Cairns Action for Sustainable Transport

A pro-active public transport system for Cairns, using existing rail infrastructure, while reducing emissions and enhancing Cairns' unique lifestyle qualities

CONTENTS:

- What is the problem?
- QLD government transport proposal, its history and their arguments
- Shortcomings of the CTN proposal
- Real cost of cars
- Advantages of rail
- Buses AND Rail is the way to go
- Outline of the CAST proposal

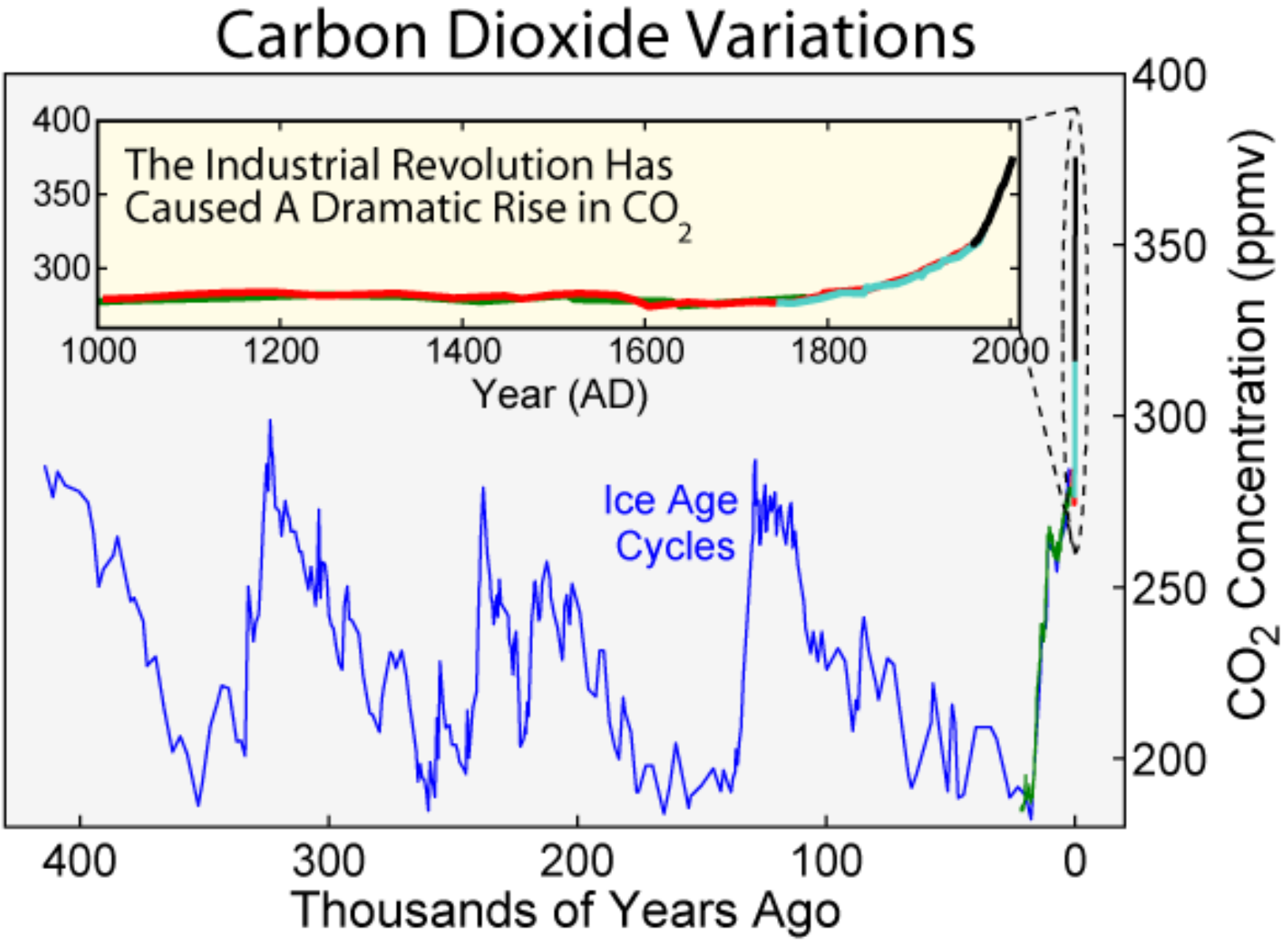
Global Warming

“We are looking now at a future climate that is beyond anything we have considered”

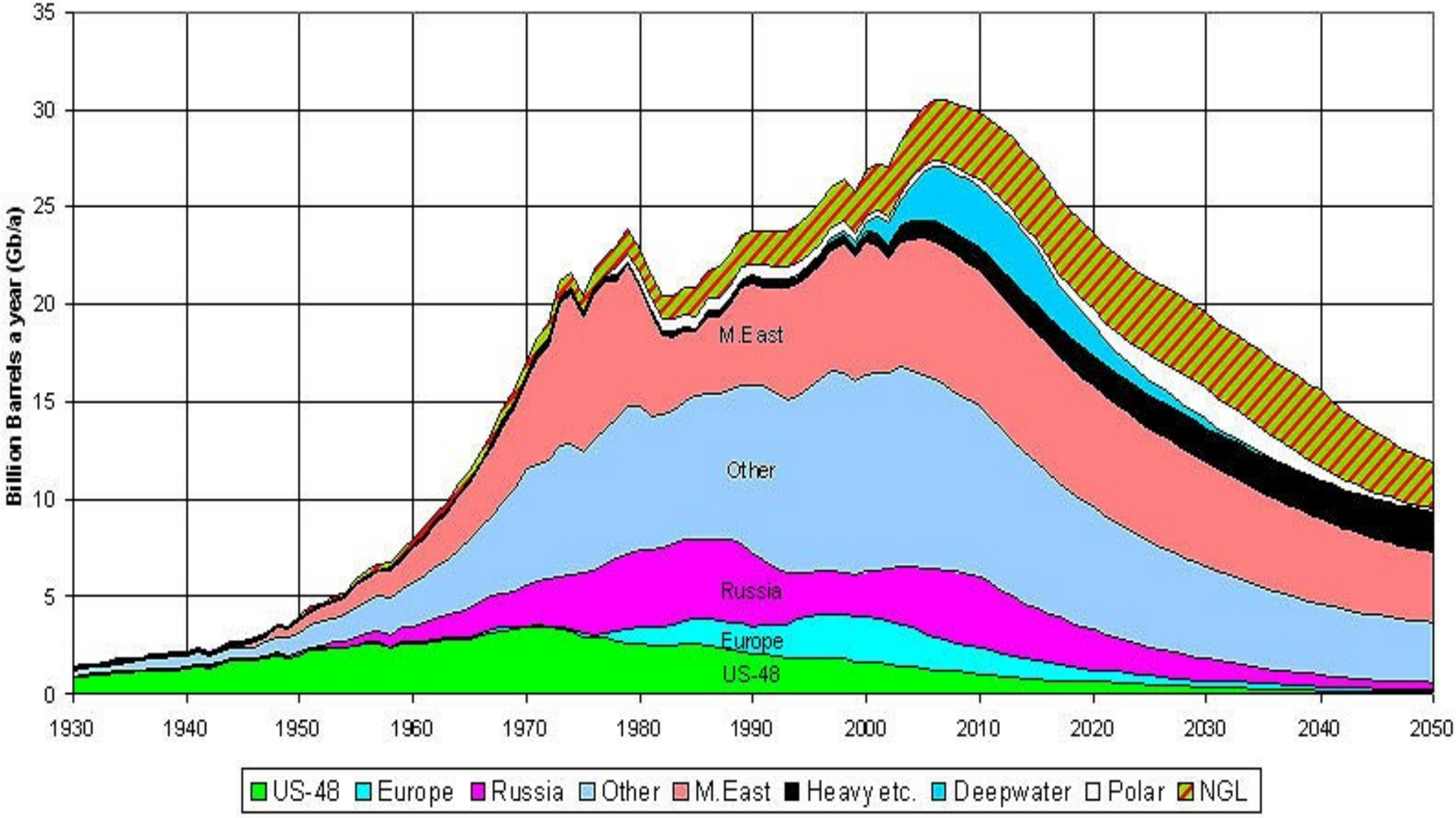
Chris Field, one of the lead authors of the 2007 Intergovernmental Panel on Climate Change (IPCC) report, warns that actual global warming is outpacing their own worst predictions.

