

Glasgow Streetspace Allocation Framework (SAF)

Summary research paper May 2023

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1. Problem Definition

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- Key radial (and orbital) routes pass through local centres with limited width between buildings
- Space is often used inefficiently for existing purposes
- In typical high street environments, only 3 functions can be accommodated (typically walking, parking/loading and moving traffic)
- New proposals for this same space include:
 - Bus priority measures
 - City cycle network
 - Spaces for People improvements
 - Placemaking improvements
 - Future Clyde Metro
- How do we meet the objectives set by each of these proposals within the confined space of many streets?

Typical space allocation on 18m wide street



Potential reallocation on 18m wide street



1. Problem Definition (Space Consumption)



- Different modes of transport occupy different amounts of space on the street
- Parked vehicles are the most inefficient use of space on a street, in transport terms
- Public transport can be the most efficient use of space, given the speed of travel and lack of parking needs
- But this needs to be tempered with the width requirement for bus vs cycle lanes – leading us to consider 'total people movement' alongside the need for continuous provision of facilities

Typical space consumed per person per trip, for different types of trip (International Transport Forum, 2022)

2. Potential Decision-Making Framework approach

2. Proposed Decision-Making Framework



Step 1: Confirm primary and secondary routes for each mode

Indicative modal networks have been defined in this work. These are shown overleaf. The criteria used initially by the SAF are:

For walking:

Network	Level of Service	Potential Locations
Primary	Highest LOS: greater than minimum width, direct priority crossings	High accessibility areas
Secondary	High LOS: desirable minimum widths, controlled crossings	Medium accessibility areas
Local	High LOS: minimum widths	All other streets
For cycling:		
Primary	Highest LOS: fully connected, protected, direct, desirable min width (for leisure and commuting purposes)	Radial cycling network routes from City Network
Secondary	High LOS: fully connected, protected, potentially less direct or absolute min width	All other city cycle network routes
Local	Potentially mixed space with low speed traffic	All other streets
For bus:		
Primary	Highest LOS: fully protected journey times and accessibility	Highest frequency routes: 7 or more buses / peak hour (10+min frequency)
Secondary	High LOS: reliable journey times but may mix with traffic, fully accessible	Between 4-6 buses / peak hour (10-30 min frequency)
Local	Fully accessible	All other bus routes (<2 buses / peak hour (<30 min frequency)





For general traffic:

Primary	Higher capacity, higher speed, limited junction delay	Strategic distributor routes, including expressways and higher speed roads
Secondary	Reliable routes, limited parking, subject to some junction delay	District distributor routes
Local	Local access, lower speed	All other streets

Example - PlusNet Approach

A similar concept to the network-based approach suggested for Step 1 has been introduced in Amsterdam:

- On most streets, no more than two 'Plus' (primary) networks exist
- 'Main' (secondary) and 'Basic' (local) networks can also be included but with less priority
- Where Plus PT network conflict with other Plus networks, priority can be given to PT based on the total 'people movement' during peak hours
- The consideration is always which mode of transport, given the function in the larger network and the local function of the street, deserves more space and / or a better traffic flow.





PlusNet Pedestrian (brown)

PlusNet Bus (blue) and PlusNet Tram (purple)

PlusNet Car (red) and PlusNet Cycles (green)

Step 2: Identify potential conflict locations

By overlaying the desired modal networks, the following types of conflict areas can be identified. These areas will then form the basis of a more detailed assessment of the type of streets where conflicts need to be resolved (Step 3) and the process for doing so (Step 4).

Sufficient space to provide priority for each modeNo specific conflict: Space to be allocated based on street typologyNo specific conflict: Space to be allocated based on street typologyPrioritise space to be allocated based on street typologyPrioritise space for primary mode if requiredPrioritise space for primary mode if requiredPrioritise space allocation for for modePrioritise space allocation decision neededPriorities space allocation decision needed if requiredPriorities space allocation decision neededPriorities space allocation decision nee		Primary route vs Primary route	Primary route vs Secondary route	
Insufficient space to provide priority for each modeConflict Type A: Primary ConflictsConflict Type B: Secondary ConflictsSpace allocation decision needed Cannot be informed directly by modal prioritiesSpace allocation decision needed 	Sufficient space to provide priority for each mode	No specific conflict: Space to be allocated based on street typology	No specific conflict: Space to be allocated based on street typology Prioritise space for primary mode if required	
Insufficient space to provide priority for each modeConflict Type A: Primary ConflictsConflict Type B: Secondary ConflictsSpace allocation decision neededSpace allocation decision neededSpace allocation decision neededCannot be informed directly by modal prioritiesCan be informed directly by modal prioritiesCan be informed directly by modal priorities(e.g. London Road inner)(e.g. Gallowgate)		(e.g. GWR outer)	(e.g. London Road outer)	
Space allocation decision needed Space allocation decision needed Cannot be informed directly by modal priorities Can be informed directly by modal priorities (e.g. London Road inner) (e.g. Gallowgate)	Insufficient space to provide priority for each mode	Conflict Type A: Primary Conflicts	Conflict Type B: Secondary Conflicts	BETR
Cannot be informed directly by modal priorities Can be informed directly by modal priorities (e.g. London Road inner) (e.g. Gallowgate)		Space allocation decision needed	Space allocation decision needed	
(e.g. London Road inner) (e.g. Gallowgate)		Cannot be informed directly by	Can be informed directly by	1
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		(e.g. London Koad Inner)	(e.g. Gallowgate)	









