RETROFIT

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0.1 IN A NUT SHELL

MetroWeb

- MetroWeb delivers a ten minute service to 85 to 90% of the residents of Sydney.

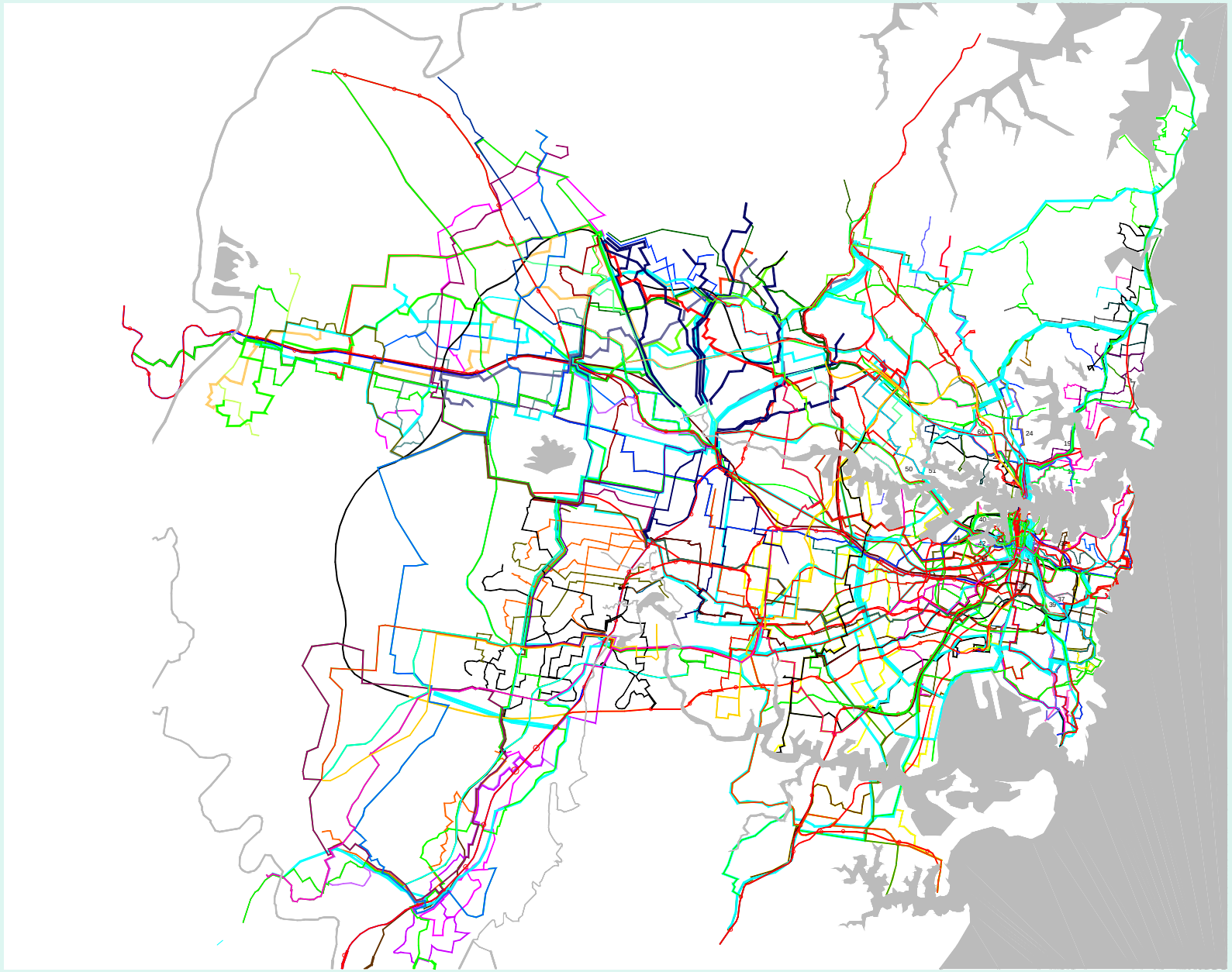
- MetroWeb operates primarily on local streets and regional roads.

- Each route is between 25 and 40 km in length.

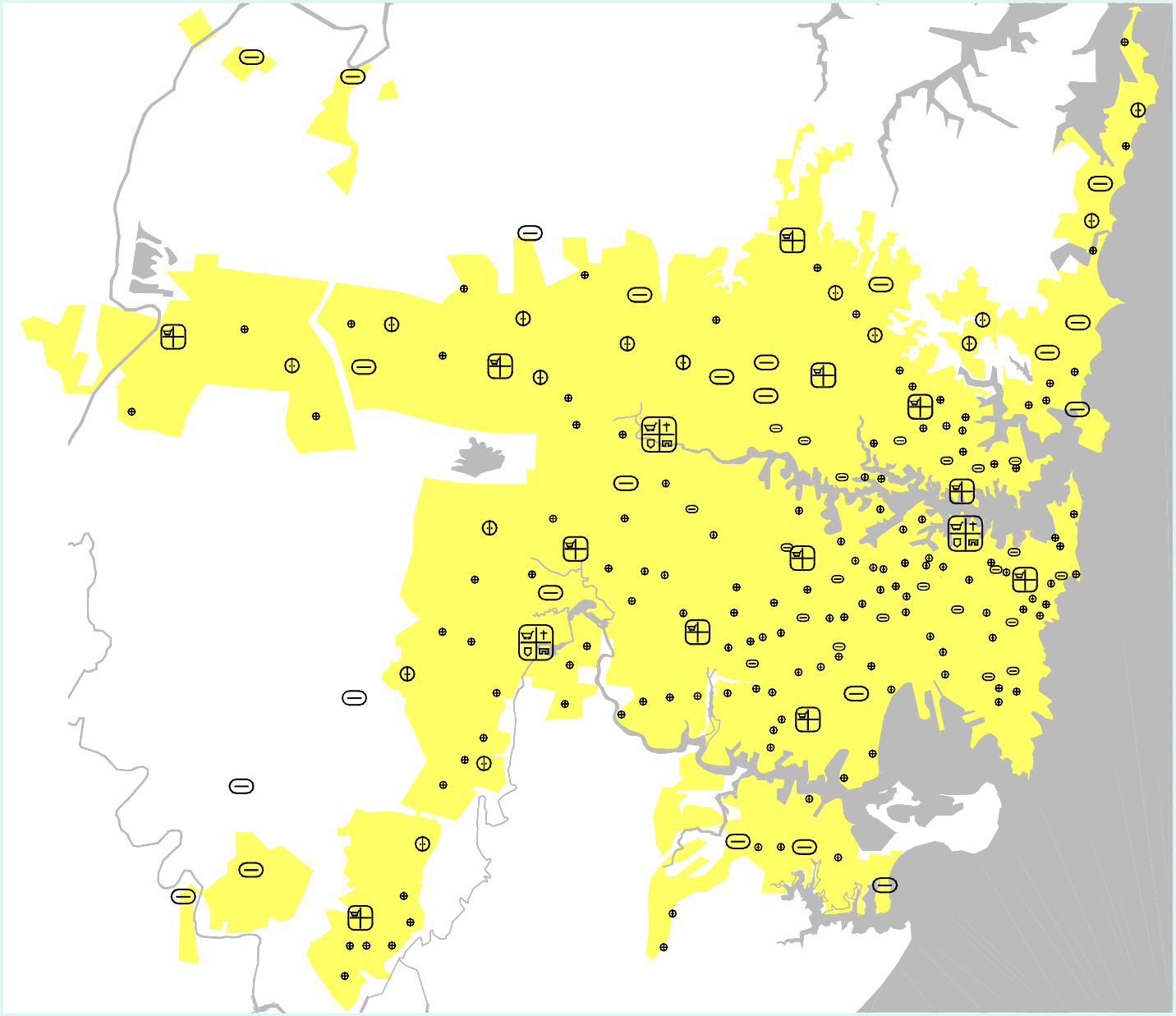
0.2 OBJECTIVES

A	**Locales are created** Bus stops generate a fundamental part of the local structure for social and economic life.
B	**Walking is increased** Local Bus routes become the corridors for journeys along local streets.
C	**Equitable Transport** Everybody has access to everywhere.
D	**Economic necessity** Car cannot accommodate the future level of mobility.
E	**Environmental necessity** Traffic noise, pollution and intrusion cannot be sustained- reduce travel by car.
F	**Sustainable Futures** A viable transport alternative available outside every house.
G	**Operationally viable** Combining many travel needs to generate a viable regular service.

