

Urban Congestion

John Stanley
Bus Association Victoria

Scope

1. Identify sustainability goals for Australian cities
2. Discuss congestion as an aspect of sustainability
3. Outline some directions for dealing with congestion and broader sustainability, focussing on
 - improved road pricing systems
 - better transport land use integration
 - improved travel alternatives
 - institutional change

(1) What is a sustainable city from a transport perspective?

- Economic = ensures travel needs are met efficiently and in a manner that supports a dynamic economy
- Social = ensures basic access is available to all, with acceptable safety
- Environment = manages emissions to meet air quality goals and climate change targets (as they evolve over time)

(2) Sustainability assessment.

Economic efficiency: congestion

- Congestion = a major economic drain, costing about \$A4b, maybe more, annually in Melbourne
 - over half business costs
 - growing fast (~\$20b nationally)
- Solutions will be city-specific but require a national pricing framework for their resolution

Economics: dynamic economies

- Knowledge-intensive/creative industries are central to national economic growth prospects
- Cities are their seed beds
- Accessibility and quality of life elements are key locational influences (liveability)
- Traffic congestion, air pollution and poor access to public transport are negatives

(3) An integrated approach to reducing urban congestion

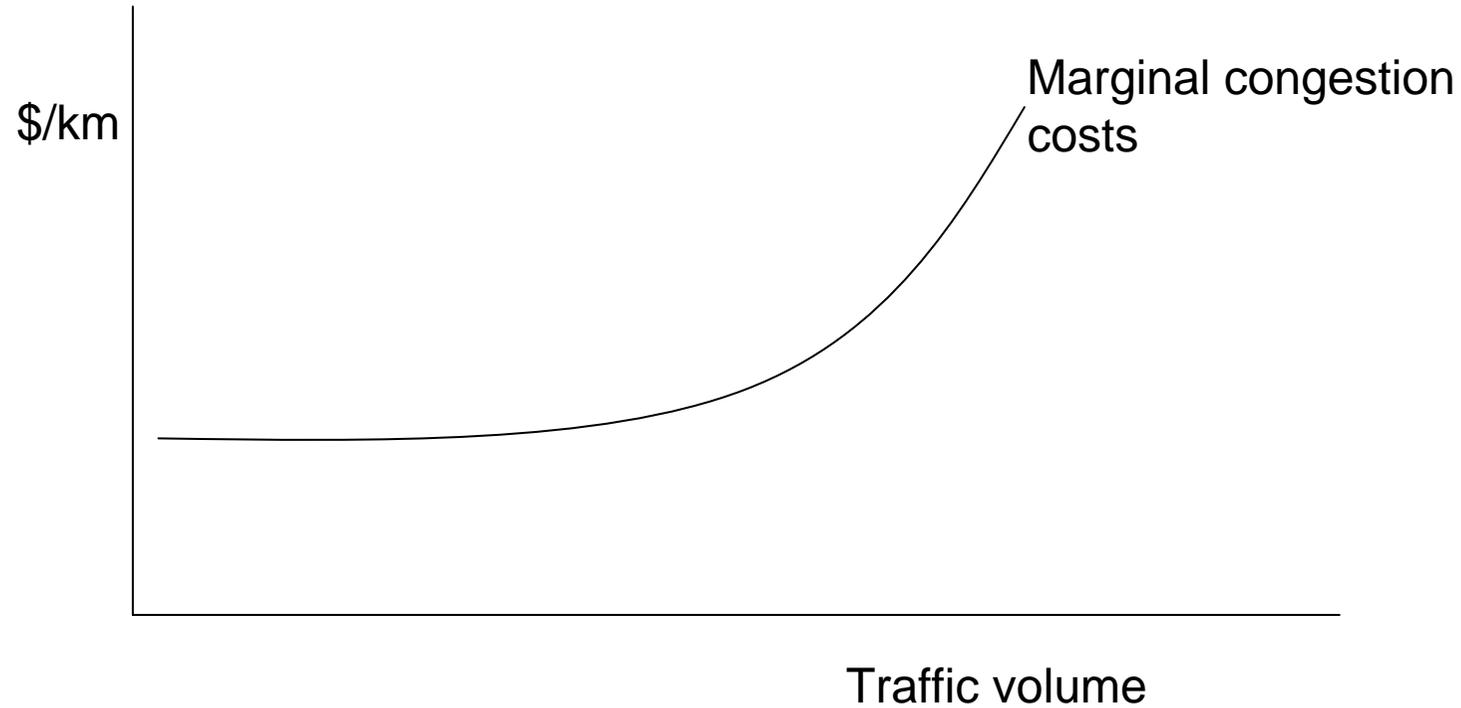
1. Road pricing reform
2. Better land use/transport integration
3. Improving public transport service level

