



*A Presentation
of
Glasgow Airport Rail Link
Tram Options*

**“Complimentary Alternative & Affordable – Cost Contained
Rail options for Glasgow & District”**

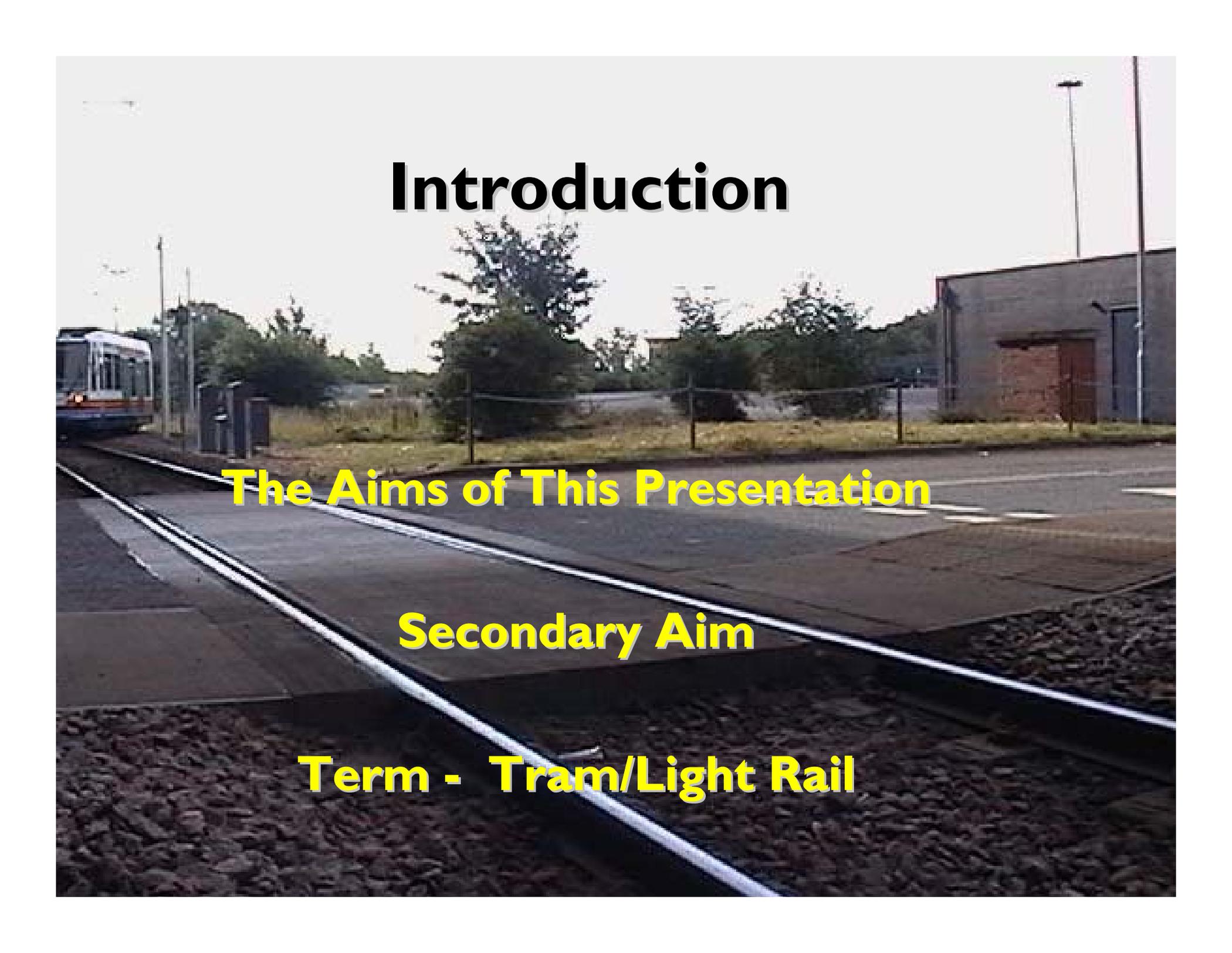
**to
The Transport Committee
Scottish Parliament**

Edinburgh

*by
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15th May 2006

Introduction

A photograph of a tram track. In the background, a tram is visible on the left. The track runs through a paved area with a fence and trees in the distance. A large building is on the right. The sky is overcast.

