sate. Timetable leaflets also available.
CIS monitors (dynamic display)	N				No CIS monitor but departure board provided.
Provision of local area map	Y				Located just outside the main entrance.
You are Here' Information	Y				
Staffed enquiry office / ticketing provision	Y				Induction loop and lower counter available.
Clock	Y				
PEDESTRIAN / WHEELCHAIR ACCESS (within/around station)					
	Y/N	Poor	Adequate	Good	Additional Information
Level access to station	Y				Dropped kerbs in use.
Level access within station	N				Ramped footbridge required to change platforms.
Floor surface even / anti-slip					
Identification of possible hazards on walking routes	N				
Ramp (All ramps at Perth 20m long by 3m high)	Y		✓		Platform 1: Ramp to footbridge level, non slip surface.
			✓		Platform 2: Ramp to footbridge level, non slip surface.
		✓			Platform 3: Ramp to footbridge level, no non slip surface.
		✓			Platform 4: Ramp to footbridge level, no non slip surface.
Stairs	Y			✓	Platform 1:Stairs to footbridge level, new nosing and painted edge.
				✓	Platform 2:Stairs to footbridge level, new nosing and painted edge.
			✓		Platform 3: Stairs to footbridge level.
			✓		Platform 4: Stairs to footbridge level.
Lifts	Y	✓			Freight lift between platform Islands, currently out of order.
SECURITY					
	Y/N	Poor	Adequate	Good	Additional Information
Lighting throughout station		✓			Apart from Platforms 1 and 2, lighting is generally poor.
Walking routes and walking areas		✓			
Graffiti and vandalism present	N				
Staff on duty	Y				Station manned between 05:00 and 01:00, Mon to Sat.
Provision of CCTV	N				
Amount of CCTV cameras in operation	N				

CAR PARKING					
		Poor	Adequate	Good	Details
General standard of provision			✓		Tarmac surfacing
	Y/N				
On street parking readily available	N				
Car park provided at station	Y				Two car parks provided.
Number of parking spaces (Figures for main car park only)	45				Clearly laid out, 3 25 minute stay spaces are also provided
% Occupancy (AM peak)	100				
Number of disabled car parking spaces	3				
% Occupancy (AM peak)	100				
Charging Structure and length of stay	Y				£2 Daily, Weekly £7.50, Monthly £20, 3 Monthly £50, Annually £175
ACCESSIBILITY (to station)					
	Y/N	Poor	Adequate	Good	Additional Information
General provision of access			✓		
General description of adjacent roads / pavements			✓		
Level access to station	Y				Dropped kerbs provided.
ACCESS TO WIDER COMMUNITY FACILITIES					
	Details				
Nearest Shopping?	Shopping area ¼ mile away.				
Nearest leisure facilities?	Leisure centre 1 mile away.				
Significant employers?	None on immediate vicinity, main employers in nearby is the retail trade.				
PEDESTRIAN ACCESS					
	Y / N	Additional Information			
Pedestrian xing/islands within visibility or 100m	Y				
Dropped kerbs at pedestrian crossing	Y	Crossing recently upgraded, all surfaces are of good condition.			
Even pavement in non slip materials	Y				
BUS SERVICES					
	Details	Additional Information			
Frequency of service (buses per hour):	1	Please see also additional information section at foot of Audit sheet.			
Proximity of bus stop (m)	100m				

