

PLEASE FIND ATTACHED THE QUESTIONS AND STATEMENTS SUBMITTED TO THIS COMMITTEE

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WECA AUDIT COMMITTEE – 16 OCTOBER 2020

QUESTIONS & REPLIES

The following questions were submitted by the deadline (full details of questions and the replies are set out in the following pages):

Q1. Question from: Dick Daniel

Subject: **Investment in Road Building and Road Improvements**

QUESTION 1 - 16 October 2020

Question from: Dick Daniel

Subject: Investment in Road Building and Road Improvements

Question:

WECA's transport planning seems think that investing in road building and road improvements will help deal with the climate emergency.

Often justified by reducing congestion, where as, as the Department for Transport has acknowledged building more roads increases vehicle use.

How then can WECA's proposal to spend around £3-5 Billion on road building be justified, for the stated aim to be carbon neutral by 2030?

REPLY [text provided by officers and approved by the Chair of the Committee]

The Chair informs the questioner that the WECA Audit Committee is not the decision-making body in this regard. However, the Chair draws the questioner's attention to the following response provided by WECA officers:

WECA's approach for all new transport infrastructure is to balance the needs of the environment, our existing communities' health, inequalities and their need to travel, and the economy. This approach will also help us to manage congestion and work towards reallocating space on existing roads to more sustainable modes of transport. Road space is finite and we must make the most efficient use of it as possible in order to improve accessibility around the West of England.

In taking a balanced approach the Joint Local Transport Plan 4 (JLTP4), adopted in March 2020, sets out an £8.9 billion programme of transport schemes covering rail, cycling, mass transit, buses, walking and a limited number of new road schemes. The road schemes support development proposals and will enable the reallocation of roadspace to more efficient travel choices and ensure that people are able to move around the network safely, efficiently and as sustainably as possible and connect new development to the existing transport network

The JLTP4 includes a commitment that all proposed transport schemes will be reviewed on an ongoing basis against the emerging evidence base for meeting our jointly stated ambition of carbon neutral emissions by 2030. This will be looked at in the context of the proposed physical infrastructure, the mode of transport using any new infrastructure, its effects on the wider transport network and environment in the West of England, future spatial planning and emerging technology. The JLTP4 also commits to continuing to work with government to gain clarity on national targets for decarbonisation of transport and energy to be embedded in local transport policy and projects.

STATEMENTS RECEIVED – WECA AUDIT COMMITTEE – 16 OCTOBER 2020

1. Dick Daniel – Trams/light rail (Pages 1-13)
2. Dave Redgewell – Transport Issues (Pages 14-15)
3. Christina Biggs – Rail and Transport Issues (Pages 16-18)
4. Andy O'Brien - WECA's transport thinking and funding strategies (Pages 19-167)

STATEMENT 1 – DICK DANIEL

I am submitting the BATA reasons for instead investing in a tram / light-rail network for Bristol, Bath and the region.

A proposal which will actually get people to switch from cars to trams, as I say in the submission, a switch that has never been demonstrated by buses, we are not against buses, we want buses, we want trams to be the backbone feed and linked to a comprehensive network of bus routes.

I have also attached a chart showing the rise in passages numbers of the Manchester tram Metrolink, which has increased the numbers traveling by tram almost every year and now stands at 44.3 million journeys in the 2019/20 financial year.

Also a short video of trams in the historic centre of Seville.

A more technical document on the 'Technical, sociological and economic reasons why trams are an essential backbone to a bus based transport system'.

Best regards

Dick
Dick Daniel

BATA Board Member

<https://bathtrams.uk>

Estimated passenger journeys made on Metrolink per financial year							
Year	Passenger journeys	Year	Passenger journeys	Year	Passenger journeys	Year	Passenger journeys
1992/93	8.1m	1999/00	14.2m	2006/07	19.8m	2013/14	29.2m
1993/94	11.3m	2000/01	17.2m	2007/08	20.0m	2014/15	31.2m
1994/95	12.3m	2001/02	18.2m	2008/09	21.1m	2015/16	34.3m
1995/96	12.6m	2002/03	18.8m	2009/10	19.6m	2016/17	37.8m
1996/97	13.4m	2003/04	18.9m	2010/11	19.2m	2017/18	41.2m
1997/98	13.8m	2004/05	19.7m	2011/12	21.8m	2018/19	43.7m
1998/99	13.2m	2005/06	19.9m	2012/13	25.0m	2019/20	44.3m
Estimates provided by TfGM to the Department for Transport, ^[4] based on sales from ticket machines. ^[note 2]							

BATH AREA TRAMS ASSOCIATION



WECA

16th October 2020

The UK now has a growing list of cities and city-regions that has discovered that investing in trams / light-rail pays off. These are following the lead of cities around Europe and the world, including the USA, regions that are at the forefront of taking action on climate change, healthy active citizens and are highly economically productive.

Cities like Gent, please see video 'The Innovative Way Ghent, Belgium Removed Cars From The City:' https://www.youtube.com/watch?v=sEOA_Tcq2XA&t=2s]

which has created low traffic neighbourhoods, high levels of cycling & walking and has an extensive tram network.

In the UK the number of cities that have re-introduced trams is growing, Manchester Croydon, Birmingham, Sheffield, Edinburgh, Nottingham, Newcastle. Many of these were put in against opposition only to find they are so successful and popular that there is a clamour for expansion and extension of the routes.

This is because trams have been shown to attract motorists out of cars, on Manchester's tram 30% of off-peak journeys have switched from cars, a switch that has never been demonstrated by buses.

We are not against buses, we want buses, we want trams & light-rail to be the backbone, feed and linked to a comprehensive network of bus routes.

Why trams

1st Modern trams are sexy and sleek they glide through the city

2nd They carry large numbers of people in style

3rd They are a sign of a modern city confident its future

Trams / light-rail create none of the pollution, diesel particulates, tyres dust or brake linings motor vehicles do.

They run on electricity, using only 1/5 of the energy a bus does. As the UK moves to all renewable electricity as the government's is aiming for, and WECA's says 'Our Joint Local Transport Plan aims to ensure that transport is carbon neutral by 2030'. This is a far more efficient use of this resource.

It has been demonstrated all over Britain, that no matter what bus schemes have been tried – Metro Bus, Busways or Bus lanes - buses do not offer the quality of service trams do and which motorists demand. Such as short waiting times of 6 – 10 minutes, good all day and evening reliable services and the ability to cut through traffic.

BATH AREA TRAMS ASSOCIATION



Trams may seem expensive to put in, £25 million per kilometre approx. But this is a small compared to WECA's proposals to spend up to £3-5 Billion on roads bases schemes. Putting in this infrastructure will create jobs, can be the basis for re-skilling and shows a confidence in investing in the region's future.

The big point is that once the infrastructure is built trams / light-rail are far cheaper to run than buses, have low maintenance costs and the carriages can last 40 years, far longer than a bus. This investment is handsomely repaid over the 40 year life of a tram and the network.

Investing in trams / light rail will create jobs, new skills and make the region a more productive modern enterprising region. Re-trammed cities have always experienced an economic boom.

Modern trams are the future of a well-connected, dynamic and enterprising region. People like trams, people trust trams, people use trams.

Dick Daniel
BATA Board Member

BATH AREA TRAMS ASSOCIATION

3 Victoria Place, Combe Down, Bath, BA2 5EY

Website:- <https://bathtrams.uk/>

Email:- tyningroad@gmail.com

Technical, sociological and economic reasons why trams are an essential backbone to a bus based transport system

- Bath like Bristol, (or most British cities) suffers from pollution and congestion, and struggles commercially from lack of footfall caused by the difficulty and cost for persons accessing Bath [who, as evidence shows, won't use buses](#) but will instead go elsewhere or shop online. Staff struggle in on wage-sapping expensive and slow transport. Trams integrated with buses can help solve all these issues in a way that busses alone cannot for reasons explained below.
- Trams' heavier engineering, with no need to cater for bumps in the road or steering, gives a roomier, smoother and more reliable vehicle with desirable style & prestige; multiple larger doors give rapid boarding and consequently short stop times, all very attractive to car drivers who research shows will accept trams [but won't switch to buses](#). Buses' intrinsic different engineering and therefore economics means passengers are forced to be crammed close together in bench seats, and suffer long waits between unreliable services out of peak hours. The reasons for these intrinsic differences are explained below.
- A tram inflexibility is a proven asset, not a disadvantage as services cannot be subject to constant change and withdrawal, unlike buses. A tram line give businesses confidence to build along the line. Businesses provenly become more profitable as a result.
- Typically a 450 passenger tram which arrives at a stop, can de-board and board and be off in 20 secs. This would need to be replaced by 5 – 7 buses, but these cannot all arrive simultaneously and a double-decker can take 2.5 minutes to board and de-board, and so have to be spread out, inevitably limiting a lines capacity and frustrating those at a bus stop who have to wait for "there's another one close behind".



- [Tram lines have 4 - 5 times the capacity of a bus line](#) and generally for economic reasons operate [at 6 minute intervals starting earlier and running later](#) than buses due to different intrinsic economics again making them attractive to drivers. For the same

economic reasons buses cannot offer this frequency.
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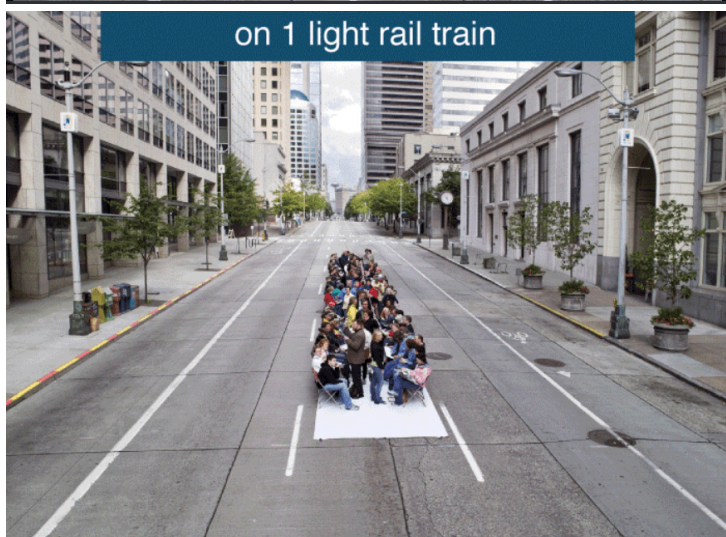
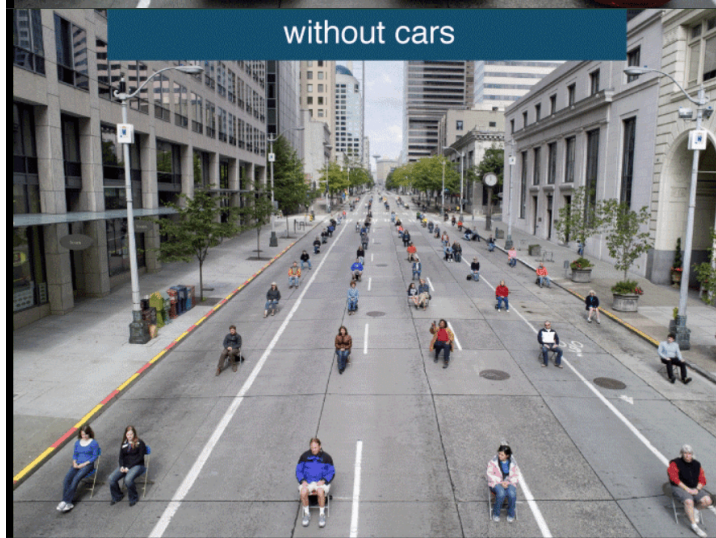
TABLE 3.2 MODAL CHARACTERISTICS COMPARED

Mode Characteristics	Max. capacity (pphpd)
Bus	2500
Maximum Bus Priority	4000
Segregated Busway	6000
Tram	12,000

Relative line

capacities

**Numerous large doors mean a tram can de-board and de-board in around 20 secs
 and be on the move - a single double decker can take 2.5 minutes**



- Trams' higher capacity and service frequency makes the total [cost per passenger km less than a bus](#) with all costs included.

TABLE 3 Construction Costs
For double track, per km (£000s)

	TRAMS	BUSES
On road	2000	350
On ex-railway	3500	2750
Other costs(depot, stops, control)		~3750

TABLE 4 Unit Operating Costs
Based on 90 capacity bus costing £120,000; 250 capacity tram costing £1M

TRAMS	BUSES
50 p /km	25p/km
£20/hr	£18/hr
£110,000 per vehicle/yr	£68,000 per vehicle/yr
1.2p /passenger-km	3p /passenger-km

- Full explanation last point below) – running cost, initial capital costs, ongoing maintenance, long-term replacement sinking fund which can be financed over 40 years at low interest rates. This means they can operate frequently even during low traffic hours, something buses cannot afford to do and so have much longer service intervals, discouraging car drivers. Buses only last a few years and have to be financed at much higher rates and have higher operating and maintenance costs per passenger.
- Trams can use [Green Wave](#) traffic light pre-emption making them faster through traffic without requiring special tram lanes and sharing the same road space [as in this tram line in Brussels](#). It is generally not possible to apply [Green Wave](#) to buses, because four or five times as many bus movements would cause too many traffic light interruptions creating chaos
- The school run causes 30% of peak hour traffic; but the trams' 6 minute interval, reliability, roominess and non-bench seating (children can move around and avoid proximity to strangers) mean parents trust their children to trams even on two-tram cross town school trips to arrive safely and on time.
- Buses are ideal as city tram feeders for rural areas and low demand city areas. Trams in Bath and Bristol will [assist longer distance commuters from outside the cities](#) because they can transfer to a fast tram rather than ride on a bus stuck in traffic
- Buses and cars, including electric, make [considerable pollution](#) from exhaust emissions, tyre and road dust. Electric cars and buses save on the exhaust emissions but produce even more tyre and road dust because of their greater weight. Trams produce neither exhaust emissions nor tyre and road dust in the street and have much [lower energy consumption and carbon emissions](#).
- Modern tracks are likely to be able to span [cellars and be installed one single track at a time overnight without closing roads off](#) and in any case normal tracks have much much lower bearing pressure than buses.
- *A tram's inflexibility is an advantage.* Once built, tramlines unlike bus routes cannot suddenly close, meaning businesses can [have confidence and cluster alongside](#)

causing [regeneration and enabling traders to](#) thrive and [create jobs](#) tram systems have been installed in 28 French cities, many showing this effect. This effect also noted for Nottingham.

- There are at [least 33 small towns with the same sort of population or much less than Bath](#) which have tramways - Valenciennes 57,000, Adinkerke 10,060, Nieuport 11,062, Ostende 70,994, Blankenberge 19,897, Knokke 34,063 to mention only a few. According to BBC Coast, [the 42 miles Belgian coastal tramway](#) was built and then the towns grew up along it.

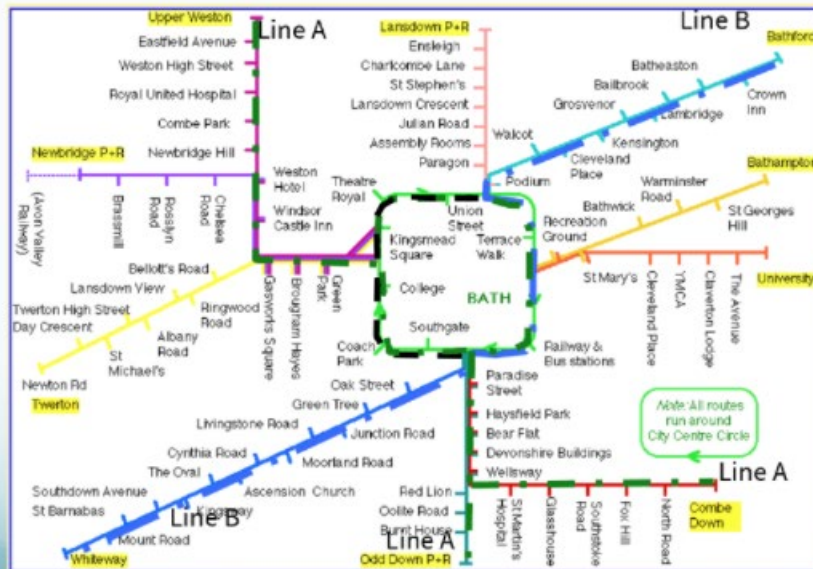


Above - 42 Belgian coast tram serving small villages

- Unless traffic restraint is applied, any road space created by trams (or bypasses) will be soon be taken up by the extra car trips created - [so called "induced demand"](#).
- [Green Wave traffic light pre-emption with the tram on exactly the same track as cars](#) (ie no separation or special tram lanes) achieves this traffic restraint [see this video with the traffic following the tram in Brussels](#). Studies also show that traffic restraint is only acceptable when a good alternative such as a tram is provided.
- Bath Tram's Initial studies show [2 routes within Bath are economic](#), and the independent Atkins' [study agrees on the possible feasibility](#) of 4 routes. Routes to Bristol, Radstock and Chippenham are also proposed.

Bath Tram Maps and Rates of Return and how trams address the rural commuters

Possible Bath Network



Line A = Upper Weston –City Centre- Odd/Combe Down
Line B = Bathford – City Centre – Whiteway

Line	CAPEX	Pax.pa	%from cars	IRR %pa.
A	85	6.5	34	12
B	105	6.7	34	7
A + B	183	13	34	10

- Trams are particularly accessible for people with disabilities due to their low floor and level boarding. A tram can always arrive precisely close to the platform every time, and this is impossible for a bus. This also makes them easier for people who may not be disabled but generally find it difficult to move about, and people with pushchairs, luggage etc, and also easier for everyone making boarding and alighting quicker.
- It is worth noting that no bus-only solution, [busway](#), [Metrobus](#) or [otherwise has ever worked in UK](#) have ever created a significant modal shift, whereas trams have at least a 25% modal shift and have provenly reduced congestion in all cities they have been installed in.

- [Trams in dense city locations are much cheaper than buses.](#)
- The most important thing is to understand whole-life costing. A tramway needs to be assessed over 40 to 50 years (and has access to low interest loans over that period) and in that time frame the biggest single expense will be staff costs, hence the need to achieve high ratios of passengers to drivers. Up to 300 people on a tram with a driver is better than 90 on a bus. Next highest cost will be vehicles and their maintenance. A tram will cost between £1M and £2.5M (over the 20- to 44-metre range of lengths in most manufacturers' catalogues) but will last 35-40 years. A bus will cost £0.5M but last only 12-15 years. Maintaining buses is around twice as expensive as for trams, even allowing for OHLE costs. Take carrying capacity into account and anyone can do the maths. Crudely, a line requiring 10 x 30-metre trams at £1.5M a pop would need 30 buses replaced twice over the whole-life costing period. That's why there are so many tram systems in Europe.

List of 131 trams systems worldwide with same length as Bath's proposal

- These are all approximately the same route length as is proposed for Bath

	Location	Country	Length, km
1	Southport	United Kingdom	1.1
2	Oeiras	Portugal	1.2
3	Seville	Spain	2.2
4	Gmunden	Austria	2.3
5	Sassari	Italy	4.3
6	Debrecen	Hungary	4.4
7	Sóller, Mallorca	Spain	4.9
8	Trieste	Italy	5.2
9	Trenčianske Teplice	Slovakia	5.9
10	Poznań	Poland	6.1
11	Strausberg	Germany	6.2
12	Mestre	Italy	6.3
13	Liepāja	Latvia	6.9
14	Florence	Italy	7.6
15	Messina	Italy	7.7
16	Lausanne	Switzerland	7.8
17	Bad Schandau	Germany	7.9
18	Botoșani	Romania	8
19	Parla	Spain	8.3
20	Nice	France	8.7
21	Trondheim	Norway	8.8
22	Neuchâtel	Switzerland	8.85
23	Grudziądz	Poland	9
24	Druzhkivka	Ukraine	9.8
25	Ulm	Germany	10.2
26	Ploiești	Romania	10.3

27	Padua	Italy	10.4
28	Utrecht	Netherlands	10.5
29	Navapolatsk	Belarus	11
30	Toulouse	France	11
31	Nancy	France	11.1
32	Reims	France	11.2
33	Marseille	France	11.5
34	Miskolc	Hungary	11.5
35	Saint-Etienne	France	11.7
36	Naples	Italy	11.8
37	Osijek	Croatia	12
38	Cagliari	Italy	12
39	Bilbao / Vitoria-Gasteiz	Spain	12
40	Avdiivka	Ukraine	12
41	Angers	France	12.3
42	Bergamo	Italy	12.5
43	Sintra	Portugal	12.7
44	Zaragoza	Spain	12.8
45	Le Havre	France	13
46	Cluj-Napoca	Romania	13
47	Bergen	Norway	13.4
48	Almada-Seixal	Portugal	13.5
49	Olomouc	Czech Republic	13.6
50	Konotop	Ukraine	13.9
51	Kraków	Poland	14
52	Porto	Portugal	14
53	Edinburgh	United Kingdom	14
54	Nottingham	United Kingdom	14
55	Clermont-Ferrand	France	14.2
56	Brest	France	14.3
57	Częstochowa	Poland	14.7
58	Tours	France	15
59	Elbląg	Poland	15
60	Rouen	France	15.1
61	Santa Cruz de Tenerife	Spain	15.1
62	Le Mans	France	15.4
63	Caen	France	15.7
64	Mulhouse	France	16.2
65	Szeged	Hungary	16.5
66	Craiova	Romania	16.7
67	Kramatorsk	Ukraine	17.4
68	Kryvyi Rih	Ukraine	17.7
69	Blackpool	United Kingdom	17.7
70	Murcia	Spain	18
71	Valenciennes	France	18.3
72	Zwickau	Germany	18.5
73	Dijon	France	19
74	Innsbruck	Austria	19.5
75	Frankfurt (Oder)	Germany	19.5
76	Amsterdam	Netherlands	19.5

77	Mazyr	Belarus	19.6
78	Essen	Germany	19.6
79	Würzburg	Germany	19.7
80	Cottbus	Germany	20.1
81	Birmingham	United Kingdom	20.2
82	Plzeň	Czech Republic	20.4
83	Galați	Romania	20.4
84	Schwerin	Germany	21
85	Norrköping	Sweden	21
86	Kiev	Ukraine	21
87	Liberec	Czech Republic	21.5
88	Lille (to Roubaix & Tourcoing)	France	22
89	Lyon	France	22
90	Toruń	Poland	22
91	Brăila	Romania	22.7
92	Sarajevo	Bosnia-Herzegovina	22.9
93	Jena	Germany	23.7
94	Gotha	Germany	25
95	Daugavpils	Latvia	25
96	Gorzów Wielkopolski	Poland	25
97	Kostiantynivka	Ukraine	25.4
98	Linz	Austria	26.8
99	Athens	Greece	27
100	Madrid	Spain	27.8
101	Freiburg im Breisgau	Germany	28
102	London	United Kingdom	28
103	Horlivka	Ukraine	28.4
104	Potsdam	Germany	28.9
105	Sheffield	United Kingdom	29
106	Bydgoszcz	Poland	29.1
107	Orléans	France	29.3
108	Bonn	Germany	29.5
109	Grenoble	France	29.6
110	Ghent	Belgium	30
111	Plauen	Germany	30.1
112	Vienna metropolitan area	Austria	30.4
113	Barcelona	Spain	30.4
114	Mülheim/Oberhausen	Germany	32
115	Charleroi	Belgium	33
116	Nuremberg	Germany	33
117	Bern	Switzerland	33.4
118	Saarbrücken	Germany	33.6
119	Poprad-Štrbské pleso & Starý Smokovec-Tatranská Lomnica	Slovakia	35
120	Rostock	Germany	35.6
121	Geneva	Switzerland	36
122	Bielefeld	Germany	36.9
123	Oradea	Romania	37.1
124	Timișoara	Romania	37.5
125	Dublin	Ireland	38.2

126	Tallinn	Estonia	39
127	Rome	Italy	39
128	Braunschweig	Germany	39.5
129	Stockholm	Sweden	39.5
130	Dniprodzerzhynsk	Ukraine	39.5
131	Bratislava	Slovakia	39.6
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Statement 02 – Dave Redgewell

Public statement.

With the publication of the west of England combined authority Green and climate change recovery plan

The plan make reference to the proposed Rapid transit system with 4 lines in Greater Bristol and Bath city region.

1 through south Bristol to the Airport .

2 city centre through Bristol Temple meads to Bath .

3 line to North Bristol and Cribbs Causeway.

4 line to East Bristol.

and a separate study for Bath .

Unlike the west Midlands mayor combined authority or The combined transport authority in Greater Manchester.

The does not appear to be a fully costed plan .

The plan ranges from a Glider bus scheme to a light rail system with underground section.

Whilst we would support such a light rail system for the Greater Bristol And Bath city region.

We very concerned about the amount of money being spent on consultancies

Work with WSP and lack of clear public accountability of public money

We have not had clear public scrutiny of this project and therefore a project that could cost the Taxpayers a lot of public money.

Whilst we welcome the private sector possible involvement.

The project could cost up to 4.5 billion pounds.

We would like to see a fully audited Project.

We also note 2 uncoded metro bus Extensions in plan with no coatings .

There is no reference to the routes

We would think these may be routes from Bristol to Yate and Chipping Sodbury.

Bristol to Thornbury or Bristol to Brislington and Keynsham .

We think that this plan should have been properly costed .

Our concerns start by fact that the south Bristol metro bus route is not completed with a loop service through an area of social isolation and in need of regeneration and access to Employment sites The Hengrove hospital Hartcliffe south Bristol link Road to Long Ashton park and ride to Bristol city centre.

This has been raised by Karin Smith MP for Bristol south and still has no metro bus service.

With the previous attempts to develop a light rail system for the Bristol and Bath city region we believe in view of the large amount of public money involved there should be proper Audit of consultants used on these projects.

And public accountability .

We welcome the commitment to a public panel for public transport.

But we still note that unlike the west of England partnership. The Transport board and planning and Housing Board are not open to public scrutiny.

We believe their need to clear public audit of public transport projects at west of England combined authority

Like there is in Greater Manchester city region and in the west Midlands combined authority.

The present set up of not having all the public transport staff not working for weca mayoral transport authority and staff still working at Bristol city council Banes and south Gloucestershire council is not good value for public money and all bus infrastructure staff and Rail

Planning teams working on metro west should move to the public transport Directorate at weca as should public transport planning at North Somerset council. This of course requires a parliamentary order. for North Somerset council to join.

All public transport planning should be working in the mayoral combined transport authority. With only highway authority matter remaining at a local authorities level.

This mean Audit of public transport bus service delivery is at weca with covid 19 bus operators grant.

But that public transport infrastructure projects audited at local authorities level .

This does not make clear lines of public accountability of public transport network improvement.

Please bring our statement to the Audit committee.

I would like to address the committee.

David Redgewell south west transport network and Railfuture Severnside.



1. Covid-19 – FoSBR note that passenger ridership is returning to the Severn Beach Line and other regional lines, and that GWR are now recommending the promotion of rail travel with appropriate public safety measures. FoSBR would urge WECA to publicise the continuing government investment in maintaining local rail service frequency and encourage car commuters to return to rail travel. FoSBR also note the government policy of investing in infrastructure to restart the economy and commend the MetroWest programmes as a means to do this locally in the West of England.

2. MetroWest Phase 1 – half-hour services from Severn Beach to Westbury and the reopening of the Portishead Line

a) FoSBR welcomes the continuing investment by WECA in MetroWest Phase 1, and would like to state its full-hearted support for the scheme. FoSBR notes that the Development Consent Order process is starting with hearings in October.

b) MetroWest Phase 1A (half-hour services from Severn Beach to Westbury) should still be considered as WECA's highest priority immediate contribution of local rail to air quality, and if implemented in 2021 would fall well within the current timescale of Bristol's Clean Air Plan.

3. MetroWest Phase 2 – services from Temple Meads to Gloucester and reopening of the Henbury Line

a) We welcome the continuing investment in the Henbury line, including the plans for Ashley Hill station, and note the long-term benefit of the scheme to public transport but also the immediate value of this investment producing jobs.

b) We appreciate the need for value for money at this time, but point out that the City Deal funds have been committed and that building the Henbury Line now will incentivise buyers and developers to build out the 8,000 homes in the Cribbs Patchway New Neighbourhood Scheme more rapidly, which in turn will deliver the ridership and modal shift that North Bristol needs.

c) Whilst we welcome MetroWest Phase 2 hourly service to Henbury in its current form, we note that a half-hourly service is technically feasible and also that it was the 40-minute service on the Severn Beach Line that was decisive in delivering the ridership of 1.4 million that the Severn Beach Line currently enjoys. We commend the light rail plans promoted by the Transport for Greater Bristol Alliance, particularly the suggestion that both MetroWest and the WECA mass transit plans should form part of a more ambitious and integrated rapid transit scheme.

4. Suggestions for public transport alternatives to further road building

a) FoSBR note that although there is considerable rail investment, that WECA is persisting in progressing most of the JLT4 road-building schemes, notably the South Bristol Orbital and the Coalpit Heath and Winterbourne bypasses, despite strong local opposition and WECA's stated aim of preventing climate change. FoSBR continue to commend feasibility studies into a rail station at Coalpit Heath, where there is room for a passing loop, and a new station at Corsham, as promoted by Wiltshire Council. As for the south of Bristol, FoSBR recommends that the proposed WECA mass transit scheme should include a light rail link to Radstock, and commends the light rail and traffic management plans drawn up by the Transport for Greater Bristol Alliance (TfGB) and presented by TfGB to the WECA meetings this week.

b) FoSBR continue to bring WECA’s attention to the fact that further road-building not only destroys the environment but also brings more cars onto the road and undermines public transport. We commend the instatement of the Bristol Bridge bus gate and pop-up cycle lanes in Bristol, and urge that the Living Neighbourhoods suggestions be acted on, as well as the more ambitious Traffic Management Plans and Parking Plan as promoted by the Transport for Greater Bristol Alliance.

5. Integrated transport planning

a) FoSBR notes that in the Appendix 1 list of investments, the road, rail, bus and cycling schemes do not seem to be structured according to any overarching plan. FoSBR notes the investment in two separate rail studies (Greater Bristol Area Rail Enhancements and Strategic Rail Investment) and suggests that these two plans and other current rail projects be brought into a more coherent and intentional rail investment programme, including bus-rail interchange and the proposed mass transit schemes. We commend the organisation of the West Midlands Rail Executive and suggest that WECA initiate talks and visits with these and other ITAs in the UK to learn how to deliver schemes to budget and on time.

b) FoSBR welcomes the new extensive WECA Local Cycling and Walking Investment programme and suggests that a similarly detailed plan, with maps, is drawn up for rail and bus services, including rail-bus interchange. FoSBR would urge BCC to ensure that future MetroWest rolling stock is not only zero-carbon but has cycle hire and extra space for bicycles for local services as well as cycle lockers at multimodal exchange hubs.

Christina Biggs and Tony Lloyd
Friends of Suburban Bristol Railways www.fosbr.org.uk

Figure 1 Pie-chart of Investment Plan allocations for June and October 2020 combined, in the WECA Committee reports pack for Friday 9 October 2020 (table of values below), mode allocations ours.

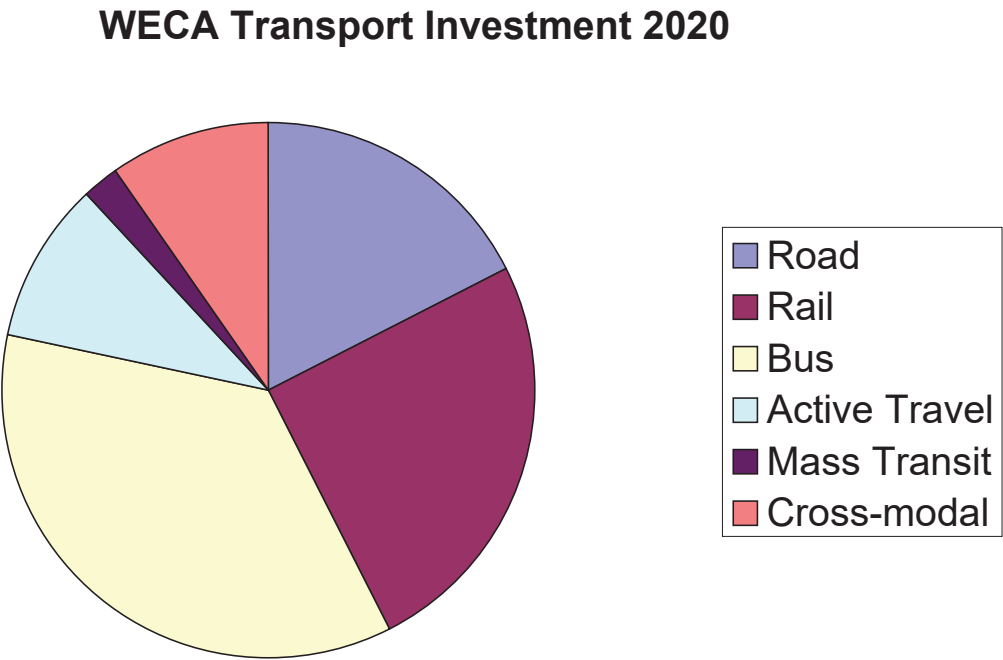


Table constructed from Appendix 1, page 188-189 of WECA Committee reports pack. The figures are multiplied by 1000 to be in pounds sterling for clarity and the allocation to mode of transport is ours.

WECA Investments by mode June 2020 + October 2020	Road	Rail	Bus	Active Travel	Mass Transit	Cross-modal
Southern Orbital	310000					
Mass Transit Options					552000	
East of Bath	100000					
A420 to Bath	400000					
Bristol Temple Meads		4000000				
Greater Bristol Area Rail Study		200000				
Coalpit Heath+Winterbourne bypass	826000					
Regional Operations						150000
Strategic Rail Investment		500000				
Access to Bath	400000					
Access for All		100000				
Housing Growth Mitigation	3200000					
Hick's Gate Roundabout	920000					
MetroWest Phase 2		16677000				
Charfield Station		2400000				
Yate Park and Ride			600000			
Strategic Park and Ride			1000000			
MetroWest Phase 1		11720000				
Mass Transit development study					3000000	
Integrated Smart Ticketing						600000
Local Cycling and Walking				2200000		
Future Transport Zone						11455000
MetroBus Consolidation			600000			
WoE Stations enhancement		1104000				
RTI upgrade			1118000			
Cribbs Patchway cycle links				6650000		
Cribbs Patchway MetroBus extension			44302000			
ITA functions						2000000
Short term bus enhancements			4200000			
On bus contactless			832000			
Great Stoke Roundabout	5818000					
Wraxhall Road Roundabout	13774000					
Emergency Active Travel fund				5259000		

	Road	Rail	Bus	Active Travel	Mass Transit	Cross-modal
£	25748000	36701000	52652000	14109000	3552000	14205000

Statement 4 - Joint statement from Transport for Greater Bristol and Zero West to the of England Combined Authority Audit Committee meeting, Friday 16th October 2020, 2pm.

We remain hugely concerned that despite the climate emergency, road building and enhancement schemes still dominate WECA's transport thinking and funding strategies.

So over the past few months our two groups have worked together to develop a suite of proposals for a comprehensive, low-carbon transport solution for our region. These are now sufficiently advanced that we have offered them to WECA and the Transport Minister for their consideration. We will also shortly be sharing them with the region's MPs and other interested parties. The documents are attached here and also available on the TfGB web site at:

<https://tfgb.org/campaigns/bristol-transport-plan/>

Our proposals provide an integrated approach which will enable the region to meet its goals of reducing car use, decarbonising transport and providing equal access to mobility for all. They are in keeping with best practice found across Europe and now being developed in some British cities.

There are four documents and they need to be considered together as an integrated package. They cover rapid transit, traffic management, bus services, and parking.

The notional price tag of the Rapid Transit Plan in our proposal is £3.2bn. It bears comparison with the road schemes in the WECA budget. It's also important to point out that the avoided costs of people driving is even larger.

Our plans present a more cost-effective transport solution than the proposed road improvements, while also benefiting the community through greater connectivity and property value uplift.

We are at an absolutely critical point on climate change. We know how long transport infrastructure takes to implement, so have to make the correct net-zero transport decisions now. We will not have a second chance, so WECA's planned investments in road building projects must be re-directed to urban rapid transit systems now. This low-carbon investment will also provide significant social and monetary returns.

Martin Garrett, Chair, Transport for Greater Bristol.
Andy O'Brien, Co-Director, Zero West.



Transport for Greater Bristol Alliance

Campaigning for
Integrated Transport

A RAPID TRANSIT PLAN FOR BRISTOL AND BATH

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v51 17-09-20

Map by Tick Ipate

EXECUTIVE SUMMARY

These proposals for a twenty-first century transport system are not from a single-issue lobby group; **Transport for Greater Bristol (TfGB)** offers a comprehensive package of transport and environment measures which builds on the emerging good practice found across the region such as **MetroWest**, the **City Bus Deal** in Bristol and the well-organised **bus-rail interchange** at Bath Spa.

As we emerge from the special circumstances of the Covid crisis we need modern transport planning for active travel, health, opportunity, inclusion, social justice, and action on climate change. It's also good for business.