The Aims of This Presentation

Secondary Aim

Term - Tram/Light Rail

A light rail tram is shown at night, stopped at a station. The tram is illuminated by its own lights and the surrounding city lights. In the background, there are buildings with lit-up signs, including one that says "PARFUMERIE". The tram has a blue light on top and a white light on the front. The overall scene is a nighttime urban environment.

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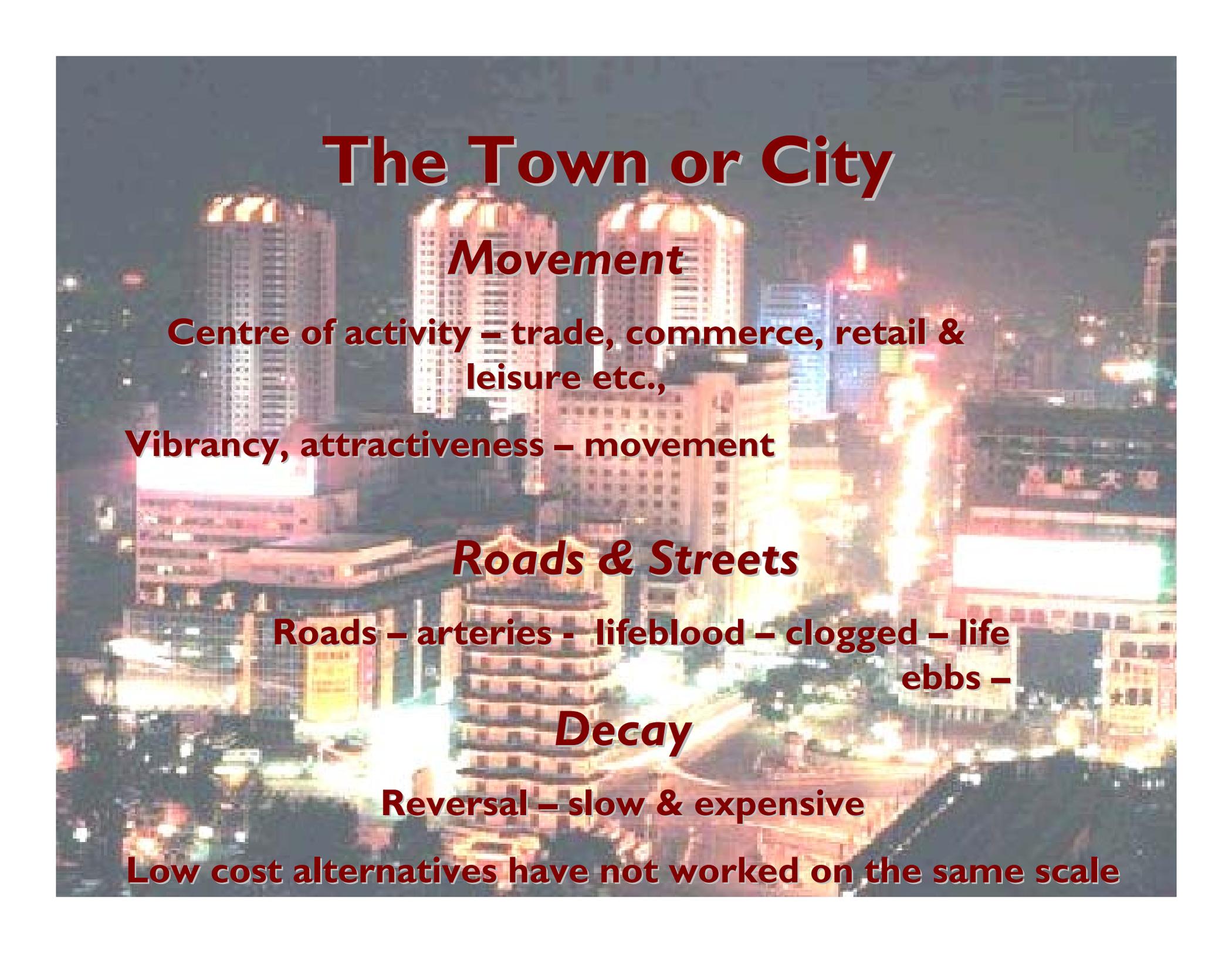
*Specialists in
Affordable Tramways.*

