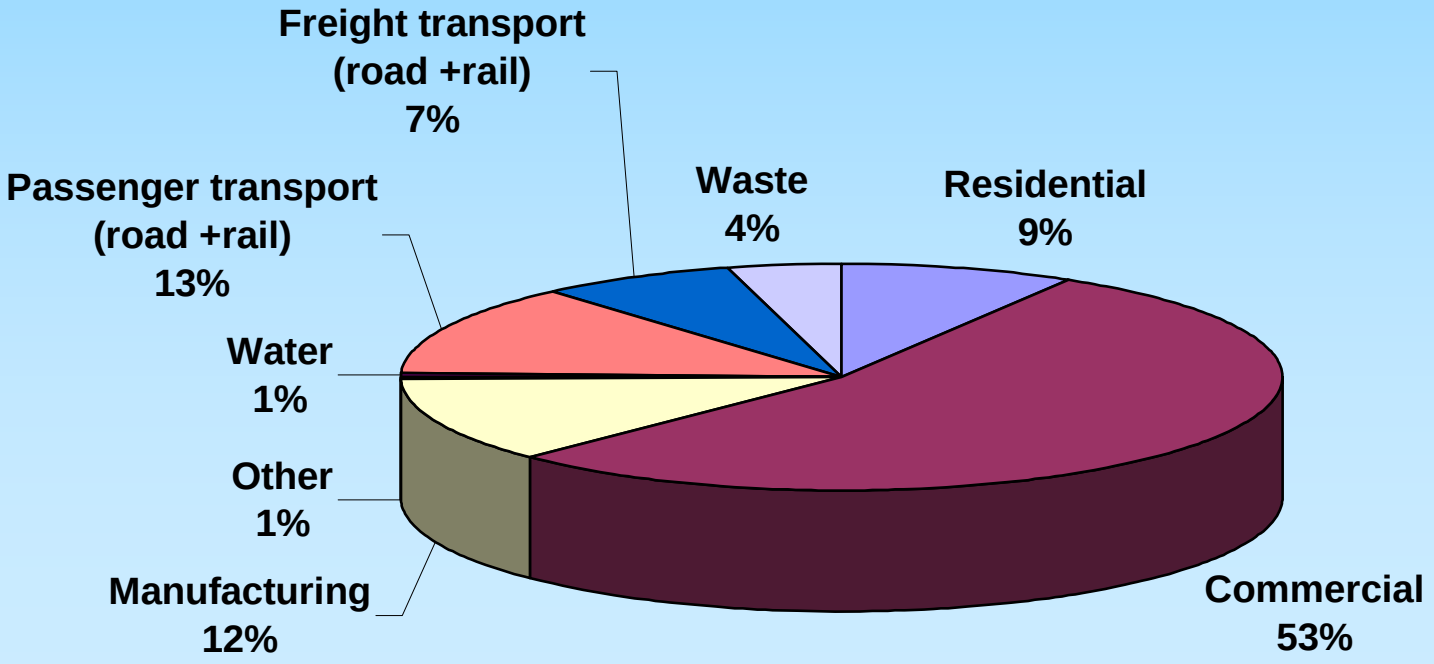
Transport Greenhouse Footprint

Zero Net Emissions by 2020 – Update 2008

- Commercial sector
- Residential sector
- Passenger transport
- Decarbonising the energy supply

Greenhouse gas emissions by sector for the City of Melbourne 2005–06 total emissions estimated at 6.43 million tonnes carbon dioxide equivalents



Transport Greenhouse Footprint

Zero Net Emissions by 2020 – Update 2008

Strategies for Passenger Transport

The City of Melbourne will pursue:

20%

– *decarbonisation* of the public transport system by 20% through the introduction of low-carbon or clean source energy

15%

– implementation of a range of car reduction measures to achieve a 15% reduction in *transport emissions* by 2012 and maintained to 2020. Car pooling, car share, electric cars, micro cars, parking disincentives.

