

Adam Crowther

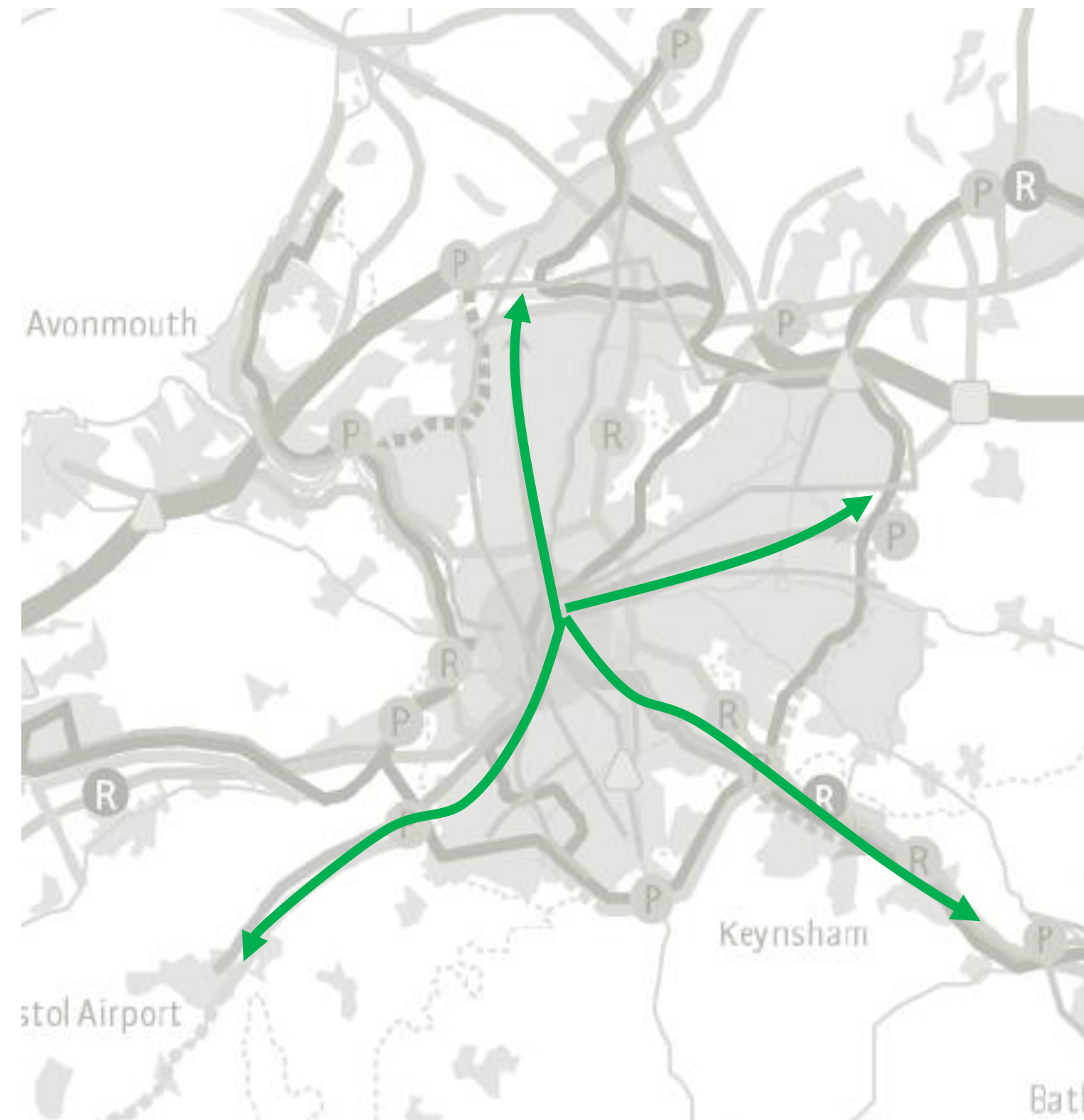
