

CHANT PUBLIC FORUM

PILAU PINANG – FRAGILE PEARL

AND

URBAN PROBLEMS AS FOUND

IN

SYDNEY, NEW SOUTH WALES

PAPER BY

DR. PETER R JENSEN
FRAIA, FPIA, JP

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By Dr Peter R Jensen FRAIA, FPIA

Abstract

Although Georgetown on the island of Penang was founded within a few years of the establishment of the City of Sydney in New South Wales, over the last 200 or more years, it appears to have seen far less of the adverse results of rampant growth than its neighbour far to the south.

Avoiding some of the more troubling urban problems experienced in metropolitan Sydney is a worthy task for the citizens of Georgetown. However, preserving the environmental and heritage qualities of Penang Island will require the intimate involvement of its citizens. Moreover as contemporary experience in the Sydney region has demonstrated, planning through development control processes tends to create very poor outcomes. A more strategic approach, based on long-term goals is essential given the relatively short term horizon to which politicians tend to extend their gaze.

Only a framework of planning controls which derive from a strategic approach to longer term growth is likely to see the heritage City of Georgetown and its ecologically sensitive hinterland develop in an environmentally and physically satisfactory manner.

Various methods of achieving citizen involvement in the planning process have been tried in the Sydney region but success depends upon the creation of a robust and coherent organisations which can arrange a useful dialogue with the public on the one hand and the planning bureaucrats and politicians on the other.

Maybe in this, the fraught experience of planning control in New South Wales over the last 60 years has some lessons to present and some useful approaches to propose.

Introduction

As has been explained in the introduction by the Convenor, your speaker for this evening has had a fairly extended association with Malaysia commencing not long before the arrival of an army of gentlemen from Nippon in 1942. However at that stage, there was scarcely any awareness of the environment and it was not until some years later, after a journey back to the United Kingdom, that your speaker returned to Singapore with his parents and clear memories exist.

Thus some of the earliest personal recollections are of Singapore city, which in 1945 truthfully was not more than a “Bandar Kecil”. At that time, its pre-war trappings associated with the British Raj had been destroyed by the Japanese army of occupation and what was left was an attractive Asian town which coloured the author’s early mental development. The sights and sounds of Singapore in 1945 and the house in Kai Siang Road, remain in the memory more than 60 years later.

When in 1975 I was working on a redevelopment project in Kuala Lumpur which has been mentioned, I was able to take a side trip to Pulau Pinang for a few days. This was rather like

stepping through a door into the past, because in 1975 Georgetown was very much like the mental image of Singapore in 1945. During my time here, the only disquieting element was the discovery that the organisation that I was working with in KL, the PPB also known as UDA, had a major development proposal on exhibition. This was to build an enormous multi-storey office building in the middle of the city on the old bus station site. It was obvious, that this building was going to be completely out of scale with Georgetown as it then was: a low rise urban area with a very strong heritage complex. However there wasn't much that I could do about it as I was probably seen as one of these expatriate consultants who imitate the seagulls. That is, they fly in, make a mess, and fly away leaving the locals to clear up after them.

So those are my credentials and a possible justification for presenting some of the things that have happened in New South Wales and Sydney in particular, that might be relevant to the future development of Georgetown and its surroundings.



EARLY SINGAPORE ISLAND AND MALAYSIA

Planning context

A fundamental issue in looking at what is happening in Georgetown is the basis upon which planning is undertaken not only here but in the Federation of Malaysia. In common with Australia, the planning administration of Malaysia is based on administrative processes that derive from the United Kingdom before Independence. For a visiting planner architect, flying in for a short visit, that is enormously beneficial because the similarities with an Australian context are very much greater than the differences.

These days, the Internet and Google provide a means of undertaking research into almost any subject however arcane. Thus within 24 hours of receiving a tentative invitation to address you here in Penang, access to the Internet had revealed the sort of environment and physical context that you are currently facing and the sort of problems that seem to be arising.

Based on this very brief examination, it seems that Georgetown is suffering from the inevitable pangs of urban growth associated with its location in relation to Malaysia in general and its site and surrounding environment in particular. The heritage quality of the old city of Georgetown and the natural environment clearly represent constraints that will have to be embraced in the longer term and if irretrievable damage is not to occur.

It might be imagined that as an island, Penang would not have much in common with a place like the City of Sydney and its metro region. However in reality, Metro Sydney is an environmental island surrounded by rising land to the west unsuitable for development and the Pacific Ocean to the east which offers the ultimate barrier. So let us turn to the problems of Sydney growth and the parallels may become fairly obvious as we proceed.

Urban growth and access

It has been said that metropolitan Sydney is like some strange creature, a marsupial Dragon perhaps, that grows by continuously consuming itself starting at the tail. For many years in Sydney, some of the most important buildings and places were destroyed driven by rampant greed, under the control of State and Local government with very equivocal attitudes to controlling development.

Over a 200 year period, Sydney has grown from a small and totally isolated village at the edge of the known world, to one of the more important cities in the East Asian and Pacific region. From the outset, Sydney's growth was significantly constrained by its site and its location straddling a major waterway, Port Jackson or more colloquially, Sydney Harbour and the Parramatta River. That geographical constraint resulted in a transportation system that started out as a series of radial corridors which has largely persisted until the present day and in particular where one is looking at the rail system..

In common with many major urban places, since the end of the Second World War more and more people have had the financial ability to own a motor vehicles. In addition more and more frequently, motor vehicles have been used to provide access to jobs and work in the process that we now refer to as commuting. This is because what were once radial access corridors, with fingers of undeveloped land between, have, with the advent of the motor car and flexible access, been filled in. This has resulted in increasing dependence on motor vehicles for access to job centres and especially the Central Business District, CBD, adjoining Circular Quay and Sydney Harbour.

Inevitably as the city has spread out from its original location which is now marked by the Sydney Harbour Bridge and the Sydney Opera House, the progressive reliance on motor vehicles as the means to access jobs and work has led to progressive road congestion only partially relieved by the construction of new motorways. Unfortunately, as traffic engineering consultants have pointed out, a fundamental problem with motorways is that their design capacity is almost invariably achieved shortly after their initial opening. This means that motorways have the consistent characteristic of appearing to relieve travel demands but only in the very short term.

When one looks for more satisfactory methods of accessing work, there are probably two obvious potential solutions. The first is a system of rail transportation in a subterranean stratum, like the London or Paris Metro and the second is to progressively decentralise activities associated with the central business district, CBD, to new or expanded peripheral urban centres.

However, a possible new solution has arisen over the last twenty or so years. With the growth of digital communication systems based on the Internet, business communication is progressively expanding with a potential reduction in the need for individuals to commute to work in the conventional sense. Now it is quite possible for major business enterprise to establish a headquarters element in the CBD and undertake most of the back office operations in a decentralised location with the two elements connected by the Internet. This means that there is now a possibility to look at urban dispersal and relocation, decentralisation, as a response to urban growth pressures.