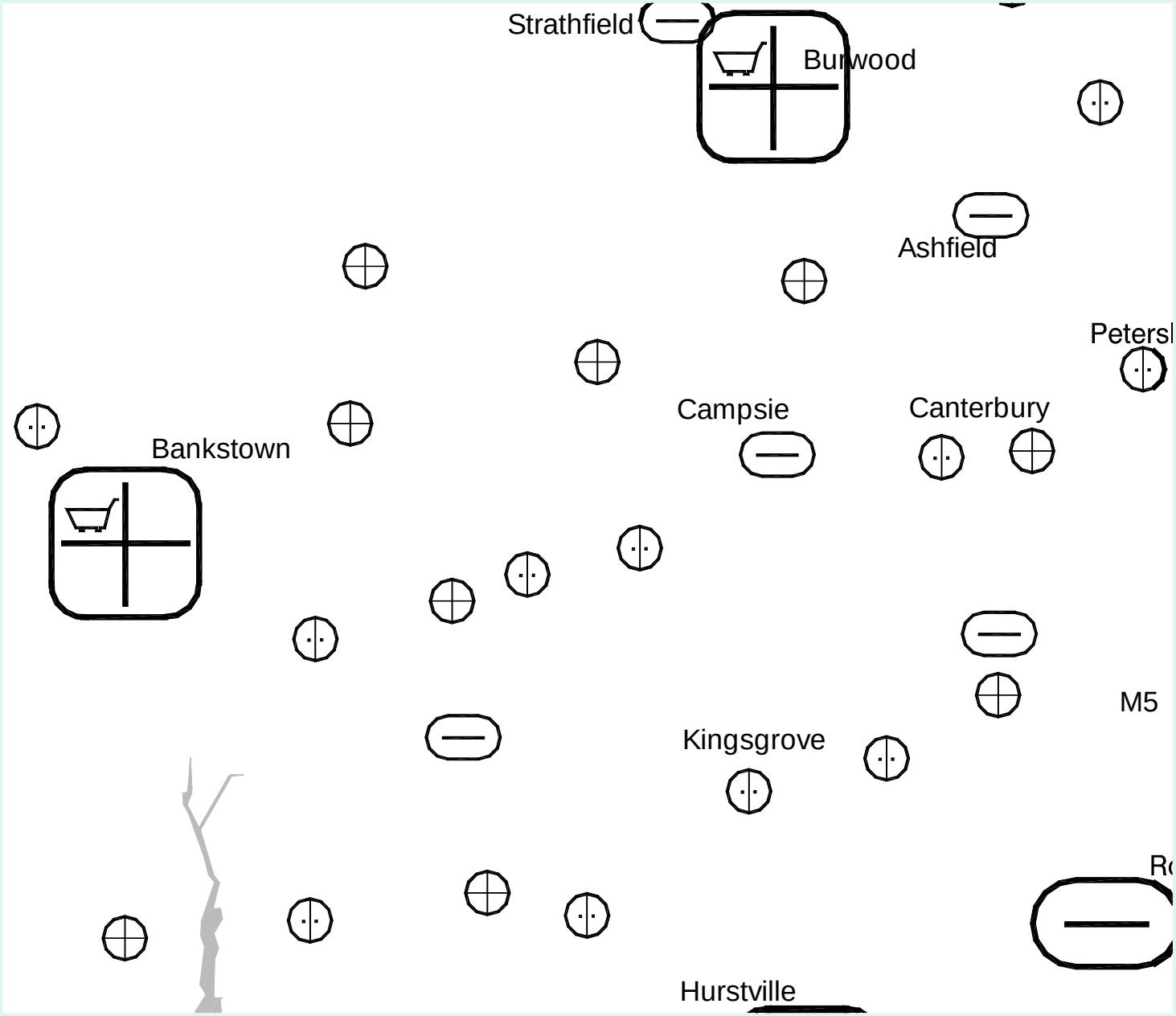
0.3 Oh No NOT THIS AGAIN



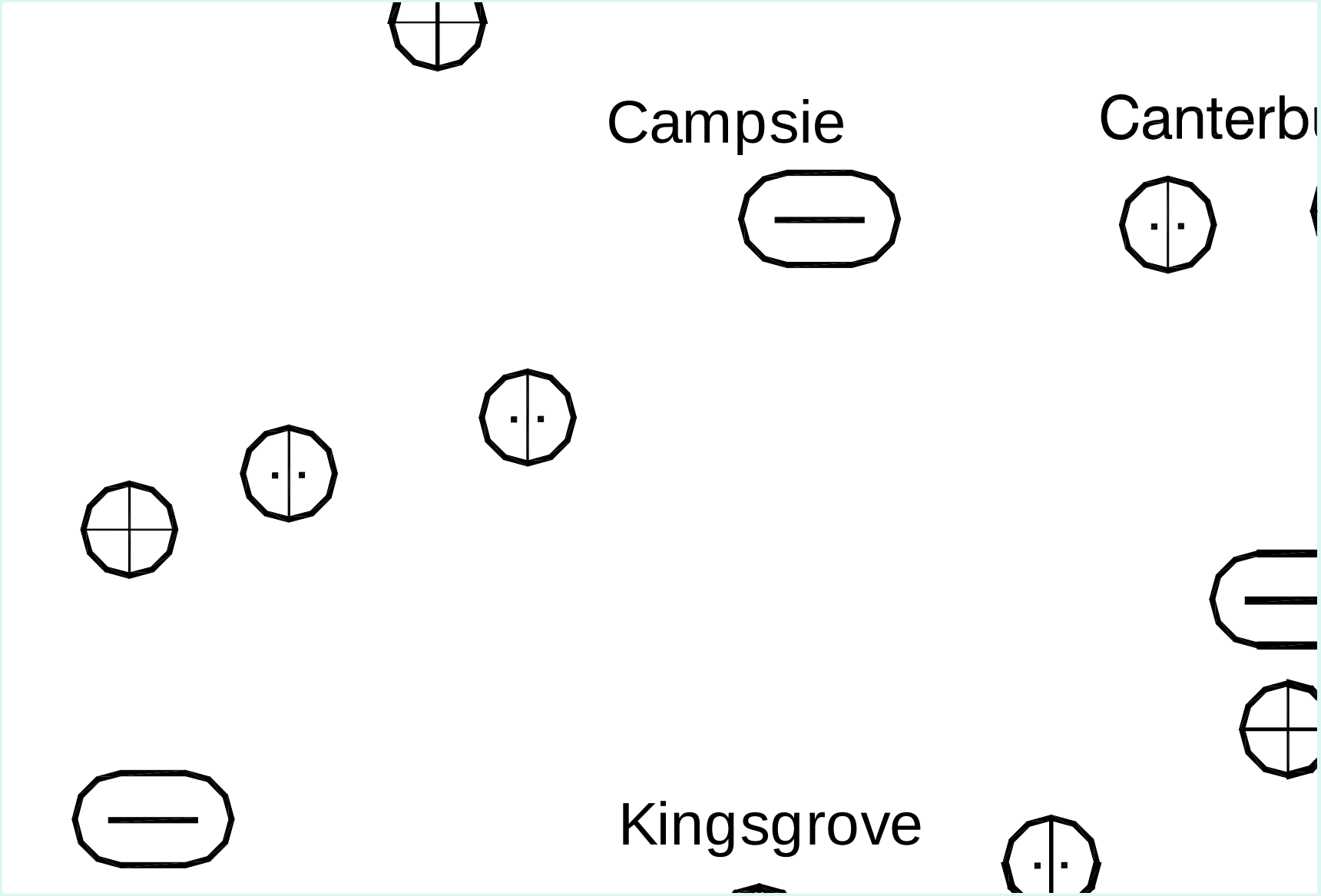
1. 1 METROPOLITAN



1.2 CANTERBURY REGION

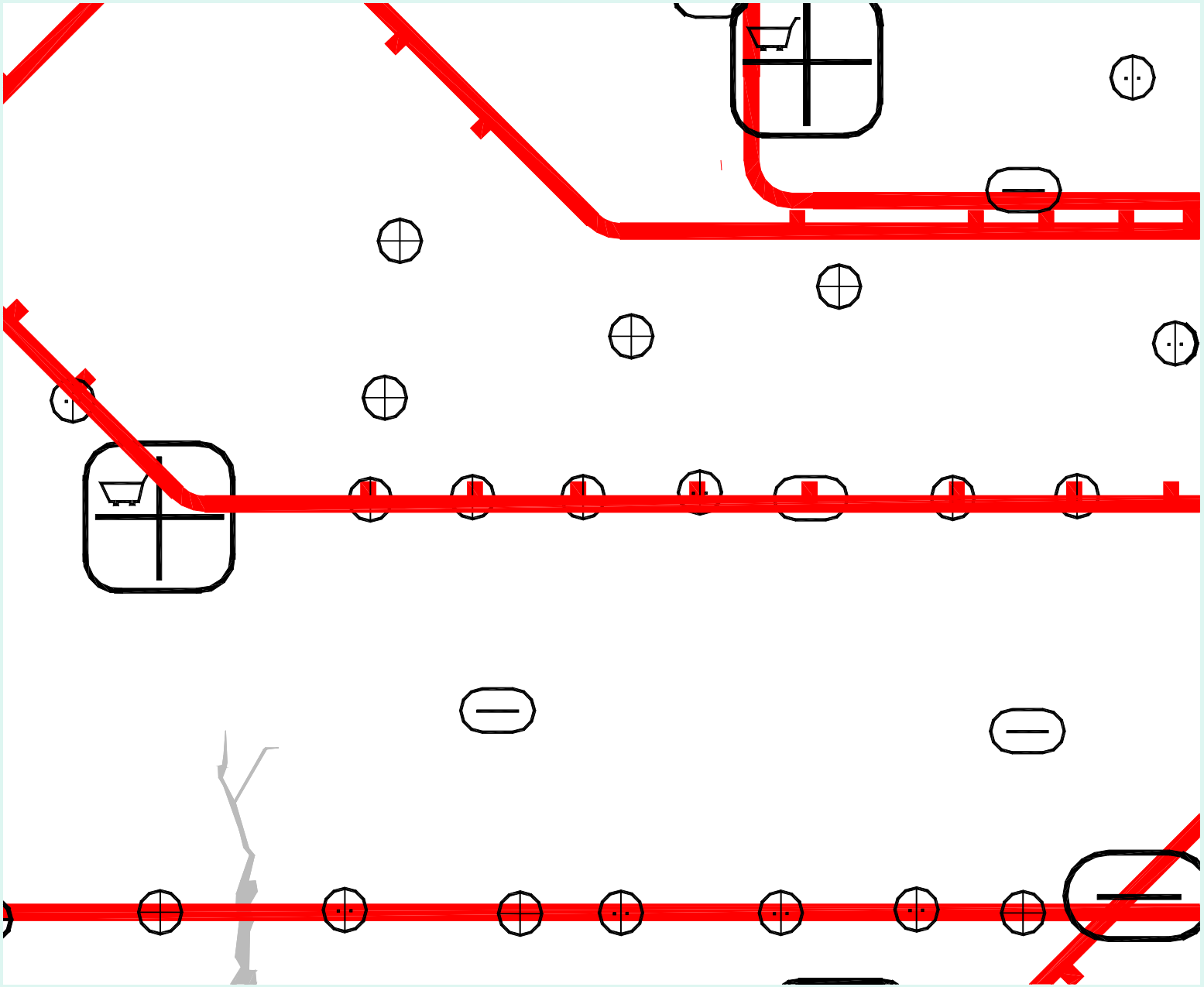


1.3 CANTERBURY LOCAL

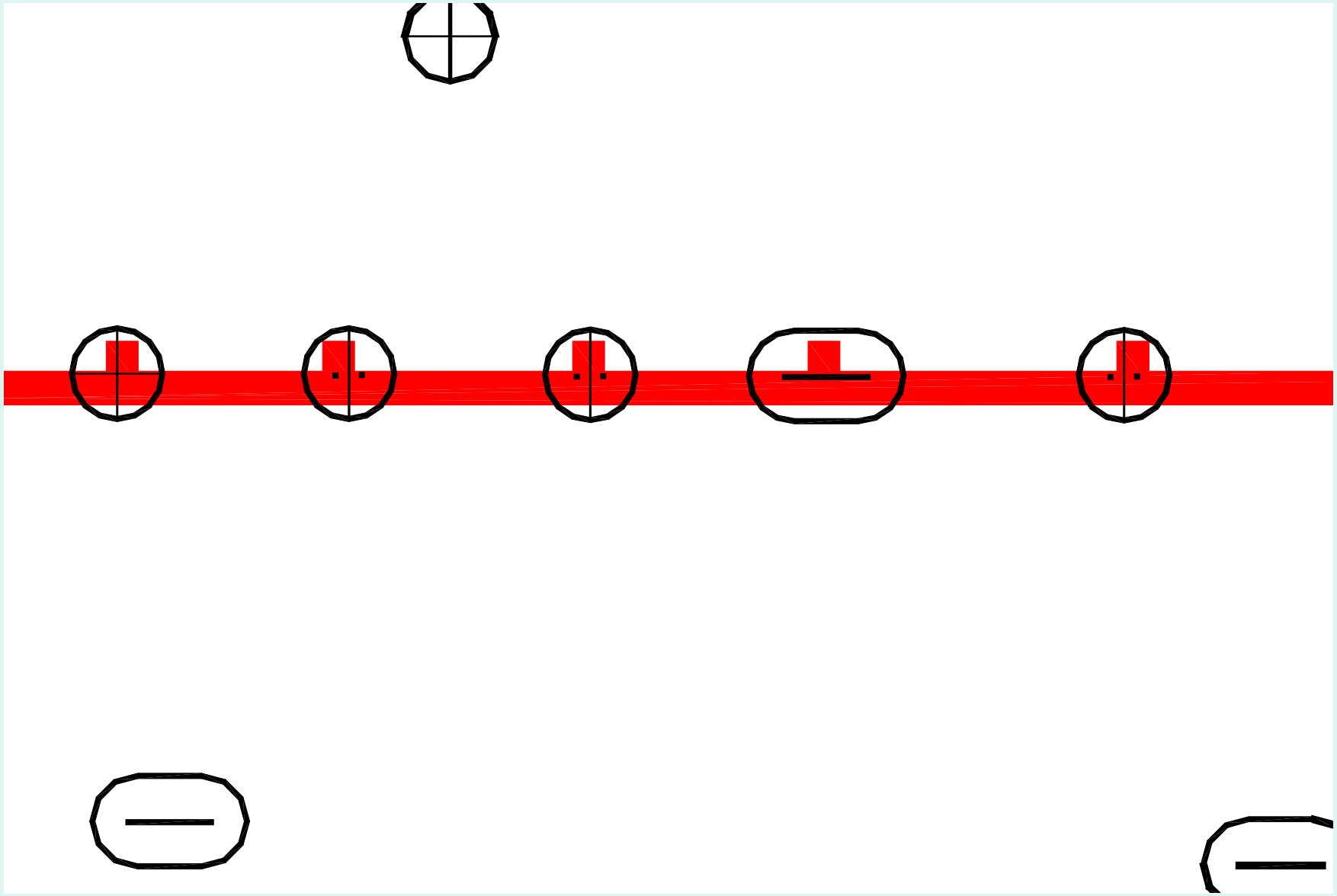


2.1 METROPOLITAN

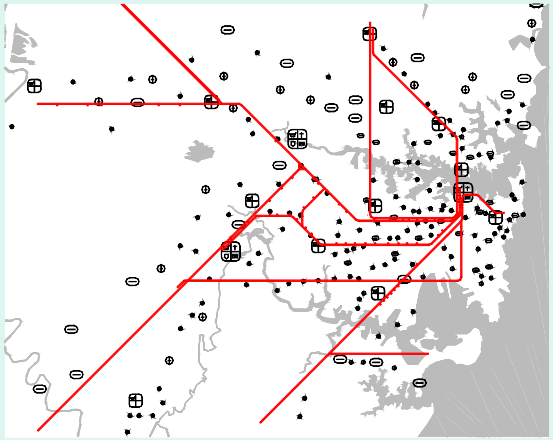
2.2 CANTERBURY REGION



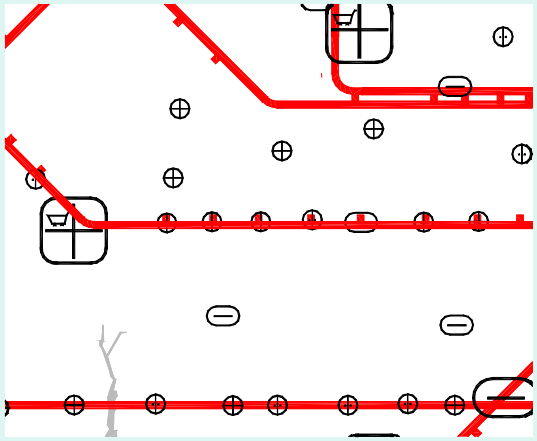
2.3 CANTERBURY LOCAL



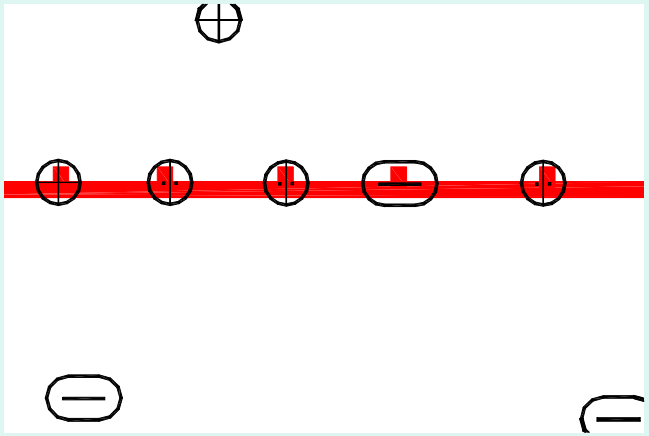
2.4 Proportion of Total Travel.



10% Travel



30% Travel



60% Travel

4. ACCESSIBILITY AND CHOICE

EXISTING TRAVEL		Existing Population	Proportion of daily trips				
			PT	Walk	Cycle	Car Passngr	Driver
	Trips per person	3.78					
	Percent by Mode		11.1%	17.4%	0.5%	21.8%	48.0%
	Trips by Mode	15,498,000	1,726,477	2,702,851	74,080	3,373,320	7,435,296

4. ACCESSIBILITY AND CHOICE

4.1 Suburbs

EXISTING TRAVEL		Existing Population	Proportion	Proportion of daily trips				
				PT	Walk	Cycle	Car Passngr	Driver
	Suburb	2,542,000	62%	9.0%	13.0%	0.4%	25.5%	50.9%
	Total	4,100,000		SYDNEY AVERAGE				
	Trips per person	3.78						
	Percent by Mode			11.1%	17.4%	0.5%	21.8%	48.0%
	Trips by Mode	15,498,000		1,726,477	2,702,851	74,080	3,373,320	7,435,296

About 62% of the residents of Sydney live in disconnected suburbs.

4. ACCESSIBILITY AND CHOICE

4.2 Railway Towns

EXISTING TRAVEL		Existing Population	Proportion	Proportion of daily trips				
				PT	Walk	Cycle	Car Passngr	Driver
			Proportion					
	Suburb	2,542,000	62%	9.0%	13.0%	0.4%	25.5%	50.9%
	Railway Town	287,000	7%	13.0%	20.0%	0.7%	20.2%	44.9%
	Total	4,100,000		SYDNEY AVERAGE				
	Trips per person	3.78						
	Percent by Mode			11.1%	17.4%	0.5%	21.8%	48.0%
	Trips by Mode	15,498,000		1,726,477	2,702,851	74,080	3,373,320	7,435,296

About 7% of the total Sydney population live in these towns.

4. ACCESSIBILITY AND CHOICE

4.3 But Look At Walking

EXISTING TRAVEL		Existing Population	Proportion	Proportion of daily trips				
				PT	Walk	Cycle	Car Passngr	Driver
	Suburb	2,542,000	62%	9.0%	13.0%	0.4%	25.5%	50.9%
	Railway Town	287,000	7%	13.0%	20.0%	0.7%	20.2%	44.9%
	Regional Towns & City	328,000	8%	15.0%	30.0%	0.7%	10.6%	42.5%
	TOTAL	4,100,000		SYDNEY AVERAGE				
	Trips per person	3.78						
	Percent by Mode			11.1%	17.4%	0.5%	21.8%	48.0%
	Trips by Mode	15,498,000		1,726,477	2,702,851	74,080	3,373,320	7,435,296

Some 30% of daily journeys in Regional Cities and Towns are on foot,

and 20% in major towns

compared to 13% in the suburbs.

4. ACCESSIBILITY AND CHOICE

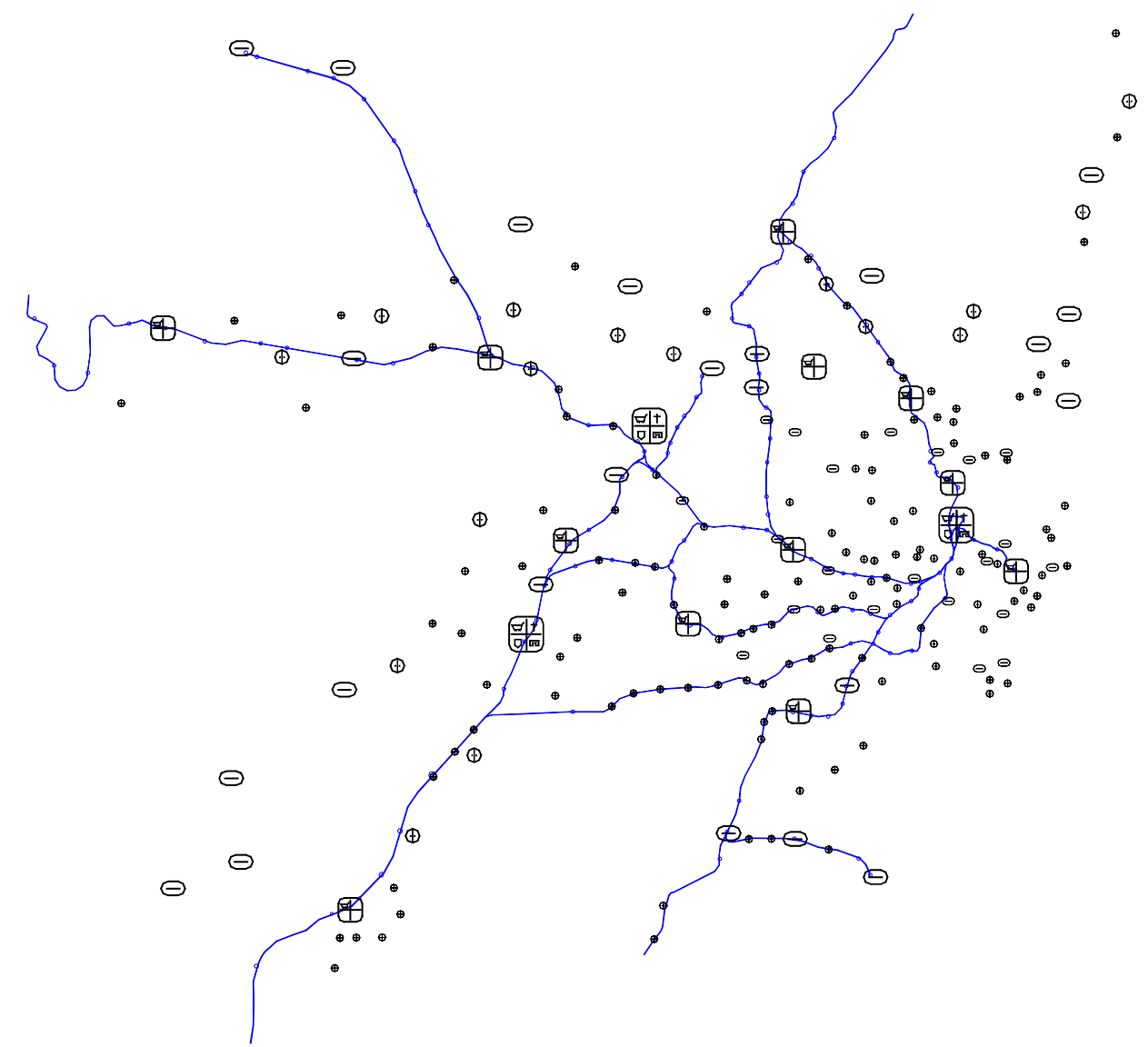
4.4 Some Other Statistics

- **IN THE OUTER SUBURBS ONLY 3% TRAVEL IS TO THE CITY 97% IS NOT**
- **IN THE BIGGER OUTER TOWNS SERVED BY RAIL ONLY ABOUT 6% OF TRAVEL IS TO THE CBD**
- **THIS PROPORTION INCREASES TO 16% FOR THE INNER SUBURBS**
- **NEARLY HALF THE RAIL JOURNEYS IN THE SUBURBS ARE NOT TO THE CBD THEY ARE MADE WITHIN THE REGION.**

- Illustrating that residents with direct access a good public transport will use it.
- But also illustrating that a few more rail line will address no more than about 10% of journeys in the suburbs.
- Also note that about 50% of travel to stations in the City occurs outside the peak period.
- **TRAINS ARE MORE THAN COMMUTER SERVICES**.

4. ACCESSIBILITY AND CHOICE

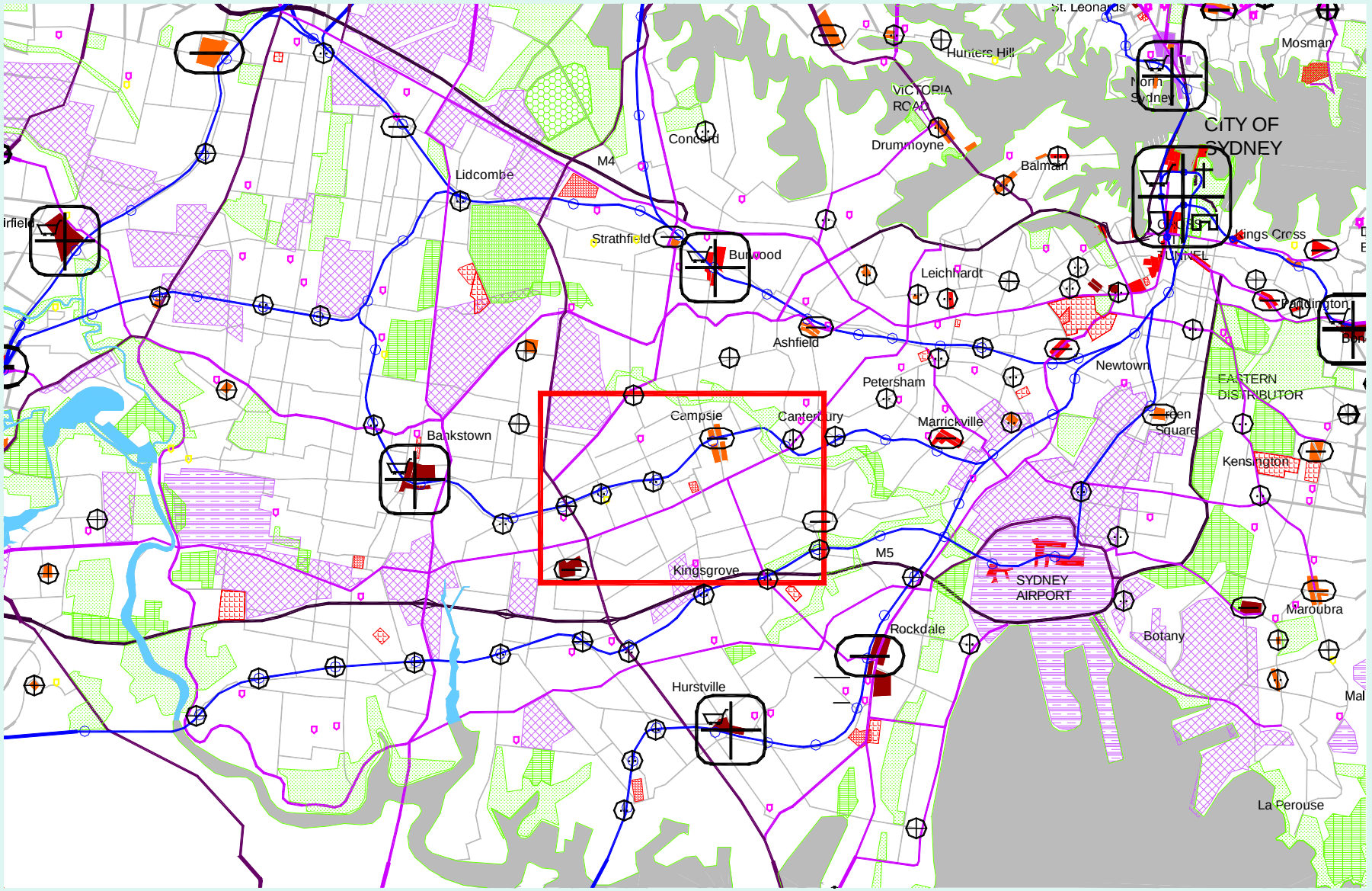
4.5. Corridors



22% of the population in Sydney live along busy bus roads; most not served by rail.

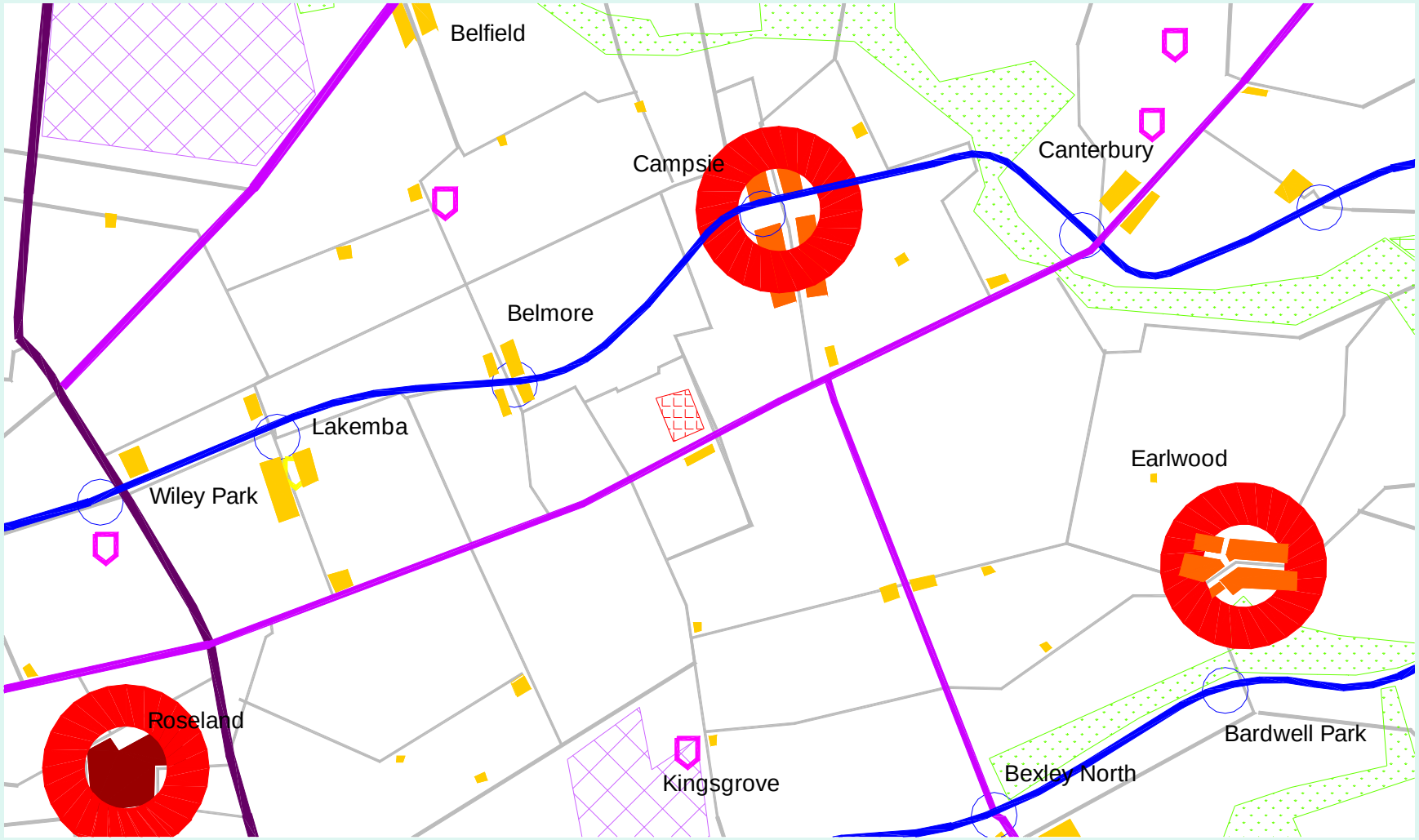
TURNING FROM STATISTICS TO PLACES MAKING