>1%

– introduction of an integrated *Cycle Melbourne* scheme combining bicycle hire, expanded end-of-trip facilities and cycling infrastructure, resulting in a 100% increase in bicycle use by 2015.

Transport Greenhouse Footprint

First Scenario - no action

• If business as usual, transport emissions will increase by 27.4% pa above 2001 levels by 2020

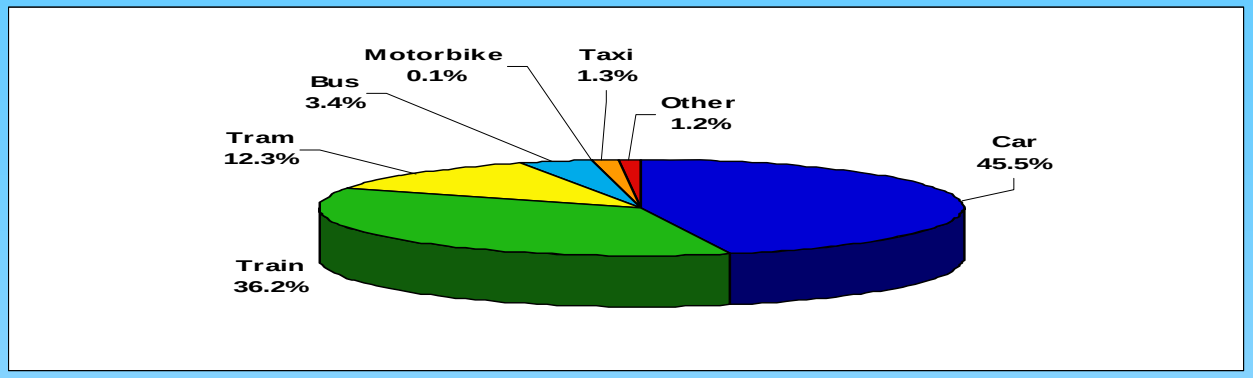
Second Scenario – existing policies

• If *Moving People and Freight Melbourne Transport Strategy* is implemented then transport emissions will increase by 20% above 2001 levels. (69,205 tonnes of CO2e)

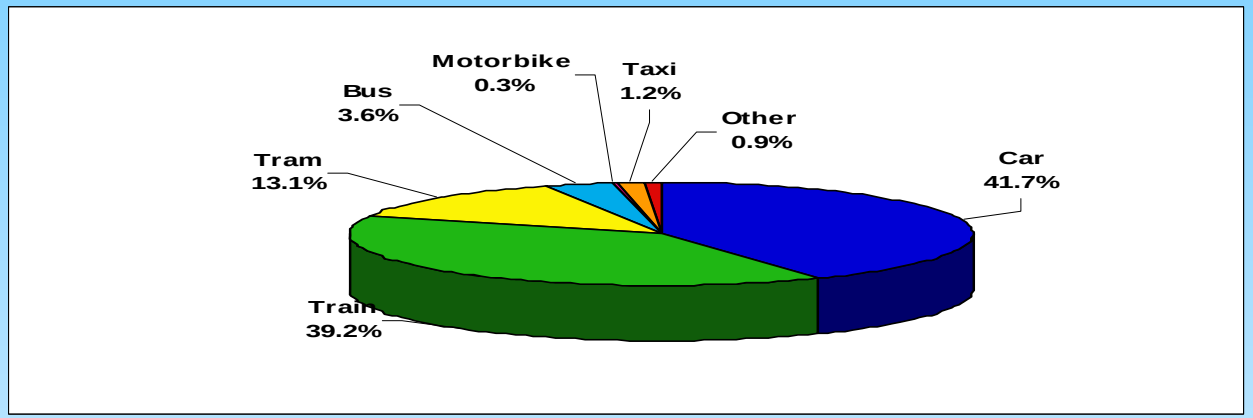
2001 – 839,225 tonnes CO2e pa
2006 – 837,726 tonnes CO2e pa
2020 – 1,068,829 tonnes CO2e pa (BAU)
2020 – 1,009,311 tonnes CO2e pa (existing policies)