Planning legislation

Until the late 1970s, the system of planning control in New South Wales was directly derivative of British planning precedents. The irony was that as New South Wales was creating a new planning act in the early 1950s, Britain was in the process of dispensing with the paraphernalia of statutory land use planning and moving towards a much more strategic method of controlling how land should be developed.

In 1979, the existing Part 12 A of the Local Government Act which dealt with planning at that time, was replaced by a new, forward-looking piece of legislation, the Environmental Planning and Assessment Act 1979. A fundamental feature of this new legislation was that it embodied the notion of public participation in the undertaking of the planning process. This was intended to ensure that the interests and concerns of particular individuals and sectional components of the community were considered before environmental and land use plans were solidified into a conventional statutory planning form.

The New South Wales State Government was responsible for overseeing the development of State and Regional planning instruments and Local Councils were required to produce plans to control the development of land within municipal boundaries and consistent with State developed planning instruments.

The counterpoint to this relatively novel form of planning legislation in which the public was to play an explicit part, was the creation of a new legal entity in the form of the Land and Environment Court of New South Wales. In this court, the legal and administrative elements of planning control were brought together in one place so as to overcome the inherent complexity and expense that had applied under the previous planning legislation. The Land and Valuation Court as well the Local Government Appeals Tribunal were both replaced and after 1980, disputes about the environment and the development of land were heard by judges of the court and non-legal professional persons who ultimately were known as commissioners.

While the new legislation certainly provided a more transparent framework in which the environment and the use of land were to be controlled, progressively various changes initiated by the State and Local Government, for various political ends, resulted in increasing complexity and growing frustration. About five years ago, as a response to the perceived throttling of the development process in New South Wales, the then State Government introduced a special provision which allowed the Minister to deal directly with any development deemed to be of State significance. Referred to as Part 3 A of the Act, inevitably such a Draconian provision had the capacity to allow completely inappropriate considerations to apply to large scale development. Moreover it also added to a public perception that over a 12 year period, the then State Government had pandered to sectional and commercial interests to the significant detriment of the public at large.

The story of how New South Wales slid into political anarchy in terms of development control has yet to be told. However, some of the repercussions of its approach to planning administration are currently being investigated in the full glare of public view before the Independent Commission Against Corruption. Moreover, what had been feared by many members of the public has now

been totally confirmed by the sordid evidence that has now been presented relating to the activities of former ministers of the previous government.

New planning

For quite a few years, growing discontentment with the method of planning control in New South Wales has been responded to by professional planners and its representative, the Planning Institute of Australia in the New South Wales branch.

Locally, a policy position of the Planning Institute has been that planning legislation that is fundamentally a form of development control has to assume a strategic approach if some of the most intractable problems are to be overcome. Upon assuming power, after an election which devastated the standing of the previous State Government, the undertaking to investigate and create a new form of planning legislation was responded to. During the last two years, the current State Government is progressively honouring that commitment. As an initial step, it commissioned two experts to carry out an extensive study of what new planning legislation should embody. Moreover this was to be carried out in the context of a wide ranging programme of public meetings and involvement of those with an interest in seeing that beneficial change should occur.

Following this process and the production of a report that canvassed all of the opinions and contained recommendations, the State Government prepared a Green Paper to define the possible form of new planning legislation. Following the presentation of this document to the public and the receipt of commentary, the Government is about to produce a White Paper which, following a further period of public exposure and commentary, will be the basis of a draft planning act to replace the Environmental Planning and Assessment Act of 1979.

Regrettably, and contrary to the position of the Planning Institute, at present it would appear that the strategic approach is certainly to be included but, within the context of a single piece of legislation which also deals with development control processes. So while there appears to be the prospect of a mature change to the method of planning control in New South Wales, just what its final form will be is as yet unknown and how it will operate is also speculative.

What appears to be clear however, is that as compared with the Environmental Planning and Assessment Act 1979, public participation in the development of statutory plans will effectively be restricted to the stage at which strategy is being developed. It appears that the capacity of the public to influence or constrain the form of development in a particular area will exist during the strategic planning phase but after that will be largely removed. Needless to say, this has generated significant misgivings amongst professional planners including this commentator.

