

# Scottish Association for Public Transport

## CALEDONIAN EXPRESS

### 1 Introduction

This document is intended as input to the study of the Edinburgh-Shotts-Glasgow rail route now being undertaken by Oscar Faber for SPT and a number of councils across the Central Belt.

Summary of existing Edinburgh-Glasgow services in the study area:

- a) **Edinburgh - Falkirk - Glasgow Queen Street (E&G):** ScotRail's flagship route with four trains per hour with convenient connections from the SPT rail network north of the Clyde, and for the Croy, Falkirk, Polmont and Linlithgow areas.
- b) **Edinburgh- Livingston South – Shotts - Glasgow Central:** Hourly slow service paralleling M8 but averaging only 30 mph due to frequent intermediate stops.
- c) **Edinburgh-Carstairs-Glasgow Central:** Indirect 57-mile route via West Coast Main Line served by GNER Glasgow Central- London Kings Cross trains running every two hours, but with less regular departure times westbound from Edinburgh, sometimes subject to long-distance delay.

### 2 “Caledonian Express” Objectives

A review of potential train service development across Central Scotland should seek to widen the market for rail on the “M8 corridor” by focusing on areas not well served by the current train services:

- Major towns in Lanarkshire are not served directly by the E&G or Shotts train service
  - Objective 1 Improve service from Motherwell to Edinburgh**
  - Objective 2 Provide rail service from Coatbridge Whifflet to Edinburgh**
  - Objective 3 Provide rail service from Hamilton to Edinburgh**
- The rail service from Livingston to Glasgow via Shotts is slow (average 30 mph)
  - Objective 4 Improve rail service from Livingston South to Glasgow and Edinburgh**
  - Objective 5 Provide 2 trains/hour from P+R development at Kirknewton/ Midcalder**
- Suburban trains on SPT lines south of the Clyde arrive at Glasgow Central which has no direct rail link to Queen Street. The transfer between Central and Queen Street is inconvenient, particularly for the elderly and for passengers with luggage or young children. Parking at Glasgow Queen Street is limited, and the approach is through congested city centre streets. For these reasons, rail is uncompetitive with car for journeys to Edinburgh from Ayrshire, Inverclyde, Renfrewshire, East Renfrewshire, and Glasgow Southside (See Appendix for populations involved)
  - Objective 6 Provide half-hourly express from Glasgow Central to Edinburgh**
  - Objective 7 Develop P+R railhead south-east of Glasgow with 2 trains/hour to Edinburgh**

In summary, more than half the population of west-central Scotland have no direct access to the flagship Edinburgh- Glasgow Queen Street train service. An attractive train service to Edinburgh linking to the SPT South Side rail network at Glasgow Central, and serving the “M8/ M74 corridor” communities in Lanarkshire, would increase rail's modal share.

**Revenue support costs for “Caledonian Express”** should be evaluated against two factors:

1. The beneficial effect of reducing road traffic growth on the M8
2. The social value of providing good public transport from Lanarkshire to areas of higher employment in Edinburgh and Livingston.

By consolidating separate rail services in Lanarkshire, including Glasgow-Whifflet and Glasgow-Shotts-Edinburgh, additional train costs for “Caledonian Express” could be kept to a minimum while revenue and benefit would increase. For the options suggested in this paper, the relative benefits and probable impact on train requirements are estimated in the following sections. Potential additional revenue should be identified by the Oscar Faber study.

### 3 Potential Routes and Journey Times

**3.1 Edinburgh-Falkirk-Glasgow Queen Street:** The 47 mile Falkirk route supports the flagship 100mph ScotRail service with a **48 minute journey time** with three stops, 50 minutes with four stops.

**3.2 Edinburgh-Carstairs-Glasgow Central:** The 57 mile West Coast route via Carstairs, used by GNER Glasgow-Edinburgh-London trains, takes around 58 minutes with a stop at Motherwell. Journey time could be reduced by 4 or 5 minutes by constructing a curve at Carstairs bypassing the 15 mph speed limit through Carstairs junction. However, this is unlikely to be funded ahead of re-awarding the East Coast franchise. A “Caledonian Express” service operated by 90 or 100 mph electric multiple unit trains routed via Motherwell and Carstairs, with five intermediate stops, would be expected to take around **65 minutes** between Glasgow Central and Edinburgh, corresponding to minimum 50-minute Motherwell-Edinburgh and Livingston (Midcalder) -Glasgow journey times.