Mass transit is again being discussed in the West of England but we are in danger of making poor decisions. TfGB's contribution brings together experienced residents and campaigners. It is citizen-created, reflecting the concerns and observations of TfGB supporters and others, for their community and their environment.

Our ***Rapid Transit Plan*** is part of a holistic approach. It should be read in conjunction with the TfGB ***Traffic Management Plan*** and the proposals for 'liveable neighbourhoods' led by Sustrans and others. The *Plan* also represents a further evolution of the TfGB ***Bus Plan***, the last iteration of which was published late in 2018. Modifications to that plan are implied in our ***Rapid Transit Plan***.

Our *Plan* is not final or complete. It cannot be. It is well considered and indicative, but needs to be developed and implemented by a team of professional planners supported by political commitment from decision makers.

Bristol should do what modern cities do, including Bordeaux and Hannover our twin cities, and opt for modern trams, integrated with bus services and rail. Nearer home we have good examples in Nottingham, Sheffield, Manchester, the West Midlands, Edinburgh, Croydon and very soon Cardiff. We should still be developing parts of our bus network with radials on dedicated bus lanes and orbitals with bus-priority traffic signals, and interconnecting them with suburban and city centre bus hubs including at all local rail stations. However, the more densely used routes can be better provided as on-street tram routes, with buses feeding into them as well as operating where trams are not practical.

A mass transit system with some underground features does not feature in our plan. A significant rationale for underground running is to not interfere with

surface car traffic. Yet the climate emergency demands a significant reduction in car traffic in urban areas in 15 years. There is no need for more roads, or to maintain current highway capacity, or for an Underground. Any underground section would be unnecessarily expensive, have too few stops/stations, and be inconvenient for the disabled.

Trams are more accessible than an Underground, and have more frequent stops. Building and operating an Underground is also highly carbon intensive, disruptive, and extremely expensive. Bristol Temple Meads, one of the proposed Underground stations, rather requires a coherent interchange for the surface trams, buses and active travel, and the remodelling of adjacent highways to facilitate this.

Our proposed tram 'lines' would be phased in, to an agreed on-going investment programme of a decade or more, each building upon the success of the previous ones. The *Plan* should be carried out within corridors in tandem with WECA's **MetroWest** local rail improvements, TfGB's (now WECA's) **Bus Plan**, and Bristol Cycling Campaign's (now Bristol City Council's) **Cycling Strategy**; in tandem too with TfGB's **Traffic Management Plan** designed to manage reduced traffic levels.

We are pleased to say that the *Plan* in many ways overlaps both with WECA's own proposals in their *Joint Local Transport Plan 4*, and the Mayor of Bristol's stated aim of four rapid transit lines serving each of the southwest, southeast, northeast and northwest sectors of the conurbation. Like Cardiff, and already Nottingham, Sheffield, Manchester and Edinburgh, we would agree with the *JLTP 4*'s support for "transformational infrastructure in the form of mass transit (e.g. light rail, tram, tram-train or underground)"; we disagree that it is 'challenging to achieve on-street running', or that it will take 10 – 20 years. The on-street trams and rail conversions of comparable cities – paid for by the government's Department of Transport – are our precedent, and good enough for Bristol and Bath.

We plan to create everyday modern public transport, and a '**modal shift**' for everyone in the West of England region. Modern trams, combined with appropriate traffic management measures and the rail network, can provide a more **reliable**, **faster** and more **frequent** service than either today's congested bus or car options.

We omit a tram route to the airport for business travellers and holiday makers. We should be planning for reduced air travel, not more, if climate change is to be

taken seriously, as recognised by North Somerset Council in turning down the airport's expansion proposal.

On the other hand our proposals do include a route connecting South Bristol with the employment opportunities of **Sevenside**; such a route is designed to grow a market and create social benefit for a deprived area and promote the economic viability of Sevenside, whilst reducing the use of private traffic to access employment. An equivalent route might serve disadvantaged remoter East Bristol utilizing the currently car-focused infrastructure of the Avon Ring Road.

Both the **Avon Ring Road** and the **M32** provide convenient alignments for efficient longer-distance tram services. Currently they simply pour car traffic and air pollution into the city. We envisage these roads downgraded as car commuter arteries. The M32 should be, as has long been envisaged, **de-motorwayed**. Its space should then be repurposed and not just for trams, but for other uses such as cycleways and amenity space; and its ageing infrastructure of grade-separated junctions replaced at surface level. This cost will one day fall on either Highways England or WECA in any case, and should ideally be planned for now. We propose too, making use of the ready infrastructure offered by the existing **railfreight lines** to Portbury/**Portishead**, to Avonmouth via **Henbury**, to Tytherington (formerly the **Thornbury** line) and to the Westerleigh oil depot; and in addition the abandoned Yatton to **Clevedon** rail line and the lines to **Radstock** (the last not discussed in this paper). Considerable costs will of course be involved in returning these lines to passenger use, and business-like negotiations required with the Port of Bristol and other commercial concerns. But unless this is achieved, more distant commuters and visitors cannot conveniently be offered rapid transit options into the twin cities of Bristol and Bath. These days they should not expect less. We are planning for the rail and tram renaissance of the West. Many other cities have already showed us how to do it.

To the city's many committed car drivers we say: If places like Bristol are to have a future, car dependency must come to an end. More car drivers and passengers should be on the buses, trams or their bikes. Our plans ultimately assume that Central Government must intervene to curb car dependency (except for the disabled and those who live in remote locations), even if all cars are electrified.

INTRODUCTION: BRISTOL DESERVES RAPID TRANSIT

Bristol is a fine city: its hills, its buildings, its arts, its universities, its popularity. But in terms of transport it is less than perfect.

Other cities suffer congestion and air pollution. Bristol simply has it worse. It is more car-dependent. Manchester, Sheffield, Nottingham, Croydon in South London have their trams. So do many similar-sized European cities. Cardiff is in the process of tying together the railways from the Valleys and running them as a tramline across the city centre.

Avon County Council (before it was abolished in 1996) had a tram plan; one which Bristol City Council tried to continue for a while, before being blocked by South Gloucestershire. Since then, the West of England Combined Authority has built roads: the South Bristol Link, the Stoke Gifford Bypass (both built using 'MetroBus' money). Yet since the 1970s transport planners have recognised that more roads lead to more traffic, not less.

What we can do to attract the funding

Bristol does have a serviceable transport plan, called '**MetroWest**': the upgrading of the suburban railways to Clifton Down and Avonmouth; the re-opening of the rail line to Portishead, and of the lines through Henbury to Bristol Parkway and Filton Abbey Wood; the re-opening of stations at Ashley Down, St Anne's and Ashton Gate; and the return of frequent train services to Bedminster and Parson Street stations. All this is good. It just isn't happening. Instead, the West of England plans more roads, and has found time and money to build a 'guided rail' MetroBus overpass in Ashton Gate, and a new bridge (little used) over the M32.

MetroWest is proceeding painfully slowly. The West of England and North Somerset Council have failed to properly plan the Portishead line. The Department of Transport regards MetroWest as poor value for money. It is right. A train every half-hour on a couple of suburban branch railways will not radically alter transport habits in Bristol.

Cardiff and Nottingham will get the money for their Rapid Transit expansions. They push stronger, design better. So here's how we do it.

Combining local rail and on-street trams

Most Bristolians know Bristol used to have trams. Lines ran out to Horfield, Fishponds, Kingswood, Hanham, Brislington, Knowle, Bedminster Down, Ashton Gate, Hotwells and Westbury on Trym, on Gloucester Rd, Stapleton Rd, Lawrence Hill, Bath Rd, Wells Rd, Bedminster Parade, Hotwell Rd, Whiteladies Rd, with a few one-track stretches and several stabling depots and works sites (the old map is available at <http://wpehs.org.uk/bristol-tramways>). Bristol was built not just around its railways, but its trams. Bristol's twin cities Bordeaux and Hannover both have trams.

We achieve by being positive. Let's not say that Gloucester Road is 'too narrow for trams' – West St in Sheffield (which has trams) is narrower, as is Leidsestraat in Amsterdam and various streets in Krakow. Bath has an active tram campaign, and Bath & North East Somerset Council recently paid the consultants Atkins to do a scoping study for trams in Bath (available at <https://democracy.bathnes.gov.uk/documents/s49556/TramReport.pdf>). In Bristol to date we have lacked a campaign for trams, but instead have concentrated on the buses, railways or air quality (all excellent causes in themselves). But railways and trams need to be seen as an integrated system, as in Manchester, Croydon, and Cardiff.

MetroWest, the obvious way forward, potentially serves northwest and southwest Bristol well, and ties the city to its main partners Bath, the North Fringe, Yate, Portishead, Nailsea, Weston super Mare, Thornbury. But it cannot reach all parts of the city, and those it doesn't are well suited to a Bristolian tram revival. The corridors of Bath Rd, Wells Rd, Kingswood, Fishponds Rd, Gloucester Rd were built around trams and need them back. Plus, waiting to be repurposed are those monuments to the Car Age: Temple Way, Easton Way, the Avon Ring Road, the M32. Today these concrete highways pour congestion, bad air, noise and severance into a defenceless inner city and city centre. We can make them useful. Bristol after all does have its bypasses: the M4 and M5. It just needs to unclog its arteries.

Rolling-stock, depots, platform heights

Three required technical decisions will be rolling-stock, platform height and power transmission. 'MetroWest' will probably have to involve more than one type of vehicle. Those services using solely existing railways, all or in part shared with Regional or InterCity rail services, will have **heavy rail** vehicles; but some or all local rail services potentially could operate with '**tramtrain**' lighter vehicles, notably if

they also have partially on-street routes. Other services running purely on-street can be standard European-style **trams**. To an extent, the less variation the better for procurement purposes.

Different types of rolling-stock, and potentially discrete lines, will lead to a need for extra **depots** (for which land has to be found). On this issue, see under 'General notes for Bristol' (p. 27).

Different rolling-stock could allow a variation of **platform height**. Existing railway stations have a standard platform height to which all rolling-stock door height necessarily conforms. Street-tram 'stations' can be built to the same height, with approach ramps. However, lower door heights would be preferable on-street. Where a 'tramtrain' vehicle is used both on shared heavy rail lines but also on-street, one solution is to have an extra length of railway platform at a lower height (if the site allows).

Another, partially aesthetic issue is whether to have **overhead power cables**, or else on-board batteries or a sunken (within the carriageway) power source. Solutions can be mixed, if the rolling-stock is designed to allow this. This may be an issue in Bristol, but certainly is in Bath.

Beefing up a WECA Transport Plan

The West of England Combined Authority (WECA) has expressed interest in combined rail and tram plans. A recent background document for WECA's *Joint Local Transport Plan 4* envisaged running services from the reopened Henbury rail line down Gloucester Rd into the city centre as a tram. This is the kind of thinking the city needs more of.

WECA is now the Transport Authority. It needs to accept its potential rail planning powers, as Combined Authorities do in other metropolitan regions.

An essential step will be the appointment of more experienced staff. Bristol can learn from the mistakes of Sheffield or Edinburgh in engineering preparations and contractual arrangements. The West deserves access to consultants with European or Far Eastern light rail expertise, and a Head of Service with practical experience of trams and rail re-openings elsewhere.

A corridor approach

Transport for Greater Bristol therefore offers a draft *Rapid Transit Plan* – a **MetroWest** update. It is not the answer; but it is a start. It must be considered in parallel with TfGB's draft *Traffic Management Plan* dealing with the general traffic on the roads some tram routes are obliged to use – the two are to some extent interdependent.

Phasing will be crucial. The first phases must be relatively straightforward to achieve, very clearly useful, and attract a budget (mostly from government). Once the first service has been initiated, we would expect to see strong support for proposed additions. 'Rail is good' has become the watchword across Europe, in other British metropolises, even in North American cities that used to be incurably car-dependent. Later phases can deal with the trickier corridors. Lines need to reach out to the four corners of the city, including its less-fashionable parts.

Some corridors suit rail lines that MetroWest already plans to revitalise, like that to Portishead. Others don't, but have a history of trams or have recent highway alignments crying out for re-purposing. For some corridors a tactical choice presents itself. The varied demand generators around Filton could be served either by local rail services use of the main rail line through Filton Abbey Wood, or else on-street tram via Gloucester Rd. Both may in time prove practical, especially since Filton Bank on the high-speed main rail line to both London and Birmingham inevitably has future line capacity limitations. Bath too might eventually be connected both by the main rail line (planned for high-speed), and by the A4 Bath Rd on-street. The northeast sector of the city has three options: the old Midland rail line (better known as the Bristol & Bath Cycle Path), Fishponds Rd (formerly with trams), or else the M32 and Avon Ring Road (both already having vulnerable bits of bus-lane). Any of them could reach the expanding zone around Emerson's Green, as indeed the successful MetroBus service via the M32 already does; an on-street service could utilise the M32 and the Avon Ring Road but thereafter the existing Westerleigh freight line (retaining a cycleway alongside) to reach Yate station – thus neatly avoiding the choke point of the high-speed Winterbourne viaduct on the main London to Wales rail line. This route could be extended to Thornbury via the Tytherington freight line, as already proposed by campaigners in Thornbury.

Existing hard-to-alter car commuter desire lines might be met by a bit of lateral thinking. The employment opportunities of Severnside would be well served by an upgraded MetroWest Avonmouth service, but South Bristol linked in by a service

from South Bristol via Brunel Way and Portway (either via the South Bristol Link or Hartcliffe Way/Winterstoke Rd); initially perhaps by 'MetroBus', then if justified, by tram. Eventually outer East Bristol might similarly be connected to Severnside via using stops on the Avon Ring Road.

A first draft of a ***Rapid Transit Plan***, embracing these provisos, appears below. Regarding the cost of developing rapid transit, estimates vary from a total all-in cost (including land acquisition, services diversion, legal costs, etc. as well as track and rolling-stock) of perhaps £25m/km for on-street situations, to £10m/km for adapted existing rail track, with development on undeveloped land an intermediate cost. We have not attempted to cost our full rapid transit proposals for Bristol or Bath, but anticipate it unlikely to be high compared to the funds currently willingly allocated by Government towards highway building. The latter activity tends to worsen rather than better traffic conditions, and is inherently 'regressive' in social terms, especially in an urban or quasi-urban context as in the West of England. In practice, regional rail and urban rapid transit investment is in direct competition for funds with further highway building; but is more equitable (assuming the fares are right).

A PHASED PROGRAMME: AN EXPANDED METROWEST PROPOSAL (*Bristol only*).

Each service is envisaged with an at least 10–15 minute frequency, to achieve capacity sufficient to impact upon Bristol's 'modal split', and to rival the car alternative.

*Tranche 1. Initial schemes built upon Bristol's existing **bus** and **rail** networks.*

1. **Severnside Line.** A tram line giving access to Severnside from South Bristol. Routed inbound via Portway, thence via either (or both) of the A370/South Bristol Link road, or Winterstoke Rd/Hartcliffe Rd, to outer South Bristol. Interconnects at Hotwells with the Long Ashton Line into the Centre (see below). *This route should be initiated immediately as an interim MetroBus bus service.*

At some date, a parallel initial Avon Ring Road MetroBus service from Keynsham, via Longwell Green, Warmley and Emerson's Green around to Bristol Parkway and thence connecting with the Severnside service. Conceivably later converted to a MetroWest tram service.

2. **Bristol orbital MetroBus routes.**
*First trial services (see TfGB's **Bus Plan**).*
3. **MetroWest Henbury Line.** Upgraded local rail services Henbury and the Arena to Temple Meads via Filton Abbey Wood; also to Bristol Parkway via existing freight line. Jointly named perhaps the '**Brabazon Line**'.
New/reopened stations at Henbury, Fishpool Hill, Charlton Rd, North Filton (for Brabazon Arena), A38 P&R (at Filton diamond SW quadrant?), Horfield Constable Rd, Ashley Down new stations.

Subsequently expanded to **MetroWest Avonmouth / Henbury Loop**, with services to both Bristol Parkway and Temple Meads.
Additional stations at Chittening, Moorend Farm Ave, M49 P&R, Hallen Rd. Connections to Severn Beach from St Andrews Rd (either by shuttle or by diverted services). Would benefit from an M49 new Park&Ride site.

4. **Local rail ('MetroWest') Frome – Westbury – Bath – Bristol – Weston super Mare Line.**

Increased frequency. Saltford and St Anne's station reopenings with passing loops; later other stations.

5. **MetroWest Portishead Line.**

Ashton Gate and Pill station reopenings; serve Parson St and Bedminster. Subsequently an M5 rail P&R station.

*Tranche 2. Re-establishing a **tram** system in Bristol: partially on-street as in the past, partially on new alignments on or alongside newer highways. Requiring longer design time and greater political will. Tranches 1 and 2 collectively named **MetroWest**.*

6. **M32.** A Park&Ride service to the city centre Cabot Circus and Centre public transport hubs.

Initially MetroBus from a temporary Park&Ride site (undefined location), via continuous bus-lanes on the M32 and with stops on Junction sliproads. This could be moved to Tranche 1.

*M32/M4 Park&Ride site required (initially a temporary site if necessary). Subsequently upgrade to **MetroWest** tram from a permanent site, as part of de-motorway-ing of the M32.*

To coincide with de-motorwaying of M32, whose grade-separated junctions should be replaced at surface level with pedestrian crossings.

Further expanded to become the **MetroWest Yate Line**.

via M32, UWE, Avon Ring Road to Emerson's Green (thus a), thence via Westerleigh freight line to **Yate**. With, dependent upon M32 Park&Ride site, a branch to M4/M32 P&R.

Subsequently extend from Yate via Tytherinton freight line to **Thornbury**. *Operated by tramtrain to be compatible with rail usage at Yate.*

7. **MetroWest Filton Line.** Tram, from Aztec West via Cribbs Causeway, A38 Gloucester Rd to city centre Haymarket and Centre hubs. Possibly diverting via Southmead Hospital A possible spur to Brabazon Stadium, via West Way.

Pedestrianise Gloucester Rd at Bishopston (see TfGB Traffic Management Plan).

Subsequently extend as the **MetroWest City Centre Ring** – a tram circuit via Centre, Baldwin St, Bristol Bridge, Victoria St, Temple Meads, Temple Way, Bond St., Haymarket.

Include cost of subsurface services re-alignment and possibly rebuilding of Bristol Bridge. (See TfGB Traffic Management Plan). This may be moved to scheme 6.

8. **MetroWest Hengrove Park Line.** Tram upgrade of MetroBus M1, from Hengrove Park hub via Hartcliffe Way, Bedminster Parade, Redcliffe Hill, Redcliffe Way to Temple Meads hub.
Pedestrianise Bedminster Parade (see TfGB Traffic Management Plan).
9. **MetroWest Bath Rd Line.** Bath Bus Station to Temple Meads hub via Lower Bristol Rd, A4 Bath Rd, Keynsham.

10. **MetroWest Clevedon Line.** Local rail, or tramtrain, from Clevedon to Temple Meads via Yatton, Nailsea, etc..
Reopen Yatton–Clevedon rail line. Some compulsory purchase or realignment necessary in Yatton, and a bridge over the M5; new Clevedon station site at Kenn Rd with local bus connections into Clevedon. Halts possible at Lampley Rd (North End) and a Park&Ride site at Arnold’s Way (Yatton). New stations on the main line at Long Ashton (Wild Country Lane) and Flax Bourton.
11. **MetroWest Long Ashton Line.** Long Ashton Park&Ride, rerouted towards former Park&Ride bus route but via Bower Ashton roundabout, A370, Jessop Underpass, Ashton Ave Bridge, Merchants Rd Bridge, Hotwell Rd, Anchor Rd to Centre hub. *(Need not await rebuilding of Brunel Way bridge; but will be compatible with same).*

Further expansion of the tram network is possible: to **Emerson’s Green/ Fishponds, Warmley/Kingswood, Longwell Green** (possible P&R)/**Hanham, Whitchurch** (P&R) and **Cribbs Causeway /Westbury on Trym**. These would otherwise be upgraded as MetroBus services (see TfGB’s *Bus Plan*). **Southmead** could be served as a branch of Gloucester Rd or Whiteladies Rd tram routes.

MAIN PAPER

AIMS AND CONSTRAINTS

1. Transport aims

A Rapid Transit system would have these features:

- Have a marked effect on **modal split** (ie. get people out of their cars, and integrate with the bus system for network comprehensiveness).
- Be comparable to plans and existing systems in Cardiff, Nottingham, Manchester, Sheffield, Croydon, Newcastle.
- Benefit **city-dwellers** not just **rural inbound commuters**.
- Improve **accessibility** to places that hitherto are largely car-dependent. These include outer suburbs like Bradley Stoke, but also major public open spaces, several out-of-town shopping centres including Cribbs Causeway, some in-town centres like AvonMeads. Accessibility by public transport enhances equality of opportunity.
- Quieten and civilise Bristol **Centre** by replacing shoals of buses with trams.
- Create new links to the main rail interchanges **Temple Meads**, **Bath Spa** and **Bristol Parkway**.
- Given the structure and building densities of Bristol, a full network would cater for each of the following **corridors**, either by tramline, trainline or main bus route: A4 (both ends), A38 (ditto), A 37, A370, A4018, A 431, A420 and M23. That is, up to 10 radial routes. More than one orbital service is desirable.
- In Bristol, the following suburban and employment **hubs** and out-of-town retail centres should be served: Brislington, Knowle, Hengrove Park, Bedminster, Shirehampton, Avonmouth, Clifton Down, Westbury on Trym, Southmead Hospital, Cribbs Causeway, Aztec West, Filton, Emersons Green, Fishponds, Eastgate, Kingswood, Longwell Green. In addition the main public open spaces The Downs, Ashton Court and Blaise Castle. Bath hubs include Royal United Hospital and the University.
- Ideally, a **Park and Ride** on each corridor should be fed into the network, in both Bristol and Bath (the latter including the A4, east).

- Have an at least **10 or 15 minute frequency**. **Capacity** can be increased by vehicle size or service frequency, or the existence of longer-distance express services.
- Be accompanied by:
 - an expansion of **Park & Ride** schemes,
 - a **replanning of bus services** to integrate with (and in some corridors be replaced by) the tram network; bus services from satellite towns to terminate at Park & Ride sites or stations,
 - **suburban public transport hubs**, and likewise at rail stations where possible,
 - **feeder bus** services to suburban hubs, as fully-accessible and demand-responsive services,
 - a **Workplace Parking Levy** or **Road User Charge**,
 - complete **Residents & Businesses Only Parking Schemes**,
 - **city centre access-only plans**,
 - a West of England integrated pre-paid bus/tram/rail **ticketing** system,
 - comprehensive **tram/bus priority traffic management**,
 - 20 mph **speed limit**,
 - closure of traffic **rat-runs**, banning of footway parking; low-cost Home Zones,
 - comprehensive **cycleway** and **pedestrian networks**, and workplace or public cycle purchase/hire schemes,
 - **cycle-parking** at suburban bus and trams stops, stations, and at retail, workplace, park and entertainment centres,
 - **public transport maps** publically available at bus/tram stops,
 - a disabled persons' **taxicard** system and restarted **disabled travel website**,
 - free **wheelchair hire** at retail centres,
 - a republished **lorry drivers access map** of the West.

ONLY if implemented in tandem with the **WHOLE** of this set of transport measures will a Rapid Transit system achieve economic

viability, a considerable shift in modal split, and an **equitable** transport system in which movement needs are met into future years and under varying economic conditions. These combined measures need a co-ordinated design and public consultation process conducted by WECA as a **Combined Authority** with a full staff and adopting all Transport Authority powers. This precondition does not obtain at present. We propose that Mayors, committee members and WECA staff (plus the University, UWE, Business West, NHS Trusts, Somerset & Avon Constabulary, etc.) study-visit a comparable city or cities (say, Utrecht, Bordeaux or Cardiff) to learn how it is done.

The ultimate aim is to clear **the public space that is our roads**: for play, talking, walking, cycling and trading, but at the same time to build up a public transport system with two features: fast from the fringe and beyond, but inside the city a crisscross network of potential interchanges (like the intersection bus-stops in rectilinearly planned Toronto or Manhattan) able to **compete with the car's** ability to take you from anywhere to anywhere.

2. Practicalities

A Rapid Transit system must:

- attract **government funding**;
- maximise the use of **existing infrastructure**. However, the Winterbourne viaduct is an unimprovable (except at enormous cost) mainline pinch point, as is the Severn Tunnel; these mainline sections are in effect unavailable to MetroWest. Aside from Regional Rail services, a different route needs to be found between Bristol and Yate. New potential infrastructure does exist: including residual freight-only rail lines at Portbury, Henbury, Westerleigh and Tytherington, requiring, unless freight usage ceases, heavy rail rolling-stock or (when combined with on-street running) 'tramtrain' operation as in Sunderland and Rotherham. There also are usable excessive highway alignments: notably the M32, Avon Ring Road, Temple Way, Bond St, Centre. These highways can and should be rethought: to 30mph (20mph within the city), **de-motorwayed**, with tramtrain routes as part of the repurposing for delivery access to the city centre, amenity provision and landscaping. Part of this will involve replacing the

grade-separated junctions with surface levelling and pedestrian access.

- not (within reason) interrupt **Regional** or **InterCity** rail;
- not be so **expensive** as to cause funding problems, delays or a reduction in aspiration; nor so low a budget as to cause design problems;
- require **passing loops** possibly at new station on main rail lines (including perhaps Royal Wootton Bassett, Corsham, Saltford, St Anne's, Parson St.);
- have cross-town routes as they demand less space than city centre termini, though the first may be vulnerable to long-route traffic delays – a **city centre ring** makes either options viable;
- an **administrative** distinction (as in other Combined Authority metropolitan areas) between Regional Rail and MetroWest services and perhaps stations, with WECA assuming control of the latter and of tram lines. **Professional staff** equivalent to the teams in other Combined Authorities will be essential;
- have access for each MetroWest and tram line to sufficient **depot** facilities, and convenient changeover sites for drivers;
- some streets advantageously **semi-pedestrianised** as part of street-running;
- former tram **alignments** being valuable information (both in terms of urban layout and street form), as to a lesser extent are former rail alignments; either may reduce construction costs. However, new highways have created additional alignment potential (once lane-space is reallocated to public transport);
- use **compulsory purchase** (albeit sparingly) where required;
- tram routes – **lines** – with roughly **balanced demand** at both termini so as to balance capacity;
- possibly a choice of **vehicle type**. Ideally only one type if at all possible. May also need to joint run with freight, may need to run on-street. 'Tramtrain' may be best option if both situations overlap on a single route. Need to choose floor height, re street and railway platform height – might vary per route.

3. Politics

To reach implementation, a Rapid Transit system necessarily will:

- displace current proposals for a tram to Bristol Airport, and another direct to the Filton Airfield development – both schemes currently align with private developer commercial interests while attempting to draw funding from the government's allocation towards public transport in Bristol. These proposals represent a severe '**opportunity cost**' to the city, since if government grant is tapped off it cannot go to more socially useful and more widespread investment;
- be environmentally sensitive, and take account of views of **groups such as** cyclists and those who dislike overhead-wires;
- have a logical **phasing**, with growing public support generated;
- not put **developers' interests** or those of **rural commuters** before those of city residents. A valid social balance is required;
- persuade the **powers that be** that it is not against their interests, and commands public support;
- not **unnecessarily upset** or inconvenience lorry drivers, white van drivers, disabled drivers, taxis, disabled pedestrians, cyclists or anti-social hours commuter car users; need maximum **public involvement** from the start, using suitably attractive materials to convey the essential ideas;
- nudge us towards a reinvention of Avon County Council, able to operate like other **Passenger Transport Executive/Combined Authorities**;
- involve the **transport and public service trade unions** as partners (since they know how things work in practice);
- establish a MetroWest **Passengers' Forum** from the start, with a rotating elected chair and local district members.

PROPOSED RAPID TRANSIT LINES

BRISTOL RAPID TRANSIT LINES *(In no order)*

New stations shown in italics. Tram/bus hubs in bold. Intermediate destinations underlined.

Severnside Line

A tram route connecting south Bristol with the work opportunities of Severnside.

OPTION (a). *via the South Bristol Link Road, Brunel Way and Portway. via:*

Stockwood – Whitchurch – Hengrove Pk Hosp. – Whitchurch Lane – Hengrove Way – Anton Bantock Way – King Georges Hill – Colliters Way – A370 – Brunel Way – Portway – Severnside (a new route through Severnside parallel to the Severn Beach line but to the east of it) – Pilning station/Park&Ride site.

stops include: **Hengrove Pk Hosp.** – Hartcliffe – Bishopsworth – Highridge – **Ashton Gate P&R** – Ashton Gate Stadium – Cumberland Basin – Sea Mills – **Portway P&R** – Avonmouth – Severnside (several stops) – Pilning station/Park&Ride.

OPTION (b). *via Hartcliffe Way and Winterstoke Rd; thereafter as Option (a). via:* **Hengrove Pk Hosp** – Imperial Pk – **Parson St sta.** – Winterstoke Rd – Ashton Gate Stadium – (as Option a).

The two options could operate in tandem as a branched line. Interchanges with the Long Ashton Line at Hotwells, for the city centre. This service should be initiated immediately as an interim MetroBus bus service.

MetroRail City Centre Ring (tram upgrade of MetroBus Park & Ride city centre circuit).

Temple Meads sta. – Temple Way – Old Market – Cabot Circus – Bond St – Haymarket /Bus sta. – Lewin's Mead – Centre – Baldwin St – Bristol Bridge – Victoria St – **Temple Meads sta.**

MetroWest Frome – Temple Meads – Weston–super–Mare (heavy rail).

stations : Frome – **Westbury** (connections to Salisbury) – **Trowbridge** (connection to Melksham) – (stations to) – **Bath Spa** – *Saltford* – Keynsham – *St Anne's* – **Temple Meads** – Bedminster – **Parson St** – *Long Ashton* – *Flax Bourton* – Nailsea & Backwell – **Yatton** (for future

reopened line to Clevedon) – Worle – Weston Milton – Churchill Rd – Weston–super–Mare – Uphill (for Weston General Hosp) .*

*** Reopened Clevedon Line** (MetroWest rail or tramtrain; partial replacement of bus X7).

stations: Clevedon (Kenn Rd, bus connection into town) – Lampley Rd – Arnold’s Way (Yatton rail P&R) – Yatton.

(Or operate as a tram/tramtrain, into central Clevedon).

Simultaneously reopen stations on the main line at Flax Bourton and Long Ashton (Wild Country Lane).

MetroWest Avonmouth – Bristol Parkway (heavy rail or tramtrain).

*via : Temple Meads – (all stations to) – Avonmouth – St Andrews – Chittening (for connection to Severn Beach)** – Moorend Farm Ave – M49 P&R (at Hallen junction) – Hallen Rd – Henbury (bus transfer to Cribbs Causeway) – Fishpool Hill – Charlton Rd – North Filton (for Brabazon Arena – A38 P&R (at Filton diamond SW quadrant?) – [Stoke Gifford depot 2 Rapid Transit at Filton diamond NE quadrant?] – Bristol Parkway.*

**** Severn Beach Line** (MetroWest heavy rail or tram/tramtrain).

Retained connection to Avonmouth–Henbury Line at *Chittening*.

Options: operated either as some services from Temple Meads via Avonmouth. Or perhaps better, as a link service *Chittening – Severn Beach [a single rail-based vehicle stored on-line; relocate old Chittening station].*

MetroWest Henbury Line (heavy rail or tramtrain).

via : Henbury/Cribbs Causeway (bus transfer) – (as Line 2a) – North Filton (for Brabazon Arena) – A38 P&R (see above) – Filton Abbey Wood – Horfield Constable Rd – Ashley Down – Stapleton Rd – Lawrence Hill – [St Phillips depot, several site options at existing/former sidings?] – Temple Meads.

M4/ M32 Park & Ride Line (initially MetroBus; thereafter MetroRail tram).

via: M4/M32/Avon Ring Road P&R (site to be determined PDQ) – M32 (de-motorised) – Bond St – Cabot Circus/Haymarket.

stops include: M4/M32/Avon Ring Road P&R – Eastgate – St Paul's/Easton – Cabot Circus/Haymarket.

(Notes. P&R site requires Compulsory Purchase. Whole character of the M32 and Avon Ring Road need rethinking – see Aims and Constraints).

MetroRail Yate and Thornbury Line (tramtrain upgrade of bus T1).

3 route options:

OPTION (a) (preferred). *(Upgrade of MetroBus M3 and T1). Thornbury, via Thornbury and Westerleigh Freight Lines, Avon Ring Road and M32 to Cabot Circus/Haymarket. (Change at Yate for Temple Meads).*

via: Tytherington M5 P&R – Iron Acton – Yate – Westerleigh – M4/M32 P&R – Emerson's Green – Bristol & Bath Science Pk – Badminton Rd – Bromley Heath Rd – [M32 P&R, if located at ARR] – UWE – Snuff Mills/Stoke Pk – Eastgate – Easton/St Paul's – Cabot Circus/Haymarket. [New depot off Emerson's Gn – Iron Acton section?].

OPTION (b) (MetroWest tramtrain). *via MIDLAND LINE (Bristol & Bath Railway Path) into Temple Meads.*

via: as Option (a) to Westerleigh, then new bridge over Avon Ring Road and onwards on reopened Midland rail line, via Pomfrey Hill – Mangotsfield sta. – Staple Hill – Fishponds – Whitehall Rd (interconnecting with Lawrence Hill sta.) – The Dings – via replaced Avon footbridge into Temple Meads.

OPTION (c) *via FISHPONDS RD (tramtrain upgrade of bus 49) to Old Market.*

As Option (b) to **Fishponds** – (via Fishponds Rd) – Royate Hill – Stapleton Rd sta. (connecting with) – Stapleton Rd/Easton Way – Old Market.

Notes. Options (a) and (b) require elements of street-running, and thus tramtrain operation. See Line 3 re Avon Ring Road and M32. The M32 P&R could be partially sited on land currently occupied by the M32.

MetroWest Portishead Line (heavy rail or tramtrain upgrade of bus X3).

*via: Portishead – M5 P&R. – Pill – Ashton (for both Ashton Gate Stadium and Ashton Court) – **Parson St** – Bedminster – **Temple Meads**. [Depot at Pile Hill, west Totterdown sidings?].*

MetroRail Bath Road Line (tram upgrade of bus 394).

via: Bath bus station – Saltford – Keynsham – A4 Bath Rd – Temple Gate – Temple Meads.

*stops within Bristol include: **Brislington P&R** – **Arno's Vale** / **AvonMeads** – **Three Lamps** – **Temple Meads**.*

Hengrove Park Line (tram upgrade of MetroBus M1).

via: Hengrove Park Hospital – Whitchurch Lane – Hartcliffe Way – Bedminster Rd – St John's Lane – Sheene Rd – Malago Rd – Bedminster Parade – Redcliffe Hill – Redcliffe Way – Temple Meads sta.

*stops include: **Hengrove Park Hospital** – Imperial Pk – **Parson St.** – **Bedminster Parade** – St Mary Redcliffe – **Temple Meads**.*

MetroRail Swindon and Melksham Lines (heavy rail).

*via: Swindon – Chippenham – **Royal Wootton Bassett** – **Corsham** – Bath Spa sta. – (via Line 1 stations to) – Temple Meads.*

Branch from Chippenham to Westbury via Melksham and Trowbridge (upgraded rail service).

MetroWest Filton line (tram upgrade of bus 75).

via : Park Ave – A38 Gloucester Rd – Highwood Rd – Hayes Way – A38 Gloucester Rd – Monks Pk Ave – Southmead Hosp. – Dorian Rd – A38 Gloucester Rd – Stokes Croft – Haymarket.

*stops include: Aztec West – The Common – Coniston Rd – **Cribbs Causeway** – Filton Airport – Rolls Royce – Filton College (for Airbus/Brabazon Arena) – Southmead Rd – Northville Rd – **Southmead***

Hosp. – Horfield Cn/ Leisure – The Wellington – Filton Ave/Memorial Stadium – HM Prison – Gloucester Rd – Bishopston – Viaduct/Montpelier sta. – Cheltenham Rd – **Stokes Croft** – Ashley Rd – Stokes Croft – Haymarket.

MetroRail (or MetroBus) Fishponds Line (tram upgrade of bus 49).

via: Westerleigh Rd – Downend Rd – Fishponds Rd – Stapleton Rd – Old Market.

stops include: Emerson's Green – Downend – **Fishponds/ Fishponds sta.** – Stapleton Rd sta. – Easton – **Easton Way** – Old Market.

MetroRail (or MetroBus) Whitchurch Line (tram: partial upgrade of bus 376).

via: *Whitchurch P&R* – A37 Wells Rd – Temple Meads sta.

stops include: **Whitchurch P&R** – Whitchurch – Ridgeway Lane – **Airport Rd/Callington Rd** – Broadwalk Knowle – Totterdown – **Three Lamps** – Temple Meads sta.

MetroRail (or MetroBus) Kingswood Line (tram upgrade of bus 43).

via: A420/Avon Ring Road roundabout Warmley – A420 Hill St – Two Mile Hill Rd – Church Rd – West St/Lawfords Gate (one-way) – Old Market.

stops include: Warmley – **Kingswood** – St George's – **Redfield** – Lawrence Hill sta. – Old Market.