5. CREATING LOCALES



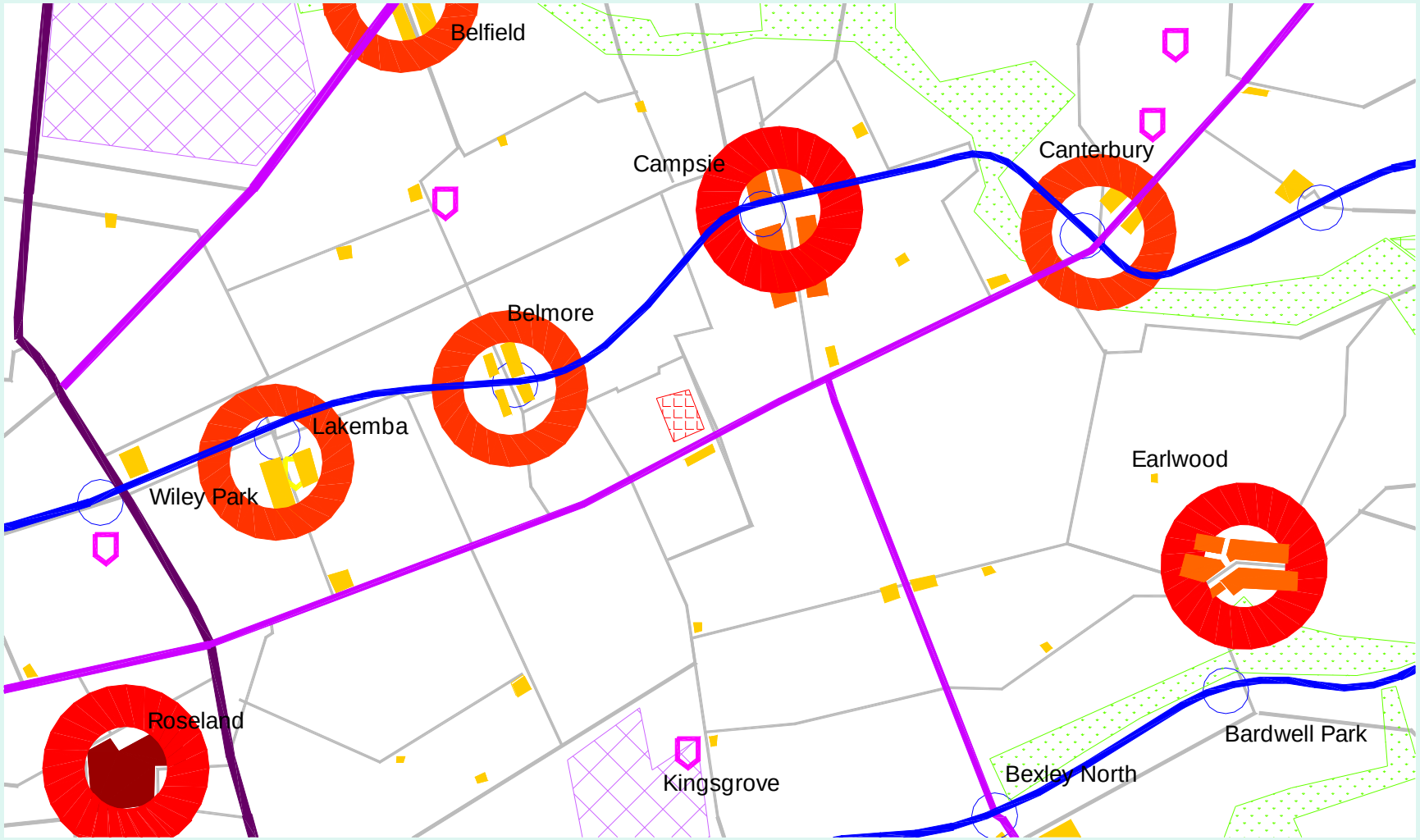
5. CREATING LOCALES

5.1 Canterbury 3 Towns well 2 plus a Galactica



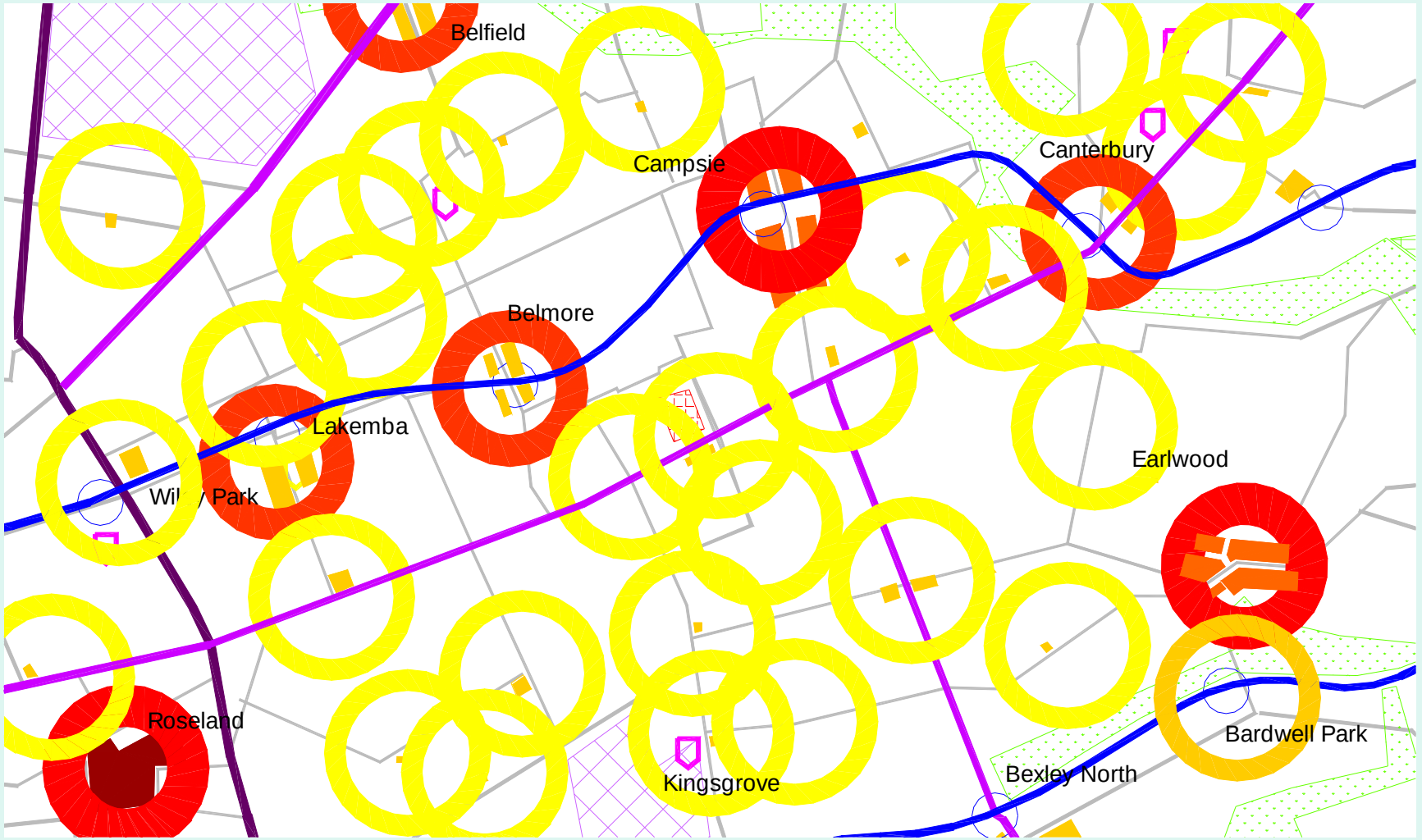
5. CREATING LOCALES

5.2 Canterbury 4 Villages - 3 rail one disconnected



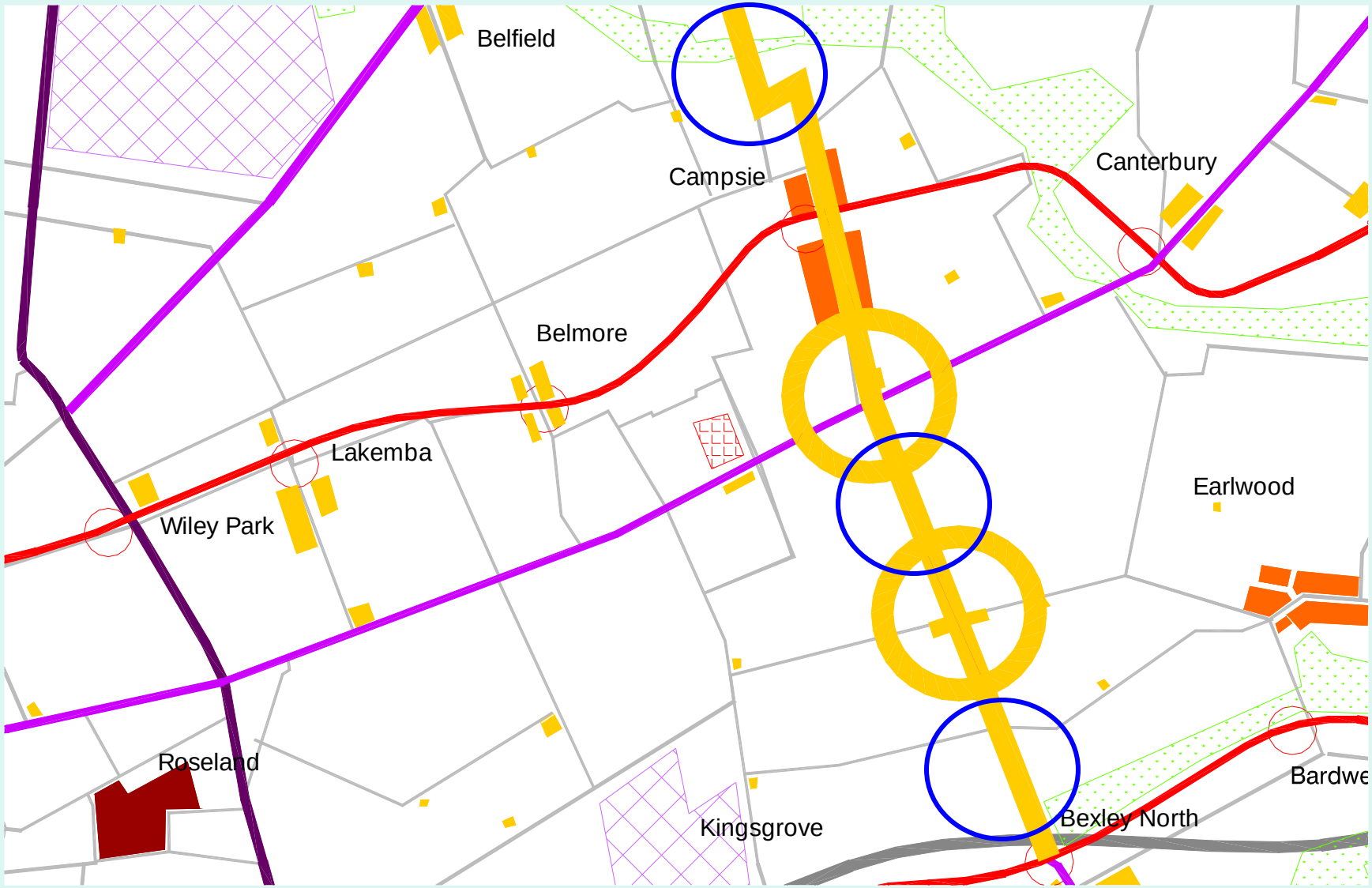
5. CREATING LOCALES

5.3 Canterbury 28 Corner Shops



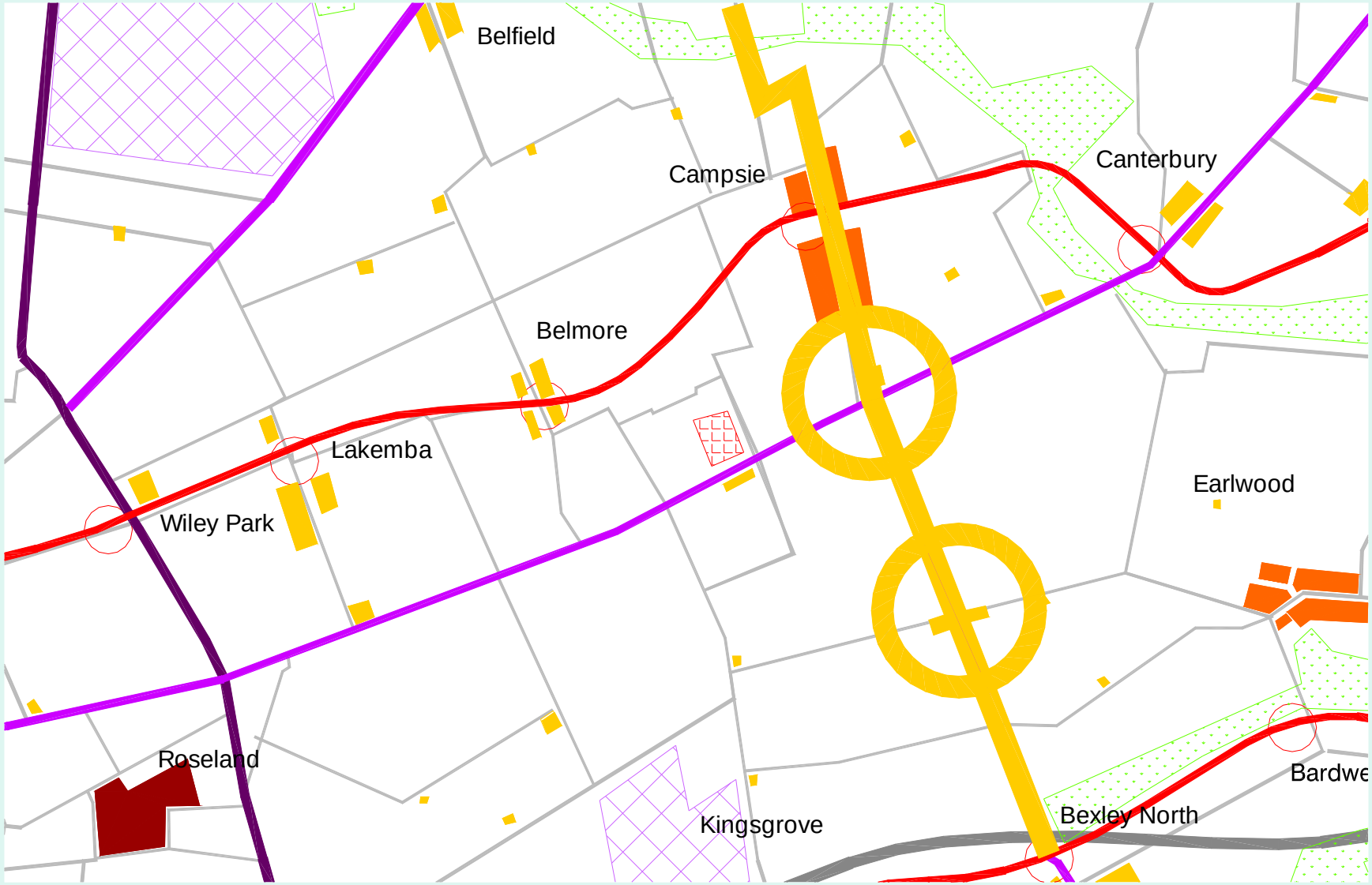
5. CREATING LOCALES

5.4 The 400 Bus and 3 stops (BLUE)



5. CREATING LOCALES

5.5 The 400 Bus and New Places



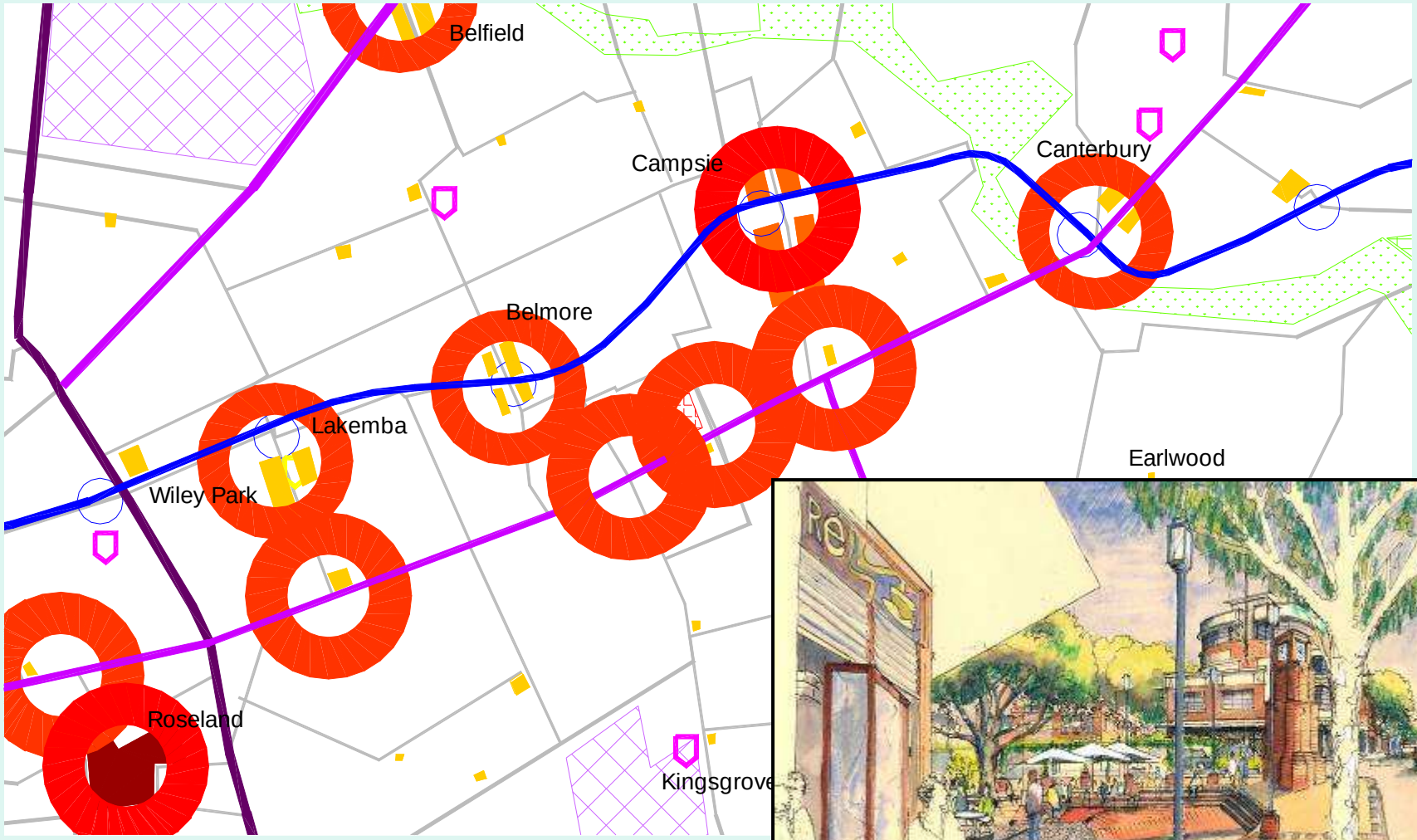
5. CREATING LOCALES

5.6 “Places” in Los Angeles

- Bus activity supports local shops not by bringing customers on a special trip but by bringing passengers to the shop on the way somewhere else.
- “Places” are the Servos of the bus passengers.
- “Places” start form the bottom up, the school gate and the ice lolly shop.
- “Places” create the interest for residents moving on foot up towards the Villages and Towns.
- The MetroWeb contribution is creating opportunities where two routes cross, some of these are the potential “Places”of the future.