**3.3 Edinburgh-Shotts-Glasgow Central:** Journey times on the 47 mile Shotts route are affected by lower speed limits between Uddingston and Midcalder. Nevertheless, the short-lived “Capital Enterprise” Stranraer-Glasgow Central-Edinburgh 75 mph Class 156 train was timetabled in summer 1991 to reach Edinburgh in 60 minutes from Glasgow Central with one intermediate stop. The Glasgow Central-Edinburgh journey via Shotts could on occasion be covered in around 50 minutes by this train. With five intermediate stops a 65 minute journey time should be possible. Class 158 or Turbostar trains could operate at higher speeds on the West Coast Main Line sections of the route, reducing the target journey time towards **60 minutes**.

A number of alternative routes could be considered as a means of providing direct train services to Edinburgh from the main conurbations of Lanarkshire, and from Livingston to Glasgow, including:

*Via Motherwell:*

3.4 Glasgow Central-Motherwell-Carstairs-Kirknewton-Edinburgh

3.5 Glasgow Central-Hamilton-Motherwell-Holytown-Carstairs-Kirknewton-Edinburgh

*Via Coatbridge Whifflet:*

3.6 Glasgow Central -Coatbridge Whifflet-Holytown-Shotts-Livingston-Kirknewton-Edinburgh

*Via Coatbridge Whifflet and Motherwell:*

3.7 Glasgow Central -Whifflet-Motherwell-Holytown-Shotts-Livingston-Kirknewton-Edinburgh

Other possible routes from Glasgow to Lanarkshire from Queen Street Low Level via Sunnyside, or High Level via Stepps and Coatbridge Central., are unlikely to merit detailed study.

### 4 Interchange and P+R Stations

**Glasgow Central:** “Caledonian Express” could provide cross-platform interchange in Glasgow Central for journeys to Edinburgh originating on the Glasgow Southside, Ayrshire or Inverclyde rail network. However, the competitiveness of this compared with using car, or transferring to Queen Street station to use the Falkirk route, would depend on the frequency and speed that “Caledonian Express” could offer. A half-hourly service with 60 minute journey time would be the minimum requirement. (The “Glasgow CrossRail” scheme could also, in the longer term, improve accessibility to Queen Street station and the E&G train service from the East Kilbride and Glasgow Southside lines)

Stations (or potential sites\*) that should be considered for major Park+Ride car parks include:

- **Livingston Parkway\*** (A71 Midcalder Junction, also for Virgin & GNER Anglo-Scottish trains)
- **Kirknewton** (A71, also for Virgin & GNER)
- **Motherwell** (1 mile from the M74, also useful for Virgin and GNER Anglo-Scottish trains)
- **Carfin** (A723, near proposed Ravenscraig development)
- **Rutherglen** (this would need a road exit from the proposed M74 extension)
- **Rutherglen East\*** (linked to the proposed M74 extension)
- **Tannochside\***
- **Newton** (subject to improved road access from M74)

## 5 Caledonian Express: Service Options

The routes in Section 3 offer a number of service options for evaluation.

A limited stop Glasgow Central-Shotts-Livingston-Edinburgh hourly service has been included in all options suggested below for further investigation.

GNER's two-hourly Glasgow Central-Motherwell-Edinburgh trains provide a high-quality fast service which should be included in the "Caledonian Express" assessment. Upgrading this service to hourly by providing Glasgow-Motherwell-Edinburgh shuttles filling in the gaps in the GNER pattern would provide an hourly express via Motherwell and Kirknewton with minimal resources, and has also been included in all options suggested for further investigation.

To maintain service to intermediate stops on the Shotts line, the least expensive combinations of services are likely to be the three following alternatives:

- 1 Extend Glasgow-Whifflet service hourly via Shotts and Livingston through to Edinburgh
- 2 Extend Glasgow-Whifflet trains hourly to Shotts, and North Berwick-Edinburgh trains hourly to Kirknewton
- 3 Extend Glasgow-Whifflet trains hourly to Shotts, extend Argyle line-Hamilton-Motherwell trains via Carstairs and Kirknewton to Edinburgh

The full service pattern under each of these three options are summarised in Table 5.1 below:

Option	Service combination
1	Glasgow Cen – Bellshill – Shotts- Livingston- Edinburgh limited stop hourly Glasgow Cen – Whifflet- Shotts- Livingston- Edinburgh hourly stopping service Glasgow Cen – Whifflet – Motherwell hourly GNER Glasgow Central – Motherwell- Edinburgh two-hourly } aggregate Glasgow Central-Motherwell-Carstairs-Edinburgh two-hourly } hourly
2	Glasgow Cen-Bellshill-Shotts-Livingston-Edinburgh limited stop hourly Glasgow Cen –Whifflet-Shotts hourly stopping service Glasgow Cen – Whifflet – Motherwell hourly GNER Glasgow Central-Motherwell-Edinburgh two-hourly } aggregate Glasgow Central-Motherwell-Carstairs-Edinburgh two-hourly } hourly Kirknewton – Edinburgh (- N.Berwick) hourly stopping service
3	Glasgow Cen – Bellshill- Shotts – Livingston- Edinburgh limited stop hourly Glasgow Cen –Whifflet-Shotts hourly Glasgow Cen – Whifflet – Motherwell hourly Argyle line-Glasgow Cen- Hamilton-Motherwell- Carstairs-Kirknewton-Edinburgh hourly GNER Glasgow Central-Motherwell-Edinburgh two-hourly } aggregate Glasgow Central-Motherwell-Carstairs-Edinburgh two-hourly } hourly

Table 5.2 below shows comparison of these three options against the seven objectives

Objective		Option 1	Option 2	Option 3
1	Improve Motherwell-Edinburgh train service	4	4	4
2	Provide Coatbridge-Edinburgh hourly train service	4	6	6
3	Provide Hamilton-Edinburgh hourly train service	6	6	4
4	Livingston South-Edinburgh/ Glasgow improved service	4	6	6
5	Kirknewton P+R Edinburgh/ Glasgow twice hourly	4	4	4
6	Lanarkshire-Edinburgh P+R service twice hourly	3	4	4
7	Glasgow Central-Edinburgh twice hourly	4	4	4

Option 2 (where intermediate stations on the Shotts route would be served by separate Glasgow-Shotts and Kirknewton-Edinburgh shuttles) achieves fewer of the objectives than the other two options.

Option 3 involves an hourly stopping service from the Argyle line via Motherwell and Carstairs to Edinburgh. This would share the West Coast Main Line with Virgin, GNER and railfreight and could be more difficult to schedule reliably.

An initial estimate of resource requirements in terms of train fleet size and train miles for Option 1 follows in Section 6 below.

## 6 TRAIN FLEET and TRAIN MILES

### 6.1 TRAIN FLEET

Current Glasgow-Whifflet and Glasgow-Shotts-Edinburgh services attain quite low train utilisation:

<u>Route</u>	<u>Service</u>	<u>Train fleet</u>
Glasgow-Whifflet	2 per hour	3
Glasgow-Shotts-Edinburgh	Hourly	4
Coatbridge-Motherwell (continues to Dalmuir)	Hourly	$\frac{1}{2}$
Total		$\frac{8}{2}$

“Caledonian Express” would consolidate services to achieve higher mileages and service level on the Shotts route with the same size of train fleet (based on draft outline timetable) :

Glasgow-Whifflet-Shotts-Edinburgh	Hourly }	
Glasgow-Whifflet-Motherwell	Hourly }	8
Glasgow-Shotts-Edinburgh limited stop	Hourly }	

### 6.2 Glasgow-Motherwell-Edinburgh hourly “CALEDONIAN EXPRESS”

The options in Table 5.1 assume an hourly Glasgow-Motherwell-Edinburgh express service could be provided by operating some ScotRail Glasgow-Edinburgh journeys in addition to the two-hourly Glasgow-Edinburgh-London GNER trains. The feasibility of this is shown in the table below, based on the current autumn 2001 GNER timetable. Minor retimings of GNER trains westbound from Edinburgh would be needed to give a regular departure pattern from Edinburgh to Glasgow (current departure times at 08.10, 09.19, 12.19, 14.16, 15.21 could be regularised to 20 minutes past the hour. The June 2002 GNER timetable is believed to introduce a more regular pattern.)

Two ScotRail electric trains (SR1, SR2 below) could plug the gaps in the GNER timetable to provide an hourly service between 07.00 and 16.00 (departures between 17.00 and 19.00 could be provided by reorganising existing peak hour services). SR1 would replace the 07.22 Edinburgh-Garscadden. SR2 would replace the 17.20 Partick-Edinburgh. Depending on further detailed analysis of peak hour ScotRail/SPT electric train scheduling, it may be possible to provide an hourly Glasgow-Motherwell-Edinburgh service, as below, without increasing the existing peak hour train fleet requirement.