MetroRail (or MetroBus) Hanham Line (tram upgrade of bus 45).

via: Longwell Gn (possible P&R) – A431 Hanham High St – Summerhill Rd – A420 Church Rd then as Line 11a).

stops include: **Longwell Gn** retail pk – **Hanham** – **Redfield**.....(as 11a).

MetroRail (or MetroBus) Westbury on Trym Line (tram upgrade of bus 1).

via: *Cribbs Causeway hub (San Andreas roundabout)* – *Merlin Rd* – *A4018 Cribbs Causeway* – *Station Rd* – *Crow Lane* – *Passage Rd* – *Falcondale Rd* – *Canford Lane* – *Westbury Hill* – *Westbury Rd* – *Whiteladies Rd* – *Clifton Down* – *Triangle East hub* – *Park Row* – *Lower Maudlin St* – Haymarket.

stops include: **Cribbs Causeway** – The Wild Place – **Henbury station**
Castle – Crow Lane – Greystoke Ave – Henbury Rd – Westbury on Trym
– Redmaid's – Brecon Rd – Parry's Lane – Blackboy Hill – Cotham Hill
(for Clifton Down station) – **Triangle** – BRI – **Haymarket**.

MetroRail (or MetroBus) Long Ashton Line (tram upgrade of MetroBus M2).

3 route options:

OPTION (a) (preferred). (*Modified upgrade of former Park&Ride service*). *via:* Long Ashton P&R – A370 – A369 roundabout – A370 – Jessop Underpass – Ashton Ave Bridge – Merchants Rd Bridge – Hotwell Rd – Anchor Rd – Centre.

stops include: **Long Ashton P&R** – Bower Ashton (for Ashton Court and Ashton Gate stadium) – Cumberland Basin – **Hotwells** – Mardike – @Bristol – **Centre**.

Requires inbound bus-lane on Hotwell Rd. Releases Ashton Vale MetroBus viaduct for repurposing as a sky walkway/exhibition space.

OPTION (b). (Upgrade of former Park&Ride service). As (a) but crosses River Avon via Brunel Way bridge.

Awaits rebuild of Brunel Way bridge.

OPTION (c). (*Upgrade of MetroBus M2*). *via:* Long Ashton P&R – Ashton Vale MetroBus viaduct – Ashton Ave Bridge – Cumberland Rd – Redcliffe Hill – Redcliffe Way – Temple Meads.

stops include: **Long Ashton P&R** – Ashton Gate (for stadium) – Cumberland Basin – Spike Island – Bathurst Basin – Redcliffe Hill – St Mary Redcliffe – **Temple Meads**.

RESIDUAL METROBUS SUB-RADIALS, BRISTOL.

Outwards from central or suburban hubs.

- **Triangle (or Cabot Circus/Haymarket) to:**
 - Stoke Rd to Sea Mills, **Shirehampton, Avonmouth sta.**
 - Henleaze Rd to Southmead, **Southmead Hosp.**
- **Viaduct/ Montpellier sta. (or Stokes Croft/Haymarket) to:** Filton Ave, Filton Abbey Wood, UWE.

- **Eastgate (or Cabot Circus/Haymarket):** Romney Ave to: Lockleaze, UWE.
- **Old Market** to: Fishponds Rd to **Fishponds**, Down End, Bristol & Bath Science Pk., **Emerson's Gn.**
- **Lawrence Hill (or Old Market)** to: Summerhill Rd to **Hanham**, **Longwell Gn**,
- **Arno's Vale (or Temple Meads)** to: Sandy Pk Rd **Brislington**, Broomhill.
- **Broadwalk Knowle (or Temple Meads)** to: Sturminster Rd to Stockwood.
- **Bedminster Parade** to: Wedmore Vale to Knowle West, Imperial Pk, **Hengrove Pk Hosp.**

Notes: ideally each interchange or turning-point should itself be a local destination, though this might not always be possible. For bus frequency and capacity purposes, it may be practical to take services on to the next hub towards the city. Frequency should not fall below 15 minutes.

COMPLEMENTARY ORBITAL METROBUS LINES, BRISTOL.

To create a 'go anywhere' public transport system, when combined with radial and demand-responsive feeder routes. See TfGB ***Bus Plan***. These routes interconnect suburban bus hubs (shown in bold); other significant destinations are underlined. Initially bus operated, some might merit tram conversion in the future.

Inner Ring (partial replacement of buses 24, 71).

via: **Long Ashton P&R** – A369 roundabout – Winterstoke Rd/Marsh Rd/Ashton Rd – North St Southville – Cannon St – Sheene Rd – St John's Lane – Wells Rd – Priory Rd – Talbot Rd/Kensington Pk Rd – Bath Rd – St Phillips Causeway/Easton Way – Lower Ashley Rd – Ashley Rd – Stokes Croft – Marlborough St (later, Haymarket – Lower Maudlin St)– Park Row – Triangle – Jacob's Wells Rd – Hotwell Rd – Merchants Rd – McAdam Way – Brunel Way – A369 roundabout – A370 – **Long Ashton P&R**.

stops include: **Long Ashton P&R** (*interconnect with Middle Ring*) – Bower Ashton/Ashton Court – Ashton Gate Stadium – North St Southville – **East St Bedminster** – Victoria Pk – **Broad Walk Wells Rd** – **Wick Rd/Bath Rd** (*interconnect with Middle Ring*) – **Arno's Vale** –

AvonMeads – **Lawrence Hill** (*connection to sta.*) – **Stapleton Rd** – **junction 3 (former) M32** – **St Paul's** – **Stokes Croft/ Haymarket** (*interconnect with City Centre Ring*) – **Bus Station** – BRI – **Triangle** – **Hotwells** – Harbourside – Bower Ashton/Ashton Court – **Long Ashton P&R** (*interconnect with Middle Ring*)

Notes. Interconnects with Bus Station, City Centre Ring and Middle Ring. Extensive bus priority measures, speed control and junction improvement is desirable for this route, co-incidentally reducing general traffic capacity in this inner city, poor air quality zone, but greatly increasing urban connectivity. Restructure Haymarket. St Phillips Causeway/Easton Way requires similar treatment to that recommended for Avon Ring Road and M32: see Practicalities.

Middle Ring (partial replacement of buses 24A, 75/76, 36, 17, 3).

via: **Long Ashton P&R** (*interconnect with Inner Ring*) – A369 roundabout – **Winterstoke Rd** – **Bishopsworth Rd** – **Bedminster Down** – **Whitchurch Rd** – **Hareclive Rd** – **William Jessop Way** – **Hengrove Pk Hosp.** – **Whitchurch Lane** – Imperial Pk – **Hengrove Way** – **Airport Rd** – **Callington Rd** – **Brislington P&R** – **A4 Bristol Hill** – **Wick Rd** – **Newbridge Rd** – **Netham Rd** – **Blackswarth Rd** – **Chalks Rd** – **Whitehall Rd** – **Fishponds Rd** – **Muller Rd** – **Filton Ave** – **Gloucester Rd** – **Dorian Rd** – **Southmead Hosp.** – **Monks Pk Way** – **Southmead Rd** – **Eastfield Rd** – **Water Lane** – **Canford Lane** – **Sylvan Way** – **Shirehampton Rd** – **Avonmouth Rd** – **Avonmouth sta.** (*interconnect with Outer Ring*)

stops include: **Long Ashton P&R** – Bower Ashton/Ashton Court – Ashton Gate Stadium – Winterstoke Rd – **Parson St sta.** – **Bishopsworth** – **Hartcliffe** – **Hengrove Pk Hosp.** – Imperial Pk – Hengrove Leisure Centre – **Airport Rd/Callington Rd** – **Brislington P&R** – Brislington Retail Pk/trading estate – **Sandy Pk Rd** **Brislington** – **St Anne's sta.** – **Redfield** – **Fishponds Rd** – **Eastgate** – **Ashley Down sta.** – **Horfield Cn/ Horfield Leisure Centre** – **Southmead Hosp.** – **Southmead** – **Westbury on Trym** – Blaize Castle estate – **Sea Mills** – Kings Weston estate – **Shirehampton** – **Avonmouth sta.** (*interconnect with Middle Ring*)

Notes. Partly as Inner Ring. Not a route to be travelled any length, but locally enables connections to several significant hitherto car-based retail and employment centres, hospitals, leisure centres, major public open spaces, MetroWest stations and the large otherwise isolated low-

income residential areas of Hartcliffe, Knowle West, Southmead and Sea Mills.

Outer Ring (partial replacement of buses 3, 18/19, 48A, 17).

via: **Avonmouth sta.** – Avonmouth Rd – Kings Weston Ave – Long Cross – Kings Weston Rd – Henbury Rd – Station Rd – **Cribbs Causeway** – Hayes Way – Gypsy Patch Lane – Hatchet Rd – **Bristol Parkway sta.** – Gt Stoke Way – Avon Ring Road – Coldharbour Lane – Stoke Lane – Frenchay Pk Rd – Blackberry Hill – Fishponds Rd – Lodge Causeway – Lodge Rd/Soundwell Rd – Kingswood (one-way system) – Hanham Rd – High St – Bath Rd – Keynsham Rd – **Keynsham sta.** – **Keynsham.**

stops include: **Avonmouth sta.** – Lawrence Weston – Blaize Castle – Henbury – **Henbury sta.** – **Cribbs Causeway** – Aerospace Bristol – Rolls Royce – **Bristol Parkway sta.** – UWE – Stoke Pk estate – Snuff Mills – Glenside UWE – Fishponds/Fishponds sta – Kingswood – Hanham – Longwell Green – Willsbridge Mill – Keynsham

Notes. Provides direct orbital connections between Cribbs Causeway, Bristol Parkway station and UWE. Also serves significant public open spaces. Ties in Avonmouth, Kingswood and Keynsham. (An express variant – Keynsham – Avon Ring Road – Bristol Parkway – Cribbs Causeway – appears below as part of a connecting route to Severnside).

MetroBus Severnside Line.

A route connecting south Bristol with the work opportunities of Severnside.

OPTION (a). *via the South Bristol Link Road, Brunel Way and Portway.*

via: Hengrove Pk Hosp. – Whitchurch Lane – Hengrove Way – Anton Bantock Way – King Georges Hill – Colliters Way – A370 – Brunel Way – Portway – a new route through Severnside parallel to the Severn Beach line, but to the east of it – *Chittening sta* – Severn Beach line to Severn Beach.

stops include: **Hengrove Pk Hosp.** – Hartcliffe – Bishopsworth – Highridge – **Ashton Gate P&R** – Ashton Gate Stadium – Cumberland Basin – Sea Mills – **Portway P&R** – Avonmouth – Severnside – *Chittening sta.* – Severn Beach sta.

OPTION (b). *via Hartcliffe Way and Winterstoke Rd; thereafter as Option (a). via: Hengrove Pk Hosp – Imperial Pk – Parson St sta. – Winterstoke Rd – Ashton Gate Stadium* – (as Option a).

The two options could operate in tandem as a branched line.

MetroBus Avon Ring Road Line.

A parallel initial Avon Ring Road MetroBus service linking Severnside to the far East Bristol. Conceivably later converted to a MetroWest tram service.

via: Keynsham – Keynsham Rd – A431 – Marsham Way – Avon Ring Road – A38 Gloucester Rd – Hayes Way – Cribbs Causeway – Hallen Rd – Severn Rd.

stops include: **Keynsham – Keynsham station – Longwell Green – Warmley – Emerson’s Green** (interconnecting to Yate Line) – Bristol & Bath Science Park – Badminton Rd – Bromley Heath Rd – **[M32 P&R, if located at ARR] – Bristol Parkway – Cribbs Causeway – Henbury station – Severnside** (connecting with Severnside line).

FEEDER BUS SERVICES (Bristol MetroBus locals)

Demand-responsive and feeding into suburban tram/bus hubs. The aim (adopted in the past by Bristol City Council) is for all households to be within 400m of a bus-stop Ideally. Ideally, 10–15 minute frequency short-distance circuits, operated by single-decker or minibus, will terminate at **suburban hubs** like Staple Hill, Kingswood, Broadwalk Knowle, Hengrove Park Hosp., Southmead Hosp., Bristol Parkway sta., Avonmouth sta., Bedminster Parade, etc.. The extent of the feeder network is dependent upon the extent of the ‘tails’ decided for trunk tram and radial bus routes.

Shorter feeders can run with minibuses, as does currently Community Transport. They should be **Demand Responsive** services, serving the needs also of the disabled. There will need to be a considerable increase in bus fleet and mix, and in staff; though offset by replacement by trams. The extent to which multiple-vehicle journeys are acceptable to users is highly dependent upon interchange locations, interchangeable ticketing, and the frequency of services. Funding of feeder services is the issue to be solved.

Demand Responsive services can likewise connect nearby rural areas with Bristol's **Park&Ride** sites for onward travel.

General notes for Bristol

MetroWest rail and tramtrain.

1. The MetroWest rail and tram lines necessarily will evolve an approximate **phasing** of implementation: ie. of commercial viability, political will and outside aligned interests. See the proposed investment tranches (pp. 9 and 35).
2. Reopening of Clevedon Line would require the enactment of a Safeguarding Line, perhaps involving some Compulsory Purchase in Yatton, or realignment.
3. YTL (developers of **Brabazon Arena**) may be interested in joint ventures for items 3 and 7 in the suggested programme tranches: the MetroWest Henbury and Filton tram lines, all serving Brabazon Arena, Filton Airport and Cribbs Causeway. Also the Outer Ring bus service. Car-parking at the Arena and at **Cribbs Causeway** should be constrained for environmental reasons.
4. Early decisions on **MetroWest rail depot safeguarding** are crucial. Network Rail must be approached re possible depot locations at existing and former sidings. These include: East Depot (Brislington) accessible from the Bath mainline; the abandoned eastern half of West Depot (Bedminster Down); Filton diamond; sidings by Totterdown; Avonmouth; Chittening; Westbury (Wilts.); and a reallocation of the various St Phillips Marsh sidings. New trackside greenfield depot facilities may be possible alongside for example the Thornbury, Hallen, Westerleigh, Flax Bourton and Clevedon tracks. Presumably the fewer depots the better; but each MetroWest line must be efficiently linked to its depot.
5. '**Train paths**' (time allocations) already owned by the Bristol Port Company on both the Portbury/Portishead and Avonmouth/Henbury lines must not be allowed to crowd out (or fleece) future MetroWest passenger operations. Similarly, unnecessarily high planned **operating speeds** for electrified High Speed and Regional rail services must not

be allowed to crowd out MetroWest passenger frequencies on the Swindon, Birmingham and Taunton main lines.

6. Given the three previous points, early negotiations are required with **Network Rail** (including their estates and High Speed managers), **YTL** and **Bristol Port Company**. To date, WECA and the Local Authorities have a poor record (whether through inexperience or compromised interests) in such negotiations. Firm but mutually beneficial negotiations are essential, and will require active government support and perhaps the involvement of local MPs.
7. There similarly has been a reluctance to plan **Safeguarding Lines**, or contemplate **Compulsory Purchase**. This too must change, if WECA is to hold its head up as a genuine **Combined Authority** with transport powers. To date, failure in this regard has dogged the West. Nothing is impossible: in the past Bristol City Council has successfully bought the Wapping Wharf line and safeguarded tram routes and rail sidings. These skills must be revived. Avon County Council planned a tram system. WECA has to catch up with the other English and Welsh metro authorities' planning and implementation capabilities and, importantly, political will.

On-street trams and buses.

8. The suggested tram routes follow fairly closely the city's former on-street tram network (visible online at <http://curlybrackets.co/blog/2016/03/23/bristol-tramways/>), except in the city centre and outer fringe. (For today's bus routes compare: <https://www.firstgroup.com/bristol-bath-and-west/routes-and-maps/network-maps>). Throughout the main radial routes, '**green wave**' bus/tram priority traffic signal systems should be installed, except at bus/tram-gates.
9. While most stretches of tram route are anticipated to be on-street, this being the traditional option and well suited to garnering passenger patronage, the less expensive **off-street** option may be possible for some stretches. Where so, this can sometimes be considerably less expensive. However, opportunities are limited in inner Bristol, and where they exist – as on the Hengrove, Wells Rd and Fishpond routes – have to be balanced against the preservation of greenspace. Severnside offers more opportunity.

10. Equally crucial are **tram depot** needs. The original tram system had depots at the outer ends of its lines at Brislington, Eastville, Staple Hill, Ashley Down, Bedminster, Brislington, St George's and Kingswood. Current options include the BCC-owned former tram depot at Brislington (Arnos Vale) (though vehicle width may be an issue), and at the existing Lawrence Hill and Hengrove bus depots operated (owned?) by First Bus. Probably there will be a shortage of capacity unless additional sites are identified and safeguarded. **First Bus** should be brought in at an early stage. If trams gradually replace many (but not all) trunk bus routes, there will need to be a move away from double-deckers towards possibly single-decker and demand-responsive minibus feeder services terminating at suburban hubs; this will impact upon future **bus depot** requirements. Extra net depot capacity will be required as service frequencies and rolling-stock fleets increase.
11. Radial tram and bus routes are open to redesign, and for instance might have outer **suburban loops** as in Nottingham: for example. Otherwise outer suburbs need be served by frequent feeder buses).
12. The suggested **Orbital MetroBus lines** (refer to the TfGB *Bus Plan*) could in part or whole eventually be converted to tram operation. Either way, intersections between radial and orbital routes, and MetroWest stations, must be designed (including details of their stops) so as to allow ease of **interchange**, ideally at suburban public transport hubs. The extent to which this is possible may define the Orbital lines' viability. All routes should be subject to an experimental period and modified as experience develops. An initial service with single-decker buses might be appropriate, but frequency should be less than 15 minutes if they are to be attractive to potential passengers. Some improvements to road junctions may be required, together with bus priority measures at congestion points including bus-triggered pre-signals, parking control and bus-gates; under current traffic conditions these routes would simply not work. Unfortunately, the political will and professional capability to tackle the urban car nuisance has not been evident in Bristol since the demise in 1996 of unified transport planning under Avon County Council. This must change.

13. WECA statements re the unsuitability of some **road-widths** for trams (eg. Gloucester Rd) are misguided, given experience elsewhere including West St in Sheffield, and in Amsterdam, Krakow and elsewhere. Officers require a more formal tram-wise retraining; while councillors and officers might go on more **study tours** (including to Bristol's twinned cities of Bordeaux and Hannover, but equally to Manchester, Nottingham, Sheffield, Croydon and Cardiff) as already suggested above.
14. Later phase tram lines can operate in the interim as trunk **MetroBus** lines, which must be embraced within the overdue replanning of the city's bus networks, including orbital services, suburban hubs and feeder bus services (see TfGB *Bus Plan*).
15. Detailed work is needed on the detailed planning of **bus hubs**: their siting, vehicle capacity, turning-points, facilities, the environmental carrying-capacity of approach streets, etc..

PROPOSED RAPID TRANSIT LINES FOR BATH

The suggested lines match pretty well both with the city's former tram services, but also the draft network proposed by Professor Lesley for the Bath tram group (available at <https://bathtrams.uk/solving-baths-traffic/one-set-of-proposals-for-a-new-tram-layout/>): namely, lines to Newbridge P&R (with a branch to Royal United Hospital), Lansdown P&R, the A4 eastwards (and a needed P&R), University of Bath, Odd Down P&R, and the A4 to Bristol, with all linking to Bath Bus Station/Bath Spa railway station and some sort of city centre ring. No route is as yet discussed for the Oldfield Pk/Twerton/Whiteway sector. Combe Down might remain bus-served. Bath Spa University can link to the A4 tram by a short shuttle bus to The Globe.

A capable report has been prepared by consultants Atkins for B&NES Council in 2017 (available at <https://democracy.bathnes.gov.uk/documents/s49556/TramReport.pdf>); this likewise is broadly compatible with these proposals; as a professional study it is inclusive of demand, cost and environmental assessments. Its suggested corridors and routes mirror these shown here, but omit the University Line. Atkins made no specific suggestions for city centre routings; nor for depots (but heavily suggested the latter be located beside the P&R sites as in Nottingham – which does seem appropriate).

Tram/bus hubs in bold; intermediate destinations underlined.

To Bristol, Swindon, Frome (MetroWest rail). *See Bristol section.*

A4 Lower Bristol Rd Line (tram). *See Bristol section.*

via : Bristol Temple Meads sta. – Temple Gate – A4 Bristol Rd via Arno's Vale and Brislington– Keynsham –Saltford – Lower Bristol Rd – Dorchester St (or Midland Br Rd – Charles St).

stops include: The Globe (for Bath Spa Univ shuttle bus connection) – Windsor Br Rd – Pines Way (or Green Park Station) – **Bus station/Bath Spa station.**

Bath City Centre Ring (tram)

Bus station/Bath Spa station – Dorchester St – **St James Par**/Monmouth St (eastbound) / **James St West** /Charles St (westbound) – Chapel Row – **Queen Squ** – Gay St – **George St** – Broad St – High St/**Orange Grove**

(northbound) / Bridge St/**Grand Par** (southbound) – Mavers St – **Bus station /Bath Spa station** (*approx. stops – city centre public transport hubs – in bold*). See notes, below.

Newbridge (tram).

via : A4 Newbridge Rd – Upper Bristol Rd – Monmouth Pl – Charlotte St – Queen Squ.

stops include: **Newbridge P&R** – Victoria Pk – **Queen Squ.**

Weston Line (tram).

via : Weston High St – Crown Rd – Combe Park – Newbridge Hill – Upper Bristol Rd (thence as Newbridge Line).

stops include: Weston – Royal United Hospital – Victoria Pk (thence as Newbridge Line).

Lansdown Line (tram).

via : Lansdown Rd – Broad St.

stops include: **Lansdown P&R** – George St.

Batheaston Line (tram).

via : Batheaston – A46/A4 P&R (wherever sited) – London Rd – Walcot St – High St – Orange Grove / Grand Par.

stops include: Batheaston – **A46/A4 P&R** (wherever sited) – Walcot St – Orange Grove / Grand Par.

University of Bath Line (tram).

via : Univ of Bath – Bathwick Hill – Pulteney Rd South – North Parade Rd – Mavers St

stops include: Univ of Bath – Bathwick Hill – Bath Rugby / Cricket grounds – **Bus station/Bath Spa station.**

Odd Down Line (tram).

via : Odd Down P&R. – Wellsway – Wells Rd – Dorchester St

stops include: **Odd Down P&R.** – Frome Rd – Bear Flat – **Bus station/Bath Spa station.**

Midsomer Norton/Radstock/Peasedown Line (tram)?

(No route is discussed at this time).

General notes for Bath

1. The first two items likely would come first. Otherwise no **phasing** is attempted here.
2. Lines might best operated cross-city, using parts of the City Centre Ring, thus reducing terminus needs in city centre.
3. **City Centre Ring** routing needs discussion. Both the former network and Professor Lesley's routes penetrate the city centre more tightly than the above proposal. Accessibility considerations have to be balanced against environmental ones including fuller pedestrianisation (eg. at Theatre Royal).
4. The City Centre Ring could operate either one- or two-way (some sections are local one-ways). Could operate either merely through cross-city linking of the various tram Lines, and/or have its own circular City Centre Ring Line.
5. Throughout Bath including the city centre the existing **bus stops** seem designed more around the needs of general traffic than public transport. They could be re-sited to facilitate bus/tram/rail interchange.
6. **Unofficial commuter carparks** – like Weston Rd – should be closed.
7. Both the **A4/A46** and the **A36** lack **Park&Ride** carparks currently. If the latter is achieved, a tram route to Bathampton becomes justified.
8. No suggestions have been made for Bath tram **depot facilities**, but several could be by Part&Ride sites.
9. Bath needs a parallel **road hierarchy and traffic re-evaluation**. This could define the traffic levels to be allowed on roads including Queen Square, George St, London Rd, Walcot St, Pulteney Rd South, Lower Bristol Rd, James St West where tram conflicts might occur, and environmental conditions including air quality have already become poor. Local improvements to these roads for residents, pedestrians and cyclists can be sold as part of the benefits of investing in a tram system. Tram/bus priority traffic signals would be desirable; but so too is a clamp-down on private and public on- and off-street parking in the city centre, an expansion of P&R capacity, and improved rail and bus services from Bristol, Trowbridge, Frome, Corsham, Keynsham, Radstock, Midsomer Norton, etc.). The cited roads also act as inner ring roads and quasi-

bypasses to the city; a wider traffic plan is therefore required of B&NES for the whole of Bath and its environs (including the A420, A39, A46/36, A363, M4), to disincentivise this usage.

STAFFING, ORGANISATION AND NEGOTIATIONS

Bristol would benefit from a genuine study of the type Atkins has done on trams for B&NES (albeit its status is unknown). **MetroWest** planning must be united with a tram and a bus study: thus achieving an integrated public transport plan, which itself would require a strong **highways traffic management** element and rigorous city **parking policies**. This considerable exercise cannot be done soon enough, and would be welcomed by the **DfT**. Neither WECA nor the Local Authorities yet have the necessary professional staff in-house as other Combined Authorities do. **Consultancy** will be required initially. Or WECA could be nudged into becoming a real Combined Authority, acquiring **adequate in-house staff**, and somewhere finding the **political will**. Until this happens, serious DfT infrastructure cash will prove elusive in the West (except, inappropriately, for roads). If **Highways England** were drawn in (as it needs to be), this might help things along: they have long been hoping to **de-motorway the M32**, given its aging infrastructure and marginal role in the national motorway network. They are very aware that local traffic continues to overload the M4/M5 junction and the M5 Avon bridge; anything (excluding dangerous 'smart' ie. no hard shoulder motorways) would be better. In the end the West's illegal levels of **air pollution**, and its worsening **car and van congestion**, may prove the catalysts.

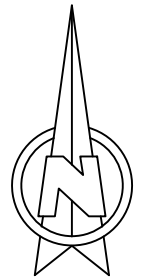
SUGGESTED PROGRAMME (*Bristol area only*)

The prioritized investment programme given on page 9 (above) is an attempt to meld technical, political, funding and environmental factors into a single outcome. It can be modified, and doubtless will be.

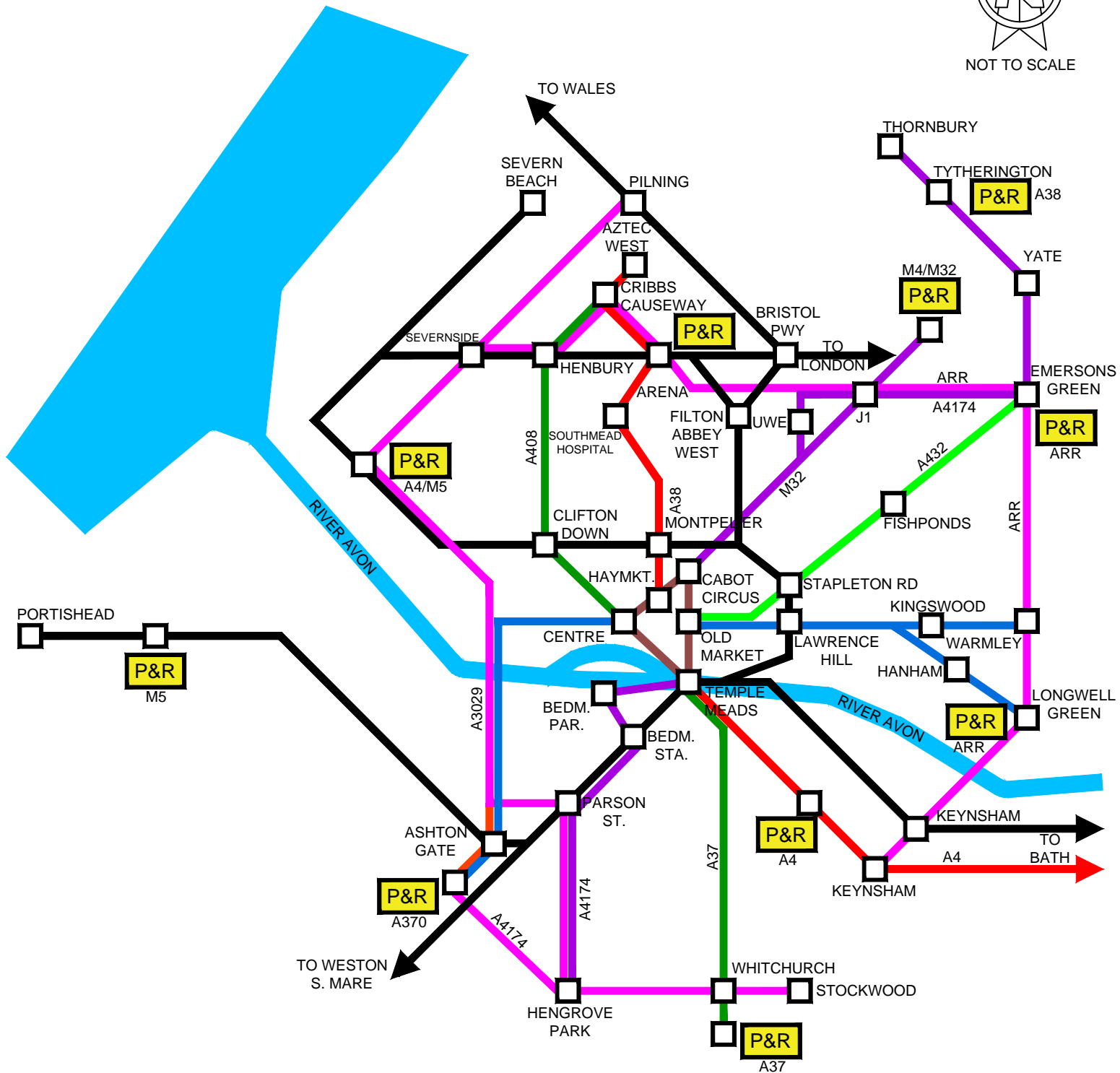
It builds upon the current WECA/BCC desire to see **Rapid Transit** service to four corners of Bristol, but does so by combining and integrating **MetroWest** heavy rail upgrades with selective corridor **tram** reinstatements. However it deliberately **omits** a service to **Bristol Airport**, whose expansion has been turned down by North Somerset Council and which is already served by the airport bus. It omits also any expensive and rather inaccessible **Underground** sections.

RAPID TRANSIT PLAN FOR BRISTOL - MAP 1

TfGB 6/20



NOT TO SCALE



RAIL

PORTISHEAD
SEVERN BEACH
HENBURY
BATH
WESTON S. MARE

TRAM

BATH A4
FILTON
WESTBURY O.T.
WHITCHURCH
M32 P&R
YATE
THORNBURY
HENGROVE PK.
FISHPONDS
AVON RING ROAD
SEVERN SIDE
ASHTON
KINGSWOOD
HANHAM
CITY CENTRE RING

PARK & RIDE

P&R



tfgb.org

TACKLING PARKING IN BRISTOL

It is well understood that increasing road capacity generates more traffic. A similar proposition about parking gets less airplay: If you can't park at your destination, you won't drive.

Our overarching aim to reduce car-dependence requires a modal shift in transport. Our plans for *mass transit*, *traffic management* and improved *bus services* make this possible by ensuring alternatives to car journeys are available, convenient, and affordable. As they take effect, living in Greater Bristol without owning a car will become more attractive to many.

One policy dilemma is that many of the benefits we foresee are best delivered after road traffic has been tamed. Liveable neighbourhoods and local traffic management can do some of that. But our city region's chronic congestion will continue to compromise bus services, for example, unless overall car use comes down.

Parking policy can have an important role here. Bristol has no coherent parking policy. It needs to evolve one that is consistent with overall transport strategy, and with key environmental goals. The elements of such a policy can be glimpsed in measures taken elsewhere that have brought demonstrable benefits. We need to agree which ones have priority, and – we would advocate – use some to nudge travellers toward the essential modal shift, rather than waiting for it to happen. That will take political commitment that lasts, and extensive discussion and consultation. But we can start by itemising some of the measures that could, and should, be considered as part of the overall strategy.

The important point is that our plans work together, or they will not work at all, and a parking plan must complement the three plans for traffic, rapid transit and bus services, and help deliver their benefits as fast as possible.

A parking plan that achieves this is likely to include some or all of the following:

- **Park&Ride expansion** (see TfGB's *Rapid Transit Plan*): To tap off suburban car commuters and city centre shoppers. An **M32 Park&Ride** is particularly crucial.
- **Residents (& Businesses) Only Parking Zones**: At the moment this inner city programme fails to reach much of North and East Bristol.
- **Workplace Parking Levy**: This is important to strengthen moves to open up the city centre to non car-users, and can generate revenue to fund public transport – as Nottingham has shown in conjunction with its tram system.
- **Restrict On-street parking**: Banning on-street parking on main roads is under-used. Compare London, where main bus routes are no-parking **Red Routes**. In general, cutting on-street parking increases road capacity, notably for sustainable users: the bus-passengers, pedestrians and cyclists who are spared narrow footways, on-footway parking, blocked sight lines and narrowed carriageways. In suburban shopping centres, retailers tend to believe they are dependent upon car-borne customers. But experience elsewhere (Bath and Hereford for example) suggests that semi-pedestrianised shopping streets have commercial benefits. As with other parking measures, perceived loss of amenity can block gains that outweigh the costs.
- **Development control guidance**: New low parking standards for both residential and commercial developments. Many existing developments induce financial dependence on car users – *We The Curious* (the former @Bristol) is a typical example: a centre now striving to meet its own climate emergency goals relies on revenue from its own multi-story car park. Numerous other entertainment, sports, leisure and cultural activity centres, as well as major public open spaces, offer off-road car parks. Operators expect their users to arrive by car, and make little other provision. When (or if) a Workplace Parking Levy is implemented, BCC's Planning Dept. can discuss with property owners their planning options for changed land-uses at sites and on floors of buildings, to mutual benefit.

- **Revise parking charges at retail centres:** WECA and the City Council need to ensure that parking charges at retail centres should be consistent. It serves good planning nothing if, for instance, out-of-town parking at Cribbs Causeway or Longwell Green is free, while parking in Bristol city centre usually has a price.
- **Temporary car-parking** should not be permitted on vacant development sites.

v6 02-10-20



**Transport for
Greater Bristol
Alliance**
Campaigning for
Integrated Transport

A TRAFFIC MANAGEMENT PLAN FOR BRISTOL

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EXECUTIVE SUMMARY

These proposals for a twenty-first century traffic management system for the Bristol area are not from a single-issue lobby group; TfGB offers a comprehensive package of transport and environment measures which builds on the emerging good practice found across the region such as **MetroWest**, the **City Bus Deal** in Bristol and the well-organised **bus-rail interchange** at Bath Spa.

As we emerge from the special circumstances of the Covid crisis the need for modern traffic and transport planning in view of the environmental challenges we all face will come to the forefront again. The task is not just environmental. It is one also of equality of opportunity, including that of non-car users. Dealing with the disfiguring impact of car traffic on our environment, along with modern public transport and active travel, promotes efficient use of resources, health, opportunity, inclusion and social justice. It is also good for business.

Public transport and active travel is again being discussed in the West of England but we are in danger of making poor decisions. TfGB's contribution brings together residents and campaigners who have acquired expertise through reflection on travel in Bristol and elsewhere over many years. It is citizen-created, reflecting the concerns and observations of TfGB supporters and others, for their community and their environment.

Our ***Traffic Management Plan*** is part of a holistic approach. It should be read in conjunction with the TfGB ***Rapid Transit Plan*** and the proposals for 'liveable neighbourhoods' led by Sustrans and others. The Plan is also supported by the TfGB ***Bus Plan***, the last iteration of which was published late in 2018. Modifications to that plan are implied in our ***Rapid Transit Plan***.

Our Plan is neither final nor complete. It cannot be. It is well considered and indicative, but needs to be developed and implemented by a team of professional planners supported by political commitment from decision makers.

The climate emergency demands reducing car traffic in urban areas. Our traffic management plan is part of this, while also promoting a healthier liveable city. It will be phased along with the introduction of positive alternatives in the form of clean buses and trams, and active travel. Reduced surface traffic also means that

there is no need for expensive underground options. The TfGB *Traffic Management Plan* dovetails with WECA's **MetroWest** local rail improvements, TfGB's (now WECA's) *Bus Plan*, Bristol City Council's evolving cycling strategy, TfGB's *Parking Plan*, and TfGB's *Rapid Transit Plan* which jointly can achieve reduced traffic loads on Bristol's roads and its newly pedestrianised areas.

The chief strategy adopted in this Traffic Management Plan may be summarised as 'protecting neighbourhoods and centres' – allowing them to be liveable. The street can then begin to return to the **public realm**. Bristol is full of pubs, cafes and booklets showing photographs of local streets taken *circa* 1900 – pictures often show street views far calmer, quieter and more sociable than experienced today. Places of vital random social interchange and mixing. This is a rosy picture, but worth aiming for in these supposedly more civilised times.

Map 1 shows our suggested Bristol road hierarchy, complete with proposed traffic management measures: **bus (and tram)–gates, road closures and pedestrianisation**. It should be read as a map of the middle–distance future, since the bus–gates proposed for some main radial routes may not be feasible until Bristol has tram services along said routes (see the TfGB *Rapid Transit Plan*), and has radically reduced traffic levels as a result of the implementation of TfGB's *Parking Plan*. In the interim, vehicles will be able to access the city centre via these main roads; thereafter, access routes will be largely restricted to the M32, A4 Bath Rd, A370 Brunel Way and A4 Portway.