Step 3: Define street typologies (conflict locations only)

To help guide how space should be allocated in the areas where conflicts arise, it is important to understand the type of street affected and the functions that the street performs. At a high level, this can be informed by an understanding of the place value of each street as well as its movement function.



P3/M1

- High priority for pedestrians & low priority for vehicles
- Pedestrianised areas
- Restricted access

Example: Buchanan Street, George Square

P2/M1

- High priority for pedestrians & low/med priority for vehicles
- Vehicle parking & low speed limits
- Mainly residential
- Example: Any residential street

P3/M2

- High priority for pedestrians & medium priority for vehicles
- Easily accessible by sustainable modes of travel buses, cyclists
- High levels of public realm & Low speed limits
- Local Centres

Example: Bridgeton Main Street

P2/M2

- Med/ high priority for pedestrians & med priority for vehicles
- Easily accessible by sustainable modes of travel buses, cyclists
- Frequent crossing opportunities

Example: Shawlands Cross/ University Avenue

P1/M2

- Medium/Low priority for pedestrians & High/Medium priority vehicles
- Bus Priority & connecting to strategic roads

Example: Gorbals Street

P3/M3

- High priority for pedestrians & low/medium priority for vehicles
- Enhanced public realm and/or planting
- Access for buses & high-quality environment for cyclists

Example: Byres Road, Sauchiehall Street

P2/M3

- Med/low priority for pedestrians & med priority for vehicles
- Bus priority & formal pedestrian crossings
- Likely approaching high street local centres

Example: Paisley Road West at Ibrox

P1/M3

- Trunk roads
- Large volumes of traffic & Short Journey times
- Low priority for pedestrians & High priority for Vehicles
- No frontage

Examples: Motorways, Clydeside Expressway, Clyde Tunnel

P1/M1

- High priority for vehicles & low priority for other modes
- High volume of goods vehicles

Example: South Street

Movement

Place

Step 4: Define decision-making criteria for each street type



Step 4: Define decision-making criteria for each street type



Step 4: Define decision-making criteria for each street type



3. Emerging Outputs Step 1: Defining Modal Networks

Modal Networks - Walking



Modal Networks – Cycling



Modal Networks - Bus



Modal Networks - General Traffic



3. Emerging Outputs Step 2: Conflict Locations

Step 2: Conflict Locations



As expected, primary conflicts arise on almost all radial corridors and some of their connecting streets, where the bus and proposed cycle networks overlap.

Secondary conflicts occur to a greater extent on local distributor roads, where less frequent bus routes overlap with proposed cycle routes and local connections for general traffic.

Step 2: Conflict Locations (primary)



- 1. A803 Springburn Road
- 2. Alexandra Parade
- 3. Cumbernauld Road
- 4. Duke Street
- 5. Gallowgate
- 6. London Road
- 7. Victoria Road
- 8. Pollokshaws Road
- 9. Paisley Road West
- 10. Dumbarton Road
- 11. Woodlands Road / University Avenue
- 12. Great Western Road
- 13. Maryhill Road

Step 2: Conflict Locations (primary – by conflict type)



For walking:

Primary	High accessibility areas
Secondary	Medium accessibility areas
Local	All other streets
For cycling:	
Primary	Sustainable travel corridors + network priority routes (ATS delivery plan)
Secondary	All other city cycle network routes
Local	All other streets
For bus:	
Primary	Highest frequency routes: 7 or more buses / peak hour (10+min frequency)
Secondary	Between 4-6 buses / peak hour (10-30 min frequency)
Local	All other bus routes (<2 buses / peak hour (<30 min
	rrequency)
For general tra	iffic:
For general tra	Iffic: Main distributor routes, including expressways and higher speed roads
For general tra	Main distributor routes, including expressways and higher speed roads District distributor routes

Step 2: Conflict Locations (secondary)



Step 2: Conflict Locations (secondary – by conflict type)



3. Emerging Outputs Step 3: Street Typologies (for primary conflict areas)



Street Typologies (primary conflict areas)



3. Emerging Outputs

Step 4: Recommended Allocation of Space from research to date

Space Allocations where conflicts arise



Based on the relative balance of place and movement on each street where primary conflicts occur, and the space available on these streets, a suggested framework for the allocation of space between movements modes is provided for these primary (mostly radial) corridors.