BUS STOP /FACILITIES					
	Y / N	Details			
Flag attached to flag post in contrasting colour	Y				
Displays bus route number of all routes which stop at stop	N				
Displays the stop name	N				
Direction of travel displayed	N				
Flag is illuminated by light from shelter or street lights	Y				
Flag is visible to bus drivers/peds from a reasonable distance	Y				
Bus shelter provided	Y	Bus shelter 1.7m by 1.3m in size, good condition, almost new.			
Provides protection from weather & spray and traffic	Y				
Seating is provided	Y				
Internal illumination provided	Y				
Can person in shelter see approaching bus	Y				
Is a timetable provided	Y				
Is Real-time info provided	N				
Is there a help / contact number provided	Y				
ROAD ACCESS (In immediate proximity to Station)					
	Y/N	Poor	Adequate	Good	Additional Information
General standard of access				✓	
Station sign posted on approach	Y				
Directions to car park clear	Y				
Junctions clear and easy to negotiate	Y				
Condition of the highway good, with no ponding evident	Y				
Bus stop cage marked	Y				
ADDITIONAL INFORMATION					
Bus Station within 500m of main entrance to station, bus station provides both local, regional and national services.					
Left luggage facilities - 16 (0.5m by 0.4m) lockers, 18 (0.6m by 0.4m) lockers, and (0.9m by 0.5m) lockers, not operational on day of survey, due to security reasons.					
WH smith open from 06:00 to 18:00 Monday to Friday, 08:00 to 16:00 on Saturdays.					

SPRINGFIELD RAILWAY STATION

GENERAL					
	Details				
Station name:	Cupar				
Station Address:	Station Road, Springfield, Fife.				
Station hours:	24 hour access to station.				
Station manned / unmanned:	Unmanned				
No of Platforms:	2				
Platform types (side / island):	Side				
Platform Lengths:	Platform 1: 115m (From Railtrack records)				
	Platform 2: 115m (From Railtrack records)				
Access between platforms (Footbridge / Subway):	Footbridge				
Disabled access to station from car parking/bust stop etc?	No				
Disabled access between platforms (Y / N): Ramp/Lift?	No disabled interchange between Platforms.				
QUALITY OF STATION ENVIRONMENT					
	Details	Poor	Adequate	Good	Additional Information
Well lit?		✓			No lighting at access points.
Area feel secure?		✓			
Surfaces of good quality?		✓			
Overall impression?		✓			
Rail/bus/taxi/car interchange?	Y				Bus interchange only.
Time between platform and car park (minutes)	N/A				
Time between platform and bus stops (minutes)	5mins				
Time between platform and taxi rank (minutes)	N/A				
Dropped kerbs from bus stop/ car park to station building	N				
Time between platform and K & R provision (minutes)	N/A				

STATION FACILITIES					
		Poor	Adequate	Good	Additional comments
Overall impression of platform environment		✓			
	Y/N	Quantity	Details (record as poor/adequate/good wherever practicable)		
Entrance doors	N	0	24 hour access possible.		
Waiting rooms on Platforms	N	0			
Waiting shelters on Platforms	Y	1	16m by 2m canopy provided for shelter on Platform 1. Shelter approximately 3m by 1.5m in size, leaking roof.		
Seats provided	Y	2	Platform 2: 2 three seater wooden benches inside waiting shelter.		
Trains visible from waiting area	Y				
Provision of food and drinks dispenser	N	0			
Provision of litter bins	N	0			
Provision of public payphones	Y	1	Located on Platform 1, underneath waiting canopy.		
Covered and secure cycle racks	N	0			
Provision of bike lockers	N	0			
Retail units	N	0			
Public toilets	N	0			
Disabled toilets	N	0			
Provision of taxi rank	N	0			
Distance to taxi rank (m)	N/A				
Number of spaces available at rank	N/A				
Provision of 'K and R' facilities	N	0			
INFORMATION AT PLATFORMS					
		Poor	Adequate	Good	Additional comments
General Provision of Information at Platforms		✓			
	Platform 1	Platform 2			
Information available in different formats	N		N		
Platforms numbered	Y		Y		
Timetables (static display)	Y		Y		Accurate and up to date.
Help points available	Y		N		Telephone link to Scotrail provided.
Platform Information Loudspeaker	N		N		
CIS monitors (dynamic display)	N		N		
'You are Here' Information	Y		N		Located on Platform 1 only.
Clock	N		N		