An alternative to such treatment might however better be a '**green wave**' tram–priority traffic signals system (as operating in Brussels) on all on–street main road routes, catering for a limited amount of access and general traffic but achieving zero delays to trams with other traffic held behind the tram and disallowed from overtaking it. This could be appropriate for **Gloucester Rd, Stokes Croft, Church Rd Redfield, Stapleton Rd, Wells Rd, Bedminster Parade and Whiteladies Rd** (thereby minimising unnecessary through–traffic increase on sideroad alternatives including Ashley Down Rd, Cromwell Rd, Redcatch Rd, Queens Rd Clifton and Pembroke Rd). **Old Market** however could be more pedestrian prioritized with a full bus/tram gate, adjacent West St actually pedestrianised (with managed servicing access), trams diverted two–way around Lawfords Gate–Trinity Rd, and general through–traffic routed via Easton Way/St Philips Causeway. Similarly **Triangle East**, with general traffic sent two–way around the Triangle South and West.

The **M32** should be **de-motorwayed** with its grade-separated junctions replaced at surface level; while **Avon Ring Road**, **Easton Way/St Phillips Causeway** and **Bond St/Temple Way** should have their grade-separated and roundabout junctions replaced by surface-level signaled junctions.

Maps for each of the **city sectors** discussed in this Plan – the city centre, inner north-east Bristol, South Bristol, inner North Bristol, and inner East Bristol – are as yet only in sketch form. They will be produced later.

To the city's many committed car drivers we say: If places like Bristol are to have a future car dependency must come to an end. More car drivers should be on the buses, trams or their bikes. Our plans ultimately assume that Central Government must intervene to curb car dependency (except for the disabled and those who live in remote locations), even if cars are all electrified.

INTRODUCTION: RETURNING TO THE PUBLIC REALM

Bristol, like most cities, is often regarded by residents as being a cluster of local neighbourhoods or 'villages'. Some have their local shopping and social centres. Around the edge (but not always on the edge) is a scatter of more modern, more anonymous car-dependent retail and employment 'centres'. The strategy adopted in this Traffic Management Plan is to make neighbourhoods permeable by pedestrians, cyclists and public transport users, and accessible by car and commercial vehicle; but closed to through-traffic by private motor vehicle. The solution is seen as being able to agree a **map of walking and cycling routes**, and an **integrated public transport network**, and simultaneously to reform and specifically **manage the road hierarchy** open to private motor vehicles. To end, in other words, Bristol's transport chaos. The identification of appropriate 'neighbourhoods' and an associated appropriate 'road hierarchy' is to some extent an iterative process, heavily dependent upon local geography. **Neighbourhood communities** must be involved, and continue to be involved, since the Highway Authority's interim solutions may lead to the need for further protective action.

A second theme is the **environmental rescue of the city centre** (which is half there) and **local suburban centres**. Some (including the city centre) can be removed from the higher echelons of the road traffic hierarchy; some not. Those that can, can often be provided with a **bus-gate**, or become fully **pedestrianised** with premises vehicular access controlled by time, weight, and/or approach route. In some streets, cyclists may be required to dismount. In each case, ways need to be found so local traffic can continue to circulate and the outside world accessed. The best solution, after local consultation, might involve 'green wave' bus/tram priority traffic signals.

A parallel theme is to offer alternative cycle and public transport access options to hitherto car-dependent, American-style 'retail' and 'leisure' centres. Until now, these places tend to remain the province of those with access to a car. They often are almost inaccessible on foot, by bicycle or by bus from much of their supposed catchment area. This is neither fair, nor commercially optimum.

Modal movement networks

A second, interlocking main strategy – or method – adopted in this Traffic Management Plan is the design and creation of a **continuous, signposted, safe and**

attractive movement network throughout the city for each separate mode of travel, and to integrate these networks so that multi-modal trips become viable.

The only mode for which this generally has been attempted is the private car; with delivery vehicles a poor second. The more environmentally sustainable and more equitable modes of transport – walking, cycling, public transport – have not been offered continuous, economic, safe and certainly not attractive networks. Nor have such networks been fully signposted and made common knowledge. They need to be. All neighbourhoods should be linked to all other neighbourhoods by such networks.

What is unnecessary (and often undesirable) is for car drivers to be able to take a straight route from any place 'A' to any other place 'B': because often that would take them directly through another person's home neighbourhood. Instead, the driver should proceed to the nearest part of the **main road network** and then follow that round till they come to the edge of their destination neighbourhood. This may mean some drivers having to drive first in the opposite direction to their ultimate destination for a while; but at least the appropriate route once found, will be convenient and not anti-social to use.

Main road capacity

The final aim of this Plan is to increase, not decrease, the **efficiency of the principal through-traffic arteries**. Once a route has been agreed to remain part of the upper level of Bristol's road hierarchy – rather than for example a Bus Priority Route – it should be allowed to operate as such. **Highway capacity** is crucially affected by **junction capacity**. Long-standing local practice is to allow uncontrolled rat-runs to proliferate, and even to encourage them with signalled entry-points onto and off the main road network; yet this compromises junction capacity. A prime example would be the junctions of St Philips Causeway with Days Rd and Whitby Rd, both of which daily cause considerable peak-hour tail-backs. The severance of rat-runs will mean less main road delays through intersecting traffic; and probably, less traffic signals in total. The road system will operate more, not less efficiently. Similarly, a **lower speed limit** on main roads can actually increase highway capacity by allowing vehicles to be closer together.

SUMMARY: A PHASED CITY-WIDE PROGRAMME

Immediate

Actions that can be taken within six months, at low cost, and without extensive public consultation.

- For Covid-19 protection: protect **public transport staff**, require public transport passengers to wear **masks**, and end **on-vehicle tickets**.
- **'Pop-up' cycle-lanes** and **footway widening** in shopping centres, as currently proposed by the City Council.
- Present Neighbourhood Councils (or sets of ward councillors) **maps of road accidents and air quality** in their area; update every six months.
- Some experimental **rat-run closures**. These to be cycle-permeable, to greatly increase Bristol's safe cycle route network.
- Instigate **orbital bus services** (see TfGB *Bus Plan*).
- Interim continuous **bus-lanes** on all main radial bus-routes, usable in the short term by cyclists, and the removal of on-street parking throughout (except for disabled and loading bays).
- Publish a draft **road hierarchy** and **bus priority route map**.

Interim

Actions requiring a medium-sized budget and public consultation, but which can be achieved within 3 years.

- Agree a **road hierarchy** and **bus priority route map**.
- The **redesignation of highways**, and a **highway resigning** programme.
- Expand the **Bus Deal** bus priority measures to permanent continuous **bus-lanes** on all main bus radial routes, including some experimental **bus-gates**; remove **on-street parking** throughout (except for disabled and loading bays within widened footways in shopping centres). Where road width, minus widened footways, is insufficient (eg. in Fishponds) have no bus-lanes, but approach via **bus-triggered signals**. Cycling provision to be parallel **segregated cycleways** on-street; or else **parallel calmed cycle routes** on side streets. Note this applies equally to the Inner Ring Road, the revised bus circuit within the city centre (see TfGB *Bus Plan*), the M32 and Easton Way/St Philips Causeway, all of which will be bus or tram routes.
- Implementation of access-only in Bristol city centre: sign **city centre access loops** and associated **bus-gates**, remove most **on-street parking**.
- Complete a ring of **Park & Ride** sites.

- Experimental orbital and feeder bus services to **suburban hubs**.
- Implement the Bristol **cycleways** strategic plan, with several stretches of new segregated cycleways alongside main radial and orbital traffic routes.
- Revise the **development control parking standards**.
- Update and issue in satnav format the **Commercial Vehicle Drivers' Atlas**.
- Experiment with **local collection centres** and **consolidation centres**.
- After local consultation, further low-cost **temporary experimental traffic management** measures. Make permanent the temporary footway widening measures.
- Publish a map of Bristol's expanded **cycleways** and **safe cycle routes** network.
- Encourage and facilitate local low-cost **Home Zones**.
- **A Workplace Parking Levy**.
- Defend and complete the **20mph** programme for almost all in-city roads including A roads.
- Make some few major routes **30mph**: notably the de-motorwayed M32 (see below) and Avon Ring Road.
- The **M4, M5, M49** should be controlled near their junctions to 40mph.
- **De-motorway the M32**. Initiate an **M32 Park&Ride** bus service, if necessary operated from a temporary site; complete with a **bus-lane** the length of the M32, and **bus-stops** on the sliproads at junctions 2 (Eastgate) and 3 (Easton/St Paul's) with surface pedestrian crossings.
- Put bus-lanes throughout the **Avon Ring Road, Inner Ring Road** (where a bus route) and **Easton Way/St Philips Causeway**, with surface pedestrian crossings.
- Close to traffic **Clifton Suspension Bridge** and **Prince St Bridge** (the latter with a segregated cycleway).

Ultimate

Considerable expenditure, requiring consultation, but achievable within 10 years.

- Demolish the grade-separated junctions of the (former) **M32** and replace with signalised junctions with surface pedestrian crossings.
- Similarly replace the grade-separated and roundabout junctions on **Avon Ring Road, Easton Way/St Phillips Causeway** and **Bond St/Temple Way** by surface-level signaled junctions. The future replacement of **Brunel Way**, as necessarily a high-level river crossing, has however a different context.

- Convert the **M32** Park&Ride bus to **tram** (the M32 will also carry the city centre–UWE–Emerson’s Green–Yate–Thornbury tramtrain line). See TfGB’s ***Rapid Transit Plan***.
- ‘**Green wave**’ bus/tram priority traffic signals systems throughout the main radial on–street routes, except at some **suburban centre** bus–gates, or Mixed Priority Route layouts.
- Fully designed public transport **hubs**.
- Integrate with TfGB’s ***Rapid Transit Plan*** infrastructure programme.
- Replace the **Plimsoll Bridge (Brunel Way)** while simultaneously closing **Dowry Square**, and making **Merchants Rd Bridge** bus–and–cycle–only.

A RE-EVALUATION OF BRISTOL'S ROAD HIERARCHY

1. Why bother about a 'road hierarchy'?

For a generation or more, thinking about 'road hierarchies' has been unfashionable. Contrast the 1970s: when urban and transport planners wanted to know which roads they should expand or construct to deal with an anticipated (and self-fulfilling) growth in private car traffic. Yet bothering about road hierarchies soon will become fashionable once more – this time around, to work out which roads are best suited to cycling, or pedestrians, or bus operation, or future tram routes, and then making them so. Without an official road hierarchy every road is potentially a traffic route, and thus becomes unsuited to bus, walk or cycle usage. This is true whether one is talking about a city, a suburban commuter settlement, a market town, a rural area or a National Park.

In the 70s, behaviourally naive 'traffic models' were used to 'predict' (that is, 'trend plan') the future. More recently, the Traffic Management Traffic Act 2004 has been narrowly interpreted to mean that all cars turning up on Bristol's roads had to be catered for. 'Traffic' did not seem to include public transport users, pedestrians or cyclists; and 'catered for' did not consider externalities like noise or severance (and only grudgingly, accidents). Air quality issues belatedly have intruded, but largely ignored in practice. Rat-runs – cars taking short-cuts through often residential streets – have been actively assisted (by traffic signal timings, for example), to supposedly 'enhance the capacity of the network'. Until very recently this has reinforced the idea that car usage is the norm. This has gone hand-in-hand with declining personal health, increasing inequality, and degradation of the environment. 'Public space' has been one of the casualties.

2. Bristol's transport planning

For a while now, Bristol has been planned as if cars mattered, not people. The city is indeed particularly poor in this regard. A lot can be blamed on the lack of an urban Rapid Transit system, whether heavy-rail or tram – a problem not shared by Manchester, Sheffield, Nottingham and (soon) Cardiff. Hence the need for Transport for Greater Bristol's recently drafted *Rapid Transit Plan*. With little alternative – although the buses have been getting better, and will get more so if the TfGB *Bus Plan* is influential – movement choices come down to walking, cycling or the car. The car retains the upper hand.

3. Current road usage

The most easily-digestible data on traffic flows in Bristol is probably still that of the *Bristol Local Transport Plan, 2001/2–2005/6* (Appendix 4.1, Figs. 1 and 2) published in 2000. The traffic figures it contains have never been fully analysed. These figures, admittedly out-of-date, are sobering. At that date (the actual traffic counts were made between 1996 and 1999), over 60,000 vehicles (95% of them cars) were moving (two-way) on the M32 between 7am and 7pm; on the other side of the city 50,000 were crossing over the Avon at Brunel Way, fed by the A4 Portway, the A370 and other approaches.

Within the city itself relatively minor roads like Ashley Down Rd and St John's Lane in the inner city were carrying 15,000 and 16,000 respectively. To put this in perspective, Ashley Down Rd, which appears in no transport planning strategies, was carrying more cars than the parallel A38 Gloucester Rd which was supposed to be the main traffic route in that radial corridor; while St John's Lane was carrying almost twice the traffic of the parallel A370 York Rd. Things have not markedly changed since, but need to. It is in part an issue of equality.

4. Bristol's road hierarchy

Laissez faire transport planning means that the city's road hierarchy of A,B,C and unclassified roads has, the motorways and some few new bypasses aside, not been re-assessed for decades. The result is a free-for-all in Bristol, where any road can become legitimised by usage as a general traffic route (usually unsigned), managed by a **Highways Authority** which is capable of redesigning the roadway, junction layout and traffic signals to accept such traffic. This is the unofficial but informal acceptance of 'rat-runs'. The result is widespread traffic queues, delays, excessive vehicle emissions, and dangerous junctions – across the city – blocking the progress of amongst other things, buses, bicycles and pedestrians. Some of the queues are outside Primary School windows.

The above-mentioned *Bristol Local Transport Plan, 2001/2–2005/6* proposed and mapped a revised road hierarchy (Appendix 4.1, Fig. 3), including the designation of the city's traditional radial main roads as Bus Priority Routes. The Plan was commended by the government's Dept. for Transport. None of the recommended reform has actually occurred, nor the city's highway signage renewed. The partially-successful **Greater Bristol Bus Network** traffic management improvements,

at least superficially followed its spirit. However, traffic signal renewal and retiming, were designed to ease general traffic rather than specifically buses, in the belief that faster-flowing general traffic would benefit buses. It doesn't really; it encourages the continued growth of general traffic, leading to traffic-induced delays to buses somewhere else along the route. In spite of this, bus usage in Bristol has bucked the national trend and risen; partly no doubt because of the lack of any rapid transit alternative. But modal split – and the relative dominance of car usage – has not dramatically shifted. The city's rat-runs have if anything grown in intensity and number. Because measurements are not being taken, no-one actually knows how bad traffic in Bristol is, or where it is.

An essential first step then, is to undertake a **review of Bristol's road hierarchy**, with the intention thereafter to positively manage roads in concert with revised designations, and to renew our highway signage. A draft map is presented in **Map 1**, largely adopting *BLTP's Appendix 4.1, Fig. 3*. Its broad structure, making full use of existing highways infrastructure and to a large degree respecting agreed hierarchical concepts, is as follows:

- The **M4** and **M5** motorways as E–W and N–S approaches to but in effect **conurbation bypasses** for Bristol,
- The **A4174 Avon Ring Road** as in effect a **ring road** around the E and most of the N sides of the city, with A4 Portway, Brunel Way bridge and the A370 Long Ashton bypass operating as a local W side bypass. The remaining S side of the city has a partial ring road in the new A4174 South Bristol Link, and the improved A4174 (Hengrove Way–Callington Rd) road within the city fabric connecting somewhat unsatisfactorily either end with the South Bristol Link and A4/Avon Ring Road. A new-build completion of this southern ring, avoiding built-up Brislington, Whitchurch, Hengrove and Withywood, would not be illogical (but would have to be allied to traffic restraint on existing roads and is said to have engineering geological landslip issues along the north face of Dundry Hill).
- Certain **radial traffic routes** extending in towards the city centre are inevitably required. Those thought generally to be environmentally acceptable to carry more heavy traffic flows include the **M32**, **A4 Bath Rd**, **A38 Bridgwater Rd**, **A370** and **A4 Portway**. These routes are already designated as **National Primary Routes** (see maps in *BLTP, 2001/2–2005/6*, App. 5).

- The **Inner Ring Road** (or Scope Route) is already defined in city planning documents, at least in broad terms, ties together the National Primary Routes around the city centre while largely avoiding allowing through-traffic directly through the city centre. The IRR is however capable of up-dating for environmental reasons.
- The city's traditional radial roads currently designated County Primary Routes or being simply A roads, not forming environmentally acceptable radial traffic routes because they serve the main suburban shopping centres, the *BLTP* proposed as **Bus Priority Routes** (see *BLTP, 2001/2–2005/6*, App. 4, Fig.3). Namely, the A38 **Gloucester Rd**, A432 **Fishponds Rd/ Stapleton Rd**, A420 **Lawrence Hill/Old Market**, A37 **Wells Rd**, the inner end of the A38 at **Bedminster Parade**, A4 **Hotwells Rd** inward from Brunel Way, and A4018 **Whiteladies Rd**.
- Localities within the city are interconnected via acceptable **distributor roads** partially identified in *BLTP, 2001/2–2005/6*, App. 4. The least controversial include recognised main feeders onto higher hierarchy routes: Muller Rd onto the M32; and Bridge Valley Rd and Sylvan Way onto Portway. But these definitions, and any actions flowing from that, demand fuller discussion. Excluded should be many currently heavily-trafficked and largely unplanned 'rat-runs' (see below).

It is proposed that once agreement between WECA and BCC can be achieved as to the city's revised road hierarchy, then the Dept. for Transport be approached to confirm any **road re-designations** thereby required, and the Highway Authority (BCC and WECA in mutual agreement) thereafter undertake a full reform of the city's **highway signage**. The resultant reform has then to be fed through to Ordnance Survey, commercial road atlas publishers, and satnav apps. Bristol's traffic management will cease to be anarchic, and take on 'Continental' socially-responsible urban planning.

Map 1 is not without its complications. The 'National Primary Route' network is that proposed by *Bristol Local Transport Plan, 2001/2–2005/6*, and is not yet currently official. Further, the attempt to define logical, suitable 'distributor roads' is tentative. Marked also on this map are those other roads – largely unplanned and uncontrolled rat-runs – experiencing during the survey period 12-hour two-way flows of over 5,000 vehicles, which is a lot if you have to live next to it. This map of otherwise 'local access roads' is not complete. Its implications need to be

worked through in local traffic management plans. The Sector Studies of the rest of this traffic Management Plan will draft suggested neighbourhood solutions.

5. Bus/tram Priority Routes

Efficient public transport is an aspect of equality of opportunity: poor services impact most on the already disadvantaged. But this situation can be improved.

Bristol's potential Bus Priority Routes are the A38 **Gloucester Rd**, A432 **Fishponds Rd/ Stapleton Rd**, A420 **Lawrence Hill/Old Market**, A37 **Wells Rd**, the inner end of the A38 at **Bedminster Parade**, A4 **Hotwells Rd** inward from Brunel Way, and A4018 **Whiteladies Rd**. These routes remain full of car traffic: which severs suburban centres that include the majority of Bristol's traditional suburban roadside retail foci, and brings noise, air pollution and traffic danger into these pedestrian-intensive public spaces. Sometimes bus-lanes on these routes, unless carefully planned with wider traffic management measures, can as a side-effect shunt general traffic onto parallel existing or newly-breaching rat-runs. Bus services joining these main roads from side-roads without bus-priority assistance can be stuck in traffic queues trying to get into the main road.

More carefully-designed **bus-priority**, including **bus-triggered signals** on the side-road entry points, and more comprehensive lengths of radial road (and main orbital road) **bus-lanes** where space permits will help. The City Council is attempting this by the **Bus Deal** now struck with the main bus operator First Bus, which in return for undertaking extra bus-priority traffic management is promised more buses and more frequent bus services. This enterprise needs perhaps better design and/or more political will and constructive public engagement; progress has been slow. Where road width is insufficient (eg. in Fishponds shopping centre), have widened footways but no bus-lanes; approach via **bus-triggered signals**.

Another required policy strand is to complete the ring of bus-served **Park&Ride sites**, so that each Bus Priority Route has a Park&Ride close to the beginning of the city's built-up area to tap-off commuter car drivers. Over the last few years this programme has stalled, with effectively no progress on getting P&R on the M32, A37, A38 Gloucester Rd or A4018 Whiteladies Rd. (The Long Ashton site now serves not only the A370 but also the A38 Bridgwater Rd via the South Bristol Link). Part of this lack has been due to the disinterest of South Gloucestershire Council; and the A37 at Whitchurch, Bath & Northeast Somerset Council.

The most radical and long-term measure is to move Bristol away from car-dependency not only by helping bus flows (and to plan for and build rapid transit), but by restraining car usage. This is already occurring naturally, given the declining car-ownership levels amongst the young (whose driving insurance costs are high, and a car no longer the 'must have' personal accessory). Transport modellers have not caught up with this social trend. That aside, if we wanted Bus Priority Routes to live up to their name, we would design them radically as **Mixed Priority Routes** of the type achieved on Walworth Rd in the South London borough of Southwark: with widened footways, removal of kerbside parking, and bus-lanes leading to bus-priority traffic signals giving entry to a narrowed road stretch.

More radical still, and at a later stage, would be to block Bus Priority Routes to general traffic by means of a **bus-gate** at the heart of a corridor's suburban shopping centre; otherwise rely on 'green wave' bus/tram priority traffic signals. Bristol has long had a central city bus-gate at Horsefair/Penn St in Broadmead, and in the inner city at East St in Bedminster and (for some turns only) Stapleton Rd in Easton; it is proposing others at Bristol Bridge and Baldwin St/the Centre, and should do so also on **Park St.** which currently likewise feeds unnecessary traffic into the Centre. In the future however one would wish to see bus-gates, Mixed Priority Route treatment or 'green wave' bus/tram priority traffic signals systems for all other suburban centres: at **Bedminster Parade, Broadwalk** (Knowle), **Old Market, Church Rd Redfield, Fishponds, Gloucester Rd** Bishopston, **Westbury on Trym** and **Whiteladies Rd.** These sites are indicated on **Map 1.** It should be re-emphasised that this is a late phase of the Plan, and can only work once Park&Ride and other parking measures (include a Workplace Parking Levy – see TfGB ***Parking Plan***) are in place. A precursor to the environmental improvement of these suburban centres is to remove **on-street parking** (except for disabled and loading bays) and to manage premises access. Bus-gates should not be contemplated without first ensuring that the alternative **rat-runs** do not get worse, by judiciously closing them – as Avon County Council had begun to in St Paul's by the Inner Ring Road and M32, Montpellier beside the A38, and Knowle beside the A37. One political justification for calming both suburban centres and rat-runs is their current level of road accidents. Another is to create space for associated **public transport 'hubs'**. Cyclists may use bus-lanes temporarily; but where width exists on a main radial or orbital route, **segregated cycleways** or **parallel calmed cycle routes** are desirable. Often it might be advisable to **coincide with the arrival of a**

tram line before installing a bus– (now tram–) and cycle gate (see TfGB *Rapid Transit Plan*). But some, like Park St, can be done now. As can parallel **calmed cycle routes** on side–streets on some corridors.

6. Public transport hubs

Within suburban centres (but also elsewhere at for example MetroWest rail stations), TfGB's *Bus Plan* and *Rapid Transit Plan* envisage 'public transport hubs' – **interchange** stops served variously by trams, radial, orbital and feeder bus services. Sometimes these could be terminal stops (though this has implications for bus stacking). Stops ideally would be shared between radial, orbital and feeder buses; though this will not always be possible due locally to routes and road layouts.

Associated facilities can include shelters (certainly), seating, toilets, cycle parking, even refreshments. This is a new design task for Bristol, but a brave start has already been made at the shared stops now found at Old Market, @Bristol, Hengrove Park and Southmead Hospital. The planning of orbital and feeder bus routes is to some extent iterative upon finding suitable hub locations.

Only when interchange hubs are established will it feel as if Bristol's public transport system is a real alternative transport system – one matching the '**go–anywhere**' characteristic of the private car or taxi achieved by go–ahead cities like West Berlin and Utrecht.

7. Road accident patterns

Road accidents impact most upon disadvantaged localities, for a variety of reasons; this must stop.

For several years (and possibly still) the City Council recorded road accidents not by location, but by assigning many to the nearest road junction, on the assumption that junctions are the hazard. The real pattern can be gained from *BLTP, 2001/2–2005/6 (App. 3.4)* which maps accidents by actual site, for groups of 2 or 3 city wards. The pattern that emerges is revealing. Firstly, although the worst concentrations of accidents do occur at or approaching a main road junction, the majority of accidents don't. Most are simply spread along those roads with the most traffic: the official traffic routes, but also the rat–runs. Thus in South Bristol, Bishopsworth, Hartcliffe and Whitchurch Park wards had thin strings of accidents

on A38 Bridgwater Rd, A4174 Hartcliffe Way and Whitchurch Lane; but most of its 301 'killed or injured' casualties (1997–9), including a relatively high proportion of children, arose from poor driving on minor estate roads. Whereas in Brislington East and West wards, the 366 casualties there relate mostly to a concentration of accidents along the A4 Bath Rd, with the rest largely confined to strings along the trafficked 'distributor roads' (or 'rat-runs' depending upon definition) Talbot Rd, West Town Lane, Hungerford Rd, Sandy Park Rd, Whitby Rd, Wick Rd, Allison Rd, Broomhall Rd, Wootton Rd. This variation is instructive and should direct subsequent remedial efforts.

The solution is thus some **junction improvements** including traffic signal management, lighting and carriageway modification (the traditional response); but more importantly, **speed control, traffic reduction and traffic route management**. The detailed ward maps of *BLTP, 2001/2–2005/6* seem not to have been repeated or updated since.

Meantime the city adopted a city-wide **20mph policy**, thereafter gradually and haltingly implemented. Road accidents may have since reduced, especially because many of the city's main suburban traffic routes have been included, as well as residential side-roads. All to the good. But the accident maps show this is not the whole problem.

The city road hierarchy's chief routes, including the M32, Portway, Bath Rd and Brunel Way, display a string of road accidents (often shunts). As part of the *Rapid Transit Plan*, the M32 is envisaged as **de-motorwayed** and it and the Avon Ring Road calmed so as to be suitable to tram operation with stops and surface pedestrian crossings. This should be controlled by a **30mph limit**. Although the M4, M5 and M49 can remain faster, they show accidents around their junctions with each other and with the A369, A4018 and A38; these junction approaches should be negotiated with Highways England down to on-motorway **40mph**, approached by 50mph buffer zones. This would make driving the gauntlet of the M4/M5 junction less of a fear-inducing experience.

8. 'Liveable neighbourhoods' – closing rat-runs

'Liveable neighbourhoods' is a concept whose time has come, and trams, bus-priority, cycleways and a defined official road hierarchy all help. But as already implied, traffic rat-runs also matter. These tend to be roads parallel to official

main routes, or diagonal roads penetrating otherwise quiet residential neighbourhoods.

Drivers rat-running along these lesser routes chase a supposed time advantage and tend as a result to drive too fast, and inconsiderately; not infrequently they cause accidents to each other or to residents. The numbers rat-running sometimes (as illustrated above) exceeds those using official traffic routes. This can seriously impact on the environmental situation for residents; it can also totally overload traffic junctions and thus actually further delay and congest (rather than 'relieve') official through-routes. *What is less often said is that unless Bristol tackles its rat-running problem any attempts at solving air pollution, altering modal split, encouraging bike usage, or making a tram system economically viable, will be severely hampered.*

Geography dictates that if unchecked, rat-runs impact most upon more densely-packed, disadvantaged inner city localities.

An essential aspect, given the Government's desire encourage cycling, is that without tackling rat-runs – not just at crossing-points but throughout their entire length – no significant social diffusion of cycling is likely to occur. If a pensioner or child cannot safely reach a cycle route because of criss-crossing rat-running through-traffic, they may decide simply not to try. Nor will their nearest and dearest feel comfortable if they do.

The first task is to identify rat-runs. Where are they, and which roads? Which complicated rat-run routes intersect? In practice, the city's drivers know where the rat-runs are; so do local residents.

What then? If one wishes to close a rat-run – as often a majority of local residents do – it is possible to persuade ward councillors to lobby the Local Authority in its guise as Highway Authority to do so. **Political will**, and public pressure for this has grown recently due to worsening air pollution.

If rat-run closure is to be revived, it requires that we anticipate side-effects by understanding and managing the road hierarchy as an interacting system. One needs a comprehensive traffic management plan. That is something the 'Sector Studies', in combination, can do (see below). Actually treating a rat-run (and if

necessary other adjacent streets) is simple enough: it can be done cheaply on an experimental basis with a temporary Traffic Order and a set of bollards or railway sleepers. Closure should be **permeable to cyclists**, as rat-run routes are very often excellent potential cycle routes and could greatly increase Bristol's safe cycle route network. If on a bus route, the closure needs of course to be in the form of **bus- (and cycle-) gates**. Some few socially focal streets can be **pedestrianised**, with controlled servicing access.

9. Lorry, emergency and delivery van access routes

Traffic engineers and town planners often fail to deal properly with road-freight access. Development architects are equally bad. Large lorries need to be confined to suitable routes; but equally must be provided with the roads and access plans to do so. Emergency vehicles likewise need fast and efficient routes. Little of this has been thought through (except by the Fire Service). Clogged-up main traffic routes and anarchic rat-running traffic do not help.

Bristol City Council in alliance with B&NES and South Gloucestershire did publish in 2003 a paper-based Greater Bristol **Commercial Vehicle Drivers' Atlas**. Well received by freight operators, copied by the West Midlands, it showed appropriate routes to every main employment, retail, educational, health and leisure centre in the built-up area; plus low bridges and weight, width and access restrictions. The intention originally was to update this (notably in line with road hierarchy decisions) and re-launch it in modern satnav format for commercial operators, but this never happened. The Atlas is out of print. Clearly this initiative needs to be revived.

These days there is a new problem: the massive growth in van-borne home deliveries. This development is inherently unsustainable, being person and vehicle intensive. The way forward may include **local collection centres** (for example at Post Offices and corner stores), **consolidation centres** further back down the supply chain, and **electric vehicles**. The principle perhaps is of wide application: including for example consolidating individuals' refuse and recycling bins in convenient single sites for each street as done in Dutch 'woonerven' or traffic-calmed streets (we call them Home Zones; see below).

10. Access to car-dependent centres

Bristol's car dependency cannot be tackled without altering the character of our many American-style 'ex-urban' retail, leisure and employment centres: Cribbs Causeway, Hengrove Park, Hengrove Leisure Park, Imperial Park, AvonMeads, Longwell Green, Brislington retail centre(s), Winterstoke Rd, Muller Rd, David Lloyd, BAWA, Sainsbury's Emerson's Green and so on. They are difficult to reach without a car. This therefore is an issue of equality, given that those without access to a car include the more socially-disadvantaged citizens. To a lesser degree similar applies to our main public open spaces including Ashton Court, Blaise Castle, Snuff Mills, Conham riverside, Leigh Woods, The Downs, the Zoo, Purdown, and undiscovered ones like Dundry Hill.

Any reduction of the city's traffic will be partially dependent upon improving public transport access to these now established sites, as well as encouraging the site operators to engage in this debate. Most of the solution will be reform of the bus network, notably by integrated **orbital bus services**. See the *TfGB Bus Plan*. A safe, coherent network of **cycleways** too must be part of the solution (see below).

11. Cycling policy

Bristol has a well-developed network of popular radial **cycleways** leading out into the surrounding countryside. It is less good on main radial traffic routes, which often are the most direct and least hilly route into town. Or orbital routes. Or in the city centre.

The government has issued new traffic management advice in respect of cycling infrastructure, notably *Gear Change: A bold vision for cycling and walking* (DfT) and the inter-relating *Cycle Infrastructure Design: Local Transport Note 1/20, July 2020* (DfT), broadly following modern Dutch practice, so any proposed measures necessarily will be compatible with this. Significantly, painted on-road cycle-lanes are no longer acceptable. Rather, alongside or parallel to heavily-trafficked roads, cycleways will have to be segregated. Cycle routes can be designed through lightly-trafficked street networks, especially where through-traffic by motor vehicles using that route (or parts of it) are removed by carefully sited 'modal filters: for example, bollards allowing cycles and pedestrians through, but vehicles not. Similar effects can presumably achieved alongside bus-gates if the road happens to be a bus route. The implications for Bristol's cycle planning are considerable. Some of our main cycle flows – for example that on Gloucester Rd

towards the city centre – no longer meet design criteria. This can be improved in future by the sort of **Bus Priority Route** treatment and future tram routes advocated in this paper. Similarly, several of the inner city rat-runs dealt with in this paper would make excellent, direct, longer-distance cycle routes if through-traffic can indeed be effectively removed – and at relatively low cost. Bristol's main cycle route map might fairly radically change as a result. It is important to note that simply relying on official cycle routes, and segregated cycleways, has to date failed to address the issue of how local residents actually access these routes if they are beset by intervening local rat-runs perceived by aspirant cyclists to be dangerous to use or cross.

Between Broadmead and the Centre, a route should be chosen for a segregated cycleway – perhaps along **Nelson St**. On other significant (or potential) cycle routes in the city, segregated cycleways may be desirable; Highway Authorities across the country are already doing this as Covid-19 measures (see advice at <http://airqualitynews.com/2020/06/17/cities-must-act-to-secure-the-future-of-urban-cycling/>, but such measures should be made **permanent** and on-street parking adjusted accordingly. On some roads (see above) there may be room for both a bus-lane and a segregated cycleway.

In the city centre, segregated cycleways may be appropriate around the **Centre**, on **Triangle West** and South, **Bond St** and **Temple Way** around Cabot Circus, on **Merchants Rd Bridge**, **Prince St Bridge** and through **Old Market** and **Haymarket**. At **bus hubs**, cycle route design must be adapted as appropriate.

It has been mentioned above that the **closure of traffic rat-runs** will open up a whole new network of cycle routes across the city at very low cost: no additional infrastructure is required other than to make the road closures permeable to cycles. Removal of intersecting through-traffic rat-runs is crucial also to enabling cycling to be an option available to a wider range of citizens, who rightly value their personal safety and who include the more disadvantaged.

Cyclists often **conflict with pedestrians** where joint flows are concentrated, as in the pedestrianised Centre and on narrow bridges. Cycleways should be designed so the conflict is avoided, but occasionally cyclists should be required to dismount. Re-locating the cycleways in The Centre so they run alongside the carriageways

would resolve the current conflict where cyclists and pedestrians are competing for the same space.

Conflict within parks needs to be monitored: segregated cycleways may be possible (as in Castle Park). Where **calmed roads** are instigated – as proposed for Ladies Mile and Circular Rd on the **Downs** – cyclists may use the carriageway safely.

Imagine we are in Holland – they have achieved it there. The Bristol Cycling Campaign's **strategic cycleways map** seems to have been informally adopted by the City Council, but such plans must be up-dated in the light of up-dated criteria, firmed up and implemented faster.

12. Parking

Parking is so important that we have produced a separate TfGB ***Parking Plan for Bristol*** – covering **on-street parking, Park&Ride, Workplace Parking Levy, Residents (and Businesses) Only Parking Zones**, and more. Parking control is part of the traffic management armoury. By contrast, secure on-street cycle parking must be greatly expanded.

13. Motorways and National Primary Routes

The M4 and M5 motorways will continue to act as the Bristol's national connectors and in parallel its bypasses. Next below in the regional road hierarchy, the M32 and the National Primary Routes A4, A38 and A370 link the city centre's Inner Ring Road to this national network, but need not stay exactly as they are at present.

The **M32** in particular may now be seen to have been a planning mistake that has encouraged general traffic to pour into inner Bristol. We recommend it be de-motorwayed, and its now decaying concrete grade-separated junctions be replaced as surface-level signalled cross-roads. As Bristol moves towards being a largely car-free city, then within the built-up area the space taken by hard shoulders, centre reservations and slip roads will not be needed, and can be reallocated to **tram lines, segregated cycleways**, and separate routings for electric buses, electric service and delivery vehicles and the disabled. At the outer end there will be a **Park&Ride**. Along some stretches will be space for amenity (perhaps inspired by New York's Highline). A comparable approach is envisaged for Bristol's other 'high standard' highways: the **Avon Ring Road, Easton Way/St Philips Causeway, Bond**

St/Temple Way. The replacement for **Brunel Way** partially will differ, being a high-level river crossing.

In the interim, some limited use of these roads by cars can be retained as intermediate stages. These stages might include being long-distance general traffic feeders towards central Bristol, but with levels of commuter and shopper car traffic much reduced for the benefits of Bristol residents and their air quality. This is perfectly possible, given a combination of TfGB's ***Rapid Transit, Bus*** and ***Parking Plans*** , and **de-motorisation of the M32**. The speed limit should become 30mph, with traffic signals and **surface pedestrian crossings** at junctions, in order to decrease both road accident rates and community severance. Initially, **Park&Ride MetroBus** services using bus-lanes should use junction slip roads to create bus-stops: on the M32 at Eastgate and Easton Way **hubs**. Later, and in parallel with the removal of the grade-separated junctions, some of these services should be upgraded to tram as proposed in TfGB's ***Rapid Transit Plan***.