These levers, used in concert, will substantially improve sustainability

(3.1) Basic transport pricing principles

- Efficient road (transport) pricing requires that users be charged for the costs their travel choices impose on others
- Except if there are social reasons for varying this principle
- Are there external benefits from road use?

Congestion cost curve



Road pricing in Australia

- Only heavy vehicles are explicitly charged for road use in Australia and only then for “averaged” road damage costs (under NRTC/NTC pricing)
- If marginal external costs are considered, compared to fuel taxes paid
 - rural car users pay too much
 - car/truck users on congested roads do not pay enough
 - trucks probably do not pay enough in regional areas (after fuel rebate)

Implications of more efficient road pricing

- Demand for rural car use would increase but rural truck growth would probably slow
- Demand for metro road use would decline (e.g. better freight distribution decisions)
 - under-pricing has encouraged excessive road traffic growth
- Congestion levels and costs would decrease
- Get the prices for road use right then assess road infrastructure upgrade requirements

Congestion pricing

- Congestion costs are easily the single most significant “unpriced” cost of road use
 - probably ~\$20b annually in Australia at present
 - projected to be \$30b by 2015 (BTRE)
 - nationally significant
- Embedding these costs in user charges faces two major problems:
 1. the technical problems of implementing a user charging system
 2. political acceptability

It's happening

- London central area scheme
 - minor fall in total trips but traffic down 18% and large switch to bus (+35%)
 - initial scheme widely supported and extended
- Stockholm
 - trial scheme recently extended
 - through traffic down 25%, bus use up
- Singapore
 - more sensitive pricing scheme

UK national road pricing scheme

- Under active consideration
- Potential to cut congestion by about half, for only about 3-4% reduction in urban traffic levels (£10-12b annual benefits; gross revenues ~£9b p.a.)
- With charges capped at £0.80/km
- And the maximum charge only being paid by ~1/2% of traffic
- Remember our roads in the school holidays!!!

Improving road pricing in Australia

- Sharpen pricing for heavy vehicles
 - adding an externality component (exc. congestion)
- Extend the application of parking levies in central areas and adjust to better reflect congestion costs
- Extend charging to most congested sections of existing freeways (e.g. High Occupancy Toll lanes)
- Review overall national road pricing through ATC
 - as one part of a new Intergovernmental Agreement on Land Transport
 - include a focus on requirements for eventual implementation of congestion charging

(3.2) Transport/land use integration

- Sustainable urban transport systems require and enhance sustainable urban development patterns
 - to improve accessibility, reduce the need to travel and facilitate travel by low impact modes
- Urban congestion partly reflects poor transport/land use integration
- Selectively increased settlement densities are central to more sustainable outcomes (whatever your views of Melbourne 2030)

Strategic LUTI

- Melbourne 2030
 - aims to protect the liveability of established areas and increasingly channel growth into strategic redevelopment sites (activity centres)
 - supported by an expanded/attractive PT system
- M2030 subject to much criticism over (for example)
 - whether it is achievable (e.g. Birrell et al)
 - whether the Government itself is supporting it fully
- What can we learn from overseas?

