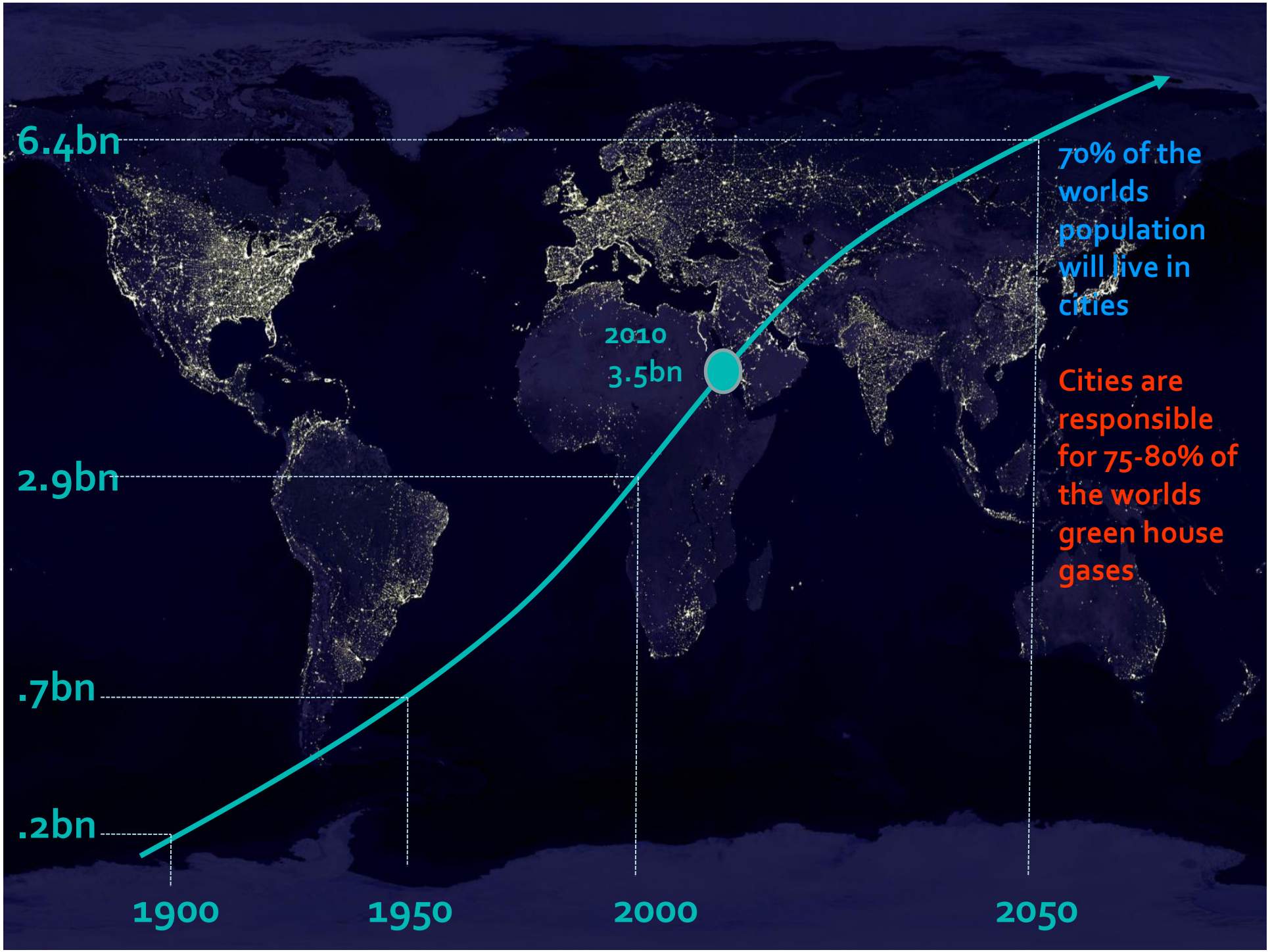
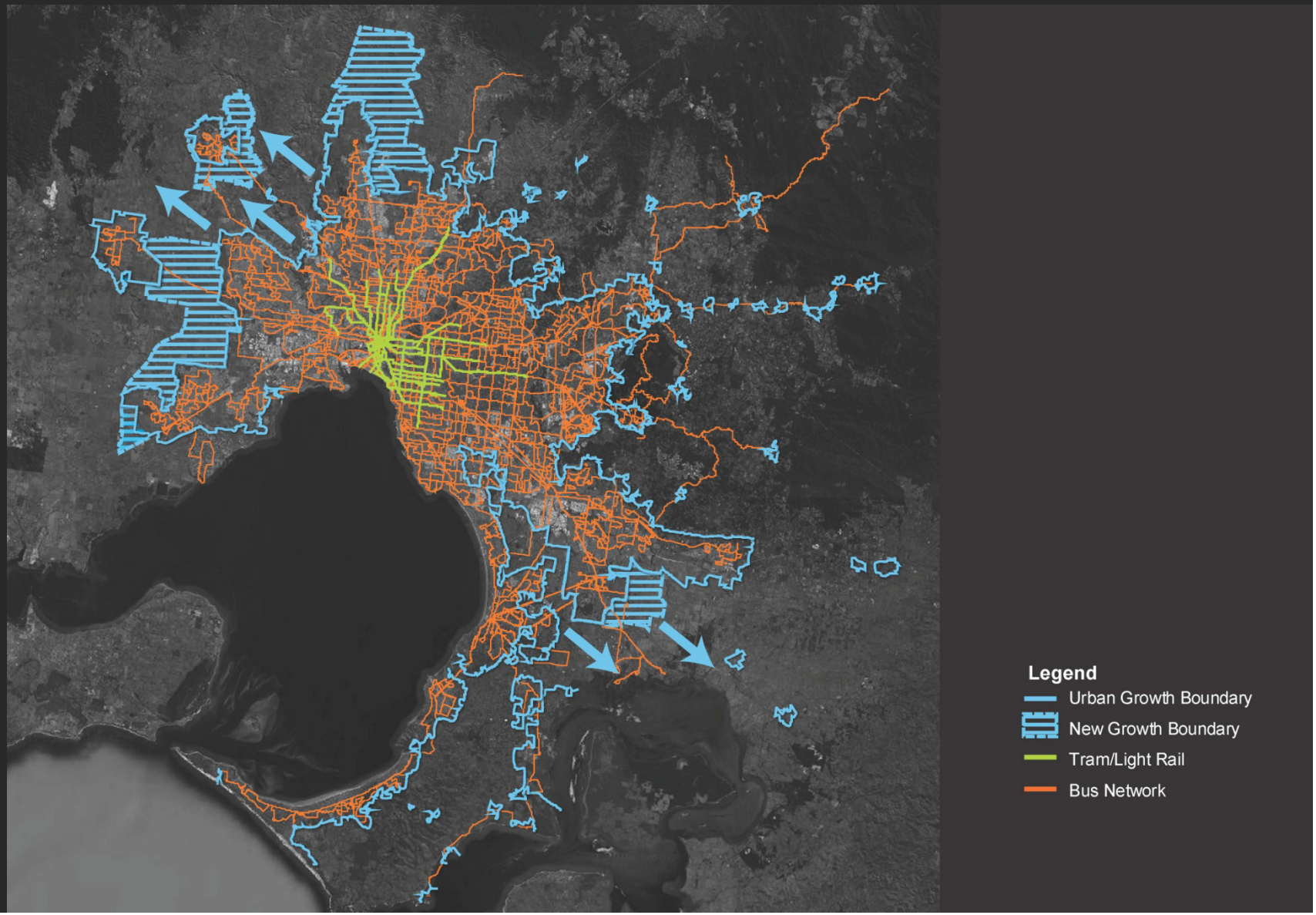
TRANSFORMING CITIES

TO ACHIEVE A FINANCIALLY AND ECOLOGICALLY SUSTAINABLE FUTURE

Steve Thorne
Design Urban Pty Ltd


6.4bn
2.9bn
.7bn
.2bn
1900
1950
2000
2050
2010
3.5bn
70% of the worlds population will live in cities
Cities are responsible for 75-80% of the worlds green house gases

Melbourne @ 5 million 2022



Melbourne @ 5 million
90% of all city infrastructure required by 2022 already exists.

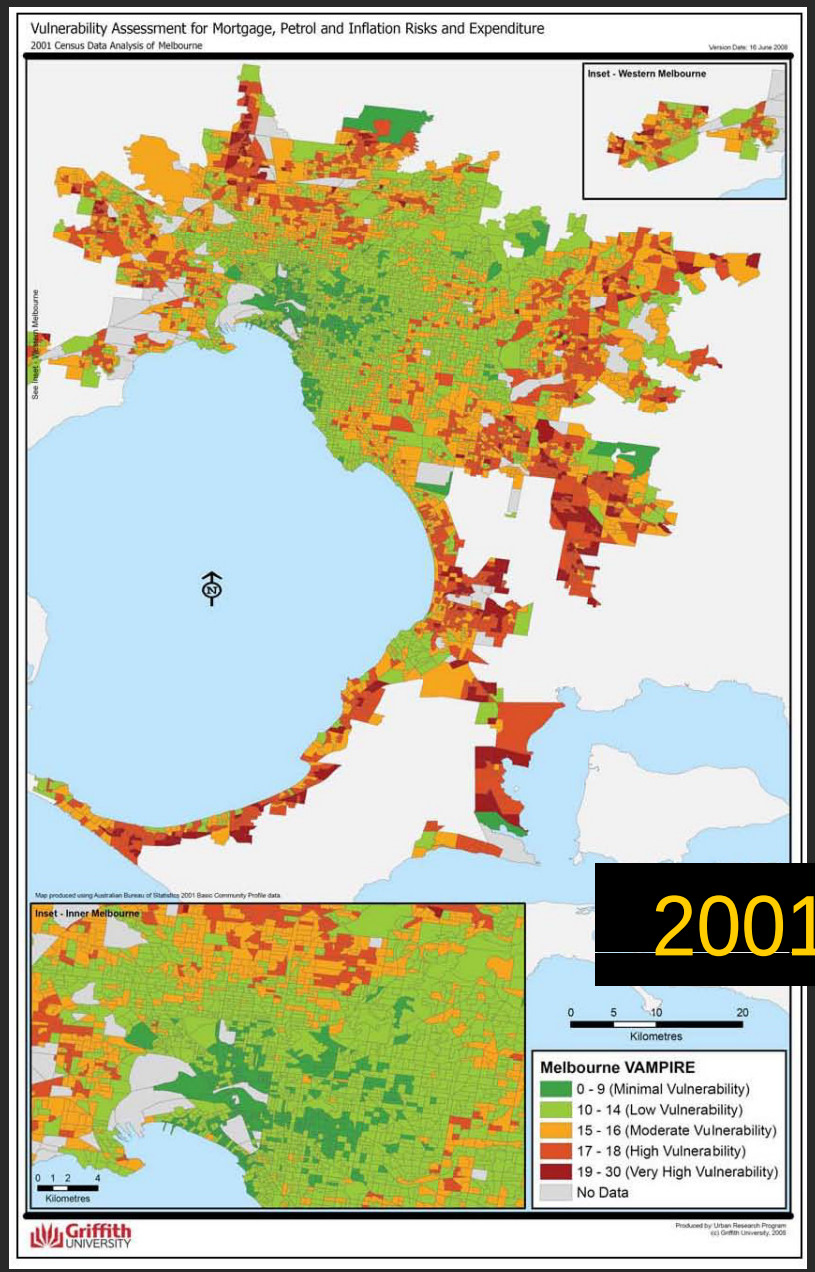
Conventional responses are to expand existing infrastructure and build more large scale projects.

These responses have high hidden costs.

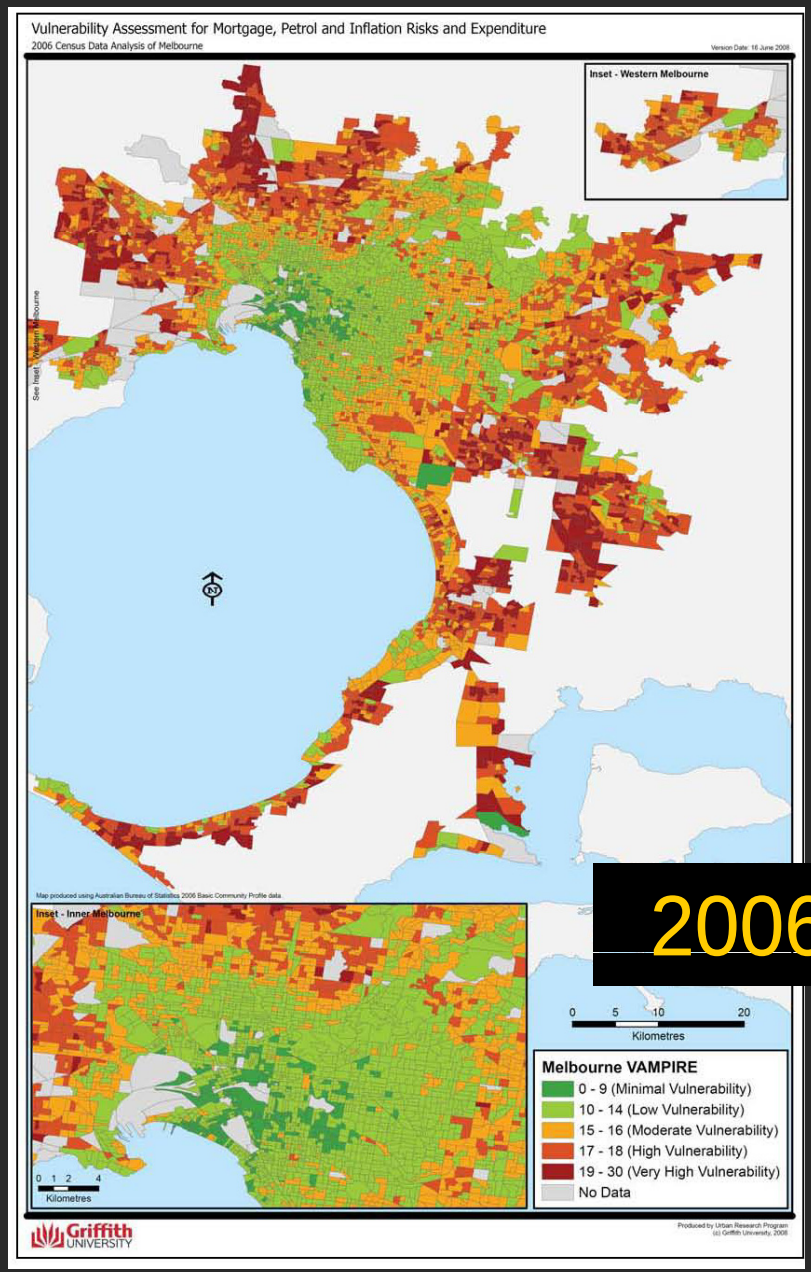
1000 houses built on the fringe of Australian cities cost $300 million more than 1000 houses built within existing growth boundaries.

SCOURCE. Trubka,R.,Newman,P. and Bilsborough,D. 2008, Assessing the costs of Alternative Development Paths of Australian Cities. Curtain University and Parsons Brinckerhoff

Melbourne: Oil & Mortgage Vulnerability



2001

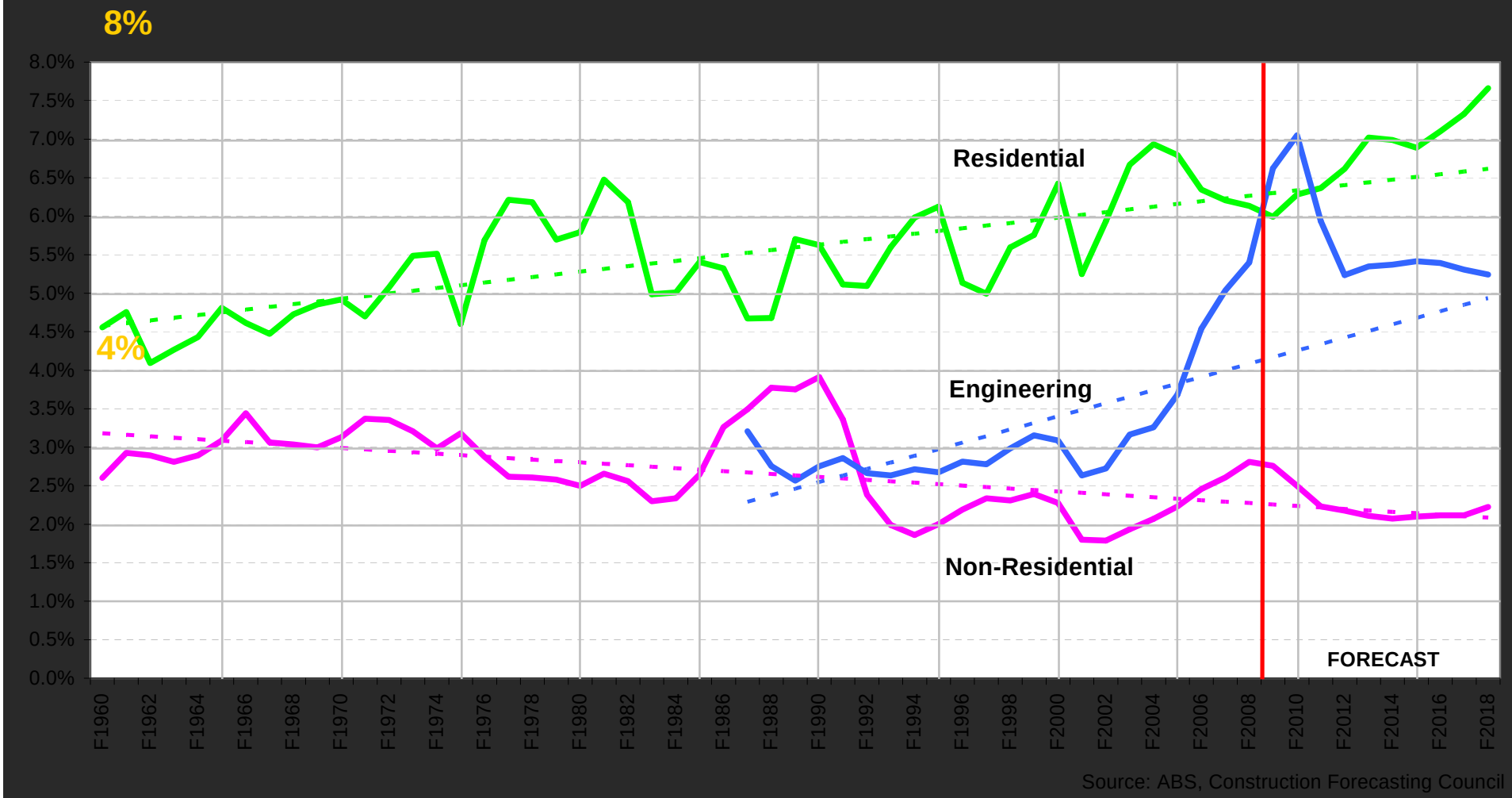


2006

Status Quo

Will cost $110,080,000,000 extra over 50 years assuming that half of all future housing is built on the periphery of Melbourne

Annual Building Activity Spending as a Percentage of GDP



Source: ABS, Construction Forecasting Council

Coal Production and Sale is equal to 2% of GDP and 1% Employment

Melbourne is growing in population at 1.3% per annum

(BIS Shrapnel, April 2010)

Challenge

Re-align the existing infrastructure of cities to produce a more;

- Sustainable
- Liveable
- Economically viable future

This is Happening in Many Cities

From a Policy point of view

Its about the Cities – and HOW we grow

DECENTRALISATION TO CONCENTRATION

Glasgow

QUALITY PUBLIC INFRASTRUCTURE

Bordeaux

SHIPYARDS TO SUSTAINABILITY

Malmo Bo01

FROM BLIND SPOT TO CITY OF CULTURE

Temple Bar, Dublin

PEOPLE, PLACES AND TRANSPORTATION

Bogota


Rediscovered Rivers
Seoul, South Korea

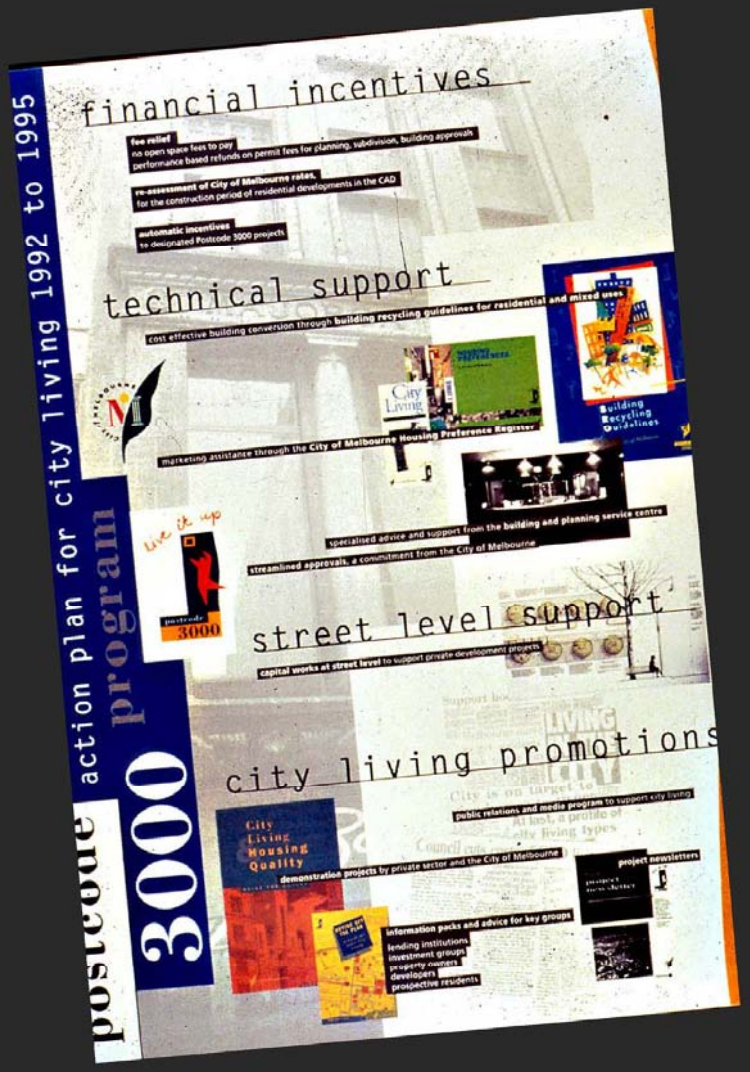
Rediscovered River
Seoul, South Korea

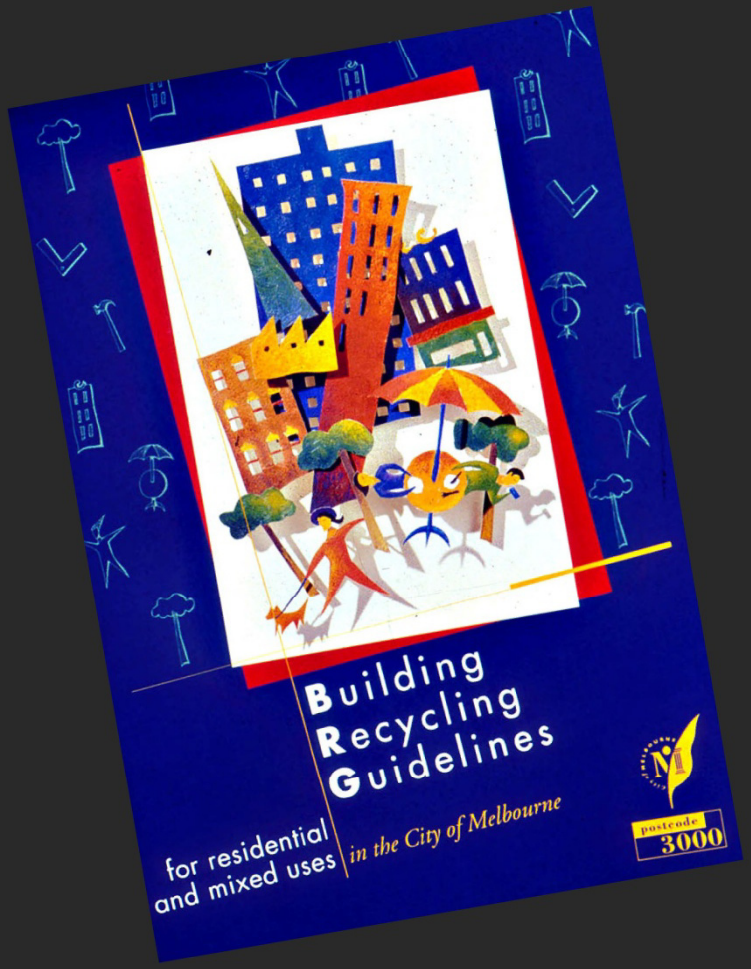

Rediscovered River
Arhaus, Denmark

MONOFUNCTIONAL TO MULTIFUNCTIONAL

Melbourne

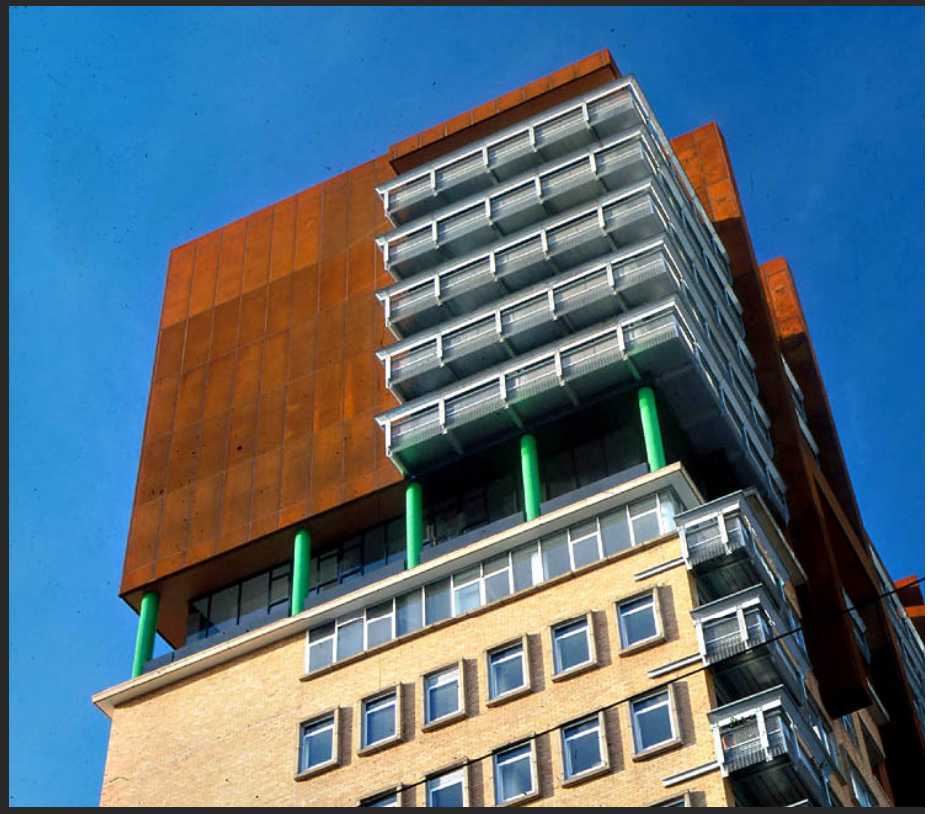
Density – Mixed Use



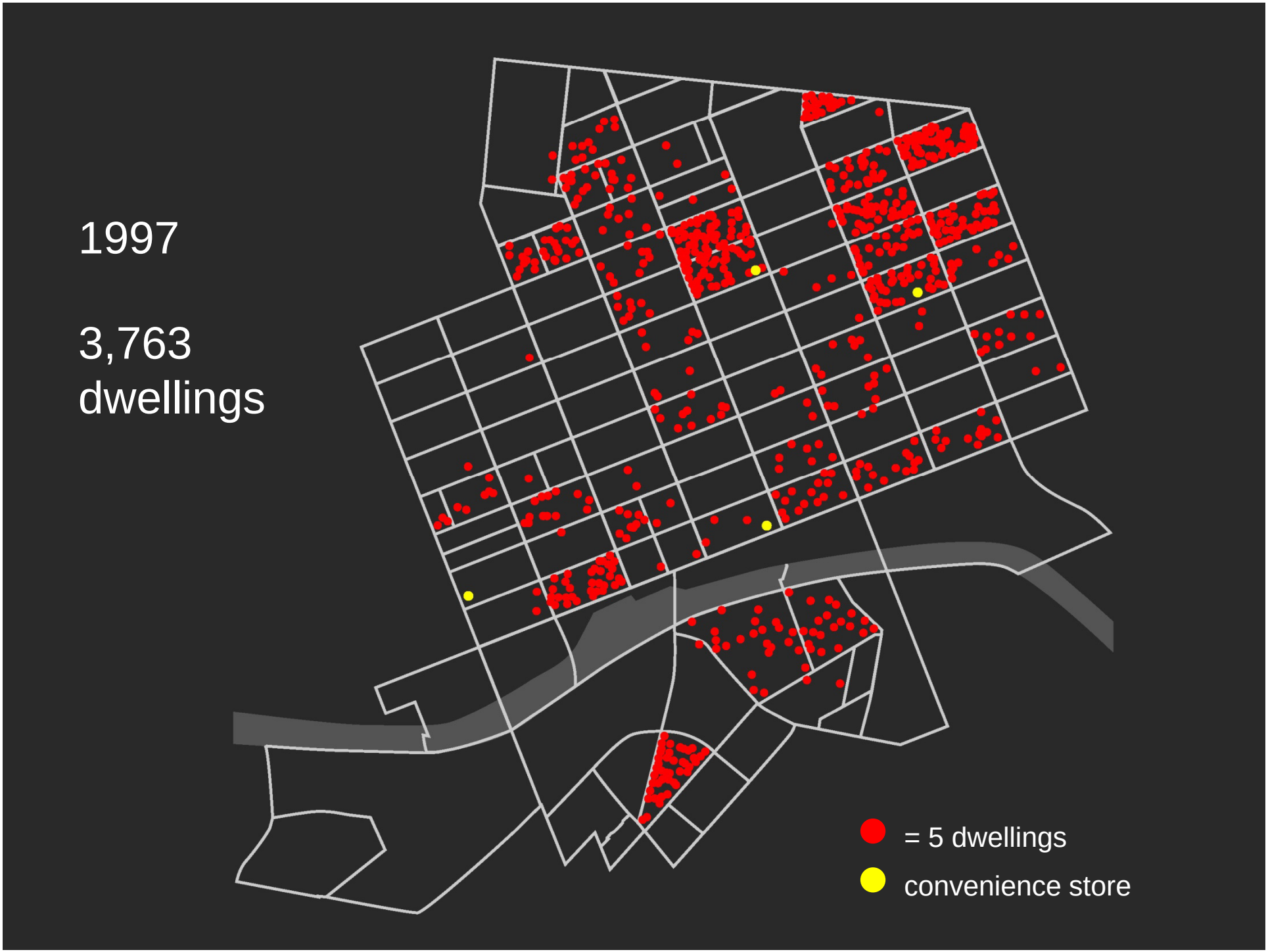

Building
Recycling
Guidelines
for residential
and mixed uses
in the City of Melbourne
postcode
3000