Light Rail(UK) Ltd



**An association
of :-**

**Light Rail Consultants
Transport Engineers
Politicians
Academics
Environmentalists
Commercial**

A nighttime photograph of a city skyline with several tall skyscrapers illuminated with warm lights. The sky is dark, and the city lights create a vibrant, glowing atmosphere. The text is overlaid on this image.

The Town or City

Movement

Centre of activity – trade, commerce, retail & leisure etc.,

Vibrancy, attractiveness – movement

Roads & Streets

Roads – arteries - lifeblood – clogged – life ebbs –

Decay

Reversal – slow & expensive

Low cost alternatives have not worked on the same scale

The Problem

I'm Killing
The Earth!

Pollution

Congestion

Fuel Costs

Air Quality

Movement

Conflict





Glasgow Airport Rail Link Tram Option

Trams reduce congestion

Attractive alternative to other modes

Stimulate Pedestrian Footfalls

Modal switch – 27%+

Passengers carried 2004/5 158.8 million

(Light Rail carried 3% + of all public transport compared to Network Rail share of 17%)

Glasgow Airport Rail Link Tram Option

Fuel Costs

Diminishing Fossil Fuels

3rd World Demands

Conflict

Glasgow Airport Rail Link Tram Option

Climate Change

**Road transport is a significant contributor of
green house gases - 26%+**

**Electrically driven – no pollution at point of
use**

**Renewable & green energy generation –
wind, hydro etc.,**



Glasgow Airport Rail Link Tram Option

Transport related emissions.

The internal combustion engine is the main emitter of Nox & Sox in the urban area.

Euro 4 engine are a help but not a solution.

Catalysts, scrubbers, low sulphur, bio-fuels are only temporary.

UK has one of the highest respiratory death rate in E.U.

Glasgow Airport Rail Link Tram Option

Health evidence

Transport related emissions

Environmental impacts

(Inc climate change)

Health impacts

(Individual and resources/costs)

Death rates nearly twice the E.U. Average.

One in four die of respiratory illness.

Benefits of alternatives



Glasgow Airport Rail Link Tram Option

More people die from respiratory disease than coronary heart disease

153,000 dead in 1999. 25 % > 40% due to Tail Pipe emissions (38,250 > 61,200 deaths)

38 million GP consultation

Primary Care for respiratory disease across the UK costs £647.5 million

Hospital Inpatient care costs £1,062.2 million

Hospital day case care costs £18.2 million.

Hospital outpatient care costs £40.7 million

2,800,000 bed days per year used for treatment alone

A photograph of a city street with tram tracks. A yellow tram is visible in the distance, and a white van is in the foreground. The street is lined with buildings, and a traffic light is visible on the right. The text is overlaid on the image.

Glasgow Airport Rail Link Tram Option

**Reducing the immediate pollution
Year on year savings to health costs
Release funding for other projects etc.,
Improves liveability of the immediate &
surrounding area
Can be designed in !**

Glasgow Airport Rail Link Tram Option

Air Quality

**No pollutants at point of use
Powers stations – Scrubbers!
Solar panel generation**

Fuel Cost

**Secure UK Based
Green Alternatives
Major Co2 reduction**

Noise

**Almost silent running – urban area
Very quiet at low speed
Decibel readings less than 82db**



Glasgow Airport Rail Link Tram Option

Benefits of a Tram?