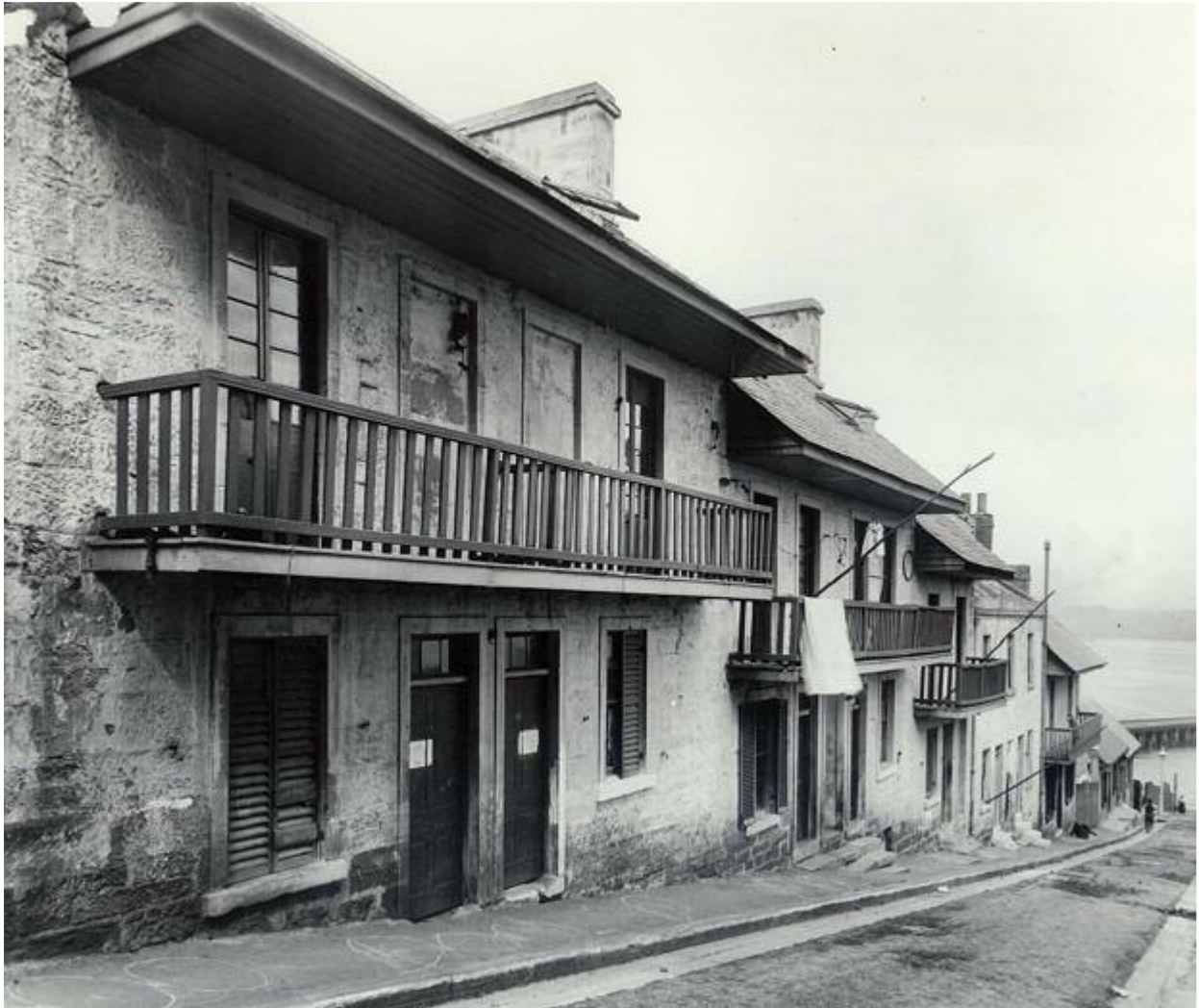
Controversial Redevelopment

As already noted, Sydney is a relatively old and well established city and as a result, has many old and valuable examples of buildings and places from an earlier era. Over the last 60 years some of the most bitter controversies have erupted over proposals to demolish such places and replace them with modern and ostensibly more desirable development.

In 1970, before the introduction of the new planning legislation earlier described, an old and historic part of Sydney adjoining Sydney Cove and under the shadow of the Sydney Harbour Bridge abutments was proposed for redevelopment. The Rocks area had developed as one of the earliest parts of the city, and ultimately became notorious for being a place in which bubonic plague had erupted in the early 1900s. This had led to a wholesale slaughter of black rats in an area which was characterised as a residential "slum".

By the 1960s, the Rocks area had become very run down and in the post Second World War enthusiasm for urban renewal, was one of the sites in the City of Sydney proposed for change.

However the major urban renewal project that resulted from this enthusiasm was viewed with revulsion by a wide sector of the population and supported by the Building Labourers Federation. A so-called “Green ban” was imposed by this component of the Union movement and construction work was halted. Ultimately the redevelopment scheme was abandoned and instead the new development authority, the Sydney Cove Redevelopment Authority which had been set up to undertake the project, became responsible for a more mature and sympathetic approach to an historically important part of the city.



PART OF THE ROCKS RESIDENTIAL AREA IN SYDNEY

In 2013, the Rocks area has become a major target for visitors and tourists to the City of Sydney where they are likely to find a range of interesting places and buildings to experience and fine food representative of the multicultural complexion of modern Australia. Evidently with the growth of tourism as a major economic issue, the saving of the Rocks from demolition was of major importance in the longer term.

On the western side of the city, in an area which in earlier times had been part of the Sydney Port and more recently a container depot, was cleared of its buildings and structures in anticipation of major redevelopment. In 2006 following an international competition, a consortium of local Australian architects led by Hill Thalys Architecture prepared the winning scheme. This project embodied features which appear to be specifically compatible with the current planning approach to central Sydney to the east and to the south and is now known as the Barangaroo scheme..

However following that success, succeeding steps in the development of this project have become progressively less transparent. This has been marked by the intervention of the then State Government through its bureaucracy of planners and the injection of personal ambitions of a former prime minister of Australia, Paul Keating. In 2013, the success of a new state government of a liberal political complexion and significantly different attitudes to planning policy, has seen significant changes to what was proposed as a replacement for the Hill Thalys project.

During this new controversial phase of Sydney urban development, a significant element has been the impact of coherent citizen based commentary and protest. As earlier noted, the previous State Government introduced Part 3A of the Act to give the current planning Minister power to determine applications and this was applied to the Barangaroo site. Currently the development application for Barangaroo remains with the new State Planning Minister, and as a result, the ultimate form of this project is as yet unknown. What is clear is that as compared with the winning entry in 2006, an artificial vegetated headland has been injected into the project courtesy of Mr Keating. Perhaps more significantly, the bulk of the denser high-rise commercial office space has been moved to the southern end of the site and has been significantly increased in terms of height and floor space. The result is that the new development proposal is juxtaposed with the existing city environment in a totally different relationship to that previously accepted in the Thalys winning design.

How the current saga of development at Barangaroo will ultimately turn out is as yet uncertain. However what seems reasonably clear is that the determined efforts of a broadly based professional and public group of concerned citizens has had a significant impact on the political mind. Whether in the end elevated concerns will prevail in the face of the financial imperative which propels the interests of the lead developer, Lend Lease, is yet to be seen.

Public participation

It is a reality that any practising planner will appreciate, that the general public finds it acutely difficult to appreciate the intent of two-dimensional land plans, let alone the three-dimensional implications of strategy. This means that concepts of density or the way that changes may impact on the skyline or the surrounding locality, are generally completely misapprehended by the general public. That is until the architect's drawings become available or perhaps more painfully, a multi-storey building springs up over the back fence.

In Australia, we have a description for this process. This is the NIMBY syndrome which you may well have heard of here in Penang. NIMBY stands for "not in my back yard". Any planning process that fails to appreciate the fundamental problem of public misunderstanding of the three-dimensional implications of strategy or two-dimensional plans is likely to run into severe political problems deriving from the Nimby syndrome. It is suspected that the Sydney Metropolitan region is on the brink of a new round of extremely heated political disputation over the form of metropolitan redevelopment. This is likely to arise when strategies begin to be implemented which have been seen previously by the public and apparently accepted.

Not that this is entirely a new situation for Metropolitan Sydney to experience. 40 or so years ago, as earlier discussed, only the intervention of a militant union movement saved significant part of inner Sydney from the bulldozer and the wrecking ball. If you want to find out more about this interesting phase in Sydney's growth, go to Google and type in "Green Bans". A lot of the worst destruction of particularly Victorian Heritage development was arrested through this process but there were significant casualties along the way: also look up Juanita Nielsen a militant activist who disappeared without a trace during this bitter contest.

Soon after the institution of new planning legislation in 1979, public reaction to excessive developments that had occurred in the previous 10 or 15 years led to the creation of local citizen representative groups in a number of council areas. These groups were organised as a means of

presenting a coherent and concentrated response to proposals that were under consideration by local authorities. Local Action or Precinct committees were created in many parts of the urban metropolis and developed a degree of political power not available to individuals affected by development proposals. Indeed over time, the capacity of such local pressure groups to veto development proposals, irrespective of their social or environmental worth, contributed to a perception that the 1979 Act had got out of control. The then State Government's response to this perception, as previously noted, was to institute the infamous Part 3A also known as the "Call in" provisions.

