Response To *Challenge Melbourne*

**A Submission by the
Town and Country Planning Association**

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1 Planning Process

We welcome the initiative of the Department of Infrastructure to hold a large number of community forums, which allowed members of the public to identify their key areas of concern. We hope that the issues raised by the public are adequately addressed in the strategy, and are not over-ridden by pre-existing plans.

Planning process and rules should acquire an overall manageable transcendence whereby outcomes can be measured against important goals such as:
- urban consolidation;
- management of road travel to stay within chosen goal limits;
- energy-use;
- greenhouse gas emissions.

The DoI's triangle of interactions of the principles of Environmental integrity, Economic vitality and Social well being is useful, but with the substitution of "environmental integrity" by "environmental sustainability". We would call this the *"Triad of Good Principles"*. Thus changes to goals proposed in any category of one of the triad principles can and should be evaluated according to the other two principles of the triad. Thus, a proposed goal should be adopted as government policy only when the objective is firstly feasible within the necessary time frame, and secondly supports/is in accordance with the requirements of the other principles.

Such principles should have attached to them criteria about phenomena based upon sound empirical research, i.e. be reality-based. Where there is uncertainty about the phenomena (as there usually is in forward strategic planning), sound risk management principles and methodology should be employed.

RISK-BASED PLANNING

Managing risk with an "energy security strategy" for coping with climate change, oil depletion and failure of technological panaceas in response is absolutely necessary for Victoria, indeed for the entire industrialised world.   Risk management is dealing with the real world of uncertainty of the future[1]. All the elements in land–use and transport planning have considerable uncertainty, and are not as clearly deterministic as conventional planners believe.   Risk is basically the measure of severity or exposure impact of an (usually undesirable) event multiplied by the likelihood of that event occurring with that measure of severity. (Refer Appendix A, p.8).

The issues in land-use and transport planning in Australia have to do with:
- negative economic impacts of higher cost substitutes for declining global petroleum supply;

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[1] Standards Australia, 1999. *AS/NZS 4360:1999 Risk Management*. Melbourne

- negative economic impacts of Australia's declining oil production (thus increased imports) such as increased interest rates for foreign exchange borrowing passed onto Australian debtors;
- exposure to lack of timely available energy substitutes, as hoped-for energy techonology solutions fail to materialise (thus, impacts of crash-change conservation);
- exposure to negative impacts of climatic change in Australia and Victoria;
- exposure to increased unemployment and social dislocation caused by any of the above; and
- exposure to avoidable increases in unemployment from adopting inappropriate and excessive response strategies in environmental protection (cost of reacting to "false alarm").

To date, no actual risk impact assessments have been made of transport planning in Victoria (such as Scoresby Transport Corridor), and there are no contingency plans in place to deal with global market failure in the supply of affordably-priced automotive fuels (see also p.8). Energy supply for the current and extrapolated patterns of transportation and industry has been assumed by Victorian state planning authorities as being fully assured at current pricing levels. This is an unsupportable assumption.

The strategic plan should be a living document that is periodically reassessed to compare objectives with outcomes. The plan should incorporate a process of continuous improvement, based upon the findings of data collection, research and public opinion surveys. Performance of the strategic planning process and goals should be subject to annual reviews. The structure and criteria of performance should be set out as public information, and be based on best corporate and public governance practices.

The principles, broad objectives, criteria adopted, planning methodologies utilised and performance measurement processes should be built into the appropriate planning legislation and/or the attached statutory regulations, and be legally binding upon state government ministries and upon local governments. All of the above should be transparent to the public.

The output of the above strategy framework should be workable templates of rules and prototype concepts. These templates should guide or else control the decision-making by state government departments, local councils and state utilities (e.g. Melbourne Parks, Ports and Harbours Department), and should guide and stimulate the land subdivision and development industry sectors.

We particularly disagree with the direction and results of the changes to the planning frameworks in Victoria during the 1990s. *Living Suburbs*, and its conjugate transport strategy *Transporting Melbourne* both failed to deliver durable and sustainable patterns of land-use. These policies failed in both their vision and in their excessive devolution of essential controls to local councils, or else no qualitative controls at all over developers. Whilst the District Centres policy of the 1980s was excessively prescriptive, it had the virtue of recognising the fundamental benefit of consolidating intensive travel-generating land-use

activities in central, suburban and regional commercial and civic nodes coordinated with high quality mass transit services.

Victoria's - and Australia's – situation is one of great and necessary change driven by, *inter alia*, declining natural capital (water, soil, bio-diversity), the greenhouse gas challenge, current and enduring decline of Australian crude oil production and the imminent rapid decline of global oil production. There are no technological "magic bullet" full-scale substitutes of the current mix of petroleum and road transport technologies. Only radically conservative automotive technologies (e.g. Honda's Insight car with 3 litres per 100 km economy) deployed in combination with travel distance minimising land-use strategies and modal substitution by walking, public transport, cycling, and telecommunications could fully bridge this gap in resources.