“In order to be safe, we would have to reduce our carbon emissions by 70% by 2015.”

Nobel prizewinning atmospheric chemist Prof. Dr. Paul Crutzen


Carbon Dioxide Variations
The Industrial Revolution Has
Caused A Dramatic Rise in CO_2
400
350
300
1000
1200
1400
1600
1800
2000
Year (AD)
Ice Age
Cycles
400
350
300
250
200
CO_2 Concentration (ppmv)
400
300
200
100
0
Thousands of Years Ago

OIL AND GAS LIQUIDS
2004 Scenario



Source: Colin J. Campbell – Uppsala Hydrocarbon Depletion Study Group

PEAK OIL

On 27th Feb 2009 International Energy Agency director Nobuo Tanaka warned that supply from producing oil fields will decline dramatically, and that to offset the decline by 2030 "we need 45 million barrels per day of new capacity, or the equivalent of 4 Saudi Arabias".

www.spiegel.de & www.reuters.com

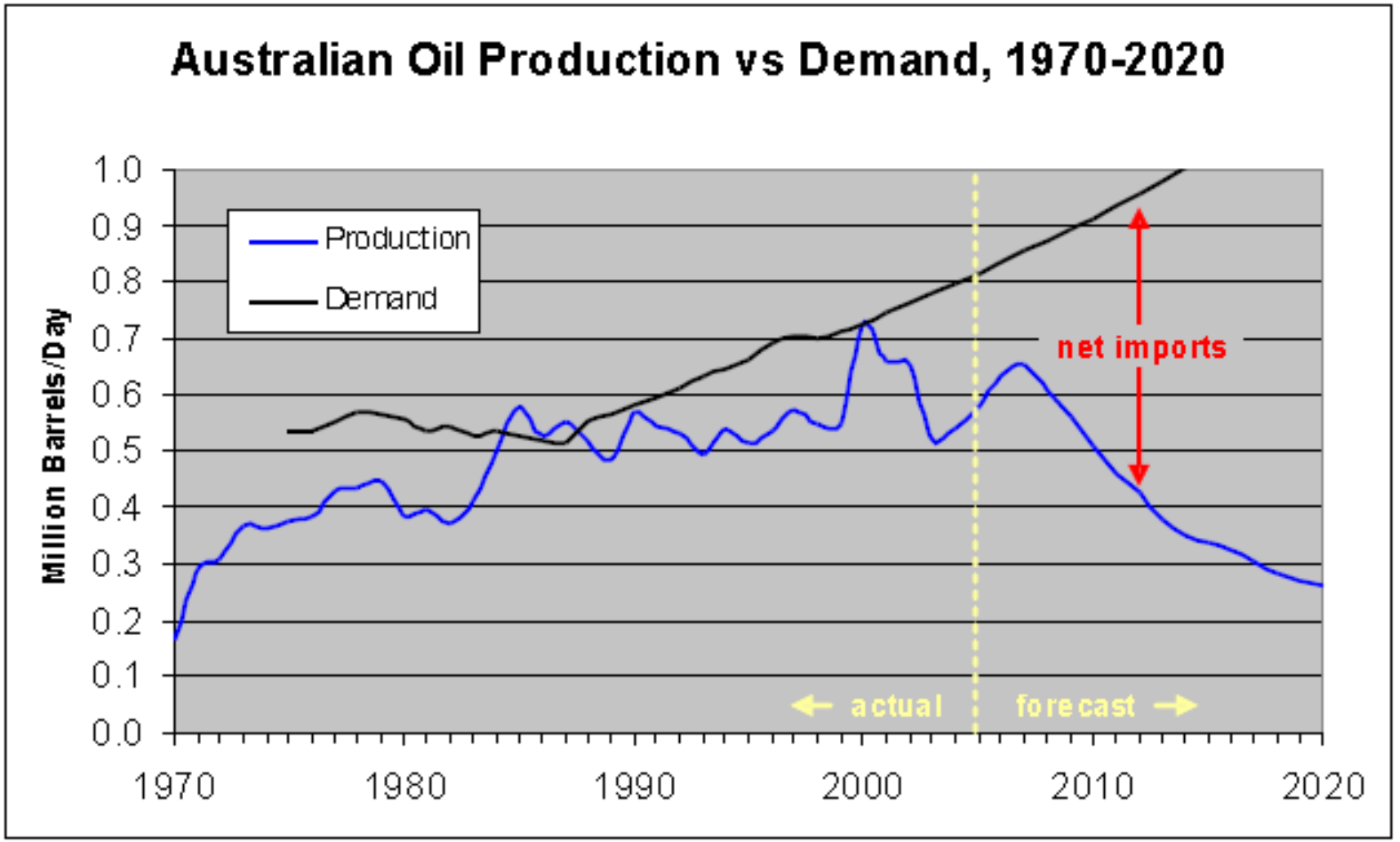
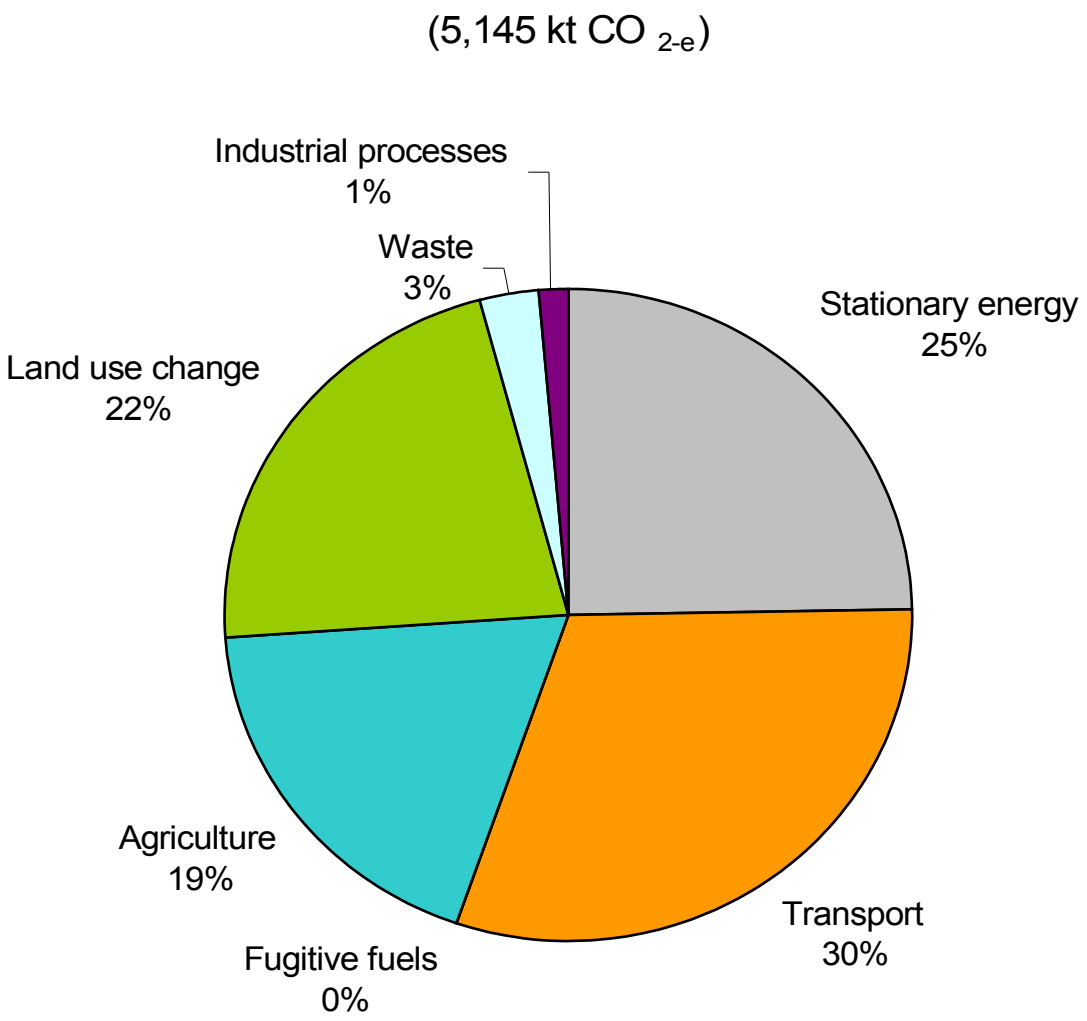


Figure 6. Australian Oil Production (Geoscience Australia, actual and P50 forecast) vs Demand (ABARE), 1970-2030.