Strategy and Sydney's growth

As previously noted, Metropolitan Sydney is located on an island of relatively flat land surrounded by rising terrain generally unsuitable for urban development and housing. Moreover over a protracted period, residential development has spread out from the original village at Circular Quay as an ever expanding region of relatively low density housing comprising individual houses on large plots of land. In addition, where such residential development originally clustered around the radial railway system and local train stations, with the advent of the motor car, space between the fingers of early development has progressively been filled in.

Whether it be hilly ground or the open ocean that forms a physical enclosure, it is obvious that such a situation poses an inherent limit. Many years ago, an academic study by Professor Daly concluded that at the housing development density and residential occupancy rate that then applied, Metropolitan Sydney was constrained to a limit population of about 6 million people. Moreover, that limit would involve completely covering the surface of the Cumberland Plain which is the site of the metropolitan region, a prospect that most planners found intensely unappealing. Such a process would have the effect of completely obliterating the surrounding natural environment in the west as far as the edge of the Blue Mountains escarpment

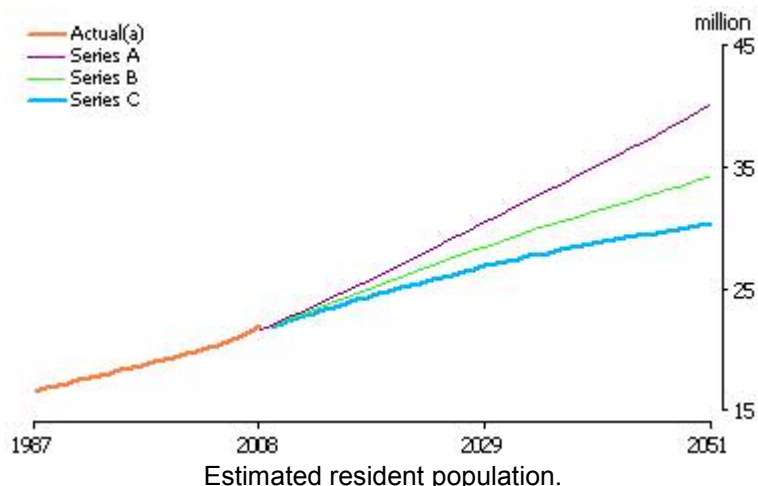
In the more recent strategic plans for Metropolitan Sydney, the undesirability of fully populating the Cumberland plain with new housing has been responded to by a policy of encouraging redevelopment in the existing urban area as opposed to allowing continued urban sprawl to occur around its edges. In the current plan revealed by the new State government, a policy of accommodating new population expansion predominantly within the existing city limits has been persisted with although significant efforts are now underway to foster housing expansion into existing underdeveloped areas to the north west and south-west.

The other significant component of the current strategy is to support major urban development at a number of dispersed commercial centres in an effort to curtail the extent of business commuting to central Sydney. Here reference to the strategic principles diagram reveals a rather muddled expression of planning ideas for access and the disposition of major urban resources.

Population Growth

For many years, there has been a strong tendency for new arrivals in Australia to gravitate to the capitals cities of the various States. While the availability of employment and the existence of family links to earlier arrivals are probably the major driving force in this tendency, other issues may well be a consideration in the choices for location by new arrivals. Whatever the motivation, the reality is that the State capitals and especially Sydney and Melbourne have tended to grow at a significantly faster rate than other non-urban areas in Australia.

Quite apart from the impact of immigration on the size of cities and the demand for services that inevitably comes with new population, it is also apparent that the total national population is rising a good deal faster than was expected before 2000. Specific reference to the Australian Bureau of Statistics graphical material below shows the range of anticipated population growth figures up to the year 2051.



Source: ABS [Population Projections, Australia, 2006 to 2101](#) (cat. no. 3222.0)

As perhaps might be expected, the complexion of the graphs given above, whether on series A, the extreme growth scenario or a continuation of the present trend as shown in series B, has led to a considerable degree of academic debate. This is particularly apparent among the “Greener” members of this group who appear to have fundamental reservations concerning sustainability for any national population above 20 million.

No doubt such concerns will continue to produce a high level of political agitation in the public discourse about the future growth of Australia. However in the present context, what is important are the projections for the growth of the State capital cities and particularly metropolitan Sydney. Again reference to graphical material from the Australian Bureau of Statistics shows the present assumptions. When the projected figures for population of metropolitan Sydney are compared with the research by Daly, previously referred to, then the current strategy of the State Government has to be seen as relatively short-term. Specifically, on the basis of the high-growth projection, Sydney’s population will exceed its capacity to support it in a conventional mode considerably before 2051 is reached. Even on the basis of the extrapolation of the present trend, the Daly limit will be still be exceeded by that date.