INFORMATION AT CENTRAL POINTS					
	Y/N	Poor	Adequate	Good	Additional Information
General Provision of Information at Central Points			✓		
Timetables of all services (static display)	Y				Accurate and up to date.
CIS monitors (dynamic display)	N				
Provision of local area map	N				
'You are Here' Information	Y				
Staffed enquiry office / ticketing provision	N				
Clock	N				
PEDESTRIAN / WHEELCHAIR ACCESS (within/around station)					
	Y/N	Poor	Adequate	Good	Additional Information
Level access to station	N				Stairs and Ramped path to access Platform 1. Ramped path to access Platform 2.
Level access within station	N				Footbridge required to change platforms.
Floor surface even / anti-slip	N				Paths to station in dreadful condition, very hazardous if wet. Platform surfaces poor. Platform surfaces unsuitable for wheelchairs - loose red gravel chips.
Ramp	Y	✓			Steep gravel ramp access to Platform 2. 8m long by 2m high, very hazardous if wet.
Stairs	Y	✓			Platform 1: 12 step flight of stairs on path to P1, no non slip surface, no painted edge.
				✓	Footbridge: Stairs of non slip surfacing.
Lifts	N				
Provision of controlled crossing places	N				
Dropped kerbs at crossing points	N				
Direct, short well lit wheelchair access	N				No disabled access to Platform 1.
Identification of possible hazards on walking routes	Y				Path to Platform 1, crosses the driveway of a nearby house.
SECURITY					
	Y/N	Poor	Adequate	Good	Additional Information
Lighting throughout station		✓			No lighting at access points.
Walking routes and walking areas		✓			No lighting on pathway to Platform 1.
Graffiti and vandalism present	N				
Staff on duty	N				
Provision of CCTV	N				
Amount of CCTV cameras in operation	0				