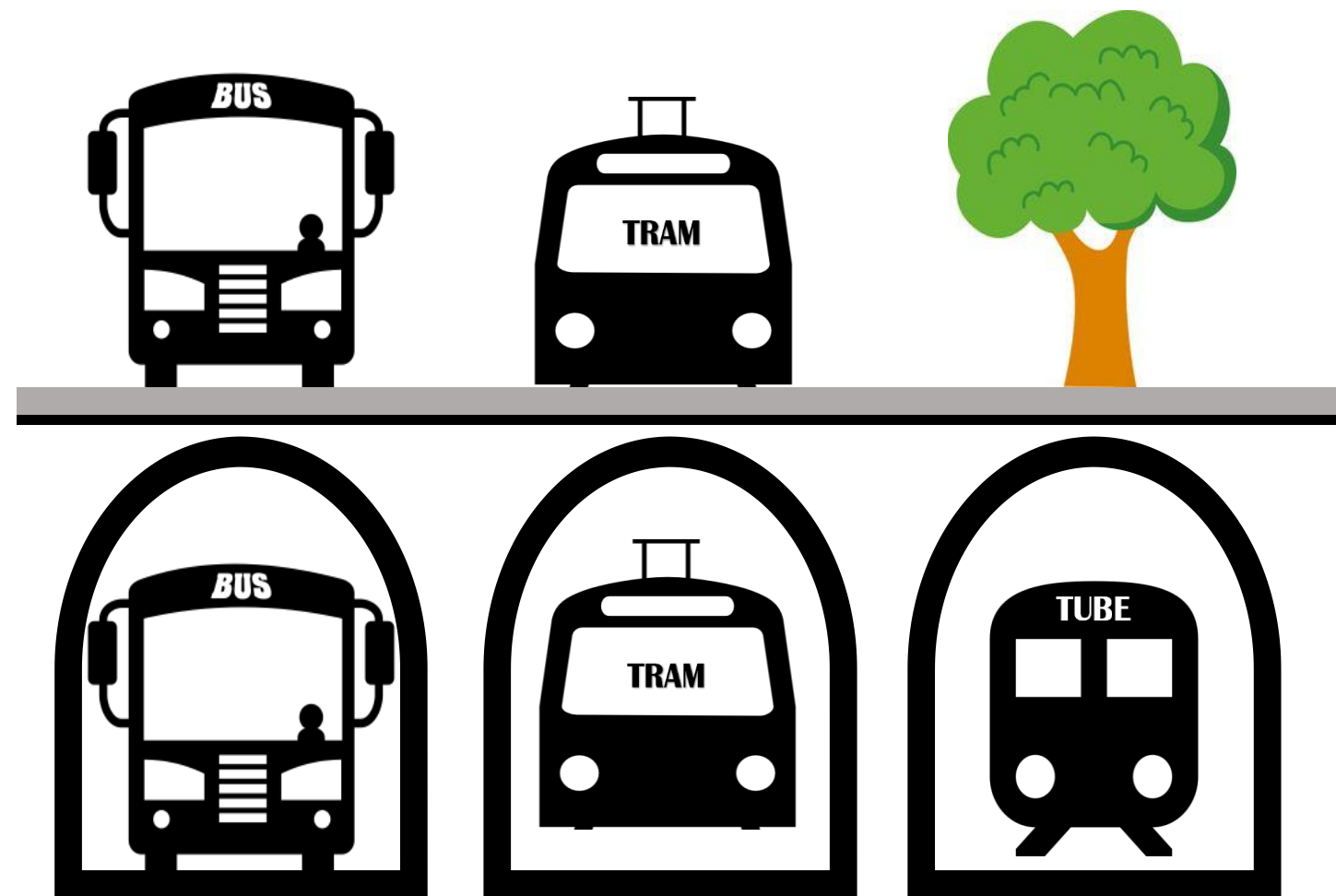
Head of Strategic Transport