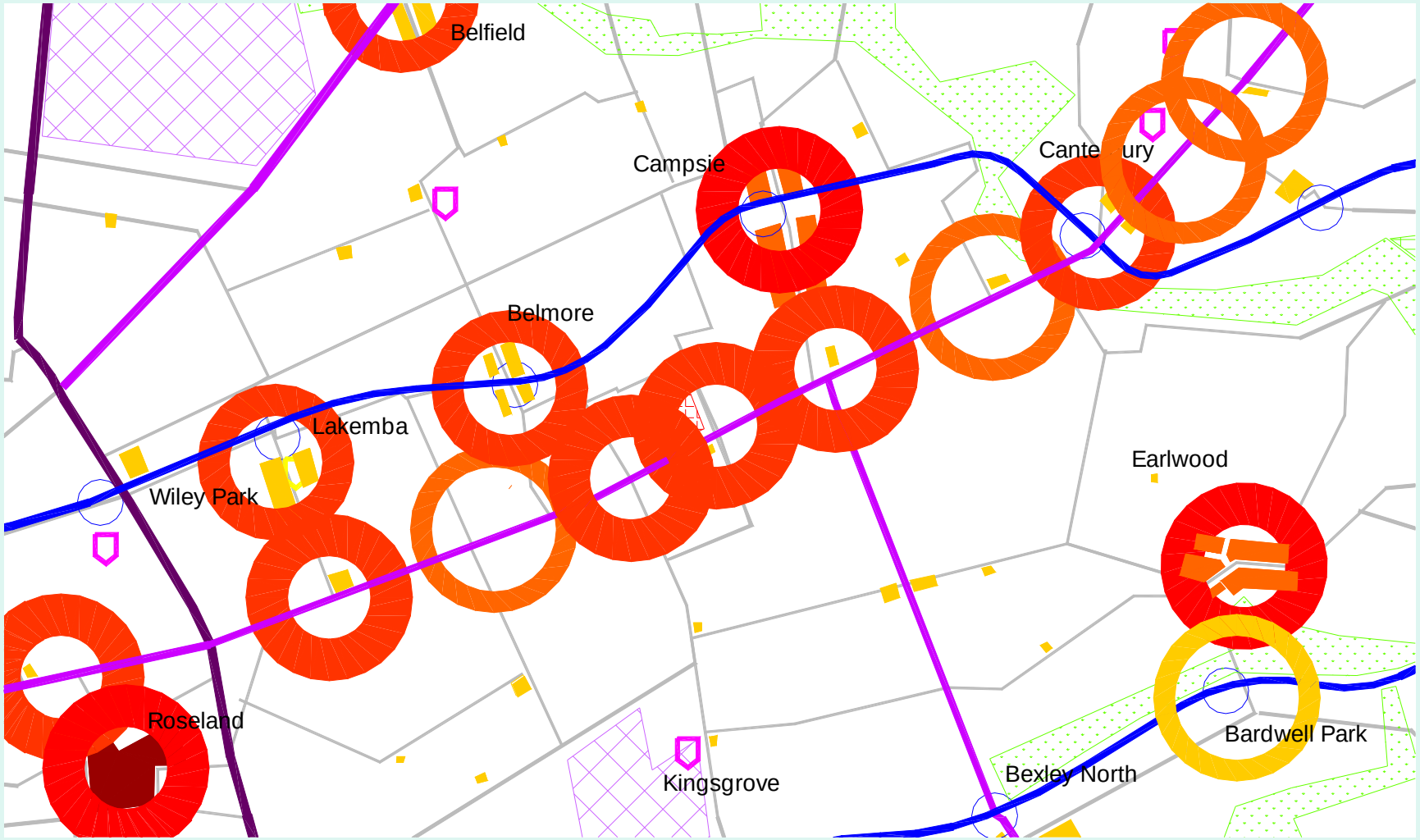
5. CREATING LOCALES

5.7 Canterbury Road – 5 Villages



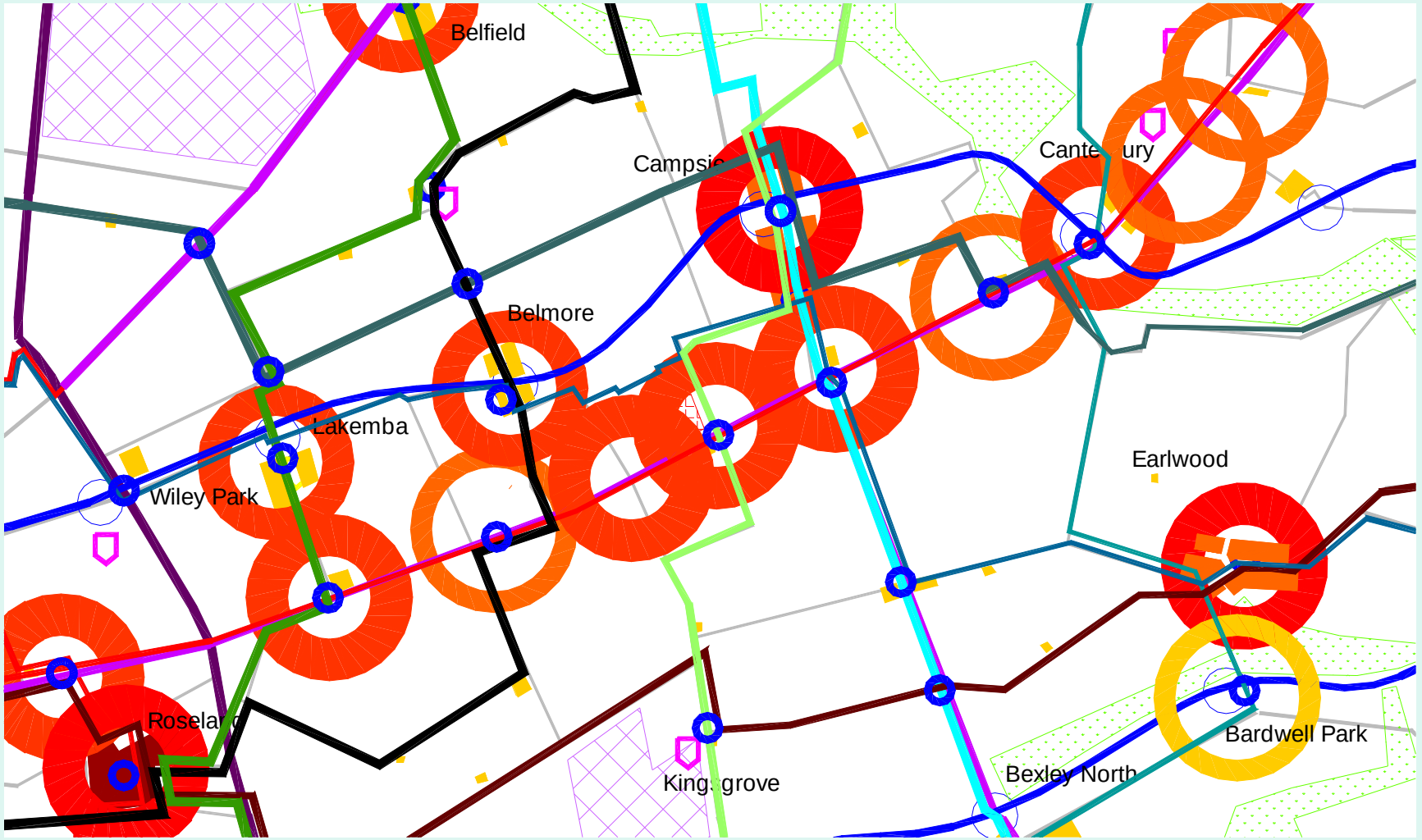
5. CREATING LOCALES

5.8 Canterbury Road – 4 Places



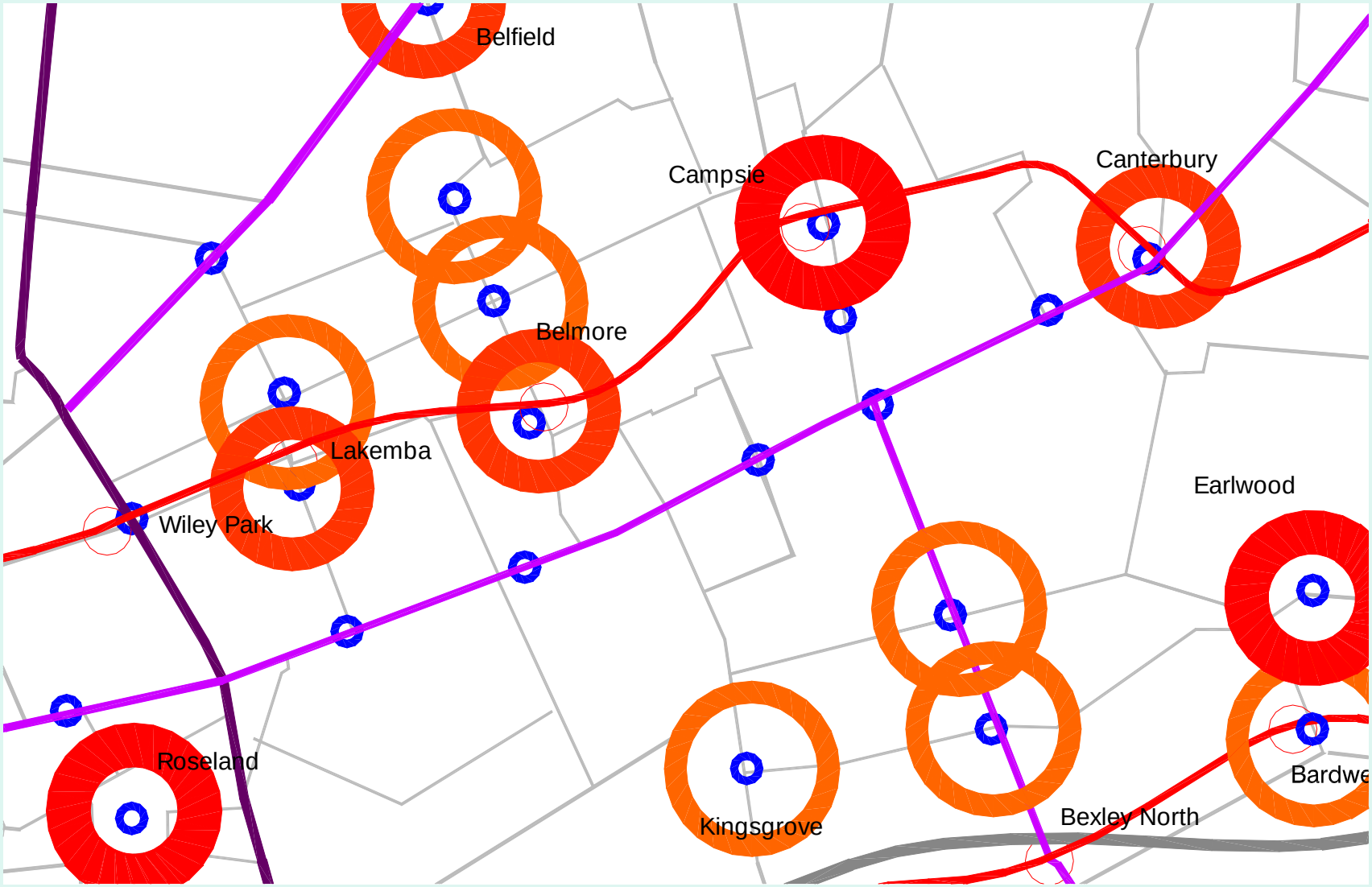
5. CREATING LOCALES

5.9 MetroWeb and Places



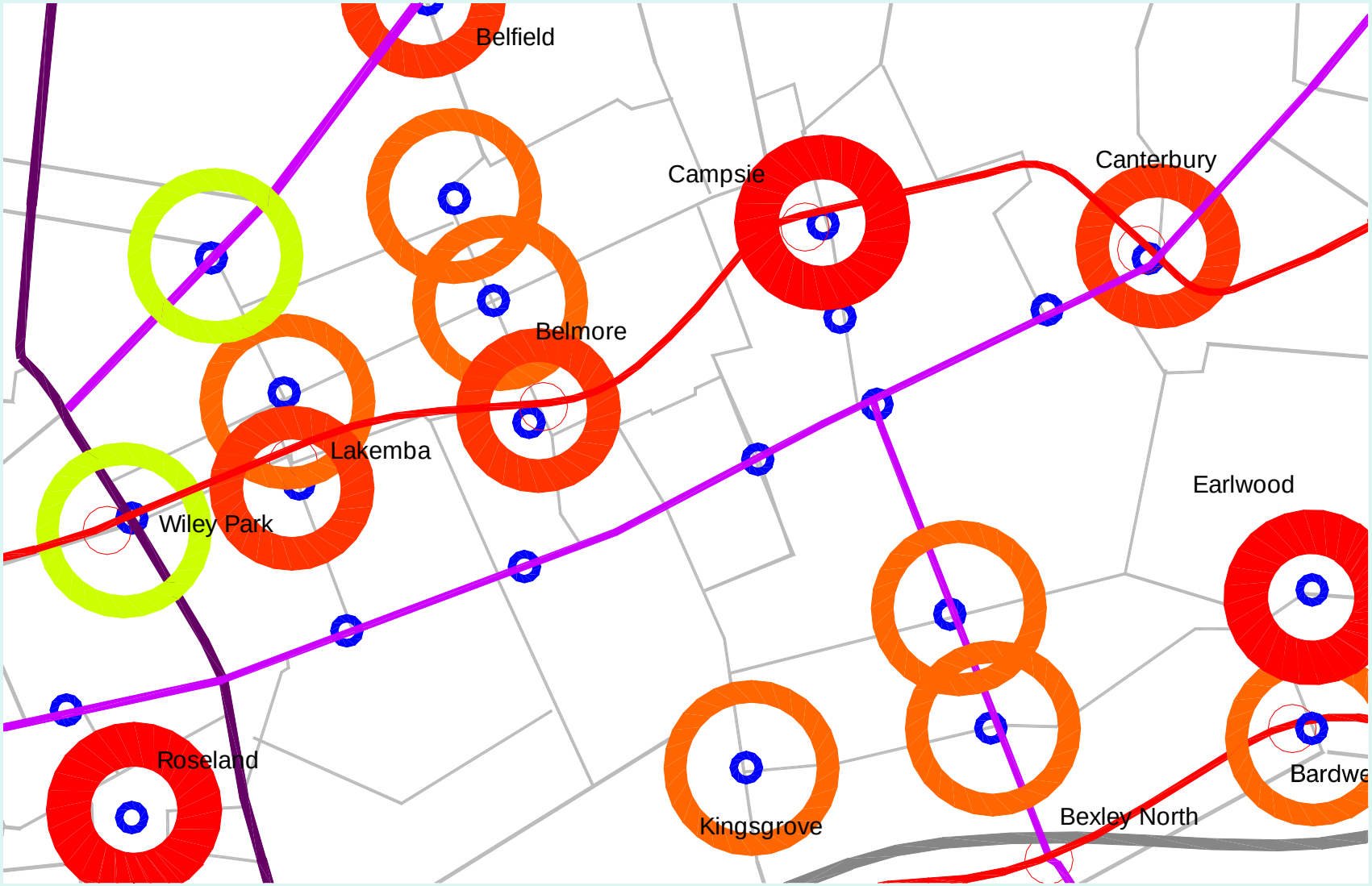
5. CREATING LOCALES

5.10 MetroWeb and Places



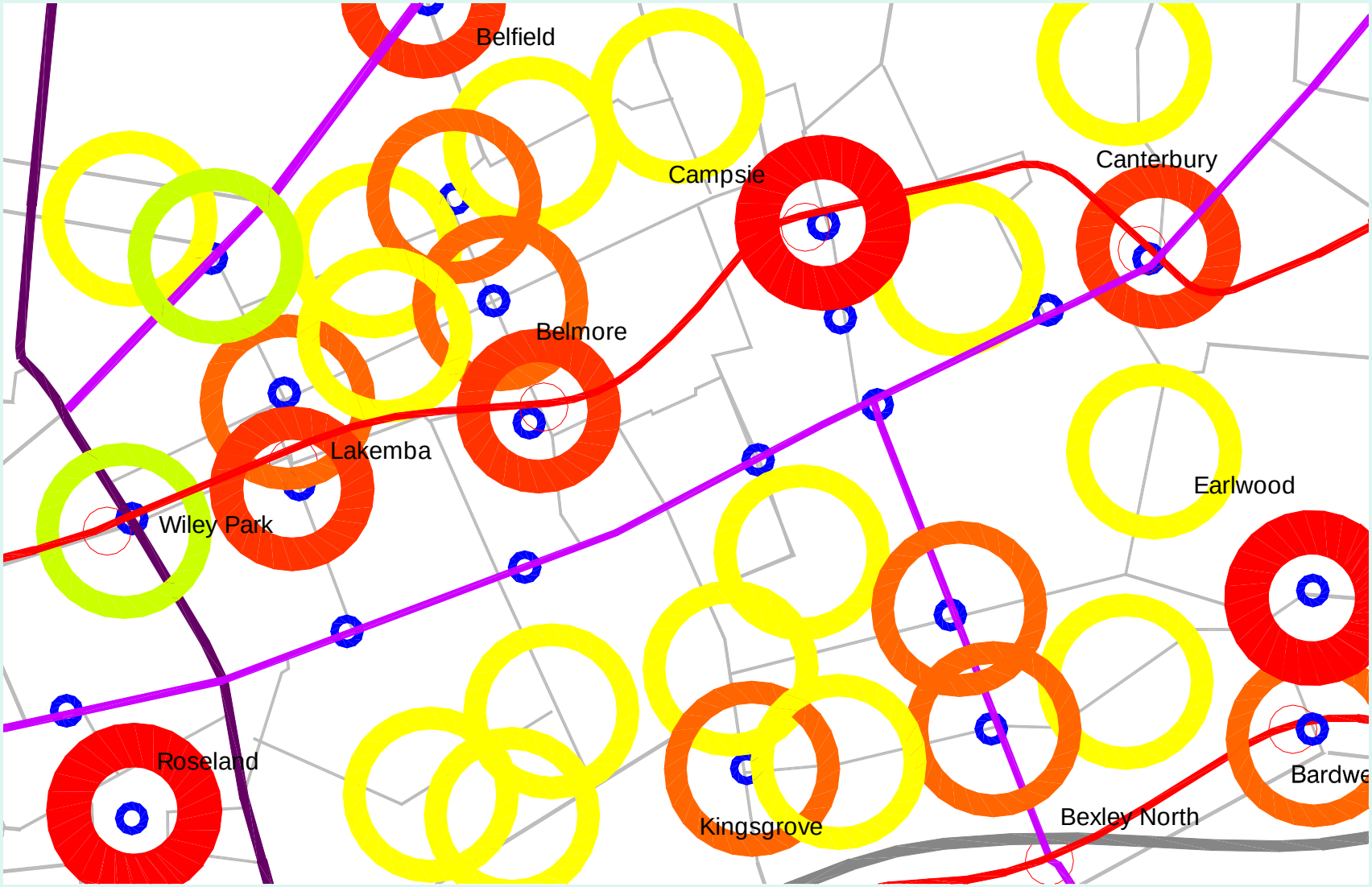
5. CREATING LOCALES

5.11 MetroWeb and Rejected Places



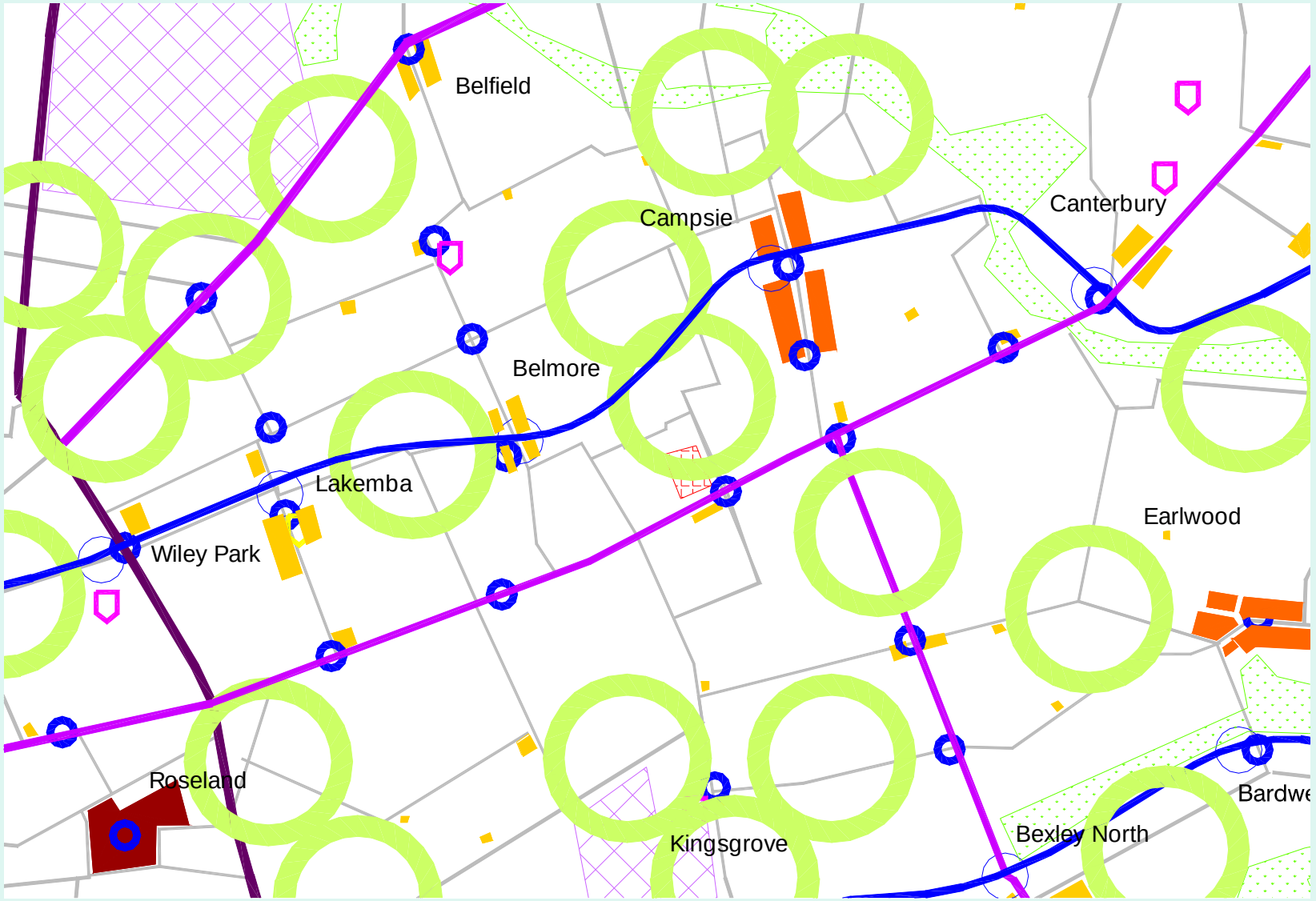
5. CREATING LOCALES

5.12 MetroWeb and Corner Shops

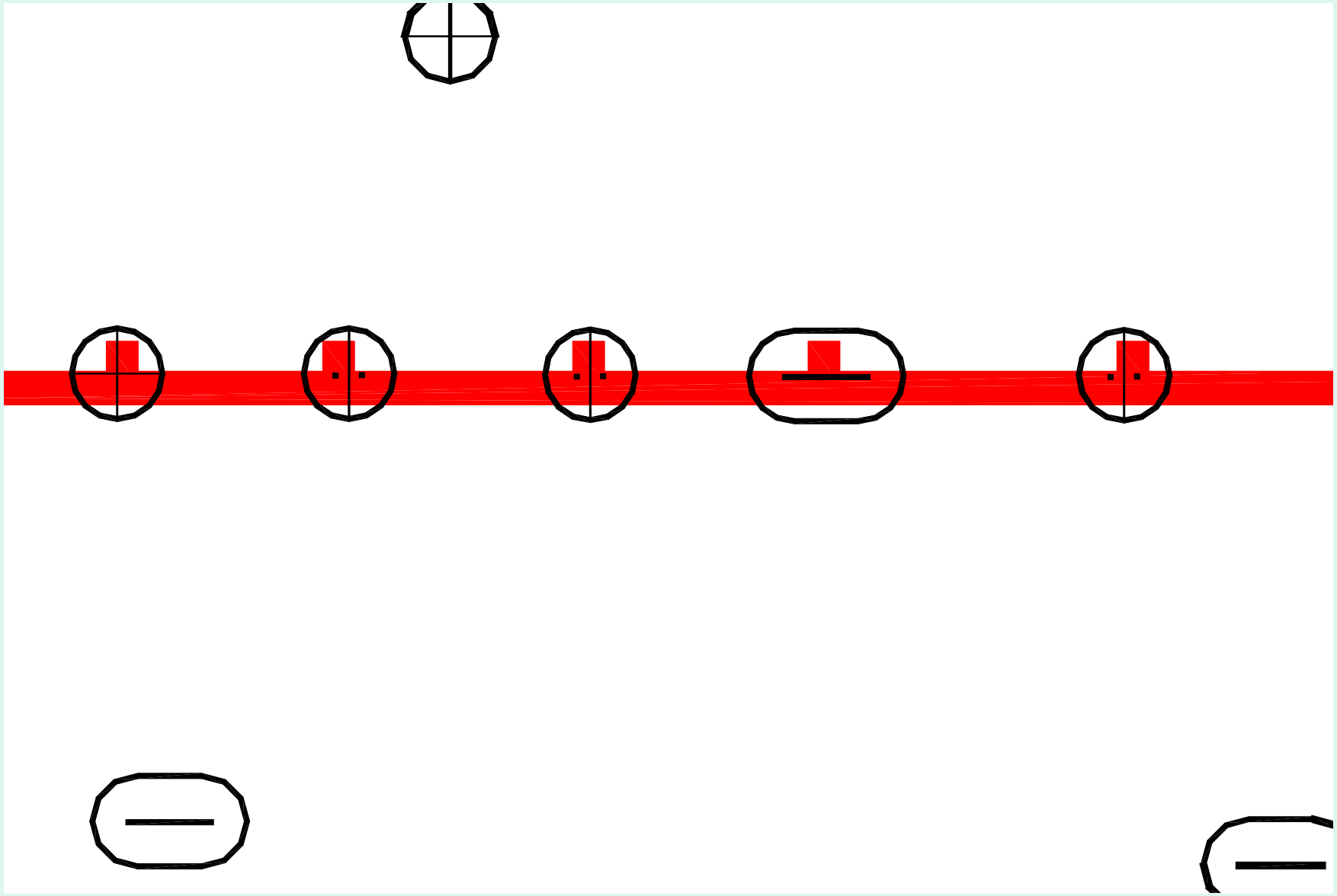


5. CREATING LOCALES

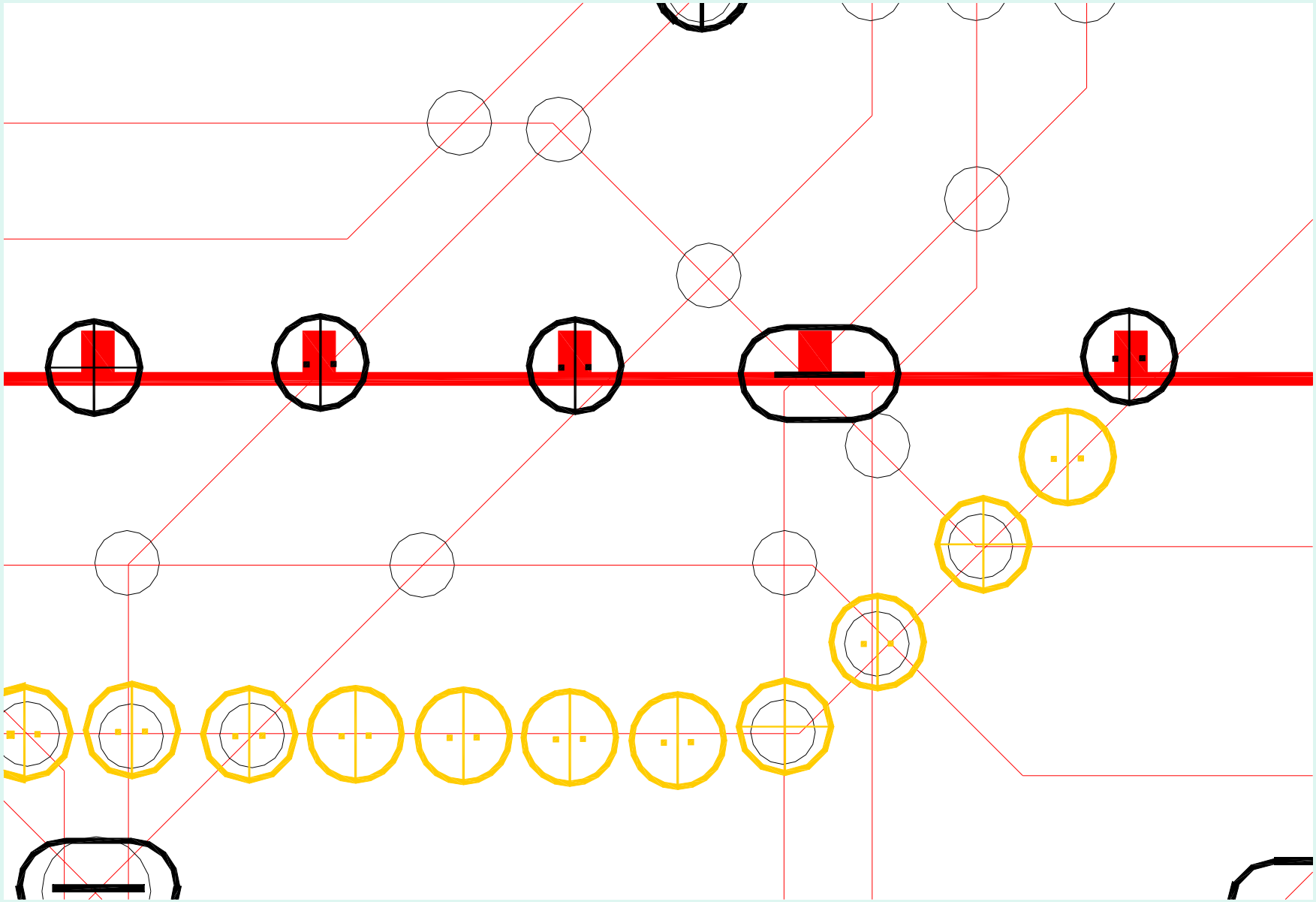
5.13 MetroWeb Stops Complete the Picture



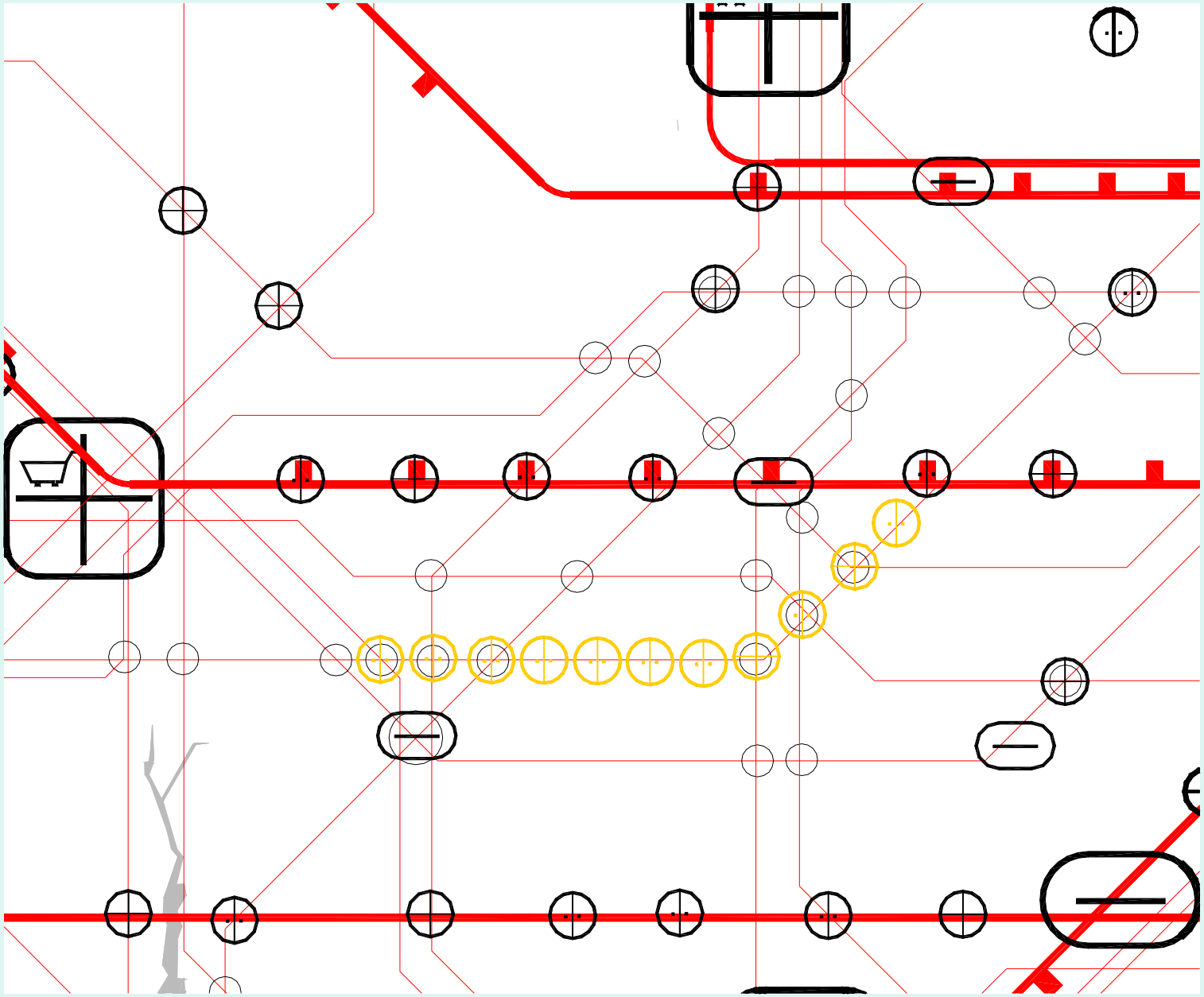
5.14 CANTERBURY LOCAL



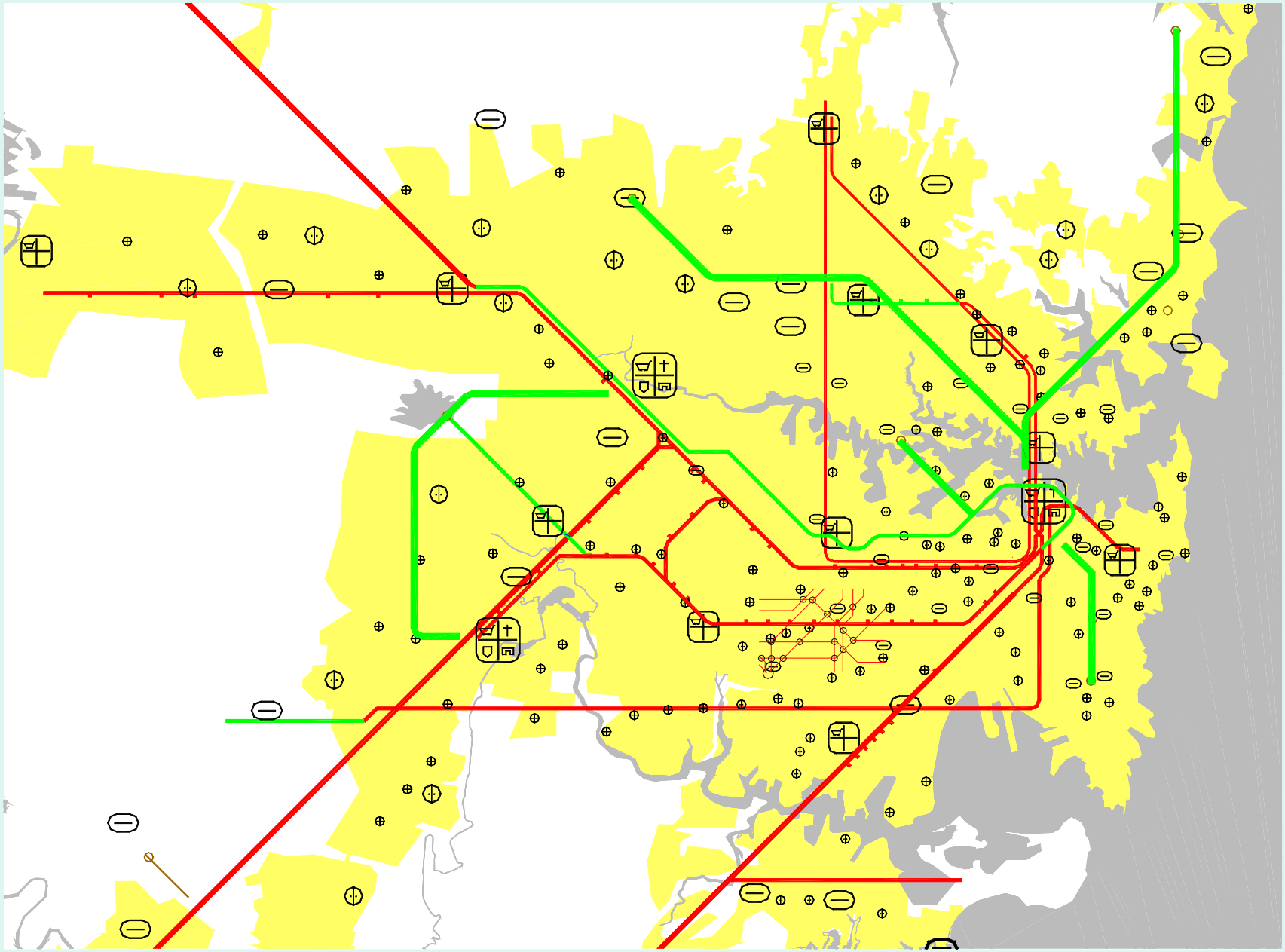
5.15 LOCAL Connections



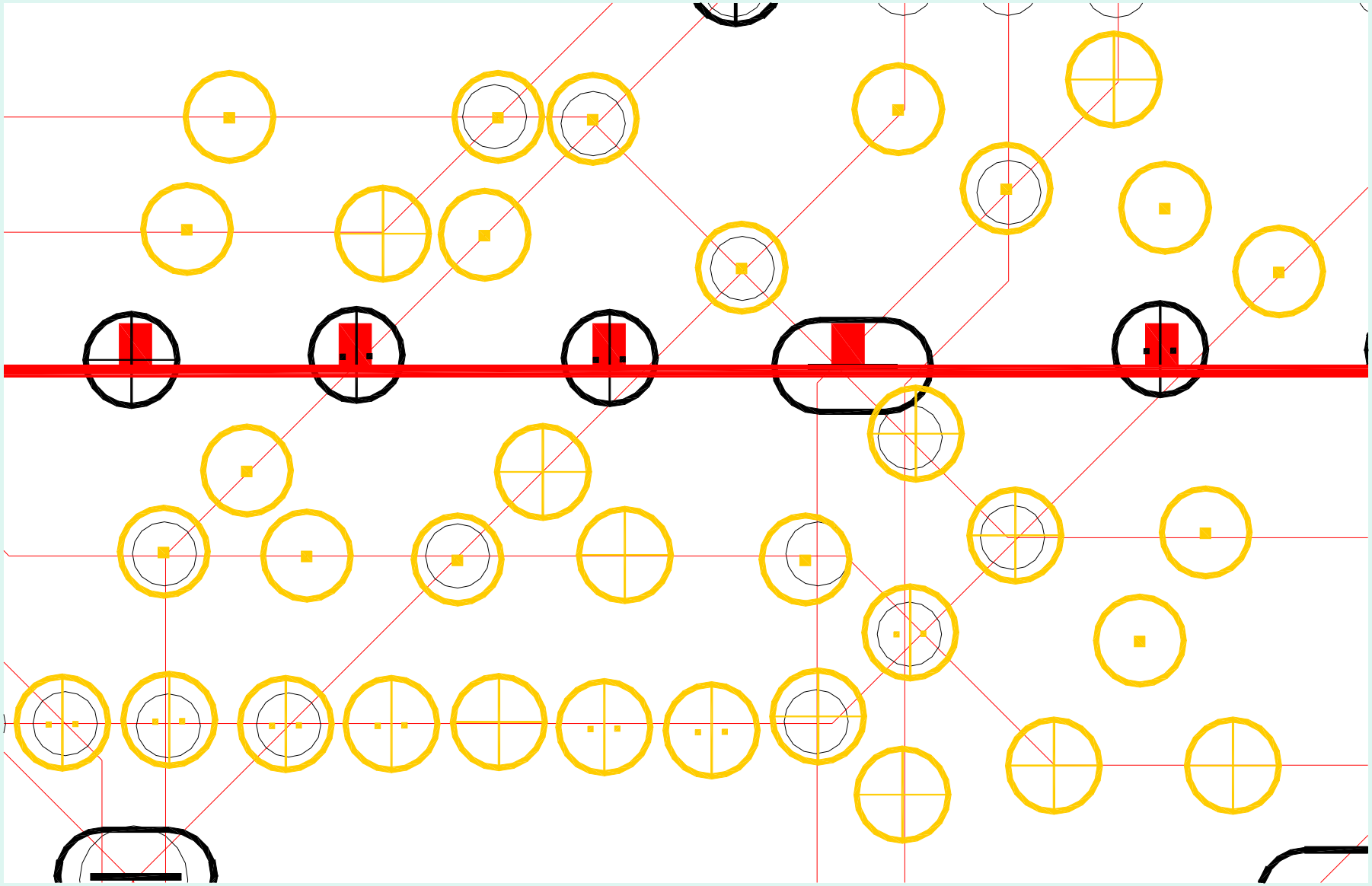
5.16 REGIONAL MetroWeb



5.17 METROPOLITAN LINKS

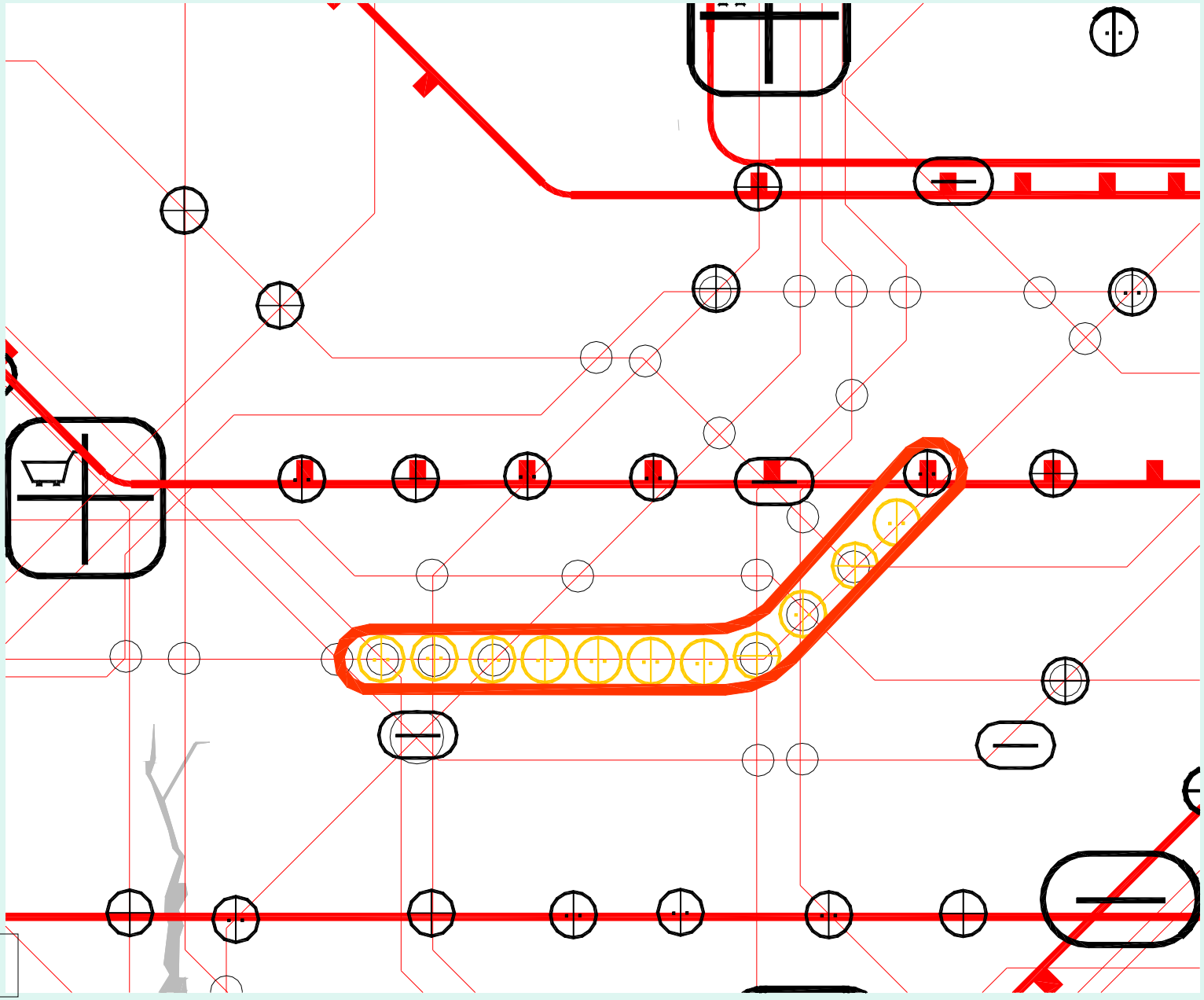


5.18 CORNERS AND PLACES



28 New Corner Shops and Places

5.19 ACTIVE CORRIDORS



Active Strips

6. ACCOMMODATING 1.5 MILLION PEOPLE

6.1

POPULATION		EXISTING	EXISTING
		Cities Towns Villages	SUBURBS
EXISTING			
Population	4,100,000		
		1,058,000 26%	2,744,970 67%