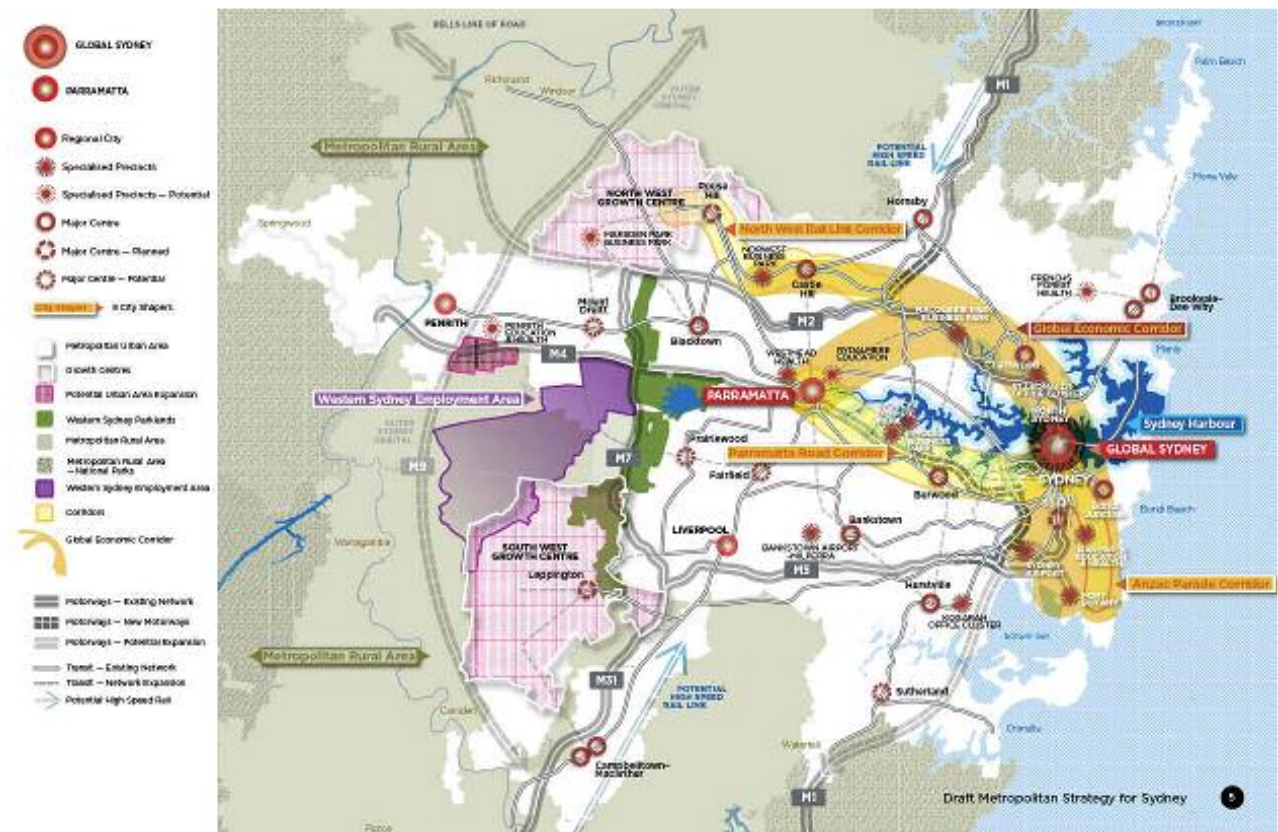
POPULATION PROJECTIONS, CAPITAL CITIES

	2008 '000	2051 Series A '000	2051 Series B '000
Sydney	4 399.7	7 262.8	6 733.8
Melbourne	3 892.4	7 492.6	6 515.9
Brisbane	1 945.6	4 580.6	3 764.4
Adelaide	1 172.1	1 772.8	1 612.7
Perth	1 602.6	3 856.7	3 181.3
Hobart	209.3	349.6	275.2
Darwin	120.7	307.1	229.2
Canberra	345.3	643.6	495.0
Total	13 687.6	26 265.8	22 807.4

Source: ABS [Population Projections, Australia, 2006 to 2101](#) (cat. no. 3222.0) and ABS [Australian Demographic Statistics](#) (cat. no. 3101.0)

Given the inexorable tide of immigrants who find the prospect of permanent residence in Australia highly attractive, it has to be anticipated that the Sydney metropolitan region will become effectively a “full house” sometime during the next 40 years.

In this general context, it is relevant to examine the current Strategy Plan contained in the Draft Metropolitan Strategy published this year, 2013.



METROPOLITAN STRATEGY FOR SYDNEY TO 2031

Whether this metropolitan expansion occurs through peripheral development in the north-west and south-west sectors as provided for in the strategy above or through a process of intensive redevelopment and re-urbanisation in the older parts of Sydney, the next 40 years are likely to prove extremely problematic in a political sense.

However, a peak population of between six and seven million people for metropolitan Sydney represents only a stage in the longer term growth of this part of Australia. Beyond 2051, unless there is a massive change in the habits of Sydney residents, some new approach will have to be considered. Unless there is a profound change to attitudes and the acceptance of high rise, high density housing of the sort currently found in Hong Kong, new urban development away from the Cumberland Plain would appear to be the only obvious alternative.

However, such a process of urban decentralisation or population dispersal to locations away from metropolitan Sydney may become less problematic in the future. In this future, the emergence of new forms of person-to-person communications at widely separated locations and provided through digital networks, may create a major change to the locational possibilities available. In particular, it may provide business and personal opportunities to locate away from Sydney not currently available without major physical travel commitments. This is discussed in the following section.

Decentralisation background

Given a very problematic exposure to decentralisation attempts in the 1970s, it can be anticipated that only an extremely turbulent political situation is likely to drive change that will be needed to rationally respond to the demands for accommodation through decentralisation. Regrettably, attempts to develop new regional city centres at Albury Wodonga and Bathurst Orange, let alone Monarto in South Australia after 1975, were in the ultimate a failure, if longer term urban growth is seen as a reasonable measure of success. This has coloured political attitudes ever since.

However what has clearly changed almost beyond comprehension since 1975 is the complexion of digital telecommunications and its adoption by both business enterprise and the general public. The capacity of the Internet to provide a means of communicating directly with persons at a considerable distance without the need for conventional transportation can be seen as prospectively inducing fundamental social, cultural and business change. This process, described by one author as “the Death of Distance”, can be expected to produce profound differences in both business and social interactions as has already occurred over the last 10 years. The dependence of a current generation of young people on digital devices to provide social connection can only be expected to impinge on business operations as such persons assume positions of responsibility and have decision-making power.

Hypercommunications

In a relatively short space of time, the possibility that digital communications would become pervasive has become fact. In no small part, this has occurred as a result of the availability of personal communications devices such as the Smartphone and the mobile tablet.

In 2000, the use of video conference methods by large business enterprise was already observable. At that time the potential financial benefits in reduced travel costs had started to become apparent moreover. Since then, with access to expanded broadband networks, which allowed greatly improved video signals and audio to be transmitted, videoconferencing has gone from being a somewhat uncertain new technology to one that can be generally depended on to supply high-grade personal communications.



CONTEMPORARY IMMERSIVE VIDEO CONFERENCE

Now, with the advent of large, almost frameless LCD screens, it has become possible to set up a synthetic conference in which half the parties attending are at some remote location with only a fibre optic cable providing the connection.

Although currently the basis of extreme contention between the two sides of politics in Australia, the development of the national broadband communication network is bound to have a major impact on business and personal communication in the future. Precisely what the complexion of this national infrastructure will be in the ultimate is uncertain. This is because the position of the opposing political parties will only see a resolution when there has been a general election in September of this year. However, whether it be the current approach of the Federal government or the hybrid approach of the current Opposition, it can reasonably be assumed that Australians will have access to a relatively high speed digital network during the next three or four years.

In the longer term, the introduction of three-dimensional imaging, whether through optical trickery using flat screens or the progressive introduction of holography, the quality of the synthetic face-to-face conversation can only improve. At present, true face-to-face meetings remain the ultimate preferred method of establishing a social connection. In the future, with the dramatic improvements that can be anticipated, the need for a personal presence may diminish. With this prospect, the long-standing pressure for business centralisation that has created the major business centres of the world may no longer be as pressing.

Future issues

Any planner who has spent any time investigating methods of future prediction, very quickly realises that such effort is bound to be futile in the ultimate. As has been said in the past, “The only certainty of the future is that it will be uncertain”, and the reality is that efforts to predict the future are bound to fail and often on the basis of what later are seen to be laughable if not ridiculous predictions.

Perhaps the only element of future science which has shown any degree of usefulness is trend analysis, particularly where it applies to human behaviour and attitudes. In this context, it has also been observed that, “While history does not repeat itself, sometimes it plays the same tune”. In this, the reliance on trends and the recurrence of traits of human behaviour over a protracted period are seen to be relied on in many business and personal activities. No greater is this situation than occurs in financial modelling as employed by a number of operators in the financial trading sector.

What inevitably adds to the intrinsic uncertainty of the future are all the man-made and natural disasters which continue to occur and result in dramatic and unexpected change which requires to be confronted. All of these issues impact on the intrinsic uncertainty of the future course of events and make the task of rational prediction effectively impossible.