Background

Study brief defined four mass transit routes for investigation:

Airport Corridor	City centre, South Bristol, and the Airport.
North Corridor	City centre, Southmead hospital, Cribbs Causeway.
East Corridor	City centre, East Fringe and East Bristol.
A4 Corridor	City centre and Hicks Gate / Keynsham, Bath



Study Objectives

Key objective: To provide a high-quality mass transit solution that provides a step change in public transport connectivity in the West of England, unlocking significant housing and employment growth over and above the growth outlined in the Joint Spatial Plan

A solution that:

- Provides a **step change in public transport connectivity** and passenger journey experience in the region, with strong links to other modes of transport including rail, bus and air transport hubs
- Provides **regeneration and housing growth** in adjacent neighbourhoods, including opportunities to improve the public realm
- Provides significant additional **economic growth** in the region, connecting people to existing and proposed employment sites and unlocking employment sites
- Delivers **mode shift to sustainable transport modes**, from private car, to help tackle congestion
- Contributes to **better health** through increased physical activity, improved safety, and improved air quality
- **Reduces inequality** in the region with affordable fares for all

Overview of Current work

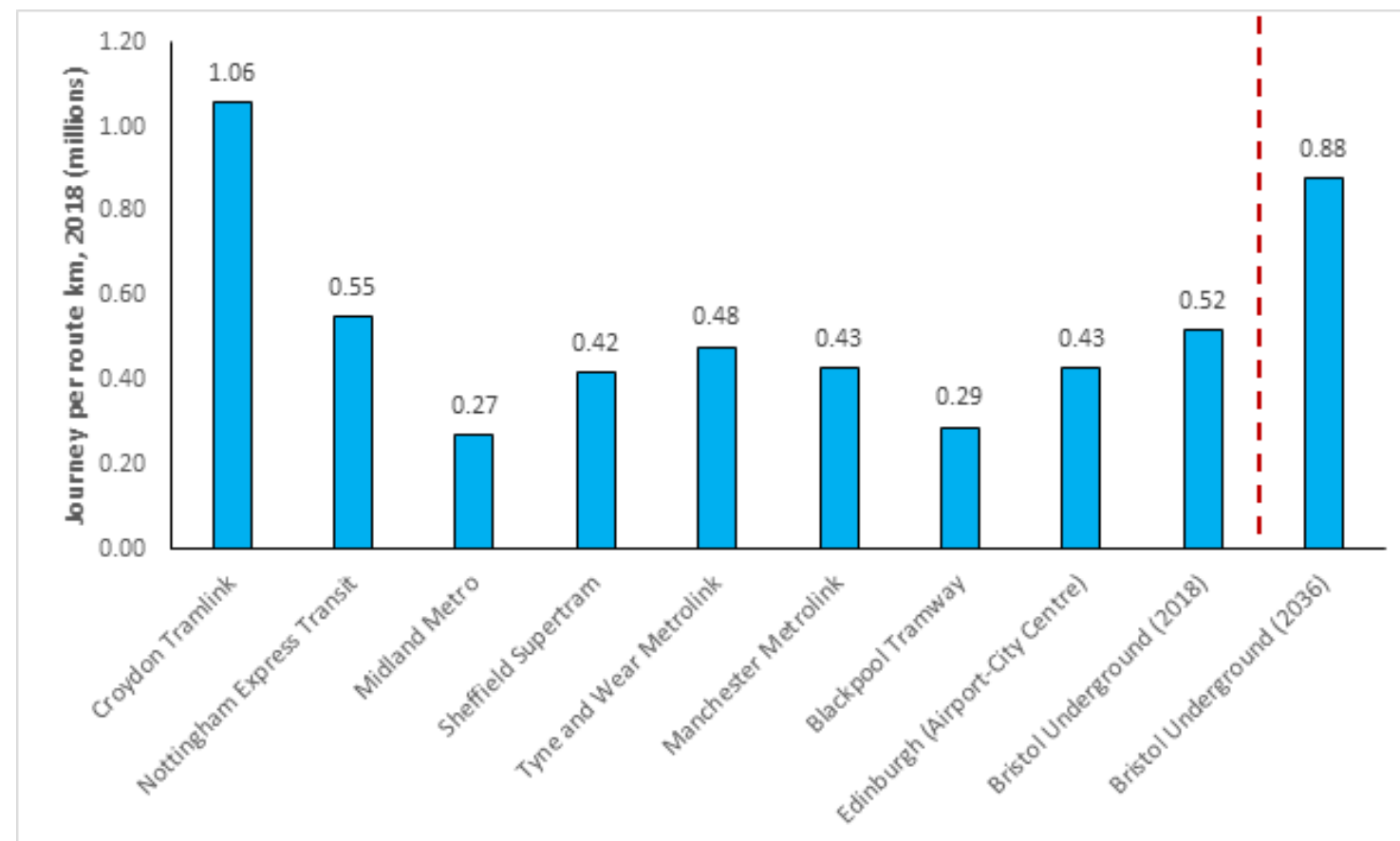
- Indicates it is worth exploring mass transit options further, both street level and underground as part of a Strategic Outline Business Case
- Final proposal could be a mixture of on street and underground running based on corridor characteristics and demand
- General alignments proposed for further investigation, some alignments not recommended for taking forward at this time due to environmental issues and space constraints
- Technology options still to be determined but issues with fixed track systems on some corridors due to construction constraints
- Actual alignments and station locations etc. to be further developed at SOBC stage
- Awaiting input from other studies to inform SOBC - BSWEL, Bath Mass Transit Study, DfT/WECA rail study
- Overview of development of transit network over next 15 years leading towards delivery of a mass transit system