As a model for public governance, we believe that the Netherlands strategy model (Netherlands Ministry of Environment, 1998) should be used as a conceptual basis. It should be modified to take account of the differences between the unitary structure of the Netherlands and the federal structure of Australia, and the Netherlands government's own review of the legislation.

2   Sustainability

2.1   Economic Sustainability

The Victorian government's economic policy should contain a formal mechanism that forecasts "megatrends" in the Australian and global economies and influential social cultures. This would entail a complete yet ongoing (annual) process of business and social situation and trend analysis along the lines of corporate strategic planning, but applied to physical ands social environmental capabilities and performance constraints, intellectual property and scientific developments both in Australia and around the world.

There are several well-established techniques for mega-trend analysis and forecasting, and many centres of excellence. The state government's difficulty is how to tap into these as part of its own process. It is one thing to know something from analysis; it is an entirely – and much more difficult – matter to act upon findings. This function also involves high level change-management should have high level responsibility and management reporting within the Departments of Treasury and Finance, State and Regional Development and Planning, and maybe the Premier's Department.

Mega-trend analysis derives in part from past/current trends but should involve what-ifs, uncertain scenarios and develop risk profiles to shape the forecasts and strategic responses.

For example, the Victorian government has had major success in General Motors Holden's securing by inter-company contract the approval to manufacture and export 6-cylinder and V8 internal combustion engines from Port Melbourne to other GM affiliates. Given the declining future of oil as a transport fuel combined with the likely rise in oil costs and current research developments in automotive propulsion, there is enough information available to help the state government to forecast and anticipate the need for manufacture of new propulsion formats. Thus, the Victorian government should foster the research and development of commercial production of these new technologies within Victoria, for example, automotive fuel cell technology, and manufacture of fuel-miser cars such as the Honda Insight IC/electric hybrid for their respective global as well as Australian markets.

2.1.1   Employment

In order for Melbourne to compete with other large cities we believe that efforts should be made to attract and foster research, development and production in leading edge technologies that will attract and keep our best university graduates.

The megatrend planning process would assist and should facilitate state government economic sectoral policy to train and retain the best graduates and skilled tradespeople:

- Firstly by forecasting the medium and longer term trends and thus the skills requirements of these emergent economic activity patterns
- Disseminating this knowledge though best industry and educational channels

- Fostering the setting up of appropriate tertiary education and training courses. (Too many young matriculants are encouraged to enroll in study courses based on poor advice, or else fashion tastes in occupations based upon recent past employment trends. It is a common observation that Australia has too many lawyers who won't export anything, and not enough manufacturing engineers)
- Identifying where the existing graduate talent bank would satisfy emerging economic megatrends, but rewards are higher outside of Victoria.
- Applying salary and corporate locational grants selectively to retain the best local professionals and seed businesses and attract similar parties from overseas.

The philosophy should be to look at trends and choose those where there is some local competitive edge factors or else Australian application as well as broader global application. Megatrend needs would be found in water reclamation, disease control, land reclamation, genetic developments in food species, psychology, renewable energy management, solar PV (Australia is at forefront), intelligent transport systems technology, to name just a few.

Opportunities exist to stimulate research "marriages" and information transfers between the CSIRO, public and private research institutes and private sector firms (this is not new), via informational databases and their dissemination to the public, combined with government-fostered conferencing and expos.

As always, small business is at the cutting edge of new business formation. The Victorian government needs to think of strategies to influence Canberra decision-making in the areas of tax and national standards.

2.1.2 Small Business

As a major generator of employment, small business needs to be encouraged. In the retail sector, small business offers local shopping and personal service that is not available from larger retailers, and is therefore vital in maintaining small activity centres that are easily accessible from people's homes.

2.1.3 Integrated Local Economies

One of the characteristics of a sustainable economy, we believe, is the existence of strong local economies that provide everyday needs and offer some employment opportunities to local residents. Local economies are reinforced by the informal economy of fund-raising street stalls and community markets. Such activities should be encouraged and facilitated through the provision of public open spaces that can function as regular market places and as meeting places at other times.

2.2 Ecological Sustainability

Ecological sustainability underpins all other aspects of sustainability: our economy, society and culture are all embedded in our ecology. It is therefore of fundamental importance that the strategy should address ecological sustainability.

It is our belief that <u>the Melbourne strategy plan should address the issues of material and energy flows</u> if it is to deal fully with the question of ecological sustainability. One aspect of the strategy plan should be <u>a requirement to collect the necessary data on material and energy flows to enable research and evaluation to be conducted</u>.

2.2.1   Sustainable Energy Use Strategy

In energy supply environmentally sustainable substitutes to oil must be developed. However, on the balance of currently known risks, these are unlikely to provide anywhere near sufficient replacement supplies. The best solution/suite of strategies is not one requiring technical excellence and optimism, but technical feasibility and bearable risk (i.e. "insurable" outcomes). True sustainability will be culturally very difficult to achieve, unless disaster occurs. However, improvements in that direction should be encouraged. Australia's Industry Commission (now Productivity Commission), in its report on urban transport 1994 stated that "walking and cycling, are after all, the only sustainable forms of transport."