Australia's oil trade deficit was $10.85 billion in 2007/08 and is expected to rise to $25 billion by 2015

Breakdown of Wet Tropics Region Greenhouse Gas Emissions by Source (2005) (Marsden Jacob Associates, 2007)



Australia wide, cars alone are contributing more than 50% of total transport emissions

Australian Greenhouse Office

Future Transport Visions

Public transport projects are commenced from 2010 onwards to provide greater speed, reliability, convenience, quality of interconnectivity, security and lower cost, as a way of **making public transport an attractive and socially acceptable option.**

By 2015, the greatly improved public transport services are attracting people from all walks of life. **Large numbers of people decide they do not need to own their own car because of better public transport options.** Many families opt for one car only and all members use public transport as their main mode of travel. **By 2015 individual car ownership is down by almost 40%.**

Future Transport Visions

The requirement for freight transport to achieve very high levels of energy efficiency results in **a shift away from road transport to more domestic goods movements using rail** and sea.

The road transport industry lobby mounts a campaign to 'save' their industry, but they find few supporters in the community because of the belief that **heavy road transport contributes disproportionately to carbon emissions and climate change.**

In addition, the community is no longer prepared to accept large truck on roads due to safety concerns.

Transport Portfolio Scenarios – Department of Main Roads 2000

History

FNQ 2010 Plan – published in Feb 2000

13.7 PUBLIC TRANSPORT

"**AIM:** To provide efficient and effective public transport services that are accessible and attractive as a viable mode of travel within the region."

FNQ 2031 plan – published in Feb 2009

"8.3 Transport infrastructure Objective

• Affordable and efficient air, sea, rail and road transport infrastructure supports a vibrant economy and meets community and tourist needs."

History

FNQ 2010 Plan – published in Feb 2000

13.7 PUBLIC TRANSPORT

"ISSUES:

• The level of public transport usage in the region is currently very low, one percent in the region as a whole and four percent in Cairns (1996)."

Today XXXX % in Cairns is considered to be "XXXXXX"

xxxxxxxxxx source

FNQ 2010 Plan – STRATEGIES:

"3. **Investigate and develop options for improving intraregional public transport services** including consideration of inter-urban and regional bus services, **use of existing heavy rail line network** and integration of different public transport trip functions and interchanges."

"12. Investigate the feasibility for a public rail commuter service between Gordonvale, Redlynch and Cairns CBD, including linkages to urban and economic development activities and ultimate expansion to other regional centres."

The Southern Cairns Land Use and Transport options Study 2002 – SCLUTS report

recommended "the development of the Bruce Highway up to six-lane grade-separated standard, a commuter cycle way, together with a multi-modal eastern corridor with **double track main line railway** and a public transit facility in either corridor"

"4.5 Transport Conclusions

- **Existing main rail corridor (from Gordonvale to Cairns) at a double track standard"**

2005 Cairns Integrated Public Transport Plan

Rail is mentioned only as an option except in the distant future:

"In the analysis both rail and bus options were found to have relatively similar
impacts on the environment. Bus-based technologies are generally far **cheaper** than rail options. The bus option's greatest strengths lie in meeting social, economic and integration criteria. They are **flexible**, providing equitable access and mobility at more affordable rates. Buses are more convenient, able to service the local community and **feed onto the direct line haul routes without interchange**, achieving seamless integration. Buses are better suited to the relatively **low-density settlement pattern for Cairns**. The rail option's strengths were mostly in its user appeal. However, that advantage for rail becomes marginal when buses are able to operate in their own right of way.

Investment in two separate systems in Cairns would waste available funds. Busbased technology is clearly the preferred option."

FNQ 2031 plan – published in Feb 2009:

"Disused cane rail corridors **may ultimately provide opportunities** for future public transport systems to service transit oriented communities and growing urban areas in Cairns."

"Desired regional outcome:
Communities are connected through an integrated transport system that promotes tourism, public transport use, walking and cycling, provides safe, efficient and effective movement of goods and people, and facilitates access to places and services."

Queensland Department of Transport

Proposed Cairns Transit Network

Northern spine

The northern spine will link the Cairns central business district with Palm Cove Beaches via the airport and Smithfield. It is proposed to travel from the central business district to Cairns North, then to Smithfield via the Captain Cook Highway, then to Kewarra Beach and Palm Cove.

Western spine

The western spine will link Earlville with Smithfield via Redlynch. This spine may use parts of the existing cane rail corridor.

Southern spine

The southern spine will link the Cairns central business district with Gordonvale via Earlville and Edmonton. It is proposed to travel from the central business district to Earlville, then to Edmonton via parts of the existing cane rail corridor or Bruce Highway, then to Gordonvale using space set aside during the development of the Mount Peter area.

- Bus Lanes in the Cane Rail Corridors
- Bus Priority lanes along roads
- min 10% public transport by 2036

“it will protect the lifestyle we all love and enjoy, making sure we don’t become just like any other city.”

QLD Transport's main arguments for buses:

- **Flexibility**
  Planners like flexibility, people prefer certainty
- **Cheaper**
  not true if 50 year + life cycle of rail is considered
  also fails to acknowledge existing rail infrastructure
- **Same seat journeys**
  not true with 10% public transport usage
  not enough people go from say
  Brinsmead to Machans every 10-15 minutes
- **Can be built in stages**
  rail can also be built in stages, without affecting road traffic
- **Cairns Population is too small**
  true if we plan for only 10% public transport by 2036
  not true if we plan for min 40% public transport by 2025

Queensland Transport makes us believe that the buses to be used might be 'sleek', 'modern', 'comfortable' and 'give an enjoyable ride' and might even run on 'hydrogen or even electricity'

In reality, Queensland Transport leaves the choice of buses up to the private service provider.

Disadvantages of a bus-only transit system

- Bikes will have to ride next to huge buses roaring past
- Cars are going to use bus lanes or park in them and trucks are going to use them to unload.
- Buses are more susceptible to traffic jams and accidents then trains
- Buses are less reliable then rail
- Diesel buses increase our fossil fuel dependency and CO2 emissions
- Buses require bitumen which heats our city and increases run-off
- Sugar cane cannot be transported by trains any more and would have to be shifted by trucks on roads.

10% public transport by 2036 means 90% private transport

which is probably why
DMR is now planning a ten lane southern access freeway

240 Persons travel
to work:

-- in 177 Cars

-- in 3 Busses

-- in 1 Tram

Peter Newman, Institute for Sustainability and Technology Policy, Murdoch University

MULTIPLE SUSTAINABILITY PROBLEMS OF AUTOMOBILE DEPENDENCE

ENVIRONMENTAL	ECONOMIC	SOCIAL
Oil vulnerability	Highway costs	Loss of community
Smog and CO2	Sprawl costs	Loss of safety
Traffic impacts	External costs	Equity issues
Sprawl into rural land	Loss of land	Accessibility loss
Stormwater	High running costs	Social network loss

Peter Newman, Institute for Sustainability and Technology Policy, Murdoch University

To a lesser, but still significant degree, most of these problems are also applicable to buses

some CAR statistics

Average Capacity: 4-5 people
Average Occupancy: 1.3 people
=> Load factor: 25-33%

Average time used: 1hr/day
=> Time use factor: 4.2%

1% of the energy that is contained in a litre of petrol actually ends up moving the passengers.