Demand and benchmarking

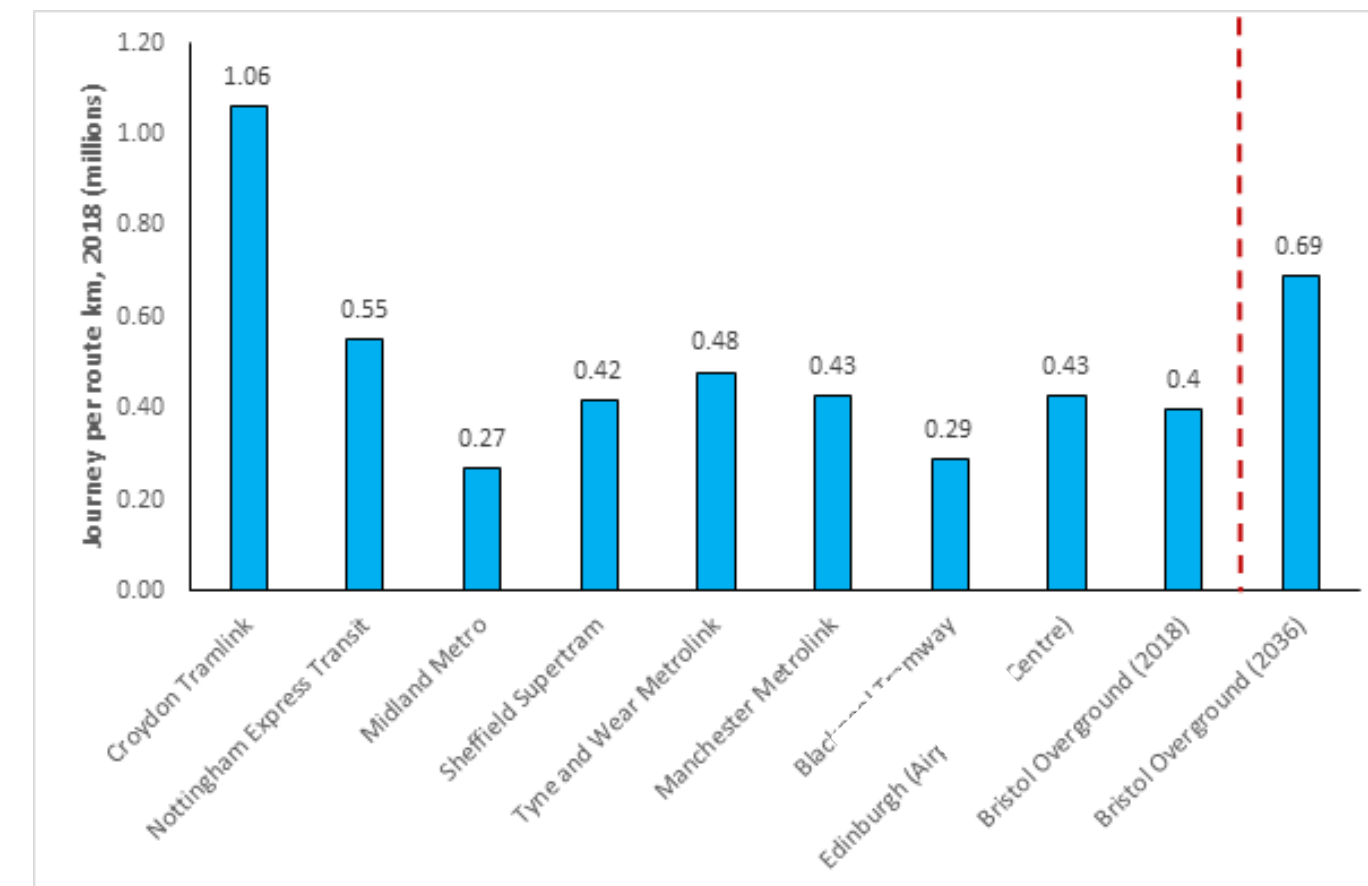
Indicator		Underground	Overground
Demand	Annual 'initial' (no development)	38.8m	19.9m
	Annual 'base'	42.3m	20.7m
	Annual 'base' with sensitivities	54.7m	25.2m
	Annual 'base' with high optimism scenario	63.0m	25.2m