Curitiba (Brazil)

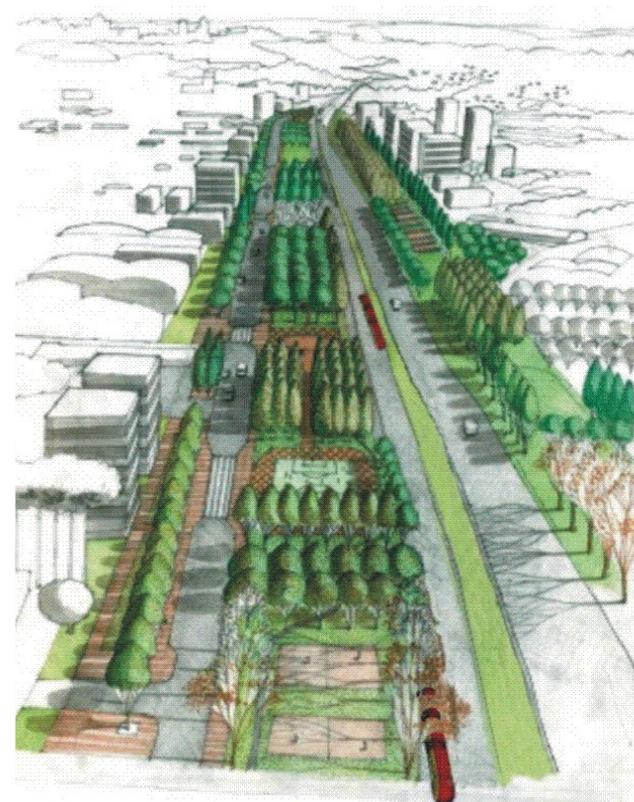
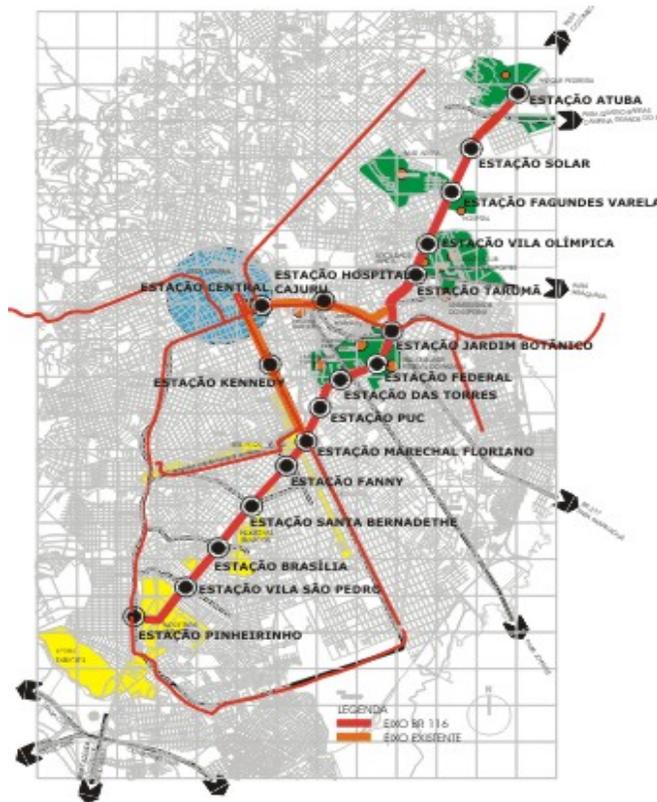
- Metro Curitiba has about 2.8m people
- Rapid population growth (7% in '50s; 6% '60s and '70s)
 - massive pressure on infrastructure/services
- Same master planning guidelines for 40 years
 - managed by the Inst. of Urban Research and Planning of Curitiba