	GNER	GNER	SR1	GNER	SR2	GNER	SR1	GNER	SR2	GNER	GNER	SR2
Edinburgh	..	..	07.20	08:20	..	09.20	11.20	12.20	13.20	14.20	15.20	16.20
Glasgow C	..	..	08.35	09.20	..	10.20	12.20	13.20	14.20	15:20	16:20	17:20
Glasgow C	07.00	08.00	09.00	10.00	11.00	12.00	13.00	14.00	15.00	16.00		
Edinburgh	07.58	08.58	10.00	10.58	12.00	12.58	14.00	14.58	16.00	16.58		

Under the existing GNER timetable it would not be possible to provide a 10.20 Edinburgh-Glasgow service. However, the recently announced GNER franchise extension could give an opportunity for GNER to introduce a clockface two-hourly London-Edinburgh-Glasgow timetable, eliminating this problem. Consideration should also be given to introducing a Kirknewton “Livingston Parkway” stop to the trains above, as an essential part of the “Caledonian Express” strategy for West Lothian.

### 6.3 “CALEDONIAN EXPRESS” Train Miles

The table below compares train miles for “Caledonian Express” (Option 1) with current train miles:

Route	Miles	Current service		Option 1	
		Daily trains	Train miles	Daily trains	Train miles
Glasgow- Whifflet (- Mossend)	13.5	35	490	0	0
Glasgow – Whifflet – Motherwell	16	0	0	18	288
Glasgow – Whifflet – Shotts – Edinburgh	49	0	0	17	833
Glasgow – Bellshill-Shotts- Edinburgh	47	13	611	13	611
Glasgow – Motherwell- Carstairs – Edinburgh	57	1	57	5	285
Motherwell – Coatbridge Central	5.5	18	99		
			1257		2017

This represents a **60% increase in train miles** compared with the existing Glasgow-Whifflet, Glasgow-Shotts-Edinburgh and Motherwell-Coatbridge services, achieved almost entirely through greater utilisation of the ScotRail/ SPT train fleet without needing additional coaches.

## 7 RECOMMENDATIONS

The preceding analysis suggests that the current train fleet serving the Glasgow-Whifflet, Glasgow-Shotts-Edinburgh, and Motherwell- Coatbridge routes could be more fully utilised to create new rail travel opportunities and improve frequency on train services on the “M8 corridor” through Lanarkshire and Livingston.

The first of the “Caledonian Express” options recommended for study in greater detail by Oscar Faber could be introduced by rescheduling the existing train fleet to achieve the following benefits:

- Doubling the train service from Motherwell, Carfin, Shotts and Livingston to Edinburgh
- Introducing a direct hourly train service from the Coatbridge Whifflet line to Edinburgh
- Providing a new half-hourly express service from Glasgow Central to Edinburgh, giving easy interchange at Glasgow Central to SPT’s Glasgow Southside rail network
- Developing a half-hourly express service from Kirknewton/ Livingston Parkway to Glasgow
- Opening up the possibility of developing further Park+Ride on the route

**These developments require no significant upgrades to track or train capacity and could be introduced by summer 2003.**

The Scottish Association for Public Transport would welcome an opportunity to contribute further to the “Caledonian Express” study.

Dr. John McCormick  
Chairman  
Scottish Association for Public Transport  
11 Queens Crescent,  
Glasgow  
G4 9AS

email: [sapt@btinternet.com](mailto:sapt@btinternet.com)

0141-639-1697

11/2/2002

**Appendix**

Council	Population Outwith E&G Catchment Area (K)	Population Within E&G Catchment Area (K)
East Ayrshire	121	
East Dunbartonshire		111
East Renfrewshire	89	
Glasgow City		610
Inverclyde	87	
North Ayrshire	140	
North Lanarkshire	326	
Renfrewshire	178	
South Ayrshire	115	
South Lanarkshire	308	
West Dunbartonshire		96
<b>Total</b>	<b>1364</b>	<b>817</b>

**Table A1**

Population of councils covered by Strathclyde Passenger Transport rail network, split by availability (37% of population) or non-availability (63% of population) of direct connections (including rail connections via Queen Street or Croy) to Edinburgh-Falkirk-Glasgow Queen Street train service.