**So what
does a tram
offer?**

Trams & Pedestrians mix

Pedestrian areas & streets

Street running, access and stops

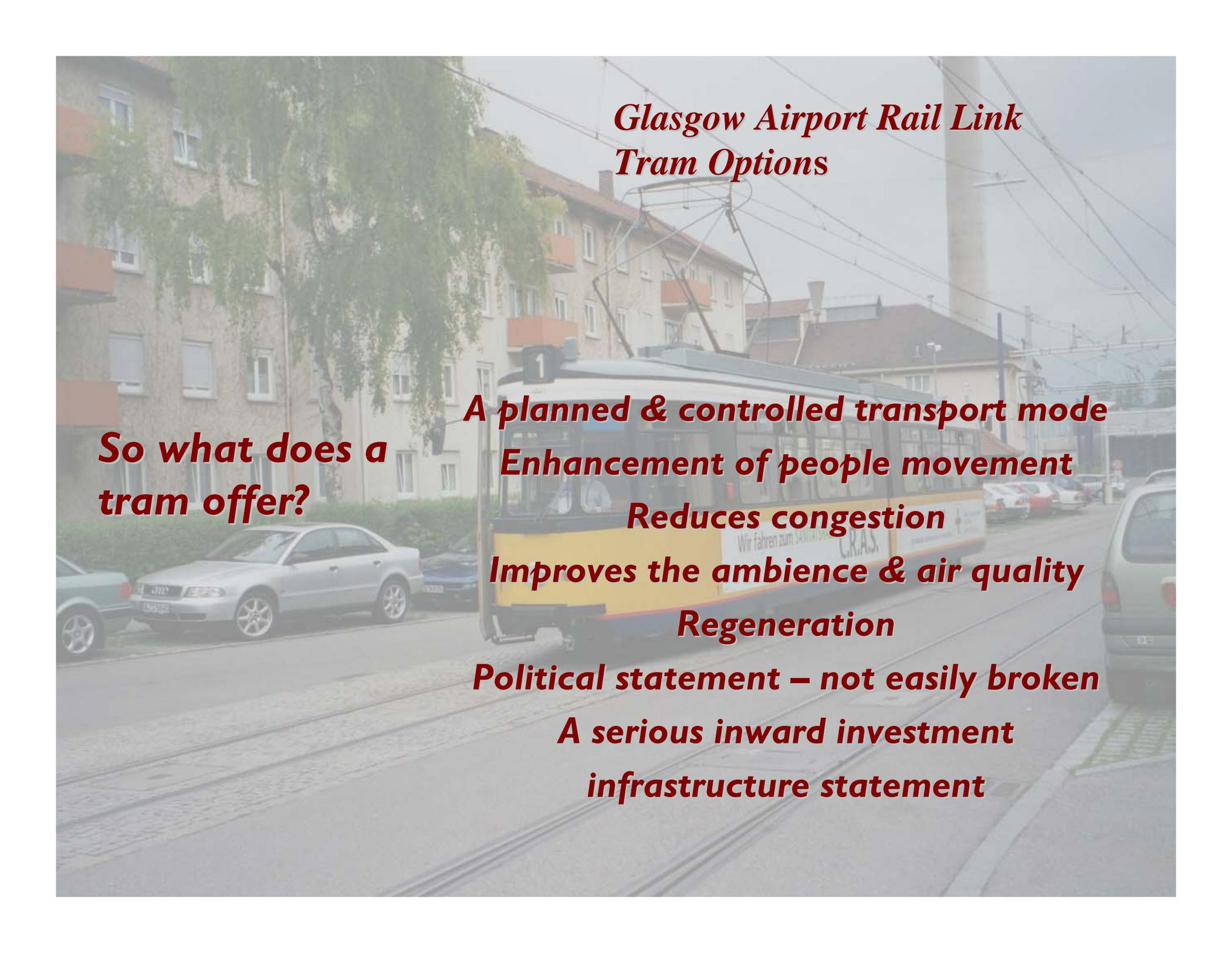
Tram stop catchments

New off street tramlines,

Track sharing & tram train

Additional benefits



A photograph of a tram on a city street. The tram is yellow and black, with the number '1' on its front. It is moving along a track. In the background, there are multi-story buildings and trees. The sky is overcast. The text is overlaid on the image in a dark red, bold, serif font.