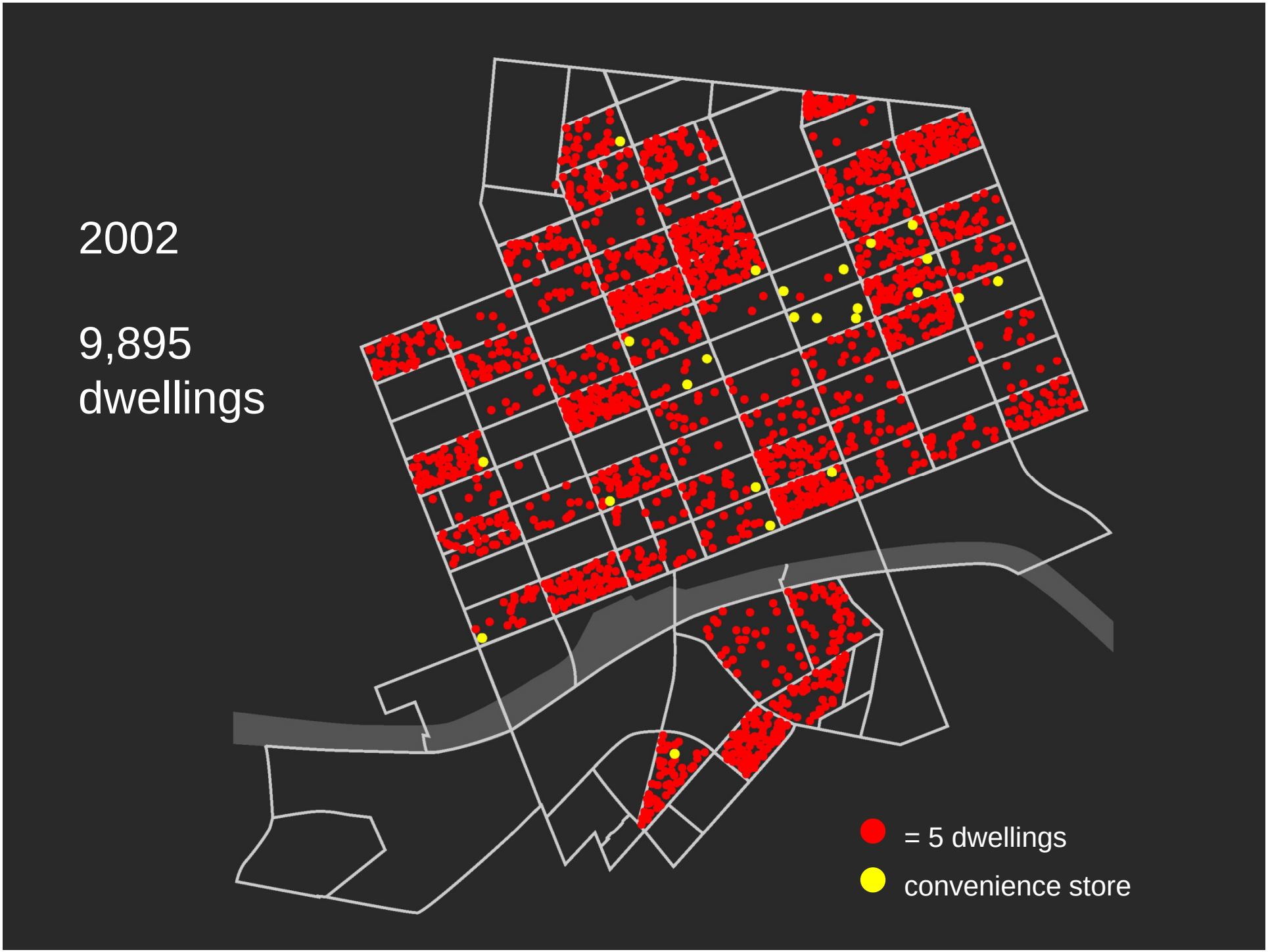

NO 1
NOW SELLING
One, two, three bedroom and penthouse apartments
827 6000
614 4700
NO 1
BUSINESS AS USUAL


Now Selling
HERO
Apartments
9612 8840
SIGNS OF LIFE
SIGNS OF LIFE
HERO




1983
= 5 dwellings


1997
3,763
dwellings
= 5 dwellings
convenience store


2002
9,895
dwellings
= 5 dwellings
convenience store

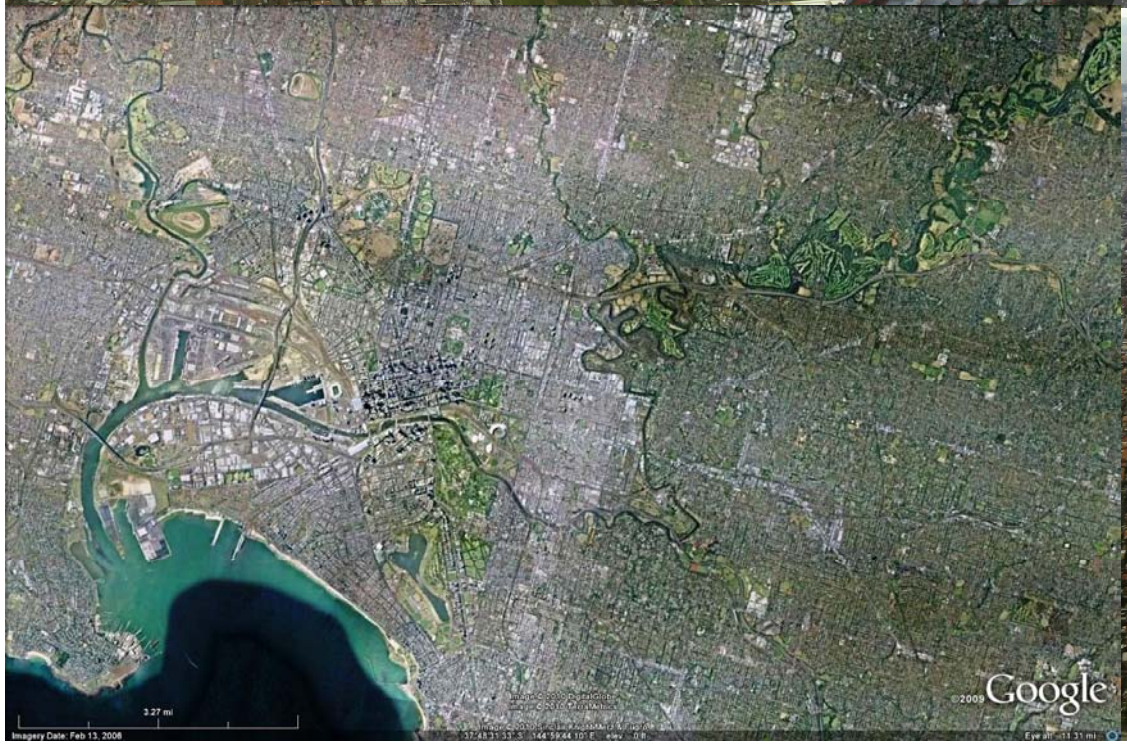
Status Quo is not an option!

At the same time destroying the “Australian Dream” of a home and land package is not an option.

So What are Our Options?

‘The 7.5% City’


ACTIVITY CENTRES 3% OF METRO AREA


3.27 mi
Imagery Date: Feb 13, 2006
©2009 Google


3% OF METRO AREA
URBAN CORRIDORS


Known redevelopment sites 1.5%

SUBURBS - 90% 0f METRO AREA

Melbourne @ 5 million

- Transport orientated developments around railway stations-activity centres = 3% of Metropolitan area.
- Intensification of development along road based public transport corridors = 3% of Metropolitan area.
- Known redevelopment sites = 1.5%
- Productive Suburbs = 90% of Metropolitan area

Activity Centre Focus

- Utilizes only 3% of the existing development footprint.
- Mixed use high density low rise
king distance of railway stati
- Maxi
nt.
- Qu
ts with 75% active frontages.
- High environmental standards.

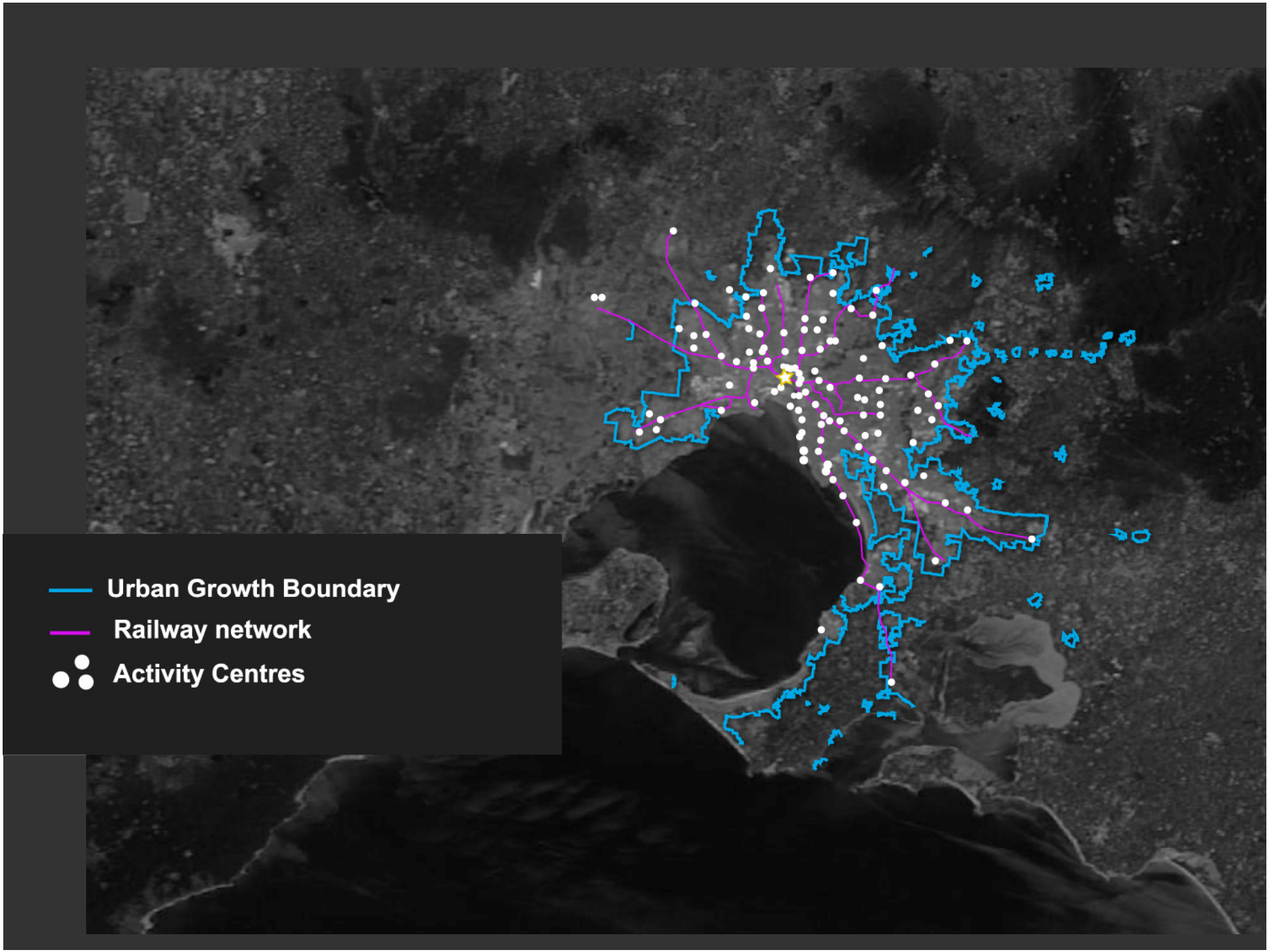
Developing Activity Centres alone won't get us there

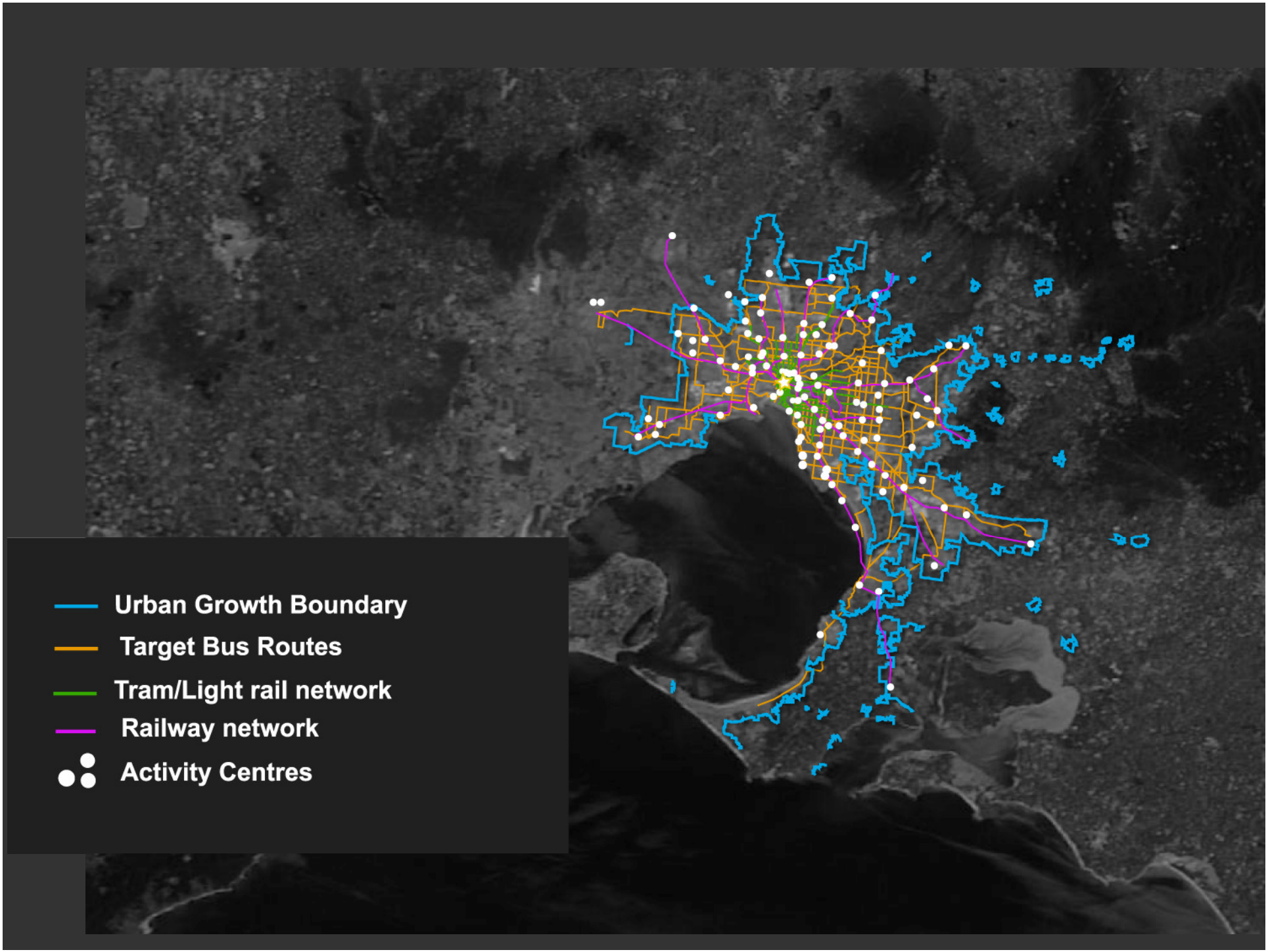
Capacity 6,895 ha. @ 60% take-up = 4,200 ha.
840,000 persons @ 200 per. per hectare.

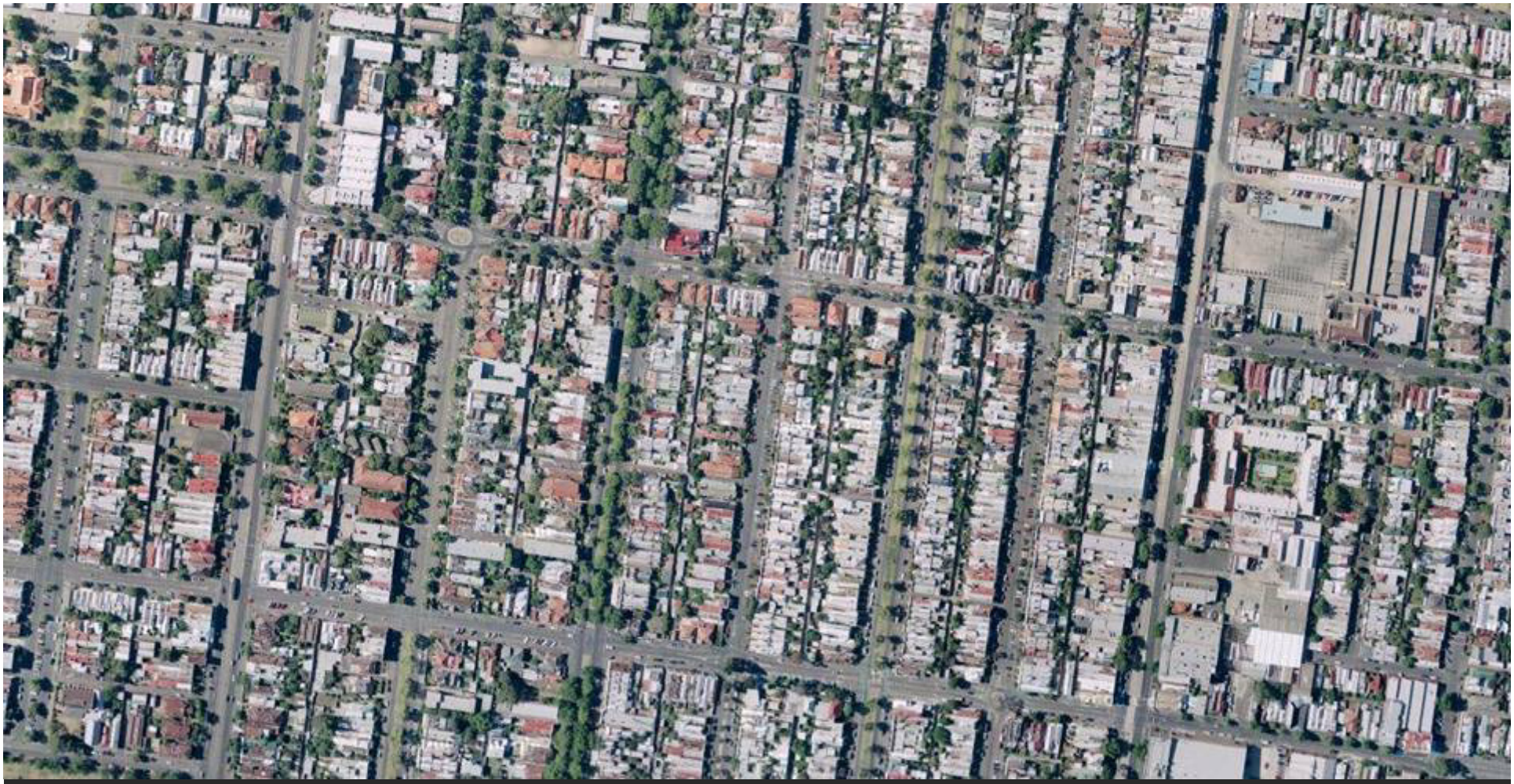
SOURCE; Melbourne University ARC Research paper. Kim Dovey et al.

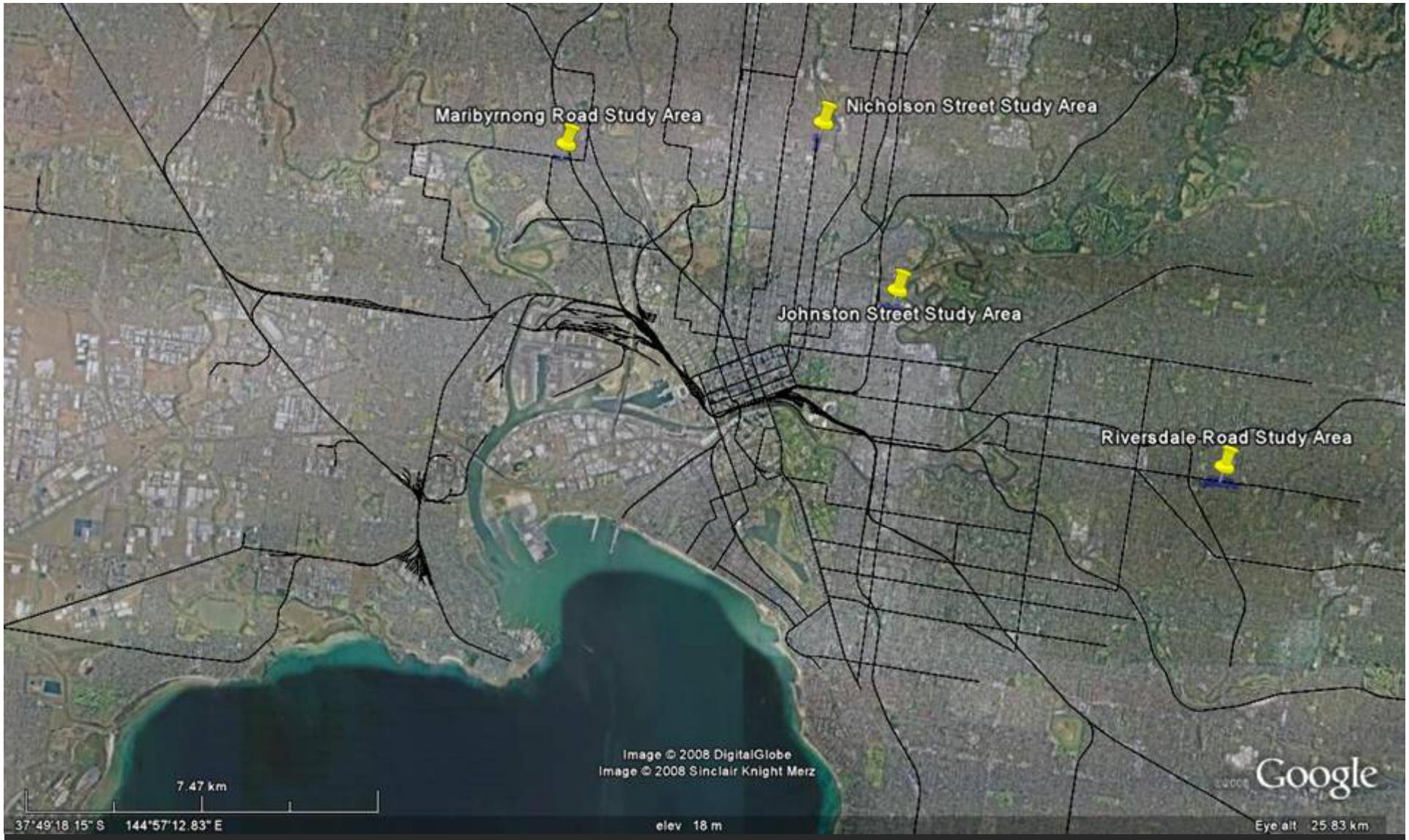
Corridor Intensification

- Utilizes only 3% of the existing development footprint.
- Benefits and supports public transport.
- Facilitates integrated and accessible affordable housing.
- Provides services, some employment and public transport within walking distance of majority of citizens.
- Builds on existing trends.
- Facilitates distributed energy and water management reducing long term vulnerabilities and expenditure.