Therefore, conservation strategies will also be needed. These include consolidated (conservative) land-use/transport planning, increased use of public transport, pedestrianisation and bicycling, increased use of Internet and e-commerce, reduced use of car travel via traffic demand management via road pricing (e.g. Singapore's ERP) and parking controls and promotion of tele-working/telecommuting.

2.2.1.1   Automotive Fuel Substitution

Refer to Appendices A and B for a full discussion.

The forecast decline in petroleum production is not necessarily insurmountable – only very to extremely disruptive to Australia's economic life for one to two decades. In the initial supply shortfalls, say by 2008-2010, most petrol demanded by car users will be supplied but at a huge cost to Australia. This will be because the decline in world supply is likely to coincide with already rapidly declining Australian self-sufficiency in crude petroleum and condensates[2].

Thus an Australian balance-of-payments crisis could well emerge (unless coal-to-petroleum production in say Latrobe Valley can be rapidly piloted and expanded at useful liquid hydrocarbon product prices lower than the contemporaneous global crude oil prices "landed on Australia's shores").

Hybrid cars (a configuration of internal combustion engine driving electric batteries and traction motor, notated as IC/electric) are likely to be, if not the panacea, at least an important conservation strategy. Honda's Insight petrol/electric car runs on standard driving cycles at 35 km/litre, i.e. about 3 litres/100 km. This compares with the fuel economy of the current range of petrol cars, which is from 6.5 to about 12 L/100 km (excluding the silliness of V8 SUVs and 4WDs).

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[2] AIP, 1999. *Petroleum Gazette*. Canberra, Vol. 1999/2

Frankly, the true non-carbon fuel cell vehicle technologies that utilises *hydrogen gas* or *hydrogen radicals* from hydrogenous substances (especially methane, methanol or ammonia) appear to be hugely unfeasible due to terrifically high $ costs per kilowatt output costs (say 100-200 times higher than for existing petrol cars). Chrysler-Daimler (Benz) brought a demonstration hydrogen fuel-cell electric bus to Australia for the Olympics and then to the UITP Conference in Melbourne in October. This solution is probably less practical than battery electric cars and much more remote than hybrid IC/electric vehicles.

The crucial and as yet unsolved issue is where will the hydrogen come from? How quickly can the hydrogen and oxygen fuelstocks generation and distribution and vehicle servicing industries be set up on a scale to replace what we already have in the vertically integrated oil mining, transshipment, refining, distribution and retailing industries? Hydrogen from fossil fuel generated electricity would appear to be the shortest and less uncertain route to hydrogen fuel availability, but with the catch-22 penalty of increased CO_2 greenhouse gas emissions.

2.2.1.2 Energy Commodity Substitutes

There is a popular view that a global oil shortage would not harm Australia's trade balance position, because oil substitutes (coal, natural gas, shale oil) would also rise in price, increasing the value of Australia's exports of its abundance of these energy forms. Whilst the prices for these substitutes would rise with rising oil prices, the problem would be that Australia's energy trade balance would greatly worsen because the prices for these substitutes would not rise by nearly as much as the oil price rises. This would be because:

- Coal and shale oil and, to a lesser extent, natural gas have fairly small "elasticities-of-substitution" for crude oil. This is because they are much more expensive to convert and deliver to end-users than is crude oil. This difference is automatically reflected in comparatively lower "ex-works" prices to raw energy commodity producers;

- Thus, Australia's bountiful coal reserves (by far the nation's largest energy resource) provide only a partial economic trading "hedge" (risk reduction) against the forecast world oil supply crisis around or before 2010. The world has an abundance of coal (climate change notwithstanding) for energy production for this century;

- Australia's northern natural gas fields are nearly fully pledged to long term exporting. Thus, any increase in Australia's oil import bills won't be offset by increased volumetric exports, but only by unit price increases driven by world oil prices. Natural gas will provide some hedging and substitution value, but nowhere near enough to offset the decline of Australia's current comparative advantage in local crude oil extraction; and

- Production and consumption of coal and shale oil produce much more carbon dioxide than do natural gas and crude oil and its refined products. It is likely that intensive GHG energy production will be penalised with the increasing international concerns about climate change.

The foregoing discussion implies that conservation of transport fuels through modal substitution and demand management will be an essential feature of a metropolitan strategy.

2.2.1.3 Electricity

Local air pollution and global warming are two of the uncosted external effects of electricity generation from brown coal, which need to be addressed. The substitution of less polluting generation methods is an urgent first step towards achieving long-term sustainability. <u>Further encouragement should be given to property owners to install grid-interactive photovoltaic panels</u>, to add to the supply of 'green power'.

Electricity demand management is probably the most cost-effective means of reducing the environmental effects of electricity consumption. We advocate the following measures to reduce electricity demand:

- the mandating of solar hot water systems in all new houses
- higher building insulation standards for all new and renovated buildings
- the installation of low energy and intelligent lighting systems in residential and commercial buildings
- the mandating of high efficiency appliances, particularly refrigerators in all new buildings
- building orientation and placement of windows to minimise heating and cooling requirements.