Glasgow Airport Rail Link Tram Options

*So what does a
tram offer?*

A planned & controlled transport mode

Enhancement of people movement

Reduces congestion

Improves the ambience & air quality

Regeneration

Political statement – not easily broken

A serious inward investment

infrastructure statement

*Glasgow Airport Rail Link
Tram Options*

**Where Can
Trams Go?**

**Traffic free areas
Alignments**

**Other mode's alignments
Capacity**



Glasgow Airport Rail Link Tram Options



Kassel – Train Mode



**Nordhausen
Tram Mode**



Kassel – Tram Mode



Kassel – Tram Mode



Nordhausen Train Mode



Kassel – Train Mode

A street view in Glasgow showing tram tracks and cars. The image is a grayscale photograph of a city street with tram tracks running down the center. Several cars are parked along the sides of the road. The buildings are multi-story and have a classic architectural style. The text is overlaid on the image in a bold, red, serif font.

***Glasgow Airport Rail Link
Tram Options***

Vehicles

New trams

Cascading trams

Previously owned – one careful owner!

New build – old design

Historic vehicles

Glasgow Airport Rail Link

Tram Options

Stourbridge
Junction

Near Future Vehicles

- Hybrid**
- Stored energy trams**
- Fuel cell**
- Fuel cell costs**
- Overhead savings**





Glasgow Airport Rail Link Tram Options

Why a Tramway?

A low cost starter line (s)

Basis for an integrated commuter system

Trams are pedestrian friendly – street operation

Public like trams

Tram have a good modal switch

Political statement -steel in the ground

House values rise



Access to all

Access to key unemployment

Reducing social exclusion

**Controlled development in specified
areas**

Green Fuel trials

Regeneration

*Glasgow Airport Rail Link
Tram Options*

Glasgow Airport Rail Link Tram Options

**Enables Travellers & Commuters to access the
Airport/Town/Glasgow areas
without cars**



Accessible for near locals

Park & Ride for nearby major facilities

Gives a safe multi-modal pathway for pedestrians & cyclists

Glasgow Airport Rail Link Tram Options

**Airport to Paisley St James Railway
Station/Gilmour Street**

- **Terminus undercover in the Airport Concourse area**
- **Trams run west into Bute Rd north of a possible new build multi-storey Park 'n Ride.**
- **Turn left into St Andrews Drive west. There is sufficient verge space for single double track alignment.**
- **Additional Park 'n Ride in this area**
- **Through small roundabout (south west section) and under the M8**



Glasgow Airport Rail Link

Tram Options

- Turn right (**West**) after emerging under **M8** and across the local road (**A726**) onto the grass verge
- Follow the grass verge west, possible stop to serve new housing development).
- Use grass verge between the football field and the local road up to the rising **Greenock Road**
- A short tunnel under the **Greenock Road** turning southward through some scrubland. Possible P+R site Turn right (**West**) after emerging under **M8** and across the local road (**A726**) onto the grass verge
- Possible P+R site here

Glasgow Airport Rail Link Tram Options



Possible
P + R

Football
Fields

Glasgow International Airport

Airport > Paisley St James Section

Glasgow Airport Rail Link

Tram Options

- **Join by single track viaduct (new build) north side of the existing railway line towards Paisley St James**
- **Into Paisley St James now renamed “Glasgow International Airport”**
- **There is sufficient room for a third track or track sharing, dividing before entering Paisley Gilmour Street.**
- **There may be a possible option by altering the platform arrangement to accommodate a tram track through the station (Platform 4)**
- **There is also the option of street running on the A726 east of the railway bridge into Gilmour Street at street level**
- **These options whilst meeting the GARL requirements could form the basis and option of a modern tramway system between Paisley, Braehead and other Districts**

The background image shows the interior of a tram. Passengers are seated on grey metal chairs with red seats. Large windows on the right side offer a view of the outside world. The tram's interior is brightly lit, and the overall atmosphere is that of a public transport vehicle.