TABLE OF DISASTERS

MAJOR FOREST FIRE	TSUNAMI	PANDEMIC
EARTHQUAKE	GLOBAL WARMING	CHEMICAL POLLUTION
VOLCANIC ERUPTION	NUCLEAR WAR	HURRICANE
SEA LEVEL RISE	GAMMA RAY BURST	MARINE OIL SPILL
PIPELINE EXPLOSION	FLOODING	DAM COLLAPSE
NUCLEAR ACCIDENT	FINANCIAL COLLAPSE	COMET STRIKE

Georgetown Urban Region

Prudence demands that this planner should not fall into the trap of proclaiming with confidence what the future holds for Penang Island or Georgetown in particular. However when one turns to the most fundamental driver of growth and change, population, figures for the urban parts of Malaysia suggest a well established trend. Moreover the experience in the world of planning and urban development is that social changes reflected in trends tend to persist over a protracted periods.

Table 3.9: Proposed Hierarchy of Conurbations 2020

Functional Hierarchy	Conurbation	Population 2000 ('000)	Population 2020 ('000)	Additional Population ('000)	% Share of Total 2020 Urban Population
National Growth Conurbation	Kuala Lumpur	4,815.4	8,457.7	3,642.3	51.7
Regional Growth Conurbations	George Town	1,266.8	2,424.5	1,157.7	14.8
	Johor Bahru	1,013.0	1,836.6	823.6	11.2
	Kuantan	317.0	637.9	320.9	3.9
	Sub-total Main Conurbations	7,412.2	13,356.7	5,944.5	81.6
Intermediate (Connective) Growth Conurbations	Ipoh	608.1	1,085.7	477.6	6.6
	Malaka	395.5	667.0	271.5	4.1
Urban Growth Centres / Future Conurbations	Kota Bharu	269.9	418.9	149.0	2.0
	Alor Star	252.9	385.3	132.4	2.4
	Kuala Terengganu	272.5	368.8	96.3	2.2
	Kangar	54.4	86.1	31.7	0.5
Sub-total Other Conurbations		1,853.3	3,011.8	1,158.5	18.4
Total Conurbations		9,265.5	16,368.5	7,103.0	100.0

Given this, what can be anticipated is that short of some major environmental disaster of the sort that affected New Orleans in the USA, Hurricane Katrina, continued urban expansion of Georgetown is almost inevitable. For a town planner, then the issue will become, "How is this growth to be managed and what will be the form of the city and its urban region in the longer term. Is it to be something akin to the expansion seen in Singapore or Kuala Lumpur or perhaps more worryingly, Hong Kong, or something more desirable and subtle in which heritage and environmental sustainability achieve a better balance"?

Based on an extended involvement with architecture and development in a litigious and aggressively growing city, Sydney, I am inclined to be optimistic. However the wholesale removal of intervention rights of citizens, other than in the strategic planning stage in New South Wales, is a worrying issue. How this will play out is yet to be seen and perhaps a problem that needs to be solved by a new generation of enthusiastic and resilient young planners.

Conclusions

Despite the obvious disparity in both size and population, Sydney and Georgetown are likely to exhibit fundamentally similar expansionary problems. What is tolerably clear based on the Sydney experience is that government and bureaucrats allowed to proceed without continuous scrutiny and effective public intervention are capable of producing quite appalling and insensitive results.

What must be clear following the most superficial of inspections is that Penang Island has high natural environmental qualities and that Georgetown retains a significant element of heritage development requiring sensitive protection and preservation. In the longer term these two areas of concern are likely to become key elements as the region's future unfolds. In this process, the intelligent involvement of well motivated public entities is likely to become a crucial factor. Given this, the existence of well-organised, vocal and philosophically focused public based organisations such as CHANT, seems likely to constitute a vital component of the development process.



PILAU PENANG AND MAINLAND MALAYSIA

In a democratically based society such as Malaysia, the expectation of the public to be represented by politicians who listen to those that they serve is no doubt the cornerstone of a successful public discourse. In the longer term, the interaction of well motivated and intelligent public commentary can only be beneficial to the process of urban growth and change, if the fraught experience of Sydney and its metropolitan region can be taken as an indication.

Optimistically I am inclined to think that it can.

ADDENDUM - THE SYSTEM OF ROAD TUNNELS IN SYDNEY IN 2013

Recent information found on the Internet has revealed the extent to which the proposed construction of an undersea tunnel from Penang Island to the mainland has caused controversy. Now being aware of the form and extent of concern in Georgetown, which has led to this forum organised by CHANT, this supplementary commentary has been prepared relating to the Sydney experience. In this regard, it is appropriate to note that in 2003, the author was directly involved at the design stage of the Westlink motorway which connects to the end of the Lane Cove tunnel project. During this project, material relating to the future growth of Sydney population and the likely impact on the driving habits of new population was considered. This arose in the context of an unknown demand for use of the proposed motorway by future patrons in what was referred to as the “ramp up” phase of growth of the new facility.

In the Sydney Metropolitan region, a number of factors have made the design and development of road tunnels a problematic response to topographic issues. Firstly, a fundamental structural issue is the subsurface below the city. In the central area of the Cumberland Plain, and below the City of Sydney itself is to be found high density sandstone which is an expensive and difficult material to cut through. In recent times, the advent of modern mechanical boring equipment has made tunnel construction somewhat easier but it still represents an extremely expensive process where driving tubes for three or more lanes of traffic in both directions is required.

Secondly, the central areas of Sydney are relatively old and as a result, introducing a new road transportation system and associated tunnelling has been an extremely difficult and potentially dangerous activity. This type of retrofitting activity can be expected to be extremely difficult but in Sydney, both cost and structural problems have been at a high level. As a minor example of this, a major ground collapse occurred during the construction of the Lane Cove tunnel near the Pacific Highway up-ramp. Fortunately this unexpected accident did not cause any deaths or injury but very easily could have done.

The other significant issue has been the method of financing the creation of such new infrastructure intended for long term public usage. While earlier projects, such as the Sydney Harbour Bridge, were constructed conventionally with borrowed funds to be repaid over a very long term, more recent major road projects and tunnels have employed private public partnership, PPP, arrangements which have tended to cause difficulties. In particular, the most recent tunnel which traverses the central business district from east to west, the Cross City Tunnel, has proved a financial disaster. Indeed so serious was this that its developer and owner were forced into receivership with the State Government having to take over the cost of the project. In simple terms, this problem arose from massively optimistic assumptions as to the level of patronage that could be expected and later did not eventuate. It also related to the existence of alternative routes across the City which were to have been closed by the State Government. However, later, in response to ferocious public demand, they were reopened with inevitable adverse consequences.

The historically somewhat more recent Lane Cove Tunnel, has also tended to suffer from inadequate levels of patronage although not to the same serious level as the Cross City Tunnel. However, as for the developer, owner of that earlier project, financial problems ultimately led to receivership. The tunnel is now owned and operated by a consortium which includes Transurban which also operates the extension to the west, known as Westlink.

