The South Sub Tram-Train

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Transport in Edinburgh in 2024

- Road travel contributes ~25% of Scotland's GHG emissions
- Award winning Bus & Tram Operators
- The **most** congested city in the UK (40% of driving time)
- Over 90 hours lost to congestion annually
- Edinburgh & the Lothians is Scotland's fastestgrowing region

Car Journey Trends vs. Targets

Region	2030 Goals	2024 Reality
Scotland	20% reduction	11% increase
Edinburgh	30% reduction	2% increase

Public Transport in Edinburgh

- Bus & Tram Operator of the Year 2024
- Bus journey times increasing
 - 1-2% annual increase
 - 20% increase on some routes in 10 years
- 300/400 more buses will be required per hour
- Replacing car congestion with bus congestion



Driving in Edinburgh

Key Facts

On average, the time spent driving per person in Edinburgh during 2024 was 235 hours, and 94 of them are due to congestion. The extra time added to a 10km commute in Edinburgh represents more than 40% the optimal time, but it's still better than most major cities for evening peak time.

Time in hours spent driving per person (yearly figure) in 2024

• Due to congestion • Not due to congestion



Extra time added to a 10 km commute during the morning and evening peak times

Mamina	Bullion							
	46 %	46%	42%	48%	41%	38%	40%	27%
	London +18 min	Bristol +13 min	Edinburgh +13 min	Birmingham +12 min	Manchester +12 min	Liverpool +11 min	Glasgow +10 min	Leeds-Bradford +6 min
Evening								
	48%	55%	48%	44%	46%	46%	40 %	33%
	London	Birmingham	Manchester	Edinburgh	Bristol	Glasgow	Liverpool	Leeds-Bradford
	+19 min	+16 min	+16 min	+14 min	+13 min	+13 min	+12 min	+8 min
<u>S</u>	Source: TomTom Traffic Index							

Population in Edinburgh and the top eight largest cities in the UK excluding London



The South Suburban Railway

- 1884 South Sub opens with 7 stations
- 1962 Closed to passenger services
 (6 months before the Beeching Cuts)
- Present day Used for freight and diversion services



Past Feasibility Studies

1989 – Edinburgh Area Public Transport Study (EAPTS)

• Considered South Sub as part of an Edinburgh Metro. Study leads to the 2001 Edinburgh Trams proposal.

2001 – Turner & Townsend + E-Rail Study

• Found heavy rail service viable but limited by Waverley & Haymarket capacity issues.

2004 – Atkins Study

• Proposed half-hourly service with 9,000–13,500 daily passengers. Had a positive but weak economic case.

2008 - Halcrow Study

• Costs higher than expected, all options required subsidies, and rail capacity was a major constraint.

South Sub Feasibility Studies



Previous Studies Main Findings

- Focused on reinstating train services
- Capacity Issues at Waverley & Haymarket Stations are the biggest challenge
- Unfeasibly high costs to overcome capacity challenges

*Notes

- Any future additional capacity would be prioritised for more Edinburgh–London rail services.
- This is the UK's busiest domestic air route, with rail capacity already at 110%.
- Demand is expected to rise further as climate policies reduce domestic flights.
- Conclusion It is hugely unlikely passenger trains will ever run on the South Sub again

Our Study:

- First since the Edinburgh Trams opened (2014)
- First to fully consider tram-train (light-rail)
- Proposing South Sub as an Extension of Edinburgh Trams
- Avoids Haymarket & Waverley Stations and critical capacity issues

The Breakthrough: Tram-Trains

- Widely used in Europe since 1992, particularly in Germany
- UK systems: Sheffield (2018), Cardiff (2025), Manchester (TBC)
- Wheel profile allows changeover between light and heavy rail tracks
- Increased crashworthiness compared to a tram



Public Surveys

2 Surveys Conducted:

- Travel Behaviour (October 2024)
- Feedback on the initial South Sub Tram-Train Proposal (November 2024)

Public Survey Findings (150 respondents):

- Good transport links to the city centre, bad connections between suburbs
- Poor public transport linking Leith to Portobello



Public Engagement

Attended Community Council Meetings:

• Gorgie, Craiglockhart, and Morningside

Public Survey's Findings (150 respondents):

- Good transport links to the city centre, bad connections between suburbs
- Poor public transport linking Leith to Portobello
- **92%** Support for Reopening South Sub
- 81% Satisfied with Proposed South Sub Route
- 73% Using Tram-Train to Avoid Traffic





Would you be likely to use public transport more than currently if it was better available to you in your area?