Cars require valuable real estate for roads and parking spaces in town and shopping precincts

Car garages at home incur construction costs and require land area

Car accidents are costly to society and other road users

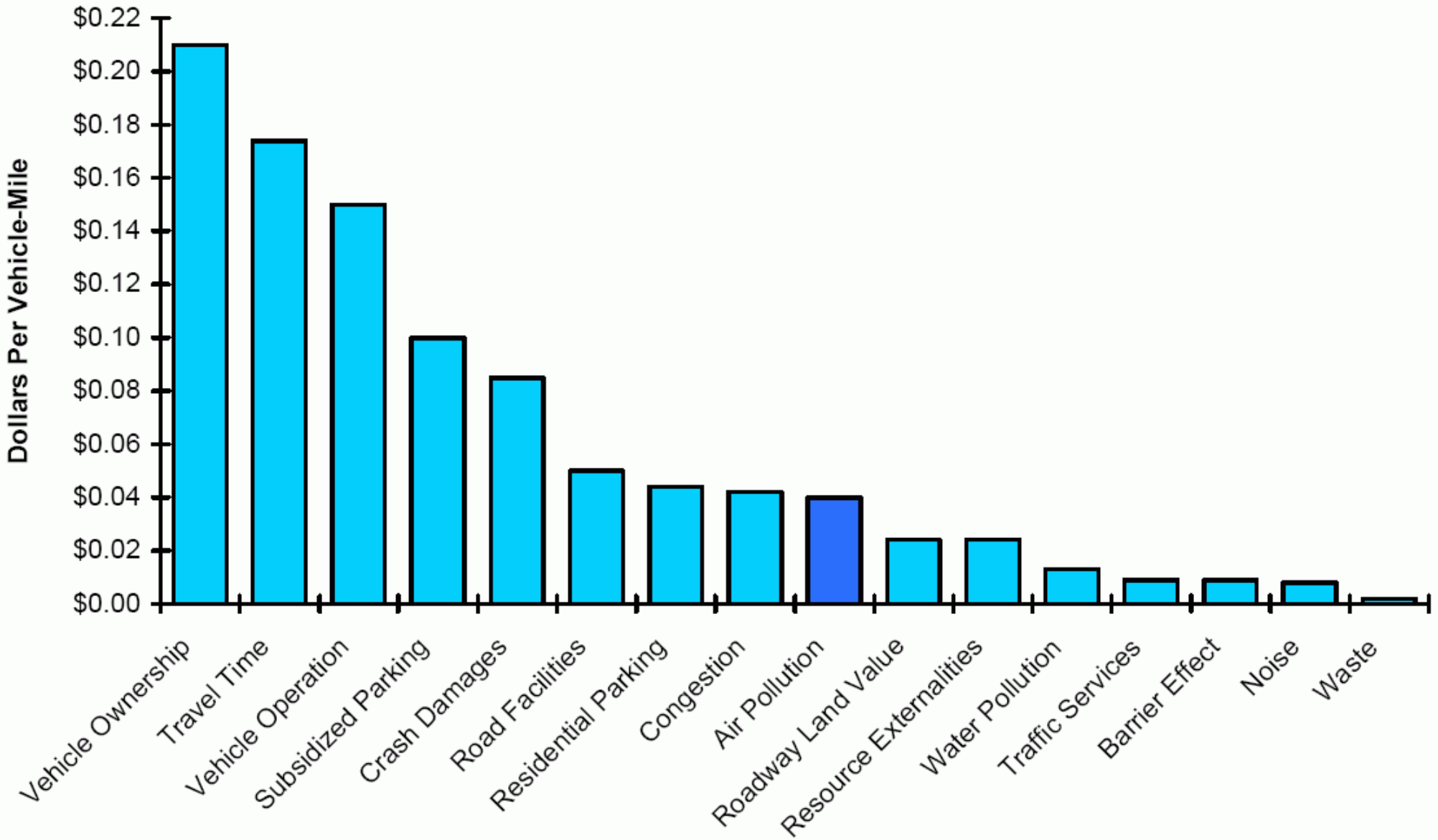
Car usage also increases obesity

An estimated 3.2 million Australians were obese in 2005 at a total financial cost of $3.7 billion to our economy.

by 2025 as many as 28.9% of Australians could be obese.

Access Economics – 2006

Figure 2 **Per-Mile Automobile Costs** (Litman, 2006)



This figure illustrates estimated automobile costs averaged per vehicle-mile.

About US$1.-/mile or nearly A$1/km (@65cents/US$)

In the wider Cairns area (from Gordonvale to Ellis Beach) we have about 140 thousand people. Assuming 80% own cars and drive only 15,000 km/year at a $1.-/km real cost to our economy for those cars this amounts to **about 1.68 billion dollars each year**. This is without any allowance for the cost of obesity, pollution, injuries and death and other flow-on effects. Nor does it account for the cost of transportation for the about 40,000 visitors.

CAST estimates

The cost of building roads is less then ten percent of the real cost of encouraging more cars.

Peter Newman, Institute for Sustainability and Technology Policy, Murdoch University

TRANSPORT IMPROVEMENTS BENEFITS

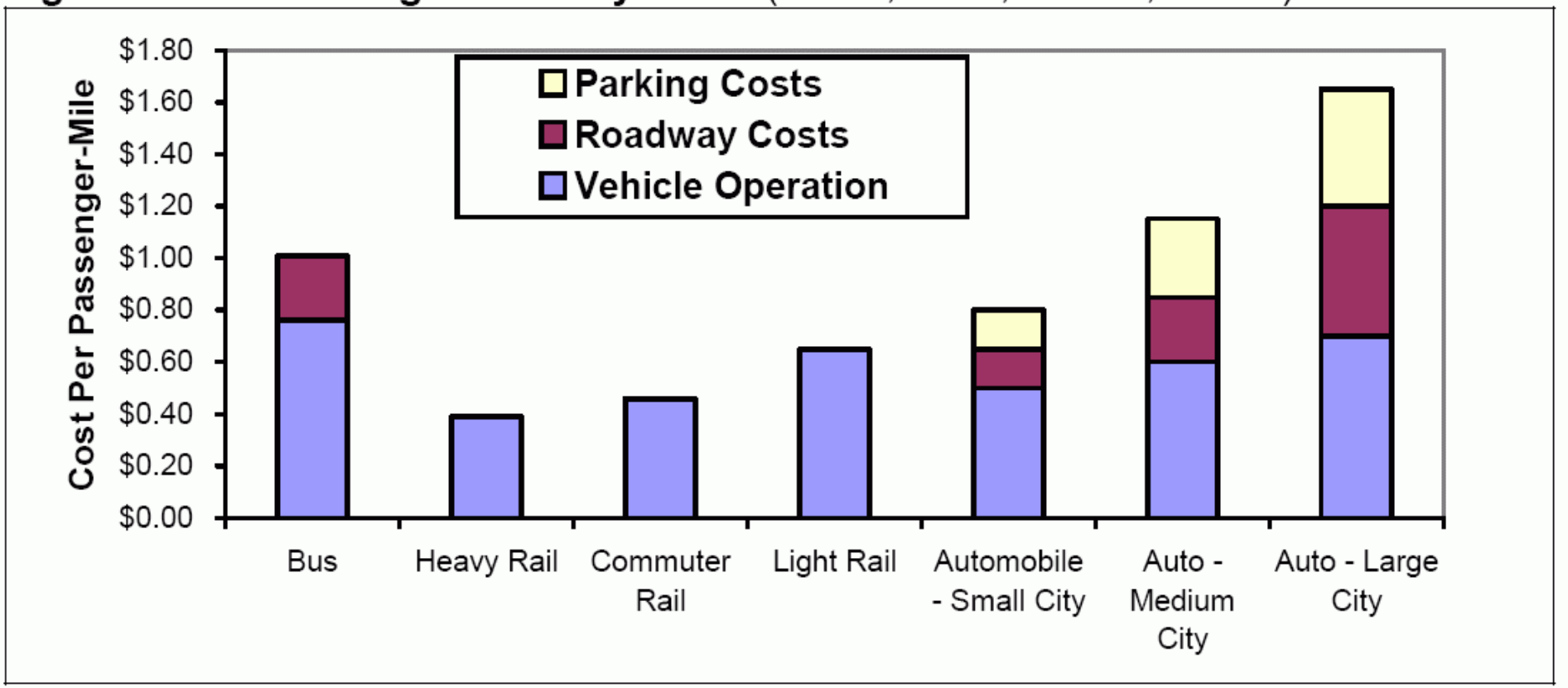
Objectives	Road Expansion	Extra Buses	Extra Trains
Reduce traffic congestion	+	+	++
Reduce parking problems	-	++	++
Reduce traffic accidents	-	+	++
Improve mobility for non-drivers	-	++	++
Consumer savings		+	++
Conserve energy	-	+	++
Reduce pollution	-	+	++
Reduce GHG emissions	-	+	++
More efficient land-use	-	+	++