6. ACCOMMODATING 1.5 MILLION PEOPLE

6.2 Green Fields and Corridors

POPULATION	EXISTING Cities Towns Villages	PROJECTS	GREEN FIELDS	CORRIDORS Parramatta	MAYBE Southern	MAYBE Canterbury	MAYBE Victoria	MAYBE WesternHw	NEW MetroWeb Places	EXISTING SUBURBS
EXISTING										
Population 4,100,000	1,058,000 26%	30 0%	0 0%	40,000 1%	20,000 0%	9,000 0%	50,000 1%	10,000 0%	168,000 4%	2,744,970 67%
ADDITIONAL POPULATION Target 1,495,000 Increase	408,250	30,000	506,000	100,000	60,000	18,000	30,000	30,000	112,000	Deficit 200,750
Percent Metropolitan Increase	27%	2%	34%	7%	4%	1%	2%	2%	7%	13%

6. ACCOMMODATING 1.5 MILLION PEOPLE

6.3 An indulgent aside

POPULATION		EXISTING Cities Towns Villages	PROJECTS	GREEN FIELDS	CORRIDORS Parramatta	MAYBE Southern	Canterbury	Victoria	WesternHw	NEW MetroWeb Places	EXISTING SUBURBS	NEW DA's
EXISTING												
Population	4,100,000	1,058,000 26%	30 0%	0 0%	40,000 1%	20,000 0%	9,000 0%	50,000 1%	10,000 0%	168,000 4%	2,744,970 67%	
ADDITIONAL POPULATION												
Target	1,495,000											
Increase		408,250	30,000	506,000	100,000	60,000	18,000	30,000	30,000	112,000	Deficit 200,750	40150
Percent Metropolitan Increase		27%	2%	34%	7%	4%	1%	2%	2%	7%	13%	
											Proportion that must redevelop	1.5%