Emissions by Mode

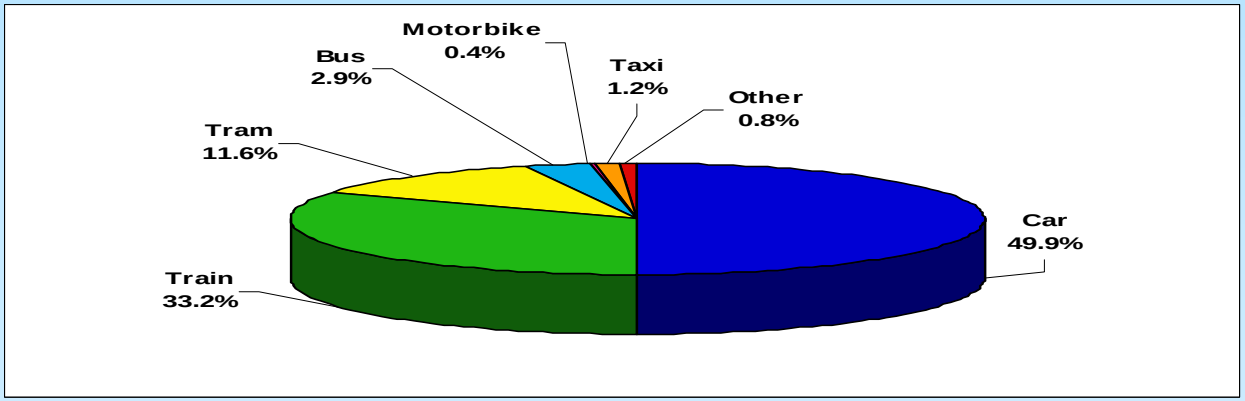
2001



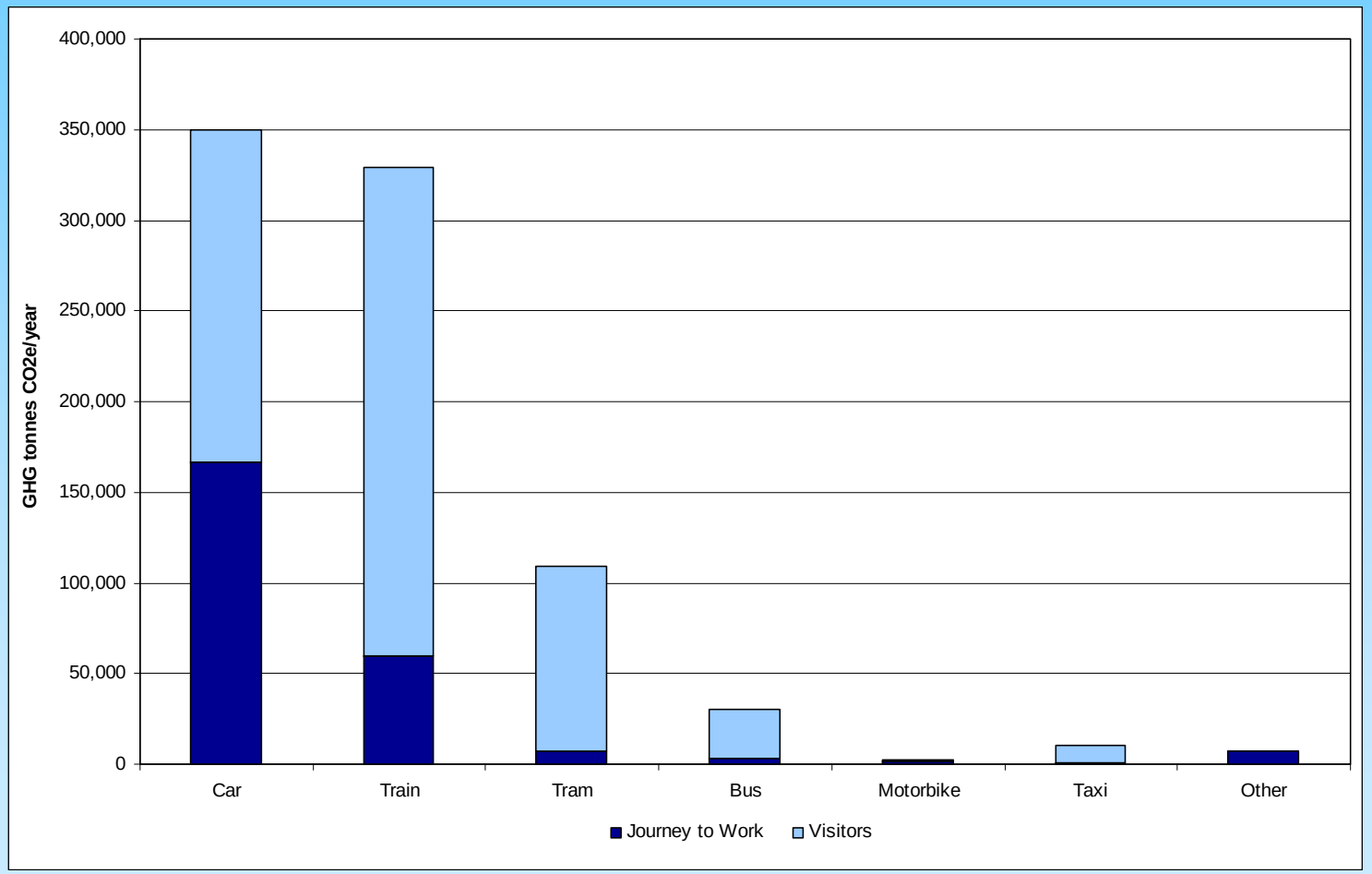
2006



2020
Business as Usual



Greenhouse Contribution Per Mode



2006

Annual Greenhouse Emissions Per Mode

Peak Hour GHG Intensities grams CO2e/person km

Bicycle	= 0
Train	= 96
Bus	= 101
Motorbike	= 109
Tram	= 122
Taxi	= 184
Car	= 250

Metropolitan Melbourne averages
Compiled by Dept of Infrastructure

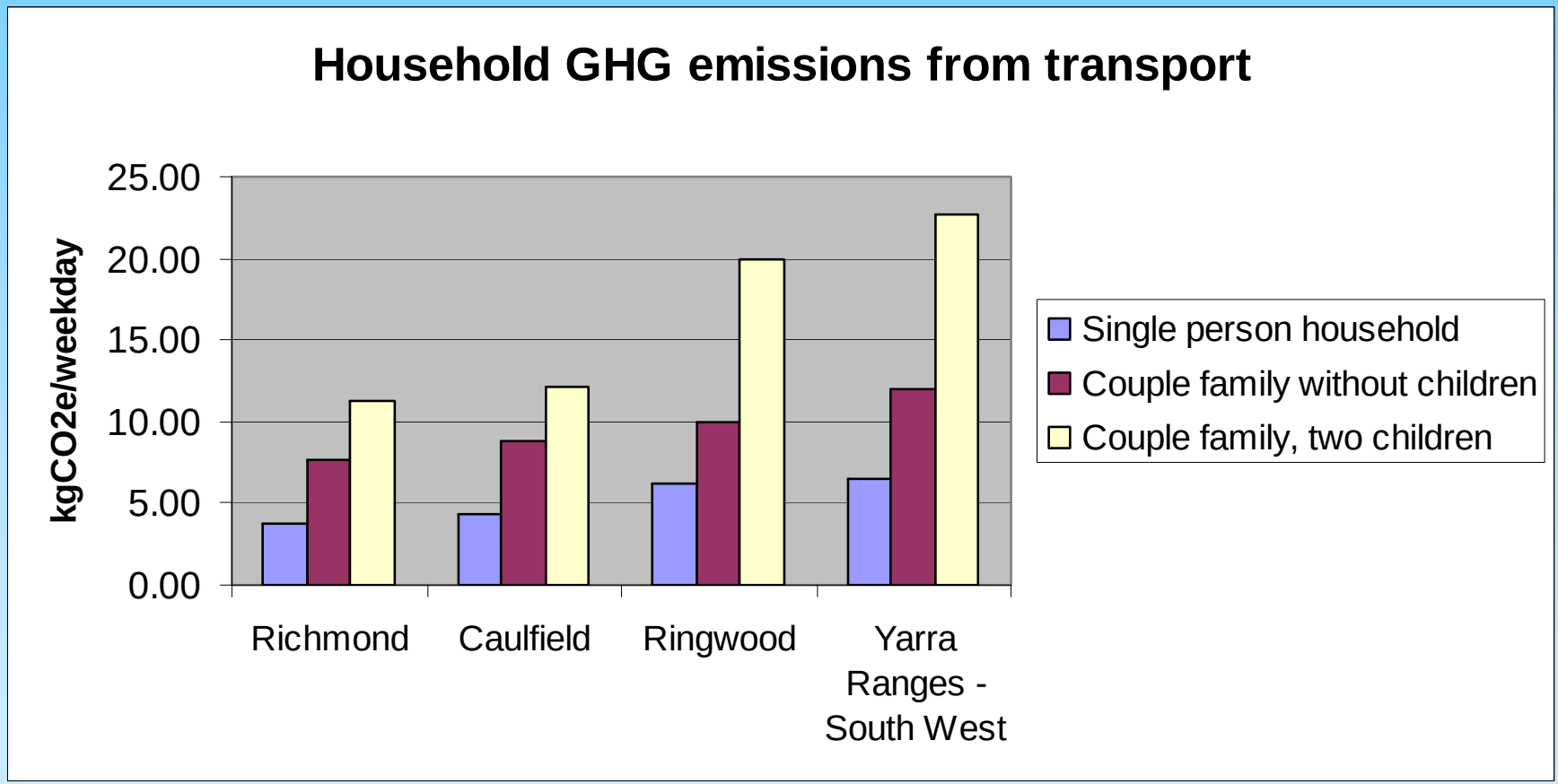
Annual tonnes CO2e per person km

Bicycle	= 0.000
Motorbike	= 0.018
Tram	= 0.022
Train	= 0.023
Bus	= 0.025
Taxi	= 0.026
Car	= 0.042