Demand generated by the proposed underground and overground systems have been compared with other similar systems in the UK. Comparisons have been made with the annual passengers per route kilometre.

Underground



Overground



Value for Money

The findings of the report consider that there remains a good case for continuing to develop defined options.

- Scheme has potential to cover its operating costs, in terms of net revenue, further work is required to understand whether income could be generated from the system.
- A mass transit system would provide major opportunities for unlocking significant growth in housing and stimulating the economy in the wider WoE urban conurbation.
- Overground currently has better VfM with wider economic benefits, which is mainly driven by lower capital costs but impacts during construction require more consideration.
- All options to be taken forward and hybrid over/underground schemes to be considered
- Further work required on system and tunnelling costs - especially for underground options
- Demand model to be delivered as part of SOBC to further examine likely demand for the proposed systems

Funding

West of England mass transit is a large scale transport infrastructure programme which requires a high level of investment, but it can help transform the region.

Local funding solutions applicable for mass transit includes the following options:

- Business rate supplement,
- workplace parking levy,
- council tax precept,
- community infrastructure levy,
- new homes bonus,
- shadow toll and
- local tax retention.

Local funding mechanisms could make a significant contribution towards the project cost to match and supplement potential DfT investment

Less funding required for over ground but also less opportunity to generate income and economic benefits

Financing would increase overall project costs.

Vehicles - Non Fixed Track, Rubber Wheels

- Aim to remain technology agnostic and avoid single supplier systems where possible
- Same vehicle class across different routes - potential for mass transit routes to use same vehicles as Metrobus and P&R routes when they come on line
- Introduce upgraded vehicles on Metrobus, P&R etc. as precursor to Mass Transit to achieve continuous improvement in service
- May not be seen as “step change” improvement
- **Key will be an autonomous system to reduce operating costs and allow higher frequencies but more difficult with above ground systems**



Currently available high quality tram style buses - could run in tunnels as well as on street.