128 responses



UN Sustainable Development Goals

- 1 NO POVERTY
- Improves access to jobs and services for low-income communities, reducing socio-economic barriers



• Promotes investment in low-carbon modern transport infrastructure, showcasing sustainable urban mobility solutions



 Reduces car dependency to support sustainable urban growth, including 20-minute neighbourhoods

Community Benefits

- Connects communities
- Boosts local businesses
- Improves access to jobs, education & health services
- Cuts pollution & cleaner air
- Reduces car journeys = less congestion & safer roads
- Encourages urban regeneration



Our Proposal: The South Sub Tram-Train

- **Key Feature:** Extension of the Edinburgh Tram Network, directly connected
- **Route:** 12.3 km using the South Suburban Railway
- Tram Stops: 11 access for all (AFA) stops
- **Sustainable & Cost-Effective**: Repurposing existing infrastructure
- Safe & Reliable: Unaffected by road traffic and pedestrians
- Vehicles: Bi-mode: battery-electric tram-trains
- Power Supply: 750V DC Discontinuous Electrification







Discontinuous Electrification



- \circ "Dynamic" \rightarrow Overhead Line Equipment (OLE) Same as **Edinburgh Trams**
- \circ "Stationary" \rightarrow Ground mounted charging pads at stops

Benefits:

- Avoids full route electrification costs
- o Eliminates low bridge replacements and modifications
- Preserves the natural environment







Murrayfield Connection Options

Option 1: Recommended & Most Cost Effective

North-South Tram Extension: Roseburn Option

Edinburgh-Glasgow Mainline

Murrayfield Stadium Stop

South Sub

Potential link to North-South Tram Extension

Haymarket Station

Gorgie Stop



Murrayfield Connection to the Edinburgh Tram Network

Murrayfield Stadium Stop

Optional – Westfield Rd Stop (Additional Capacity for Murrayfield)

Gorgie Stop

Image Landsat / Copernicus





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Option 2: Best Operationally but most expensive

*Extra £100m for flyover



Option 3: Cheapest







Potential Cameron Toll Connection to Tram Extension

Potential Cameron Toll connection to Proposed North-South Tram Extension

South Sub

Pow Burn

Cameron Toll

POW BUTD

Proposed North-South Tram Extension Route



Portobello Terminus & Optional Mobility Hub

Brunstane to Portobello connection avoiding East-Coast Mainline





Brunstane Station



Portobello Stop



- Option to terminate South Sub tram-trains at Brunstane, which avoids the East Coast Mainline at Portobello Junction
- Portobello Junction is a critical operational and engineering challenge, to avoid the ECML
- May be best to end South
 Sub TT here initially "to get
 it done" before extending to
 Portobello, Seafield and
 Leith in future phase once
 concept is proved
 successful



Millerhill Depot

- Millerhill currently services ScotRail EMU trains, therefore, it is an option as a tram-train depot.
- Extending and upgrading facility will save between £20-100m compared to building a new depot
- Upgrading Gogar (ET existing tram depot) is considered very expensive
- Also, an extremely convenient location if tramtrains are extended to Dalkeith, Musselburgh etc in future



Phase 2: Tram-Train Extension to Leith

Overview:

- Extends from Portobello to Leith via Seafield
- ~5 km using the disused Leith Branch Railway
- Railway is safeguarded by Network Rail for future
 use
- Currently single track requires double tracking
- Passes through Seafield regeneration zone

Proposed Connection Routes:

- 1. Salamander Street Option On-street
- 2. Port of Leith Option Segregated

Key Benefits:

- Improves public transport between Leith and Portobello
- Enables a mass transit loop