City of Melbourne averages
Peak and non-peak

2006

Travel Behaviour and Urban Form



Source: VATS 97-99 (travel behaviour)

Greenhouse Modelling of Actions in *Moving People and Freight*

- Rail Policy 1 – Doncaster/Donvale = 1,380 tonne reduction (0.1%)
- Rail Policy 2 – Rail extensions = 3,376 tonne reduction (0.3%)
- Tram Priority = 18,652 tonne reduction (1500 average Vic houses) (1.7%)
- Bus Priority = 479 tonne reduction (0.04%)
- CBD Parking = 32,472 tonne reduction (3.04%)
- Pedestrians = 219 tonne reduction (18 average Vic. houses) (0.02%)
- Speed Limit 40km/hr = 160 tonne reduction (0.01%)
- Cycling = 2,706 tonne reduction (225 average Vic houses) (0.25%)
- Car Sharing = 75 tonne reduction (0.01%)

Potential larger impact from car pooling, and work from home programs.

Decarbonise a train line…

CoM's Corporate Car Fleet

60% reduction in greenhouse emissions from corporate car fleet by 2010.

55% reduction already achieved by (490 tonnes/yr):

- 32% reduction in car numbers (40 vehicles)
- pushbike pool, electric bike pool, p/t tickets
- one hybrid in operation
- sharing use of executive cars

All achieved without significant capital outlay.