In relation to the use of the PPP system of joint development, a clear issue in granting development rights to a commercial entity, is the extent of risk assumed by the developer as opposed to that assumed by the State Government. In both the projects referred to above, it appears that the financial risks of the project were almost entirely assumed by the State

Government. In particular, this arose from elements of the contract in which provisions were made to transfer road demand to the new facility by road closures or structural adjustments. When strenuous public opposition led to the removal of such obstacles later, the impact on patronage and the associated inevitable adverse financial results were directly transferred to the State Government and hence to the public purse.

Another significant issue ironically has impacted on other parts of the system of tunnels which are part of the Sydney Orbital route. Rather than inadequate patronage, where the Orbital route runs west around the southern end of Kingsford Smith Airport, the problem is excessive usage. This is directly associated with the presence of heavy trucks needing to access the Botany Container Port area east of the airport. Here a two lane each way system running below suburbs of Sydney over a considerable distance of about ten kilometres, is subject to major traffic jams. Moreover, the inadequacy of ventilation facilities makes travel through this tunnel system extremely unpleasant in peak periods. By comparison with this, because of its relatively short length and physical shape, the Sydney Harbour Tunnel appears far less prone to such problems.

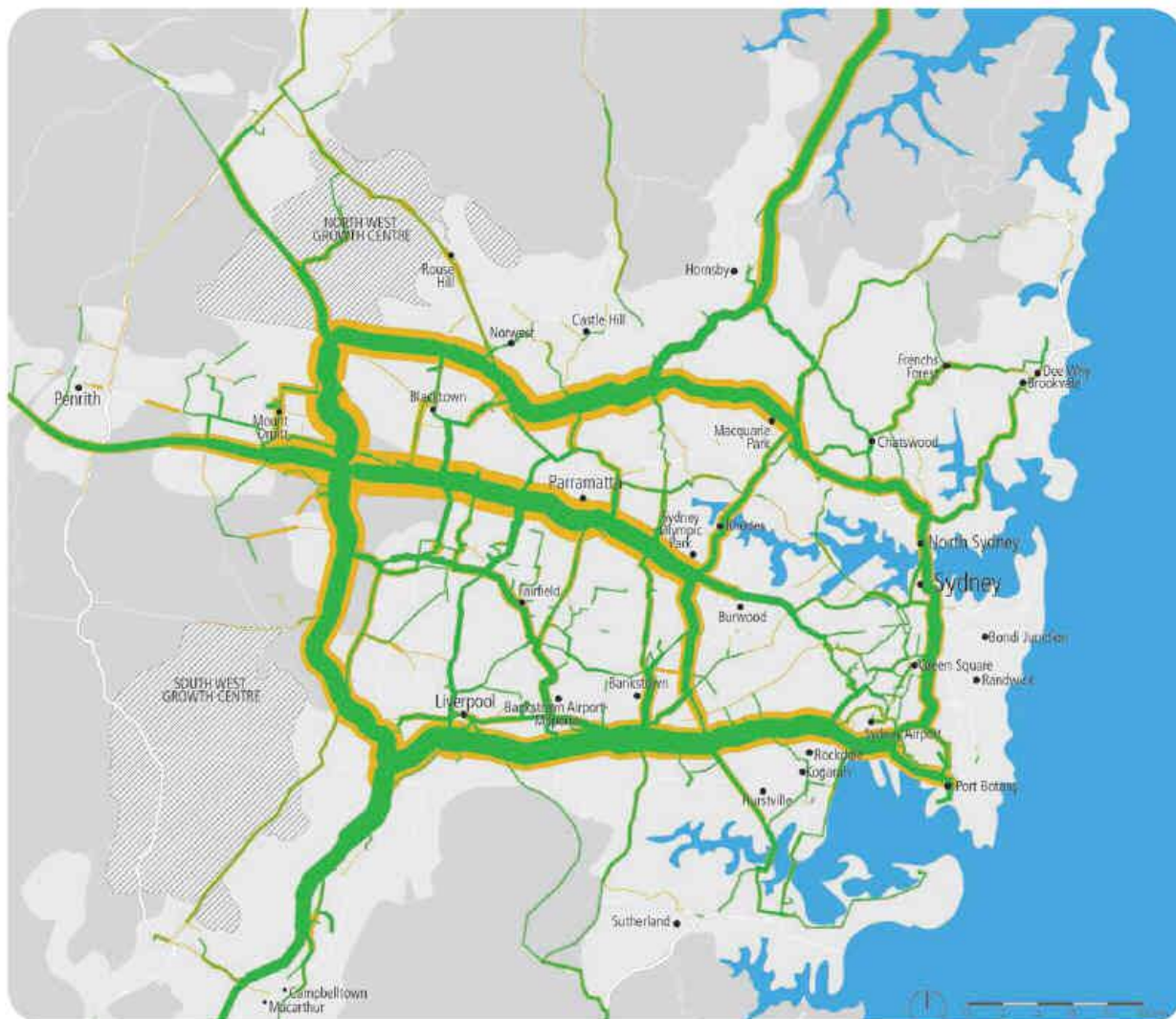
By international standards and by comparison with a tunnel and bridge structure such as that found in Scandinavia, tunnels in Sydney are generally of modest length, with the exception of the M5 East section of the Sydney Orbital road system. Moreover, with the exception of that same tunnel at its eastern end and the Sydney Harbour Tunnel, construction under bodies of water was not required. Accordingly, water penetration has not been a fundamental problem to respond to as a fundamental design concern.

In the case of the Sydney Harbour Tunnel, although it employs a system of "U" shaped concrete channels laid side by side on the bottom of the harbour, at this point close to the Harbour Bridge, the water is relatively deep, approximately 55 metres, which is adequate for the largest ships to pass over.

Reference to the Annexure A shows that Sydney has a relatively substantial system of tunnels of quite recent origin in a number of cases. However, what is also quite clear is that, in the absence of an expanded rail network, perhaps akin to the London Underground or Paris Metro type of system, the road network in Sydney would be quite impossibly inadequate without the extensive use of tunnelling. Currently the road system runs at close to full capacity for much of the working day, and it only takes a breakdown or some other hold up for the whole system to come to a halt causing massive dislocation of commuting and work journeys. For this reason, there continues to be discussion of extensions of the train service which appears to remain as an above ground train system except in central Sydney and below the CBD.

However, the focus of this discussion is the road system around Metropolitan Sydney, and in terms of volume of vehicles now and in the future, the most instructive information is contained in a map contained in the 2010 Transportation Master Plan. As can be seen from this map taken from the Master Plan document, a very substantial increase is anticipated by 2031 in the main concentrated to the west of the Sydney CBD. This suggests that a very significant shift of demand for access will occur and this is presumably associated with the anticipated success of a re-disposition of business activity away from the CBD to regional centres. This forms one of the objectives of the associated Sydney Metropolitan Strategy which has been published during 2013.