The linear city

- Growth channeled into the downtown core and structural axes (a linear city), for sustainability
 - with range of local services/amenities, extensive green space provision, pedestrianisation of downtown, incentives for heritage conservation and green space
- 3 key structural axes, based along the world's first BRT
 - with circle lines forming a network web
 - land use controls require high density activities to be along axes; surrounded by medium/lower density (Hong Kong to LA!)
 - new transport axis being added, converting an old national road

The new metropolitan axis



Some aspects of the plan

- Limited central area growth
 - partly closed to vehicular traffic; pedestrianised
- Encouraged growth along transport axes
- Land within 2 blocks zoned for mixed commercial-residential use, then densities taper
- Local community self-sufficiency in services encouraged
- IPPUC must approve new shopping centres; chaneled to transit corridors
- Limited, expensive parking
- Employer PT subsidies for workers

Outcomes

- Internationally recognised for urban planning, transportation, waste management, environmental management, cross-sectoral integration
- 33% PT mode share in broader Curitiba
- Peak 2-way BRT loading of 35,000/persons/hr
- More cars per capita than any Brazilian city except Brasilia, yet 75% commute by bus
- One of lowest air pollution levels in Brazil
- Fuel use 30% below comparable Brazilian cities
- Only 10% of household incomes spent on transport

Vancouver: the world's most liveable city!



Vancouver

- Major focus on liveability and sustainability from the 60s
- Vision supported by policies and strategic plans across governments
- Seen as a successful model for
 - consultative, community-based urban and transport planning
 - integrated PT planning and co-ordination
 - a competitive high growth economy

Liveable Region Strategic Plan 1995

- The land use outcome from the 1990 *Creating Our Future* document
- Four fundamental strategies (interdependent and consistent)
 - protect the green zone
 - build Complete Communities
 - achieve a Compact Metropolitan region
 - increase Transportation Choice
- Within these 4 areas, the SP establishes clear objectives and identifies the partnerships needed to achieve them

Transport strategies/plans

- Early decision (1960s) to not build freeways in the city
- Regional Transportation Plan (*Transport 2021*, prepared in 1994)
 - emphasis on partnerships; pursue TDM
 - promoting a transit-oriented and auto restrained transport system, based on intermediate capacity systems
 - provide flexible local services to support complete communities and a compact metro region
 - road capacity to favour HOV, freight, inter-regional flows
 - enhance local streets and infrastructure for transit, bicycle and pedestrian use

Results

- High livability (now rated higher than Melbourne)
- Relatively concentrated housing, population and jobs assists (65% of population growth is in growth concentration areas – target was 70%)
 - but considerable job growth in poor PT areas
- Good PT modal share but below 2006 target (peak 11-12%, cf. 17% target)
- Only limited implementation of TDM
- Rapid transit roll-out below target
- Road program also behind target

Some key LUTI issues raised by these case studies

- Vision, strategy and the system design grunt to see it through long term are central
- Foundation in community values important
- Champions can be vital
- Local government driven
- Transport can contribute a lot in isolation but needs land use integration for maximum impact
- How do you sustain commitment over the long term?

(3.3) Improved travel alternatives

- Requires
 - increased PT service frequency and coverage, especially in middle and outer suburbs (equity),
 - increased reliability (priority access; better connectivity), esp. middle/inner suburbs (congestion)
 - better information and marketing
- = **public transport performance that is more competitive with the car**

Meeting our Transport Challenges does this for Melbourne

Conclusions

- The scale of our congestion costs is a major indicator of unsustainable land transport systems
- Radical changes are needed
- *Melbourne 2030* and *Meeting our Transport Challenges* are a good start
- New partnerships and greater community engagement are needed to achieve buy-in on more sustainable settlement patterns (bottom-up and top-down)
- Local government should play a larger role in metro LUTI
- Road pricing reform is central
- The impacts on our cities are such that Canberra must be involved