BRISTOL CITY SECTOR STUDIES

(The Maps for the Sector Studies are forthcoming)

1. BRISTOL CITY CENTRE

(within the Inner Ring Road).

See Bristol City Centre, Map 2.

Problems

- Bristol has a relatively low-density and spread city centre, with distinctively different parts (thus reflecting the city as a whole). Increasingly high density better-off and student housing burgeoning in parts. This affects both travel **behaviour** and residents' expectations.
- Illegal levels of **air pollution**, in great part due to vehicle exhausts, tire and road-surface wear – thus, to traffic level.
- Excessive **traffic noise and severance**: notably along the Inner Ring Road at Triangle, Park Row/Upper Maudlin St/Marlborough St (by the BRI hospital), Bond St and Temple Way; but within that ring also at the Centre, Haymarket, the Bearpit, Bristol Bridge, Baldwin St, Station Approach, Anchor Rd, Lewins Mead/Rupert St/Nelson St, High St and Union St..
- The **Inner Ring Road** is hard to cross walking or cycling, and is inappropriate in its northern narrow section.
- Poor **interconnectivity** between Broadmead and Centre.
- Poor public transport links to and facilities at **Temple Meads station**.
- Discontinuous safe **cycling** and **walking** movement networks.
- An **incoherent bus** network, and too many buses terminating in the central area creating congestion, obstruction and pollution.
- **No high capacity** rapid transit/tram system.
- No attempt to map or constrain **rat-runs** or cross-centre **through-traffic**.
- 1960s(?) one-way 'gyratories' at **Dowry Square/Cumberland Basin, Triangle** and **Old Market/West St.** around the Inner Ring Route creating environmentally sterile conditions to adjacent local neighbourhoods in Hotwells, Clifton and St. Judes.

Opportunities

- Immediate 'pop-up' **Covid 19 measures** about to be implemented (see <https://news.bristol.gov.uk/news/pandemic-accelerates-revamp-of-bristols-transport-network>).

- As a result, more political will to enact **walking and cycling improvements**.
- **Bus operations** now (temporarily) under public control.
- Growing awareness of need for **air pollution** action.
- The delayed **Temple Meads** improvement intentions.
- The proposed replacement of **Plimsoll Bridge (Brunel Way)** at Cumberland Basin.

Analysis and proposals

Policy.

- **Bristol's City Centre Plan**, rather than simply having a policy of 'reducing the level of traffic entering the heart of the city' (para. 7.6), should offer detail as to how this is going to be achieved, since this will have an impact on adjacent site development. The following new policies should be included:
- Adoption of either Road User Charging or a **Workplace Parking Levy** (for businesses with more than 5 parking places).
- **Closure of through-routes** across the city centre. Bus-gates and other access gates for permitted access and emergency vehicles can take any appropriate form, but must be enforced.
- Actually enact the Council's stated '**transport hierarchy**' of pedestrians, cyclists, public transport, freight and only then cars.
- Create parallel networks of safe and attractive **walking routes** and **cycle routes** into and across the city centre.
- No more temporary public **carparks** to be permitted.
- **Integrate** the Council's Planning, Traffic Management, Public Transport and Parking policies; not operate them within independent Council departmental silos as traditionally.
- Make Bristol's city centre able to hold its head up to its **European** twinned cities Bordeaux and Hannover.
- Improve conditions at the Inner Ring Road over-loaded traffic **gyratories** at **Cumberland Basin, Triangle and Old Market**.

Measures, by transport mode.

- *The car: the road hierarchy.*
 - The **Inner Ring Road** (Scope Route: Bond St–Temple Way–Temple Gate–York Rd–Coronation Rd–Brunel Way–Hotwell Rd–Jacobs Wells Rd–

Triangle–Park Row–Upper Maudlin St–Marlborough St) must be rethought – the current version is over-congested and especially poor around the **BRI**. It must be rendered both more efficient but its environmental impact minimised. This may be achieved by a 20 mph limit, banned right turns, tram/bus lanes, tree planting, parallel segregated cycleways, widened footways, wide pedestrian crossings with a longer pedestrian phase, and improved traffic signing (including access routes; see below). Traffic congestion and air pollution might be reduced on the narrow segment passing the BRI by installing a one-way bus-gate on **Perry Rd** (allowing general traffic in the opposite direction), paired with an equivalent but opposing one-way bus-gate on the alternative Lewins Mead/Anchor Rd/Jacobs Wells Rd route (perhaps by St Mary on the Quay in the Centre); which way round such a one-way gyratory operated is open to debate; but much of the Perry Rd would require a ‘green wave’ bus/tram priority traffic signals system. To ease congestion of a different segment of the IRR, perhaps **York Rd** might be operated one-way, paired with **Clarence Rd**.

- The rest of the city centre should be **closed** to other than buses and trams, and servicing access.
- *The car: local traffic management.*
 - The plan requires a scheme for **vehicular servicing access routes** into the city centre (para. 7.6 of the Bristol Central Area Plan refers to ‘vehicular access zones’). These should take the form of one- or two-way access **loops** from the Inner Ring Road. These should close general through-traffic and rat-run options.
 - Existing cross-centre routes and rat-runs thereby **closed** need to include: **Baldwin St/Park St; Counterslip/St Thomas St/Redcliffe St; Merchants Rd Bridge/Cumberland Rd; St George’s Rd/Frog Lane/Trenchard St/Colston St..** Remove through-traffic from **Nelson St, Union St. and Lower Maudlin St.**
 - **Cyclists allowed two-way** throughout.
 - Agree a **replacement** of the deteriorating **Plimsoll Bridge (Brunel Way)** at Cumberland Basin that is low speed, and removes general traffic from **Merchants Rd Bridge** and **Dowry Square**. A two-way solution is required via **Cumberland Basin Rd** and **Christina Terrace**. **Dowry**

- Square** can be closed at Cumberland Basin Rd; and **Merchants Rd Bridge** become a bus-and-cycle gate.
- Protect the semi-pedestrianised Spike Island part of Harbourside by cutting the **Cumberland Rd** rat-run (recently physically closed because of New Cut river embankment collapse) at Merchants Rd Bridge.
 - Remove the gyratory at the Triangle, and make **Triangle East** a bus (future tram) **hub**; general traffic two-way via Triangle West and South.
 - On the environmental improvement of **Old Market**, see Sector Study 5 (Inner East Bristol, p. 47).
- *Bus/tram routes.*
 - See TfGB's *Rapid Transit Plan*. The bus and future **tram network** must be agreed, including in the city centre.
 - The present usage by buses of **Horsefair/Penn St, Broad Quay, Thunderbolt Square** and **Nelson St** is unnecessarily intrusive and should cease. Too many buses crowd into the Centre. A **reorganisation of the bus system** into trunk, orbital and feeder will mean not all routes go to the city centre any longer.
 - Integrated '**bus (tram) hubs**' must be defined, allowing easy interchange between routes: at **Centre, Haymarket, Cabot Circus, Old Market, Temple Meads** and **Triangle East**.
 - A simplified bus/tram **City Centre Loop** circuit serving the above **public transport hubs** would be **Bond St–Temple Way–Victoria St–Baldwin St–Centre–Lewins Mead–Haymarket**. (A routing via Redcliffe Way/Redcliffe Bridge/Prince St rather than Victoria St/Bristol Bridge/Baldwin St is an option, but is less useful). This circuit could be one- or two-way (preferably the latter) and is suitable for high capacity trams. See TfGB *Bus Plan* and *Rapid Transit Plan*.
 - The **hubs** should be designed as properly integrated interchanges (as partially already at Old Market and @Bristol). The **City Centre Ring** bus (and future tram) service via Temple Way should have interchange stops on the slip-roads at the **Old Market hub** (as already exists for some other services). The Triangle should be a two-way bus-only hub at **Triangle East**.
 - A **City Centre Circular Bus**, operated as a circular route perhaps by smaller vehicles, would improve circulation for disabled people and others, especially to BRI, Triangle and Penn St. A suitable route might

be **Triangle**–Park Row–BRI–Lower Maudlin St–Horsefair– Penn St–Tower St–Counterslip–Temple Back–**Temple Meads** (either via Temple Back East or Friary)–Redcliffe Way–Prince St–**Centre**–Park St–**Triangle**. This would require some carriageway remodelling at Haymarket and Friary, with segregated cycleways if possible.

- Some **inner city feeder and sub-radial bus services** could for service efficiency, and to reduce bus nuisance in the Centre, turn back at the first city centre hub (see TfGB *Rapid Transit Plan*). This is possible where turn-around facilities exist or could exist: as they do at Old Market (roundabout), Stokes Croft (Bearpit roundabout), Triangle (the Triangle), Temple Meads (Friary turn-back, and/or Temple Back East).
- *Pedestrian zones and routes.*
 - Certain city centre **focal places** should be given over largely to pedestrians: the **Old City, Broadmead/Cabot Circus, the Centre, Harbourside, Queen Square, King St, College Green, Park St, Castle Park**. Intrusive traffic impacts should be kept away from these places, either by pedestrianisation, bus-gates or traffic management of servicing access routes. Other busy walk routes suitable for pedestrianisation are **Union St, Nelson St and Denmark St**, with controlled serving access.
 - Links between these civic spaces, and in from the suburbs, should be identified, signed and improved. Such measures are compatible with the **footway widenings** currently planned by the City Council, though these need to be more extensive.
 - **Walk routes** into the city centre crossing the Inner Ring Road must be improved at the **Triangle, Merchants Rd Bridge and Dowry Square** (see above), and just outside the zone at **Old Market** (see Sector 3) and **Bedminster Parade** (see Sector 5).
 - Signalled **pedestrian crossings** over the Inner Ring Road in general should be recalibrated to give greater time to pedestrians.
 - **Prince St Bridge** should revert to pedestrians and cyclists only, including a separate cycleway (as was the situation for many months while it was being repaired).

- The **Cumberland Basin** end of Harbourside must be calmed, with general traffic removed from both **Dowry Square** and **Merchants Rd Bridge** (see above).
- Cycleways across the pedestrianised **Centre** are inappropriate and threatening to pedestrians. They should be removed, replaced by **cycleways** alongside the carriageways, and cyclists obliged to **dismount** through the pedestrian areas. The cycleway and parallel footpath through Castle Park are better designed; a watching brief is required there re **cyclist–pedestrian conflict**.
- *Cycle routes.*
 - The Plan is compatible with the city-wide strategic **cycleway map** produced by the Bristol Cycling Campaign and informally adopted by Bristol City Council, which now however needs updating in the light of new government design requirements. Several stretches of new segregated cycleways are required alongside and crossing the **Inner Ring Road** and over the **river bridges**.
 - And equally compatible with – but more extensive than – the ‘**pop-up**’ **measures** currently proposed by BCC.
 - Particularly important (and additional to BCC’s proposals) are improved **cycle crossings of the Inner Ring Road** at for example the Bearpit, Bath Rd Bridge, Bedminster Bridge, Dowry Square and the Triangle.
 - The link between Broadmead and the Centre via **Nelson St** is poor, but can be improved by the removal of buses (see above). But it and **Union St**, if pedestrianised, would require segregated cycleways so as to minimise pedestrian–cyclist conflict.
 - Each of the above hazardous points probably puts off many potential cycle commuters and city centre visitors.
 - On **pedestrian–cyclist conflict** in the city centre, see above.
 - Roadside **segregated cycleways** are required alongside the Centre and the rest of the bus/tram city centre circuit as proposed in TfGB’s ***Rapid Transit Plan***, including **Victoria St, Bristol Bridge, Baldwin St** (where it already exists), **Lewins Mead, Haymarket, Bond St, Temple Way**, the **Old Market St roundabout, Temple Gate**; plus along or parallel to the rest of the Inner Ring Road and its bifurcations as proposed in this Plan namely **Bath Rd Bridge, Clarence Rd** (where it exists), **Bedminster**

Bridge, Commercial Rd, Cumberland Rd (where it exists), Merchants Rd bridge, Hotwell Rd (where it exists), Anchor Rd (where it exists), Jacobs Wells Rd, Triangle, Park Row, Upper Maudlin St and Marlborough St.

- *Parking control.*
 - No traffic management plan will work without control of commuter and shopper car parking; yet no comprehensive Parking Plan exists. See TfGB's *Parking Plan*. For the city centre five threads are relevant:
 - a **Workplace Parking Levy** (the option of a Congestion Charge might work);
 - completion of the **Residents & (Businesses) Only Parking Zones programme throughout inner Bristol**;
 - the wholesale **removal of on-street parking** in the city centre apart from disabled and loading bays;
 - no permission for **temporary car parks** on vacant land;
 - a reform of the parking clauses of **development control policies**.

All these modal design considerations must be pursued in parallel, leading to an *iterative design process*, initially implemented through **temporary experimental traffic management measures**. The plan offered here is a first attempt at a resultant city centre traffic management plan, and is offered for discussion.

2. INNER NORTH-EAST BRISTOL (ST PAUL'S, ST WERBURGH'S, MONTEPELIER, ST ANDREWS, ASHLEY DOWN, EASTGATE).

(between the M32, A38 Gloucester Rd and B4469 Muller Rd).

See North-East Bristol, Map 3.

Problems

- A relatively high-density residential zone of very mixed social characteristics, ranging from well-to-do in the north, to poor in the south and east with some BAME localities but scattered gentrification – all of which affects transport **behaviour**.
- The inner parts (St Paul's, St Werburgh's, Eastgate) lie within Bristol's worst and illegal **air pollution** zone (map available at using <https://opendata.bristol.gov.uk/pages/air-quality-dashboard-new/air-quality-now#map>). Much of it comes from the M32 which flanks the area; but a lot too from external through-traffic using the area's internal roads.
- No attempt to map or constrain **through-traffic** and **rat-runs**, notably parallel to or accessing M32 and A38. This is the area's worst traffic issue – not untypical for inner city areas imposed upon by suburban car commuters.
- Resultant excessive **traffic noise and severance** (notably alongside M32/A4032/A4044 Newfoundland St–Bond St, on A38 Stokes Croft–Cheltenham Rd–Gloucester Rd, B4464 Muller Rd, B4052 Ashley Down Rd, B405 Ashley Rd–Lower Ashley Rd, and the lesser classified City Rd, Sevier St–York St–James St–Glenfrome Rd, Magdalene Place, Mina Rd southern part, Somerville Rd, Chesterfield Rd–Cromwell Rd).
- Road **accidents** are relatively high in this area, partly perhaps because of the level of pedestrian activity but also rat-running.
- **M32** hard to cross walking or cycling (thus poor **interconnectivity** between St Paul's/St Werburgh's and St Jude's/Easton).
- Poor **bus** service for St Werburgh's/Eastgate areas, and highly unreliable due to rat-run traffic congestion along bus route 5.
- Relatively good **cycling** and **walking** provision – including the Concorde Way to UWE – except where using or crossing main traffic routes. Some otherwise convenient routes are plagued by traffic.
- Excessive **commuter car parking** in St Werburgh's, and to a lesser extent in St Andrew's/Bishopston. (The existing Residents Only Parking Zones are St. Paul's and Montpelier; see <https://www.bristol.gov.uk/parking/map-of-scheme-areas>).

Opportunities

- Immediate ‘pop-up’ **Covid 19 measures** about to be implemented or being discussed in Stokes Croft and Mina Rd minor shopping centres.
- Very variable community **political influence**, with wealthier northern part of zone contrasting with the southern.
- **Bus operations** now (temporarily) under public control.
- Growing awareness of need for **air pollution** action.

Analysis and proposals

Policy.

- An **M32 Park&Ride** service to bring its traffic levels down. See TfGB *Rapid Transit Plan*.
- **Closure** and/or mitigation of **rat-runs** through this part of the inner city. Much of this traffic is coming from the outer city or beyond.
- Reduce **severance** of the **M32**. Put a segregated cycleway alongside the M32.
- Improve **bus services** to St Werburgh’s/Eastgate.
- Calm the A38 Gloucester Rd–Stokes Croft **Bus Priority Route**.
- Remove car **commuter parking**.
- Improve walking and cycling conditions.
- **Protect** this area. Most of the traffic comes from outside.

Measures, by transport mode.

- *Car: the road hierarchy.*
 - The M32:
 - In the future, the space taken by hard shoulders, centre reservations and slip roads will not be needed, and can be replaced by tram lines, segregated cycleways, and separate routings for electric buses, electric service and delivery vehicles and the disabled. At the northern end there will be a Park&Ride. Along some stretches will be space for amenity (perhaps inspired by New York’s Highline). (A comparable approach is envisaged for Bristol’s other ‘high standard’ highways: the Avon Ring Road, Easton Way/St Philips Causeway, Bond St/Temple Way, and Brunel Way).

- As Bristol moves towards being a largely car-free city some limited use by cars of the former M32 should be retained as intermediate stages. These stages might include being a long-distance general traffic feeder towards central Bristol, but with the level of commuter and shopper car traffic much reduced for the benefits of Bristol residents and their air quality. This is perfectly possible, given a combination of TfGB's *Rapid Transit, Bus* and *Parking Plans*, and **de-motorisation of the M32**.
- When funds allow, the structurally aging **grade-separated junctions** of the M32 should be replaced by surface signalled cross-roads.
- In the interim, an **M32 Park&Ride MetroBus** service using bus-lanes on the M32 should use the junction slip roads to create bus-stops at Eastgate and Easton Way **hubs**, later upgraded to tram as proposed in TfGB's *Rapid Transit Plan*.
- The speed limit of the (ex-)M32 should become **30mph**, with traffic signals (existing) and **surface pedestrian crossings** at its junctions, in order to decrease both road accident rates and community severance.
- On environmental and access grounds, local **distributor roads** connecting to the M32 legitimately include:
 - **Muller Rd** (for the northern part of this area), and **Lower Ashley Rd** and **Stokes Croft** for the southern part.
 - At **Mina Rd**, the M32 junction 3 slip-road should link only into **New Gatton Rd** for industrial access; not Mina Rd or Gatton Rd.
 - A watching brief should be maintained in St Paul's on through-traffic usage of **Portland Square**, but also **Brunswick Square** and Newfoundland Rd, and remedial traffic management undertaken as necessary (leaving cycling as two-way): the obvious option is to pedestrianise the two squares.
- The A38, a major shopping centre in its **Gloucester Rd** section, needs proper **Bus Priority treatment**. This could legitimately include a bus-gate (allowing servicing access and cycles), say between Raglan Rd and Claremont Rd. Or else **Mixed Priority Route** treatment (with footway widening, removal of on-street parking except for disabled and loading bays between Somerville Rd and Cromwell Rd, and bus pre-signals on bus-lanes approaching this stretch from both north and

south. Alternatively again, there should be a ‘green wave’ bus/tram priority traffic signals system. The design should be consulted on with retailers and residents, First Bus and the police: but the principle should be stuck to, for the wider city’s good. Traffic management treatment of connecting roads notably **North Rd** and **Belmont Rd** paralleling Gloucester Rd may be required, to prevent the worsening of alternative potential rat-running: achievable through local road closures or alterations to existing one-way controls.

- *Car: local traffic management.*

- The major rat-runs through the area – so gross as to have become quasi-official with B-classification – must be stopped:
 - **Ashley Down Rd–Ashley Hill** (in 1997–7, 12 hour two-way flow of 15,000 vehicles – greater than that of A38 Gloucester Rd) can be closed between Ashley Court Rd and Chesterfield Rd, greatly to the benefit of air quality, severance and traffic delays in Montpelier, St Paul’s and St Werburgh’s at Sevier St/Sussex Place and Lower Ashley Rd/Sussex place junctions, and relieve also a **Chesterfield Rd–Somerville Rd** rat-run which currently impacts upon a junction on Gloucester Rd. Both routes are used as a quick cut to the M32. Ashley Down Rd traffic can continue to proceed via **Chesterfield Rd–Cromwell Rd**, back onto Gloucester Rd beyond Bishopston; a watching brief should be held here to counteract overuse by through-traffic. To protect Montpelier, **St Andrew’s Rd** (already a minor rat-run) should be closed at Cromwell Rd; allowing the Richmond Rd closure to be reopened to improve circulation within Montpelier. Ultimately, it might prove desirable to put a bus-gate for the bus no. 70 service on **Cromwell Rd** at Chesterfield Rd (or at Somerville Rd – subject to local discussion), in order for Somerville Rd–Cromwell Rd not to become a de facto bypass for a closed Gloucester Rd (see below).
 - **Sevier St–Glenfrome Rd** (in 1997–7, 12 hour two-way flow of 9,000 vehicles) is used as an alternative route when the M32 is congested; it can be closed by a bus and cycle gate at the railway bridge (between Eastgate Rd and St Werburgh’s Rd), greatly to the benefit of air quality at St Werburgh’s Primary

School, and air quality, severance and traffic delay (as for Ashley Hill, above). Eastgate would retain access to the city centre via both the M32 and Stapleton Rd.

- **Lower Ashley Rd–Ashley Rd** (in 1997–7, 12 hour two-way flow of 9,000 vehicles) likewise is used as a cut-through to the M32; it could be closed by a bus–gate at Albert Park, in order to end this orbital official rat–run that so impacts upon St Paul’s. Lower Ashley Rd, Ashley Rd and **City Rd** would continue to act as local distributors, but no longer as through–routes.
- **Sussex Place**, in the middle of St Paul’s, is an over–congested street connecting multiple rat–runs but would be largely solved by the cutting of Ashley Hill and Glenfrome Rd (see above).

Each of these closures should be made permeable by cycles. All would make good cycle and walk routes (though Ashley Hill is steep) without further investment.

- A lesser rat–run needing treatment is **Magdalene Place**, paralleling Sussex Place; close between Southey St and Morley St.
- Other measures may be known locally to be desirable in the area at the northern ends of Ashley Down Rd and Muller Rd towards Horfield, around the cricket ground and the Memorial stadium.

- *Bus/tram/Rapid Transit.*

- M32 – see above, and TfGB’s ***Rapid Transit Plan***. The M32 will eventually become a **tram** route, with interim stops at the public transport **hubs** Eastgate and Easton Way/Lower Ashley Rd.
- The A38 **Gloucester Rd/Cheltenham Rd/Stokes Croft** should become a **Bus Priority route** – later a **tram line** (see TfGB ***Rapid Transit Plan***) – with **tram–gates** in its two centres, Bishopston and Stokes Croft.
- A new **MetroWest station** is planned for **Ashley Down**, off Muller Rd at Station Lane/Station Rd; improved services at Montpellier station.
- The current infrequent, and delayed through traffic congestion, **bus service 5** can be replaced by a 15 minute shuttle between the two **public transport hubs** of Stokes Croft/Bearpit and the Eastgate Centre.
- Note that TfGB’s ***Bus Plan*** proposes an **Inner Ring orbital service** along City Rd and Lower Ashley Rd: providing a service to BRI, Bearpit/Haymarket, Easton and AvonMeads, and interconnecting with radial bus/rapid transit routes on the M32 and A38. New bus–stops

required at the M32 and in Stokes Croft (see TfGB *Rapid Transit* and *Bus Plans*).

- Bus no. 70 emerging from Cromwell Rd is delayed at the **Arches** by through-traffic usage of Cromwell Rd; install **bus-triggered traffic signals**.
- For a **Middle Ring orbital bus service**, bus-lanes and/or bus-triggered signals would be required on **Muller Rd** (see TfGB *Rapid Transit* and *Bus Plans*).
- Improve the **visibility of Montpelier station** from Gloucester Rd.
- The current location of **bus-stops** along the A38 corridor has been more determined by traffic conditions than for passenger convenience. Bus interchange often is inconvenient. Review the bus-stop locations.
- *Pedestrian zones and routes.*
 - On the environmental improvement of the A38 suburban shopping centre in **Bishopston**, and **Stokes Croft** nearer the city centre, see above.
 - **Mina Rd** at its shops should be calmed by the removal of its M32 access point.
 - The poor links to Easton will be improved by the changes proposed for the **M32** (above), making its crossing far more simple and less stressful.
 - On walking alongside the current rat-runs, see above. Air pollution there would be greatly decreased.
 - Both **Brunswick Square** and **Portland Square** are obvious candidates for pedestrianisation (currently they are emergent rat-run routes).
- *Cycle routes.*
 - **Gloucester Rd/Cheltenham Rd** is a de facto major cycle route, but largely lacks cycling provision. As a Bus/Tram Priority Route (see above) the options for cycle provision would seem to be either a **segregated cycleway** along the A38, or else **calmed cycle routes** in parallel (eg. **North Rd** in Bishopston), or as likely a combination of the two with a segregated cycleway on the A38 southwards from North Rd to the Bear Pit. This should be subject to local consultation.
 - The **Concorde Way** cycle route can be improved by the traffic management of **Mina Rd** (see above).

- The direct *de facto* on-road cycle routes via City Rd, Ashley Rd, Lower Ashley Rd and Glenfrome Rd would be greatly enhanced by the rat-run traffic control measures outlined above.
- *Parking control.*
 - A **Residents Only Parking Zone** should be applied to **St Werburgh's, St Andrew's** and **Bishopston**. Allow for disabled and servicing vehicles permits, and sell to residents as 'only £1 per week, only to car owners' (or equivalent).
 - Intrusive visitor parking around the **cricket ground** and the **Memorial stadium** may require attention.

3. SOUTH BRISTOL

(south of the River Avon).

See South Bristol, Map 4.

Problems

- East Bristol aside, the less fashionable part of the city, and thus having relatively low car ownership; but much car usage for blue-collar commuting. The relatively high-density inner-city residential zone is plagued by through-traffic from outside; the outer parts are relatively low density, but with incoming car commuter streams. Partial gentrification in Southville, Victoria Park, Totterdown and Knowle – which does affect travel **behaviour**.
- Somewhat counter-intuitively, South Bristol has considerable **air pollution**. This embraces most of Southville, Windmill Hill and the central parts of Bedminster, with thin tentacles along the main traffic routes out to the city's edge at A370 Cumberland Basin and Bower Ashton, A38 Bedminster Down, A4 Brislington and A37 inner Hengrove. Partly this is pollution blown from the city centre, but part clearly from the traffic on these roads.
- Excessive **inbound car commuting** is characteristic of the **A369, A370, A38, A37 and A4**. But also of the minor **Queens Rd/Broad Oak Hill*** into Withywood, **Stockwood Lane*** into Stockwood, **Scotland Lane** to Brislington, **Sleep Lane*** and **Maggs Lane*** through Whitchurch and **Crews Hole Rd*** into St Anne's, each of which are effectively country lanes (those marked with an asterisk lying within or crossing into neighbouring authorities).
- Much of South Bristol's traffic is however **local blue-collar journeys to work**, impacting particularly in congestion on **Winterstoke Rd, Hartcliffe Way, St John's Lane, Whitby Rd and Broomhill Rd**.
- The area has major concomitant **road congestion**, with almost daily stand-stills at most of the major junctions along each of the major roads through the area, but also along lesser distributor roads like **St John's Lane, St Luke's Rd, Whitby Rd, Broomhill Rd, Talbot Rd**. This is unpleasant for immediate residents (see below).
- Legitimate **distributor roads** and informal **rat-runs** operate indiscriminately.
- The resultant excessive **traffic noise and severance** is patchy but real.
- **Radial bus** services are for the most part comprehensive, but can be subject to severe traffic delays; **orbital services** – suitable for local employment journeys – are poor or non-existent.

- **Cycling and walking** provision is good in some areas, notably to Southville and south-westwards out into the countryside (due to local lobbying), but poor elsewhere including the A38, A37 and A4 corridors.
- **Commuter car parking** is a problem in Windmill Hill. (The existing RPZs are Southville, Bedminster East and Bower Ashton).

Opportunities

- Immediate ‘pop-up’ **Covid 19 measures** about to be implemented in Bedminster Parade shopping centre.
- Very variable community **political influence**, with wealthier north-western part of zone contrasting with the southern and eastern.
- **Bus operations** now (temporarily) under public control.
- Growing awareness of need for **air pollution** and **congestion** action

Analysis and proposals

Policy.

- Reduce inbound car **commuter parking**.
- Add a **Park&Ride site for the A37** (A370 and A4 already have them, and the South Bristol Link road allows A38 traffic to reach the former); expand all Park&Ride services.
- Calm the inner city sections of the **A38** and **A37**, both **local shopping centres**; similarly **North St** in Southville.
- **Closure** and/or mitigation of overloaded local distributor roads operating as through-traffic **rat-runs**.
- Raise the attractiveness of **cycling** and **public transport** as alternatives to car commuting, and make **cars** less attractive.
- **Modernise** (civilise) this area; much of it seemingly in a 1950s time warp.

Measures, by transport mode.

- *Car: the road hierarchy.*
 - The principal road hierarchy is self-evident, being the radial long-distance **A369, A370, A38, A37** and **A4**, interconnected by the **Inner Ring Road** (Coronation Rd/York Rd), but also by the effective ‘Outer Ring Road’ the **A4174 South Bristol Link/Hengrove Way/Airport**

Rd/Callington Rd. Additional important orbital links are the **A4329 Winterstoke Rd** and **A4320 St Philip's Causeway**.

- However, the old A38 and A37 radials within inner Bristol between the Outer Ring Road and the Inner Ring Road, forming South Bristol's suburban shopping centres at **Bedminster Parade** and the **Wells Rd** in Knowle and Totterdown should be **Bus Priority Routes** with through-traffic disincentivised. Similarly B3120 **North St** in Southville. **East St** in Bedminster already has a bus-gate.
- Many roads interconnect within this basic pattern, and where serving immediate local access needs operate satisfactorily as local **distributor roads**. Some however have become semi-official cross-town routes, a role for which they are environmentally unsuited, hopelessly over congested, and pump air pollution into the locality and sometimes into Primary Schools. Notable in this latter group are *pseudo-radials*
 - **Whitby Rd**,
 - **Sandy Park Rd** and **Broomhill Rd** (paralleling the A4 through Brislington/Broomhill);
 - **St Luke's Rd** and **Redcatch Rd** (paralleling the A37 in Totterdown),
 - **Dean Lane** and **Whitehouse Lane** (each paralleling Bedminster Parade);plus the *pseudo-orbitals*
 - **North St** through Southville,
 - **St John's Lane** through Victoria Park,
 - **Talbot Rd** through Knowle, and
 - **Wick Rd** through Brislington.

Their current usage not only is very inefficient in transport terms, but bad news for adjacent residents. They need to be constrained.

- More localised rat-runs requiring treatment include **Novers Hill** in Knowle West. There are also the unsuitable **country lanes** (cited above) feeding car commuters across the city's southern boundary and likewise requiring treatment.
- A quasi-official outer orbital route exists between the A4 and East Bristol via **Wick Rd** in Brislington – **Newbridge Rd** – **Netham Bridge** – **Blackswarth Rd** – Redfield. While not particularly suited to this usage it may have to continue, since it is the only local orbital for the outer suburbs; if usage becomes excessive it may require action. The A4320

(St Philips Causeway) and A4174 (Avon Ring Road) offer more distant alternatives.

- *Car: local traffic management.*
 - The principal over-trafficked distributor roads requiring treatment are therefore:
 - **St John's Lane** (in 1997–7, 12 hour two-way flow of over 16,000 vehicles) is an extremely overused road, and adds to junction congestion on the A38 at Bedminster Rd and to the A37 at Totterdown. A possible treatment of this excessive traffic, which delays two internal bus routes, would be to cut the road in the middle, alongside Victoria Park Primary School between Wedmore Vale and St John's Crescent (Atlas Rd might need cutting at the same time): thus allowing the western half to continue to serve Knowle West via Wedmore Vale (a bus route, service 90), and the eastern to still serve Redcatch Rd (likewise a bus route, service 91); while disallowing east–west through-traffic, and the diagonal traffic between Bedminster and Redcatch Rd/Knowle. A watching brief would need to be kept on parallel Wingfield Rd and Daventry Rd to ensure traffic did not simply transfer.
 - **St Luke's Rd** (in 1997–9, 12 hour two-way flow of 11,000) acts as a 'bypass' to the A37 Wells Rd. While part of the St John's Lane system, it probably would not be sufficiently cleared by the latter's closure (its actual traffic sources have not been identified but probably include Redcatch Rd). It creates considerable congestion on the Inner Ring Road by its junction with York Rd. If cut at the railway bridge, it would continue to give industrial access into Mead St from the Inner Ring Road.
 - **Whitby Rd**, an industrial access road used as a pseudo-radial commuter route and daily jammed solid at rush hour (traffic unmeasured). Considerably adds to the congestion already evident around Netham Bridge over the Avon at Feeder Rd; but also to St Philips Causeway in Arno's Vale. Could be cut at the railway bridge: thus continuing to allow unhindered industrial access at either end, from Feeder Rd and from St Philip's Causeway.

- **Broomhall Rd**, the residential distributor for Broomhill, but used as a commuter pseudo-radial (traffic unmeasured) parallel to and connecting to the A4, and adding to junction congestion on the A4 at both Arno's Vale (via Sandy Park Rd in Brislington, 8,000 vehicles) and at Brislington Park&Ride. Could be closed with a bus-gate (service 96) at Ironmould Lane: thus preserving (and easing) industrial access into the Brislington Trading Estate from the A4 via Emery Rd. This closure would give some relief also to both the Sandy Park Rd and Feeder Rd pseudo-radials which currently feed it.
- **Talbot Rd**, a de facto orbital link between the A37 at Broadwalk and the A4 in Brislington, adding to junction congestion to both. Its usage (rather than the A4174 Callington Rd Outer Ring Road) penetrates residential Knowle and encourages yet more South Bristol driving. It could be cut between Buller Rd and Lodway Rd: thus dividing it between a Knowle local distributor and a Brislington one.
- On **Dean Lane** and **Whitehouse Lane** see Bedminster Parade (below) as a Bus Priority Route and pedestrian focus.

Each of these rat-run closures (**St John's Lane**, **St Luke's Rd**, **Whitby Rd**, **Broomhall Rd**, **Talbot Rd**, **Dean Lane** and **Whitehouse Lane**) should be made permeable by cycles. Most would make would **good walk and cycle routes** without further much investment (though Talbot Rd is steep), with their danger and pollution reduced. However, **St John's Lane** probably could remain trafficked in its western part towards Wedmore Vale, and its eastern part towards Redcatch Rd; a segregated cycleway might be advisable along its wider western end, and alternative signed cycle routes signed via Littleton Rd/Weymouth Rd in the west, and Almorah Rd/Hill Ave/St Luke's Rd in the east.

- Country lanes used to rat-run across the city boundary – **Queens Rd/Broad oak Hill*** into Withywood, and **Sleep Lane*** and **Maggs Lane*** in Whitchurch – should be cut. **Stockwood Lane*** connecting Stockwood and Keynsham probably likewise. In each case suitable main road alternatives exist (* indicates a highway external to Bristol's control). Liaison with North Somerset and B&NES Councils required.

- Three internal narrow country lanes, become rat-runs but entirely inappropriately, and which interrupt local public open spaces, are **Scotland Lane** (by Stockwood open space), **Novers Hill** (by Northern Slopes), and **Crews Hole Rd** (by Conham riverside). Each can be stopped up. Crews Hole Rd/Conham Rd (5,000 vehicles), now a housing distributor road, lies on the north bank of the Avon but is fed by Whitby Rd (and Feeder Rd running north of the Avon but south of the Feeder Canal); it should be closed beyond Niblett's Hill where the riverside cycleway coincides. This would allow the riverside carpark still to be approached from Hanham; a watching brief should be kept on Troopers Hill Rd and Niblett's Hill which likewise could be cut.
- Other measures may be known locally to be desirable. In St Anne's, an example is **Langton Court Rd** (a commuter rat-run parallel to the Wick Rd distributor) which should be closed at the railway bridge. Windmill Hill suffers persistent unresolved commuter through-traffic, curable by cutting **Cotswold Rd** between Dunkery Rd and Brendon Rd. There will be examples in the outer parts of South Bristol – in Ashton Vale, Highridge, Bishopsworth, Withywood, Hartcliffe, Knowle West, Hengrove and Stockwood – and around the Ashton Gate Stadium. These outer residential areas however are generally less traffic-ridden than inner Bristol.
- Pedestrianise the historic 150 year old **Clifton Suspension Bridge** designed by I.K.Brunel. A closure required not just for congestion and traffic restraint, but as a major civil engineering and tourist improvement. This would reduce traffic on the A369 but also within Clifton, be a boost to a major tourist site, and would relieve this historic structure from the physical stress that it must be under (and which will eventually lead to its ultimate retirement anyway, at greater repair cost).
- Collectively, the above measures probably would ease **flows on the main hierarchy routes** through South Bristol – even if initially adding to their total flows – by easing sundry of their **junctions**.
- Unless these traffic issues are dealt with, there will be limited **incentive** for South Bristolians and North Somerset and B&NES car commuters to **change their habits**. Personal fitness, city air pollution and social severance will continue to deteriorate. We deserve better.