2.2.2 Land Use

2.2.2.1 Limits to Outward Growth

The Challenge Melbourne issues paper has reasonably identified the problem of the current trend in urban corridor growth, and some of the causal issues (pp.15-19). The poorest residential property investment prospects are now on the fringes of the southern and eastern metropolitan regions of Melbourne, i.e. those districts that are furthest from the centroids of residential demography, locations of employment, and of non-home activity centres. They are typically suburbs with the worst public transport.

The other trend well under way is the re-population of Melbourne's central area and inner suburbs out to about a 10 km radius in the western and northern suburbs from Melbourne's CBD, to about 14 km radius in the southeast, and along the bay coast to Parkdale (22 km). This demographic improvement is in an increase in both the population number and demographic quality (these new settlers are typically well educated and employed in above-average income jobs).

Continued fringe development is increasingly neither a desirable nor affordable strategy. The prospect of the never-ending extension of Melbourne's suburbs fills many people with horror. <u>We favour limiting the outward growth of Melbourne</u> both to preserve land of high agricultural and landscape value, and to break the monotony of continuous suburbia.

The danger is in Melbourne becoming a poorly functioning metropolis whose growth is captured in a rich hub and in a poorer outer rim, with a band of decaying, undervalued middle suburbs developed after the 1940s. This pattern is the spatial inverse of most US large cities, but with similar risks of socioeconomic inequality, mounting resentment and potential social conflict. There are already expert predictions[3] of long term property price falls in these established middle and outer suburbs, based upon these factors of suitability of their low-medium sub-divisional structures and car-dependency.

This phenomenon offers an opportunity for large-scale urban renewal of the middle suburbs on urban village principles. This would not only address the problem of decline but would take pressure off the suburban fringe. Other growth should be directed towards Victorian regional urban centres.

Road construction has a vested interest in creating broad 'green-field' subdivisions, and this feeds speculative investment by land developers who buy land at the fringes in anticipation of creating further value-adding subdivision. The key institutional shift has to be the reduction of the controlling influence of VicRoads road construction planning within the DoI, thus circuit-breaking the influence of the 'land bank' subdivision industry. There is a need to facilitate the aggregation by developers of low-value 'brown-field' suburban land parcels for mixed-use redevelopment, as described above.

Within the metropolitan area, towns would be based on existing suburban centres; beyond the metropolitan area, existing towns and villages would be the nuclei of growth. To avoid simply dispersing the problem of suburban sprawl, urban village principles should be applied across the board. There are ample opportunities for consolidation by medium density developments in small towns such as Daylesford, for example. Preference should be given to towns that are connected to Melbourne by rail. The introduction of faster passenger train services to Geelong, Ballarat, Bendigo and the Latrobe Valley should facilitate the dispersal of growth along those rail corridors.

2.2.2.2 Desired Activities Distribution

Melbourne is already too big geographically to function sustainably as one city. Instead of perpetuating the idea of Melbourne as one place, we propose a model of the Melbourne region that consists of a network of towns, linked by roads and public transport services, each having a high degree of self-sufficiency in employment, schools, hospitals, shops, cultural facilities and so on. An alternative vision is discussed in full in the Appendix D.

Businesses do not take into account their external costs when making decisions about where to locate, which results in sub-optimal location of activities and imposes travel and environmental costs on the community at large. In the absence of road user charges, regulation by zoning should be used to ensure that road travel for access to business is minimised.

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[3] Australian Financial Review, 4-5 Nov 2000. *Your property nest egg has just cracked.* John Fairfax Publications Pty Ltd, Sydney, pp.22-23

<u>We recommend the government adopt and adapt the Netherlands' ABC policy</u> for planning locations of activities and coordinating transport networks. The general idea is to locate 'the right business in the right place'. The ABC location policy refers to a land use policy aimed at reducing avoidable automobile mobility and ensuring access to economic activity centers.

There are three different areas:

A   locations are easily accessible to local, regional and national public transport (= areas around public transport junction). Commuting by car should be under 10-20%.

B   locations are easily accessible both by local and regional public transport and car (= areas where high standard public transport routes cross ring roads). Commuting by car should be under 35%.

C   locations are easily accessible by car (= areas along the highways).
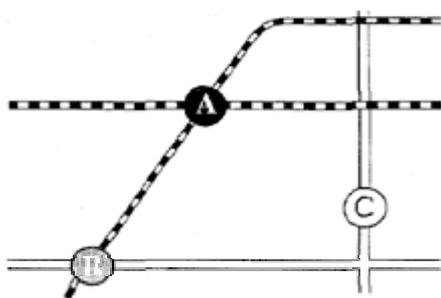
Businesses and services are given a mobility profile, according to the number of employees and visitors, their dependency on car traffic and freight traffic. Shops are preferably located in A-areas, never in C-areas. Offices are located in A- and B-areas, while C-areas should only be used for transport activities or land intensive activities. The ABC system integrates a series of standards (density of employee per square metre, parking places per 100 employees). For instance, concerning parking standards: in A-localities the maximum number is 10 parking spaces per 100 employees and in B-localities 20 per 100 employees in the four largest cities; in other urban areas, the norm is 20 and 40 respectively. Initially, somewhat less restrictive rules could apply in Melbourne say for a transitional period of 5 years, followed by appraisal and new, tighter criteria.