Seafield Masterplan Draft 2024



Trip Generators

Stops	Key Landmarks			
Gorgie	🚯 Tynecastle Park (Heart of Midlothian FC)			
Craiglockhart	< Napier University (Craiglockhart Campus) < Napier University (Merchiston Campus)			
Morningside	🖺 Royal Edinburgh Hospital			
Blackford Hill	🖺 Astley Ainslie Hospital 속 Edinburgh University (King's Buildings)			
Newington	🏊 Royal Commonwealth Pool			
Cameron Toll	Cameron Toll Shopping Centre North-South Tram Connection			
Craigmillar	🖺 Edinburgh Royal Infirmary (15 min walk)			
Bingham/Niddrie	Residential			
Fort Kinnaird	늘 Fort Kinnaird Retail Park			
Brunstane	Brunstane Station Edinburgh College (Milton Road)			
Portobello	🏖 Portobello Beach & Promenade			

Phase 1: Cost Appraisal

- * Does not include land purchases
- * No patronage demand forecast
- Estimated costs per station: £1m
 £2m
- Estimated costs per lift: ~ £1m
- Optimism Bias = 64%

Project Component	Estimate	High Estimate
Roseburn Bridge Modifications	£20m	£25m
Cameron Toll Connection	£10m	£15m
Sir Harry Lauder Road - South Sub Integration	£10m	£15m
OLE Infrastructure	£2.75m	£5.5m
Track Adjustments	£2.5m	£5m
Stations (11)	£11m	£22m
Accessibility Lifts (14)	£12.6m	£14m
Total Cost	£68.85m	£101.5m
Optimism Bias (64%)	£113m	£167m
~ Cost per km (Optimism Bias)	£9m	£13.5m

Cost estimates are based on comparable UK infrastructure projects and have been derived using methodologies outlined in the Scottish Transport Appraisal Guidance (STAG) and HM Treasury Green Book

Estimated Costs

Edinburgh Trams vs South Sub Tram-Train (Phase 1)

Project	Length (km)	Cost	Cost per km
ET Phase 1 (Airport to York Place)	14	£776m	£71m
ET Phase 2 (York Place to Newhaven)	4.7	£207m	£44m
South Sub Tram-Train (Base Estimate)	12.3	£114m	£9m ~5x cheaper
South Sub Tram-Train (High Estimate)	12.3	£177m	£14m ~3x cheaper

Comparison of UK Light-Rail Projects

Operator	Project	Year	Route Length	Cost por km	
Operator	FIOJECI	Completed	(km)	Costperkii	
	Phase 1a: Edinburgh Airport	2014	14	£71m	
Edinburgh Trams	to York Place				
	Phase 1b: York Place to	2023	4.7	£44m	
	Newhaven	2023			
Nottingham Express Transit	Phase 2: Network Extensions	2015	17.5	£33m	
West Midlands Metro	Extension to Digbeth	Ongoing	1.7	£130m	
Sheffield Supertram	Sheffield to Rotherham Tram-Train Pilot	2018	9.3	£9.36m	
South Sub Tram-Train	Phase 1	Proposed	12.3	£9-14m	
General UK Tram Track Installation (average)				£20-30m	

Petition





Reopen Edinburgh's South Sub using Tram-Trains





Scottish Parliament Presentation

Friday 7th March 2025

- Presented to Councilors, MPs, MSPs, and stakeholders
- Showed technical feasibility and costeffectiveness
- Request to commission a new feasibility study
- Following presentation, several MPs &
 MSPs publicly supported our proposal





Community Launch Event

Monday 17th March 2025

- South Sub Tram-Train proposal unveiled to the public
- Sold-out event Over 150 Attendees
- 93% of attendees would use the service daily
- Buoyant atmosphere, strong support and concerns answered

B B C NEWS

Borders Railway: Community Led

- Borders Railway proved community action works
- Continued success exceeds all expectations
- Socio-economic benefits outweigh financial subsidies
- Created jobs, boosted business, improved travel & increased tourism

Borders Railway: 'The line has reenergised our community'

🕓 9 September 2020





South Sub Tram-Train: Recap

- Technically deliverable and cost-effective
- Directly tackles Edinburgh's severe congestion
- Delivers key socio-economic benefits
- Strong public backing and clear political support
- Multiple calls for a new and final feasibility study to reopen the South Sub



Edinburgh Netws 🙉 Students' South Sub plan infinitely better value than £2bn tram line



Edinburgh tram-trains on the horizon?

Edinburgh News 🙉

South Sub line - a vision worth backing

Thank You for Listening!



Store News

News / Edinburgh & East

Students propose tram-train solution to revive suburban railway line

The Herald When will Edinburgh have a South Suburban line?