- *Bus/tram/rapid transit routes.*
 - Initiate an **A37 Park&Ride** bus service, if necessary on a temporary P&R site.
 - **MetroWest stations** are planned or required for **Ashton Gate** and **St Anne's**, and far more frequent services through **Bedminster** and **Parson St stations**.
 - The TfGB ***Rapid Transit Plan*** proposes tram routes for the A4 **Bath Rd**, A37 **Wells Rd** and A38/A4174 **Bedminster Parade/Hartcliffe Way**. Each will interconnect with orbital bus services, run via suburban hubs, and each have access to Park&Ride city-edge carparks. In the interim, each is a trunk radial bus service and should be furnished as far as possible with continuous bus-lanes (or bus-triggered signals if this is disallowed by road width). On-street parking should be removed. Eventually, install a **tram-gate** at **Bedminster Parade**, or perhaps rather a 'green wave' bus/tram priority traffic signal system. **Bath Rd** and **Wells Rd** likewise should have a 'green wave' bus/tram priority traffic signal system. Provide a parallel segregated cycleway, or else a calmed parallel back-street cycle route.
 - TfGB's ***Bus Plan*** proposes an **Inner Ring** orbital bus service from Long Ashton Park&Ride, via Bower Ashton (for Ashton Court and Ashton Gate Stadium) – North St – Bedminster Parade hub – Temple Meads hub (or Sheene Rd – St John's Lane – Wells Rd – Broadwalk Knowle hub – Talbot Rd/Kensington Pk Rd – Bath Rd), Arno's Vale – St Philips Causeway to AvonMeads, Easton and beyond. This would require some bus-priority measures: bus-triggered signals at Sheene Rd, and bus-lanes on St Philips Causeway.
 - Also a **Middle Ring** orbital bus service from Long Ashton Park&Ride, via Bower Ashton (for Ashton Court) – Winterstoke Rd (for Ashton Gate Stadium) – Bishopsworth Rd – Bedminster Down –Whitchurch Rd – Hareclive Rd – William Jessop Way bus-gate (or via Hartcliffe Way) – Hengrove Pk Hosp. hub – Whitchurch Lane – Imperial Pk – Hengrove Way (for Hengrove Leisure Centre) – Airport Rd – Callington Rd – Brislington P&R hub – Bristol Hill – Wick Rd – Newbridge Rd – Netham Bridge to Redfield and beyond. This would require some bus priority measures, including bus-lanes on Winterstoke Rd, Hartcliffe Way, Hengrove Way and Callington Rd, and bus-triggered signals on Newbridge Rd and at Netham Bridge.

- The suburban centre of **North St** in Southville would benefit environmentally by a bus–gate (as locally being discussed), perhaps at the Tobacco Factory. This might necessitate the cutting also of the parallel Duckmoor Rd (between Raleigh Rd and Durnford St).
 - Install **bus–triggered traffic signals on Sandy Park Rd** for right–turning bus no. 1 into Bath Rd.
 - Improve the **visibility of Bedminster station** from East St and Malago Rd, and of **Parson St station**.
 - The largely car–dependent retail centres at **AvonMeads** in St Philip’s and **Imperial Park** in Hartcliffe, as well as the superstores Tesco’s on Callington Rd and Sainsbury’s on Winterstoke Rd, plus Hengrove Leisure Centre on Hengrove Way, all would be served by either the Inner Ring or Middle Ring bus orbital proposals.
- *Pedestrian zones and routes.*
 - **Bedminster Parade** is an important local shopping centre but is over–trafficked and needs to become calmed as well as Bus/tram Priority. On–street parking (apart from loading and disabled bays) should be removed (but not all off–road car parks subjected to closure for redevelopment), footways widened, a separate cycleway provided. Ideally this street would be bus– (later tram) and–access only. Ultimately that should be possible, since for local movements **Dean Lane/Catherine Mead St/St John’s Rd** offers an alternative for low traffic levels (longer–distance traffic should use the A370). But the overused **Dean Lane** should be cut at Holy Cross Primary School: still allowing Dean Lane/Stackpool Rd to serve Southville, and St John’s Rd/Catherine Mead St./Dean Lane serve Azda superstore and southern Bedminster. **Whitehouse Lane** could be cut north of Philip St, as currently the lane – an industrial service road – is used as a rat–run.
 - **Wells Rd** at both Broadwalk in Knowle and again in Totterdown likewise is a shopping street but over–trafficked. It too requires environmental treatment as proposed for Bedminster Parade. Ultimately, at low traffic levels, Wells Rd at Knowle (say, between Broadwalk and Redcatch Rd) could become bus–and–access–only and more of a suburban centre. At local low traffic levels, local roads can act as alternatives – but must be prevented from becoming rat–runs.

- Walk routes into the city centre from South Bristol need improvement at several bridges over the New Cut and the River Avon. Several exclusive pedestrian (and cycle) bridges exist, but three more could be created: at **Clifton Suspension Bridge** (into Clifton, a tourist site in itself), **Merchants Rd Bridge** (around the outer end of Harbourside, a leisure walk circuit; can become bus only), and **Prince St Bridge** (previously closed during lengthy repairs; around the inner end of the Harbourside walk). Cyclists crossing these bridges should be separated from pedestrians, but required to dismount on Clifton Suspension Bridge.
- On the rat-run roads, see above.
- On the riverside walk up-river, see cycling (below).

Cycle routes.

- The calming of the A38 **Bedminster Parade** and the A37 **Wells Rd** (see above) would make these main routes less unsafe for cyclists. Install segregated **cycleways** in both, or else parallel signed calmed side-road cycle-routes. Bath Rd likewise requires a parallel segregated cycleway.
- Elsewhere along the A38 and its parallel radials, cyclists can already use the bus-gated one-way **East St Bedminster** shopping street, but require provision elsewhere. **Malago Rd/Sheene Rd/Bedminster Rd** may have space for a segregated cycleway; Hartcliffe Way has one; **Whitchurch Lane** needs one. **West St Bedminster** requires more calming, though this may be partially achieved through both the cutting of Dean Lane (through still usable via Catherine Mead St/St John's Rd) and Whitehouse Lane, plus the bus/tram gate at Bedminster Parade.
- The **A4 Bath Rd** is in part paralleled by the cycle and walkway along the river Avon, between Temple Meads and either Edward Rd or St Philips Causeway (which needs a segregated cycleway) near Arno's Vale. However, a segregated cycleway is desirable along its length as far out as the city boundary if this is possible to install.
- Likewise **St John's Lane** is potentially an excellent level orbital route for cyclists if its traffic is much reduced. For cycling provision see above.

- The closure of **St Luke's Rd** to through-traffic at the railway bridge would open up a more direct on-road route for cyclists to the city centre (via a path over the Banana Bridge and through Redcliffe) from Victoria Park and Knowle West, incidentally relieving the minor rat-run along Hill Ave..
- The excellent longer-distance cycle routes out into the countryside – the Pill Path downriver, the Festival Way and Whitchurch Railway Path southwards, and the riverside path upstream along the Avon – have one blot, the last one. However, if the **Crews Hole Road** rat-run is cut at Conham riverside this will be largely rectified.
- Cycle routes from South Bristol into the city centre would be much improved by the bridge closures proposed for pedestrians (above). **Prince St Bridge** should have a segregated cycleway. **Merchants Rd Bridge** is narrow, but may be able to fit a cycleway alongside a bus-gate. Cyclists should however be required to dismount over a pedestrianised **Clifton Suspension Bridge**, due to wandering sight-seeing tourists there.
- *Parking control.*
 - Southville, Bedminster East and Bower Ashton are already **Residents Only Parking Zones** see <https://www.bristol.gov.uk/parking/map-of-scheme-areas>). This treatment should be applied also to **Windmill Hill, Totterdown** and when necessary Bedminster West and Ashton Vale. Allow for disabled and servicing vehicles permits, and sell to residents as 'only £1 per week, only to car owners' (or equivalent).
 - Within the shopping centres **East St/Bedminster Parade, Wells Rd** (at Broadwalk) and **North St** in Southville, on-street parking should be removed (except for disabled and loading bays within widened footways).
 - Intrusive visitor parking around the **Ashton Gate Stadium** may require attention, including a Residents Only Parking Zone in 'Bedminster West'. Bristol City FC interests may be against, but eventually its access needs should be met by public transport improvement including MetroWest, the proposed orbital bus services, and Park&Ride.

Assessment

One should be under no illusion that the above measures will be locally popular. Many would be resisted; however, some neighbourhood communities will be more **sympathetic**. It might be wise to start in Southville where a level of activism and support already exists: the closure of North St. has for example already been floated by local interests. One could start there; and work outwards. A parallel approach is to team up with local **Primary Schools** – as on St John's Lane and Dean Lane – affected by traffic related air pollution.

If traffic management is undertaken in parallel with **Park&Ride** expansion, **bus priority measures**, **orbital bus services**, **improved cycle routes** and **Residents Only Parking Zones**, this eventually should lead to **modal change** in South Bristol amongst both local and incoming car commuters. Care would need to be taken that **new rat-runs** are dealt with as they arise. Also, a concerted **publicity and political programme** would be required. Eventually, **parking** would need to be reduced at South Bristol's various employment, shopping and leisure destinations.

Under the TfGB ***Rapid Transit Plan***, **trams** – or at least trunk buses, served by bus orbitals and bus feeders to suburban hubs – would arrive on the **Bath Rd, Wells Rd** and **Bedminster Parade/Hartcliffe Way** routes, linked in part to Park&Ride expansion. Whether such investment is required prior to, during or after traffic management reform is a moot point. South Bristol's **MetroWest stations are likely to remain as Bedminster, Parson St. but soon reopenings at Ashton Gate** and hopefully **St Anne's**, and will help also; the anticipated reopening of the **Portishead Line** will have a dramatic effect on the consciousness of Bristolians and inward commuters about the utility of public transport – but only once the service level is at least a twenty minute frequency.

4. INNER NORTH BRISTOL (CLIFTON, HOTWELLS, REDLAND, COTHAM)

(between the R. Avon downstream and the A38 Gloucester Rd, up to The Downs).

See Inner North Bristol, Map 5.

Problems

- The fairly low density, fashionable and largely better-off zone of inner North Bristol nonetheless sees too much car usage. For students, who make up a significant element of the local population, public transport is perhaps the third option after walking or cycling. But too many other residents use their car to pop out to the shops, go to the sports centre or an evening out in town, or indeed to work. Nonetheless, many households in the inner parts do not own (or want) a car.
- Not many streets experience severe traffic problems, but some do: the A4 **Portway** (in 1997–9, 12 hour two-way flow of 34,000) and the **Brunel Way** (50,000) river crossing; and the Scope Route/Inner Ring Road **Hotwells gyratory**, **Hotwell Rd** (24,000), **Jacobs Wells Rd** (12,000), **Triangle** (29,000), **Park Row**, **Upper Maudlin St** (27,000), **Marlborough St** (28,000).
- However the true **total traffic** picture is worse, and concealed. For example, the supposed ‘corridor’ flow along the A4018 Whiteladies Rd is doubled if the Pembroke Rd (7,000) and Hampton Rd (10,000) parallel routes are taken into account. Similarly, the B4054 Cranbrook Rd (6,000) carries another half of that measured on the A38 Gloucester Rd ‘corridor’; with another 100% also on the parallel Ashley Down Rd (15,000) – see the St Paul’s, etc. Sector 2.
- Several **rat-runs** thread through Clifton, Redland and Cotham. Partly these may reflect university staff and students; partly, car-dependent residents living further out in North Bristol, partly perhaps people taking short-cuts towards employment zones elsewhere.
- Being in large part on a hill and not facing the prevailing wind, **air pollution** affects largely only those areas closer to the city centre: in Hotwells, Kingsdown, southern Cotham and alongside Gloucester Rd.
- Extraneous commuter car parking is no longer a problem for this part of town (unlike much of East and parts of South Bristol) as **Residents Only Parking Zones** completely cover it. The exception – for no good reason – is **The Downs**.

- **Bus services** are good in the main corridors: the A4018 Whiteladies Rd, and A38 Gloucester Rd. The extensive residential hinterlands however are not particularly accessible, thereby encouraging car dependency.
- **Cycle routes** into the city centre are poor, and this has as much to do with traffic as with hilliness.
- Cycling on **The Downs** – the best potential locale for family cycling in inner Bristol – is hazardous because of traffic, parking, and the resistance to cycleways on the part of the Downs Committee.

Opportunities

- The temporary reduction in traffic as a result of **Covid 19**. The Mall elite shopping centre in Clifton has been given widened footways.
- A growing awareness that **traffic might be a problem for Bristol** in general.
- Growing interest in and acceptability of **cycling**.
- The potential of the Severn Beach Line to become part of a **MetroWest** rapid transit system, with stations at Clifton Down, Redland and Montpelier.
- Try to imagine what North Bristol would be like if it were not in say Germany, Holland or Sweden, with a **socially-planned environment**.

Analysis and proposals

Policy.

- **Closure** and/or mitigation of **rat-runs** especially through the more inner parts of this rather exclusive side of the city. Much of its traffic is coming from outside – though far from all.
- Increase the **efficiency** of the main road network.
- Reduce through-traffic in the main shopping centres **Clifton Down** and **Bishopston**.
- Invest in and improve the **attractiveness** of public transport.
- Remove the anticipation that **parking** will always be possible.
- Improve **cycling** access into this part of the city.
- Enhance **The Downs**, trashed by traffic and plagued by parking.
- Better **connect** with the city centre.
- Remove rat-running from the inappropriate narrow historic streets of **Clifton** and **Hotwells**.

Measures, by transport mode.

- *Car: the road hierarchy.*
 - The **A4 Portway** from the M5, and the **Brunel Way** river crossing are legitimate National Primary Routes into Bristol.
 - The **Inner Ring Road** is more contentious in its current alignment, is over-congested, polluting, severing and directly impacts on the BRI and on this sector's part of 'city centre' – the **Triangle** and the 'West End'. It can be modified by de-emphasising this side of the IRR, partly by allowing **Lewin's Mead** to take some of the strain. A partial one-way system is possible: see TfGB **City Centre, Sector 1**.
 - The **A4018** (21,000) and **A38** (22,000) operate as main approach routes into North Bristol from the north. However, in their inner sections they are the area's main suburban centres, along **Whiteladies Rd** (16,000) and **Gloucester Rd** (15,000): these need to become **Bus Priority Routes**.
 - Acceptable **distributor roads** connecting the main routes together include the A4156 **Upper Belgrave Rd/Bridge Valley Rd** (11,000), and the A4018 **Westbury Rd** (21,000) reaching it. However, both impact upon **The Downs**, and need there to be calmed; similar applies to B4054 **Stoke Rd** (10,000) linking towards Shirehampton. **Queens Rd/Clifton Down Rd/Clifton** (8,000) connects Clifton. All would benefit from a constraint on parking (public, private and on-street) in Bristol city centre, but also around Clifton, Whiteladies Rd and Gloucester Rd.
 - Acceptable as local distributor roads, but currently greatly overused as through car commuter routes, are: B4054 **Cranbrook Rd/Linden Rd/North View** (6,000) connecting Henleaze towards the city centre; **Pembroke Rd** (7,000) in Clifton parallel to Whiteladies Rd; **Redland Hill/Redland Rd/Arley Hill** (4,000) through Redland. Their traffic can partially be restrained by restraining parking (as defined above).
 - On environmental grounds and road unsuitability, the pseudo-radials **St Michael's Hill/Hampton Rd** (10,000) parallel to Whiteladies Rd, and **Horfield Rd/Cotham Brow** (5,000) through Kingsdown and Cotham, need to be cut. Likewise the official but unsuitable orbitals B3129 **Clifton Suspension Bridge** into Clifton, and the B4051 **Dighton St/Jamaica St.** around Stokes Croft.

- A clutch of narrow and unsuitable rat-runs lead out of Clifton southwards: **Granby Hill, Clifton Vale, Clifton Wood Rd, Constitution Hill, Lower Clifton Hill**. They too need to be cut.
- **Clifton Suspension Bridge**, which pours 9,000 vehicles into and through Clifton, is entirely unsuitable as a modern traffic artery. **Close** to traffic.
- As an approach to the city centre, **Triangle East** can be made a two-way bus-gate, enhancing its nature as both shopping focus and **bus hub**. Triangle West and South can operate two-way as part of the Inner Ring Road, with a segregated cycleway.
- *Car: local traffic management.*
 - Some of the car commuter runs across the area could advantageously be cut:
 - **The Downs** – both **Ladies Mile** and **Circular Rd** could be stooped as rat-runs by cutting in their middles: in the case of the second allowing the gorge-top car parking to be reached from either end.
 - In Clifton, the **Clifton Suspension Bridge** should be **pedestrianised**.
 - In Hotwells and Clifton Wood, **Granby Hill** and **Clifton Vale** could be cut south of Cornwallis Crescent; **Clifton Wood Rd** south of Randall Rd; **Constitution Hill** and **Lower Clifton Hill** south of Clifton Rd.
 - In Cotham, **Hampton Rd** could be cut at Cotham Hill, and **Cotham Brow** cut south of Cotham Park (other local measures may be necessary).
 - In Stokes Croft, **Jamaica St** could be cut by pedestrianizing it at King Square.

Each of these should be cycle permeable; most would make excellent cycle routes once made safe (a few are too steep).
 - Other measures may be known locally to be desirable in the northern part of Cotham and Redland.
- *Bus/tram/rapid transit routes.*
 - The A4018 requires continuous **bus-lanes**, and the removal of on-street parking throughout (except for disabled and loading bays within

widened footways). For the **Whiteladies Rd** section, the local shopping high street, options include a bus– (and cycle) gate and public transport hub at Clifton Down. The A38 requires equivalent treatment, as does its **Gloucester Rd** Bishopston shopping centre section. The latter too could eventually have a bus– (servicing access and cycle) gate.

- An enhancement would be TfGB's *Rapid Transit Plan* '**Westbury on Trym tram Line**' down the A4018/Whiteladies Rd/Triangle/BRI/Bus Station/Haymarket; likewise the **Filton Line** down the A38 into the city centre.
 - **Queens Rd Triangle East** to become a two-way **bus/tram hub**. Cyclists should be given cycle-lanes on Triangle West and South.
 - **Park St** should have a **bus-gate** at College Green.
 - **A4 Hotwell Rd/Anchor Rd** requires continuous bus-lanes.
 - TfGB's **Inner Ring orbital bus route** from Cumberland Basin, via Hotwell Rd, Jacob's Wells Rd, Triangle East, Park Row, Marlborough St to Stokes Croft would require bus-lanes on Hotwell Rd, and bus-triggered signals on Jacob's Wells Rd, Park Row and Marlborough St. Serves the BRI and the Bus Station. Subsequently, restructure Haymarket to allow this service to run to the **Haymarket hub** via Lower Maudlin St. Make **Park Row/Maudlin St/Marlborough St one-way for general traffic**; two-way for buses, trams and emergency vehicles, with a **cycleway** alongside. (General traffic partially diverted via **Lewins Mead** – but allowing movements only between Bearpit and Anchor Rd).
 - Enhanced **MetroWest** service at the existing Clifton Down, Redland and Montpelier stations.
 - Restructure bus services 8/9 to become high frequency local **feeder buses** serving Clifton, Bristol Zoo, Redland and Cotham but terminating at the **Triangle** and **Gloucester Rd (The Arches) bus hubs**.
- *Pedestrian zones and routes.*
 - The removal of on-street parking (while retaining managed premises servicing access) within the **Whiteladies Rd**, the **Triangle**, **Park St** and **Gloucester Rd** shopping centres would enable footway widening and greatly enhance these places as desirable pedestrian destinations, and doubtless benefit them economically. The local road circulation network allows that at low traffic levels each eventually could be

controlled by **bus-gates**, to be converted to **tram** operation; in practice, this measure could be softened to the provision of a 'green wave' bus/tram priority traffic signal system.

- The western part of **Cotham Hill** can be **pedestrianised** where the local shops and cafes are.
 - A pedestrianised **Clifton Suspension Bridge** would enhance its tourism potential and be an excellent walk route to Ashton Court.
 - **The Downs** will be calmed around Ladies Rd and Circular Rd.
 - Walk routes to the city centre via **Park St** and via **Park Row/Upper Maudlin St/Lower Maudlin St** will be more pleasant, the less congested and polluted they become.
- *Cycle routes.*
 - The direct *de facto* on-road cycle routes via the **A4018** and **A38** would become far better when these roads become Bus (and cycle) Priority Routes, especially if and when bus (and tram)-gates prohibit general through-traffic at **Whiteladies Rd** (Clifton Down), **Gloucester Rd** (Bishopston) and **Stokes Croft**. Provide segregated cycleways throughout; and where not possible, signed parallel calmed side-road cycleways.
 - **Traffic reduction** on the local distributor roads and rat-runs similarly.
 - A segregated cycleway is required on **Jacob's Wells Rd/Triangle/Park Row/Perry Rd/Upper Maudlin St/Marlborough St**, connecting the University area to the city centre and Harbourside for cyclists for the first time.
 - On a pedestrianised **Clifton Suspension Bridge** cyclists should be required to dismount due to tourist pedestrian pressure; nonetheless it will be an excellent cyclists' route to Ashton Court.
 - **The Downs** if Ladies Rd and Circular Rd are freed of through-traffic can become signed family cycleways. Cycleways likewise required alongside Parry's Lane, Westbury Rd and Upper Belgrave Rd.
 - The closure of the **St Michael's Hill/Hampton Rd** rat-run will make a fine (if steep) cycle route northwards, with a branch similarly via **Cotham Brow** to Gloucester Rd (and on via **Cromwell Rd**): both connect to Bristol University.

- *Parking control.*
 - **On-street parking** to be restrained in the local shopping centres, aside from loading and disabled bays). This will change local consciousness away from the driving option and enhance the demand for appropriate local **feeder bus** services to these shopping centres/public transport hubs.

5. INNER EAST BRISTOL (LAWRENCE HILL, BARTON HILL, EASTON, GREENBANK, REDFIELD)

(between the Inner Ring Road, M32, River Avon, and a line between Eastville, St George's and Netham Parks).

See Inner East Bristol, Map 6.

Problems

- A **neglected** set of high density less well-off neighbourhoods. Low car-ownership. Some localities rebuilt as high-rise. Now a high BAME proportion in the inner parts. Gentrification beginning around Old Market and Greenbank.
- Much of it lying within Bristol's worst and illegal **air pollution** zone (map available at <https://opendata.bristol.gov.uk/pages/air-quality-dashboard-new/air-quality-now#map>). Much pollution comes from the concentration of heavily trafficked main commuter roads into the city centre, but also from external through-traffic cutting through rat-runs. The pollution 'comes from outside'.
- Quite a lot of inbound car commuting generated by the extensive **St Philip's trading area**.
- All the main roads are highly congested, due mostly to sheer **traffic levels** within a tight network of such roads; partly due to overloaded junctions with each other, but also to impinging uncontrolled rat-runs. The main roads being: M32 (in 1997-7, 12 hour two-way flow of 44,000 vehicles); Temple Way (41,000); Easton Way (36,000) and St Philip's Causeway (22,000); Old Market (24,000); A432 Stapleton Rd (10,000 outer part, 6,000 inside Easton Way); A420 Lawrence Hill (15,000 outer part, 20,000 inside Easton Way). These are shocking levels of traffic to impose upon a poor inner city area, which has long been seen as no more than a set of road junctions.
- No attempt to map or constrain the excessive **through-traffic** and **rat-runs**, notably on, by-passing or accessing the M32, A432 and A420 radials.
- Resultant excessive **traffic noise, severance, danger** and **pollution**.
- There are some acceptable industrial access routes, including **Feeder Rd** (13,000); but this and several other roads are used inappropriately by through-traffic including: **Pennywell Rd** in Easton; the B4465 **Whitehall Rd /Easton Rd** (7,000 at Easton Rd) and **Russell Town Ave** in Redfield/Easton/Lawrence Hill; **Silverthorne Lane/Midland Rd** and **Days Rd** in The Dings; **Days Rd/Barrow Rd/Barton Hill Rd/Queen Ann Rd/Avonvale Rd**,

Pile Marsh (leading to **Beaufort Rd** in St George's) and **Marsh Lane** all in Barton Hill. That mostly their traffic levels have not been surveyed merely reflects this area's neglect.

- Road **accidents** are high in this area, perhaps because of the level of pedestrian activity and rat-running, with in addition possibly cultural factors.
- **M32** hard to cross walking or cycling (thus poor **interconnectivity** between St St Jude's/Easton and Paul's/St Werburgh's).
- Poor **bus** service for the St Philip's and Barton Hill areas.
- The **local shopping centres** badly need traffic calming; all are subject to much through-traffic.
- Some good **cycling** and **walking** radial routes – the Frome Path, Bristol & Bath Railway Path and the Whitchurch route passing St Philip's – but interconnecting routes rather poor, and the main and other roads frankly uncyclable due to motor traffic.
- **Residents Only Parking Zones** in 'Easton and St Philips' (see <https://www.bristol.gov.uk/parking/map-of-scheme-areas>) inside the Easton Way orbital road. This is far less than in other sectors of the city. Needed also further out, in Lower Easton, Barton Hill and Netham.

Opportunities

- Immediate 'pop-up' **Covid 19 measures** perhaps soon to be implemented in St Marks Rd and Mina Rd.
- Low community **political influence**, hence its neglect. A lack of opportunity.
- **Bus operations** now (temporarily) under public control.
- Growing awareness in the city in general of the need for **air pollution** action.

Analysis and proposals

Policy.

- An **M32 Park&Ride** service to bring its traffic levels down. See TfGB *Rapid Transit Plan*.
- **Protect** these vulnerable neighbourhoods from traffic mostly passing through from outside.
- **Closure** and/or mitigation of **rat-runs** through this part of the inner city.
- Reduce **severance** of the **M32**.

- Protect in this part of the city the local shopping centres at **St Marks Rd** and **Stapleton Rd** (both east and west of Easton Way) in Easton, and **Church St** in Redfield, currently plagued by external traffic. **Old Market** and **Stapleton Rd Easton** each in their different ways are cultural foci within Bristol, and should be treated as such.
- Recreate **Old Market/ West St** on the edge of the city centre as a major Bristol centre, as it was in medieval and early modern times.
- Improve bus accessibility with new **orbital bus services**.
- Improve **bus services** to St Philip's and Barton Hill.
- Calm the radial A432 Fishponds Rd/Stapleton Rd and A420 Church Rd/Lawrence Hill/Old Market as **Bus Priority Routes**.
- Remove car **commuter parking**.
- Create a **local network** of safe, usable **cycle routes**.

Measures, by transport mode.

- *Car: the road hierarchy.*
 - The road hierarchy has to include the **M32**, the **A4** (flanking the area), the **A4044 Inner Ring Road** (Temple Way), and the orbital **A4320 Easton Way/St Philip's Causeway**.
 - However, the old inner city radials **Stapleton Rd/Lamb St** and **Church Rd/Lawrence Hill/West St**, combining into **Old Market**, which host the area's main shopping streets, should become **Bus Priority Routes**. There is already a bus-gate on **Stapleton Rd** at Easton Way.
 - It is clear that the **M32** should remain as a long-distance general traffic feeder towards central Bristol, but its level of commuter and shopper car traffic must be much reduced for the benefits of Bristol residents and their air quality. This is perfectly possible, given a combination of TfGB's ***Rapid Transit***, ***Bus*** and ***Parking Plans***, and **de-motorisation** of the M32.
 - When funds allow, the structurally aging **grade-separated junctions** of the M32 should be replaced by surface signalled cross-roads.
 - In the interim, an **M32 Park&Ride Rapid Transit** service using the M32 should use the junction slip roads to create bus-stops at Eastgate and Easton Way **hubs** as proposed in TfGB's ***Rapid Transit Plan***.

- The speed limit of the (ex-)M32 should become **30mph**, with traffic signals (existing) and **surface pedestrian crossings** at its junctions, in order to decrease both road accident rates and community severance.
 - For the St Philips industrial area, **Feeder Rd** is the main internal distributor, connecting to St Philips Causeway via **Albert Crescent** and **Albert Rd**, with a lesser link to the A4 Bath Rd via **Totterdown Bridge**. However, its use as a pseudo-radial by car commuters worsens congestion on St Philips Causeway at its junction, and likewise at Netham Bridge, and must be restrained.
 - A legitimate local distributor in Redfield/Whitehall is B4465 **Whitehall Rd** (also a bus route for services 6/7) but this has been allowed to become an overused car commuter pseudo-radial.
 - Likewise in Barton Hill, **Avonvale Rd** (partially, bus service 36) is a local distributor, but overused as a commuter pseudo-radial.
 - By default, the area's outer orbital distributor is **Netham Bridge/Netham Rd/Blackswarth Rd/Chalks Rd/B4465 Whitehall Rd/B4469 Gordon Rd/Rose Green Rd/Royate Hill/Fishponds Rd/Muller Rd**.
- *Car: local traffic management.*
 - The over-sized commuter car flows on the A432 and A420 both will to an extent be eased by the closure of **Old Market** (see below). Traffic will be encouraged onto public transport or the M32 and A4.
 - Major rat-runs through the various neighbourhoods must be constrained, so we can begin to ameliorate the local environment. This in addition will help ease traffic congestion on the main road network by freeing-up junctions.
 - If the A420 **Church Rd** Redfield is to become Bus Priority through the shopping centre (as it should) then the **bus- (and servicing access only-) gate** could be at Chalks Rd signals. Barton Hill then retains access via Lawrence Hill to Easton Way, and Speedwell, St George's and Fishponds via Royate Hill, Fishponds Rd and Muller Rd to the M32.
 - In Redfield **Whitehall Rd** can be cut at the railway bridge at **Easton Rd**, thus retaining Whitehall Rd as an internal distributor for Redfield/Whitehall, and Easton Rd for Easton, while discouraging radial through-traffic. Under this arrangement

Russell Town Ave (bus services 6/70) onto the A420 would continue to be heavily used; it should be treated with a bus-gate (perhaps at the Academy), thus giving Whitehall Rd/Russell Town Ave. bus-priority status.

- In St Philips **Feeder Rd** can be maintained as a lorry access route, approach from St Philips Causeway via Albert Rd, but discouraged as a car-commuter pseudo-radial by cutting several of its inner and outer city feeders: **Avon St, Kingsland Rd, Cattle Market Rd, Crews Hole Rd** and **Broomhill Rd** and (for the last two see Sector 3).
- In Barton Hill **Avonvale Rd** can be eased by having a bus-gate east of Marsh Lane, retaining industrial access via Days Rd/Barrow Rd/Jarvis St. from St Philips Causeway, and by Marsh Lane from Feeder Rd. The cutting of **Beaufort Rd** at Blackswarth Rd would help protect St George's from car commuters using Pile Marsh-Avonvale Rd into town.
- In Easton **Pennywell Rd** should be cut at Easton Way.
- In The Dings **Midland Rd** (via a two-way Lawford St) and Avon St can continue to provide access in the area; but through-traffic can be cut by cutting each of **Avon St, Gas Lane** and **Kingsland Rd** at their railway bridges, and **Days Rd** at Kingsland Rd, thus separating The Dings from the industrial access needs of non-residential parts, which can continue to be served by Feeder Rd and from St Philips Causeway by Days Rd.
- In St Jude, close **Wade St** at the River Frome, to protect the Frome Valley cycleway and path, and stop this road being an informal sliproad onto the M32.
- The **Netham Bridge/Netham Rd/Blackswarth Rd/Chalks Rd/B4465 Whitehall Rd/B4469 Gordon Rd/Rose Green Rd/Royate Hill/Fishponds Rd/Muller Rd**. local orbital route would be partly eased by reducing radial usage of Whitby Rd (see Sector 3), Whitehall Rd and Feeder Rd (see above), and Church Rd and Stapleton Rd (see Bus Priority Routes, below), by easing its junctions with those roads.

Each of these closures should be made permeable by cycles. They all make would good walk and cycle routes without further investment, with their danger and pollution reduced.

- *Bus/tram/rapid transit routes.*
 - Under TfGB's **Rapid Transit Plan**, the **M32** will eventually become a Park&Ride **tram** route, with interim stops at the public transport **hubs** at Eastgate and Easton Way/Lower Ashley Rd, but necessarily will remain as a decongested main road towards the city centre.
 - The **MetroWest** Lawrence Hill and Stapleton Rd **stations** will see increased service frequencies, and become local public transport hubs interchanging with buses (and possibly trams).
 - Also under the TfGB **Rapid Transit Plan**, **trams** are an option for both the **Stapleton Rd** and **Lawrence Hill/Church Rd** radials (to Fishponds and Kingswood respectively). In the interim, **Bus Priority Route** status should see the removal of on-street parking (except for disabled and loading bays) in their shopping centres, and footway widening. In Redfield, bus-priority approach signals outbound at Russell Town Rd, inbound at at Chalke Rd. On Stapleton Rd an equivalent arrangement.
 - On **Stapleton Rd** the existing bus-gate at Easton Way could be strengthened by making the turns off Easton Way as 'access only' (with occasional police monitoring of compliance). General local circulation can remain via Lower Ashley Rd from the (calmed) M32 (junctions 2 and 3).
 - An **Old Market bus- (and servicing access only-) gate** is required to complete this traditional centre's up-grading and its status as a **bus** (and future tram) **hub**. Remove on-street parking and widen the footways. Likewise the pedestrianisation of **West St** in St Jude's (see below); buses can be routed two-way around Trinity Rd/Lamb St. A segregated cycleway should be provided. Access into the area can be from Easton Way via Clarence Rd and Stapleton Rd.
 - Barton Hill would remain connected to the main road system via Lawrence Hill; Speedwell via Blackswarth Rd/Feeder Rd and Royate Hill; Hanham and Kingswood via Lodge Causeway and the Avon Ring Road. Note that neither the long narrow **Two Mile Hill** nor **Summerhill Rd** are suitable connectors towards the city centre for Kingswood and Hanham: both require traffic reduction, which bus-priority on Church Rd and a bus-gate on Old Market would achieve. Nor should **Whitehall Rd** remain a traffic route into town, as already proposed by the bus-gate on Russell Town Rd and the closure of Easton Rd.

- The current infrequent, and delayed through traffic congestion, **bus service 36** through Barton Hill has recently been truncated and improved, and would be better under conditions of less through-traffic; but might be further improved by terminating at the Old Market hub, and if necessary with bus-triggered signals where **Ducie Rd** enters Church Rd, with also here a bus-stop for a Lawrence Hill MetroWest interchange.
- The bus services (6/7) on **Whitehall Rd** would be improved by traffic reduction (as above) and could terminate at the Old Market hub.
- A bus service is required on **Feeder Rd**, both for worker access into St Philips but also to create a direct service into town from St Anne's and St Anne's Park. Terminate at Temple Meads.
- TfGB's **Bus Plan** proposes an **Inner Ring orbital service** along Easton Way and St Philips Causeway: providing a service to St. Paul's, Stokes Croft and AvonMeads, and interconnecting with radial bus/rapid transit routes on the M32, A432, A420 and A4. This will require **bus-lanes** on Easton Way/St Philips Causeway. **Avonmeads** can be served by an on-road bus-stop and surface pedestrian crossing; the **Old Market hub** by stops on the roundabout's northern sliproads; **Cabot Circus hub** by the existing bus-stops.
- TfGB's **Rapid Transit Plan** likewise proposes a **Middle Ring orbital bus service** from Netham Bridge along Blackswath Rd, Chalks Rd, Whitehall Rd, Royate Hill and Muller Rd, with interchange stops at Netham Bridge, Redfield (new stops by Church Rd), Fishponds Rd (new stops) and Eastgate (probably relocated stops).
- Improve the **visibility of Stapleton Rd station** from Stapleton Rd; also additional bus-stops to create a MetroWest interchange.
- The current location of **bus-stops** along the A432 and A420 corridors has to some extent been determined by traffic conditions rather than passenger convenience. Bus and rail interchange often is inconvenient. Review the bus-stop locations.
- The **City Centre Ring** bus (and future tram) service via Temple Way should have interchange stops on the slip-roads at **Old Market hub** (as already exists for some other services). This will require **bus-lanes** on Temple Way.

- *Pedestrian zones and routes.*
 - **Old Market** could well regain its former status as one of the chief centres of Bristol. See the proposed bus-gate (above), and the pedestrianisation, with controlled serving access, of its **West St** extension (above).
 - On the environmental improvement of the **Stapleton Rd** and **Church Rd** shopping centres in Easton and Redfield, currently much plagued by external through-traffic, see above.
 - The role of the northern end of **St Marks Rd** as a local access route requires downgrading, and the environment of its shopping centre thereby improved. The precise design should be contingent upon consultation with residents and retailers.
 - Adjacent to Temple Meads and to the soon campus of Bristol University, **Cattle Market Rd** should be closed to traffic and repurposed (again) as a students' walking and cycling access. Vehicular access to the campus retained via Totterdown Bridge, and St Philips Causeway via Albert Rd.
 - The poor links to St. Paul's will be improved by the changes proposed for the **M32** (above), making its crossing far more simple and less stressful.

- *Cycle routes.*
 - The direct on-road radial cycle routes via the A432 **Fishponds Rd**, A420 **Church Rd**, B4465 **Whitehall Rd** and **Feeder Rd** all are likely to remain substandard. Whether any of these roads in their non-shopping sectors could be supplied with segregated cycleways is a design issue. Parallel back-street cycle routes or cycleways off-line seem essential. The Bristol & Bath Railway Path, Frome Path and River Avon Path only to a limited degree provide this.
 - At **Old Market** a consultation exercise needs to discern whether a segregated cycleway is possible. Otherwise, sign a parallel calmed side-road cycle route.
 - Both the **Inner Ring Road** and **Easton Way/St Philips Causeway** orbital routes should be provided with road-side segregated cycleways, as in part they already have.
 - Through-traffic removal from local rat-runs can create a local network of safe cycle routes – something absent at present. The best

candidates are perhaps: **Pennywell Rd** (connecting to the Frome Path and Concorde Way, if a cycleway crossing of M32 Junction 3 is provided); **Whitby Rd** (connecting to the River Avon Path upriver, if a cycleway crossing of Netham Bridge is provided); **Midland Rd/Kingsland Rd** can be an orbital connector; **Gas Lane/Silverthorne Lane/Queen Ann Rd/Avonvale Rd/Pile Marsh/Beaufort Rd** connects the city centre with St Georges and Netham Park for the upriver River Avon Path.