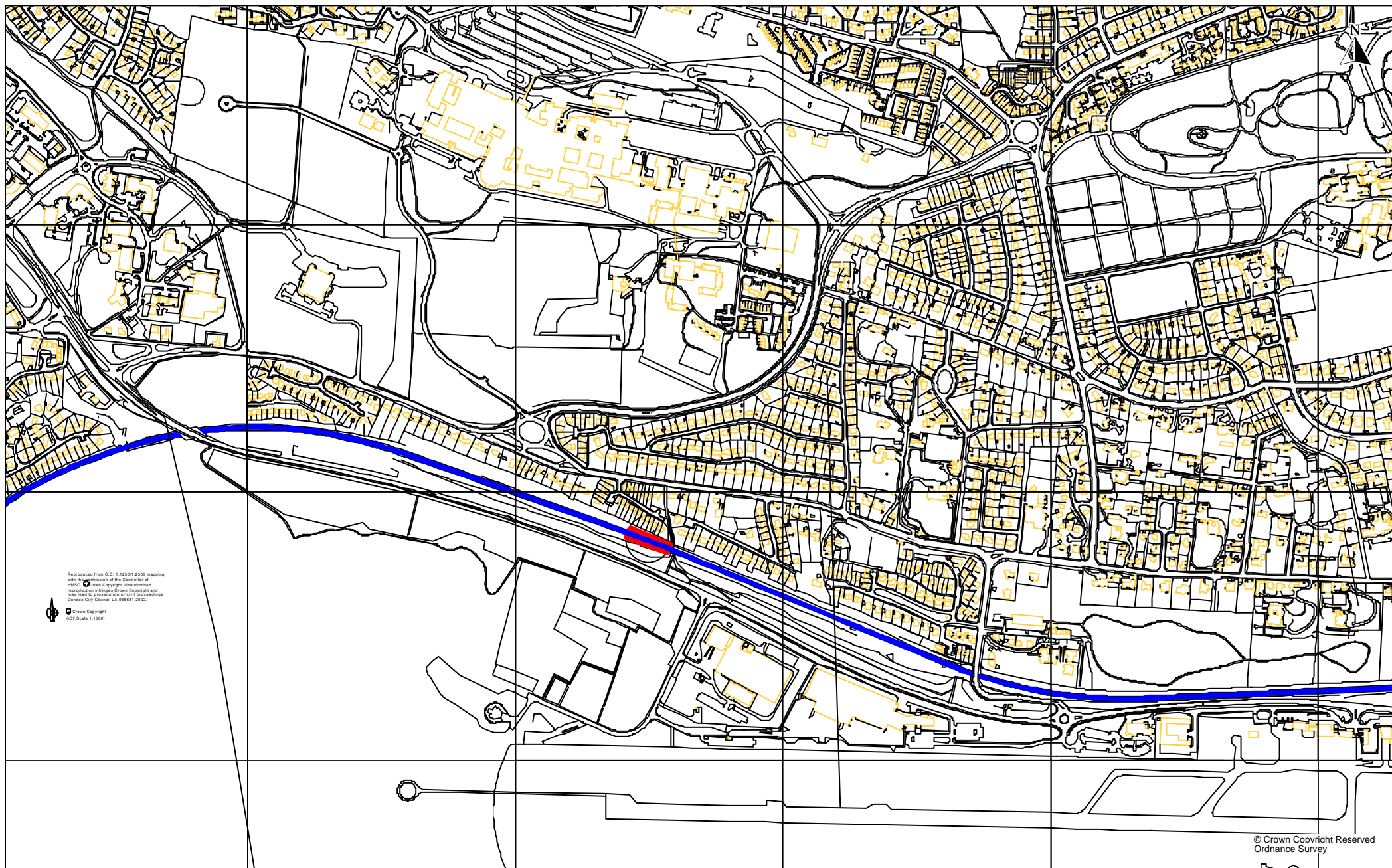
CAR PARKING					
		Poor	Adequate	Good	Details
General standard of provision		✓			No parking available.
	Y/N				
On street parking readily available	N				
Car park provided at station	N				
Number of parking spaces	0				
% Occupancy	N/A				
Number of disabled car parking spaces	0				
% Occupancy	N/A				
Charging Structure and length of stay	N/A				
ACCESSIBILITY (to station)					
	Y/N	Poor	Adequate	Good	Additional Information
General provision of access		✓			
General description of adjacent roads / pavements		✓			Narrow pavements, where pavements exist, Tight bends on nearby roads.
Level access to station	N				On Platform 2 only.
PEDESTRIAN ACCESS					
	Y / N	Additional Information			
Pedestrian xing/islands within visibility or 100m	N				
Dropped kerbs at pedestrian crossing	N				
Even pavement in non slip materials	N	Pavements narrow, where present.			
BUS SERVICES					
	Details	Additional Information			
Frequency of service (buses per hour):	1	Bi hourly services provided by Fife Scottish No. 66, and Fife Scottish 64 / 64A.			
Proximity of bus stop (m)	50m				

BUS STOP /FACILITIES					
	Y / N	Details			
Flag attached to flag post in contrasting colour	N				
Displays bus route number of all routes which stop at stop	N				
Displays the stop name	N				
Direction of travel displayed	N				
Flag is illuminated by light from shelter or street lights	N	Streetlights on opposite side of road only.			
Flag is visible to bus drivers/peds from a reasonable distance	Y				
Bus shelter provided	N				
Provides protection from weather & spray and traffic	N/A				
Seating is provided	N/A				
Internal illumination provided	N/A				
Can person in shelter see approaching bus	N/A				
Is a timetable provided	N				
Is Real-time info provided	N				
Is there a help / contact number provided	N				
ROAD ACCESS (In immediate proximity to Station)					
	Y/N	Poor	Adequate	Good	Additional Information
General standard of access		✓			
Station sign posted on approach	Y				
Directions to car park clear	N/A				
Junctions clear and easy to negotiate	N				Narrow roads and tight junctions and bends on surrounding roads.
Condition of the highway good, with no ponding evident	Y				
Bus stop cage marked	N				Clearly marked and monoblock paved.

Tay Estuary Rail Study

Working Paper B – Constraints and Development of Options

Appendix C – Dundee West – Proposed Station Location



Tay Estuary Rail Study
Proposed Dundee West Station - Indicative Location