Urban Growth Boundary
Railway network
Activity Centres


Urban Growth Boundary
Target Bus Routes
Tram/Light rail network
Railway network
Activity Centres





Melbourne overview showing 4 study areas

Urban Design Principles

- Sites with rear vehicle access via lanes
- Lanes provide good interface with lower density hinterland
- Ground floor to be either “commercial capable” or retail – limited scope for residential at ground floor
- Studio units on garages to lanes – maximum 2 storey to provide interface with existing detached dwellings
- Tallest elements built to front boundary
- Height determined by locality and a maximum 6 storeys
- All building pedestrian entrances directly from street

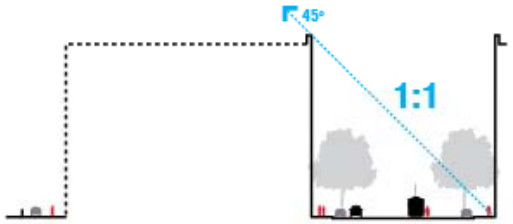
Transport Corridor: Urban Planning Overlay

1. applicable streets

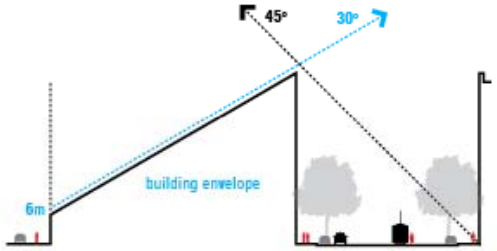
2. heritage

3. height limits

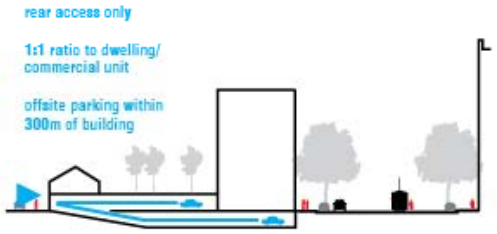
front



rear



4. parking



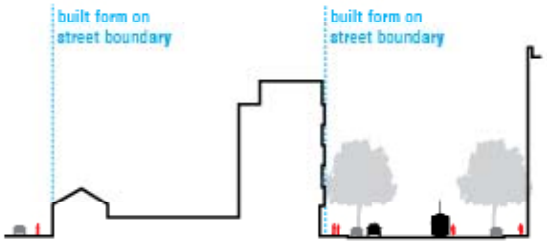
Limitations

DESIGN URBAN

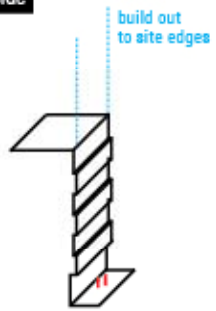
SGS Economics & Planning

5. setbacks

front

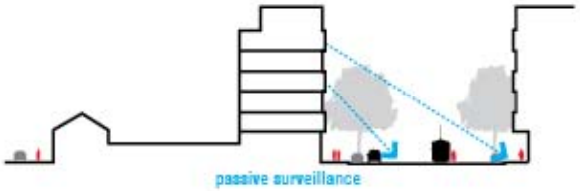


side

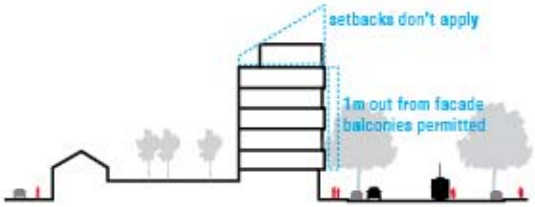


6. active frontages

7. passive surveillance



8. freedom zones



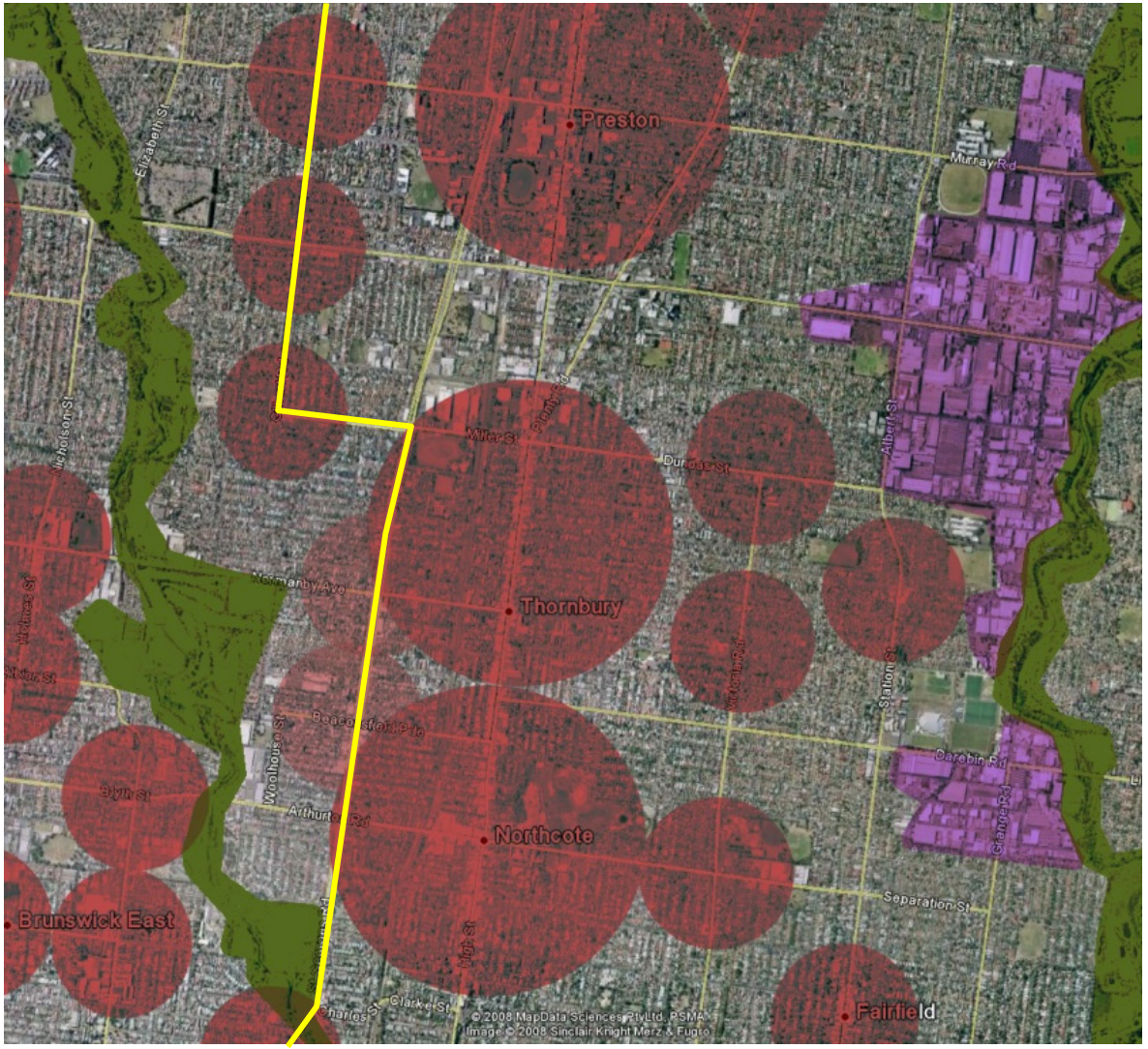
9. access

Requirements

DESIGN URBAN

SGS Economics & Planning

St Georges Road



DESIGN URBAN

SGS Economics & Planning

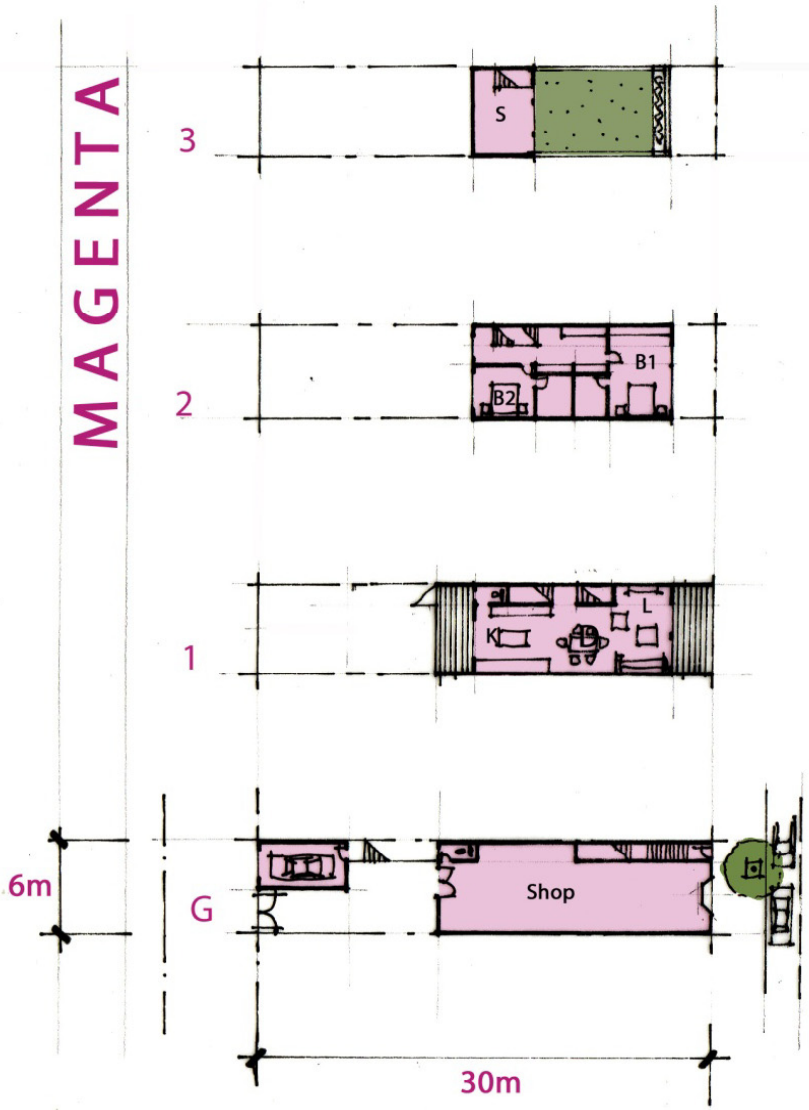
Colour	Block Types			
	Typical		Range	
	Width (m)	Depth (m)	Width (m)	Depth (m)
	6	30	6 - 10	30 - 50
	10	30	10 - 15	30 - 35
	15	30	15 - 20	30 - 35
	20	30	20 - 25	30 - 35
	20	40	20 - 25	40 - 50
	10	50	10 - 15	50+
	20	50	20 - 25	50+
	Atypical (including blocks over 25m frontage)			
	No Lane access to the rear			