- *Parking control.*
 - Enlarge the current **Residents Only Parking Zone** in 'Easton' to include **Gas Lane** in St Philips, currently a car commuter honeypot.
 - Instigate RPZs in **Lower Easton, Barton Hill** and **Netham** (taxi drivers can claim as a works expense for tax purposes).
 - Remove on-street parking (except for disable and loading bays) in the **Stapleton Road** in Easton and **Redfield** shopping centres.
 - Once a bus service is operative on Feeder Rd to St Anne's, inform the businesses in **St Philips** and **St Anne's**.

DETAILED PHASED PROGRAMME BY CITY SECTOR.

1. BRISTOL CITY CENTRE.

Immediate (within 6 months).

- **Bus-gates** at **Bristol Bridge** and **Baldwin St/Centre** as planned by BCC, but also at **Park St**, **Old Market** and **Merchants Rd Bridge**.
- **Redefine the Inner Ring Road** to reduce congestion passing the BRI and on York Rd.
- Removal of cycleway through the **pedestrianised Centre**, and replace by interim cycleways alongside the flanking carriageways.
- The implementation of **servicing access loops** within the Inner Ring Road, initially by bollarded temporary experimental measures.
- Pedestrianise the **Old City**, **Denmark St** and **King St** with controlled servicing access.

Interim (within 3 years).

- **Reroute buses** onto Victoria St/Bristol Bridge/Baldwin St/Centre/Lewins Mead/Haymarket/Bond St/Temple Way, and away from environmentally sensitive **Horsefair/Penn St**, **Union St**, **Broad Quay**, **Thunderbolt Square** and **Nelson St**.
- Initiate a **City Centre Circular Bus** service via Temple Meads, BRI and Triangle.
- **Calm the Inner Ring Road**, with 20 mph speed limit, banned turns, recalibrated pedestrian crossings and defined cycle crossings.
- Consult on, and implement, a **Workplace Parking Levy** (as in Nottingham). **Remove on-street parking** in the central area except for disable and loading bays.
- Agree a **replacement** of the deteriorating **Plimsoll Bridge (Brunel Way)** at Cumberland Basin that is low speed, and removes general traffic from **Merchants Rd Bridge** and **Dowry Square**. A two-way solution is required via **Cumberland Basin Rd** and **Christina Terrace**. **Dowry Square** can be closed at Cumberland Basin Rd; and **Merchants Rd Bridge** become a bus-and-cycle gate.
- Do detailed designs for **bus hubs** at **Temple Meads (Friary)**, **Centre**, **Triangle (East)**, **Haymarket/Bus Station**, **Cabot Circus (Bond St)** and **Old Market** (including stops on the NW and NW sliproads at the roundabout) that allow for **future trams**. Implement in interim form.

- Agree and **safeguard future tram routes** along Bond St–Temple Way–Victoria St–Baldwin St– Centre–Lewins Mead – Haymarket.
- Initiate the first **MetroWest** frequent rail service through Temple Meads.
- Pedestrianise **Nelson St** and **Union St**, with controlled servicing access, inclusive of segregated cycleways on each.
- Build **segregated cycleways** alongside the Inner Ring Road, and along or parallel to the revised City Centre Loop bus circuit of Victoria St/Bristol Bridge/Baldwin St (in place already)/the Centre/Lewins Mead (see TfGB ***Bus Plan***).

Ultimate (within 10 years).

- Fully implement the **central area public transport hubs**, with full associated facilities (see TfGB ***Rapid Transit*** and ***Bus Plans***).
- Open the first **tram line** through the Centre.
- (Later) complete the ***Rapid Transit Plan***, including the tram **City Centre Ring**.

2. INNER NORTH-EAST BRISTOL

Immediate (within 6 months).

- Make permanent the BCC '**pop-up**' footway widenings on Stokes Croft and Mina Rd.
- Do temporary closures of **Ashley Hill** (at Chesterfield), **St Andrew's Rd** (at Cromwell Rd), **Glenfrome Rd** (a bus-gate at the railway bridge), **Mina Rd** (at Gatton Rd) and **Magdalene Place** (in the middle), as an attempt to enforce air quality standards.
- Replace the **no. 5 bus** by a 15 min. frequency bus shuttle between Stokes Croft (Bearpit) hub and Eastgate hub (optionally continued to Fishponds as at present). This will be more reliable with Glenfrome Rd closed by a bus and cycle gate.
- Install bus-triggered traffic signals on **Cromwell Rd** for left-turning buses out of Cromwell Rd at the Arches on the A38.
- Improve signage of **Montpelier station** at the Arches.
- New bus-stops on an **Inner Ring orbital bus service** at the M32 and in Stokes Croft (see TfGB *Rapid Transit* and *Bus Plans*).

Interim (within 3 years).

- Instigate interim **Bus Priority Route** measures on the A38 Gloucester Rd (and adjacent parallel residential roads where necessary) between Somerville Rd and the Arches; carry out a **Consultation Exercise** for Ashley, Bishopston, Eastville, Redland and Cotham wards, presenting the traffic management options.
- Make the closures of Ashley Hill, Glenfrome Rd, Mina Rd, etc.. **permanent**.
- **Residents and Business Only Parking Zones** for St Werburgh's and St Andrew's.
- Redesign **Eastgate** roads to create a **bus hub**.
- Initiate **MetroWest** services, with a new **station at Ashley Down**, and improved services at Montpelier station.
- Install an experimental bus-gate on **Ashley Rd** at Albert Park, and **Cromwell Rd** at Chesterfield Rd.
- Bus-lanes or bus-triggered signals on **Muller Rd** for a **Middle Ring orbital bus service** (see TfGB *Rapid Transit* and *Bus Plans*).
- Pedestrianise **Portland Square** and **Brunswick Square**.

Ultimate (within 10 years).

- Open the **tram lines** along the M32 and A38 to the city centre, and remodel each road as appropriate. On the former with stops at Eastgate and Easton/St Paul's; on the latter with relocated stops at Somerville Rd, the Arches/Montpelier station, Ashley Rd, City Rd, Bearpit, etc.. More than one of these will become public transport **hubs** interchanging with rapid transit, orbital or feeder buses.
- Make **permanent** the internal road closures and bus-gates.
- Make the Gloucester Rd **Bishopston shopping centre** tram-and-access-only between Somerville Rd and Zetland Rd, and **Stokes Croft** likewise between Ashley Rd and Jamaica Rd. Alternatively, install a 'green wave' bus/tram priority traffic signal system throughout the A38. Install parallel safe cycle routes/cycleways.

3. SOUTH BRISTOL

Immediate (within 6 months).

- The BCC '**pop-up**' **footway widenings** in Bedminster Parade.
- Install temporary **bus-lanes** where possible throughout the A38, A37 and A4 Bath Rd, and remove all on-street parking except for disabled and loading bays.
- A temporary closure of **North St.** (at Tobacco Factory) in Southville centre with a bus-cycle-and- emergency vehicle-gate.
- Install bus-triggered traffic signals on **Sandy Park Rd** for right-turning bus no. 1 into Bath Rd.
- Improve the visibility of **Bedminster station** from East St and Malago Rd, and of **Parson St station**.
- A trial **Inner Ring orbital bus service** out of Long Ashton P&R via Ashton Court/Ashton Gate Stadium/Southville/Bedminster/Temple Meads/(or Victoria Park/Broadwalk/Talbot Rd) to Brislington P&R site and thence St Philips Causeway and AvonMeads, etc. (see TfGB ***Rapid Transit*** and ***Bus Plans***), would require some new bus-stops, and bus-priority measures and stops at Arno's Vale/St Philips Causeway.

Interim (within 3 years).

- Close **St John's Lane** (at Victoria Primary) on traffic management and air quality grounds, and **St Luke's Rd** (at the railway bridge) on environmental, safety and cycling grounds.
- Make the **North St** closure permanent, complete with landscaping improvements, and any other traffic calming measures required.
- Close **Clifton Suspension Bridge** to motor vehicles on traffic, structural and tourism grounds. Make **Merchants Rd Bridge** bus and cycle only; close **Prince St Bridge** to motor vehicles, but with a segregated cycleway.
- Experimental closure of **Dean Lane** (at Holy Cross Primary) in Southville, **Cotswold Rd** (at Dunkery Rd) in Windmill Hill, **Talbot Rd** (at Lodway Rd) in Knowle, **Whitby Rd** (at the railway bridge) and **Langton Court Rd** (at St Anne's Primary) in St Anne's, **Crews Hole Rd** (at Conham riverside) in Hanham, **Broomhill Rd** (a bus-gate at Ironmould Lane) in Broomhill, on air pollution and traffic management grounds. All to be cycle permeable.
- Close **Queen's Rd** in Withywood and **Stockwood Lane** in Stockwood (both at the city boundary) on traffic management grounds.

- Close the narrow lanes **Scotland Lane**, **Novers Hill**, **Sleep Lane*** and **Maggs Lane*** on traffic management and environmental grounds (* indicates a highway external to Bristol's control).
- A trial **Middle Ring orbital bus service** out of Long Ashton P&R via Ashton Court/Ashton Gate Stadium/Winterstoke Rd/Bedminster Down/Bishopsworth/Hartcliffe/Hengrove Park Hospital/Imperial Park/Hengrove Leisure Centre/Callington Rd/Brislington P&R/Wick Rd to Redfield, etc., would require some bus priority measures, including bus-lanes on Winterstoke Rd, Hartcliffe Way, Hengrove Way and Callington Rd, and bus-triggered signals on Newbridge Rd and at Netham Bridge.
- An **A37 Park&Ride** bus service, additional bus-lanes on **Wells Rd**, and an experimental road narrowing at **Broadwalk** hub. Sign a parallel calmed cycle route where there is no room for an on-road segregated cycleway.
- Additional environmental improvement of **Bedminster Parade**, including a cycleway.
- **Residents Only Parking Zones** for **Windmill Hill** and **Totterdown**. Consult on a possible zone for **Ashton Gate/Vale**.

Ultimate (within 10 years).

- **Hengrove Park tram line** from Hengrove Park hub, via Hartcliffe Way, Bedminster Rd/Sheene Rd/Malago Rd/Bedminster Parade/Redcliffe Hill/Redcliffe Way to Temple Meads and the Inner Ring tram route, with a connection at **Parson St** and **Bedminster stations**, and a public transport **hub** and **tram-gate** at **Bedminster Parade**. Provide a parallel segregated cycleway throughout the route.
- **Bath tram line** via Bath Rd from Temple Meads; interchange **hubs** at Temple Meads, Arno's Vale and Brislington P&R. Segregated cycleways, or signed parallel off-line calmed cycle routes. A 'green wave' bus/tram priority traffic signal system throughout Bath Rd.
- Install a **bus (tram)-gate** in **Bedminster Parade**. Include a segregated cycleway. Alternatively, install a 'green wave' bus/tram priority traffic signal system at Bedminster Parade, and anyway throughout on the main road sections of the Hengrove tram route.
- Make the above temporary road closures and bus-gates **permanent**.
- *(Later)* Convert the **Wells Rd P&R** bus to **tram**, with a 'green wave' bus/tram priority traffic signal system.

4. INNER NORTH BRISTOL

Immediate (within 6 months).

- Install ‘pop-up’ cycleways on **Jacob’s Wells Rd**, the **Triangle**, and **Park Row/Upper Maudlin St/Lower Maudlin St**. Expand this to all stretches of the **A4018** and **A38** currently lacking a bus-lane; remove all on-street parking on these routes.
- Close **Clifton Suspension Bridge** to motor vehicles, on engineering structure and tourism grounds.
- Install a bus-gate on **Park St** (at College Green).
- Operate Lewins Mead and Park Row/Upper Maudlin St/Marlborough St as a bifurcated **Inner Ring Road**.
- A trial **Inner Ring orbital bus service** via Hotwell Rd–Jacob’s Wells Rd – Triangle–Park Row–BRI–Marlborough St–Stokes Croft (see TfGB *Rapid Transit* and *Bus Plans*), would require bus-lanes on Hotwell Rd, and bus-triggered signals on Jacob’s Wells Rd, Park Row and Marlborough St.
- On **the Downs**, cut both Ladies Mile and Circular Rd (in their middles). Sign as a leisure cycle route circuit. Negotiate with the Downs Committee roadside cycleways for Parry’s Lane, Westbury Rd and Upper Belgrave Rd.
- In Hotwells and Clifton Wood, cut **Granby Hill** and **Clifton Vale** (both, south of Cornwallis Crescent); **Clifton Wood Rd** (south of Randall Rd); **Constitution Hill** and **Lower Clifton Hill** (south of Clifton Rd).
- In Cotham, cut **Hampton Rd** (at Cotham Hill), and **Cotham Brow** (south of Cotham Park); other local measures may be necessary.
- In Stokes Croft, cut **Dighton St** at Princess Row.
- Restructure bus services 8/9 to become high frequency local **feeder buses** terminating at the **Triangle** and **Gloucester Rd (The Arches)**.
- Improve signage of **Montpelier station** at the Arches.

Interim (within 3 years).

- Make permanent the A4018 **bus-lanes**, and the removal of on-street parking throughout (except for disabled and loading bays within widened footways). For the **Whiteladies Rd** section, the local shopping high street, options include a bus (and cycle) gate and public transport hub at Clifton Down; possibly even a bus-and-cycle promenade for students and residents all the way from Blackboy Hill (Upper Belgrave Rd) down to Clifton Down station. Carry out a **Consultation Exercise** for Clifton East, Cabot, Redland and

Cotham wards, concerning making **Whiteladies Rd** a Bus Priority Route, a future tram route, Triangle East a bus/tram hub, and **Cotham Hill** pedestrianised. Provide a segregated cycleway throughout.

- The A38 requires similar treatment, as does its **Gloucester Rd** Bishopston shopping centre section. The latter too could eventually have a bus–gate, and parallel cycle routes/cycleways.
- Restructure **Haymarket**, to allow the Inner Ring bus orbital to run via Lower Maudlin St and the **Haymarket hub** to Stokes Croft. Include a segregated cycleway if possible.
- Install a two–way bus–gate at **Triangle East**, to become a bus (future tram) **hub**. Make Triangle West and South two–way as part of the Inner Ring Road, with segregated cycleways.
- Instigate interim **Bus Priority Route** measures on the A38 Gloucester Rd (and adjacent parallel residential roads where necessary) between Somerville Rd and the Arches. Provide segregated cycleways where possible; otherwise sign parallel cycle routes on calmed side–roads.

Ultimate (within 10 years).

- Carry out agreed **Whiteladies Rd/Cotham Hill/Triangle** and **Gloucester Rd** improvement plans. Install a **bus (tram)–gate** on Whiteladies Rd at Clifton Down.
- Initiate **MetroWest** services, with an enhanced service to Clifton Down, Redland and Montpelier stations.
- Open the **Westbury on Trym tram** line along the A4018 Westbury Rd–Whiteladies Rd–Triangle–BRI–Haymarket, and **Filton Line** along Gloucester Rd/Stokes Croft (see TfGB *Rapid Transit Plan*).
- Make **Gloucester Rd shopping centre bus–and–access–only** between Somerville Rd and Zetland Rd.

5. INNER EAST BRISTOL

Immediate (within 6 months).

- Do temporary closures on **Easton Rd** (at Whitehall Rd), **Crews Hole Rd** (at Conham riverside), **Beaufort Rd** (at Blackswarth Rd), **Pennywell Rd** (at Easton Way) and **Lower Ashley Rd** (at Easton Way) to improve main road junction efficiency.
- In The Dings, cut each of **Avon St**, **Gas Lane** and **Kingsland Rd** at their railway bridges, and **Days Rd** at Kingsland Rd; in St Jude's cut **Wade St** at the River Frome.
- On **Stapleton Rd** make the turns eastward off Easton Way 'access only'.
- Install experimental bus- (and servicing access only-) gates on **Old Market**, and on **Church Rd** Redfield at Chalks Rd, and remove on-street parking except for loading and disabled bays. Sign parallel calmed side-road cycle routes.
- Bus-gates on **Avonvale Rd** (east of Marsh Lane) and **Russell Town Rd** (at the Academy), to achieve bus priority and reduce through-traffic.
- Remove on-street parking in **Old Market** and **West St** to widen the effective footways.
- Close **Cattle Market Rd** to through-traffic.
- Replace the **no. 36 bus** by a 15 min. frequency bus between Old Market hub and Brislington Park&Ride hub.
- Improve the **visibility of Stapleton Rd station** from Stapleton Rd; also additional bus-stops to create a MetroWest interchange.
- An **Inner Ring orbital service** along Easton Way and St Philips Causeway: with stops at Avonmeads, Lawrence Hill, Stapleton Rd, M32 junction 3. This will require bus-lanes on Easton Way/St Philips Causeway.
- Enlarge the current **Residents Only Parking Zone** in 'Easton' to include **Gas Lane** in St Philips.
- Install temporary **bus-lanes** where possible throughout the A432 and A420 routes, or approach narrow stretches via **bus-triggered signals**; remove all on-street parking apart from disabled and loading bays within widened footways within the shopping sections. Sign parallel, side-road cycle routes.
- Downgrade the traffic usage, while managing servicing access, of the **St Marks Rd** local centre.

- Close and pedestrianise, with controlled servicing access, the **St Marks Rd** shopping centre. Temporarily **widen the footways** in **Old Market/West St**, **Stapleton Rd Easton** and **Church Rd Redfield**.
- Consult on RPZs in **Lower Easton**, **Barton Hill** and **Netham**.
- TfGB's ***Rapid Transit*** and ***Bus Plan*** **Middle Ring orbital bus service** will require interchange stops at Netham Bridge, Redfield (new stops by Church Rd), Fishponds Rd (new stops) and Eastgate (probably relocated stops).

Interim (within 3 years).

- Install a 'green wave' bus/tram priority traffic signal system throughout the **A420** east of Old Market. Install a bus-triggered signal on **Dulcie Rd** at Church Rd and a 36 bus-stop for a Lawrence Hill MetroWest interchange.
- Establish a bus service along **Feeder Rd**, between St Anne's Park and Temple Meads hub.
- Pedestrianise or make bus-only **West St** by Old Market, with controlled servicing access; make Trinity Rd/Lamb St/Lawford Gate two-way for traffic.
- Re-evaluate the **bus-stop** locations on the A432 and A420, and move if appropriate.
- Complete the segregated **cycleway** along Easton Way/St Philips Causeway, and along Temple Way.
- **Bus-stops** on the M32 sliproads at junctions 2 (Eastgate) and 3 (Easton/St Paul's).
- Make the above road closures and bus-gates **permanent**, and environmentally improve the shopping centres.

Ultimate (within 10 years).

- Initiate **MetroWest** services, with improved services to Lawrence Hill and Stapleton Rd stations.
- **Demolish** the grade-separated junctions of the (de-motorwayed) M32 and replace with signalised surface junctions and a cycleway.
- Convert the **M32 Park&Ride bus** to **tram**. (The M32 will also carry the city centre-UWE-Emerson's Green-Yate-Thornbury tramtrain line; see TfGB ***Rapid Transit Plan***).
- (*Later, optional*). Install **tram** services along Fishponds Rd/Stapleton Rd/Old Market, and Church Rd/Lawrence Hill/Old Market; install **tram-and-access-gates** in both.

Appendix:

TfGB TRAFFIC MANAGEMENT PLAN MAP 1

The following map suggests a completed process. In practice, the bus-gates on main radial roads are envisaged for a phase when the Park & Ride system, Workplace Parking Levy and Residents Parking Zones have been completed (see TfGB Parking Plan), bus-priority, bus hubs and orbital bus routes established, cycleways improved and completed, and general traffic levels much reduced. The shopping centre 'bus-gates' might conveniently coincide with the implementation of tram routes on particular corridors. An alternative to such treatment might however better be a 'green wave' tram-priority traffic signals system (as operating in Brussels), catering for a limited amount of access and general traffic on Gloucester Rd, Stokes Croft, Church Rd Redfield, Stapleton Rd, Wells Rd, Bedminster Parade and Whiteladies Rd (thus avoiding unnecessary traffic increase on side-road alternatives including Ashley Down Rd, Cromwell Rd, Redcatch Rd, Queens Rd Clifton and Pembroke Rd).



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TfGB BUS PLAN FOR BRISTOL

(2018, partially revised Aug 2020)

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INTRODUCTION AND SUMMARY

2020 update

This Plan, presented to Bristol City Council in 2018 (and thence partially adopted in principle by them) has been partially updated in August 2020 to reflect the current situation with WECA as Transport Authority and the initiation of MetroBus services.

*It should now be read in conjunction with TfGB's **Rapid Transit Plan** (2020) which advocates ultimately the conversion of the main radial bus routes to **on-street tram** operation, interlinked with enhanced **MetroWest** rail services, in a fully developed urban transit system comparable to those already emerging in other Bristol metropolitan regions including Manchester, Birmingham, Sheffield, Nottingham, Newcastle, Edinburgh, Croydon in London, and soon Cardiff.*

Inventing a Bus Metro

If public transport is ever to compete with the car as a generalised mode of transport in the West of England, several major changes are required of local bus services in order to move them towards a **Bus Metro**. These principal aspects of change may be listed.

1. **Reform of the bus route network.** Main radial (or 'trunk') routes exist, but are being modified by WECA's **MetroBus** concept. This concept contains some orbital elements, but these need to be made more comprehensive; reasonably direct orbital routes are essential to interconnect suburbs, and to interchange with trunk and feeder bus services, and with the future rail **MetroWest**. Simultaneously, feeder services, including those accessible to disabled people; these must be integrated both as to route and funding, vehicle type, and should embrace a taxicard scheme. In the future, some of these routes should be operated by **trams** (*see TfGB Rapid Transit Plan, forthcoming*).
2. **Bus Interchanges.** No bus network will ever be able to meet the need for universal 'A to B' demands – the demand cars meet – unless the principle of interchange is accepted. A set of efficient interchange '**bus hubs**' is

required, including suburban ‘hubs’ at shopping centres and MetroWest stations.

3. **Interchangeable ticketing.** A precondition of bus hubs. Interchangeable ticketing is essential to speed up buses, enhance their reliability and thus attractiveness to users, and thereby their operational economics.
4. **Bus priority.** Bus priority traffic management is another precondition: for the improvement of bus reliability, a reduction in travel time and an enhancement in bus operating economics. The Greater Bristol Bus Network (GBBN) bus priority investment programme has proved a very partial attempt to achieve this.
5. **Bus information.** To use a bus system you have to know where it goes, what interchanges are possible, what time buses in reality leave and arrive, and how much it will cost. In the West of England such matters remain largely a mystery. A whole new user-friendly approach is essential.

None of the above conditions yet applies to the West of England’s bus network. This paper addresses each issue, but in no particular order since the required changes depend upon each other to meld into a coherent whole. All have to be pursued simultaneously.

The six Parts of this paper address each issue identified above.

Multi-modal travel

In order not to overload the bus network, most travellers must not use it most of the time. Other modes must be improved in parallel:

- *heavy-haul long to medium distance journeys* should be provided for by **rail** (Intercity, regional and urban MetroWest) wherever possible;
- *medium to short distances*, by whoever can, by **bicycle**;
- *short journeys* are best on **foot**; though
- *some journeys or travelers* may require a **taxi, shared or club car**.

Many medium to long distance journeys can be **multi-modal**. It is therefore essential that each of these modes is given a coherent, distinct and efficient

network. Bus services must interconnect with the rail, cycle and path networks, and taxi / club car ranks, as often as possible in order to multiply the options for multimodal travel. That way, we can render the car unnecessary for most journeys, as has already occurred for instance in the comparable city of Utrecht.

MetroBus

This paper necessarily embraces what to do about the West of England Combined Authority's (WECA) partially implemented MetroBus plans.

Part of the rationale behind MetroBus was to upgrade Greater Bristol's bus provision by generating purpose-built 'guided bus' routes that could attract government funding. Another part of the rationale was in practice the fact that the local authorities had limited capacity to deal with the existing bus service and its reform. Any bus reform continues largely to be led by the monopoly bus provider, First Bus Group.

On the buds network implications of MetroBus for existing bus services one Council officer remarked: 'existing bus routes might eventually change, but that will be up to the provider'. Neither has there been much evidence that MetroBus routes have been planned to interchange with either existing bus services, or with rail.

The MetroBus routes as initially planned arguably have been a colossal waste of public money and have not addressed the issue of bus reform. Instead, we need start the process of replanning bus routes as outlined here. We incorporate those aspects of MetroBus that might be worth retaining. It should be noted however that what basically is required is simply a few express routes which ordinary buses – rebranded as MetroBus – might travel on for parts of their journey.

This paper contains no discussion of the merits or otherwise of '**guided bus**' technology (one of the original rationales for the MetroBus bid). There proved to be almost no locations suitable for guided bus alignments within Bristol, and in the event only one has been built (in intermittent sections at Ashton).

PART 1. A REFORM OF THE BUS ROUTE NETWORK

A. AN EVOLUTION OF THE 'METROBUS' BRANDING.

Summary

The current and planned MetroBus services may be expected to have three major impacts on Bristol's transport environment:

1. on the **commercial viability of existing bus services**, notably some trunk routes, since MetroBus would compete with them for passengers;
2. on the availability of annual **support for other bus services**, since MetroBus would compete for annual subsidy (it being unlikely to be immediately, if ever, profitable);
3. on funding available for **rail infrastructure and support**. If major investment continues to go into MetroBus then it is unlikely simultaneously to be available for **MetroWest** development. MetroWest is and will be delayed, and in danger of being permanently shelved.

A fourth potential impact – any major impact upon **modal split** – is however unlikely to occur, since the current MetroBus schemes meet relatively few Bristolians' travel needs.

We address here only aspects of the first two impacts – notably on Bristol's main trunk bus services.

An Analysis

First Bus' reaction

Belatedly (and as anticipated by ourselves) First Bus consented to be the principal MetroBus operator – presumably to ward off competition to its local monopoly position; though has in effect subtracted out some services.

This paper addresses in passing the impact on First Bus's existing commercial services.

The Local Authorities' reaction

Bristol City Council (BCC) was the initiator and initially party to the planning of MetroBus, as a way of gaining government grant. In practice however, the suburban-dominated West of England Combined Authority (WECA) has taken over the subsequent planning. BCC's own public transport team were not initially involved, and were unsupportive of the guided bus concept.

Both of Bristol's first two elected Mayors have been outsiders to the MetroBus concept. Their most important decision has been to consent to redistribute BCC's bus subsidies budget – which hitherto went mostly to non-economic services run by First Bus or Community Transport, as well as to Park & Ride services. Predictably, much of the officer time, planning and to an extent subsidy has been diverted into supporting the supposedly 'unsupported' subsequent operation of MetroBus, now theoretically operated commercially – or at a 'loss leader' loss – by its new operators. This has been seen necessary so as to avoid MetroBus being seen to be a failure. Equivalent issues will have been faced by South Gloucestershire.

The net result has been a radical shake-up to decide which bus services continue to receive Local Authority subsidy. The incentive is to try to replace some currently subsidised services by investment in MetroBus.

How might this work out?

Long Ashton service.

This much altered basically Park & Ride service is now in operation, but has little relevance to city bus services, being designed mostly for external commuters from North Somerset. There will however be some impacts. Passenger numbers, after an initially negative response from users, are said to be rising; hopefully this will lead to a reduction in the subsidy hitherto required. At a later date the service is planned to reach Hartcliffe, which may facilitate better bus trunk travel into the city centre.

Ideally, this service would have retained the routing of BCC's Long Ashton P&R, if improved with an inbound bus-lane on Hotwell Rd, control of the intrusive Clifton Vale rat-run, and perhaps with bus-triggered signals on the A370 and A369 approaches to Brunel Way. These same measures would benefit Portway P&R. Hitherto, BCC has a poor record of bus priority traffic management on the Hotwell Rd / Brunel Way corridor, preferring in GBBN a general traffic signals

enhancement: which merely increases road capacity, and thus attracts general traffic, and thus will lead eventually to further traffic congestion and a *reduction* – not improvement – in bus priority. This technical problem must be addressed (and will be helped by emerging parking control policies). The building of the Ashton Vale guided bus flyover has proved an expensive liability; nonetheless at present it seems to be attractive to new users, and thus diverts some car commuters from continued penetration into the inner city,

BCC's **Portway Park & Ride** would benefit if more bus priority is put into Hotwell Rd; but will probably disbenefit (through investment delay) as investment has been diverted to the Ashton Avenue Bridge / Cumberland Rd route chosen for MetroBus.

North–South MetroBus

North–South MetroBus services are beginning to have considerable impact upon main trunk services currently operating in both the North Fringe and in South Bristol. None of this is 'guided bus'.

In order to reduce systematic congestion–related delays, these services should be split into two halves: **MetroBus (North)** and **MetroBus (South)**.

MetroBus (North).

As MetroBus routes develop there will be considerable impact and competition with those bus services currently operating to or along Cribbs Causeway, UWE, Stoke Lane, M32 and Frenchay Park Rd. Some First Bus and might be substituted by MetroBus; but others may merely become less commercially viable. Full liaison with First Bus is essential, but seems sporadic.

Each of **Cribbs Causeway**, the University of the West of England (UWE), and at later date **Bristol Parkway station** can in effect continue to operate as bus interchanges between trunk and feeder services and thus as **North Bristol bus hubs**. MetroBus (North) – services M1 and M3 – should be able to offer a fast link between each of these hubs and the city centre: but at present only does so for some of them.

In the event, the major success of MetroBus may turn out to be the first operation opened, having been a last-minute afterthought: the fast M3X Emerson's Green – city centre service via the new (and welcome) M32 bus-lane (service M3 travels via UWE).

MetroBus (South).

MetroBus M1 in South Bristol connects the city centre with the **Bedminster** (the Parade, but also Malago Rd serving Bedminster station) and **Hengrove Park** bus hubs. It could offer a fast link between them via Hartcliffe Way, but does not, and instead serves at its outer end as a local bus around Knowle West. This is solely due to the deal eventually arrived at between WECA and First Bus as operator; but succeeds only in reducing the viability of First Bus's existing and continuing local city bus services.

At Bedminster, both inbound and outbound services should use Malago Road, so as to serve as a bus/rail interchange at Bedminster station, as well as at Parson Street station. These connections could promote rapid journey times to the Northern Fringes and other locations on the future **MetroWest** using bus and rail. They would also provide rail to bus interchange for travellers bound for the centre of Bristol and southbound to the southern fringes. If routed via Bedminster Rd rather than West St Bedminster, better bus priority traffic management could be provided; or else West St should become a managed Bus Priority Route.

City Centre

There incidentally were benefits to city centre bus operations through MetroBus investment – tangentially, in the form of Bristol City Council's diversion of funding into largescale environmental streetwork improvements in the Centre. However, much more benefit could perhaps be extracted if this were rethought. For example:

We propose a two-way **City Centre Loop** circuit for buses: perhaps via Centre / Haymarket / Bond St / Old Market roundabout/ Temple Way / Temple Back East / Friary (for **Temple Meads hub**) / Victoria St / Bristol Bridge / Baldwin St. This, currently used by Park & Ride services, would be (and to an extent is) useable by many more city buses, notably the main trunk ones. In future it could be converted to **tramtrain Metro, perhaps linked to the main railway line at Temple Meads (an alignment that should be, but currently is not safeguarded through the planning system)**. But linked in certainly to future on-street tram radials and to existing radial MetroBus and city bus services: via Triangle/Park St (or Park Row/Upper Maudlin St/Lower Maudlin St); the M32; Old Market; Bath Rd Bridge: Bedminster Bridge/Redcliffe Hill/Redcliffe Way; and Hotwell Rd/Anchor Rd (rather than the current guided busway/Ashton Ave Bridge/Cumberland Rd).

Throughout these city centre bus priority routes, **segregated cycleways** or adjacent **calmed cycle routes** should be provided in parallel as a matter of course: since increased bus operations on these streets would otherwise make cycle usage hazardous, though they are the flattest and most direct cycle routes.

B. THE MAIN TRUNK ROUTES.

Introduction.

First Bus, the local semi-monopoly commercial bus operator, has in the past expressed a desire to move towards an '**Overground**' route network, based on the main trunk routes of Bristol's historic bus network. This in effect could be read as a **MetroBus** network, though lacking consideration of the question of either hubs or feeder services, and only occasional distinction between longer-distance suburban express services (a logical aim, partially achieved by MetroBus M3X) and local or inner city services. The discussion in this paper should be read as referring to the interim situation desirable between now and the adoption by WECA and eventual implementation of TfGB's *Rapid Transit Plan*, which amongst other things advocates the conversion of most main radial bus routes to on-street tram operation, connecting to a loop circuit in the city centre.

The **MetroBus** A370 and M32 corridor services could be seen as a first set of upgraded main trunk routes, though couched in the case of Long Ashton as solely a 'Park & Ride' service. Indeed, the existing BCC **Park & Ride** services on the Bath Rd A4 (E), Portway A4 (W) and Long Ashton A370, with their flat fares and city centre loop could be seen as an aspirant reformed main route network, though one designed exclusively (except for the Portway service) around the needs of out-of-town travellers. As yet, only Portway Park & Ride and the Long Ashton and M32 MetroBus services have intermediate stops. TfGB's *Rapid Transit Plan* which advocates Park & Ride sites at the outer end of most future radial tram routes.

The chief precedent for a reformed trunk network were the **Showcase** and **Greater Bristol Bus Network** (GBBN) investments. These together cover most of the historic trunk routes; but in practice (as discussed under Long Ashton Park & Ride, above) with an emphasis on general traffic priority not bus priority per se.

Unfortunately, today's main bus routes spend a fair amount of time wandering around remote suburban streets (a highly inefficient use of large vehicles), and by the time they pass any inner city stops are in the rush-hour too full to pick

anyone up. At the same time, suburban passengers already on the bus are frustrated by the number of intermediary bus stops delaying them on their way to the city centre. No-one is well served. This is particularly so when a suburb is allocated a bus route to the city centre that does not use a direct main trunk road: examples being the 90 from Knowle West or the 40 from Lawrence West, whose tedious long journey times must make regular users lose the will to live.

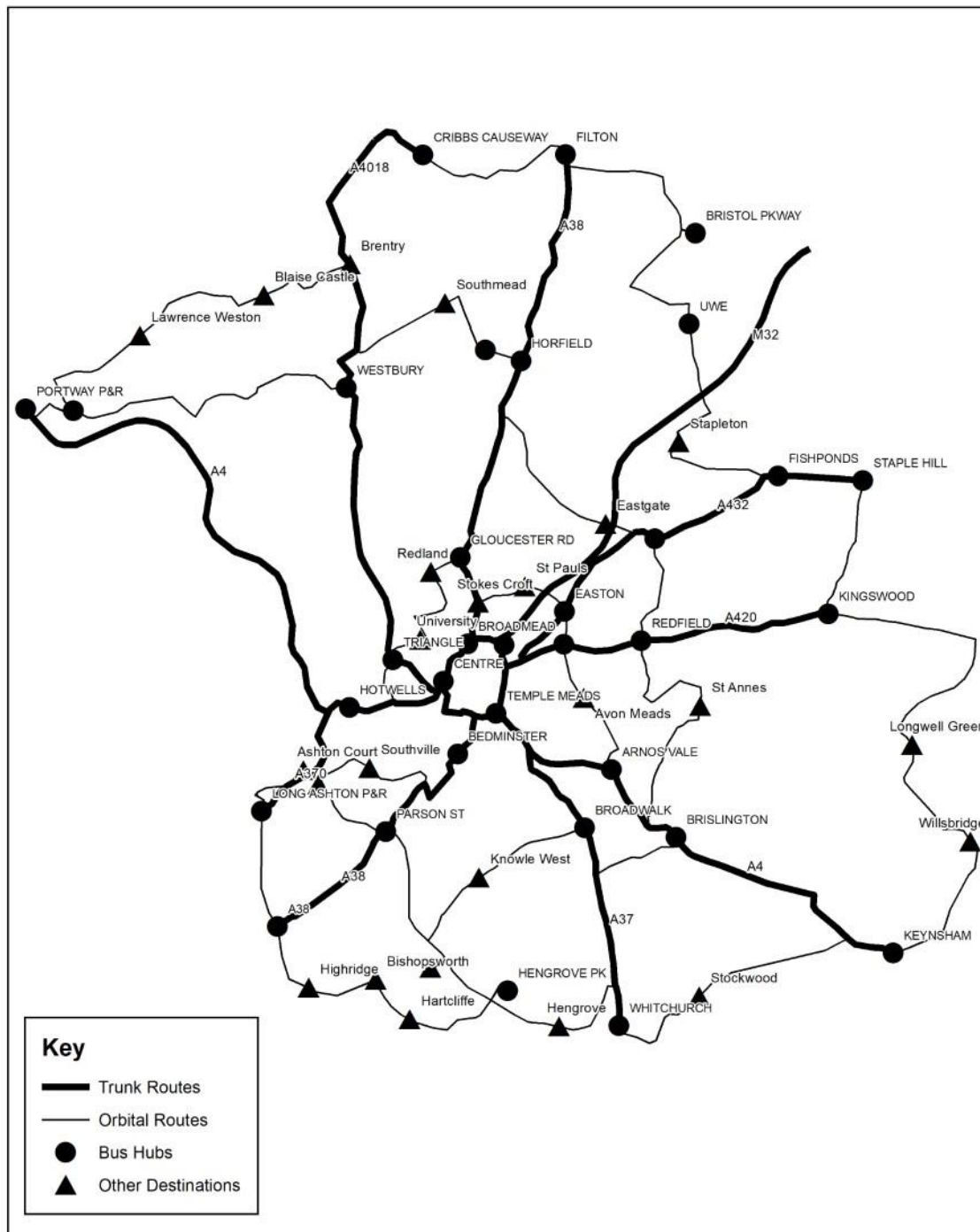
What is needed is reform and improvement of the trunk bus routes, embracing the matters of **bus priority, hubs and feeder services**. Along the main trunk routes should ply frequent large, accessible, limited stop vehicles, solely designed for trunk haul. They should be fed by feeder services interconnecting at specific hubs, and themselves connect wherever possible to future MetroWest stations. This allows trunk haul vehicles to be used more efficiently, and enables smaller feeder vehicles to serve the suburbs where their shorter hops to a suburban hub can enable quicker turn-around and thus a more frequent local service. Such a system has operated for years in for instance, Berlin. **Once again, integrated ticketing is a prerequisite, and its lack perhaps the chief bane of Bristol's attempts at public transport.**

At the outer end of their route, trunk routes should either terminate at a main suburban hub (as in Berlin), or have a limited loop or branches out to a principle suburban pick-up points for a whole residential suburb (as in Nottingham), or at a Park & Ride car park (as in Bristol's P&R services).