We envisage that, in the urban nodal sustainable consolidation (UNSC) strategy, the following urban land-use functions would be applied within the A, B and C structural locations as follows:

A   Major shopping centres; personal and tertiary services; secondary and higher education; and regional corporate administration; high-density housing (above 100 persons/hectare); major patronage cultural and entertainment facilities (environmentally non-intrusive); government and municipal administrative and community service offices. Encourage mixing of residential and non-residential uses. Individual district node commercial agglomerations would grow to over 250,000m^2 of gross leasable floor area (GLA).

Existing and potential examples: Melbourne CAD/CBD, Footscray, Prahran/South Yarra, St Kilda, Hawthorn, Box Hill, Camberwell, Caulfield, Malvern, Glen Waverley (with light rail [LRT]), Tally Ho/East Burwood (with LRT on Burwood Hwy and Springvale Road), Knox City (with LRT on Burwood Hwy and Stud Road), Ringwood, Dandenong.

B   Second tier regional shopping centres; personal and tertiary services; hospitals and large health care centres; primary, secondary and tertiary education; medium-high density housing (around 50 to 100 persons/ha.); government and municipal administrative and community service offices; small floor area "smoke stackless" manufacturing and processing (e.g. software development, electronics assembly, clothing assembly); major spectator-patronage sports and entertainment facilities (environmentally non-intrusive). Individual suburban node commercial agglomerations would grow to 50,000 – 150,000m^2 of gross leasable floor area (GLA)

Existing and potential examples: Cheltenham/Southland, Frankston, Oakleigh, Heidelberg, Latrobe Uni & technology park, Sunshine, Monash-Mulgrave agglomeration (once connected with LRT).

The rail/tram corridor from Rushall to Preston, and Sydney Road from Brunswick Road to Bell Street are linear examples that would build upon the existing fixed rail public transport, strip shopping centres and light industries. The corridors would be 'linear urban villages' extending alongside the tram and train lines, which would provide both for internal movements and for access to the city.

C   The following would be placed in separate zones:
   - Broad scale detached low-medium density housing (below 50 persons/ha.).
   - Floor area-intensive wholesale and retail businesses (e.g. car sales and servicing outlets) typically selling high-priced capital items which households infrequently purchase;
   - Floor area-intensive small workforce industries such as transport and warehousing; and
   - Environmentally intrusive, intensive energy generating or hazardous industry or industry generating large volumes of heavy road freight transport vehicles (chemicals and electrical switchyards, foundries, abattoirs).

In new urban residential subdivisions, new municipal planning scheme zone rules must require the developer to provide high permeability of the subdivision matrix to maximise walking, cycling and public transport use. This should be done by ensuring that any and all street blocks are just contained inside a rectangle having a maximum perimeter of 800 metres. A *street block* is defined as a contiguous area of land titles fully encircled by a combination of streets trafficable by cars and small trucks and accessible by pedestrian and bike and/or by pedestrian and bike accessible laneways.

For similar personal travel outcomes, in new large-enterprise or heavy industrial subdivisions, similar subdivision control instruments should ensure that road layouts are as close to truly rectangular as the land geography allows. Wherever possible, create street blocks of less than 500 metres (minor side of rectangle) and 1 km (major side).

An essential feature of urban sustainability is the maintenance of strong local community facilities reachable by walking or cycling. The development in

Melbourne of very large (and continually expanding) drive-in shopping centres has contributed to the decline of many smaller local centres, depriving residents of the opportunity to shop locally. To counter this unsustainable trend, upper limits must be placed on the size of regional shopping centres and, at the same time, strategies must be devised to inject new life into declining local shopping centres.

Dual occupancy and other medium density housing developments that are located randomly across the suburbs are not only unpopular with the surrounding residents, but do nothing to reduce car dependence. Following urban village principles, medium and high-density housing should be permitted only within 1 km radius of a railway station, tram stop, or bus stop served by frequent all-day bus services. Preference should be given to locations that are also within walking distance of employment, retail and other services. Such a pattern of development will enable car dependence to be reduced, and will limit the undesirable effects on neighbouring properties.

2.2.3 Transport & Communications

The conventional understanding of the role of spatial physical planning of urban areas has been to consider only the closed couplet of transportation and land usage. We argue that the dynamic growth and widespread application of computers and internet ("teleIT") is of such significance that it should realistically be considered as a third conjugate component of human geographic (spatial) behaviour, i.e. an interactive triangle of transportation-teleIT-land use systems and their elements. (Appendix C, p.4).

We will call this the *"Triad of Spatial Resources"* in urban and regional planning. They obviously have important temporal aspects, but their spatial nature should distinguish them from other social and environmental planning factors and criteria.