This work has been commissioned as part of the Bus Partnership Fund corridor work and similar recommendations are available for cross-boundary sections, in liaison with neighbouring local authorities. A version for the city centre is also being developed.

Details of this allocation framework and the principles suggested to be followed for the first of these corridors (those with active bus priority projects) are expanded on the following pages.

3. Application of the Framework

Delivery of Streetspace Allocation Projects

There are currently a range of mode-specific or focused-outcome design projects (or development projects leading to design) ongoing along each of the corridors where primary conflicts occur:

- Bus Partnership Fund (bus priority) an example is included in this pack of how the emerging SAF has been applied to one BPF corridor to date
- City Network (cycling) the SAF approach has already been applied to the Final Delivery Plan for the City Network.
- Liveable Neighbourhoods
- City Centre Transport Plan and Avenues
- Clyde Metro

Once the SAF is agreed and embedded within the wider Glasgow Transport Strategy, it is recommended that a holistic approach is taken to the design and delivery of each corridor. This could take the form of:

- Within the City Centre: holistic allocation of space and street design within the <u>framework of the City Centre</u> <u>Transport Plan (CCTP)</u>
- On radial corridors: holistic design of bus, cycle and placemaking proposals as part of <u>emerging Bus Priority Fund</u> (BPF) corridor projects to ensure cost-efficient, non-abortive design work
- Local streets: holistic design of bus, cycle and placemaking proposals via the Liveable Neighbourhoods programme

Further Development of the Streetspace Allocation Framework

The Streetspace Allocation Framework provides a consistent approach to evaluating the level of conflict within the urban environment, based on available data including the known current and planned transport infrastructure and development.

It is envisaged that as plans evolve and new data becomes available, subject to resources, the SAF could be updated. Following engagement with GCC stakeholders the following areas of further development were discussed, providing a direction for further refinement of the SAF over time.

- Improved definition of walking networks: pedestrian flows would provide a more robust assessment of the Primary walking network should these become available. This would also allow greater consistency with how other modal priorities are identified.
- Ensuring development proposals remain up to date: The current SAF includes known development proposals which inform the 'place' function of the framework. Updating the SAF to account for new proposals will ensure the SAF remains appropriate as the city continues to evolve.
- Ensuring the SAF covers the desired geography to support strategic networks: The current SAF is primarily focused on the Glasgow City boundary with some consideration of BPF corridors outside Glasgow. Updating the SAF to consider the surrounding local authorities more fully will ensure the SAF is applicable in a cross-boundary context, though this is not the domain of Glasgow City Council.

Space Allocation example – Pollokshaws Road corridor

Corridor description:

Pollokshaws Road is a key movement corridor for the city region, connecting the southside of the city and southern suburbs with the city centre. Unlike most other radial corridors, there is a lack of direct frontages on the inner part of the corridor but sustained direct frontages further south. The route passes through some very dense urban areas within Strathbungo and Shawlands, and less densely populated areas between Shawlands and Giffnock. The corridor also has a direct parallel route for the northern part of the corridor, with Victoria Road recently designated as the South City Way for cycling, providing opportunity for less focus on fully protected cycle connections on Pollokshaws Road/Eglinton Street where space is constrained, and a greater focus on cross-connections.

Defined modal networks:

Walking	Primary	High level of service for all connections, greater focus on high streets
Cycling	Primary	Potential sustainable travel corridor on city network (revised as part of SAF)
Bus	Primary	High frequency services, with ongoing BPF improvements
General traffic	Secondary	District distributor route connecting to strategic network

Allocation Framework:

Place Value:	P3 (high)
Movement Function:	M3 (high)

Balanced space allocation – protect space needed for placemaking and optimise remaining space to move the greatest number of people as efficiently as possible

- Protect space needed for walking, dwelling and planting, meeting and where possible exceeding minimum footway widths
- Relocate parking from the main corridor onto side roads where possible. Create time-limited opportunities for loading activities
- Inner city (north of Eglinton Toll) and wider sections (e.g. alongside Queen's Park):
 - Continuous bus lanes in each direction
 - Protected cycling on parallel South City Way
- Within high street sections (e.g Shawlands):
 - Continuous bus lanes in each direction. Time limited loading opportunities
 - Cycle facilities at key junctions to facilitate cross-connections to parallel routes
- <u>South of Newlands Road (within Glasgow city boundary):</u>
 - Provide bus priority at junctions, buses may mix with traffic between junctions
 - Retain but improve existing cycle lanes must connect to east-west links across Newlands
 - Retain parking on one side (or provide bus priority in one direction if parking can be removed and bus priority analysis requires this to meet journey time targets)
 OFFICIAL
 - Assume that front gardens must be retained

Inner city:



High streets:



South of Newlands Road:



End