Advantages of light rail:

- **Inherently faster – steel on steel**
- **Less friction (1/7th) - more energy efficient**
- **Fast acceleration and deceleration**
- **Easier to give priority – less affected by road gridlock**
- **Avoids 'bus bunching'**
- **Can be electric – no fumes**
- **Reduces our oil dependency**
- **Allows for regenerative breaking**
- **Can be powered by renewable energy – zero GHG emissions**
- **More comfortable ride**
- **Fixed and quiet – therefore attracts close development**
- **Facilitates walkable urban design**
- **Capital costs are similar, operating costs are less**
- **Has larger appeal - attracts higher public transport patronage**
- **Helps to turn Cairns into a model for sustainability**

Peter Newman, Institute for Sustainability and Technology Policy, Murdoch University

Figure 2 **Average Costs By Mode** (APTA, 2002; Litman, 2003b)



This figure compares vehicle and facility costs per passenger-mile of various modes. Rail transit costs are usually less than automobile costs, particularly in growing urban areas.

500% return on Rail Investment

Quality rail transit **requires about $95 annually per capita in additional public subsidy**, but **provides direct transportation cost savings that average about $450 annually**, indicating a 500% annual return on investment (Litman, 2004a).

Rail transit also tends to increase regional employment, business activity and productivity by reducing fuel and vehicle import costs, and shifting consumer expenditures to more locally-produced goods

("Economic Development Impacts," VTPI, 2005)

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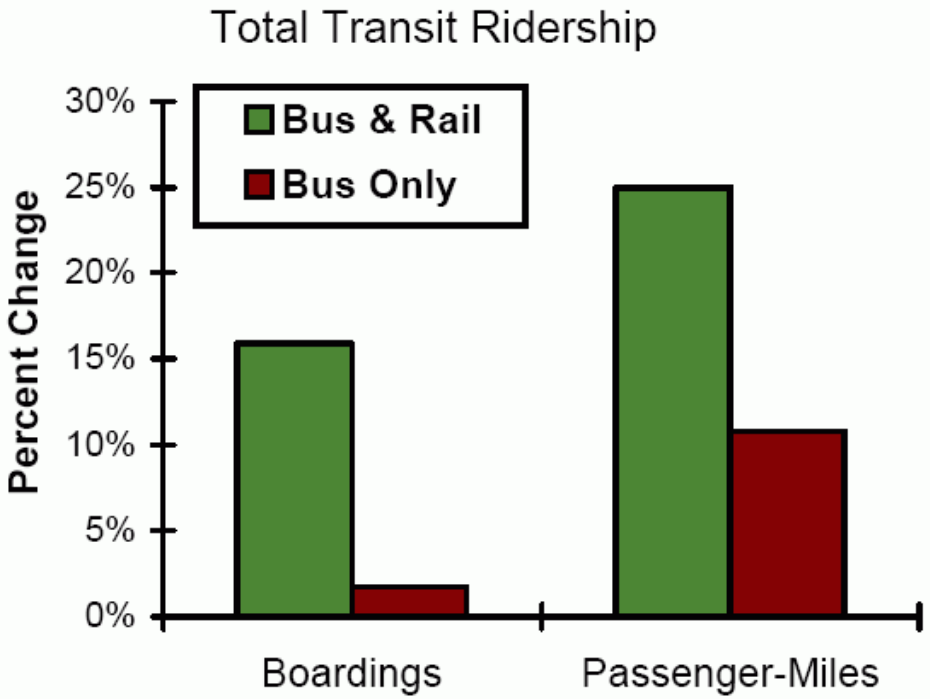
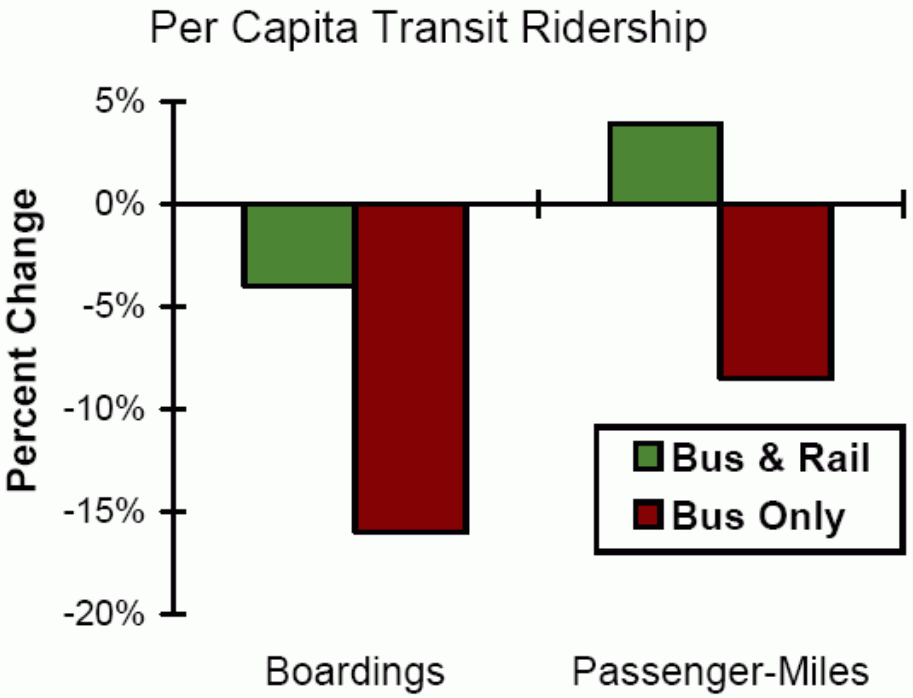
Figure 3 **Changes in Transit Ridership – 1996 to 2003** (Henry and Litman, 2006)



Total transit use increased much faster in cities that have new or expanded rail service than in cities that only expanded bus service.



Per capita transit use declined less or increased in cities that expanded rail service compared with cities that only expanded bus service.