The understanding of teleIT's capabilities in modifying and shaping patterns of land use and transportation is rapidly emerging and will continue to change. We do not provide details here, as there is much literature available for the DoI to research. Suffice to say that planning strategies should consider teleIT as a dynamic bundle of trade-offs in land use and transport modelling, and it provides many opportunities to achieve energy and physical resource savings, and savings in time.

2.2.3.1 IT/Telephony Substitution

The widespread application of telecommunications and remote data application systems provides the opportunity to use electronic transferral to substitute many personal trips that relate purely to "information acquisition and transfer", and/or else "information transformation". Fields of application include:

- Home delivery shopping e.g. a2k (Amway), Coles Online. The most frequent shopping trip by type of goods are the "repetitive staples", i.e. food and durable groceries, newspapers, which are both well known to consumers and require only low comparison choice making. Telephone- and Internet-based selection, ordering and payment followed by

commercial carrier delivery to homes via "milk-runs" can remove a lot of short distance car trip kilometres.

- Knowledge-based work, where the effort is put into transformations of information rather than material goods. Banking, consulting, and most white-collar clerical and administrative work are examples where routine work tasks within short time frames or within individual projects can be conducted without the worker physically travelling daily from the home (office) to a non-residential office workstation.

- Increased standardisation of the systems and protocols of document transfers or lodgings between individuals and corporations in the service industries. An example where this is already successfully done is in the electronic lodgment of taxation returns such as Business Activity Statements from individuals and taxation accountant agents to the Australian Taxation Office.

- Higher (tertiary) education is a clear example where applications of remote-access databases ("e-libraries") and learning programs via ASPs (Application Service Providers) can remove the need for daily travel to campuses and libraries. Extensive work will be required to place most library-based information into e-databases. The main issue here is devising suitable amendments to Australian copyright law which is conjugated with international copyright conventions, and dealing with copyright holders, typically international print publishing firms. The possibility is for books to be complemented by online copyright databases that would be accessible by payment of structured reading royalty fees.

To establish competent objectives in this area, the Victorian government planning sector should set goals to increase its competent understanding of teleIT through conferencing with and monitoring of developments by research institutions and business companies. A key section within DoI strategic planning should be established to facilitate this outcome. Such knowledge should be strategically disseminated throughout the interested public and private sectors (DoI, office of Local Government, local councils, major business and commerce peak organisations, and academic and research institutions). In time, planning and development strategies should be devised that take best advantage of teleIT's capabilities to work towards fulfillment of the Triad of Good Principles.

2.2.3.2 Traffic Demand Management

(Cross-refer to Appendices C and D)

Empirical truths in favour of public transport & tollroads and against freeways:

- Any policy of arterial road improvement without compensating traffic demand management (TDM) disincentives (i.e. PAYG toll pricing) will encourage more motoring and further modal shifts away from public transport.
- Individual motorists' trip making and destination choice behaviours are strongly influenced by what is called the travel time/cost trade-off. Private and commercial drivers consider both the alternative use (time

cost) of the travel time and the actual vehicle operating and depreciation costs in ranking choices of trips. Private motorists, of course, behave differently in magnitude amongst themselves and from commercial transport drivers in this regard.

- Urban car drivers in Australian cities show tolerance of time costs up to 40 minutes, assuming that the only other costs are vehicle operating costs, and there is no road user pricing (tollways). This might be termed the acceptable travel cost or budget "envelope".
- Locational benefits are the motivator of choice of location (closeness to jobs, schools, relatives and friends, facilities, illusion of pastoral lifestyle, etc. as against affordable cost of house and land, etc.)
- Total household travel budgets are fairly inelastic upwards
- This budget "envelope" reduces significantly in distance if direct motoring costs are higher e.g. tolls. This is found in Singapore's ERP program.

In the long term, domestic and commercial land use "locational" decisions would alter if the distance component of road travel were made much more visibly expensive to the motorist. Thus, toll roads charging 20-30 cents/km would, like low speed limits, generate very different urban growth and land use trends than would a high-speed expressway.

The RACV is promoting a number of urban freeway projects on their alleged benefit cost ratios (BCR), claimed to be between 3:1 and 5:1 over the infrastructure lifetimes. This is also the basis for pressing ahead with the Scoresby freeway. We reject the measures of BCR used by VicRoads. We predict that the actual net economic benefits of these road projects would be much smaller, if not negative, overall, for the following reasons:

- In Scoresby's case, the economic model was "Keynesian" in nature, and did not evaluate the large negative foreign balance-of-payments (BOP) impacts of freeway(s), i.e. accelerated consumption of vehicles and fuels, both of which are set to be major import classes.
- Freeway planners' use of travel-time-static ("first order of difference") land-use models fails to measure the dynamic relationship between the freeway increasing motorists' "time-travel possibility" budgets and long-term urban spatial dispersal. This sprawl will lead to increased travel distances and times and thus net travel savings much smaller than those predicted by the planners' economic models.
- Failure to incorporate risk analyses, as described above, in the freeways' projected economic performances
- VicRoads' scenario generation and evaluation methodologies do not search for maximum net benefit (BCR) or least-risk options as best-practice benchmarks. The practice by VicRoads of calculating BCR compared with an "Option 1 Current Situation – no change" is artificial and wrongly inflates the calculated BCR, as "no change" is not typically "real-world". "Opportunity costing" should be used. In Scoresby's case, a package of intensive public transport, a new arterial road, enlarged and consolidated land-use activities in designated suburban activity nodes (see Appendix D) would probably deliver most or all of the commercial road

transport benefits projected for the "maximum-case Scoresby freeway, minimum public transport" option chosen by the government. This alternative package would also deliver extra strategic risk-reduction, energy use, land-use and externalities benefits over the freeway alone.

- To the extent that the calculated economic benefits of proposed freeways like Scoresby include the increased value of land along the freeway path may be unrealistic. Analysis should identify if such value gains are in fact merely transfers of future increases in value from land in existing built-up areas to areas at the urban periphery proximate to the proposed freeway. Such value-transfers are not net statewide gains, and should not be credited to the freeway proposal's BCR. In Scoresby's case, increasing the existing urban activity nodes using public transport strategies, would increase their land values via multi-storey development permitted by higher plot-ratio planning rules. This is the Dutch and European experience.

Recommended road pricing strategy:

TCPA's suggested strategy is outlined in Section 6 of Appendix C.

To contain sprawl, the benefit of lowered travel time should be offset by increasing the cost of longer distance travel, so as to avoid at least the generation of externalities such as public costs of sprawling fringe growth, dispersal of commercial business activities and increased fuel usage. Also, there are social costs associated with increased time travel budgets as people locate further away from desired destinations, etc.

2.2.3.3 Pollution Control

Recommended strategies to achieve atmospheric pollution control are encapsulated in Appendix A. This recognises that in Melbourne, with its high standards and advanced management of industrial emissions, the major source of atmospheric pollution (apart from CO_2) is from road transport. There are a number of positive factors, such as implementation of Euro-3 standards of diesel engine design and operating surveillance. However, the failure to reduce aggregate motoring demand stands in the way of further environmental improvement.

2.2.3.4 Sustainable Energy-Efficient People Transport

Strong planning measures should be put in place to greatly increase the proportional shares by these modes of travel. Specific and realistically achievable targets should be devised and incorporated into enabling and mandating legislation, so that the state government and each municipal government has a set of goals to achieve, covering transport modal shares and gross vehicle distances performed. The goals would relate to GHG reduction targets (see Appendix A). The major growth modes should be:

- Cycling & walking – major expansion of user-friendly facilities;

- Fixed route public transport – trains, LRT, trams and buses – generally providing between 5 and 10 minute peak frequency services across the whole metro area (see Appendix D for LRT and strategic bus proposals)
- Demand- responsive public transport (DRT or PPT) – 10 minute maximum waiting time standard. This would complement fixed route services especially for disabled, at low demand times, and in outer suburban and country areas. (Refer to Appendix E for outline).

The middle suburbs at evenings and weekends and outer suburbs require major redesign of bus routes. A large number of routes are very circuitous because they have tried to do 2 things – feeding/gathering and line-haul (trunk) longer distance movement of people. Because of a lack of resources and due to historical licence area barriers leading to poor route designs, these bus routes fail to do either transport task adequately, as is reflected in their modal share of people-trips.

We recommend that street-based public transport in the middle and outer suburbs are developed into two tiers, namely:

- short distance trips (say under 3 km) which would be performed by DRT/flexi-route bus services arriving to customer pick-up within a 10-minute wait time standard, and
- longer distance line- haul to be performed by "shortest distance/straight line" fixed schedule high frequency (10 minutes) bus services running along entire lengths of urban arterials for 15 km or more. Smart Bus is a prototype. The "Interurban" LRT lines and "strategic bus routes" described in Appendix D typifies the semi-express model. Such line-haul routes would run semi-express (stopping at main public transport interconnections and on highway intersections, and at urban activity nodes), or else as bus routes "stopping all stops" (say at 300 m intervals)

The *Strategic Bus Service Review* project being conducted within the DoI is the opportune process to launch this redevelopment.

The northwestern and western suburbs display a serious lack of continuous across-suburbs bus travel access. For example, it is not possible to travel from the northwestern Keilor corridor to the Sunshine-Caroline Springs corridor by bus. Similarly the fast-growing southwestern corridor outward from Altona is still disconnected from the western, northwestern and northern urban corridors. The LRT and semi-express ("SB") bus proposals of Appendix D partly address this (refer Appendix D).

Long distance trunk bus services need to be established, especially in the general north-south direction along available good roads, to take advantage of the population influx to the outer west and southwest. They should form spoke-hubs or exchange/feeder-gatherer loops at major industry combinations (Laverton, Grieve Parade, Tullamarine industrial zone, Melbourne Airport, Broadmeadows) and major shopping and commercial centres that are now arising, as well as rail interchanges.