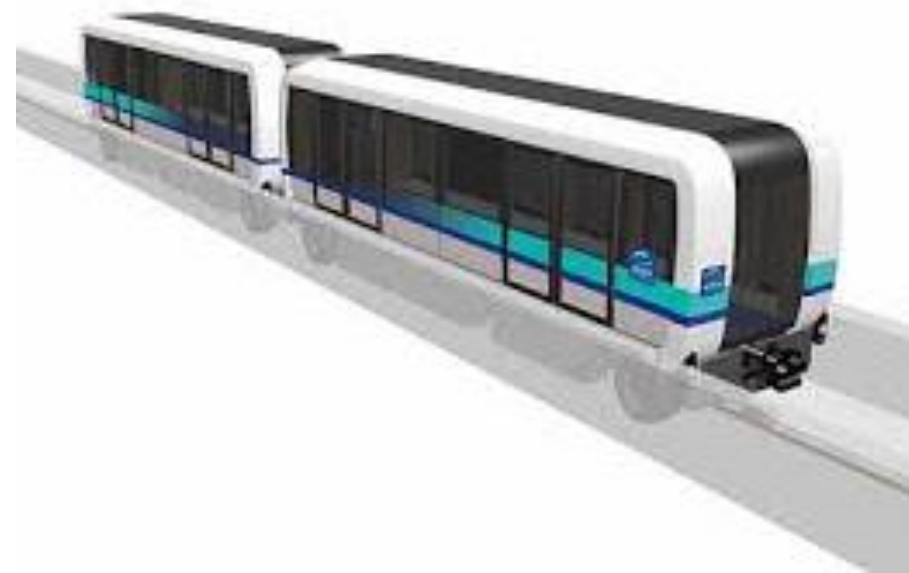
Look at tunnels as delivering enhanced segregation where needed rather than a separate system

Top left:
Autonomous
70kph top speed
Capacity 300 people
Electric, rapid charging



Vehicles - Fixed Track, Rail or Rubber Wheels

- Aim to remain technology agnostic and avoid single supplier systems where possible but more difficult with track based systems
- Different vehicle class across different route classes - Metrobus routes likely to stay wheel based, mass transit rail based
- Metro would be seen as step change in quality, speed, reliability etc.
- **Key will be an autonomous system to reduce operating costs and allow higher frequencies but more difficult with above ground systems**



VAL system (left) rubber wheeled track based, flexible, rapid and autonomous - likely to be faster than non track based systems but single supplier



Can run trams or tram trains in tunnels or above ground, offers some flexibility but still require track based infrastructure - signalling systems, depots etc.

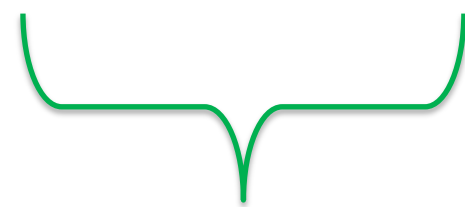


Tram train options could deliver additional options and flexibility - being explored through BSWEL

Overall Timescales

Figure 1.2 – The three phases of the decision making process.