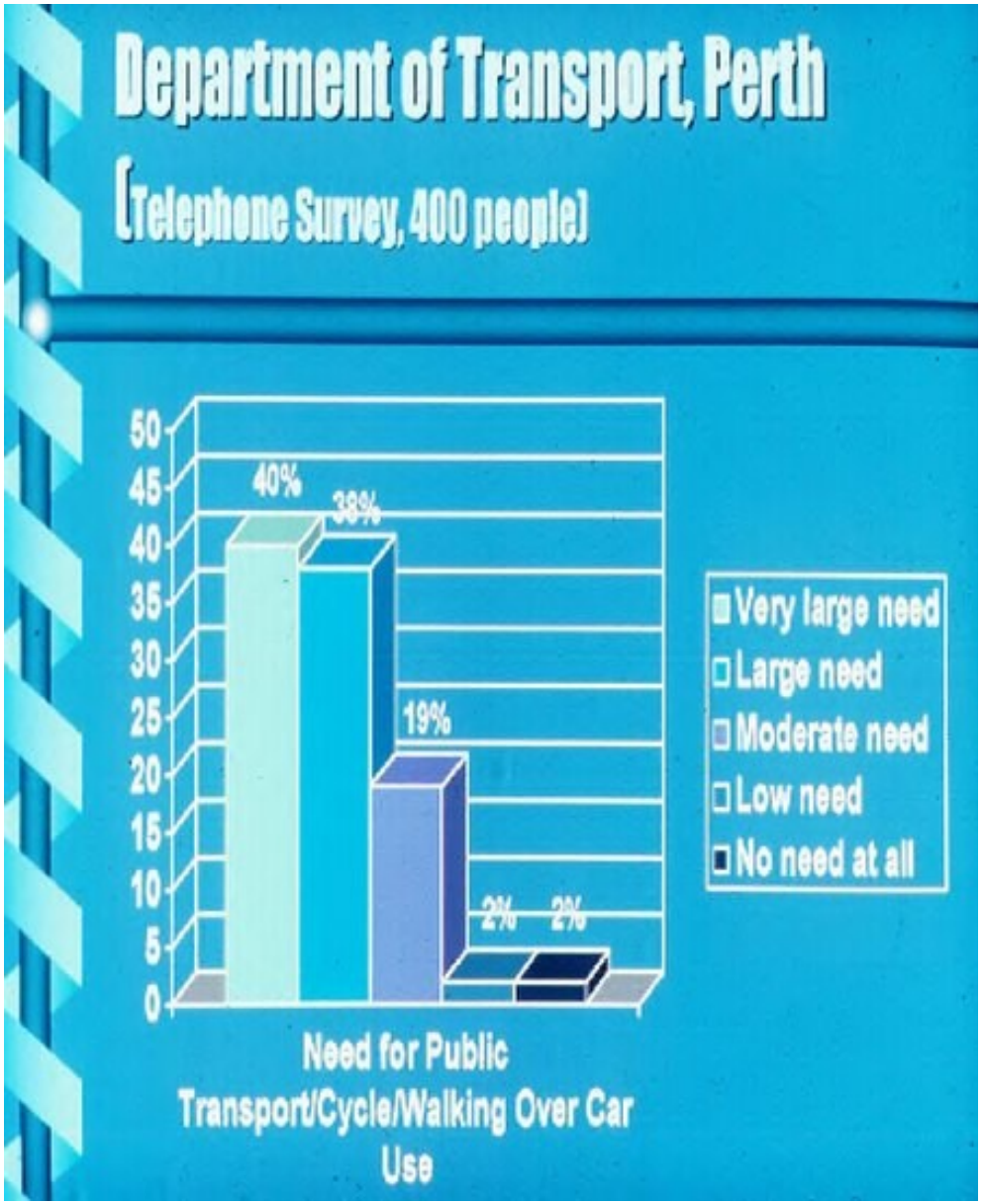
JOB CREATION

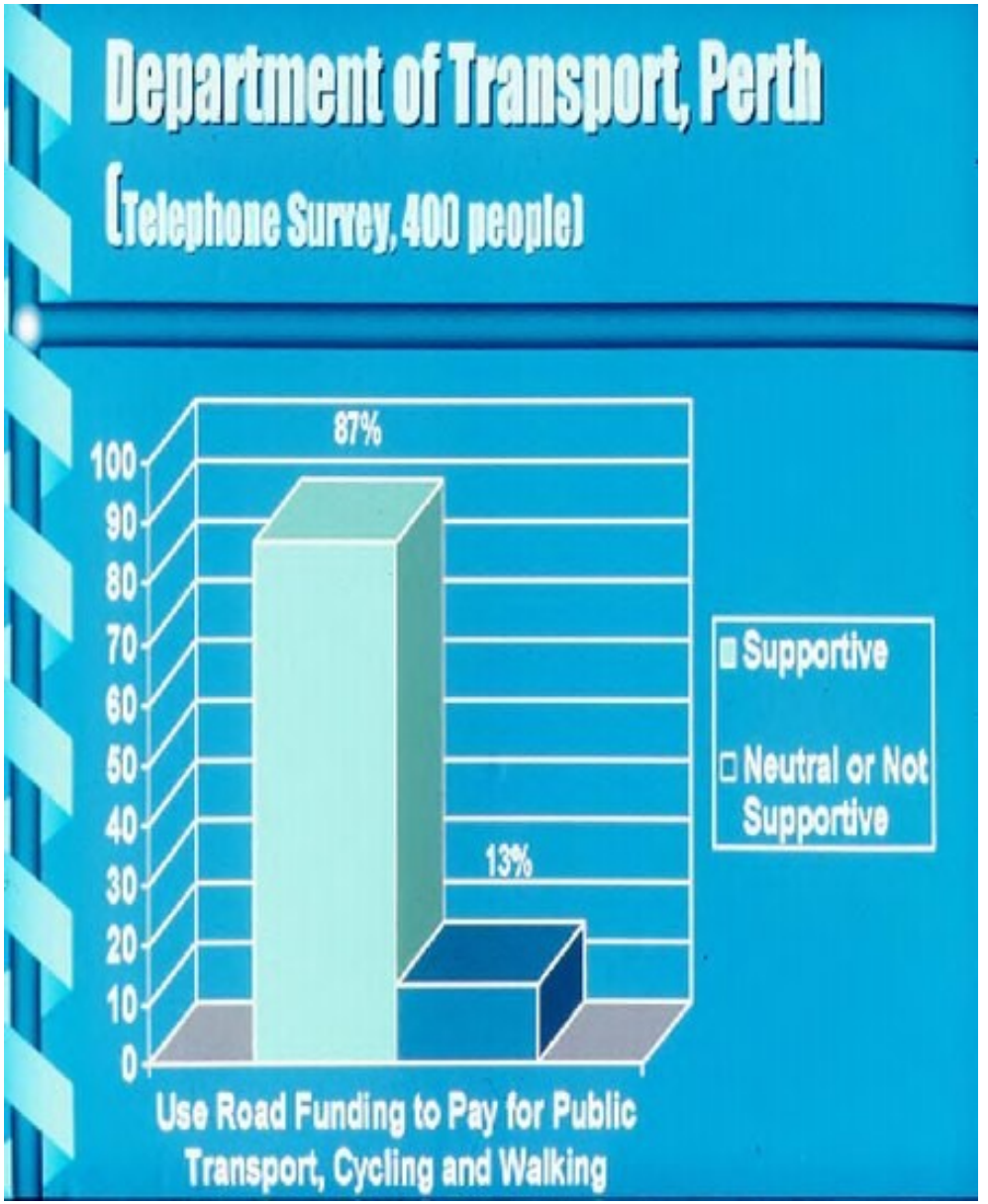
Each million dollar shifted from purchasing fuel to a typical bundle of consumer goods creates 4.5 jobs, and this is likely to increase significantly as international oil prices rise and domestic production declines.

Each million dollars shifted from general motor vehicle expenditures (purchase of vehicles, servicing, insurance, etc.) adds about 3.6 jobs.

Public transit operations
create a particularly large number of jobs.

What do the People want?





Politicians seem to believe that people do not want to give up their cars

THEY ARE WRONG

74% of respondents to an October 2007 survey by the FNQ2025 planners said they are prepared to use an alternative form of transport to a car

CAST proposal for a comprehensive, efficient and integrated Cairns Public Transport system:

- Pro-active supply of public transport rather than waiting before demand grows
demand will grow once there is a fast, efficient and user friendly system available

- Aim for a 40% public transport patronage by 2025
Anything less is condemning people to use cars despite Peak Oil and Global Warming and fails to provide solutions to these problems

Duplicate the existing rail track and provide frequent services along the central rail spines (every 5-15 min)

Once the electricity is provided by renewable energies we will have a zero CO2 transport system

Tram-Trains can use existing rail corridors as well as extend onto roads

- Zero pollution and quiet
- Fast and smooth acceleration
- Zero greenhouse emissions if powered by renewable energy
- Easy access and user friendly
- Permanent, reliable routes
- Allows high frequency
- Can accommodate bicycles