Of particular note is the extent to which traffic volumes are anticipated to increase in the section of the road system around the southern end of the Kingsford Smith airport previously discussed. This is the M5 East tunnel system which is currently at limit capacity on a fairly frequent basis. Clearly Sydney residents living to the western end of the Cumberland Plain can expect a series of projects likely to disrupt their journeys around the Sydney Orbital route. This is not an appealing prospect and in terms of earlier comments about ultimate population growth, does not address the key issue. Where will Sydney's residents go when the Cumberland Plain is full to capacity.



TRAFFIC VOLUMES AROUND THE SYDNEY METRO-REGION – 2011 AND 2031

ANNEXURE A - SYDNEY HARBOUR BRIDGE AND MAJOR ROAD TUNNELS IN SYDNEY NSW



Note: The material that follows has been obtained direct from the Roads and Traffic Authority website in Sydney.

This is located at: <http://sydneymotorways.com/about.html>

1 Sydney Harbour Bridge

Built in 1932, the Sydney Harbour Bridge is one of the worlds most famous landmarks and an international icon for Sydney and Australia. Remarkably, after 75 years the bridge has managed to hold its own as an amazing feat of engineering, coping with the relentless demands of Sydney's commuters while lending the city grace and beauty.

The bridge is used by almost 59 million vehicles each year. It provides a gateway between the City of Sydney and North Sydney and is a main artery for pedestrians, cyclists, rail and bus commuters, and motorists.

Roads and Maritime Services (RMS) is responsible for maintaining the bridge as an item of National Estate on behalf of the people of NSW.

Website: www.rms.nsw.gov.au

Fast facts

Opened: March 1932

Length: 1.149km (including approach spans)

Connects: The Warringah Freeway to the Sydney CBD and the Western Distributor.

Toll type: Time based toll, charged southbound only.

Toll payment: Electronic tag and NSW pass only.

2 Kings Cross Tunnel

The Kings Cross Tunnel is made up of twin 3-lane tubes beneath the locality in inner eastern Sydney known as Kings Cross. It was constructed by the cut and cover method and the airspace above the tunnel later sold for development. The tunnel was coordinated with the construction of the Eastern Suburbs Railway as they are in close proximity to each other.

Fast facts

Opened to traffic: 15th December 1975

Length: 500m (approximately)

Eastern Portal: Ward Ave (formerly Kellet St), Darlinghurst

Western portal: Victoria St, Darlinghurst

Route Markers: Formerly SR76 (1976-2004)

3 Sydney Harbour Tunnel

The Sydney Harbour Tunnel connects the Warringah Freeway on the northern side of Sydney Harbour to the Cahill Expressway, south of the harbour. It includes a one kilometre section below the harbour constructed by the immersed tube method.

The Sydney Harbour Tunnel Company (SHTC) owns, operates and will maintain the Harbour Tunnel until August 2022 when it will be transferred to public ownership.

Website: www.rms.nsw.gov.au

Fast facts

Opened: August 1992

Length: 2.7km

Connects: The Warringah Freeway and the Eastern Distributor.

Toll type: Time based toll, charged southbound only.

Toll payment: Electronic tag and NSW pass only.

Handback Date: 31 August 2022

4 Eastern Distributor

The Eastern Distributor provides a fast, efficient, easy link for travelling from the North, South and East of the city. It provides quick access between the City and the Airport. Designed for the minimum impact on the area it passes through, it is a good example of how urban design can create a blend between the old and the new.

The motorway slashed city-to-airport travel times by at least ten minutes and made journeys faster and safer for motorists, commuters, cyclists and pedestrians alike. Using the motorway bypass 19 sets of traffic lights.

The Eastern Distributor joins the Southern Cross Drive, the M5 East, the Harbour Bridge, the Harbour Tunnel and the Cross City Tunnel, giving motorists direct connections across the city.

Website: www.easterndistributor.com

Fast facts

Opened: December 1999

Length: 5.4km

Connects: The Cahill Expressway and Harbour Tunnel to the Cross City Tunnel and Southern Cross Drive.

Toll type: Flat rate, charged northbound direction only.

Toll payment: Electronic tag and NSW pass only

Handback Date: 23 July 2048

5 M5 East Freeway

The M5 East provides faster and safer journeys between Sydney's south-west and the city, Sydney Airport, Port Botany and surrounding areas.

The freeway is 10 kilometres long and connects the M5 South West Motorway at King Georges Road in Beverly Hills with General Holmes Drive and on to the Eastern Distributor. It also forms part of Sydney's orbital road network.

The M5 East bypasses more than 20 sets of traffic lights and takes up to 20 minutes off a trip between Liverpool and Sydney Airport. It has reduced traffic congestion in residential areas, improved traffic flow and removed heavy vehicles from key local roads, with safety, noise and air pollution benefits for the community.

A key feature of the freeway is twin 4 kilometre, two-lane tunnels between Bexley Road, Earlwood and Marsh Street, Arncliffe. A 550 metre tunnel passes under the Cooks River.

An alternative route is available to traffic during closures of the M5 East freeway. The alternative route is signposted as 'D5' along its length.

Website: www.m5east.com.au

Fast facts

Opened: December 2001

Length: 10.0 kilometres

Connects: The M5 South West Motorway to General Holmes Drive.

Toll type: No toll.

6 Cross City Tunnel

The Cross City Tunnel links Darling Harbour to Rushcutters Bay through separate east and westbound tunnels, avoiding 16 sets of traffic lights westbound and 18 eastbound. From the west, you can access the Eastern Distributor directly to the Airport. Coming from the east, you can avoid city traffic and access the harbour crossings.

The Cross City Tunnel was Sydney's first motorway with full electronic tolling. There are no toll booths and you won't be able to pay cash. Instead, to pay your toll, you need an electronic tag or an electronic pass.

Website: www.crosscity.com.au

Fast facts

Opened: August 2005

Length: 2.1km

Connects: The Inner West with the Eastern distributor and the eastern suburbs.

Toll type: Flat rate, charged northbound and southbound.

Toll payment: Electronic tag and NSW pass only

Handback Date: 19 December 2035

7 Lane Cove Tunnel and Military Road E-Ramp

The Lane Cove Tunnel bypasses up to five sets of traffic lights in each direction. Motorists accessing the Warringah Expressway from Military Road bypass up to 26 sets of traffic lights on the Pacific Highway.

As well as the development of the tunnel and Military Road E-Ramp, the project also included direct northbound access from North Shore.

Website: www.lanecovemotorways.com.au/

Fast facts

Opened: March 2007

Length: 3.6km

Connects: The M2, Gore Hill Freeway and Military Rd/Falcon St.

Toll type: Flat rate, charged northbound and southbound and on the north facing ramps at Falcon Street.

Toll payment: Electronic tag and NSW pass only

Handback Date: 10 January 2037

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