6. ACCOMMODATING 1.5 MILLION PEOPLE

6.4 Impact of MetroWeb Alone

EXISTING	Trips per person	3.78					
	Percent by Mode		11.1%	17.4%	0.5%	21.8%	48.0%
	Trips by Mode	15,498,000	1,726,477	2,702,851	74,080	3,373,320	7,435,296
WEB IMPACT	Percent by Mode		15.4%	20.0%	0.6%	19%	44%
NO OTHER CHANGE	Difference in number of trips		660,215	402,948	12,553	-421,489	-654,227
	Difference from existing (if independent)		138%	115%	117%	88%	91%

6. ACCOMMODATING 1.5 MILLION PEOPLE

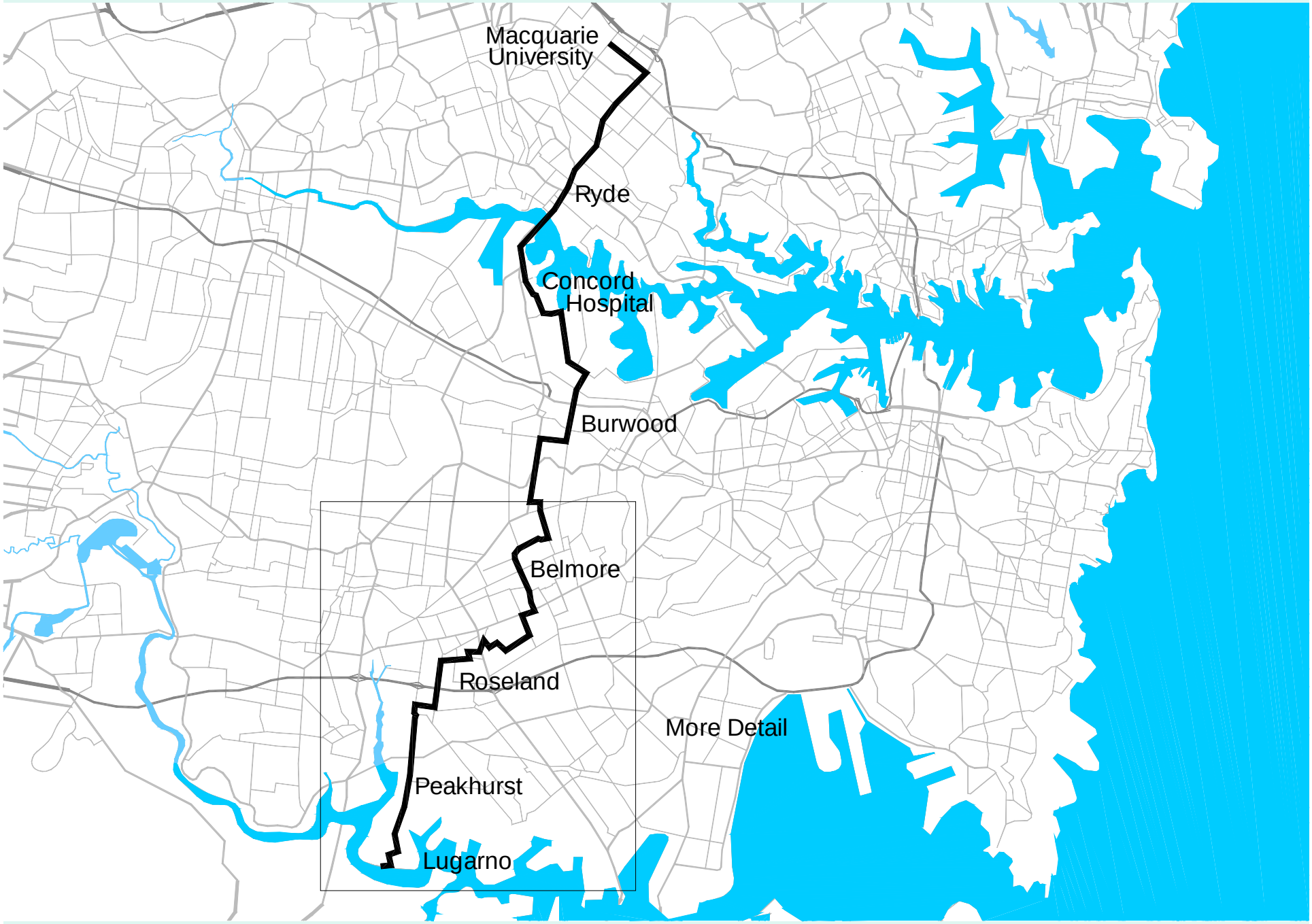
6.5 Impact on New Population

EXISTING	Trips per person	3.78					
	Percent by Mode		11.1%	17.4%	0.5%	21.8%	48.0%
	Trips by Mode	15,498,000	1,726,477	2,702,851	74,080	3,373,320	7,435,296
NEW POPULATION ONLY	Percent by Mode		16.1%	22.2%	0.6%	17.1%	42.8%
	Trips by Mode	6,267,300	1,010,783	1,392,899	37,917	1,070,087	2,680,407
	Increase over existing	40%	59%	52%	51%	32%	36%

6. ACCOMMODATING 1.5 MILLION PEOPLE

6.6 Combined Impact

EXISTING	Trips per person	3.78					
	Percent by Mode		11.1%	17.4%	0.5%	21.8%	48.0%
	Trips by Mode	15,498,000	1,726,477	2,702,851	74,080	3,373,320	7,435,296
COMBINED	Population	5,707,000					
	Percent by Mode		15.6%	20.7%	0.6%	18.5%	43.5%
	Trips by Mode	22,257,300	3,473,243	4,597,295	127,301	4,115,627	9,676,748
	Increase over existing demands	144%	201%	170%	172%	122%	130%


Macquarie University
Ryde
Concord Hospital
Burwood
Belmore
Roseland
More Detail
Peakhurst
Lugarno