Glasgow Airport Rail Link Tram Options

- Park n' Ride from surrounding area
- A high quality & secure sites
- P+R & Travel range of through ticketing
- Congestion relief
- Patronage will increase as petrol & diesel prices rise
- More people dependant upon public transport

Glasgow Airport Rail Link Tram Options

Costs

Subject to survey etc.,

Street running - less than a guided busway

Cascaded vehicles tried & tested

Known technology + Robust dealings with the Utilities

New build – old design

Initial capital costs less than Promoter's

Will require no on going operating subsidy

Political cost

£60m for the Edinburgh Tram to date

(“poor appreciation of the possibilities and poor preparation for the Bill process”)

A photograph of a tram on tracks, with a building in the background. The tram is dark-colored and has 'GLASGOW' written on its side. The tracks are on a street, and there are trees and a building in the background. The image is slightly faded to allow text to be overlaid.

Glasgow Airport Rail Link

Tram Options

- **We accept the Promoter's track upgrading to Heavy Rail standards. This will enable upgrading when the promoter's passenger numbers are achieved at a later date.**
- **By using Light Rail which runs line of site and excellent braking systems, expensive signalling will be not required**
- **The flexibility of Light Rail will reduce land-take, bridge widening and can street run where major obstacles are met.**
- **The operational use of the "Tram –Train" concept is well developed in a number of Cities, Kassel, Nordhausen, Saarbrücken, Karlsruhe name but a few.**
- **There is the option of either "Track Sharing" - Tyne & Wear Sunderland is an example, or "Alignment Share" – Manchester Metrolink & Nottingham's Robin Hood Line.**
- **We are normally supportive of Heavy Rail but experience show a that this is the wrong mode for this project**

Glasgow Airport Rail Link Tram Options

Paisley Glasgow Option 1

- **Leave the Heavy Rail alignment to run at street level, via Bridge Street, Jamaica Street, Union Street passing an entrance to Glasgow Central Station.**
- **Or via Commerce Street, King George IV bridge into Hope Street, passing an entrance to Central Station**
- **Turn right into West George Street to George Square north side**
- **Left into North Hannover Street up to Buchanan Street Bus Station**
- **There is sufficient land north side for a tram terminus**

These route options will raise the retail footfalls in the Central Shopping/Business Areas



Glasgow Airport Rail Link Tram Options

Paisley Glasgow Option 2 Retail

- **Connect at Shields Road to the City of Glasgow Union Railway route that crosses the Clyde east of Gorbals Street Bridge**
- **Descend to street level in the Brigade area into Stockwell Street**
- **There is a large Car Park which could be developed as a multi-storey giving a City Centre P + R**
- **Turn left into Argyle Street (west) which is part pedestrainised giving car less access to the shopping area**
- **Turn right (north) into Union Street and follow the route of Option 1 route**



Glasgow Airport Rail Link Tram Options

Future Options

- **There is a possibility at a later date to continue the line westward to **Anderston Bus Station****
- **The line would continue along **Argyle Street** passing **Central Station** and then joining at **Jamaica Street****
- **There will be a requirement to re-address the road traffic management giving the tram priority including “Trambahns.”**
- **These routes will address most of the requirements of the recent **National Audit Office Report on Light Rail****



*Glasgow Airport Rail Link
Tram Options*

The Gas Man commeth!

Who says you have to stop the trams?