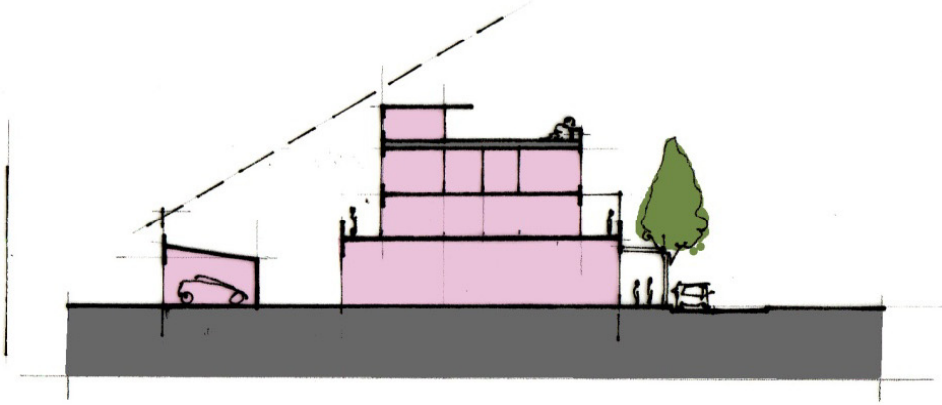
DESIGN URBAN

SGS Economics & Planning

Development Scenarios

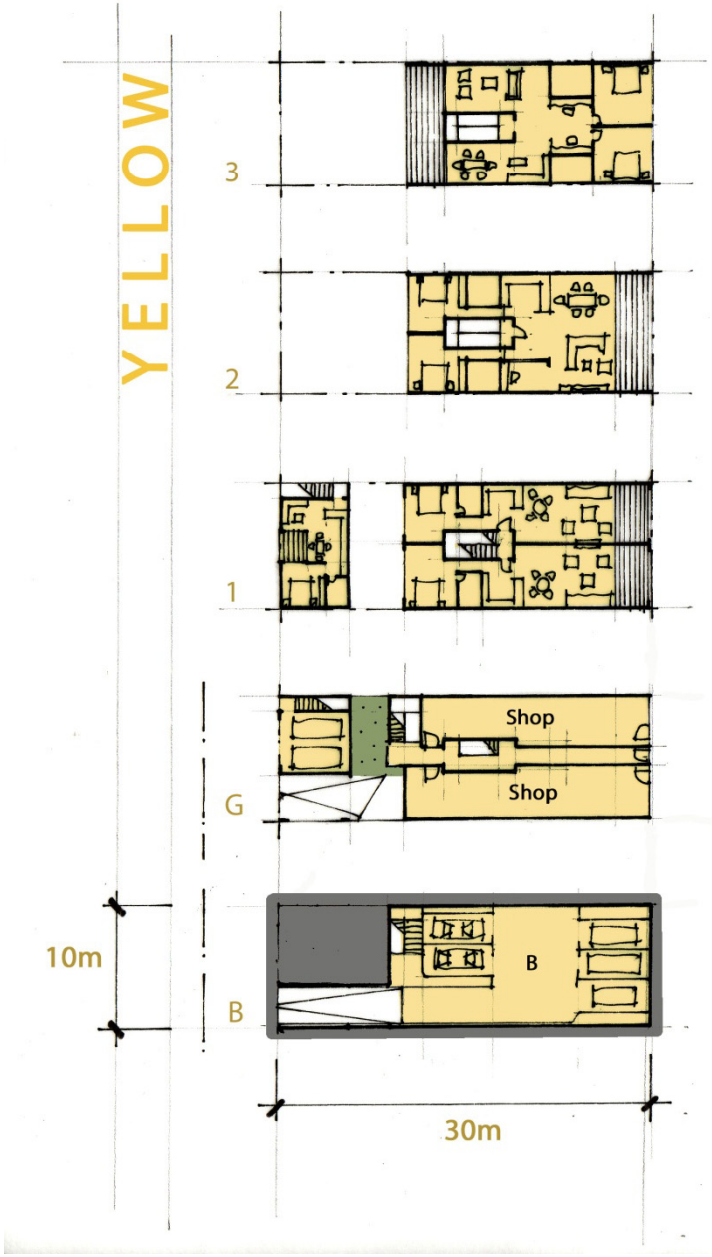
Magenta
1 Shop
1 Dwelling

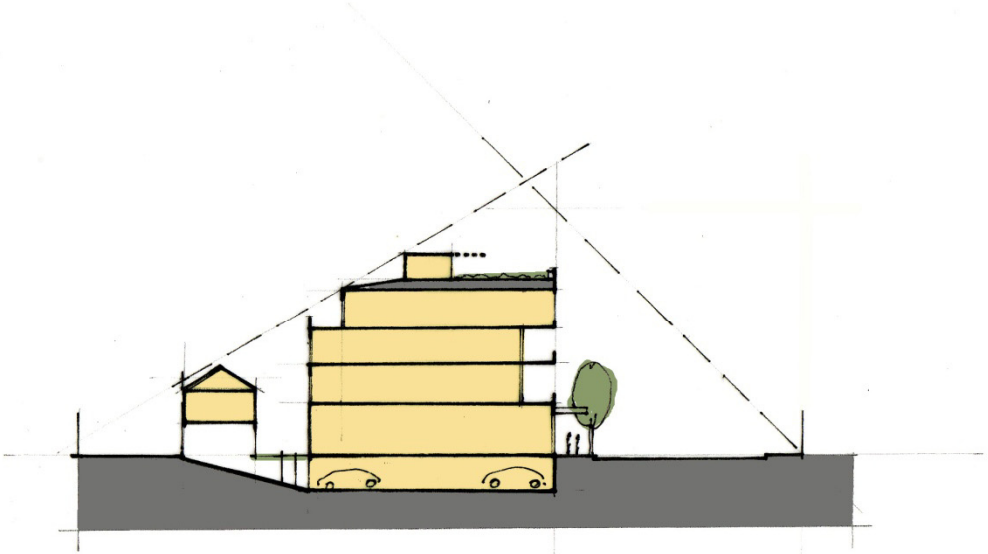




Development Scenarios

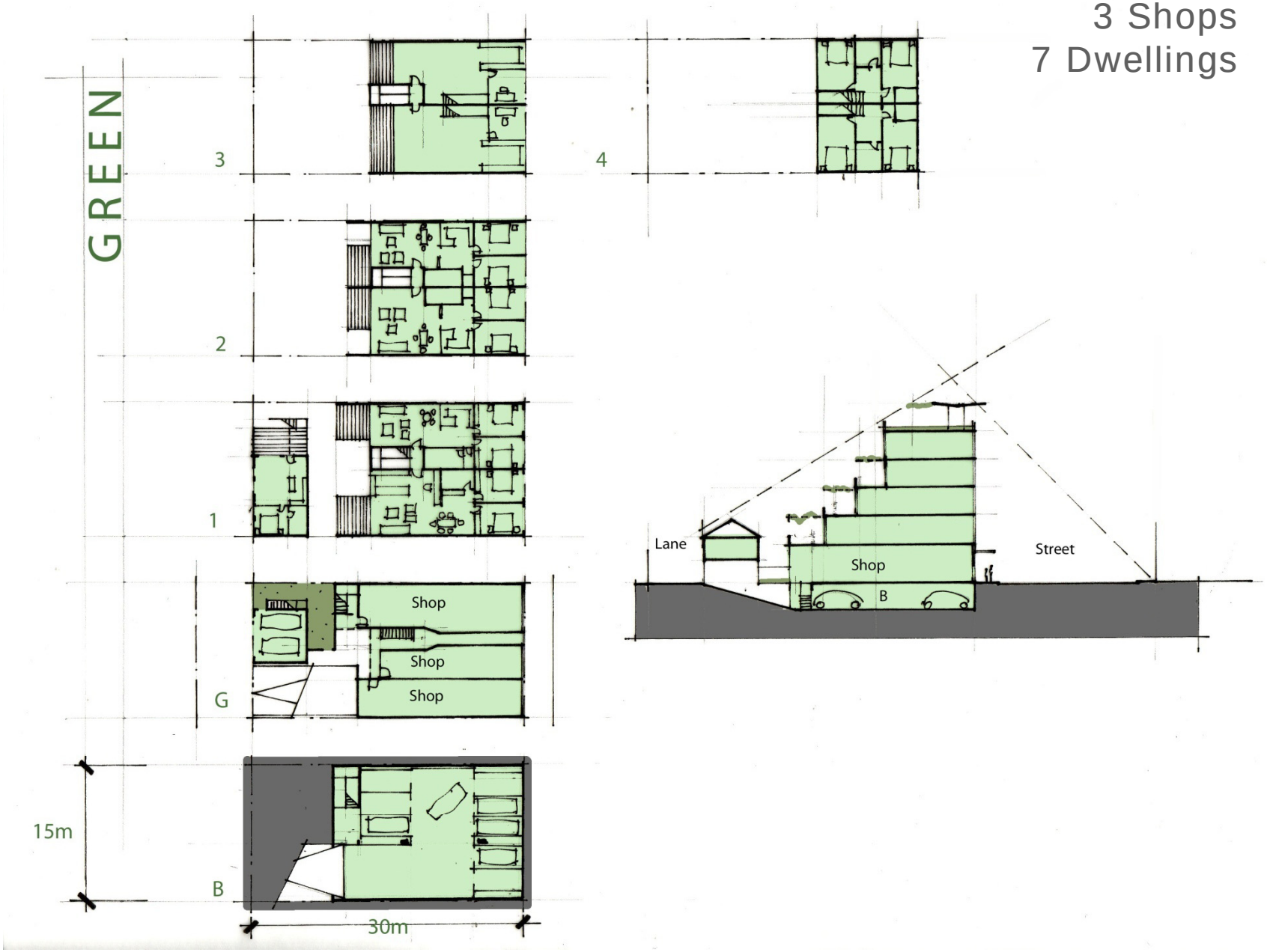
Yellow
2 Shops
5 Dwellings





Development Scenarios

Green
3 Shops
7 Dwellings

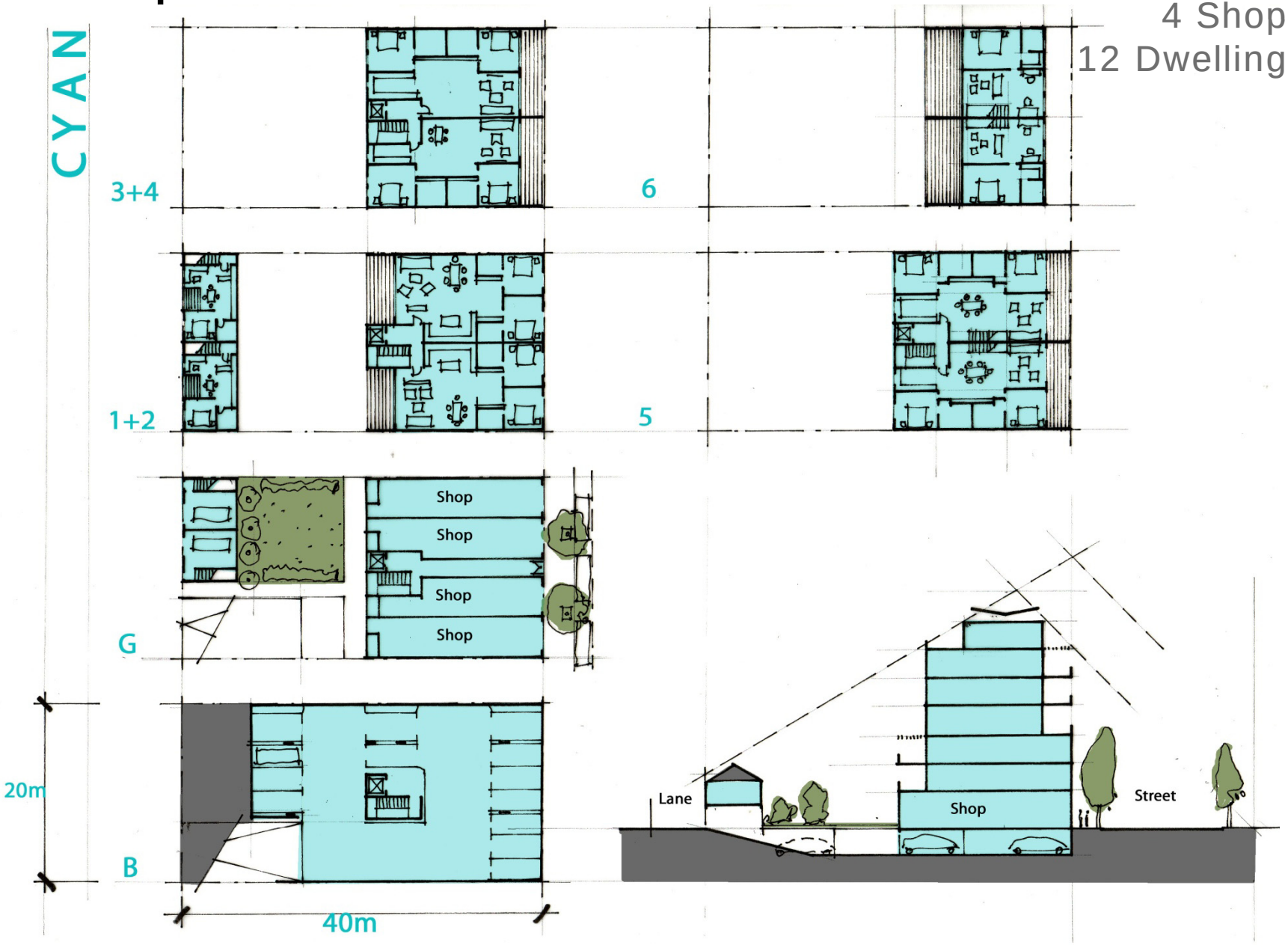


Development Scenarios

Navy
4 Shops
10 Dwellings

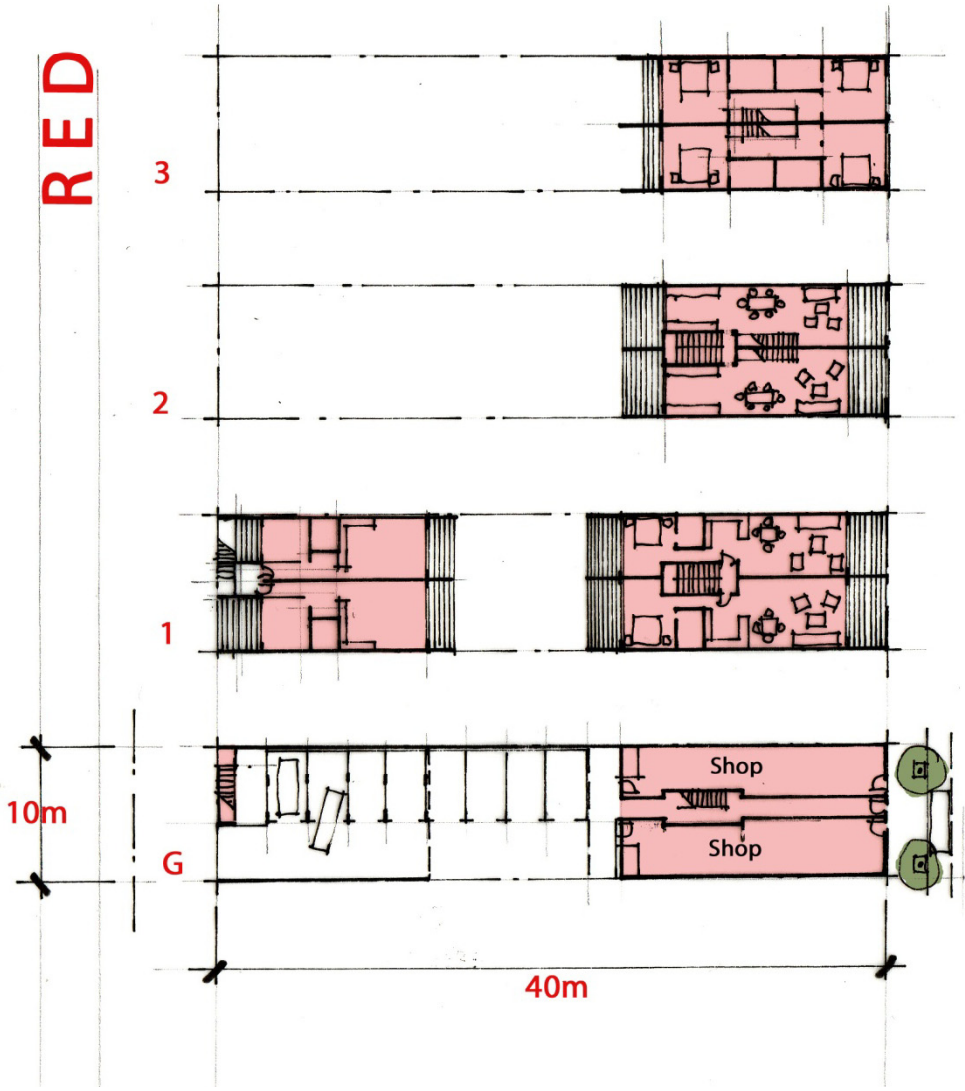
Development Scenarios

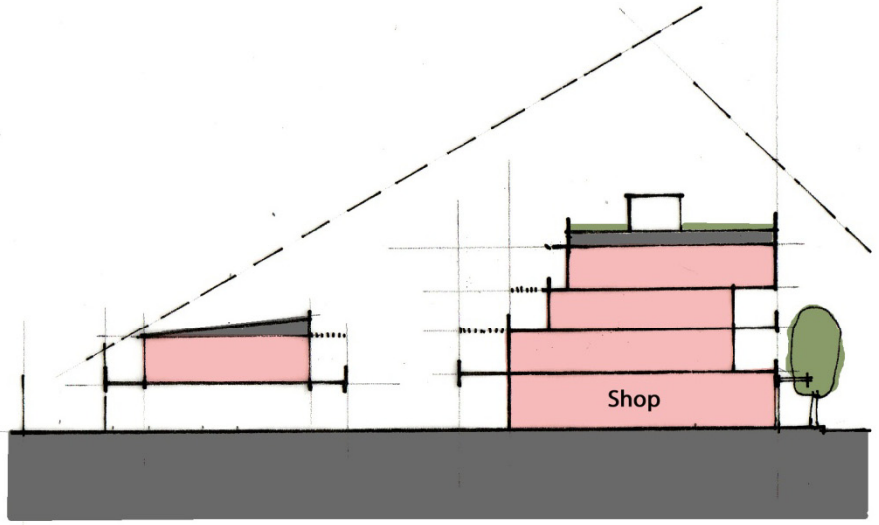
Cyan
4 Shops
12 Dwellings



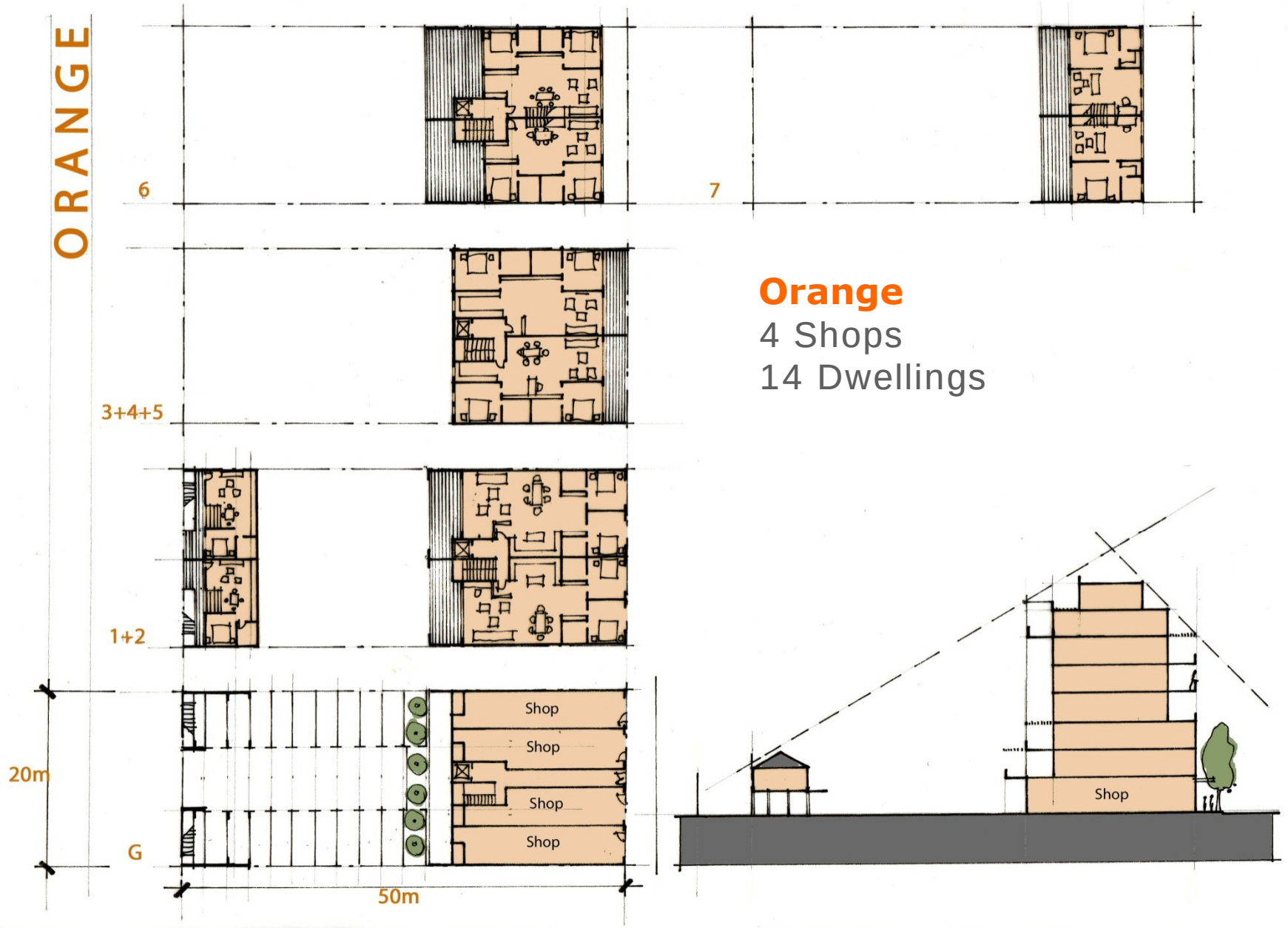
Development Scenarios

Red
2 Shops
6 Dwellings





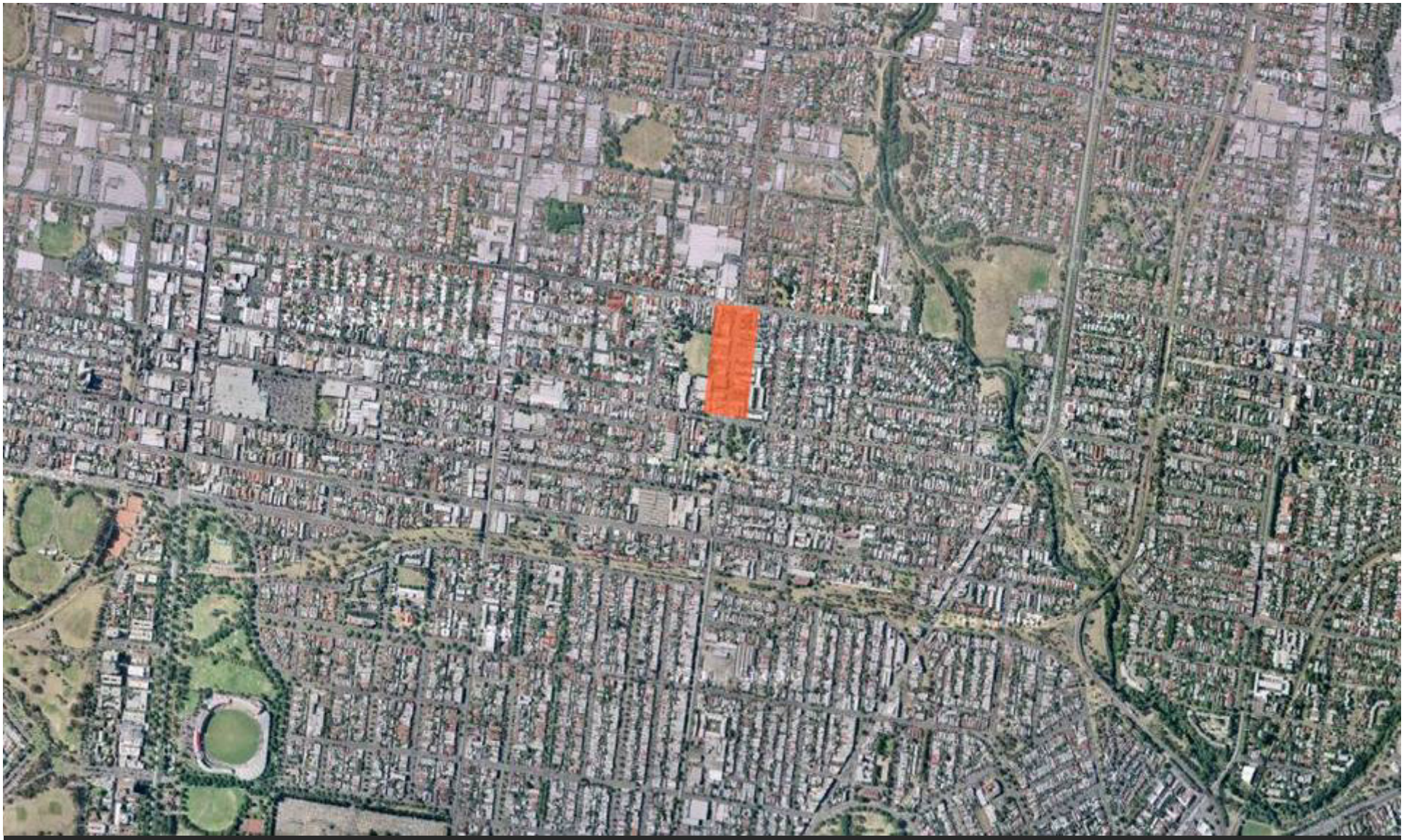
Development Scenarios



Orange

4 Shops

14 Dwellings



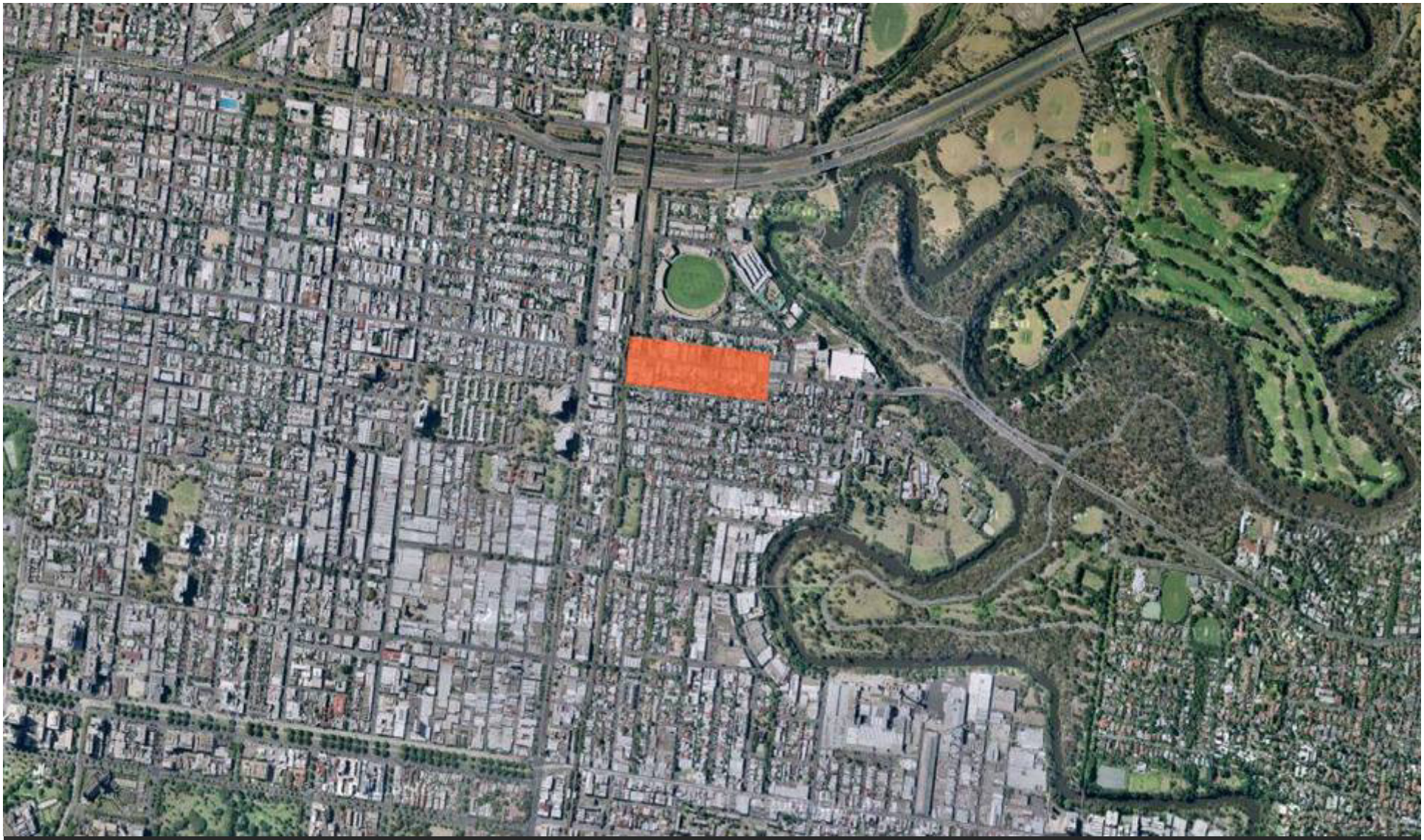
Nicholson Street study area (high level)

NOW

Nicholson Street, East Brunswick – looking south to the city

POSSIBLE FUTURE

Nicholson Street, East Brunswick – artists impression



Johnston Street study area (high level)

Johnston Street study area (medium level)

NOW

Johnston Street, Abbotsford – looking east

POSSIBLE FUTURE

Johnston Street, Abbotsford – artists impression

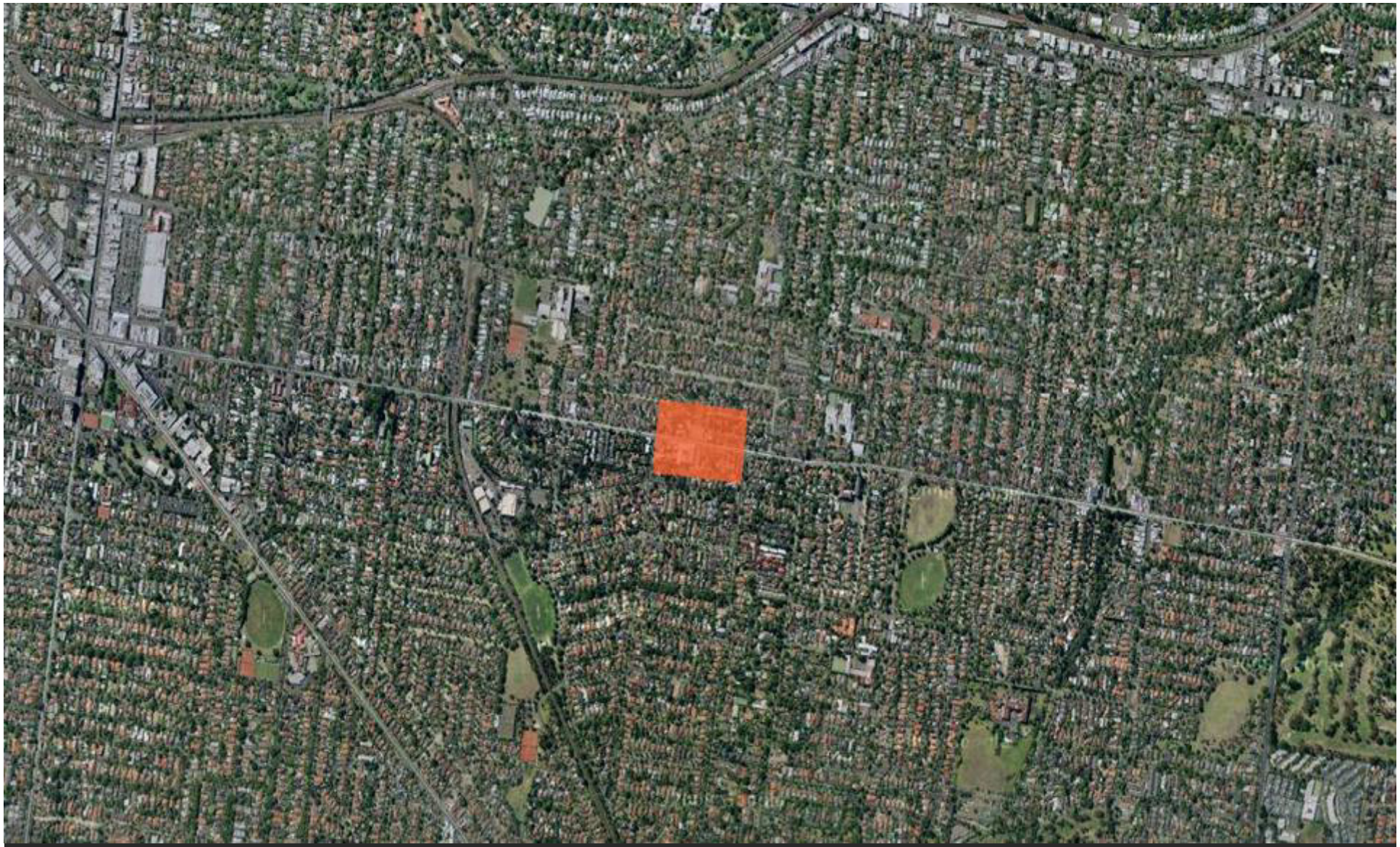
Maribyrnong Road study area (high level)

NOW

Maribyrnong Road, – looking west to Union Road

POSSIBLE FUTURE

Maribyrnong Road – artists impression



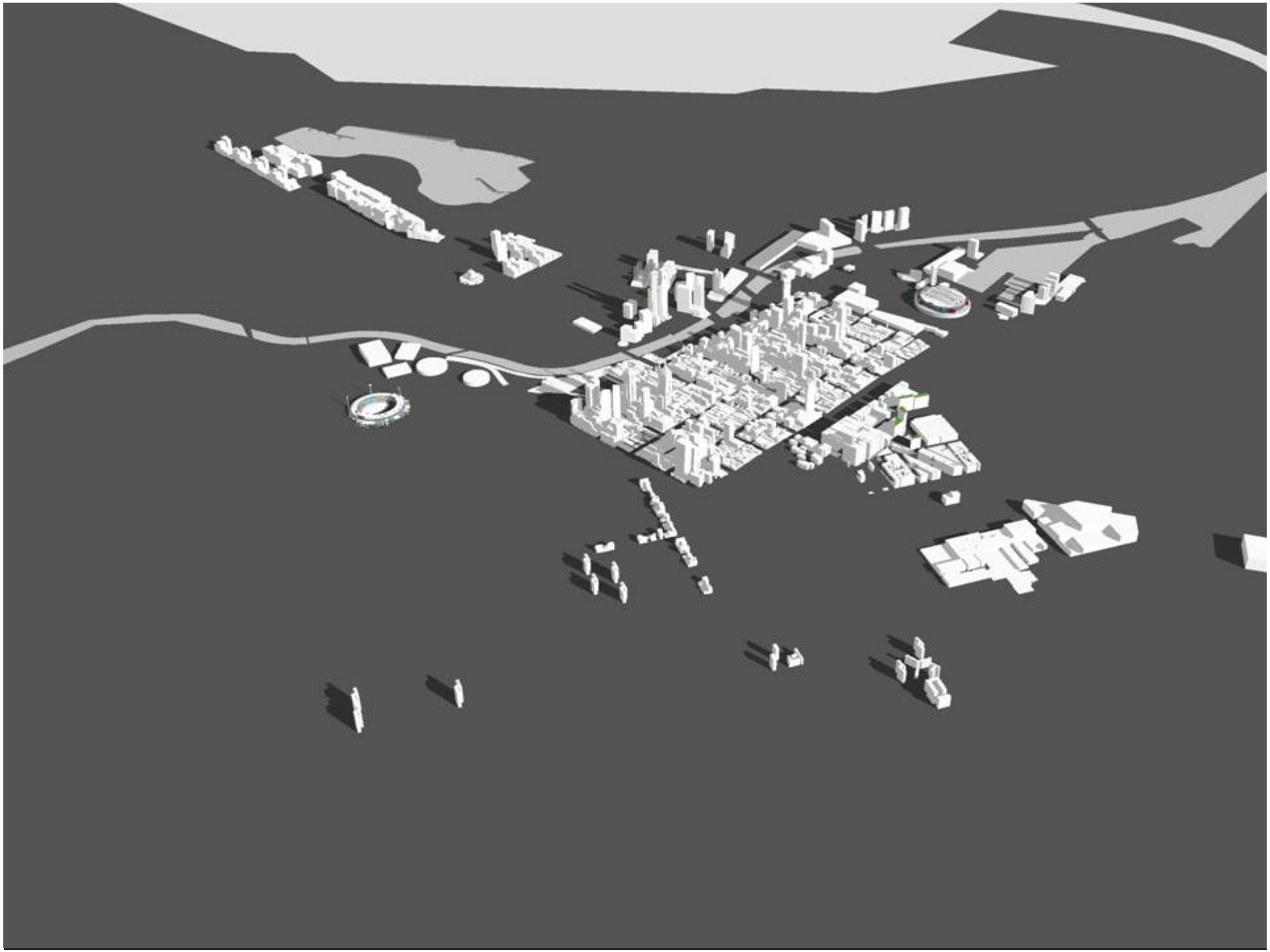
Riversdale Road study area (high level)

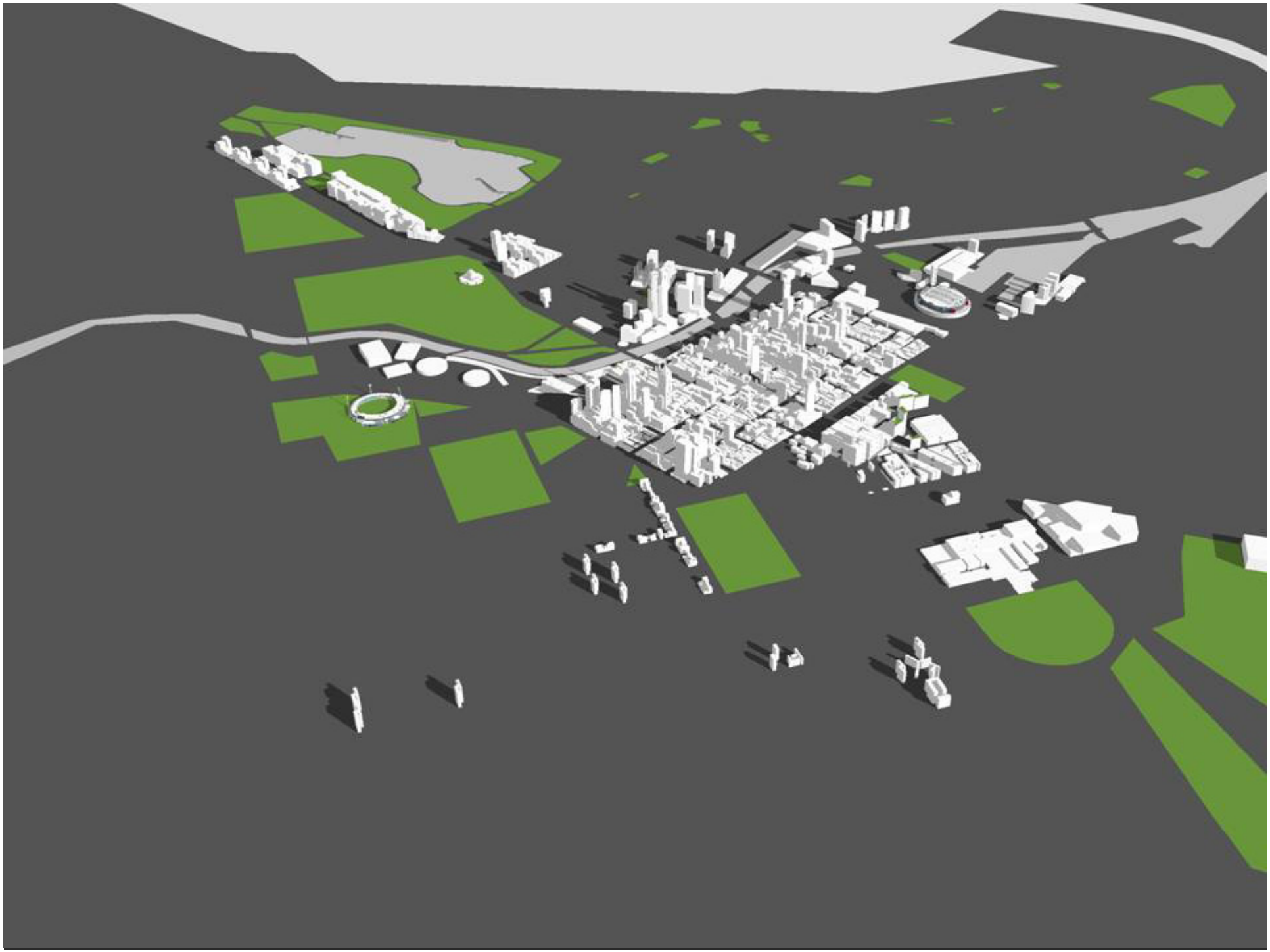
NOW

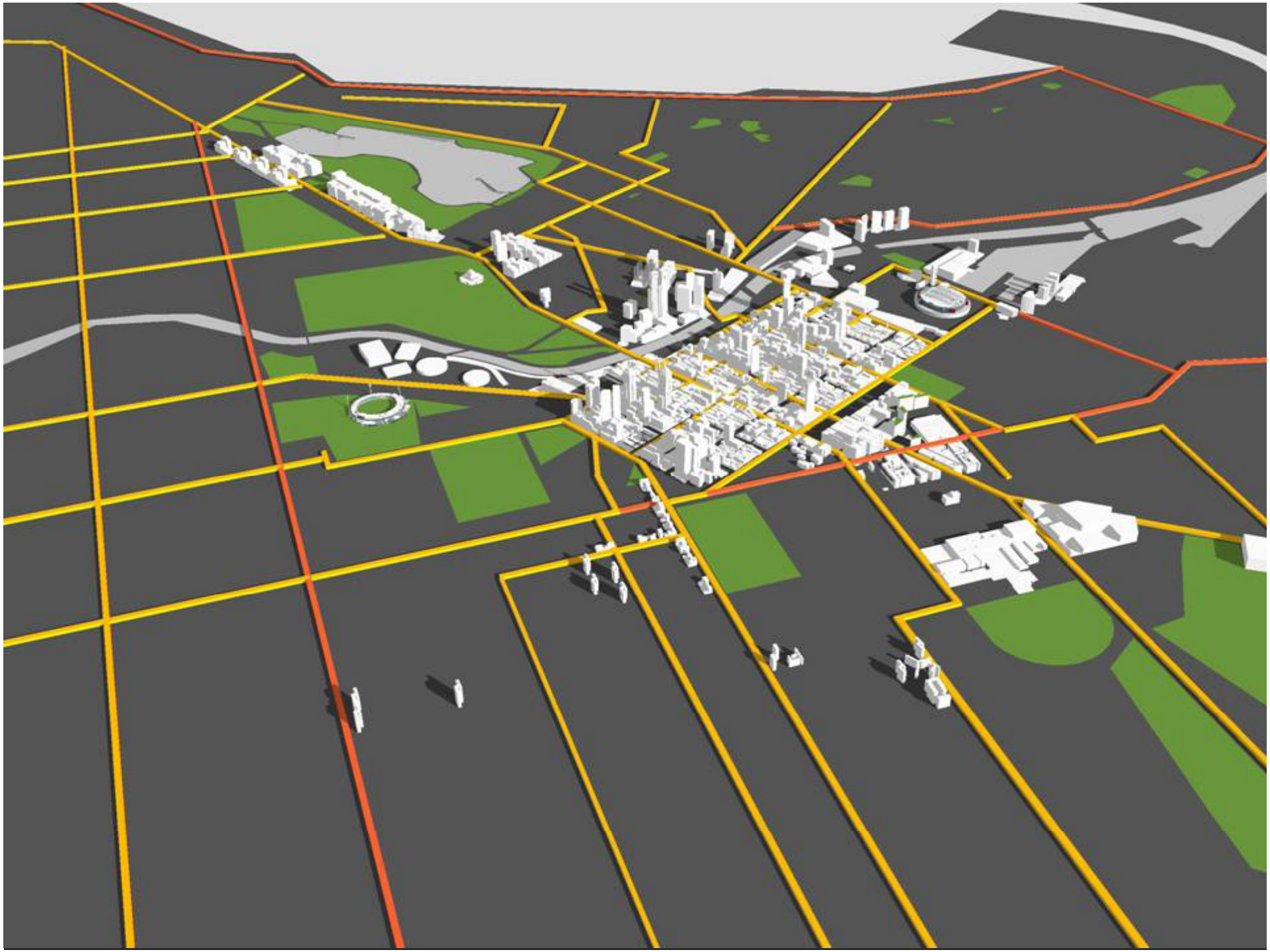
Riversdale Road, – looking west to Riversdale Park