Burwood

Roseland

Bus Turnaround

Corner Shop - Forest Rd

Corner Shop - Forest Rd

Corner Shop & Interchange

Hurstville
Airport

Burwood

Roseland

School

Riverwood Station

Club

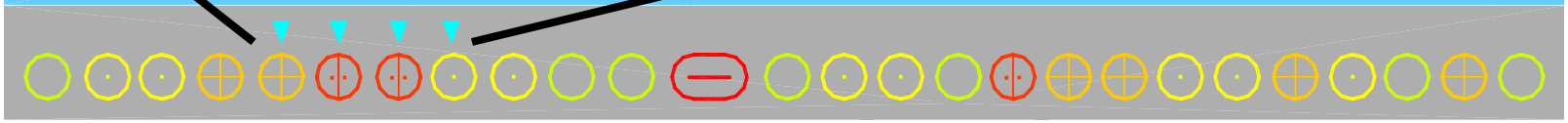
Shopping
Village

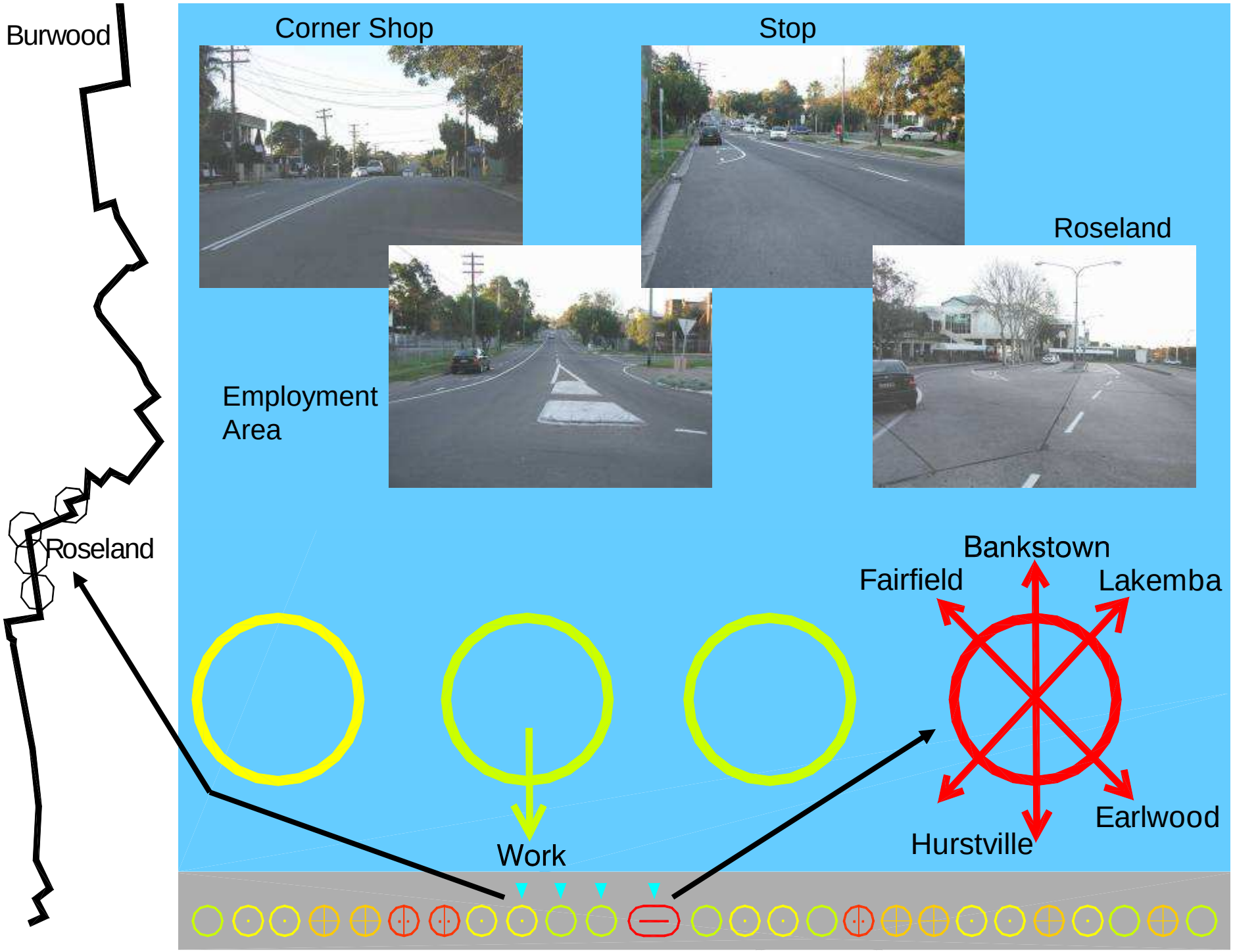
Uni WS / Milpera
Liverpool

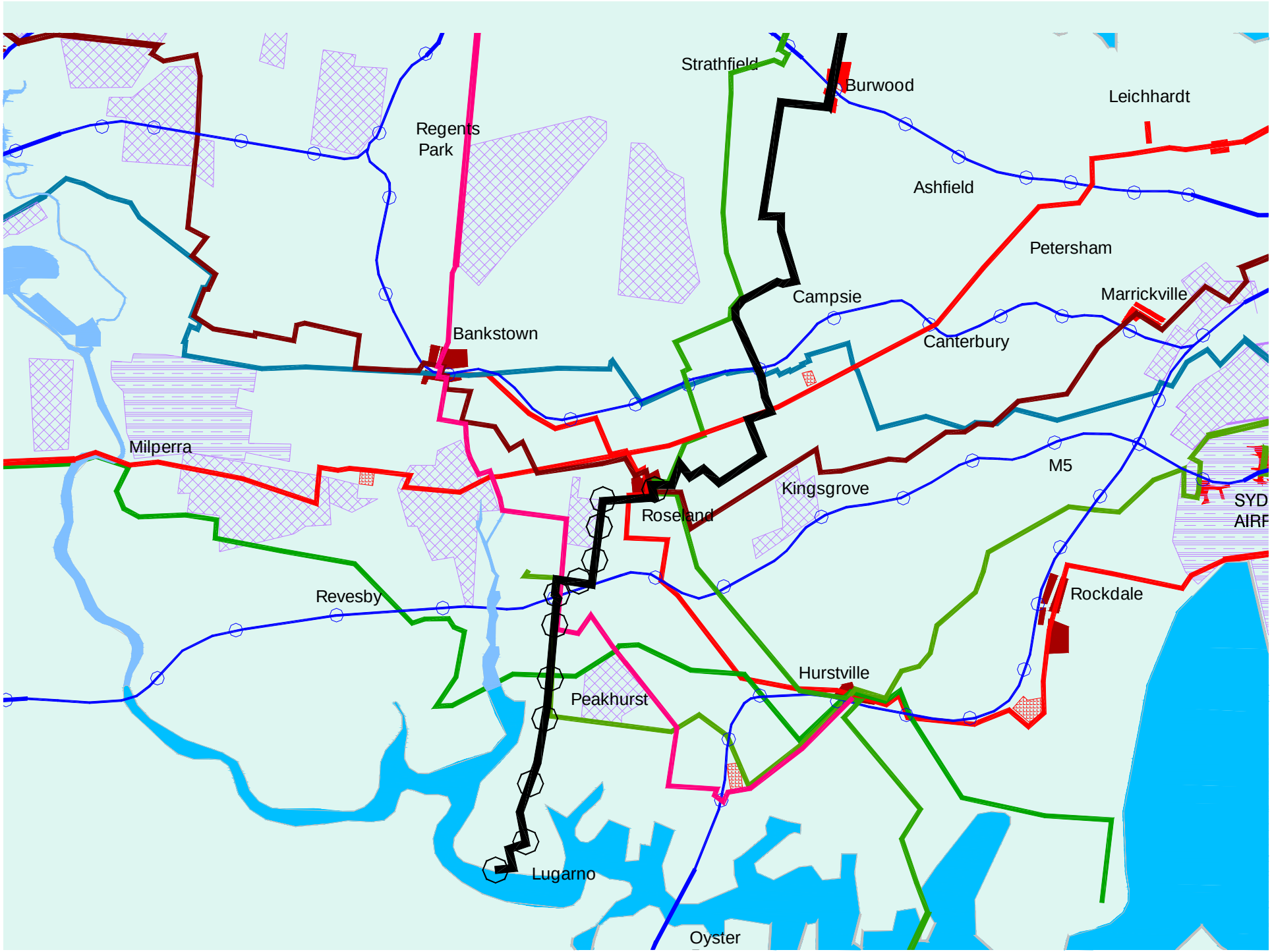
Hurstville
San Souci Beach

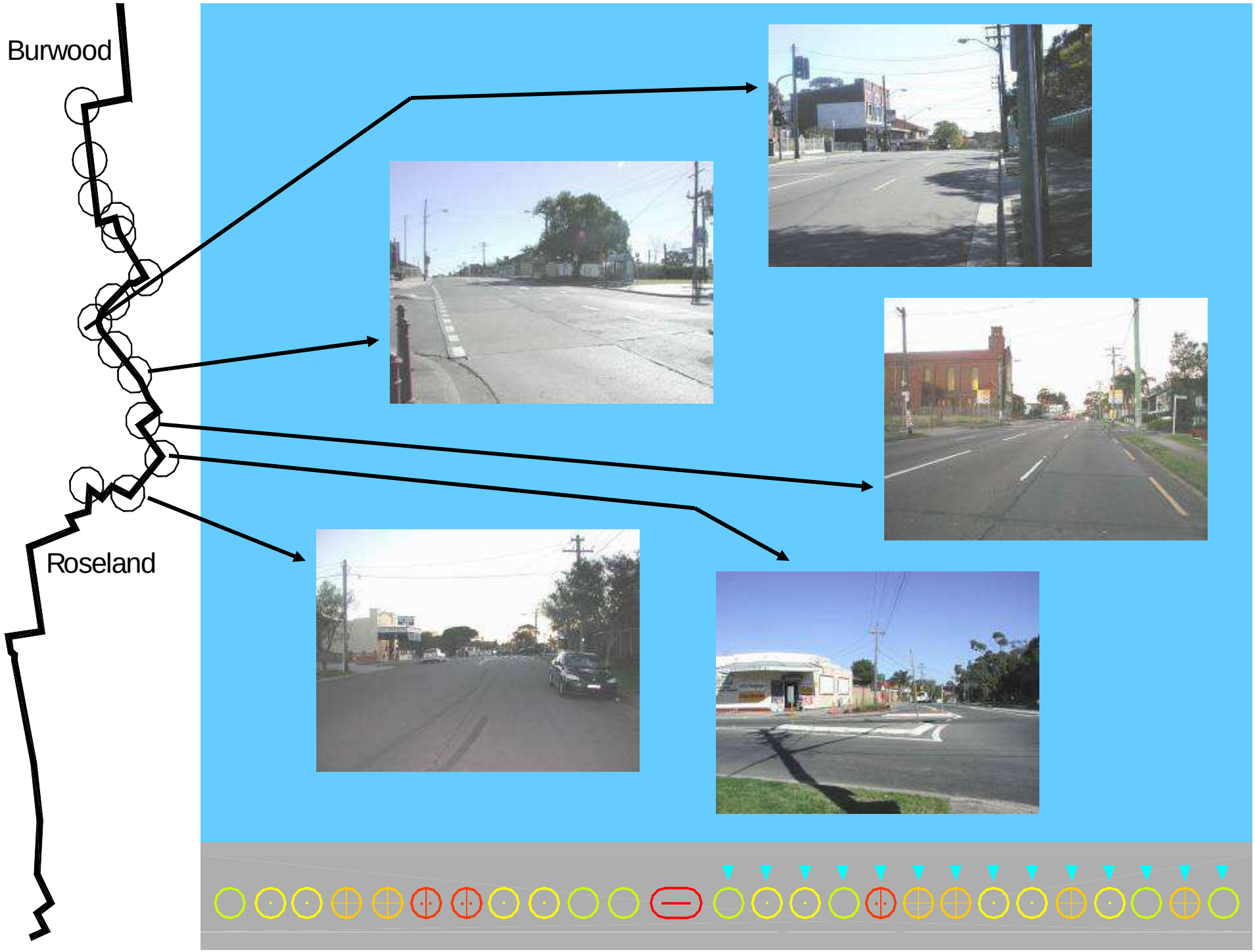
Campbelltown

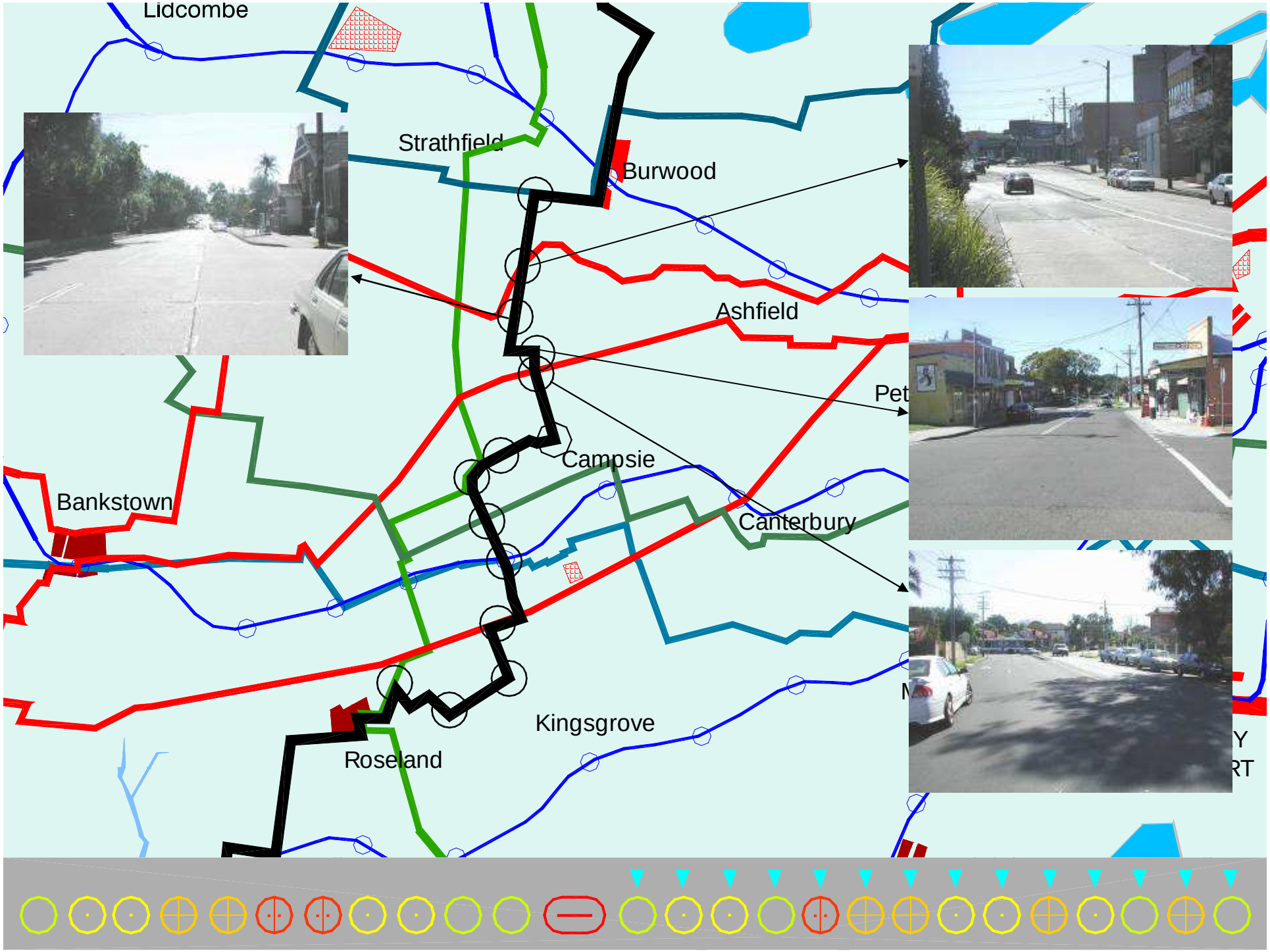
City



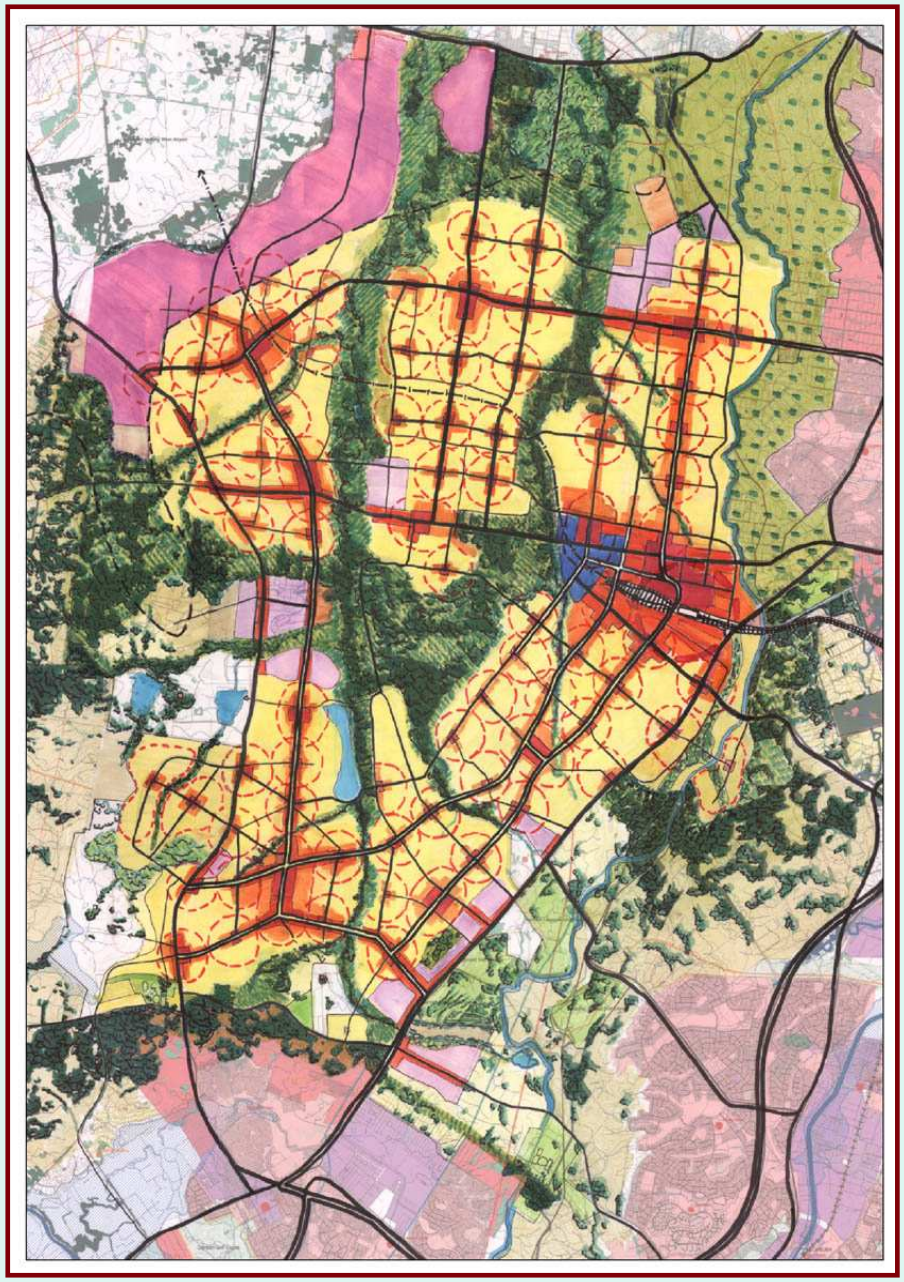

Burwood
Roseland
Corner Shop
Stop
Roseland
Employment
Area
Bankstown
Fairfield
Lakemba
Earlwood
Hurstville
Work


Strathfield
Burwood
Leichhardt
Regents Park
Ashfield
Petersham
Campsie
Marrickville
Bankstown
Canterbury
Milperra
M5
Kingsgrove
Roselands
SYD AIRF
Revesby
Rockdale
Hurstville
Peakhurst
Lugarno
Oyster

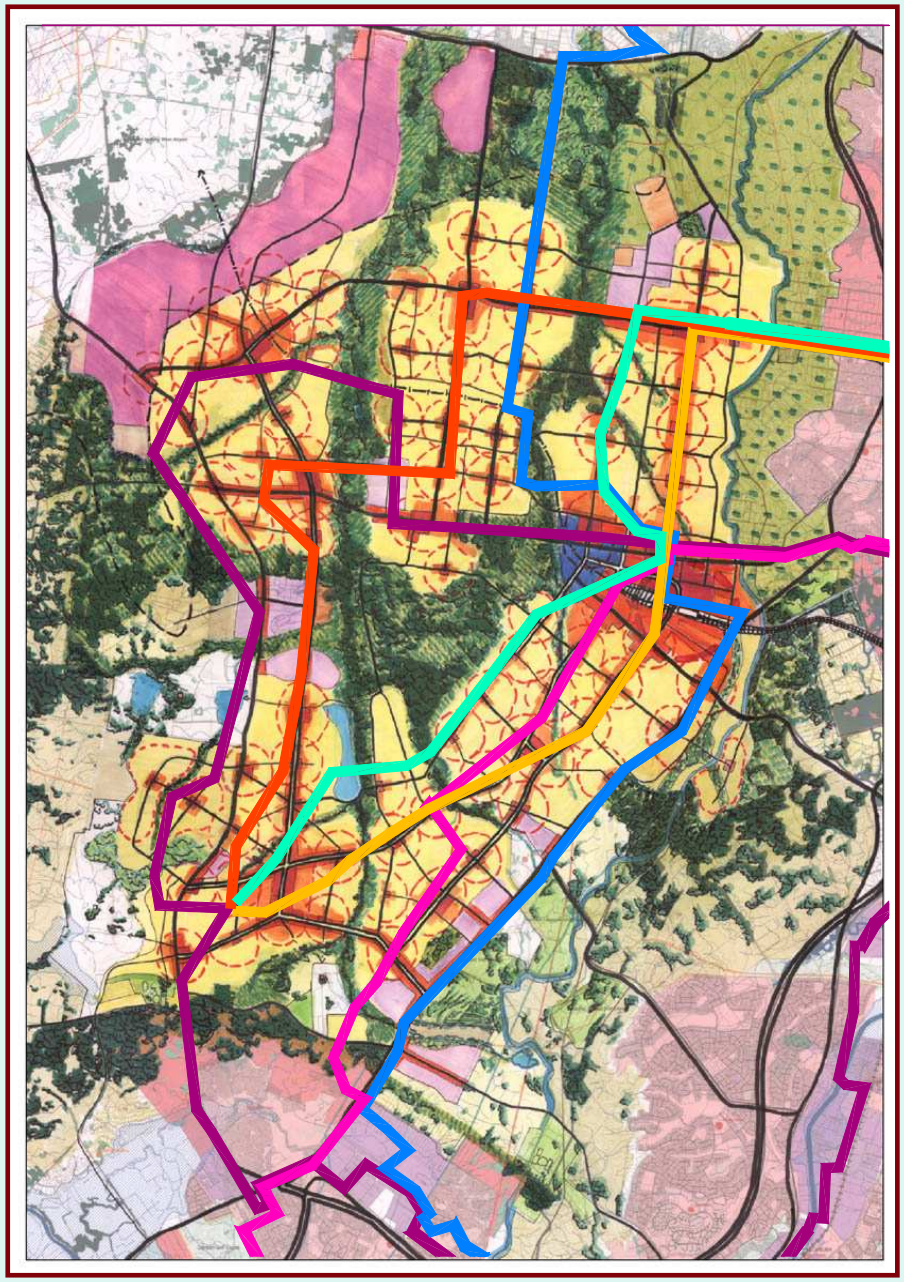

Burwood
Roseland


Lidcombe
Strathfield
Burwood
Ashfield
Pet
Campsie
Bankstown
Canterbury
Kingsgrove
Roseland