Transport Greenhouse Methodology

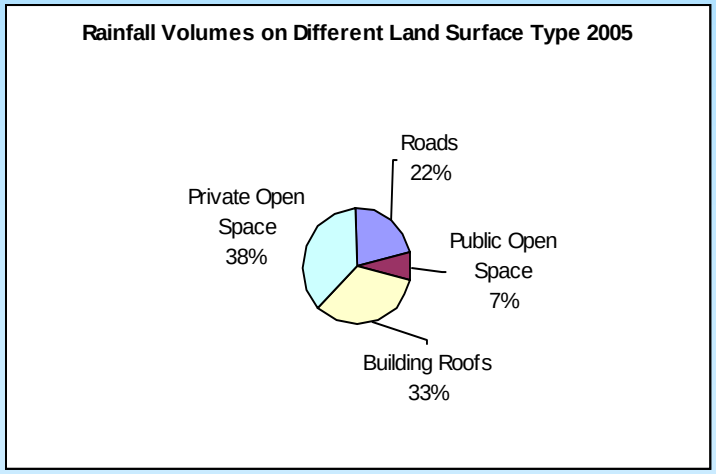
To be resolved in time:

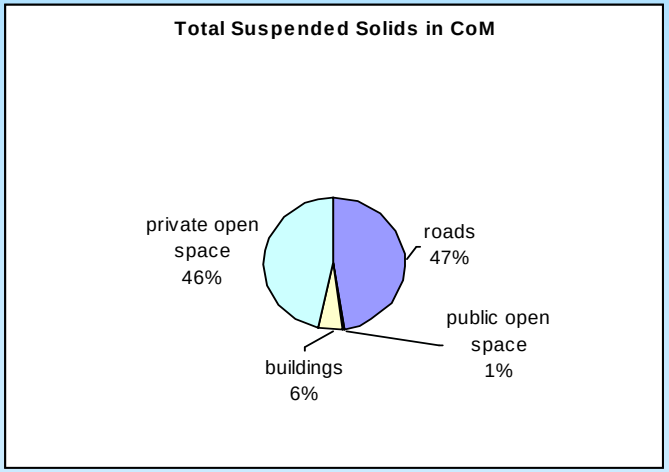
- Gaps in data
  - freight
  - embodied energy
- Carbon counting across administrative boundaries
  - Double counting? - ‘to’ ‘within’ ‘from’ – double counting?
- Context with ports and airports