A suggested outline of a draft reformed Bristol bus network (minus the options for trunk outer routings) is shown in our sketch map.

TFGB Bus Plan

Trunk and Orbital Routes



Defining the main radials

Each main radial route is shown, together with its principle suggested destination termini and the intermediate suburban 'hubs' where local feeder services might interchange. All these radials already carry trunk commercial bus services and/or Park & Ride services

Also implied are possible termini loops or branches (sometimes early leaving the main stem) to each trunk route. The trunk radials are:

- ***A 370 Brunel Way. Termini options: Long Ashton P&R; Bower Ashton campus. Intermediate hubs: Hotwells; Ashton Gate.***
- ***A38 (S) Bedminster Parade. MetroBus (South) / Termini options: Hareclive Rd; Bishport Ave; Chapel Rd Bishopsworth; Sherrin Way; Highridge; Belland Drive Hengrove; Hengrove Park. Intermediate hubs: Bedminster; Parson St station; Imperial Park.***
- ***A37 Wells Rd. Termini options: Whitchurch (possible future A37 Park & Ride); Belland Drive Hengrove; Stockwood. Intermediate hubs: Broad Walk Knowle.***
- ***A4 (E) Bath Rd. Termini options: Broomhill; Stockwood; Keynsham. Intermediate hubs: Arno's Vale; Brislington Park & Ride.***
- ***A 420 Old Market / Church Rd Redfield. Termini options: Hanham; Cherry Garden Rd; Warmley; Cadbury Heath; Soundwell, Kingswood. Intermediate hubs: Lawrence Hill station; Church Rd Redfield.***
- ***A432 Fishponds Rd. Termini options: Downend; Staple Hill; Fishponds Rd (Muller Rd); Fishponds Vassall Court. Intermediate hubs: Easton Stapleton Rd; Fishponds.***
- ***M32. Termini options: Downend; Mangotsfield; Staple Hill; Emerson's Green; Bromley Heath; Bristol Parkway station; Cribbs Causeway; Bradley Stoke; Aztec West. Intermediate hubs: Eastgate Centre; UWE; Bristol Parkway station; Downend; Staple Hill.***

- *A 38 (N) Stokes Croft / Gloucester Rd. Termini options: UWE; Southmead Hospital; Cribbs Causeway; Filton. Intermediate hubs: Cheltenham Rd Bishopston; Gloucester Rd Horfield Common; Abbey Wood station; Southmead Hospital.*
- *A4018 The Triangle / Whiteladies Rd. Termini options: Cribbs Causeway; Southmead Hospital; Clifton village. Intermediate hubs: The Triangle; Clifton Down; Westbury village.*
- *A4 (W) Hotwell Rd / Portway. Termini options: Avonmouth; Severnside. Intermediate hubs: Hotwells; Sea Mills; Portway P&R; Shirehampton.*

C. UPGRADING ORBITAL SERVICES.

Introduction

Both MetroBus, and the previously subsidised element of the existing city bus network, have orbital route elements to them. This feature of Bristol's bus route network must be greatly enhanced.

Orbital services are not a significant or publically recognised feature of today's bus network. As a result, most Bristolians know only their own local bus route (if that), never contemplate a journey involving more than one bus, and imagine (correctly) that most neighbouring suburbs, hospitals, colleges, large open spaces, all 'out-of-town' centres – and indeed anywhere other than the nearest shopping centre or the city centre – effectively are to them personally **inaccessible by bus**. It is no wonder they chose the car for preference.

This situation does not obtain in European cities with a comprehensive integrated bus network. Nor indeed in North American cities including Manhattan and Toronto, where the rectilinear street pattern, each main street with a bus route along it, allows simple routes to be created between almost any two points with only one or two interchanges. There is no reason why this could not be achieved in Bristol in spite of our apparently very dissimilar historic road pattern. But what is needed is a **Bus Network Review**, such as the mayor of Bristol has commissioned.

Orbital routes

The following desirable features of orbital routes are emphasised:

- A series of **concentric** orbital services is required for a city of this size.
- They should **interchange** with both the future **MetroWest** stations, and the **Park & Ride** external bus commuter sites (where country buses should also interchange), as well as the major **suburban destinations** like shopping centres. '**Hard-to-reach**' destinations – hitherto often reachable only by car or taxi – may be included: hospitals, colleges, car-focused malls, trading estates, sports centres and major public open spaces of city-wide importance (Ashton Court, the upper Avon valley, Purdown, Blaize estate).
- Such services are capable of upgrading and partially replacing current attempts at **subsidised** 'orbital' services.
- Each route should be coherent and **marketable**. Orbitals should therefore be **limited stop**. This allows for frequent interchange, without resulting in very slow journey times that would be a disincentive to use. However, there is a choice to be made between maximum 'accessibility' and maximum speed. Thus in the 'Ring' services proposed here (see below), a deliberate attempt has been made to embrace the relatively remote but large Council housing areas of Hartcliffe, Knowle West, Southmead and Lawrence Weston, although faster routing options might for example follow the South Bristol Link Road or Hengrove Way / Airport Rd. Conversely, Willsbridge might be omitted by routing via the Avon Ring Road; or Lockleaze served rather than the routing via Muller Rd. If a residential area is not directly served, then local feeder routes can be used to make the connection at the nearest bus hub.
- Specific **bus priority** measures may be required, especially at some junctions (see Part 5).
- Services should initially be perhaps 20 minute **frequency**; but enhanced quickly once a market is established. Any lower frequency would probably fail to attract users.

With careful design, even with Bristol's road network, the resultant trunk and orbital bus network could aspire towards the simplified and easy to use comprehensive network of the type provided in Toronto or a German city.

Funding is a major issue, since orbital routes are unlikely to prove economic until their patronage has gradually been built up. Sequential but reducing subsidy probably will be required (as it was initially for the city's Park & Ride services).

Useful devices include:

- Infrastructure Levy Payments under the Planning Acts;
- sequentially modifying existing commercial bus services;
- heavy and innovative marketing ('Treat the bus like a car', perhaps?);
- special offers marketed at embraced 'hard-to-reach' destinations;
- initiating the Orbital concept with services to particular popular destinations like Bristol Parkway station, Bedminster East St, Ashton Gate stadium, and Avon Meads and other car-dependent retail centres;
- integrated ticketing – *which is anyway a precondition* – may lead to beneficial cross-subsidisation between trunk and orbital services.

Our sketch plan outlines a possible orbital bus network, set within the radial trunk route system. **Main suburban centres** and **other bus hubs** are shown in bold (with the main centres in capitals). The draft suggested orbital services form a four-tier set of 'ring' services: **City Centre Loops**; an **Inner Ring**; a **Middle Ring** and an **Outer Ring**, together encompassing all of Bristol's contiguously built-up area.

City Centre Bus Loops

These essentially are circular routes within the city centre. Two are envisaged:

- One is addressed in Part 1 (A), in the context of **MetroBus / trunk bus routes**. It interlinks the major city centre destinations and hubs at: the **Centre, Broadmead / Bus Station, Cabot Circus and Temple Meads Station**. It in effect already exists for Park & Ride services.
- A second potentially carries some trunk routes (and in part does) via **BRI Hospital, The Triangle and Bristol Bridge**. This would require extensive bus-priority traffic management (see Part 5).

On both loops could operate frequent possibly small vehicles on a 'free' or low flat fare basis, if provided by the Local Authority or commercial interests.

Alternatively, MetroBus, P&R services and sundry trunk services incidentally continue to provide much of these loops, but be better marketed in so doing.

Trunk buses (see Part 1(B)) could either use these loops – so that a frequent city centre loop service is effectively provided at marginal new cost. But should it prove commercially or environmentally more efficacious, trunk services may turn

around at the first or second city centre hub they reach. If the latter option is chosen, the loop vehicles will need to be large and extremely frequent. None of this does occur in any coherent way at present; Park & Ride services for example do not pick up city centre short-hop passengers. Once again, integrated ticketing would be a precondition.

Inner Ring

Suggested route, with limited stops and interchanges at (including alternative routings): **Long Ashton P&R A370**; Bower Ashton (for UWE / Ashton Court / the Gorge); Southville (North St); Dalby Ave **A38** (for Bedminster MetroWest station); **BEDMINSTER PARADE**; Redcliffe Hill; Redcliffe Way; **TEMPLE MEADS STATION**; *[or else Victoria Park; **Broad Walk Knowle A37**]*; **Arno's Vale A4** (for Arno's Vale Cemetery); Avon Meads (retail park, for St Philips trading estate); **Easton Way A420** (for Lawrence Hill MetroWest station); **Easton Way A432** (for Stapleton Rd Easton); **M32 junction 3** (for M3 trunk bus services); St Paul's; **GLOUCESTER RD A38** (for Montpelier MetroWest station); Redland MetroWest station; Tyndall Ave. (for University); **THE TRIANGLE**; *[or else **Clifton** village (for Suspension Bridge); Jacob's Wells Rd; **Hotwells A4**; Bower Ashton; **Long Ashton P&R**.*
Partially replacing the following historic services: 8, 9.

Middle Ring

Proposed route, with stops and interchanges at : **Long Ashton P&R A370**; Bower Ashton (for UWE / Ashton Court / the Gorge); Winterstoke Rd (for Ashton Gate stadium, trading estate); **Parson St Metro station A38**; Hartcliffe Way; **Imperial Park** (retail centre); **HENGROVE PARK** (hospital, sports centre, college); Knowle West; **BROAD WALK Wells Rd A37**; *[or else Airport Rd];* Callington Rd; Bath Rd **A4**; *[or else **Brislington P&R** (and trading estates)]*; Wick Rd Brislington; St Anne's; Netham (for St Philips trading estate, Avon Trail); **REDFIELD A420**; Whitehall; Rose Green (trading estate); **Eastville A432**; *[or else Whitefield Rd, Lodge Causeway; **FISHPONDS**; UWE Glenside; Stapleton];* **Eastgate Centre** (for M32 services, Frome valley); Muller Rd (for Purdown, Stoke Park); **Horfield A38** (sports centre); **SOUTHMEAD HOSPITAL**; Greystoke Ave Southmead; **WESTBURY**; Combe Dingle (for Blaize estate, Trym valley); Sea Mills; Park Hill (for Kings Weston estate); **SHIREHAMPTON**; **Portway P&R A4**.

Partially replacing the following historic services: 36, 501, 502, 506.

Outer Ring

Proposed route, with stops and interchanges at : Long Ashton P&R A370; South Bristol Link Road (interchange at A38); Highridge Common A38; Whitchurch Rd Withywood; Imperial Park (retail centre); HENGROVE PARK (hospital; sports centre, college); Whitchurch; [or else Whitchurch P&R A37 if built]; Stockwood; [or else Brislington P&R (when/if relocated)]; KEYNSHAM / Keynsham station (for Avon Trail); Willsbridge (for W Mill); [or else Avon Ring Road]; Longwell Green (retail centre); KINGSWOOD; Staple Hill; FISHPONDS; Blackberry Hill (for St Matthias UWE); Stapleton (for Frome valley and Stoke Park); [or else Downend; Bromley Heath; Frenchay Hospital]; UWE; BRISTOL PARKWAY station; Filton A38; CRIBBS CAUSEWAY; Bentry ; Henbury (for Blaize estate); Lawrence Weston; SHIREHAMPTON; Portway P&R A4.

Partially replacing the following historic services: 40, 581, U3, U7.

D. FEEDER BUSES AND ACCESSIBLE TRANSPORT

One of the most complex issues in bus planning is that of physical accessibility: whether of feeder buses going sufficiently close to all dwellings, or of accessibility for disabled users. There has been limited integrated policy here, and no integrated planning or budgeting. This must change.

- High frequency **feeder bus** services, operating on routes to within 400m of all dwellings, should terminate at main suburban hubs with trunk bus and/or rail services. These services typically are not regarded as 'commercially viable', and so requiring of public **financial support**. However, many can in effect be made commercial if they become attractive feeders to trunk and orbital bus services, effectively cross-subsidising with them. Nonetheless, a residual will require support.
- Even closer **accessibility** – actually **door-to-door** – is required by some disabled users. Some registered disabled users' needs will remain to be met by specialised services: whether **Community Transport** in form, or through the 'wigglybus' organisation of normal feeder bus services. Accessible transport must be provided cost-efficiently in order to reduce current per-

passenger costs – it is not at present with the mish-mash in Bristol of Bristol Dial-a-Ride, Bristol Community Transport, and some local suburban equivalents – and to maximise effective capacity. One necessary reform will be the initiation in the West of England, within the accessible transport budget, of a **Taxicard** scheme for registered disabled users.

The funding and planning of feeder routes.

Generalist feeder buses already exist in Greater Bristol, in two forms. The first are commercial bus services not operating on trunk routes. The second are Local Authority supported services, usually operating with small vehicles in localities of narrow residential streets, or to small remoter areas not otherwise served by commercial buses. Both types are at risk from **financial cut-backs**.

An immediate reform, enabling a considerable improvement in operational economics, would be to terminate feeder buses at **suburban bus hubs** – not in the city centre, where these vehicles help pollute and clog up scarce city centre streetspace. This change would allow a higher frequency of service with the same number of vehicles, and a more reliable running time; both changes being likely to make these services more attractive to users and more financially viable. Some supported services already operate in this manner. Only inner city feeder buses – serving also intermediate stops on main roads – need actually reach the city centre, and then only terminate at the nearest city centre hub.

Such reform has two preconditions. The first is **interchangeable ticketing** (see Part 3). The second is the planning and provision of good **bus hubs** (see Part 2).

A significant political change required, would be a greater measure of Local Authority control over bus routing and financing. This is likely only under conditions of an **Integrated Transport Authority**. As yet, Greater Bristol remains unusual amongst English metropolitan cities in not having such an arrangement in any meaningful form (the various LA's religiously retain their separate policies, and offer only the illusion of joint policy-making).

It is possible to work towards coherent transport planning by negotiated agreement with commercial bus operators; but as yet there has been little commercial incentive to do so, or sanctions applicable. Exceptions have been Greater Bristol's '**Showcase**' and '**Greater Bristol Bus Network**' schemes, whereby government grants for bus priority traffic management and bus-stop facilities, have encouraged the Local Authorities and selected bus operators to co-operate:

in on-street facilities, purchase of new vehicles, passenger information, bus operational management, and to a limited extent fares. In future, ticketing may be brought under such arrangements, but only within the bounds the operator(s) choose. However to date, such negotiations have largely involved trunk bus services, and not feeder ones – the latter being in fact planned (if planned at all) separately.

As things stand, the city's bus system is in danger of being stripped down towards simply a trunk network. Unless this process is halted, it will have a very adverse impact upon the ability of buses any longer to compete with car travel. It is not 'growing the market'. **WECA's promised Bus Strategy, but also Bristol City Council's separate Transport Strategy, are** therefore crucial, and must bring financial considerations within their remit; ultimately the strategies must be combined.

Bristol City Council already has a planning policy that every household should be within **400m** of a reasonably frequent bus service. This is a good starting point. However, we are aware that BCC's financial support for bus services is reducing.

Feeder buses at suburban bus hubs.

Suburban bus hubs, and bus interchanges at stations, must have sufficient raised platform capacity for trunk, orbital and local feeder buses.

If it proves impossible to provide sufficient capacity in one street location, then additional stops will be required very close by. Clearly, it is likely to be advantageous for feeder buses to lay over at these hubs, which often will be in suburban shopping centres where a good proportion of their passengers will anyway wish to alight. If the hub stop is too congested, a layover stop close by will be necessary. There must be excellent accessible walking facilities between these stops, to allow for ease of interchange for those wishing to do so.

Community Transport and Taxicard

Feeder buses, as all public service buses, will soon by law have to be physically accessible to disabled people. Accessible feeder buses, if organised on **phone-on-demand** 'wigglybus' lines, can offer a door-to-door service for users unable to walk to the nearest bus stop.

However, a door-step service already exists in some areas, operated by voluntary sector **Community Transport** (in Bristol, by Bristol Community Transport, Bristol

Dial-a- Ride, CATT in Hartcliffe, Mede Sprint in Knowle West, and Lawrence Weston Community Transport). Most have been largely Local Authority supported (with the exception of BCT). While some operators are pretty efficient, others when studied were found to be operating at a cost to the Local Authority of double the equivalent taxi fare. If this is found still to be the case, radical reform is required. A more efficient service would both cost less to the Local Authority, and be able to serve more users. A **review** is required.

Community Transport reform could take two mutually-supporting directions. The first could maintain the voluntary sector focus but could entail the award by the Local Authority of local **ward-based contracts** to a selected local provider, who would be obligated to run agreed levels of service from given catchment areas to stated local centres and to public transport hubs. These services could act as a back-up to normal feeder bus services, but in practice may be found to be able to merge and thus be funded jointly. The operators' finances could be eased by parallel award of contracts for schools and social services or Health Authority transport. Equivalent practice has in part already been undertaken in South Gloucestershire.

A second string should be the initiation of a **Taxicard** system in the West of England (as in London). This could beneficially absorb up to half the total 'Community Transport / accessible transport' Local Authority budget. Users would have to qualify through disability, but would then be able to access a subsidised taxi service offering door-to-door travel for medical appointments, social visits, etc., such as are only poorly met by current Community Transport services. Similarly, evenings and weekend travel would be enabled. Taxi providers would require to be registered as having sufficient appropriate trained drivers and vehicle types, and be required to work to a code of conduct.

It is estimated that all of the reform of Community Transport contracts, the reform of supported feeder bus contracts, and a new Taxicard scheme, can be achieved within the existing 'Community Transport / accessible transport' Local Authority budget. Studies have been started on several occasions within Bristol City Council; they must now be brought to fruition and acted upon. Anything less would fail the city's disabled passengers.

PART 2. CREATING PUBLIC TRANSPORT HUBS IN GREATER BRISTOL

Introduction

This Part explores further the bus interchanges or ‘hubs’ already introduced in Part 1 (sections B, C and D). At present the city’s bus users abhor interchange: they use only one bus for any one journey (or more likely, no bus at all), because to interchange to a second bus to get where you want to go, is very likely to involve a long wait in between, and certainly will involve the payment of two not one fares. Why would anyone want to do that (especially if they’ve got access to a car)?

Yet in Europe, interchange with interchangeable ticketing (including rail) is the norm. It allows the bus and public transport system to compete with car travel.

Some *de facto* bus interchanges – or ‘hubs’ – already exist in the West of England: in Haymarket (for Broadmead), the Centre, Temple Meads, Bedminster, Old Market, all in the centre of Bristol; and Kingswood, Bristol Parkway, UWE, Southmead Hospital and Hengrove Park in the suburbs. Few of these were specifically designed as a bus hub, however – with the notable exception of Old Market. To the user, most appear accidental and chaotic. With **integrated ticketing** and an increase in incentive to make more frequent bus interchanges, and with the development of a **Rail Metro**, this could and must change. Issues of **accessibility** must also be addressed in these new ‘bus hubs’.

Features of a good interchange / bus hub

The following features are desirable (though may not be achievable in all locations):

- all services (trunk, orbital, feeder and Community Transport) should use the same bus-stop;
- a single, well-appointed covered bus shelter (as at Old Market);
- a raised kerb (for accessibility);
- a waiting area sufficient for 2–4 buses (depending on the number of services calling);
- a comprehensive ‘real time information’ display;
- a city bus system map;
- bus timetables (related to that particular stop);
- a street map showing local popular destinations;
- an adjacent pedestrian road crossing.

In addition, hubs desirably should have:

- an adjacent toilet;
- an adjacent taxi stand;
- adequate cycle parking.

The bus hubs

Hubs sensibly occur at shopping centres, colleges, hospitals, Metro stations and some main road intersections. The principal hubs have already been cited. To recap, the suggested hubs are:

Within Bristol city centre:

- **The Centre.**
- **Broadmead / Bus Station** (in Horsefair).
- **Cabot Circus** (in Temple Way).
- **Temple Meads station** (in Friary).

On the main radial (trunk) routes:

- **A370. Long Ashton P&R.**
- **A38 (S). Parson St station, Bedminster Parade.**
- **A37. Broad Walk.**
- **A4 (E). Keynsham, Brislington P&R, Arno's Vale.**
- **A420. Kingswood, Redfield, Lawrence Hill station.**
- **A432. Staple Hill, Fishponds Rd, Easton.**
- **M32. (Eastgate Centre).**
- **A38 (N). Filton, Horfield, Gloucester Rd Arches.**
- **A4018. Cribbs Causeway, Westbury, The Triangle.**
- **A4 (W). Portway P&R, Hotwells.**

Plus at other locations, on the orbitals:

- **Hengrove Park hospital.**
- **UWE.**
- **Bristol Parkway station.**

Plus at other Metro stations:

- **Bedminster.**
- **Stapleton Rd.**
- **Redland.**
- **Filton Abbey Wood.**

- Clifton Down.

The hubs served also by the orbital bus routes are listed in

Funding the hubs

Required works will lie largely within the public highway. Contributions may be receivable from nearby developments through Community Infrastructure Levy payments whenever possible. For bus/rail hubs at mainline and future Metro railway stations, investment is desirable through the Local Authorities' Rail Metro programme.

Future MetroWest bus / rail hubs.

- **Temple Meads station.** Safeguard **Plots 3/6** for a bus/rail hub. Safeguard a **rail alignment** to connect a future city centre tramtrain circuit to the main line at Temple Meads. Utilise **Friary** – and subsequently the link to **Temple Back East**, utilising a bus-gate – as bus access routes to Temple Meads. Divert most current buses. Include current MetroBus services.
- **Filton Abbey Wood station.** Expand existing bus interchange at **Emma–Chris Way**, utilising also the link to **Nutfield Grove** (replacing existing road closure by a bus-gate). Divert all current buses from Filton Ave. Improved station signing and bus information.
- **Bedminster station.** Divert all buses off East St, to use Malago Rd two-way (though this needs local consultation with East St. shoppers. Additional bus-stop by the station. Improved station signing and bus information.
- **Portway station.** Approached by general buses (not just P&R service) using **West Town Rd** two-way.
- **Ashton Gate station.** (Whatever its location) approached by Inner Circle buses from **Brunel Way**, in a loop en route to Long Ashton P&R.
- **Patchway station.** Examine technicalities of relocating station to **A38** so as to be interchange with buses including Outer Circle (but is close to tunnel outlet).

PART 3. ACHIEVING INTERCHANGEABLE TICKETING

(forthcoming)

PART 4. HOW TO DO BUS PRIORITY TRAFFIC MANAGEMENT

Introduction

Without adequate bus priority traffic management, buses get held up in general traffic congestion and are not perceived as offering a reasonable alternative to the car for those with access to the latter.

The Greater Bristol Bus Network (GBBN) scheme was intended to improve bus priority traffic management in the city, but has been inadequately undertaken. The job remains undone.

Bus priority, not general traffic priority

The traffic engineering ethic adopted under GBBN was to upgrade traffic signals so as to achieve a faster throughput of general traffic and thus an effective higher road capacity. Buses were supposed to benefit along with general traffic. Yet this approach can work only in the short term. Higher effective road capacity attracts more traffic, notably at those peak times when extra capacity is released from former congestion. As general traffic levels increase, so congestion gradually returns to its former level. Buses are then once again congested, and have attained only limited advantage over traffic in general – and thus little perceived advantage with respect to car travel.

For real bus priority to be achieved, buses must be given preferential treatment: by means of bus lanes, bus gates and bus-activated traffic signals. This has yet to occur along many radial main roads – the very roads along which most trunk bus routes will run.

A textbook case is the A4 Hotwell Rd, the route of the former Long Ashton and the existing Portway park & Ride services, and many out-of-town services from North Somerset. While outbound bus lanes have been provided, inbound bus lanes have not. Inbound bus priority could be achieved on the existing main route by a bus lane on Hotwell Rd, the removal of intersecting traffic rat-running from Clifton, and the installation of bus activated traffic signals on the A370 and A369

approaches to Brunel Way, helped by a 30mph calming of the hazardous Brunel Way flyover and 20mph along Hotwell Rd as consistent with city policy.

Bus approaches to main roads

Amongst the chief delay points to buses are those where a bus route enters the traffic flow of a main road. This commonly occurs in several types of situation, namely:

- the outer reaches of trunk bus routes, where these first enter the main radial road system (eg. bus service 1 from Sandy Park Rd into Bath Rd);
- where feeder buses join or cross main roads; and increasingly in future, where orbital services cross or join a main radial road (as in the approaches to the Eastgate Centre hub from the M32).

All seem difficult to solve, but need not to be. Southampton has dealt with some by providing bus gate entry onto a main road by rerouting the bus service via a selective sidestreet. In other places (as at Brunel Way), bus activated signals may be appropriate in some circumstances, in spite of their cost.

If this problem is *not* tackled, bus travel will garner a gradually deteriorating popular image as general traffic levels increase. And some of the orbital routes suggested would simply not work during rush hours.

Bus gates and traffic-free zones

In Holland, much use is made of 'bus gates', which allow buses exclusively to penetrate and cross focal city centre or suburban centres, free of other traffic. Notable examples in Bristol include Horsefair, East St Bedminster, the Hartcliffe campus approach to Hengrove Park bus hub, and the Broad Quay flank of the Centre. Such features give buses considerable advantage over general traffic, and markedly improve their image.

Not all bus gates need to be fully exclusive. Often they will be required to cater for servicing vehicles to adjacent premises, emergency vehicles, and sometimes disabled vehicles.

There often is a reticence to implement bus gates. An example is the putative Romney Ave approach to the UWE bus hub, which has been under desultory discussion for years.

Prime candidates for bus gates occur in Bristol city centre, most notably the Park St and Baldwin St approaches to the Centre bus hub. Whilst mooted more than once in the past – usually on civic amenity grounds re calming and beautifying the city centre – their achievement has been consistently shied away from, presumably on general traffic grounds. Equivalent schemes have long been operative in cities like Utrecht and Goteborg; and indeed Bath.

Buses should not however, automatically be assumed to be a good thing within shopping centres. Central Oxford illustrates the advantages of rerouting buses as well as other traffic, to achieve largely traffic-free civic spaces. Arguably, in Bristol buses should be removed from:

- **Horsefair / Penn St** within the central Broadmead / Cabot Circus shopping complex – and routed, with priority, via Bond St / Temple Way;
- **Queens Rd** at the Triangle – and routed two-way, with priority in general traffic, via Triangle South and Triangle West;
- **High St / Wine St**, to create a traffic-free walk route between Broadmead and the Old City – and routed, with priority around the city centre bus loop including Lewin's Mead / Centre / Baldwin St / Bristol Bridge.
- **Quay St / Nelson St**, to create a traffic-free walk and cycle route between Broadmead and the Centre – and routed, with priority, via Lewin's Mead and Rupert St. This will be achievable as general through-traffic is gradually excluded from the Centre; with reduced traffic levels in Haymarket allowing the relocation of Union St and Horsefair stops.
- **East St Bedminster** – and routed, with priority, via Dalby Ave / Malago Rd (this operates already for southbound buses), interchanging in both directions with Bedminster station. This will be contentious however, since East St shopping centre attracts many disabled shoppers, and evening security may be an issue.
- **Westbury High St** – and routed (as some buses already are) via Falcondale Rd and Canford Lane;

Both bus gates and traffic-free zones will be easier to achieve in the city centre once parallel policies of rail MetroWest (ideally with on-street city centre tram-train sections), Workplace Parking Levy, cycleways, Clean Air Zones and possibly road user charging zones have been agreed upon, and a serious reduction in city

centre traffic become predictable. However, the implementation of bus gates in particular should not be delayed – but rather be viewed as early actions bringing forward the political attractiveness and achievement of traffic reduction.

PART 5. BUS INFORMATION, PUBLICITY AND FACILITATING INFRASTRUCTURE.

Summary

To use a bus system you have to know:

- where a bus service goes,
- what interchange hubs are possible and where,
- what time buses in reality leave and arrive,
- how much it will cost,
- whether it is physically accessible to the disabled, and
- whether the bus stop is sufficiently well designed.

In the West of England such matters often are wreathed in mystery. A whole new user-friendly approach is essential, necessarily embracing all of the following elements.

Administration

It should be the Local Authority's responsibility – or better still that of a genuine (not pretend) West of England Integrated Transport Authority (ITA) or Combined Authority (CA) – to ensure that the public have adequate information about local public transport services.

In those parts of the service which remain privatised, the responsibility and cost should be shared with the operator. But the Public Transport Authority should have the right to impose minimum information conditions on the (often recalcitrant) operator. It is unclear how far this is not already enshrined in law, yet not enacted locally; or whether an ITA is required to enable it (legally and in practice).

In either event, the Local Authority as Transport Planning Authority should subscribe sufficient budget within the transport department, to ensure sufficient public information. This does not occur at present. It should also have a dedicated professional staff, as in real ITAs – but as yet not in the West of England.

Route maps

Two types of route map are required, in various contexts:

- A list of the **bus stops** on the service in question. This should appear inside the vehicle, at the bus stop, and on the printed and e-version timetables of the service.
- A **bus system map showing all bus routes, the bus hubs, plus interconnections with the mainline rail and local MetroWest stations**. This should be available in printed form, on the web, and at all major bus stops and connecting rail stations. It could appear in either or both of two formats: a geographical map, identifying named suburbs; or in 'London tube' style diagrammatic form. Bristol intermittently has such things, though rarely comprehensive and often out of date. This lack reflects the city's lack of a 'higher mind' re public transport and its planning. Maps at bus stops should be sufficiently large and at correct height to be readable, and free of obstruction by seated persons (this may mean mounting it on a monolith adjacent to the bus stop, as in Grenada, Spain).

Bus stops

Bus stops should be:

- **Suitably named**, both on-site and on maps. When at a station, the name should be that of 'such-and-such station'. When central to a particular destination (be it suburb, significant building, park, hospital, etc.) the stop should take that name. Otherwise the stop should be named from the road on which it occurs; except where there is more than one stop on that road, in which case and only then) should it carry the sub-name of the nearest sideroad. Whereas at present, naming by obscure sideroad appears to be the norm – an unhelpful practice for most users. The city's bus stops need to be comprehensively renamed.
- **Adequately planned and simple to use**. All bus stops should list prominently those services which call at them. Wherever possible, all services going in a particular direction should use a single unified and adequately sized bus stop, shelter, seating, litter facilities and raised kerb (this practice is now established, as at Old Market and College Green).

- As in Holland, many stops should have **associated cycle parking facilities**, to encourage multi-mode journeys (allowing a wider user catchment per stop).

Interchange with rail.

Bus/rail hubs should be developed at most MetroWest **stations: thus at** Temple Meads, Filton Abbey Wood, Bedminster, Stapleton Rd, etc., complementing the partial existing interchanges at Bristol Parkway, Clifton Down, Parson St and Lawrence Hill. At the minimum, the bus stop must be signposted from the station, and vice versa.

Timetables

These must be:

- paper-based and web-based;
- up-to-date;
- freely available;
- individual service timetables must include a map of the service route, showing also the interchanges possible along it;
- timetables at bus stops and rail stations should take the form of a simple list of arrival times at that stop, with the main final and intermediate destinations named;
- as a matter of principle, registered bus schedules should change as infrequently as possible. Given Bristol's shaky bus planning and budgets, and lack of overall direction (other than commercial), this is the vreverse of the current mess.

Real time information

In a fully developed urban Bus Metro, reliable frequencies of 5–10 minutes do not require Real Time Information (RTI) investment. In the meantime, in the West of England, RTI may be regarded as an unfortunate necessity – needed because our bus frequencies are so low, and unreliable.

The major requirements of RTI are that it should be:

- comprehensive (ie. all service routes, all buses operating those services, and all operators),
- at all bus stops and stations, and
- accurate (eg. operate on bank holidays).

None of the above yet apply in the West of England.

Ticketing

All 'special' tickets and their price (eg. day riders, Avon Riders, etc.) should be well publicised, and this information clearly displayed at all bus stops, in all timetables and on all buses. **Normal tickets should be easy to understand, preferably paid for off-bus, and integrate the services of all bus providers (including Community Transport), and rail. As soon as possible, tickets should be electronic.** London has had all of the above for years.

Disabled travel information

All route maps and timetables should clearly say which bus services, and which interchange Rail Metro stations, are accessible for disabled people.

The **gettingaboutgreaterbristol.org** website of accessible travel information for Greater Bristol, hitherto run by the constituent Local Authorities, must be revived, maintained and advertised.

CONCLUSION: HOW TO TRANSFORM BRISTOL'S BUS SERVICES.

It might be assumed that little can be done in today's straightened financial situation, but this is simply not so. The following is a distillation of immediate ways forward towards achieving a Bus Metro.

Quick wins in bus information – bus stop information.

Bus stops are the public face – the advertising locale – of the city's bus network. The information and publicity presented there is crucial – yet at present the workings of the bus system are a closed shop to all but the most dedicated user, and even then most users know only their own bus route.

The agency will be WECA and the bus operators. There should be:

- bus route maps at all bus stops, indicating also en route interconnecting services;
- "where to catch your bus" maps at all interchange stops (in instances where unfortunately there is more than one bus stop for the different services);

- “towards...” on all bus stop flags, in the format “Towards Centre” or “Towards (suburban terminus or the nearest mutual bus stop where routes diverge)”; and
- bus network maps at all bus stops with bus shelters or other suitable display points.

Bus network funding policies – adapting existing commercial operation.

Newly-planned services in the current situation necessarily will need to make a profit or cover their costs. The alternative – public subsidy – may in the event prove untenable (given that currently, public financial support to buses is being cut). Clear cases in point are the MetroBus proposals and any orbital bus improvements. These preferably should be attempted by, respectively:

- an adaptation of extant trunk and Park & Ride services (though the latter do not yet cover their costs, and are therefore a subsidy to out-of-town commuters); and
- an adaptation and combination of extant commercial and supported orbital services.

For this reason, the existing services operating on the orbital routes, or closely parallel to proposed MetroBus routes, are listed in this paper.

Other funding sources – a coordinated investment programme.

As with rail MetroWest, all potential funding sources must be tapped – including **Community Infrastructure Levy, Road Charging, Workplace Parking Levy, City Deal, parking charges** – drawn in by WECA as Public Transport Authority, and coordinated into Bus Metro (and Rail Metro) system improvement. This approach was adopted by Bristol City Council to achieve its existing Park & Ride investment.

The most essential bus change required – integrated ticketing.

Integrated ticketing alone will allow faster bus run times, therefore require less vehicles, and achieve greater bus reliability; plus facilitate interchange. In sum, it will attract more passengers. This was found in London with the public launch of its ‘Oystercard’ system (since progressively widened).

This in turn will allow lower fares, thus creating a virtuous circle attracting yet more passengers. Which will both reduce the need for bus subsidies, and have a significant impact on city modal split. Which will in turn:

- relieve the need for excessive expenditure on general traffic management and control, and
- allow a transfer of resources towards improving cycling and walking infrastructure. Which will:
- Enhance the attractiveness of multimodal trips involving walk/ cycle and bus. Which will:
- Further drive the virtuous circle.

WECA's continuing failure to achieve this fundamental requirement is its greatest bus-related failure to date. This has to be resolved with all haste. Any tendency for First Buses to obstruct the integration of multimodal, multi-operator ticketing must be more strongly resisted. DfT and WECA must make it clear to First Bus that only integrated ticketing will achieve the full growth potential in the bus market that its Bristol operations badly need.