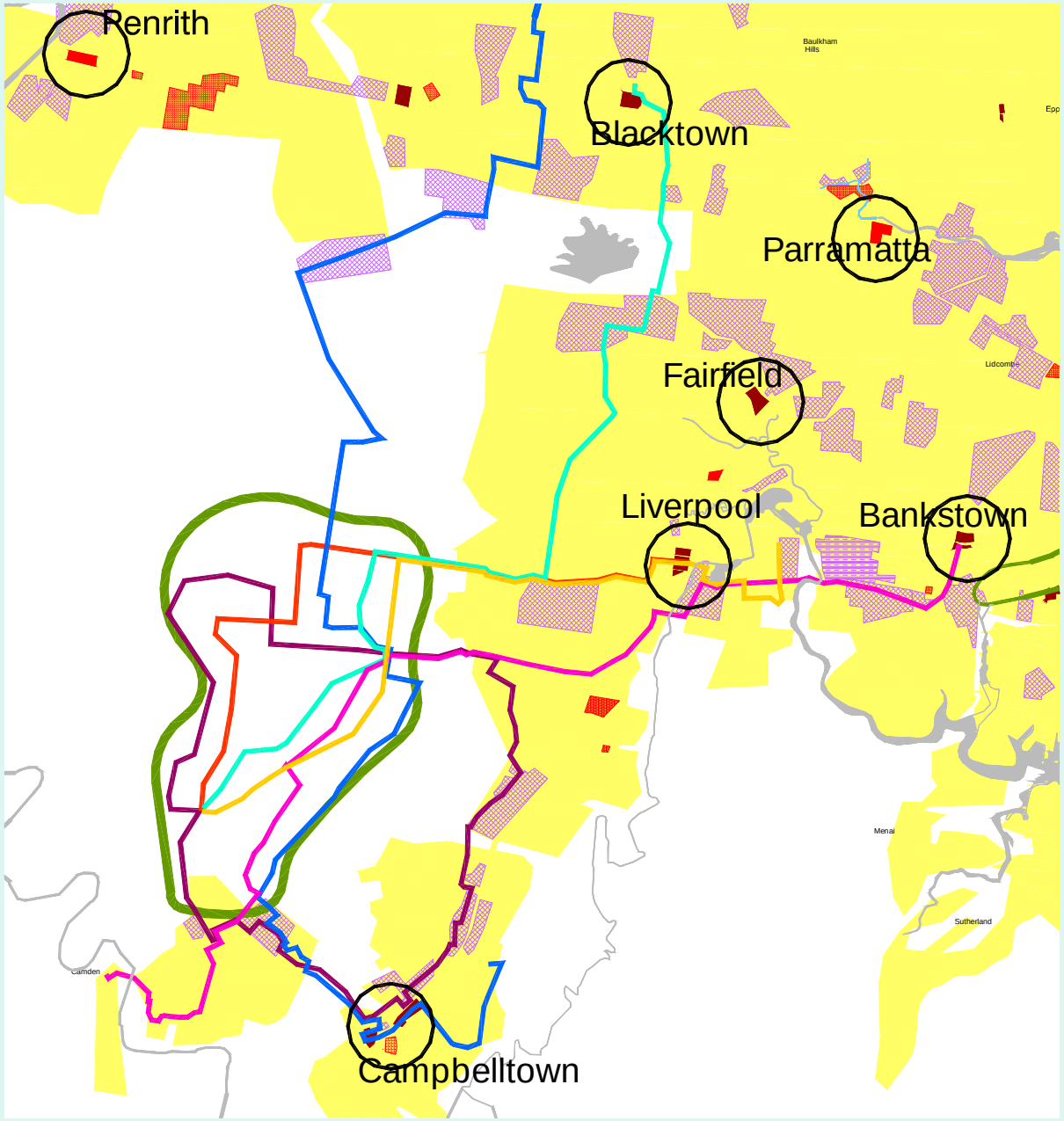
8. PRINCIPLES



8. PRINCIPLES

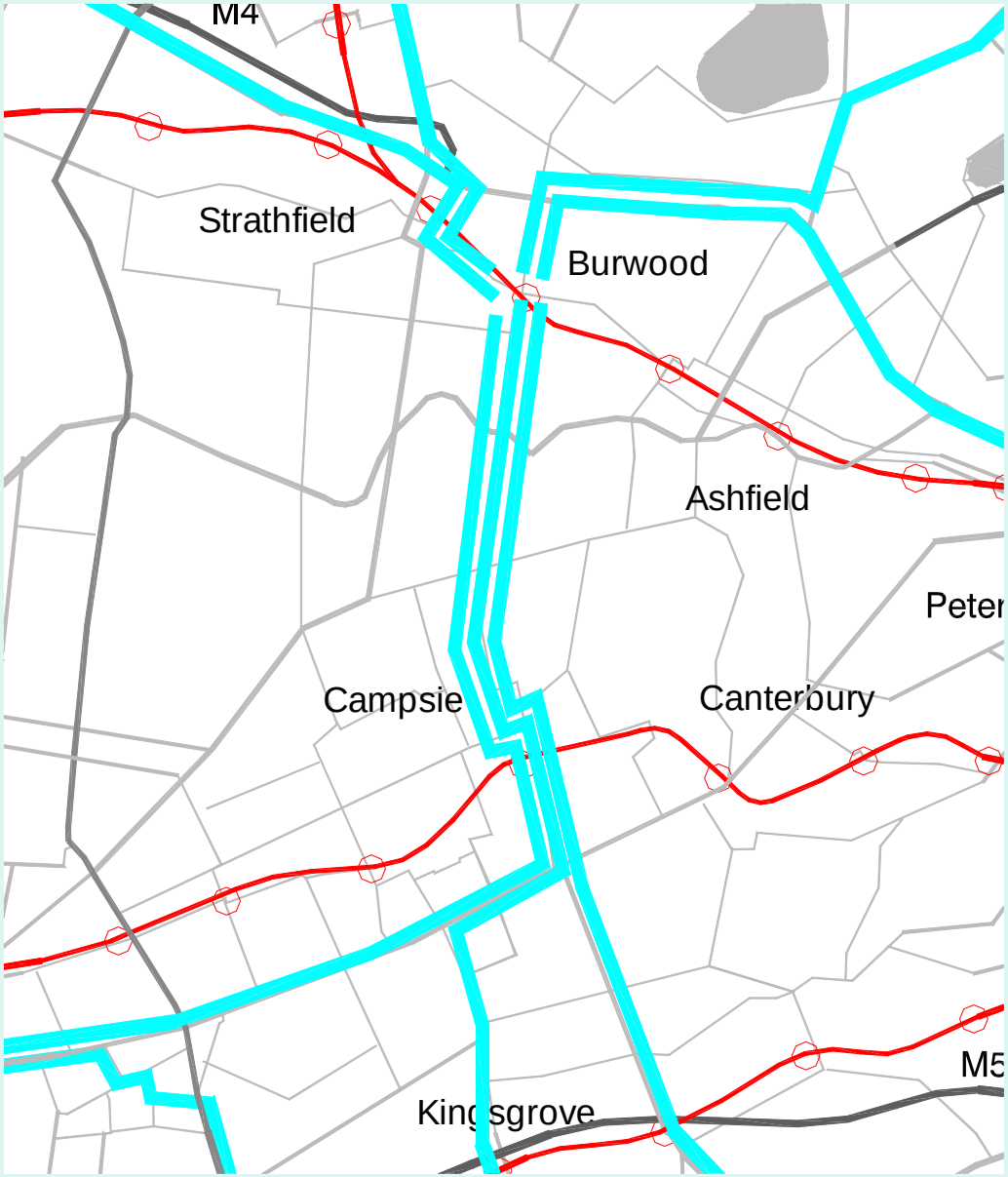


8. PRINCIPLES



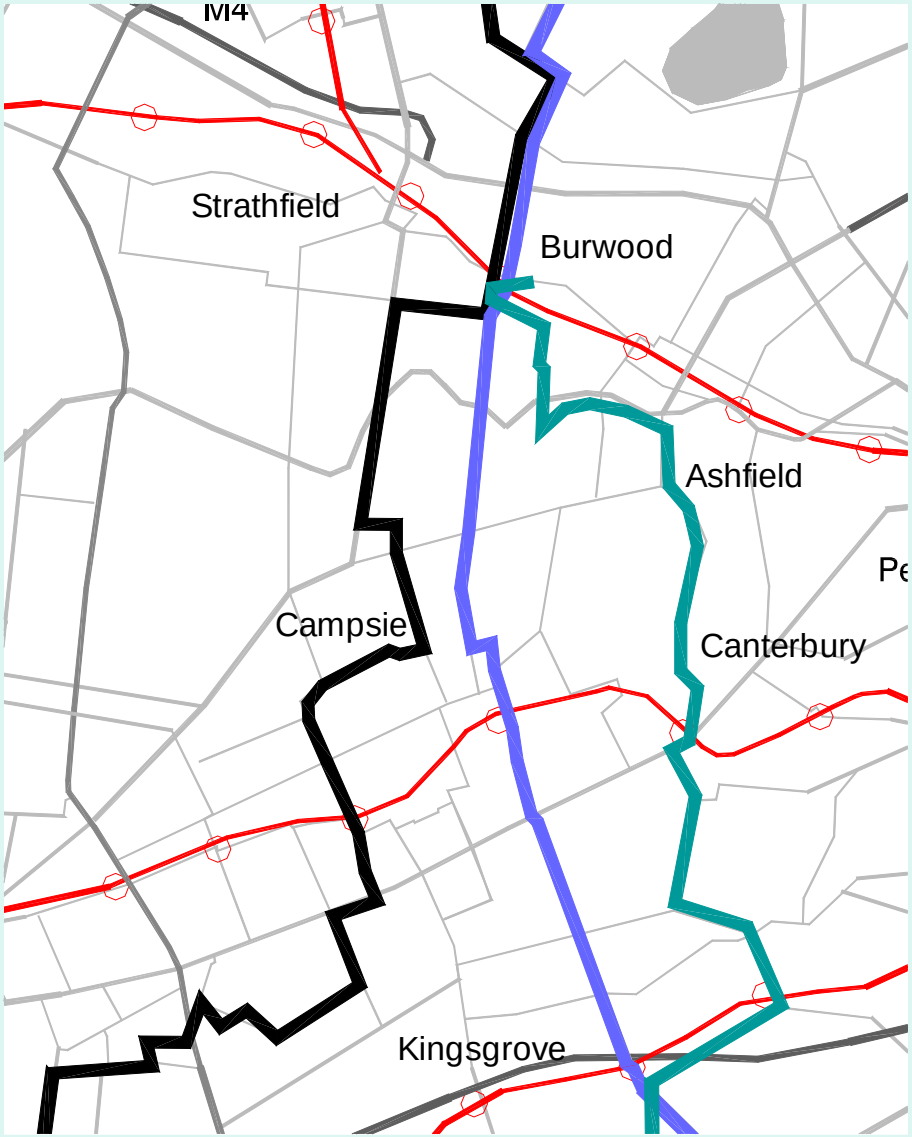
9. RULES OF NETWORK BUILDING

9.1 Two paths are better than one Unsworth too restricted



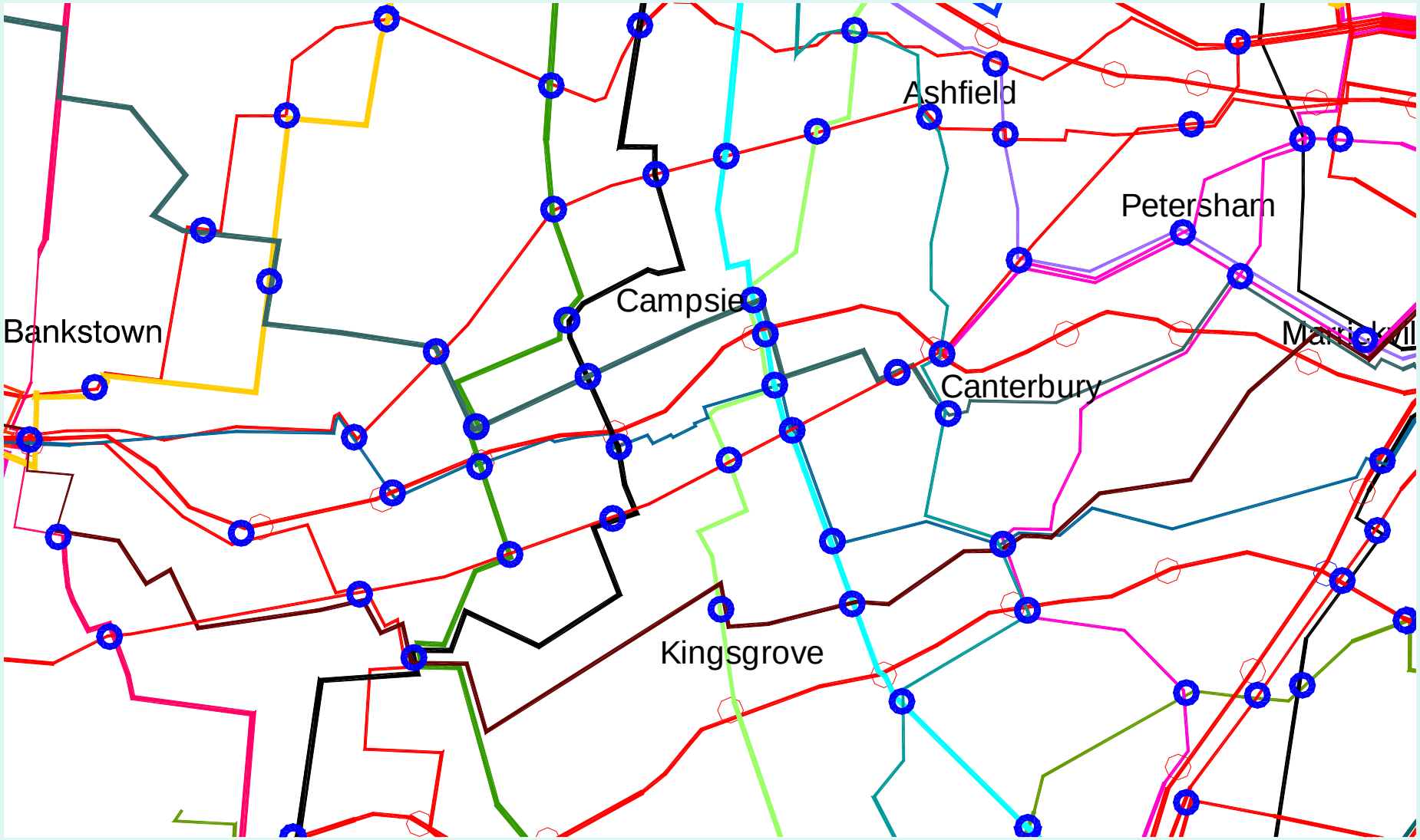
9. RULES OF NETWORK BUILDING

Three paths are better than one



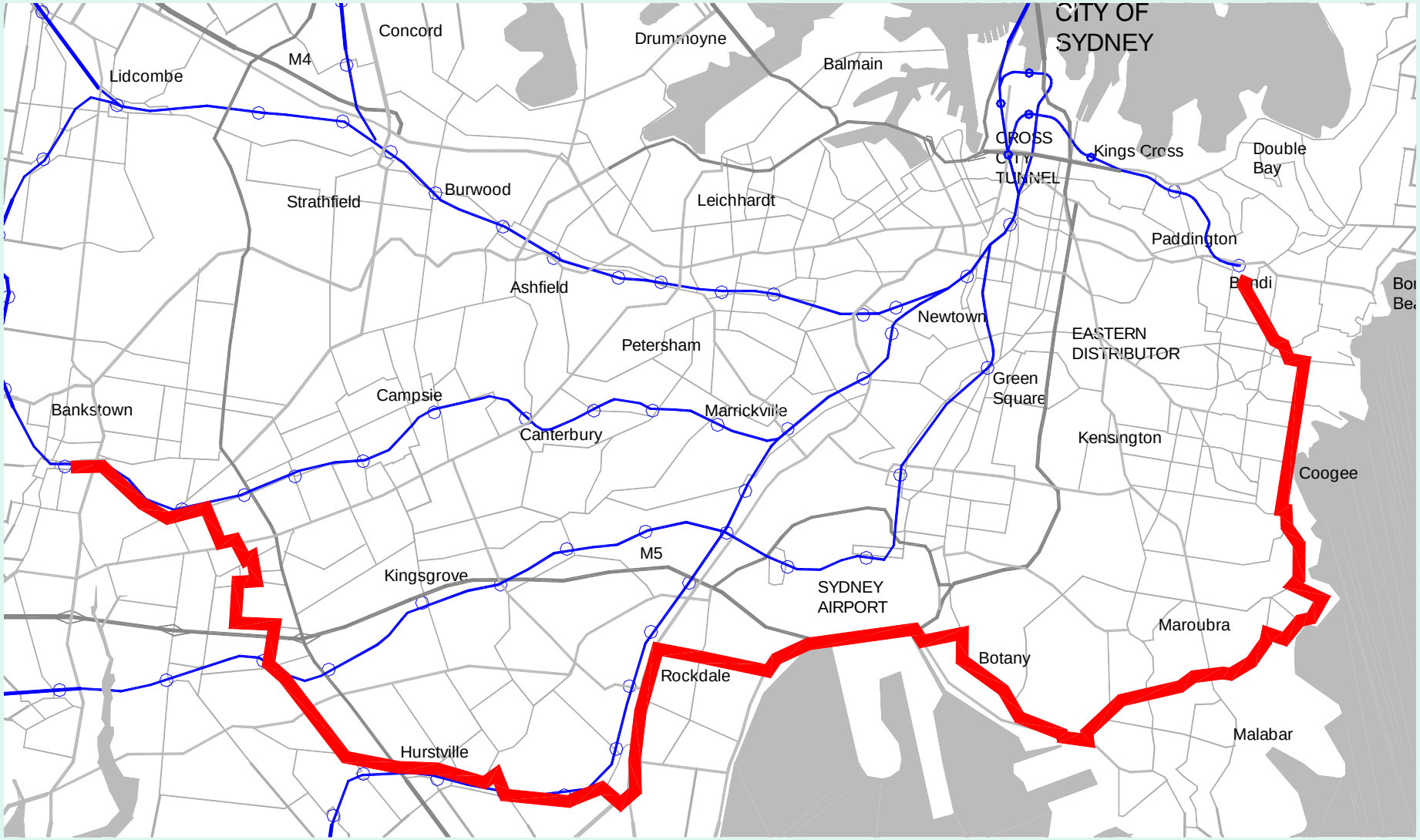
9. RULES OF NETWORK BUILDING

9.2 Flexibility though dispersed Transfers



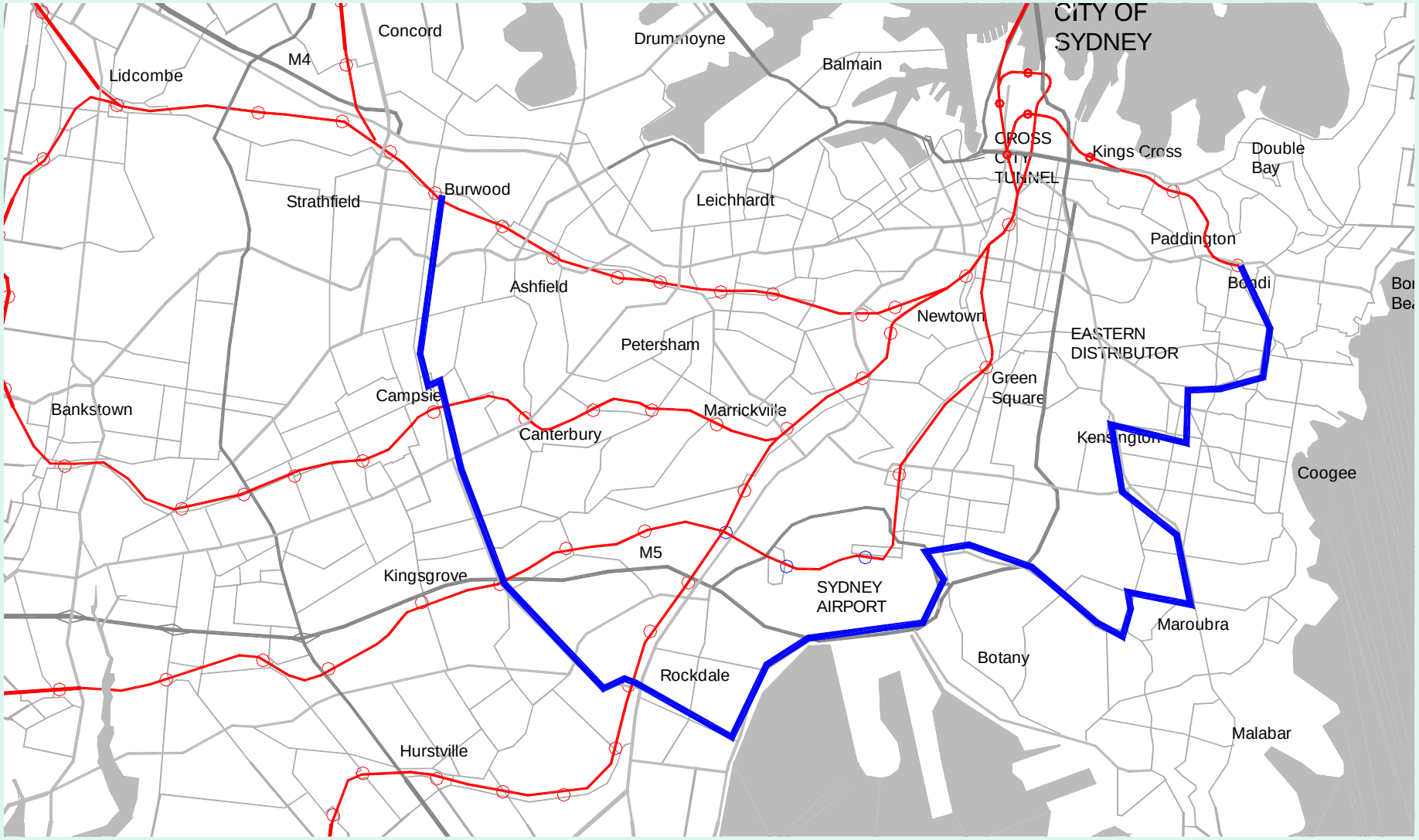
9. RULES OF NETWORK BUILDING

9.3 Curved routes create more flexibility to interchange with other curves. (Avoiding two interchanges in the pure grid system)



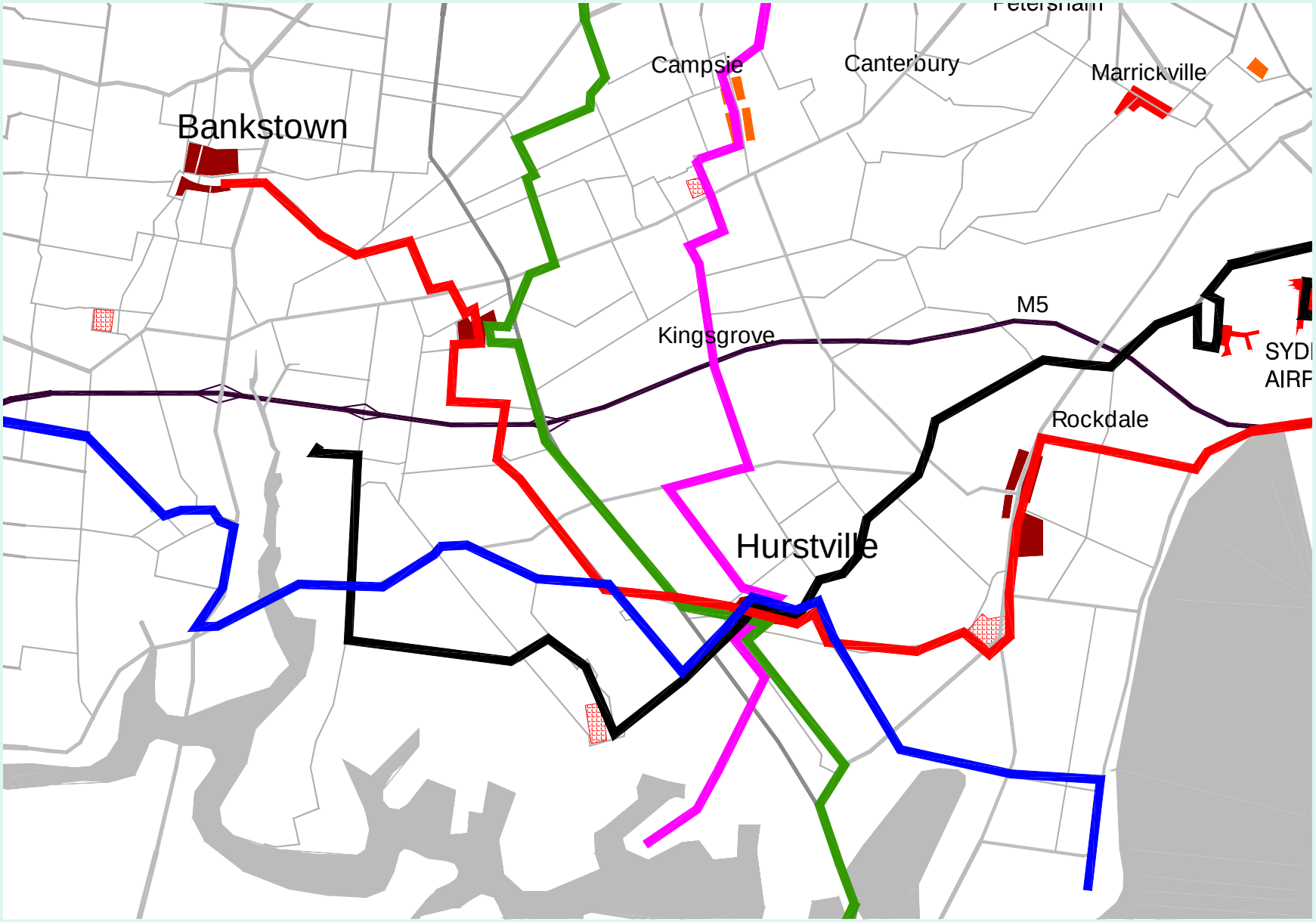
9. RULES OF NETWORK BUILDING

9.4 Circuitous paths are inefficient, this explains why the 400 route has not been include in MetroWeb no one goes from Burwood to Bondi via the Airport.



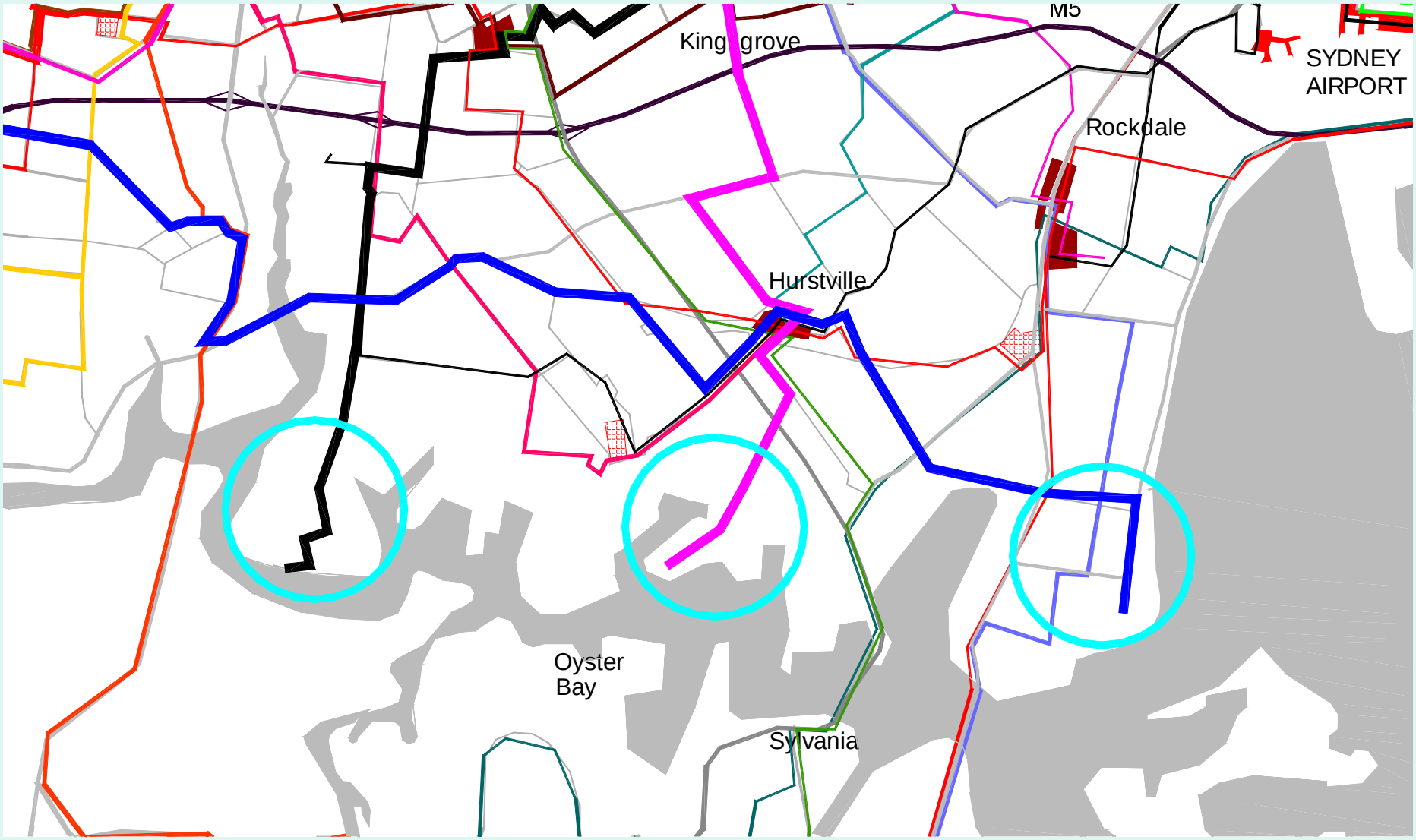
9. RULES OF NETWORK BUILDING

9.5 Cross Regional demand is greater than intra regional demand



9. RULES OF NETWORK BUILDING

9.6 Well patronised sectors can subsidise low patronage sectors

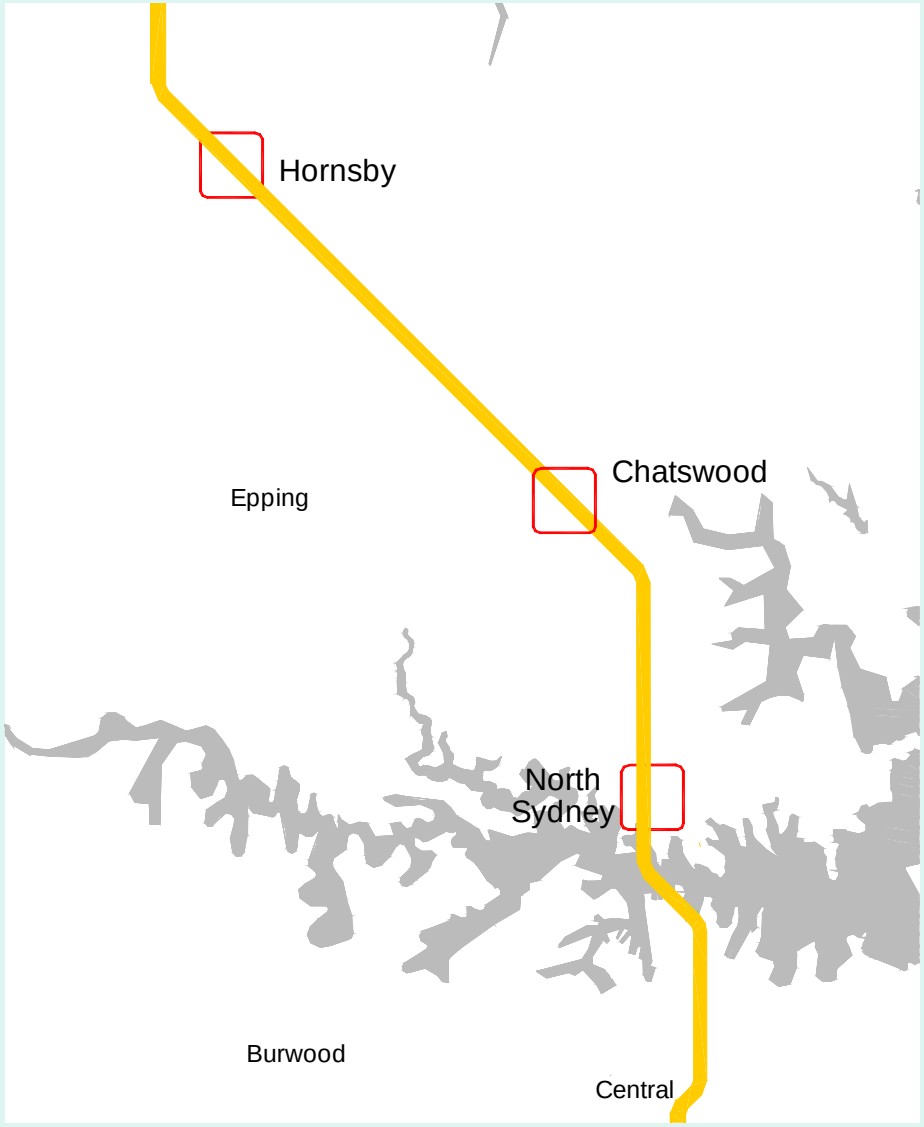


9. RULES OF NETWORK BUILDING

9.12 Frequency is more important than speed on a regional or local journey

9. RULES OF NETWORK BUILDING

9.13 Indeed speed is only relevant to express services that deliver directly into the City or between Regional Cities.



9. RULES OF NETWORK BUILDING

9.14 Don’t draw schemes that cannot be justified within a time frame or cost framework

10. CONCLUSIONS

A	Locales are created	
	Bus stops generate a fundamental part of the local structure for social and economic life.	MetroWeb will connects quite areas of Canterbury with the Sydney Metropolitan Transport System.
B	Walking is increased	
	Local Bus routes become the corridors for journeys along local streets.	Additional street life is predicted to increase walking by 200% reducing car travel by 9%.
C	Equitable Transport	
	Everybody has access to everywhere.	MetroWeb will bring six buses per hour within 400m of nearly all the residents of in Sydney.
D	Economic necessity	
	Car cannot accommodate the future level of mobility.	MetroWeb will allow the residents of Canterbury to increase their daily travel without any additional car travel.

10. CONCLUSIONS

E	Environmental necessity	
	Traffic noise, pollution and intrusion cannot be sustained- reduce travel by car.	MetroWeb will reduce the traffic generated by the existing residents of Canterbury residents by 8% (16000 trips per day).
F	Sustainable Futures	
	A viable transport alternative available outside every house.	MetroWeb will offer a readily available alternative to car travel outside every home with simple transfers to practically all regular destinations. This option can be taken up at will.
G	Operationally viable	
	Combining many travel needs to generate a viable regular service.	The through routing of MetroWeb services combined with the multiple transfers will sustain a 10 minute headway for 10 to 16 hours per day.