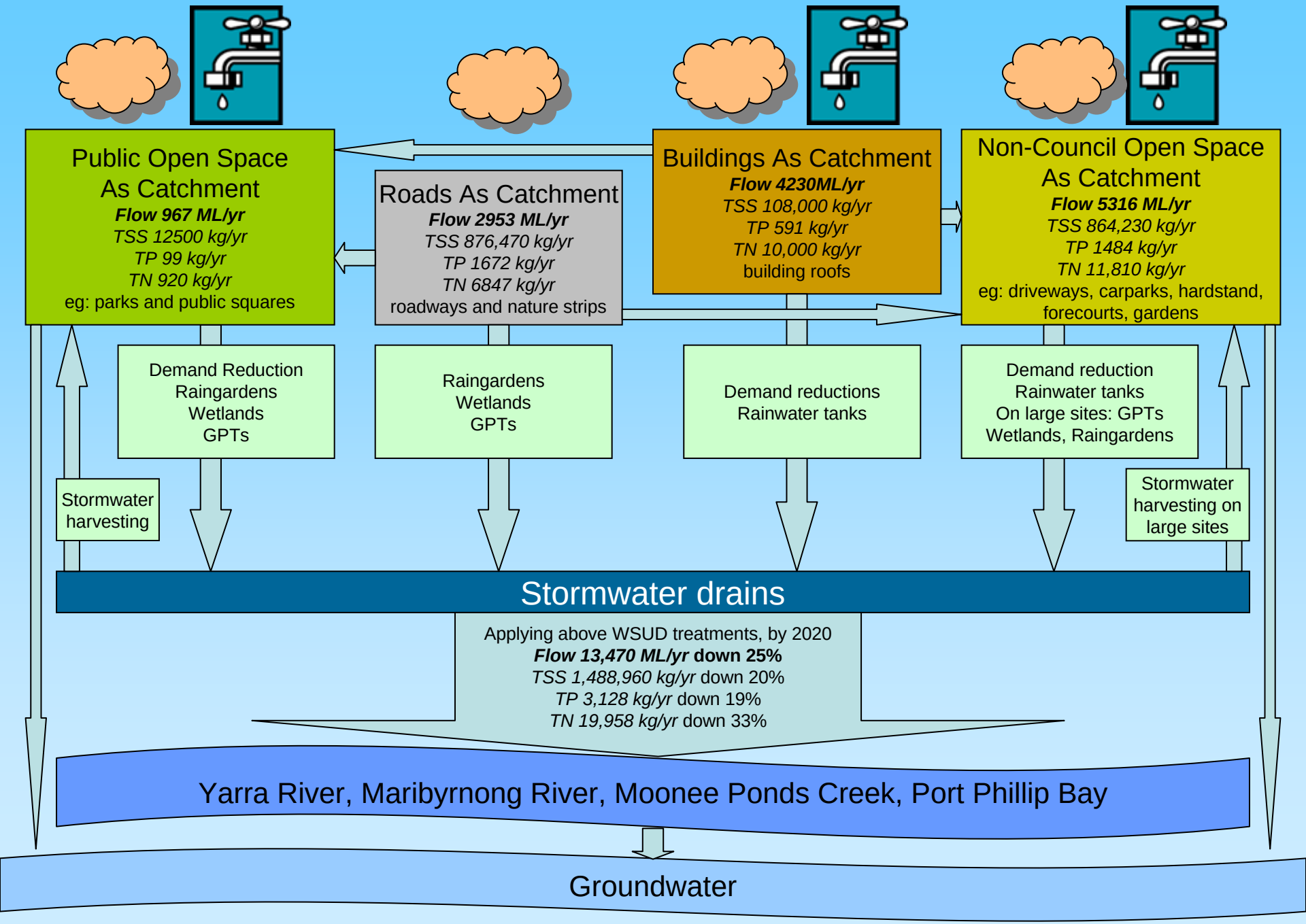
Transport and Environment

Range of environmental impacts of transport to manage:

- greenhouse and global warming
- air pollution (global dimming issues)
- water quality (and even water scarcity)
- loss of arable land on fringe
- loss of
- peak oil






Public Open Space As Catchment
Flow 967 ML/yr
TSS 12500 kg/yr
TP 99 kg/yr
TN 920 kg/yr
eg: parks and public squares
Roads As Catchment
Flow 2953 ML/yr
TSS 876,470 kg/yr
TP 1672 kg/yr
TN 6847 kg/yr
roadways and nature strips
Buildings As Catchment
Flow 4230ML/yr
TSS 108,000 kg/yr
TP 591 kg/yr
TN 10,000 kg/yr
building roofs
Non-Council Open Space As Catchment
Flow 5316 ML/yr
TSS 864,230 kg/yr
TP 1484 kg/yr
TN 11,810 kg/yr
eg: driveways, carparks, hardstand, forecourts, gardens
Demand Reduction
Raingardens
Wetlands
GPTs
Raingardens
Wetlands
GPTs
Demand reductions
Rainwater tanks
Demand reduction
Rainwater tanks
On large sites: GPTs
Wetlands, Raingardens
Stormwater harvesting
Stormwater harvesting on large sites
Stormwater drains
Applying above WSUD treatments, by 2020
Flow 13,470 ML/yr down 25%
TSS 1,488,960 kg/yr down 20%
TP 3,128 kg/yr down 19%
TN 19,958 kg/yr down 33%
Yarra River, Maribyrnong River, Moonee Ponds Creek, Port Phillip Bay
Groundwater