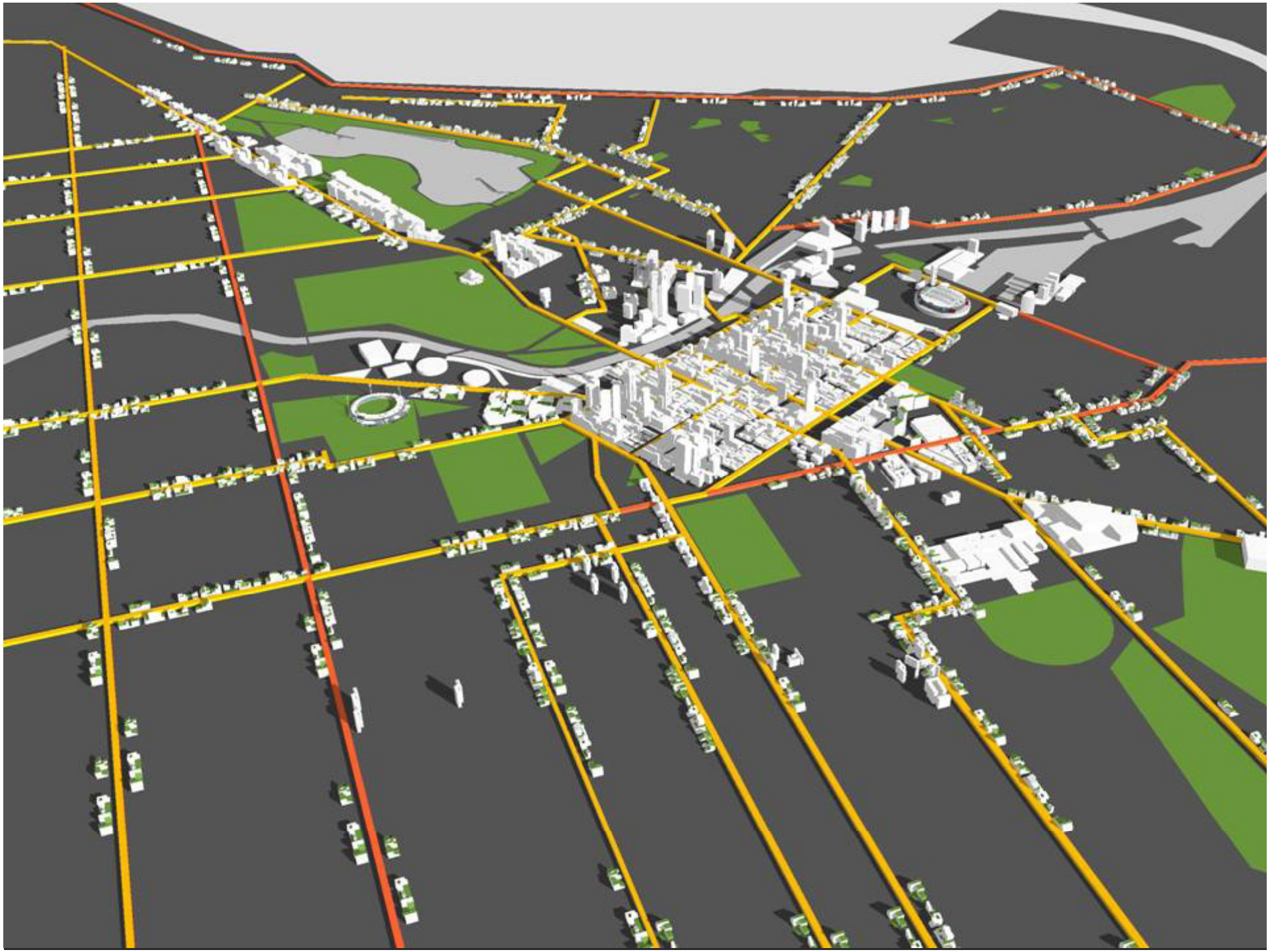
POSSIBLE FUTURE

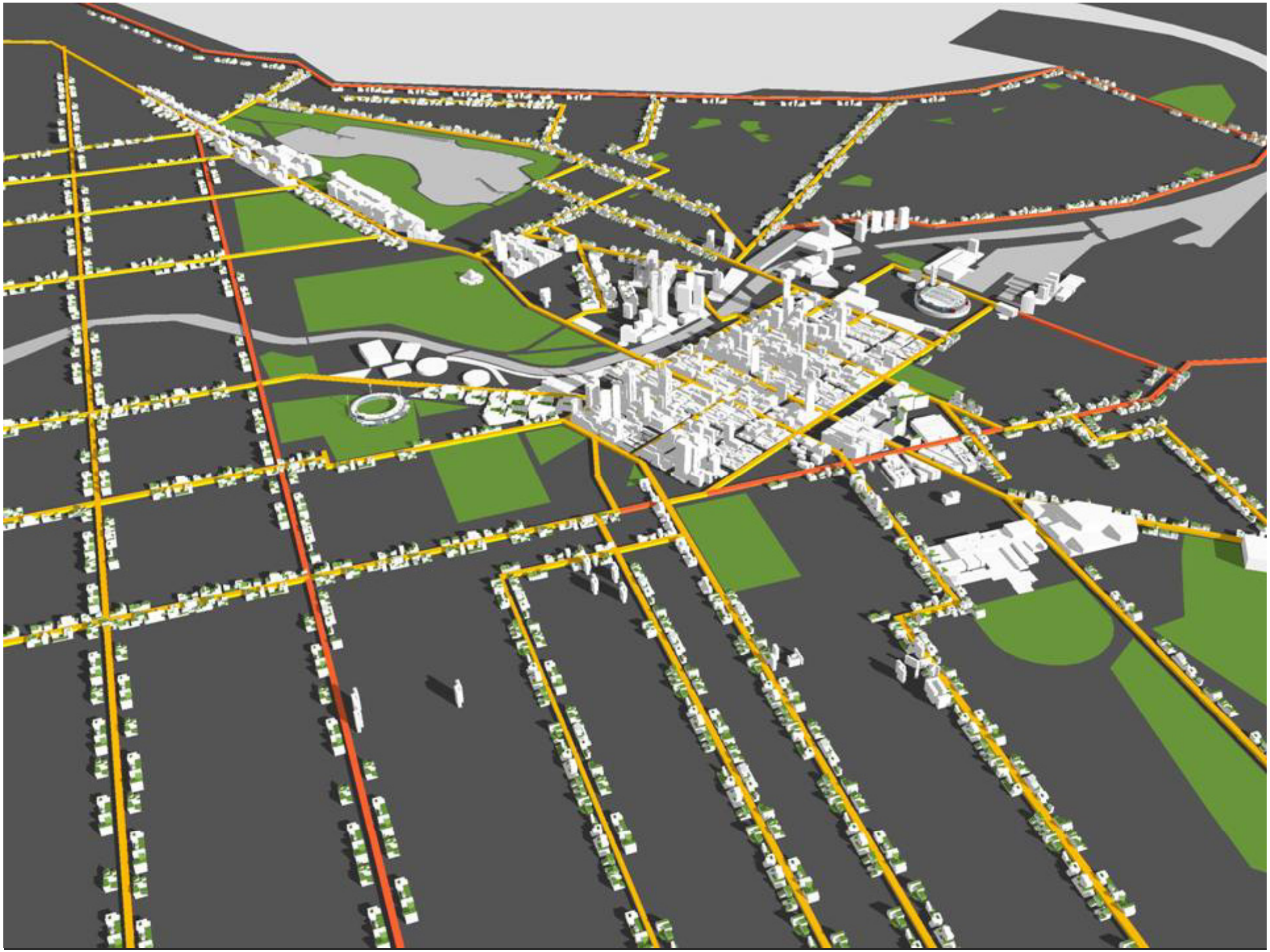
Riversdale Road – artists impression

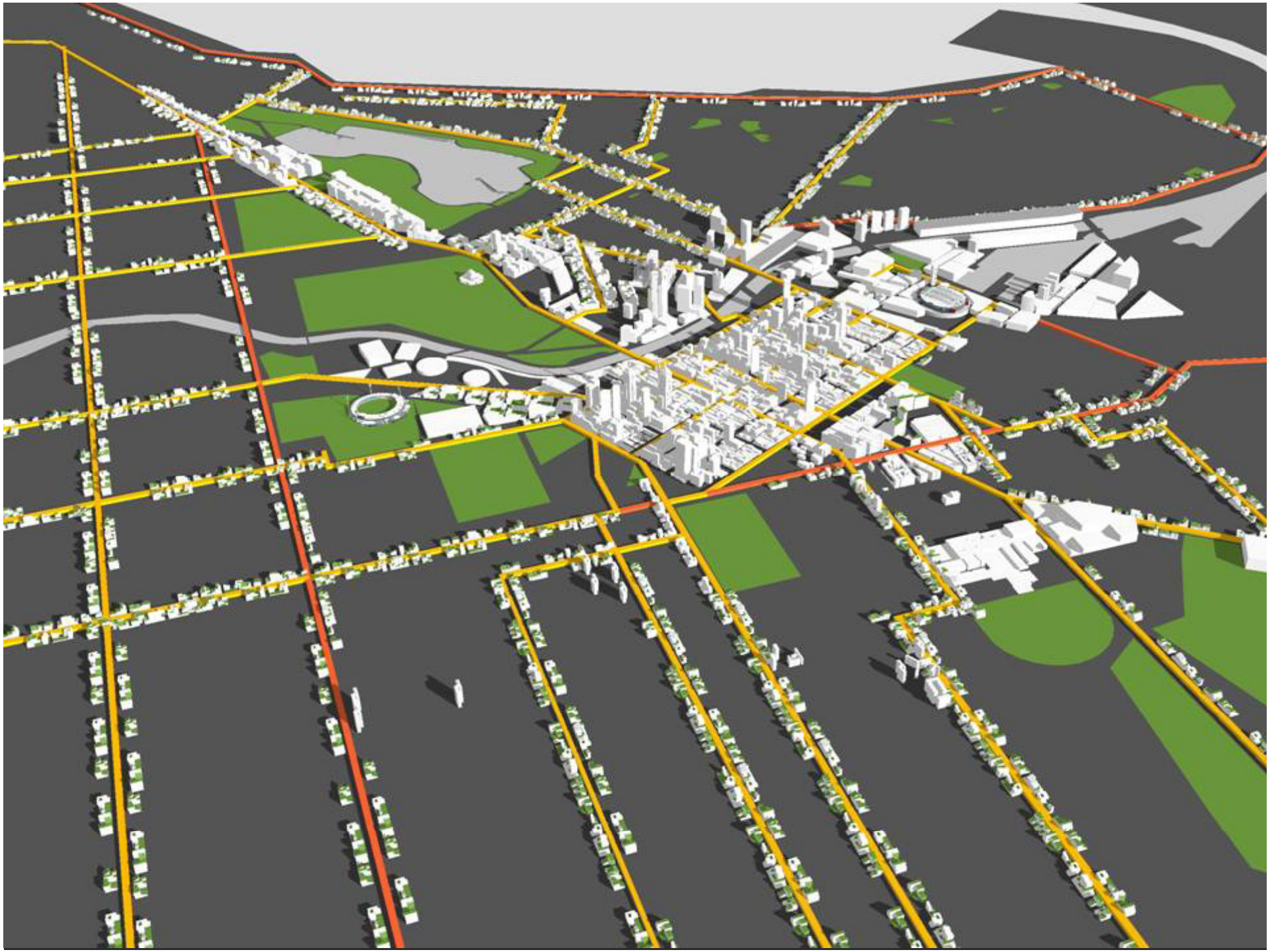


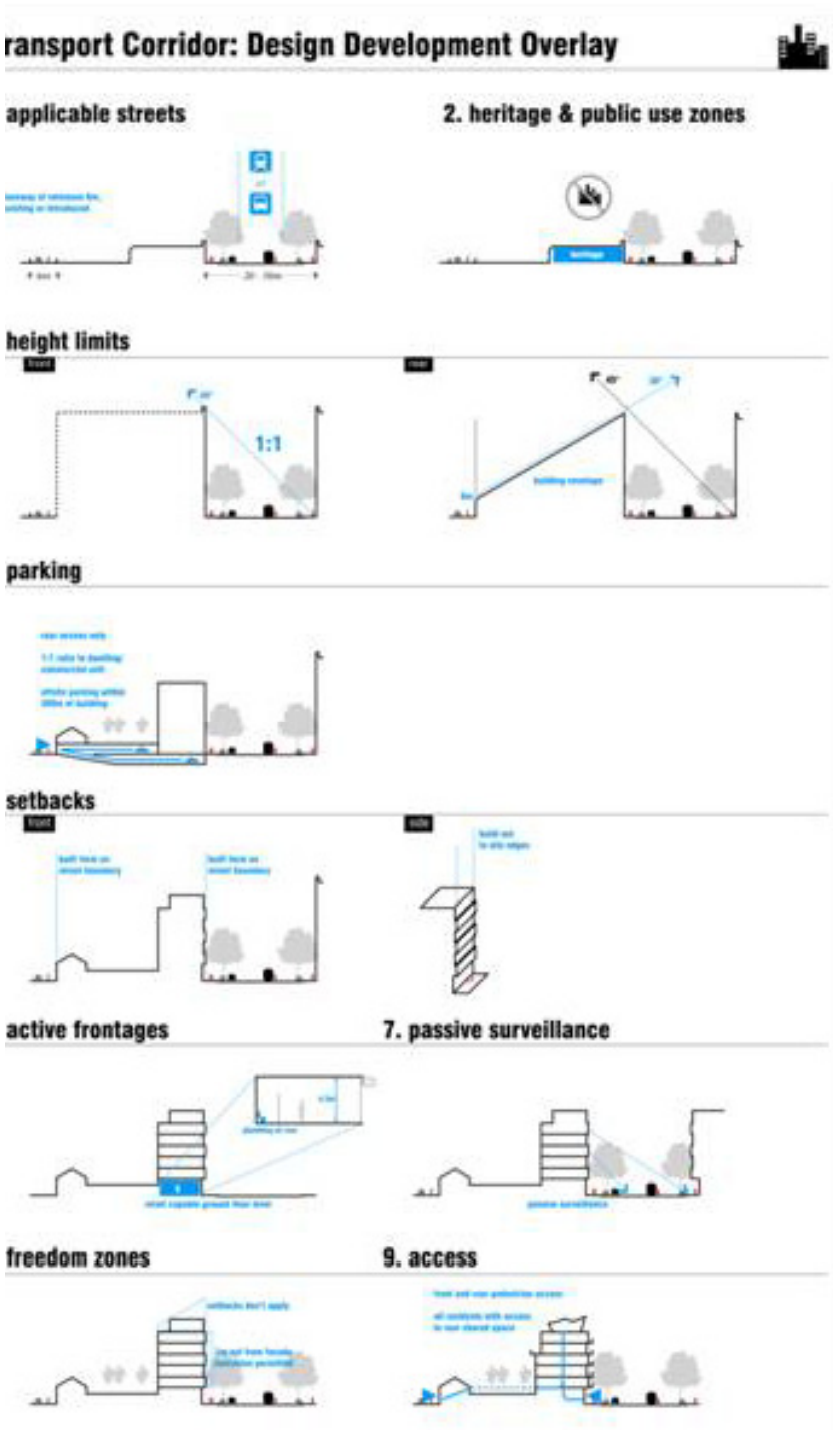


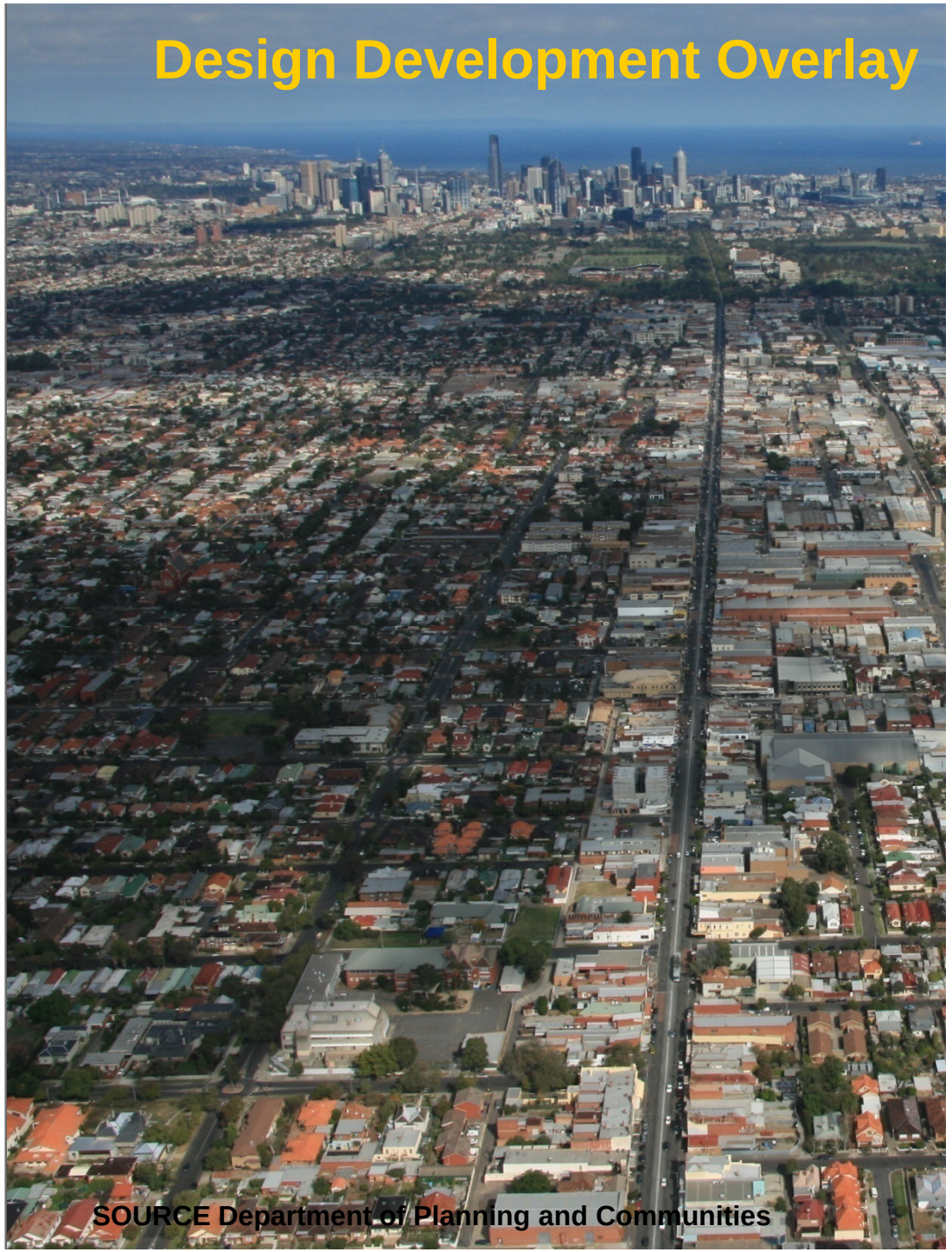


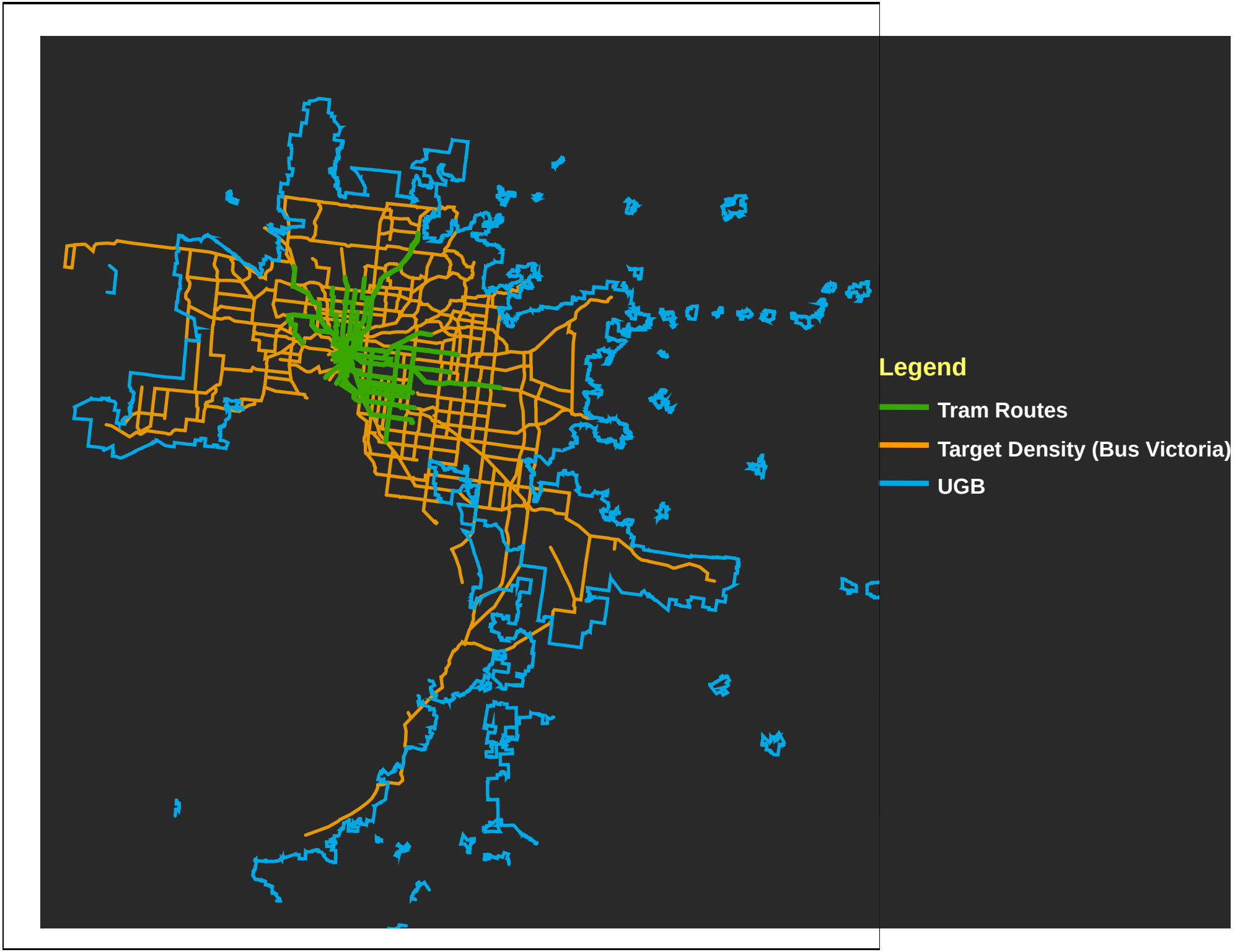







ransport Corridor: Design Development Overlay
applicable streets
2. heritage & public use zones
height limits
1:1
parking
setbacks
active frontages
7. passive surveillance
freedom zones
9. access


Design Development Overlay
SOURCE Department of Planning and Communities


Legend
Tram Routes
Target Density (Bus Victoria)
UGB

CADASTRAL PARCELS

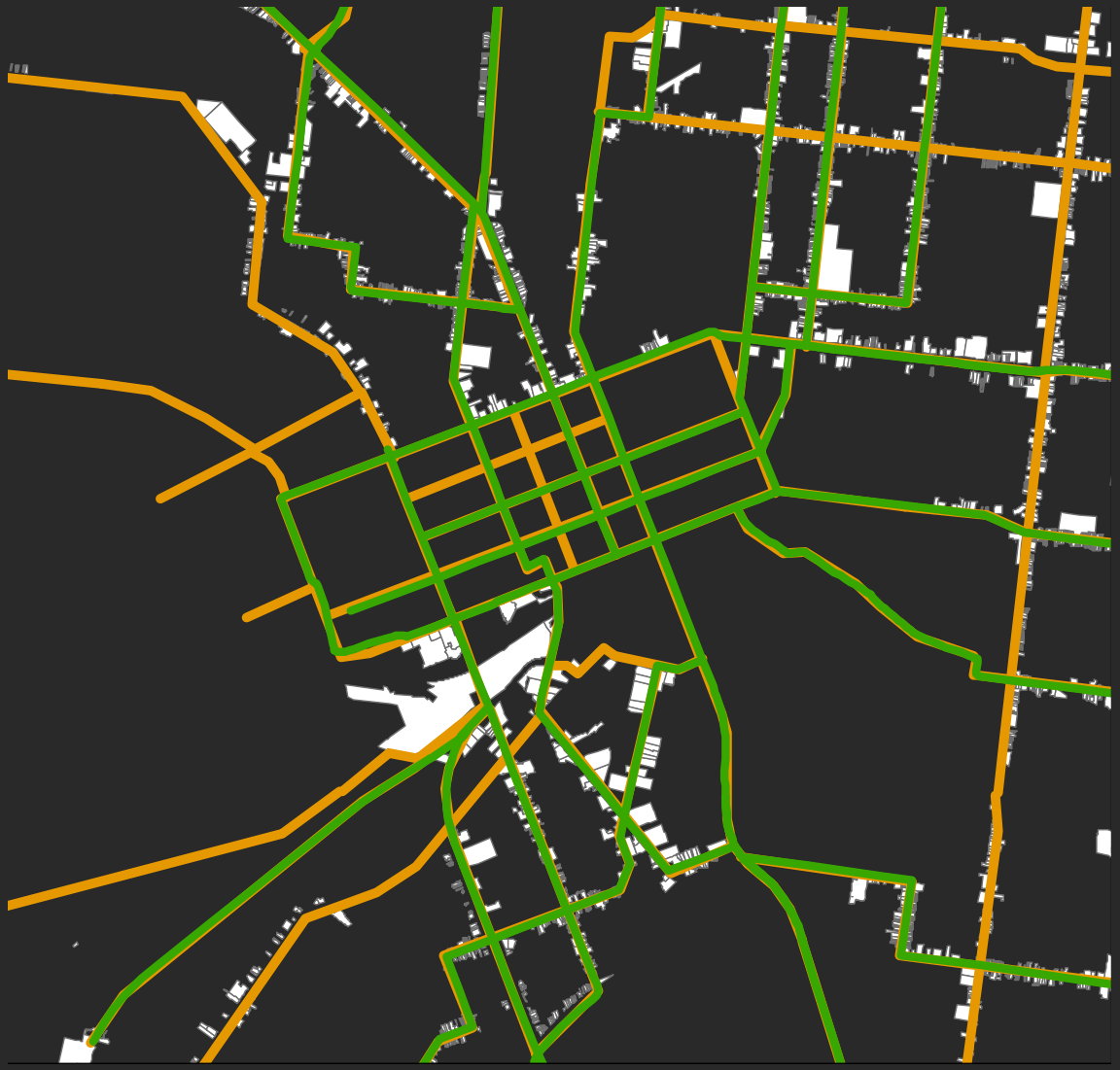
N

Legend

- Tram / Light Rail
- Target Bus Line
- Cadastral Parcels

Metropolitan Cadastral Parcels = 1,571,532

SPECIAL BUILDING ZONES
(CBD, Southbank, Docklands, St Kilda Road)