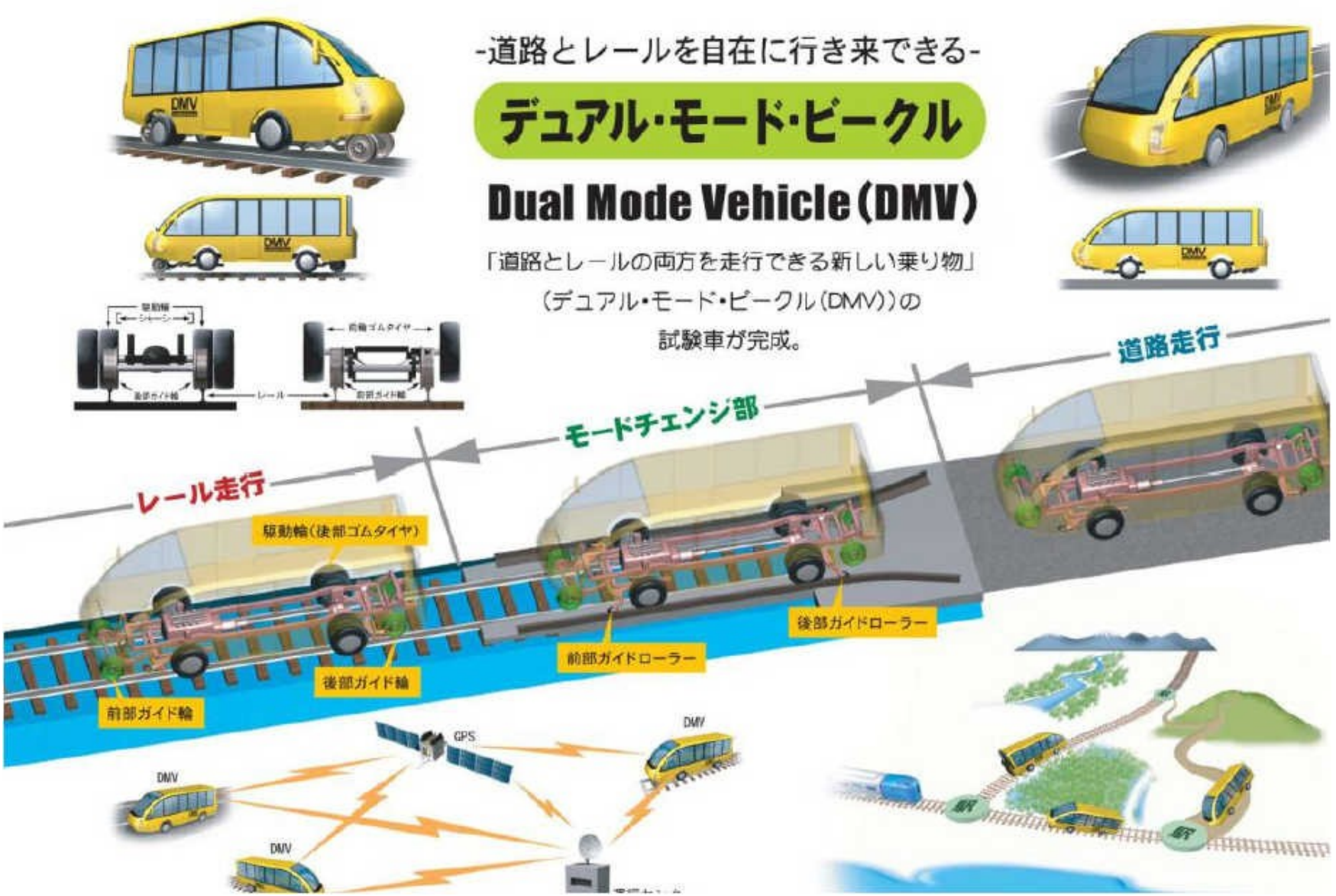
Small electric shuttle buses shall be used for frequent runs from the rail spine into suburbs

Bus stops and battery exchange facilities at each railway station will required much less space than 'park 'n ride' facilities would.

Buses powered by compressed air shall also be investigated and show-cased

Air-powered buses have free air conditioning as the compressed air typically leaves the 'engine' at very low temperatures (-10 degrees Celsius)

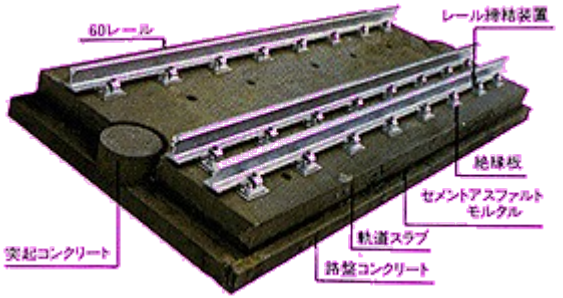
Dual Mode Buses



Provide bike facilities on trains to encourage Bike 'n Ride

Provide bike parking facilities at railway stations

In the existing sugar cane rail corridors, triple gauge track can be installed after the harvest season, allowing the corridors to be used by trams and cane trains



This can be done outside of the crushing season without interruption to cane-hauling or car traffic

Create pedestrian areas to facilitate a high quality of life and encourage active transport to facilitate a healthy life style

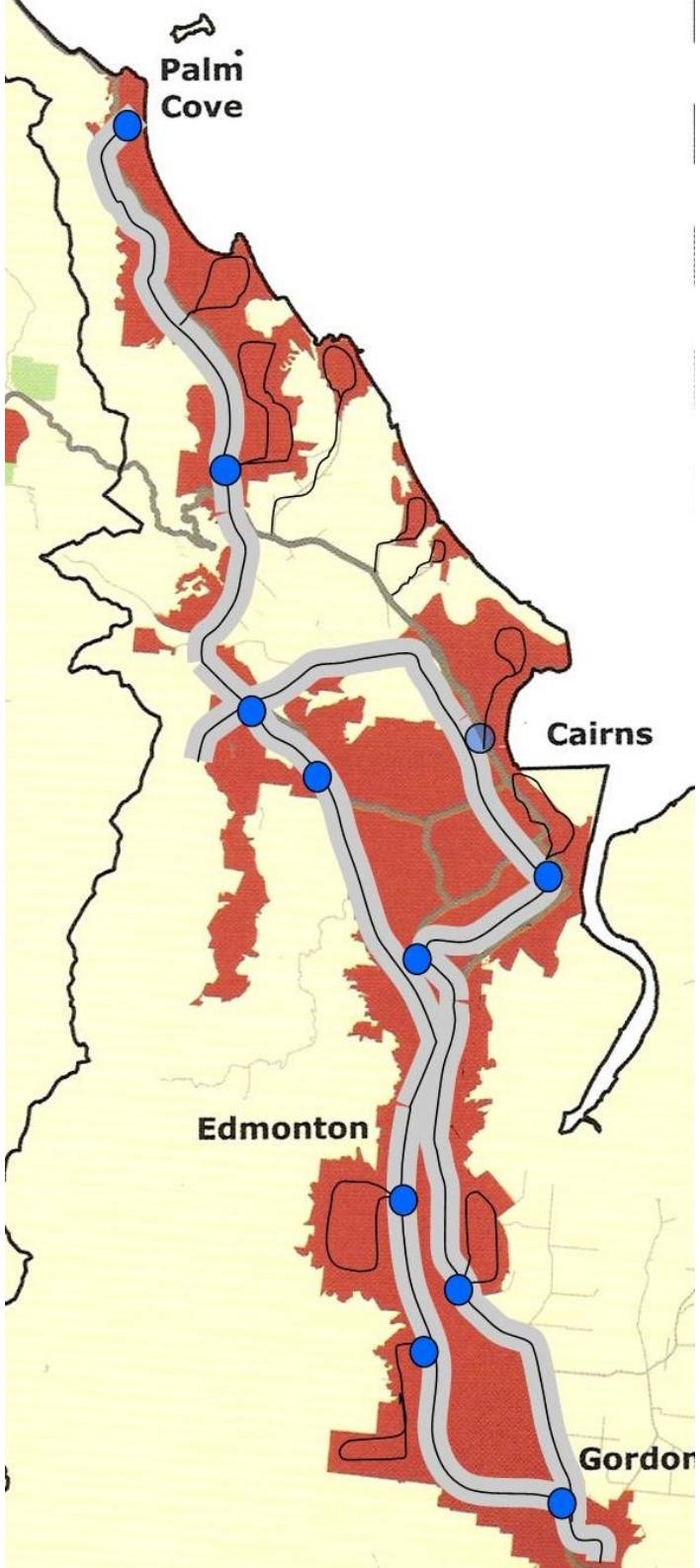
Pro-active, efficient and reliable public transport also helps us to reclaim urban space

People will own fewer vehicles,
drive fewer annual miles,
rely more on walking and transit for transportation.

People experience less traffic congestion,
fewer traffic accidents,
reduced energy consumption and pollution emissions,
improved fitness,
and household travel cost savings.

People avoid the air and noise pollution
enjoy more comfortable vehicles & higher travel speeds,
enjoy more frequent service & better stations.