- Semi-express route SB-C would be a major north south axis linking Geelong-Altona corridor with the newly industrializing outer west, Sunshine, Tullamarine and Melbourne Airport. Via direct interchange with SB-D, Latrobe University would be quickly accessed.
- Another semi-express bus route ("SB-A") should be provided for in longer term urban and arterial road plans, to link Sydenham with Laverton and Werribee. This would run basically north south between 5 and 8 km west of the proposed SB-C.
- There is the need now to create conventional through-running bus services between St Albans and Laverton via Deer Park, and across Sydenham-Caroline Springs-Werribee, all servicing the rapidly expanding commercial and industrial areas in the western suburbs.

Extensions of northern and western suburban train services are warranted, due to the resurgence of these suburbs. The indicated investment for the city-to-airport rail link ($275-500 million, in a unique niche travel corridor already well-served by Skybus) would yield much higher social and economic benefits if invested in service extensions and upgrades, as follow. Our recommendations are:

- Upgrade of the St Albans to Sunbury line to suburban electric service, plus high quality cross-town trunk bus routes feeding its rail stations;
- Upgrade the Sunshine to Rockbank line to suburban electric service plus bus routes as above, in conjunction with the scheduled fringe development in this and the Sunbury rail corridors. This could involve a rethink of the strategic commitment to car travel along the northern leg of City Link;
- Suburban electric rail service extensions from Broadmeadows and Upfield to Craigieburn;
- Secure the old Yan Yean rail easement for future suburban service extension beyond Epping terminus to Yan Yean, with bus interchange at Epping station;
- Investigation of upgrades of single trackway on the Epping and Hurstbridge lines, and;
- Strategically locating rail stations next to major activity centres, e.g. at Southland Shopping Centre, and financing their construction via joint ventures between centre owners and rail companies.
- Establish suburban transit interchanges to connect with proposed regional fast train services between Melbourne and regional Victoria at Craigieburn (Albury and Shepparton), Dandenong (Gippsland), Sydenham (Bendigo),

2.2.4   Water Conservation

Global warming is forecast to reduce rainfall in southern Australia, which would threaten the security of Melbourne's water supply. Every effort should be made to reduce Melbourne's water consumption, both per capita and in total. This can be done with supply-side and demand-side actions.

2.2.4.1   Water Demand Management

Encouragement should be given to householders to collect rainwater for garden use. Rainwater tanks should be mandatory on new houses where there is sufficient garden space to discharge the collected water.

2.2.4.2   Water Re-Use

We strongly support the idea of reusing treated sewage effluent, which is currently discharged into Port Phillip Bay. This effluent should be further treated and sold for industrial or agricultural use.

2.3   Social Sustainability

2.3.1   Local Community

The fostering of local communities is an important contributor to sustainability, because it enables people to meet more of their needs locally, and thus reduces demand for transport. Public services such as libraries, community health centres, kindergartens, etc., should be located close to local shops and public transport access points, and local bus services should be provided to local catchment areas.

2.3.2   Affordable and Public Housing

All municipalities should offer public housing and affordable private housing. These should preferably be located close to public transport access points and within walking distance of community facilities.

3   Urban Design

Good urban design contributes to the psychological well being of citizens. A city that is visually attractive not only makes its citizens feel good, but attracts capital investment. Conversely, cities that have a run-down appearance find it hard to attract investment, often inducing a downward spiral of the local economy. In our view, Melbourne lacks sufficiently strong urban design guidelines, with the result that many spaces are simply created by default (e.g. St Kilda Junction), and streetscapes have a haphazard appearance, with incongruous building heights and facades. The strategy plan should address urban design issues.

3.1   Buildings

Stronger controls are needed on building height, bulk and street level facade treatment. The Latrobe Street facade of Melbourne Central is a good example of a particularly bad piece of urban design, which has destroyed a complete block of the street.

Stronger controls are also required to reduce wind effects on pedestrians caused by tall buildings. If buildings cannot be retrofitted with devices to deflect the wind, then at least adequate shelter should be provided for pedestrians, including those standing in tram safety zones.

3.2   Public Spaces

Public spaces play an important part in perceptions of the city, but are often left to the uncoordinated and unsympathetic designs of traffic engineers, building developers and advertisers. There is a need to exert stronger control over the physical appearance and layout of public spaces such as St Kilda Junction. Power lines should be placed underground in significant public spaces. Wheelchair access should be required in all public spaces.

The development of suburban pedestrian spaces could assist the revival or survival of smaller suburban strip shopping centres.

REFERENCES

Australian Financial Review, 4-5 Nov 2000. *Your property nest egg has just cracked*. John Fairfax Publications Pty Ltd, Sydney, pp.22-23

Australian Institute of Petroleum, 1999. *Petroleum Gazette*. Canberra, Vol. 1999/2

Department of Infrastructure, 2000. *Metropolitan Strategy – Draft Paper*. Melbourne

Standards Australia, 1999. *AS/NZS 4360:1999 Risk Management*. Melbourne