N

Legend

- Tram / Light Rail
- Target Bus Line
- Cadastral Parcels

Tram Potential Sites = 25,128 Bus Potential Sites = 96,480 Total = 121,608

SELECT PARCELS ALONG TRAM and TARGET BUS CORRIDORS

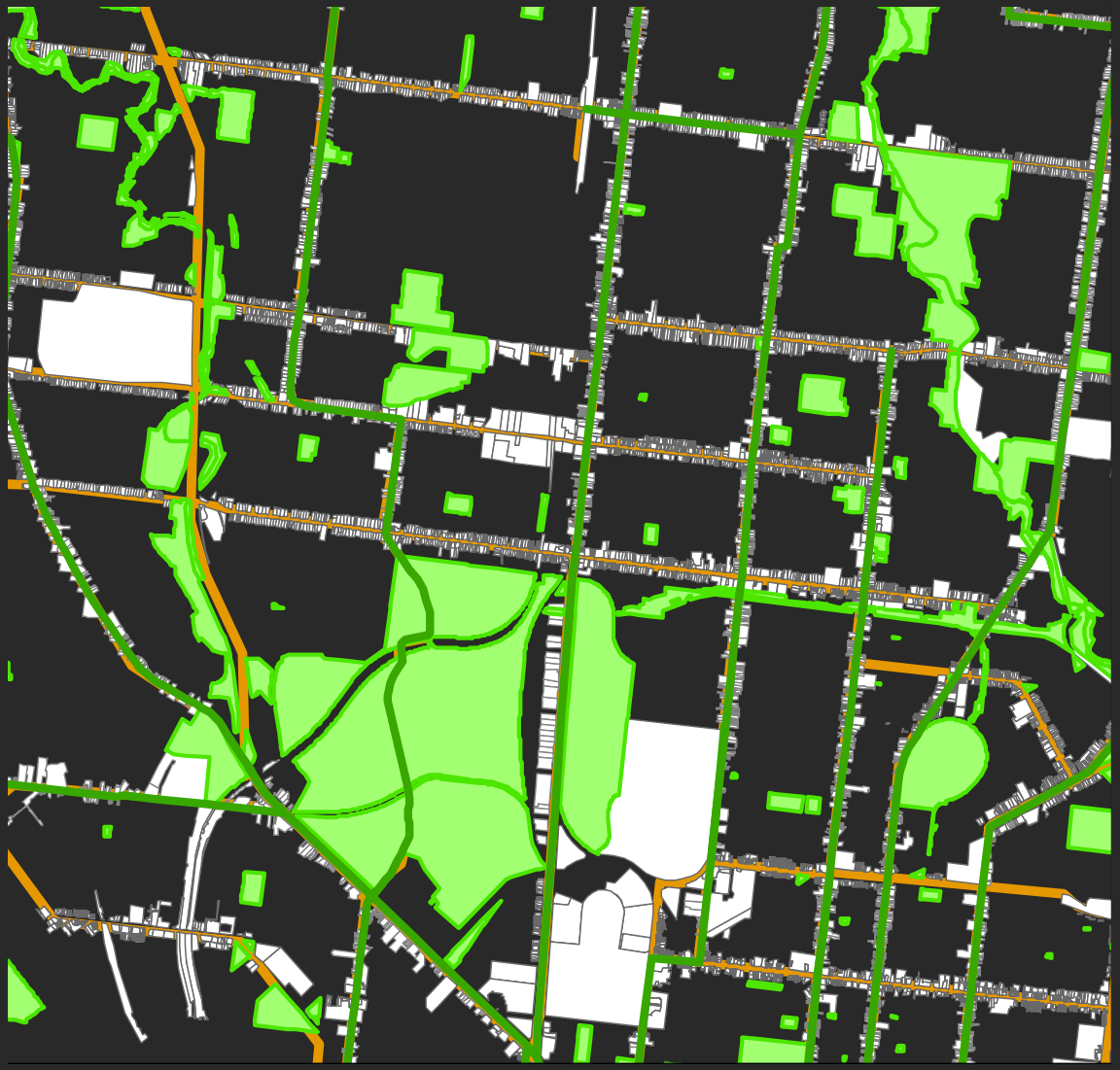
N

Legend

- Tram / Light Rail
- Target Bus Line
- Cadastral Parcels

Potential Sites = 25,128 Bus Potential Sites = 96,480 Total = 121,608

PARKS



N

Legend

- Tram / Light Rail
- Target Bus Line
- Cadastral Parcels
- Parks

Tram Potential Sites = 23,505 Bus Potential Sites = 95,450 Total = 118,955

PUBLIC USE AND INDUSTRIAL ZONES

N

Legend

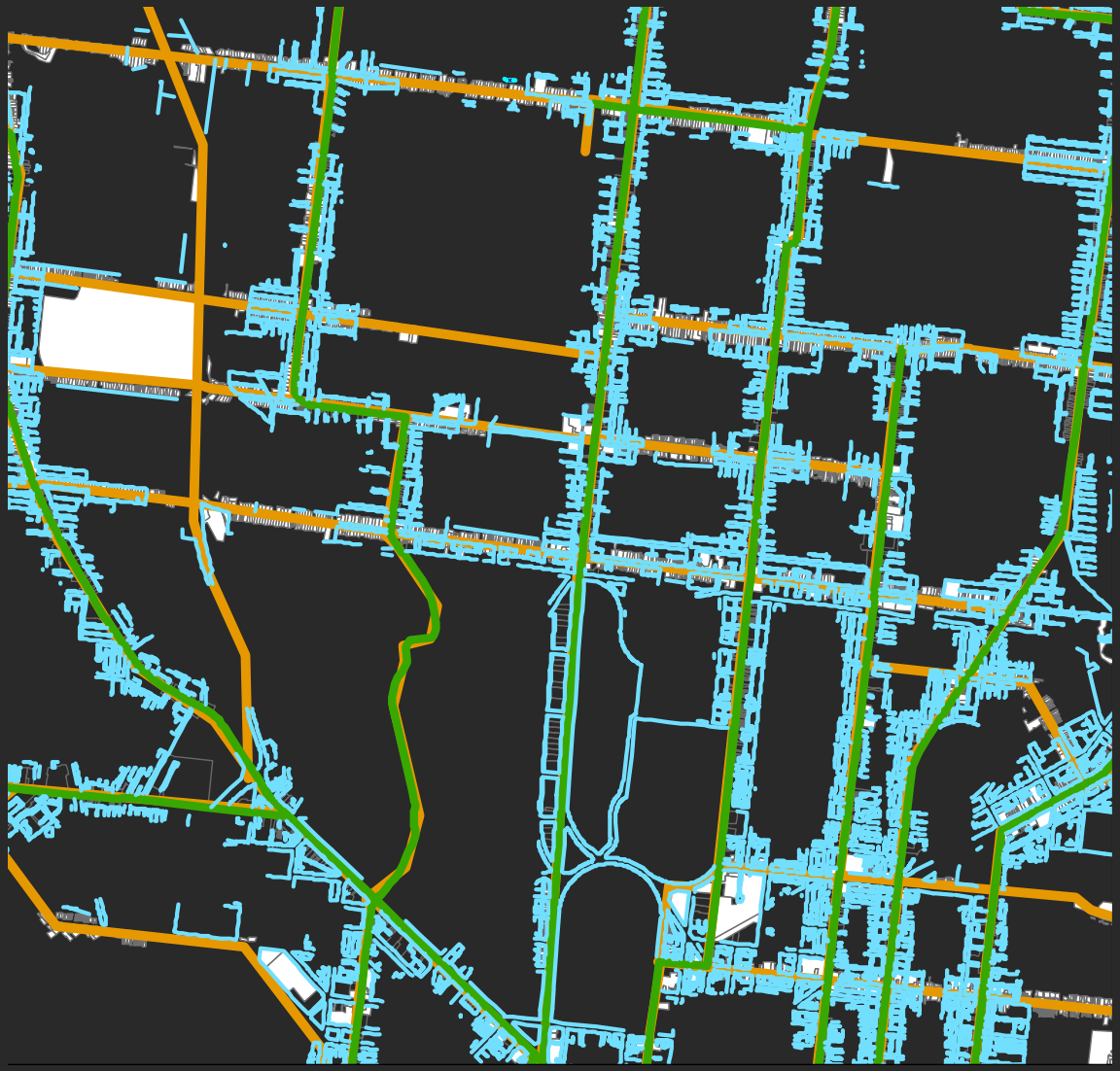
- Tram / Light Rail
- Target Bus Line
- Industrial Zone
- Public Use Zone

Tram Potential Sites = 23,202

Bus Potential Sites = 91,252

Total =114,554

REAR LANEWAY



N

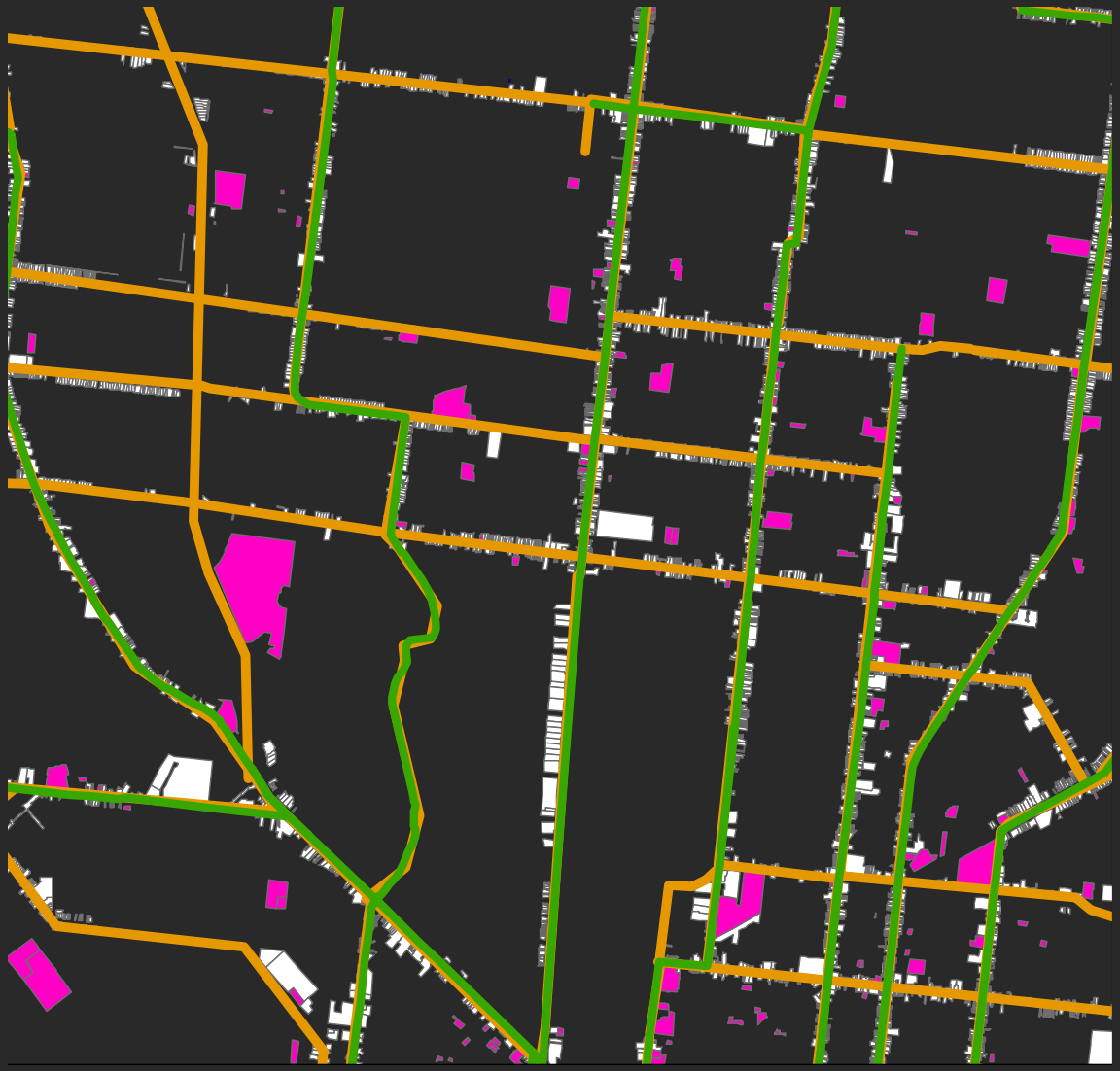
Legend

- Tram / Light Rail
- Target Bus Line
- Rear Laneway
- Urban Growth Boundary

Note:
Laneways have been derived based on gaps between cadastral parcels

Tram Potential Sites = 18,188 Bus Potential Sites = 22,440 Total = 40,628

RECENTLY DEVELOPED SITES AND SITES IN PLANNING (DPCD)



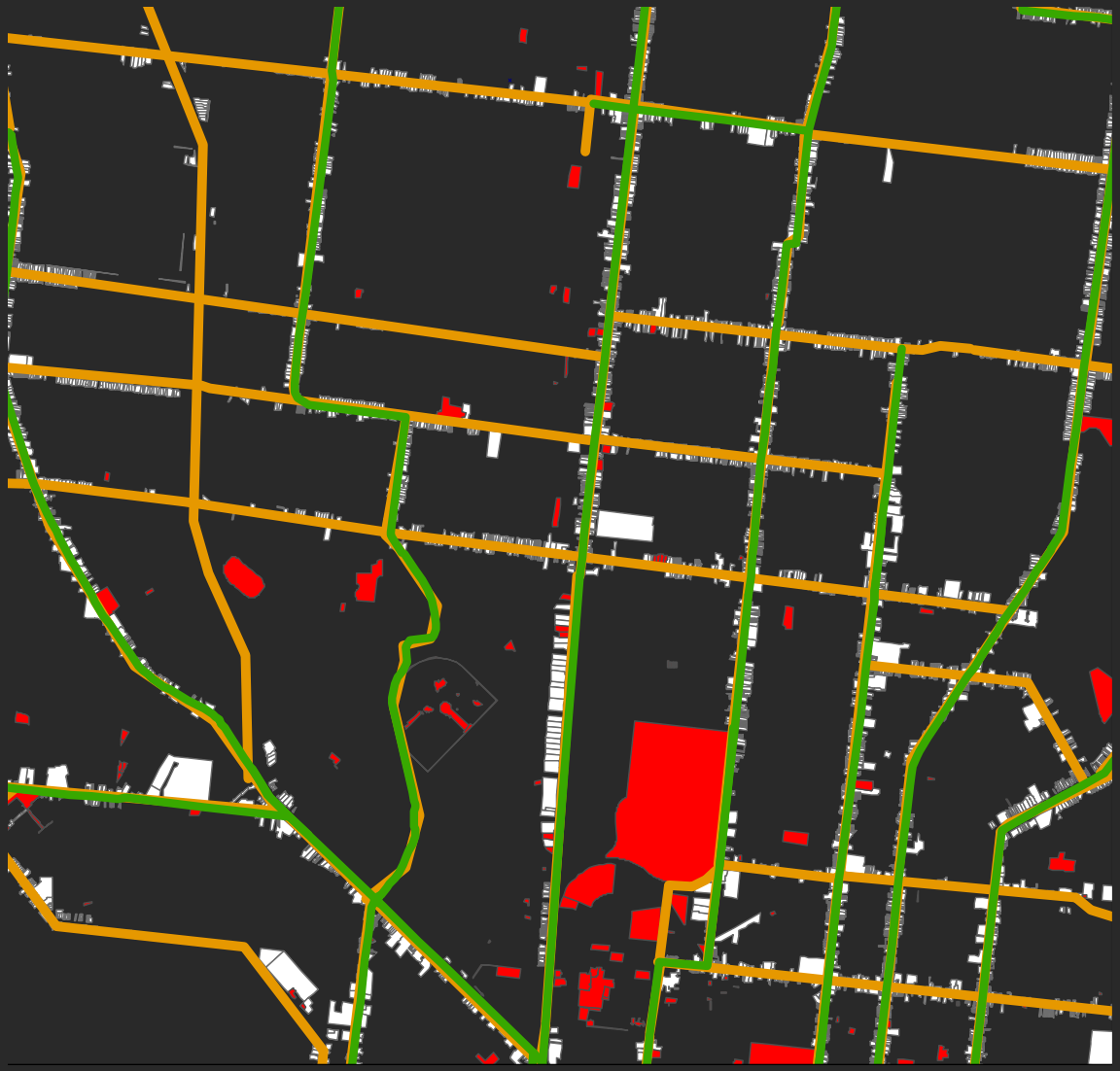
N

Legend

- Tram / Light Rail
- Target Bus Line
- Recently Developed Building

Tram Potential Sites = 18,118 Bus Potential Sites = 22,038 Total = 40,156

HERITAGE REGISTER BUILDINGS



N

Legend

- Tram / Light Rail
- Target Bus Line
- Heritage Register Building
- Urban Growth Boundary

Tram Potential Sites = 17,726

Bus Potential Sites = 21,973

Total = 39,699

HERITAGE OVERLAY

N

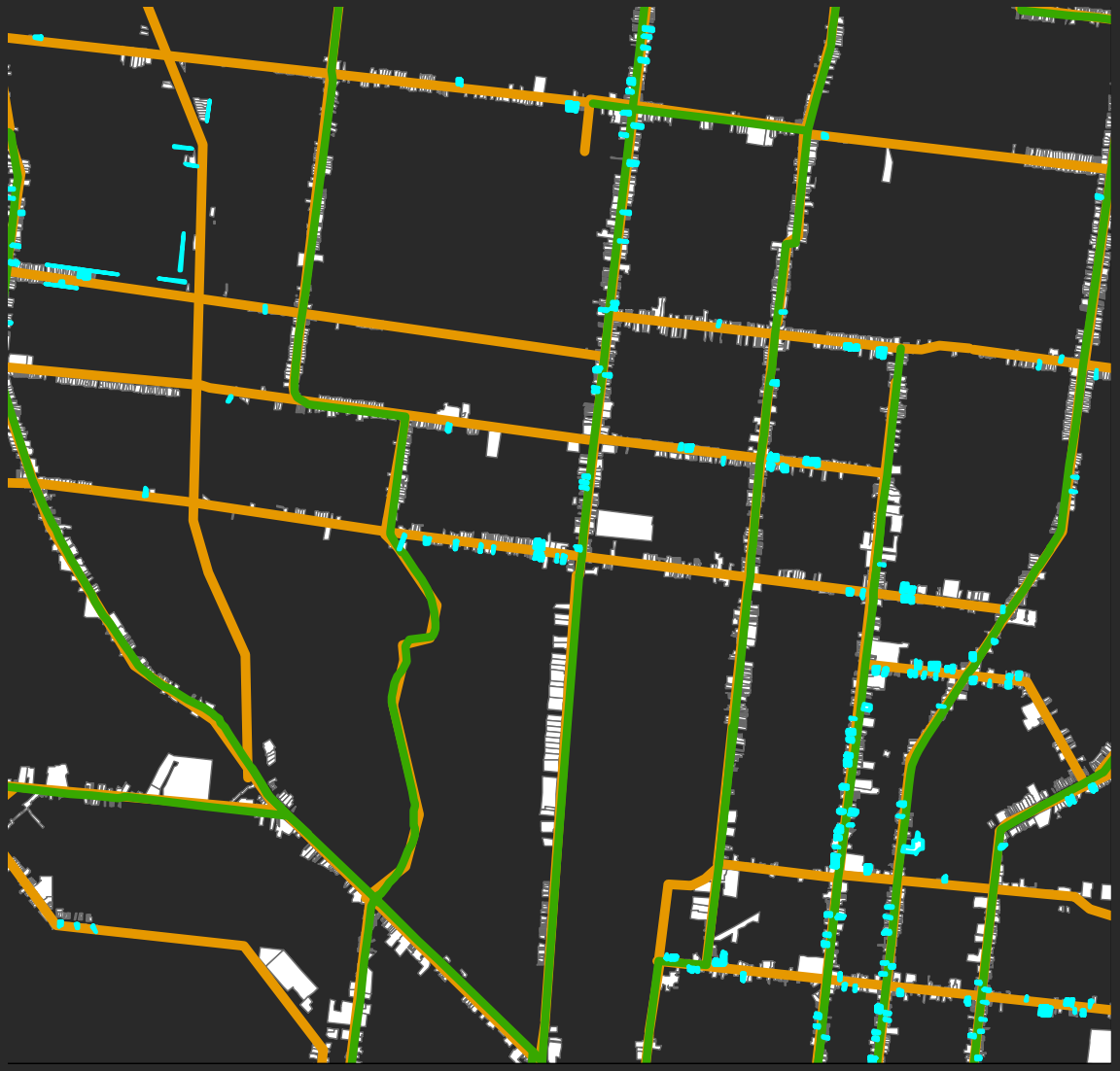
Legend

- Tram / Light Rail
- Target Bus Line
- Heritage Overlay

Tram Potential Sites = 16,307 Bus Potential Sites = 20,570 Total = 36,877

(Remove 50% of sites within the heritage overlay)

FRONTAGE < 6m



N

Legend

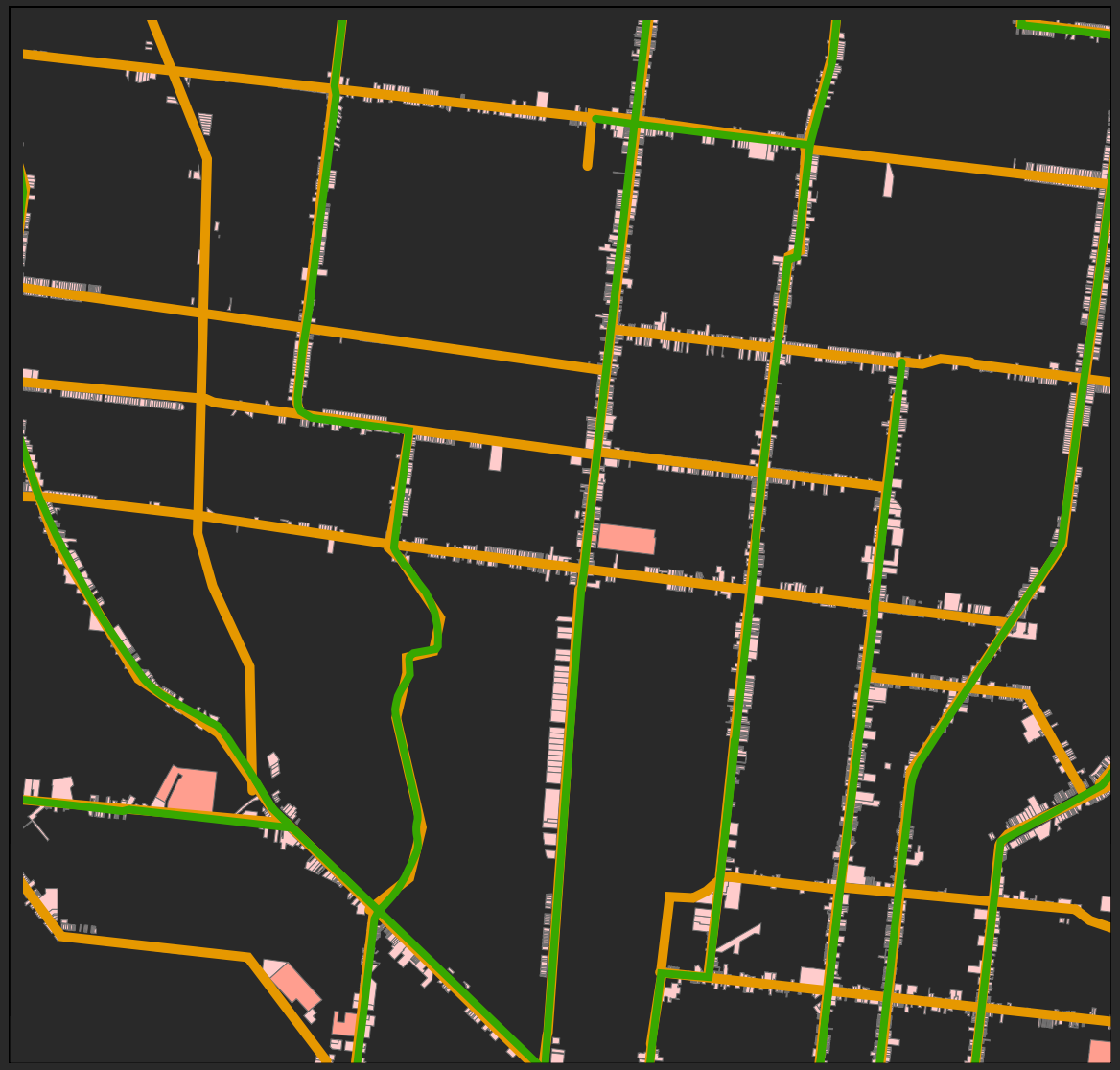
- Tram / Light Rail
- Target Bus Line
- Frontage < 6m
- Urban Growth Boundary

Tram Potential Sites = 12,439

Bus Potential Sites = 18,883

Total = 34,753

AREA OF AVAILABLE SITES



N

Legend

- Tram / Light Rail
- Target Bus Line
- Available Sites

Tram Potential Sites = 12,439
Bus Potential Sites = 22,038

Area Ha = 1,418
Area Ha = 5,275

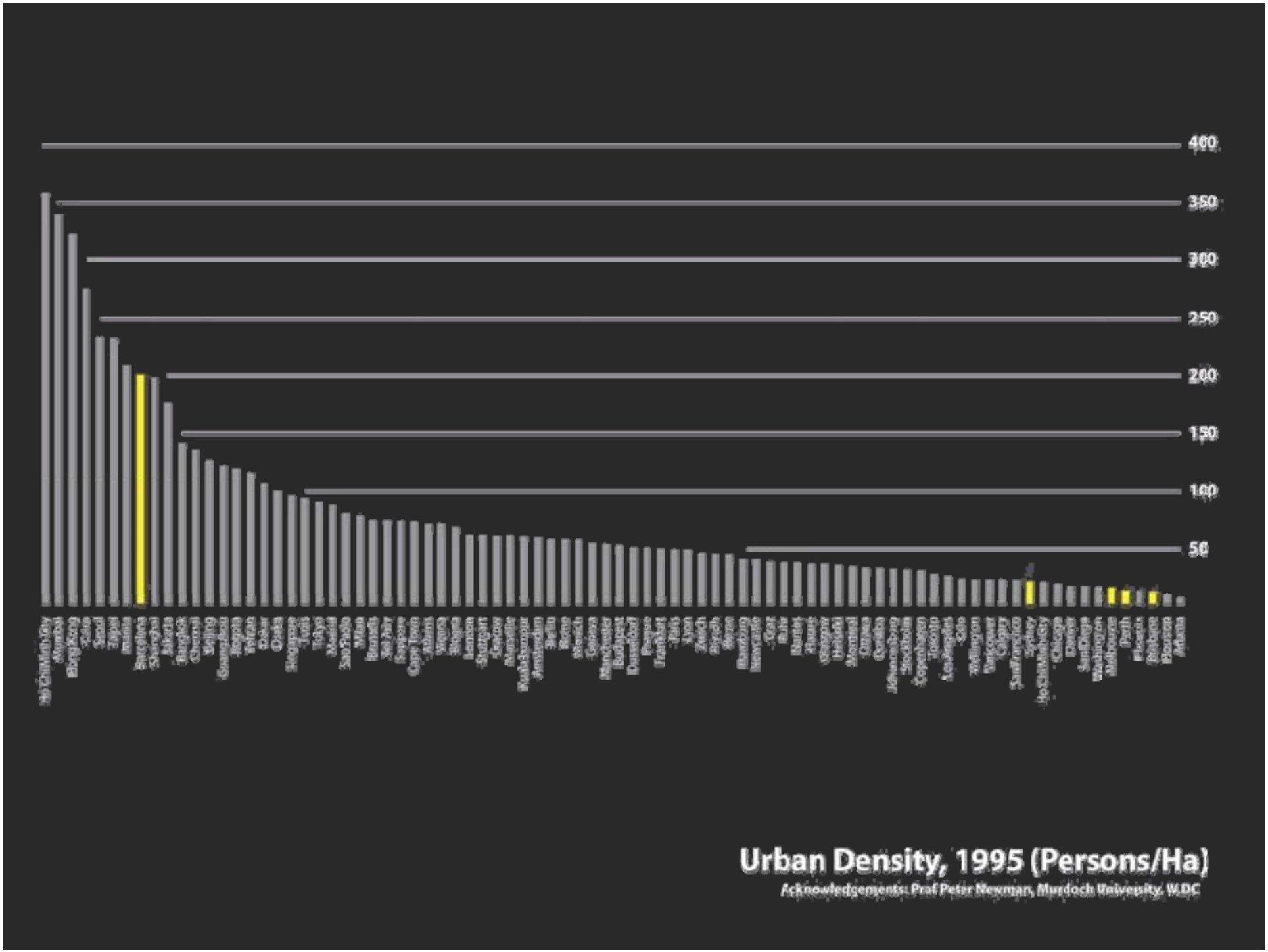
Total 34,477 Sites

Results

	Tram	Target Bus Lines
Sites available for densification	12,439	22,038
Total area (Ha)	1,418	5,275
Current population	48,630	158,250

Proposed Density Range 180 - 450

	Low	High
Net population increase	1,003,950	2,457,310


400
350
300
250
200
150
100
50
Urban Density, 1995 (Persons/Ha)
Acknowledgements: Prof Peter Newman, Murdoch University, WDC