As a result, rail tends to attract more discretionary riders
who would otherwise drive.

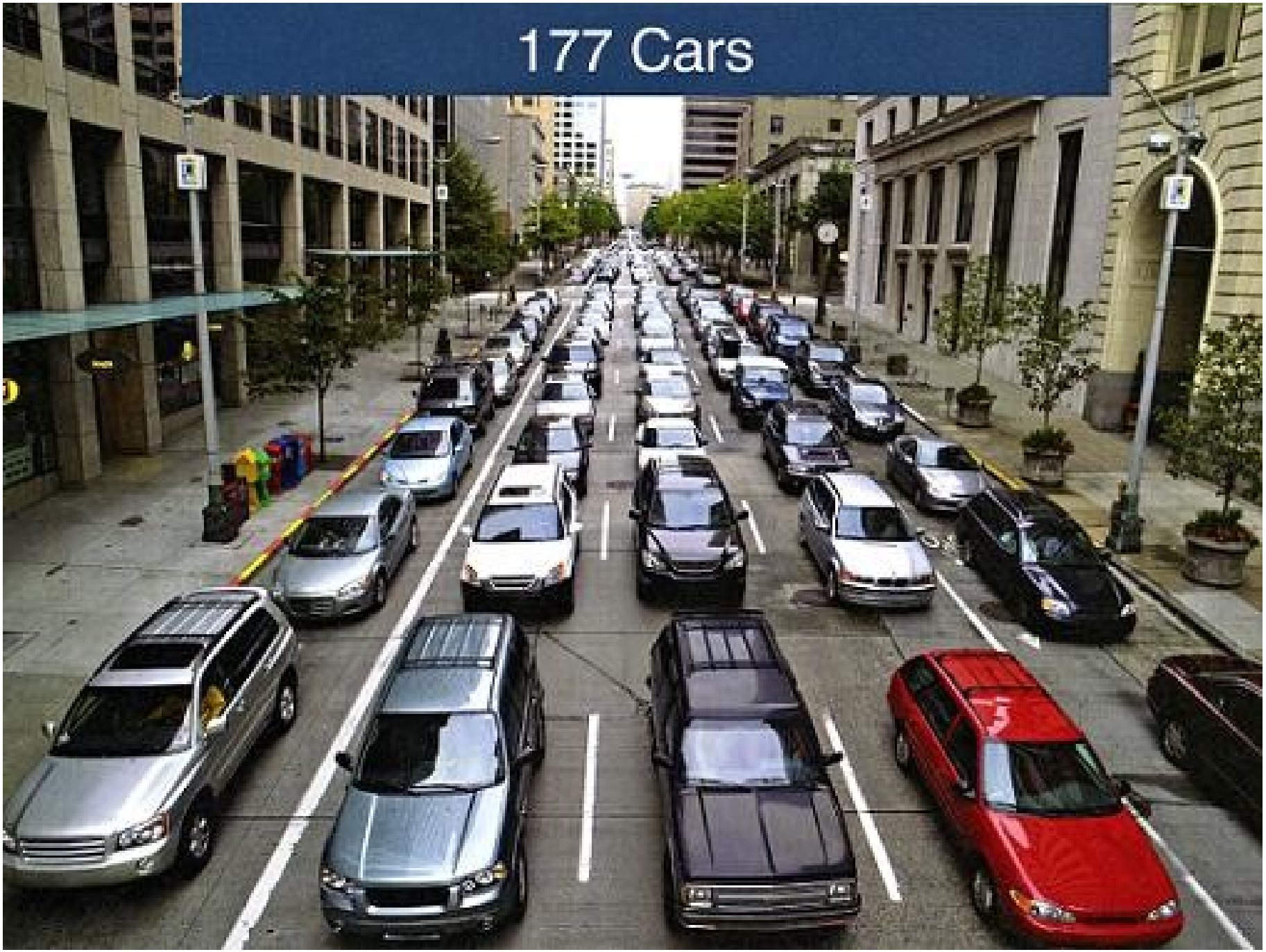


CAST Proposal

for the Cairns Transit Network

- Pro-active supply of efficient and effective public transport
- Aim for 40% public transport patronage by 2025
- Dual track rail spines utilising existing rail corridors.
- Electric shuttle buses connect the rail-spine with the suburbs
- Integrated active transport incl. bike facilities on trains
- Install triple gauge to allow sugar trains to continue
- Expand pedestrian zones

www.takesteps.org/cast


177 Cars

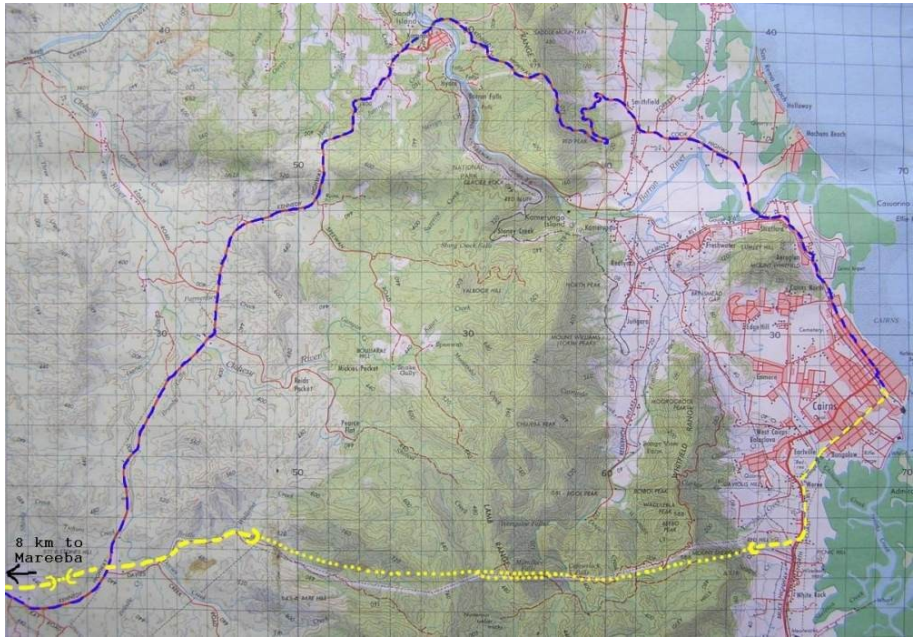

One Light Rail Train

CAST proposes to use the Kuranda train for commuting to and from Gordonvale

	Two Morning Trains			Two Afternoon Trains	
Gordonvale	**7:15 DEP**	**8:15 DEP**	Kuranda	14:00 DEP	15:30 DEP
Cairns	**7:50 ARR**	**8:50 ARR**	Freshwater	15:25 ARR	16:55 ARR
Cairns	8:30 DEP	9:30 DEP	Cairns	15:45 ARR	17:15 ARR
Freshwater	8:50 DEP	9:50 DEP	**Cairns**	**16:15 DEP**	**17:25 DEP**
Kuranda	10:15 ARR	11:15 ARR	**Gordonvale**	**16:50 ARR**	**18:00 ARR**

To be successful such a service needs to be cheap,
well advertised,
supported by shuttle buses,
and allow for the carriage of bicycles

CAST PROPOSAL
Cairns Southern Rail tunnel



- an extra access to the Tablelands
- ~30 minutes travelling time from Mareeba
- provides Cairns with a safe and reliable evacuation route
- reduces our area's dependency on oil
- CO2 emissions will be significantly reduced
- minimal impact on World Heritage Area
- allows for future airport on Tablelands
- can transport several hundred thousand people a day
- can be financed with private money

In Switzerland a 23km rail tunnel was built for about A$ 750 million including a 2km passing section, rail, electrification, all fittings and two trains
(Rhätische Bahn, Switzerland)

VFT to Melbourne

Queensland spends big on Rail for Coal

The QLD Coal Infrastructure Program increased from $4.2 billion in 2005 to $19.3 billion in 2008.
$7.7 billion of this is for rail.

http://www.dip.qld.gov.au/resources/publication/coal-infrastructure-2008.pdf

Queensland royalty revenue from coal in 2005-06: A$ 1.15 billion

http://www.dme.qld.gov.au/zone_files/coal_stats_pdf/table_4mp.pdf