Mass
Transit
Early
Phase Options
Report



Phase
One

Strategic Outline
Business Case

Investment
Decision point

Phase
Two

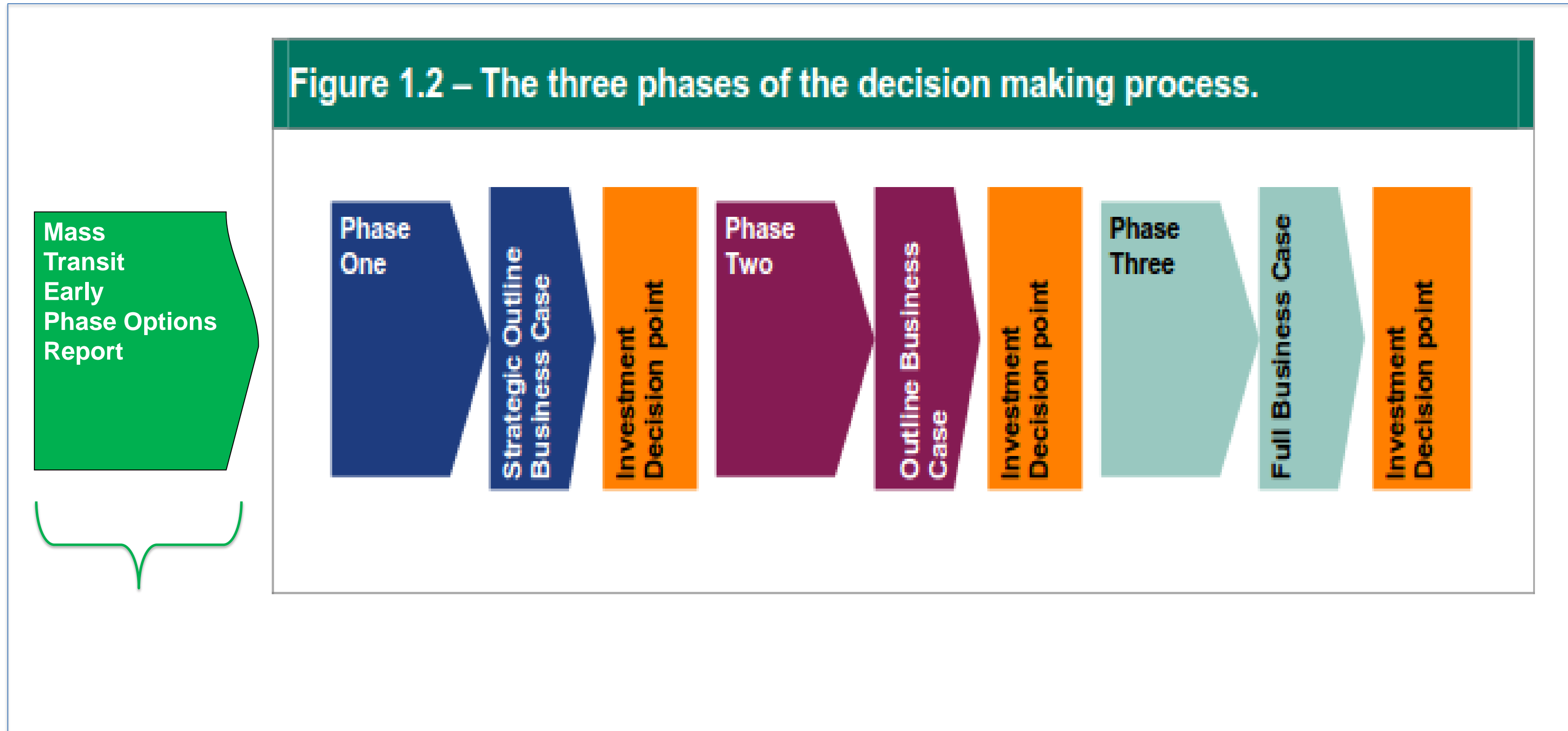
Outline Business
Case

Investment
Decision point

Phase
Three

Full Business Case

Investment
Decision point



Summary

Good case for continuing to investigate and develop the mass transit scheme

Main differences between overground and underground:

- Levels of development unlocked
- Deliverability (in terms of construction and operation)
- Cost

Underground

- Substantial capital expenditure
- Development opportunities enabled by the scheme are considerable
- Generally positive impact
- Adverse impact of construction limited to movement of excavated and construction materials, along with stations, vent shafts and portals

Overground

- Less capital expenditure
- Development opportunities enabled by the scheme are reduced
- Significant adverse impact on communities and existing transport infrastructure during construction and operation

Wider Context

- Further work required to develop overall WoE Transit system
- Other studies still to feed in - BSWEL, Bath Mass Transit Study, DfT/WECA rail study