Tallinn, Estonia

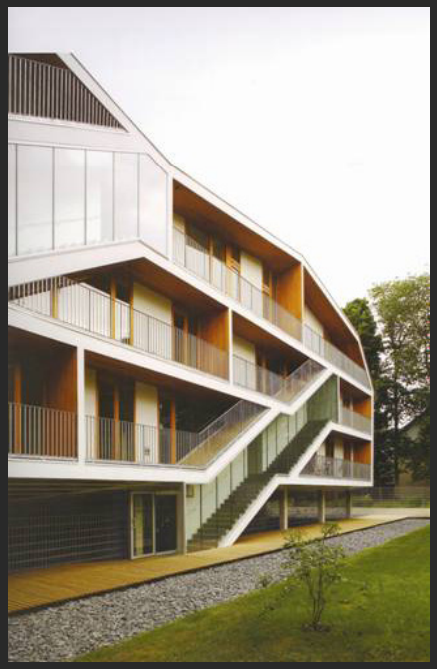
Lydia Koidula 24

(Source: J.MOZAS, J.ARPA,: *D BOOK, Density, Data, Diagrams,* Dwellings, '07)

3+1 Architects 2006

RESIDENTS / ha :

237



- **102 *dwellings* / ha.**
- **237 *residents* / ha**
- **GFA : 1071 m2.**

Aerial view

Mexico City, Mexico

Calle Alfonso Reyes 58. Colonia Condesa

(Source: J.MOZAS, J.ARPA,: *D BOOK, Density, Data, Diagrams*, Dwellings, '07)

Dellekamp Architectos 2003

RESIDENTS / ha :

449

- **179 dwellings / ha**
- **449 residents / ha.**
- **GFA : 2009 m2**

Aerial view

Vancouver, Canada

4387 West 10th Avenue

(Source: J.MOZAS, J.ARPA,: *D BOOK, Density, Data, Diagrams,* Dwellings, '07)

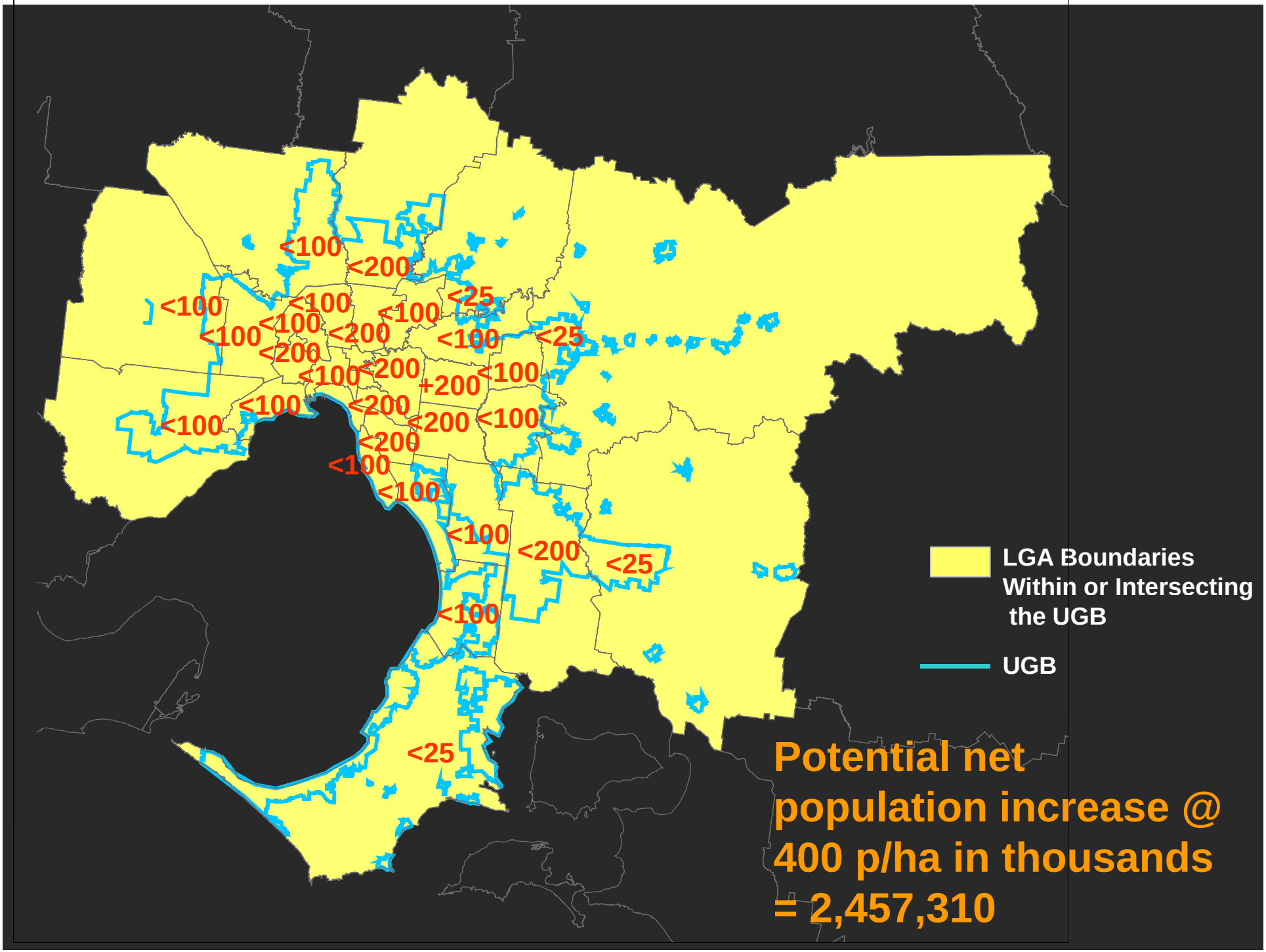
LWPAC 2006

RESIDENTS / ha :

553

- **142 dwellings/ha**
- **553 residents/ha.**
- **GFA : 1932 m2**

Aerial view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<25
LGA Boundaries Within or Intersecting the UGB
UGB
Potential net population increase @ 400 p/ha in thousands = 2,457,310

AUSTRALIAN TALENT: See a picture gallery of Abbie Cornish and other actors at the 34th Toronto International Film Festival.
theage.com.au/photography

Apartments selling best in real-estate revolution

Rapid change over past five years

By **MARIKA DOBBIN**
PROPERTY EDITOR

APARTMENTS are outselling houses in 64 Melbourne suburbs as demand for smaller and more affordable housing transforms the real-estate market.

Annual sales data compiled for *The Age* shows a rapid change in the city's housing stock from just five years ago, when apartment sales outstripped houses in just 20 suburbs, according to the Real Estate Institute of Victoria.

Atop the list of suburbs where apartments reign are some of the most historic, such as Carlton, St Kilda, East Melbourne and South Yarra, which are better known for their streets of Victorian houses.

The change has been most dramatic in the former working-class suburbs of Collingwood and neighbouring Abbotsford, where the number of apartment sales has more than quadrupled in just five years.

Just 50 houses were sold in Collingwood in the past year, compared with 105 apartments or units.

Sales director Arch Staver, of Nelson Alexander, said Collingwood was historically an industrial area with a few modest houses.

"What we've seen in the last 10 years is the redevelopment of these large factories, with entire blocks of high-density real estate," he said. "Warehouse conversions are a style of property that are snapped up immediately because it appeals to a buyer that likes to be close to town, surrounded by galleries and affordable cafes and restaurants."

In Carlton, where apartments outsell houses by five to one, developer Michael Piccolo said he sold all but four of 49 luxury apartments in the proposed Garden House development opposite the Royal Exhibition Buildings in less than a fortnight.

"We knew we had a good site but we didn't expect 830 registered expression of interest," he said. "How do you deal with that? We had to narrow it down to the first 100 and offer it to them first."

They sold off-the-plan for between $450,000 to more than $2 million this month.

In South Yarra, where 80 per cent of residential sales are already apartments, thousands of extra people are expected to move into high rises in the developing Forest Hill precinct beside the train station within three years.

While the apartment boom is most evident within five kilometres of the central business district, units have become more popular than houses in many middle and outer suburbs.

Leading the charge for denser housing are suburbs such as Maribyrnong, Moonee Ponds, Preston and Pascoe Vale, where the number of units and apartment sold has more than trebled in five years.

It is a similar story in outer suburbs.

Head of the REIV Enzo Raimondo said demand for units and apartments had resulted in their capital growth outperforming that of houses over the past five years, with the median apartment price up 34 per cent, compared with 20 per cent for houses.

"For many, the advantages of medium or high-density living is clear: for the same price as a detached house 20 kilometres from the CBD you can live in the city close to work, entertainment precincts and parks," he said.

However, certified valuer Paul Menegazzo, of All Suburb Valuers, said real estate with a land component was a better investment in the long run.

"The golden rule is that land appreciates and buildings depreciate," he said.

Cup still rosy but maybe a tad early

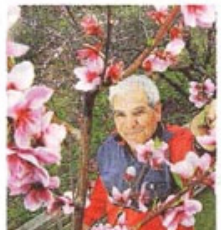
By **BRIDIE SMITH**
SCIENCE AND TECHNOLOGY REPORTER

IN 2080, the Melbourne Cup may have to be run before the AFL grand final if organisers want Flemington's famous roses to bloom on race day.

Research using data dating back to 1850 from Edinburgh's Royal Botanic Garden has helped scientists develop a statistical forecasting model of when the first flowers of spring will appear.

Their findings show that low-lying coastal parts of the world such as Victoria will experience an earlier spring and some plants, including fruit trees, will flower in late winter. Other ornamental plants, such as roses, are also forecast to flower up to 35 days earlier than they do now.

Monash University mathematician Malcolm Clark worked with Roy Thompson, of Scotland's University of Edinburgh, to develop the model, which is based on the relationship between air temperature and first flowering data.



They found that for every degree the climate warmed, spring would begin about 11 days earlier in Scotland, with species such as cherry blossom, ornamental pear, peach and grapevines most affected.

In Victoria, Lina and Tony Siciliano's 2.4-hectare garden in East Keilor boasts 100 fruit and 300 olive trees, as well as grapevines.

Mr Siciliano said shoots on his chardonnay grapes were already at 15 centimetres.

"We wouldn't normally see that until October," he said.

The nectarines, peaches and pears were fruiting up to three weeks early, while the apple trees had produced two crops of apples in one season.

Dr Clark said the rose was another example of an early bloomer.

Flemington racecourse's assistant manager of grounds and gardens, Mick Ryan, said three years ago staff started pruning roses in late May, but they now waited until the first week of June.

"It's getting later and later by a couple of days each year," said Mr Ryan, who has worked at the racecourse for 20 years.

Traditionally, spring starts on September 1. But historical weather and botanical records for 79 species were used to create models that predicted that by 2080, some plants could start flowering as early as July. The study will be published in

Beyonce shines, a world away from scandal

Psychologist had 'intense emotional' affair with patient

By **STEVE BUTCHER**

A FORMER teenage street kid with a heroin addiction who turned her life around to become a psychologist now faces professional ruin after admitting to an affair with a patient.

Margaret Schirmer and the man started a 19-month "intense emotional relationship" after she counselled him from 2005 with victims-of-crime assistance funding following a serious assault.

Schirmer later diagnosed the man, who cannot be named, with post-traumatic stress disorder with depressive features that included anxiety and thoughts of suicide.

Andrew Clements, for the Psychologists Registration Board of Victoria, told the Victorian Civil and Administrative Tribunal that the man was surprised when Schirmer phoned him in February 2006 to meet at a hotel where she revealed problems with her husband.

Mr Clements said they slept that night without having sex, but from then on they lived together until the relationship ended acrimoniously in October 2007, after Schirmer reported to police he had raped and assaulted her, which he denied.

He illustrated the depth of her feelings for him in a Christmas card in which she described

Margaret Schirmer yesterday.

tions of professional misconduct by having an inappropriate sexual relationship and illicit drug use.

Mary Anne Hartley, for Schirmer, said her client admitted she had conducted an inappropriate relationship "at the most serious level".

Ms Hartley said Schirmer also admitted smoking marijuana with the man, but denied using heroin and speed in the "tumultuous" relationship in which he was "physically and emotionally" abusive.

When she indicated she wanted to end the relationship, Schirmer claimed he threatened to report her to the board and threatened the wellbeing of her three children.

The man said in a statement he felt better and no longer suicidal after Schirmer's help.

Motorists showing signs of freeway confusion

A bird's-eye view of the complicated and confusing M1 Freeway interchange at Montague Street, South Melbourne. PICTURE: CRAIG ABRAHAM

By **CLAY LUCAS**
TRANSPORT REPORTER

THE series of entry and exit ramps created by the government's $1.4 billion widening of the West Gate and CityLink freeways is leaving motorists baffled — and often lost.

The government will change the new freeway's signage after a review of the project found it was leaving motorists confused.

The RACV's public policy manager, Brian Negus, said the hundreds of millions of dollars spent improving the freeways had left many motorists bewildered, especially those using interchanges for the first time.

The roadworks — which have introduced a series of new flyovers and exit and entry ramps — aim to reduce the number of drivers slowing down traffic by intermingling and weaving across lanes.

Mr Negus said the changes meant drivers had to be prepared up to a kilometre beforehand to get into the correct lane. "You have to make your decision earlier.

"They need to review the signage, to look at whether they can provide forewarning about what people are expected to do. Some of the complaints we get are people saying they didn't know early enough what they needed to do."

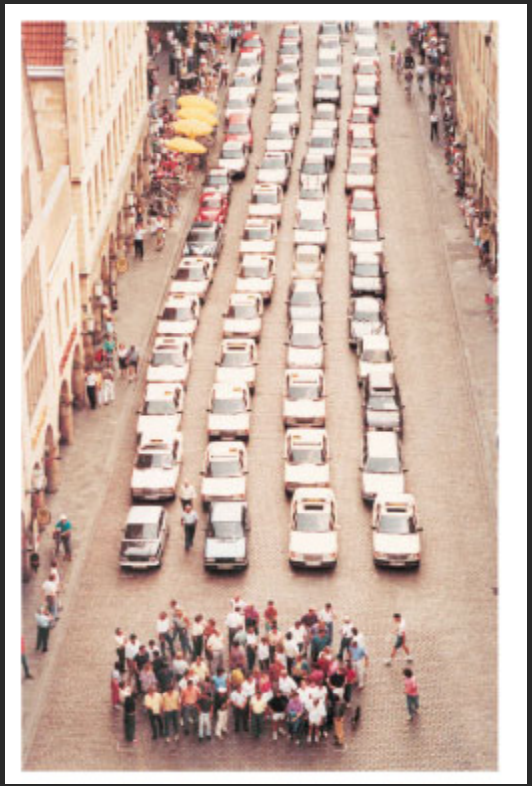
The works are being carried out by a joint venture of VicRoads and Transurban. Project director John Cunningham said research had been done with motorists and it had found "some confusion". This had been caused by both the signage and the changed road configuration, he said.

"We will be making some changes to the signage as a result of our review."

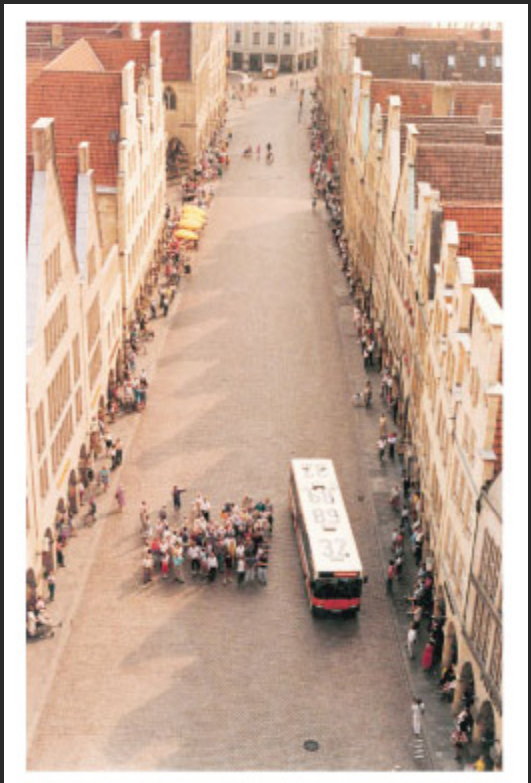
The West Gate and parts of CityLink will be closed again on Friday and Saturday nights this weekend, to test a new lane-use management system.

City of Münster, Planning department
Advertising campaign 2001
Comparison of amount of space required to transport 72 people

72 bicycles = 90sqm
Based on 1 person per bike



60 cars = 1000sqm
Based on 1.2 people per car



1 bus = 30sqm
Based on 72 people per bus

Curitiba

Curitiba

	Line	Capacity	Buses	Lines
	Downtown Shuttle	30	00	02
	Micro Bus / Conventional Lines	40	98	10
	Conventional / Trunk Lines	80	327	97
	Articulated Bus / Trunk Lines	160	19	
	Feeder Bus	80	670	21
	Articulated Feeder Bus	160	50	
	Interdistrict lines	110	46	07
	Articulated Interdistrict lines	160	72	
	Direct Lines "speedy Buses"	110	355	18
	Double Articuled Bus "express lines"	270	163	06

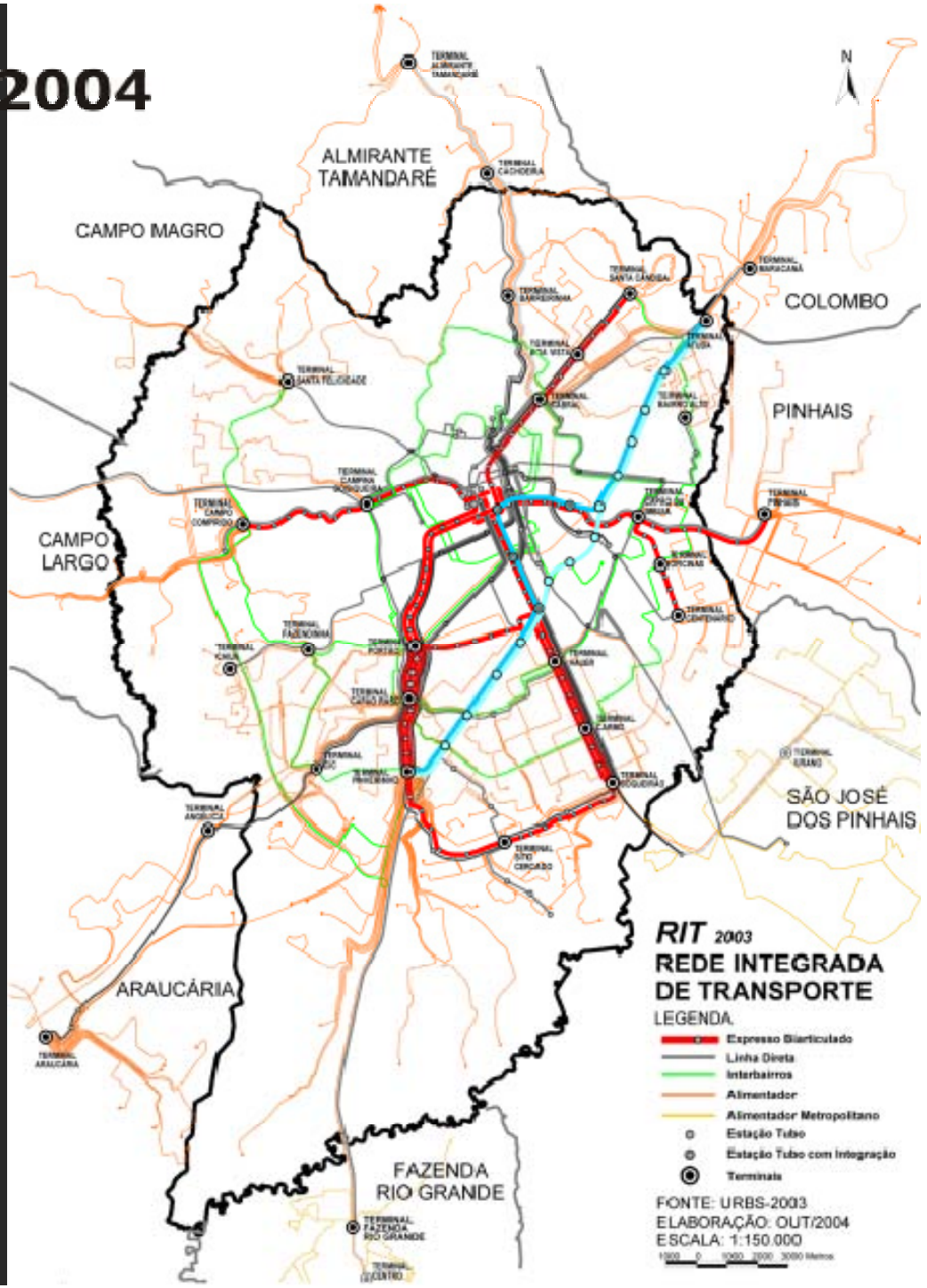
Interdistrict Line

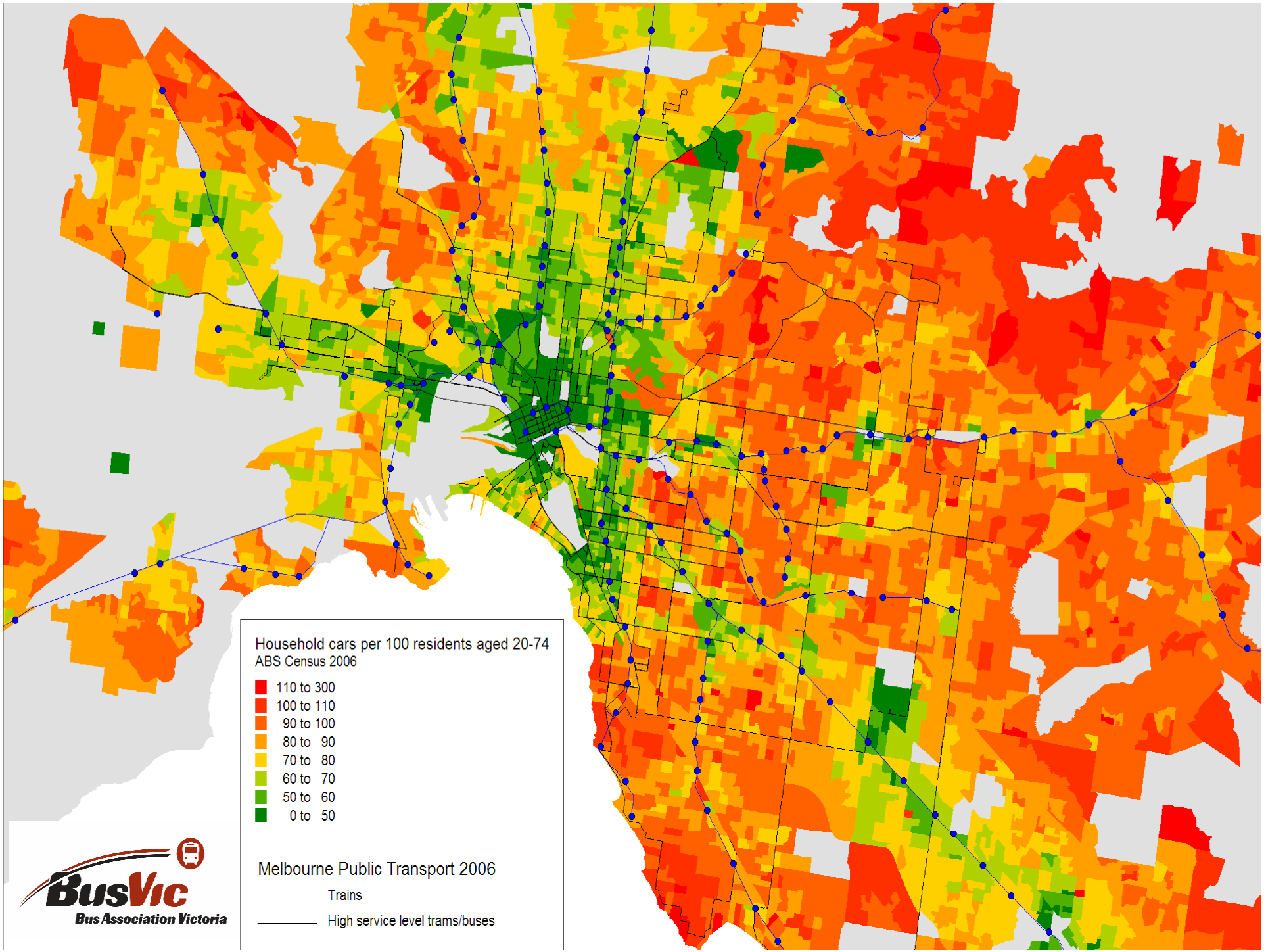
Tourism Line

Direct Line

Double Articulated

2004




Household cars per 100 residents aged 20-74
ABS Census 2006
110 to 300
100 to 110
90 to 100
80 to 90
70 to 80
60 to 70
50 to 60
0 to 50
Melbourne Public Transport 2006
Trains
High service level trams/buses
BusVic
Bus Association Victoria

An Access Economics report prepared for Diabetes Australia estimates the total economic cost of obesity in Australia in 2008 was a staggering $58 billion.

THE AGE
FRIDAY, MARCH 12, 2010 7
NEWS

Public transport users vote with feet

By **CLAY LUCAS**
TRANSPORT REPORTER

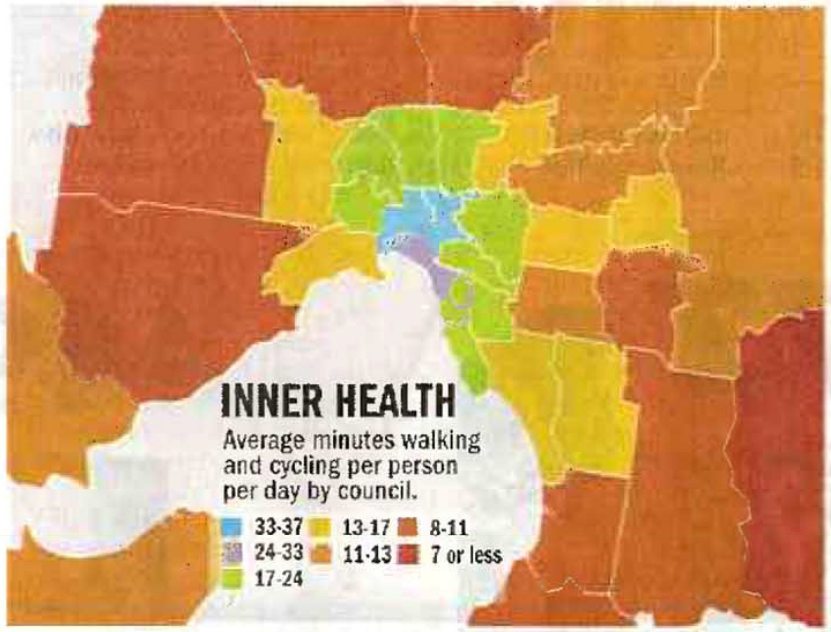
PUBLIC transport users get a daily average of 41 minutes physical exercise, compared with an average of eight minutes for those who only drive, according to an analysis of Victorian travel data.

Research completed by the Bus Association of Victoria has found that those who use public transport in Melbourne are likely to get their recommended daily dose of physical activity as a "side effect" of their travel.

Exercise guidelines produced by the federal government recommend that adults spend at least 30 minutes a day walking, cycling or doing another activity that increases their heart rate.

An Access Economics report prepared for Diabetes Australia estimated the total economic cost of obesity in Australia was about $58 billion in 2008.

A map produced as part of the Bus Association's study also indicates how much people who live in each of Melbourne's council areas either walk or cycle. It shows that those in Melbourne's inner areas, which in most cases have easier access to public transport, get much more exercise as part of their daily travel routine than those who live in outer Melbourne.



Bus Association policy manager Chris Loader said the study showed that improving public transport services was crucial. "The research demonstrates that it brings significant public health benefits," he said. "We need better public transport in Melbourne's middle and outer suburbs."

The Heart Foundation's chief executive, Kathy Bell, said the survey highlighted the need for more outer-suburban transport services, because one impact would be improved health.

"People in Melbourne's growing outer suburban areas are missing out on satisfactory levels of public transport services and also on the health benefits of walking and cycling that are associated with regular public transport use," she said.