Deal Robustly with the Private Utilities

Summary & Conclusions

Responsibility to following generations

**A need for a sea change of
Government/Planners attitude**

**Main urban tool for modal switch
(27%+)**

**Facilitate Carbon Emissions reduction
Targets**

Summary & Conclusions

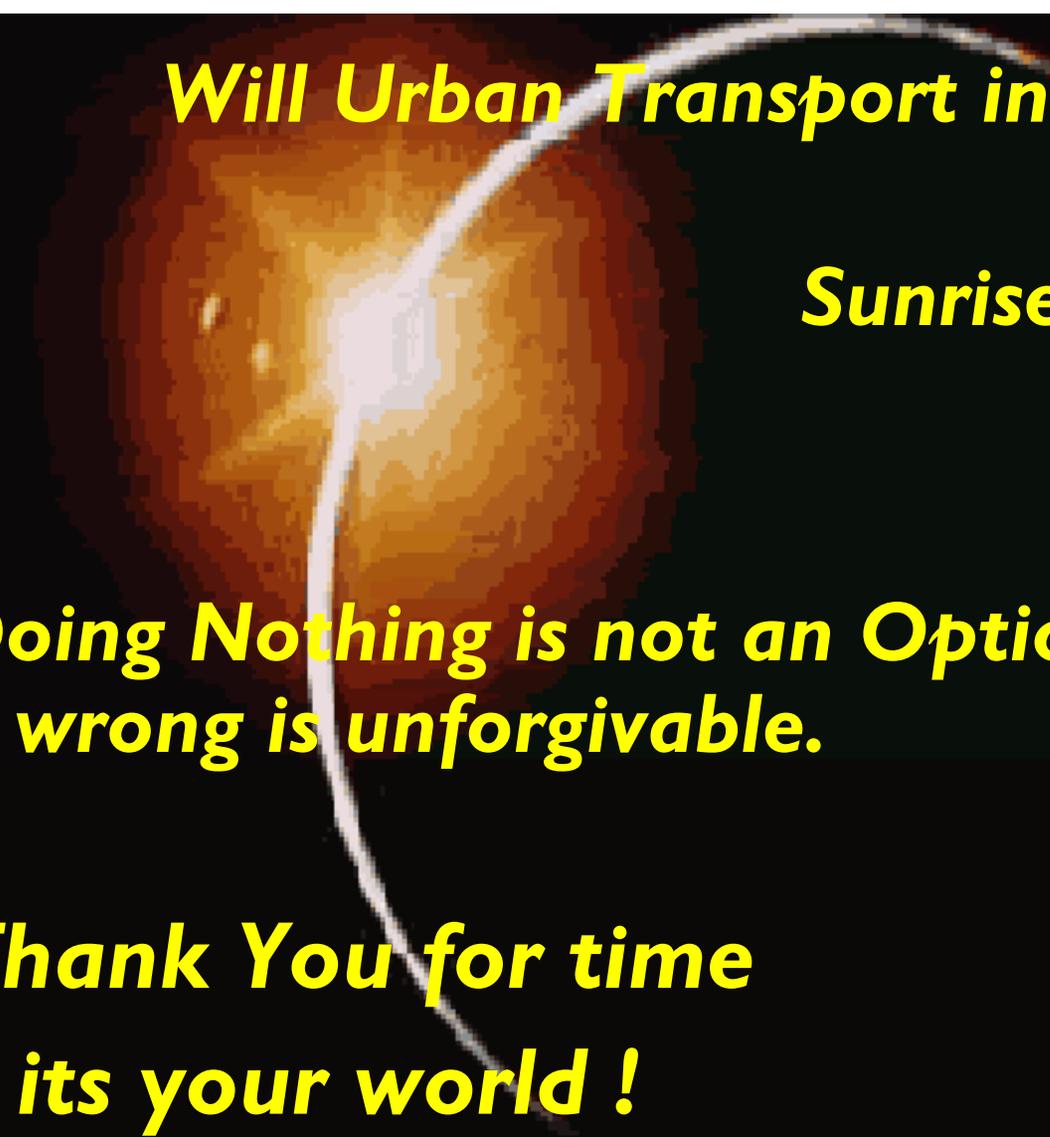
Health issue cannot be ignored

Electricity is not fossil fuel dependant

Future prosperity is movement dependant

Freedom of movement = democracy





**Will Urban Transport in the near future
make this a
Sunrise or a Sunset for
Mankind ?**

**Doing Nothing is not an Option ! Getting it
wrong is unforgivable.**

**Thank You for time
– its your world !**

Apollo June 1996