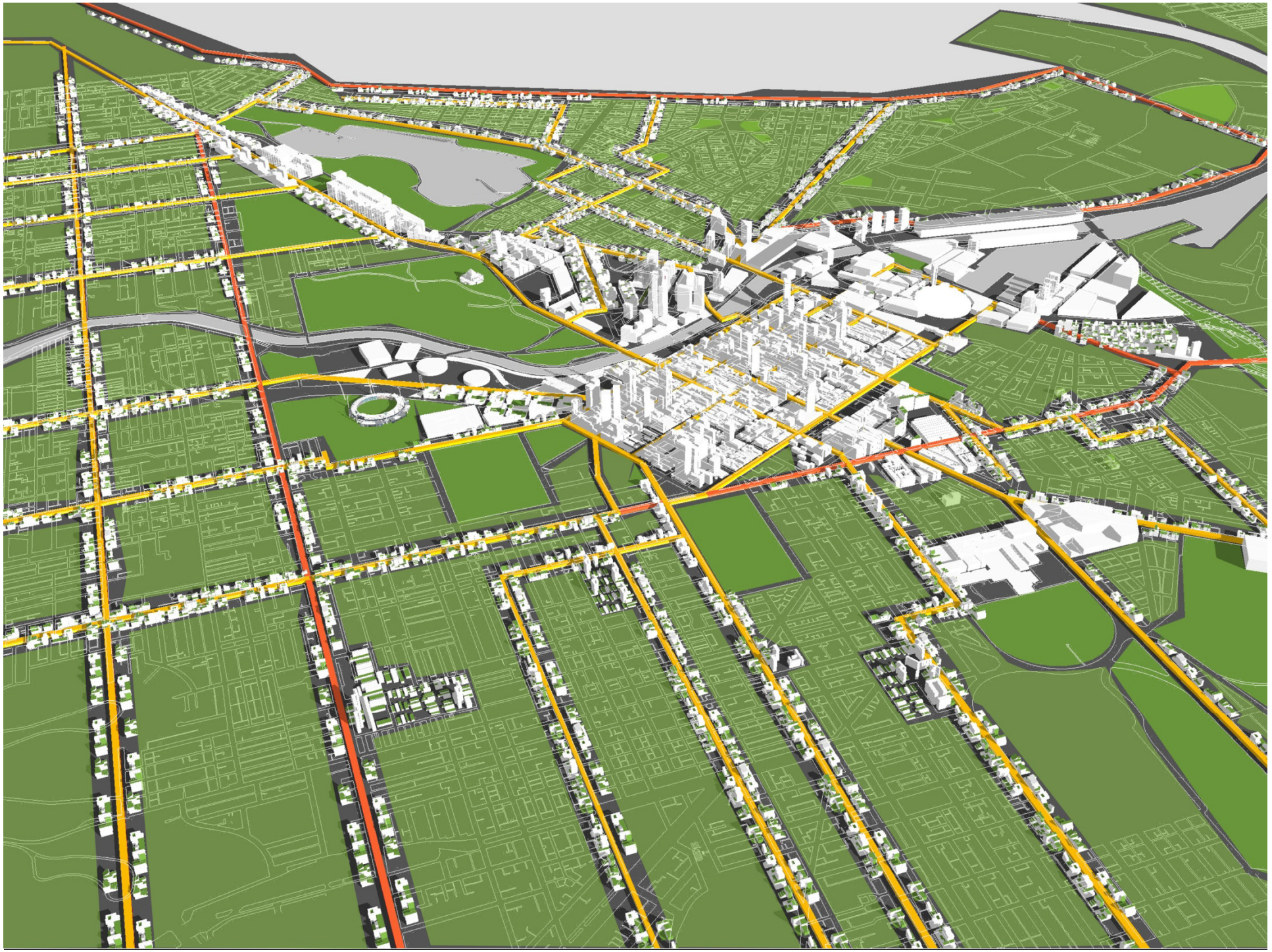
The study's figures are derived from the state government's Victorian Integrated Survey of Travel and Activity, released last year. It surveyed 43,800 people in households in Melbourne and regional Victoria. The Bus Association analysis compared public transport users with those who used a vehicle to get around.

'people who used public transport on a particular day, also spent an average 41 minutes walking and/or cycling as part of their travel.' Chris Loader The Age March 12 2010

Productive Suburbs

This comprises 90% of the metropolitan area and remains the ‘Australian dream’.

- The home as a financially positive energy generator in support of the grid and large scale energy facilities achieved through gross feed-in tariffs.
- The backyard as productive food source.
- The street as linear forest-$1 invested in tree planting delivers $5.6 of value back to the city.
- The city as catchment.



NOW

Curtain Street, looking west to Nicholson Street

POSSIBLE FUTURE

Curtain Street – artists impression

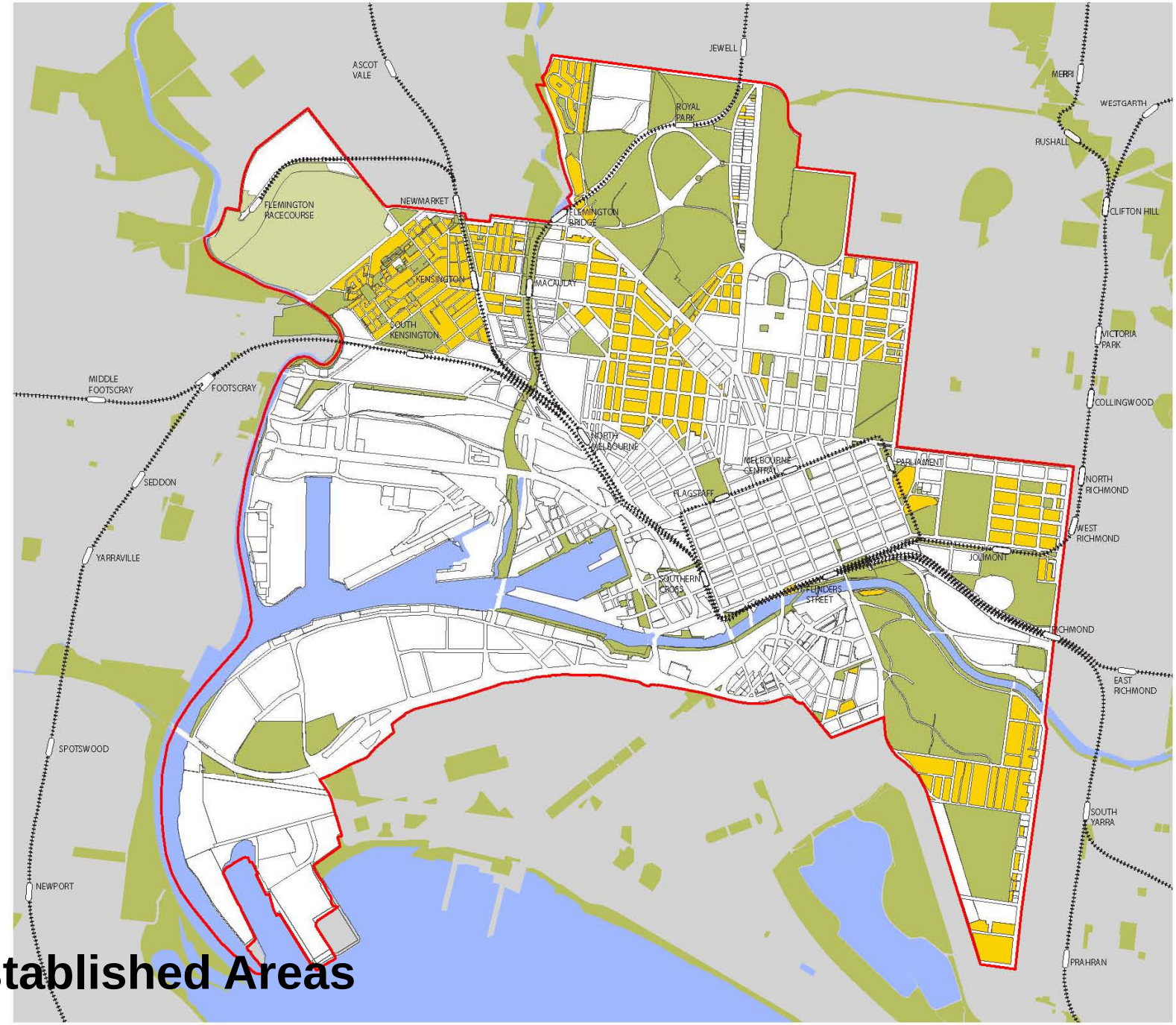
REDEVELOPMENT SITES

•The State Governments Urban Development Program database identifies 1,486 key development sites that either have planning approval or are under construction.

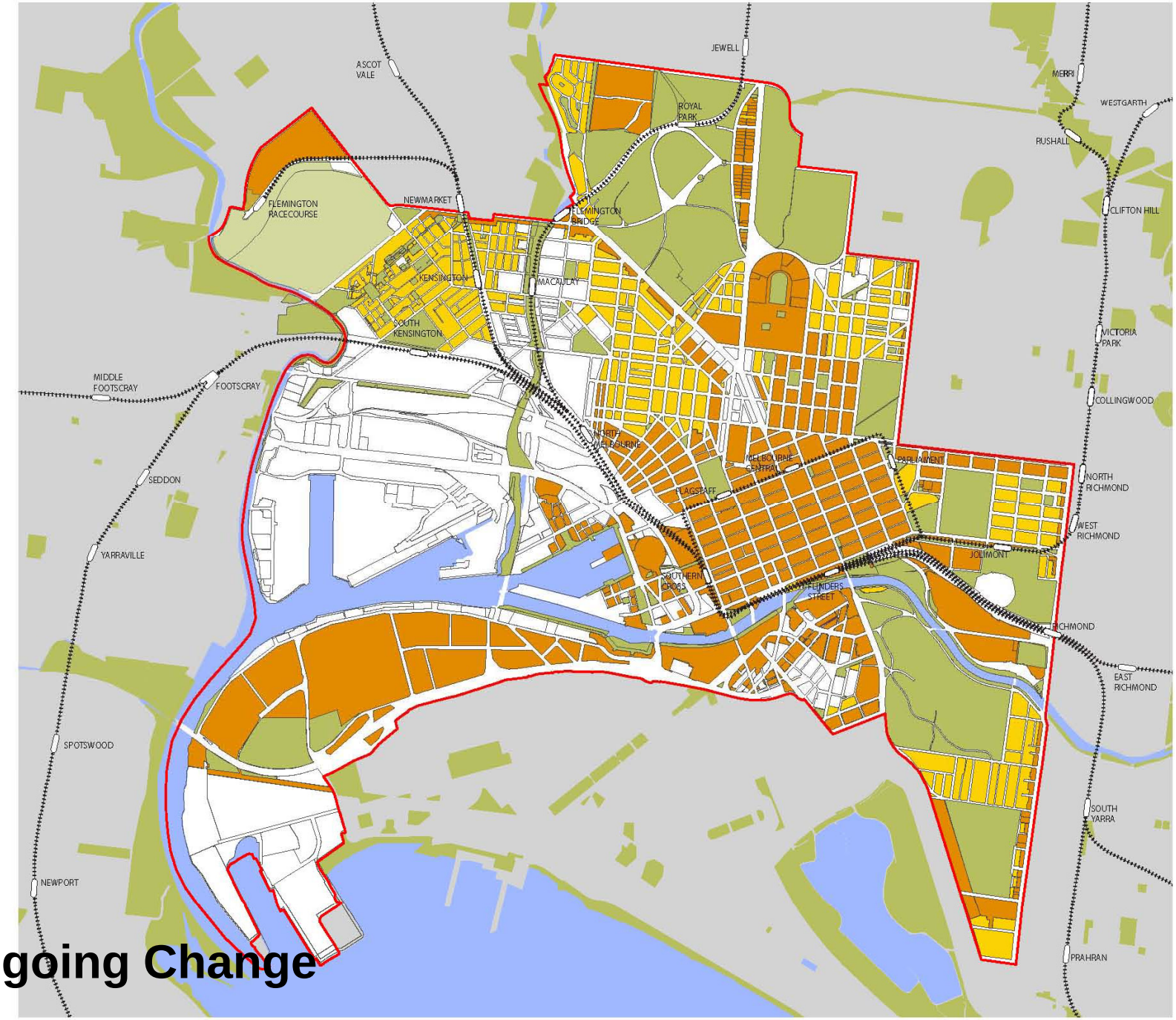
•The area covered by these sites is 3161 hectares, or **1.5%** of the metropolitan land area

•Based on the developments where there are known dwelling numbers the average density is over 200 dwellings per hectare. This would conservatively translate to an additional 550,000 people accommodated.

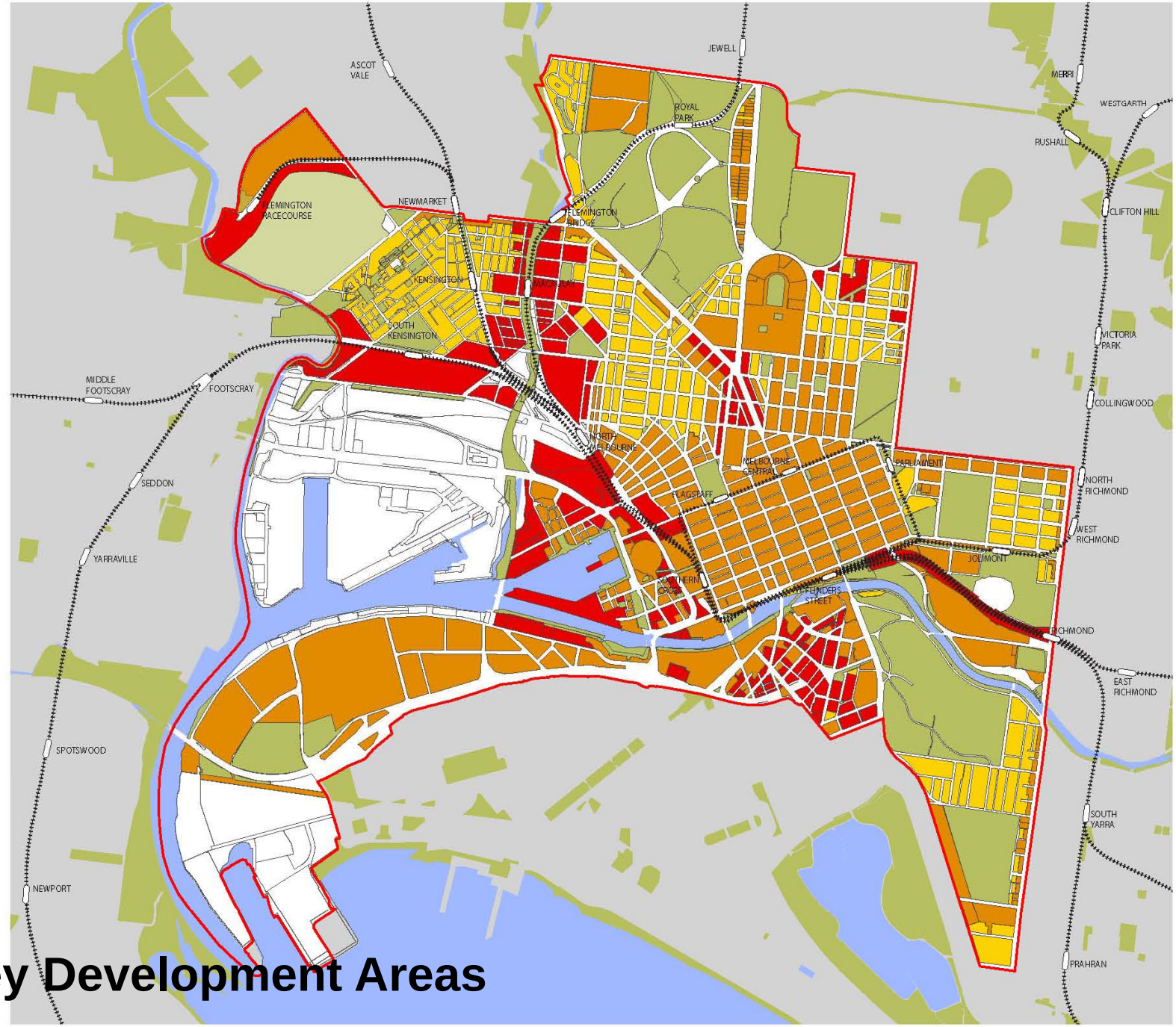
•Add to this the 100,000 house blocks currently owned by VicUrban and private developers and you have an additional potential of 250,000 people within the existing capacity of available land within the metro area.



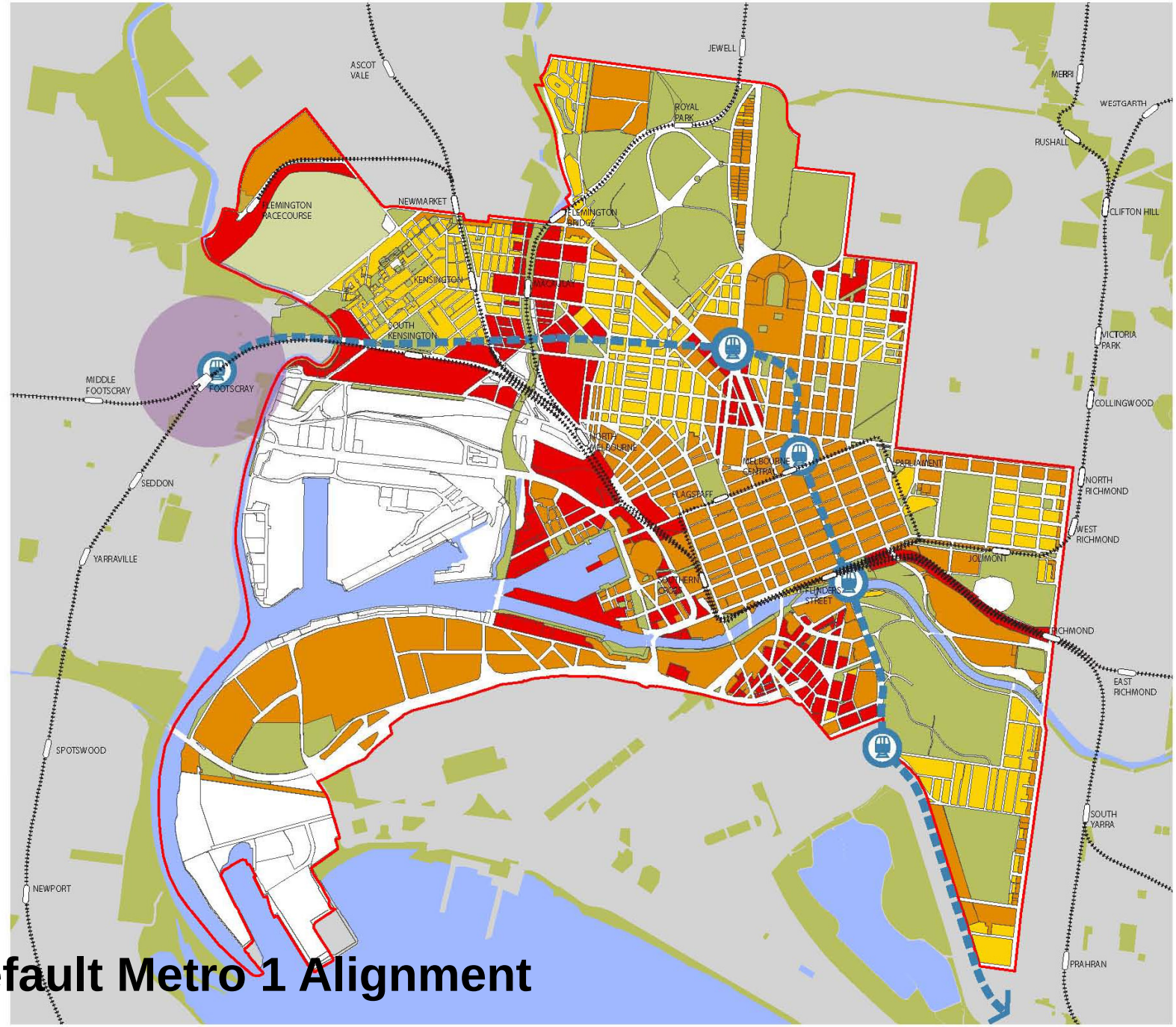
Established Areas



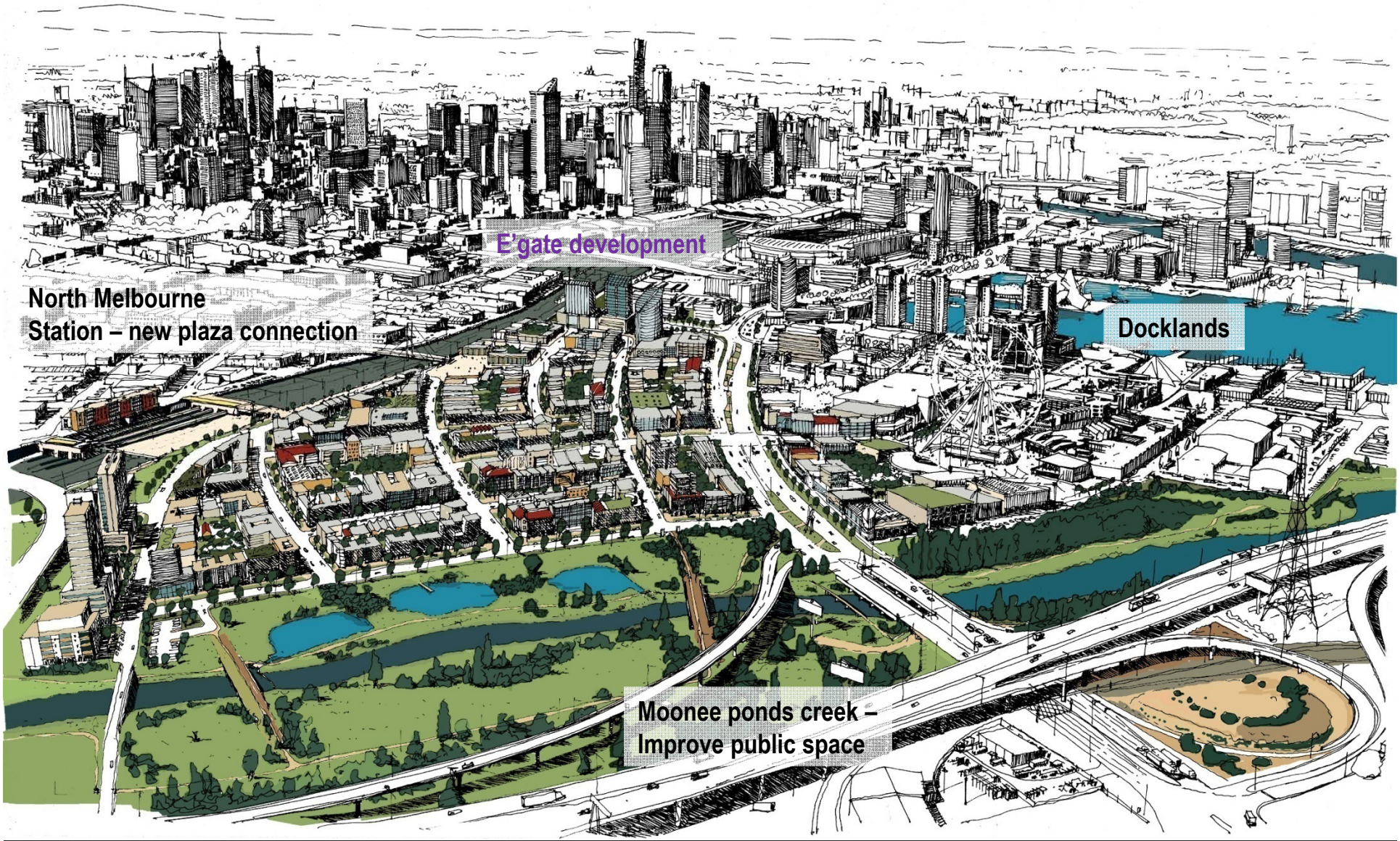
Ongoing Change



Key Development Areas



Default Metro 1 Alignment


E'gate development
North Melbourne
Station – new plaza connection
Docklands
Moonee ponds creek –
Improve public space

'HEATER' HONEY BEES: Scientists have lifted the lid on the social make-up of colonies.
RICHARD GRAY WORLD PAGE 7

THE AGE TUESDAY, MARCH 16, 2010 3
NEWS

25% emissions cut at $4 a week 'possible'

WHERE THE CUTS ARE

PROFITABLE CUTS
- Boosting efficiency of domestic appliances and electronics
- Retrofitting buildings to cut energy waste
- Upgrading industrial equipment
- Improving vehicle fuel efficiency
- Cutting emissions from cropland

EXPENSIVE CUTS
- Building gas and coal-fired power plants with carbon capture and storage technology
- Building large-scale solar photovoltaic power plants
- Offshore wind farms
- Boosting carbon content of degraded farmland
- Improving forest management

By ADAM MORTON
ENVIRONMENT REPORTER

THE most ambitious greenhouse gas target flagged by the government — a 25 per cent cut by 2020 — is achievable at a cost to households of less than $4 a week, a detailed study has found.

It challenges claims that tackling climate change would trigger an exponential rise in the cost to consumers.

ClimateWorks Australia, a partnership between Monash University and the philanthropic Myer Foundation, examined the size and cost of potential emissions cuts in 34 areas. It found nearly a third of the cuts would save the community money, largely through improved energy efficiency in commercial buildings, industry and transport. The savings could help offset the expensive transformation of the electricity sector from "dirty" coal to cleaner energy forms.

ClimateWorks executive director Anna Skarbek said the cut would require a carbon price, as proposed by the government, and targeted "direct action", championed by the opposition.

Ms Skarbek said it could be made using existing technology and without changing lifestyles or the mix of businesses that contribute to the economy. The cost would not be extraordinary — about the same as the cost of a cup of coffee a week for each home. "The plan shows there are many opportunities for emission reductions to be made at low cost or with a net economic benefit to society. We hope [the report] is a pleasant surprise to business," she said.

The report, *Low Carbon Growth Plan for Australia*, builds on the "cost curve" modelling of consultant McKinsey & Company in 2008, but gives more detail about where cuts can be made.

The most profitable cuts would come through retrofitting commercial and industrial buildings with efficient equipment and appliances.

Other easy and cost-effective savings included lifting vehicle fuel efficiency by about a third to bring cars into line with European standards, and reducing tillage and improving fertiliser management to cut emissions from cropland soil.

The most expensive cuts were in the power sector: building gas and coal-fired power stations with carbon capture and storage technology — technically feasible, but not yet economically viable — and large-scale solar photovoltaic plants.

The largest cuts in emissions could come through planting forests on marginal and, in some cases, viable agricultural land.

Ms Skarbek said a carbon price — through an emissions trading scheme or a carbon tax — was essential to give businesses incentives to invest in clean alternatives. Starting with a carbon price of $43 in 2013, and increasing to $69 by 2020, it could triple the number of areas where it was profitable to cut emissions.

Targeted action was needed in areas where a carbon price would not be enough to cover, for example, information gaps or shortfalls in investment capital.

Climate Change Minister Penny Wong said the report made it clear that a carbon price was critical to achieving reductions. But Greens climate change spokeswoman Christine Milne said the McKinsey report had already demonstrated a 30 per cent cut by 2020 was achievable and affordable.

She accused the "ALP influence" on the ClimateWorks board — which is chaired by former Victorian deputy premier John Thwaites and includes federal MP Mark Dreyfus — of preventing it doing "the kind of study Australia really needs".

Geoff "Chook" McClure

Beloved writer loses the fight

50km2 solar panel = energy for all Australia

The opportunity

- Engaging the community in the solution
- Avoid the "either or" debates
- Move beyond conventional developments and investment patterns which will only reinforce existing problems
- Transformational solutions that build on existing infrastructure can produce better social, economic and environmental benefits.
- Potential new population capacity (*excluding growth areas and infill sites*) is 4,050,000 people on 7.5% of the Metropolitan area.

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