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INQUIRY INTO SCRUTINY OF PUBLIC WORKS IN NEW SOUTH WALES

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CITY OF SYDNEY
Sydney2030/Green/Global/Connected

City of Sydney Submission to the Inquiry into the scrutiny of public works in NSW Infrastructure appraisal in NSW

CITY OF SYDNEY 2030
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Executive Summary

This report considers the appraisal process for major infrastructure projects in New South Wales (NSW) for the purposes of the NSW Legislative Council Public Works Committee's Inquiry into the scrutiny of public works in NSW. Conventional infrastructure appraisal in NSW seeks to help government make increasingly complex infrastructure investment decisions by appraising proposals through the process known as Cost-Benefit Analysis (CBA). CBA is known for its limitations – including its traditional reliance on quantification of a narrow range of impacts. Additionally, the appraisal process has at times been compromised where investment decisions have been made and announced prior to consultation, problem identification and/or exploration of options. This has the effect of reducing appraisal to a rubber-stamping exercise, resulting in sub-optimal infrastructure investment and diminishing the public's trust and confidence in the process of infrastructure appraisal for all major projects.

This report highlights the need for a more holistic approach to infrastructure appraisal to address these issues. It recommends:

- an appropriate role for CBA in assessing and comparing options that recognises its limitations (see Section 1)
- better CBA processes, including testing the strategic alignment of options and assessing the right benefits with strategic objectives in mind (see Section 2)
- an enhanced role for other components that support the appraisal process:
    - more public consultation (see Section 3)
    - exploration of funding options to avoid project selection based on ease of funding (such as road tolls) (see Section 4)
    - greater focus on evaluating projects through Post-Opening Performance Evaluation (see Section 5)

While this report focusses in section 2 on the appraisal of transport infrastructure projects, the lessons apply to the appraisal of any public project. Projects must be designed and assessed with the strategic objectives of government in mind. Understanding those objectives will enable the appraisal to consider the right benefits - and not give undue weight to benefits that stack up misleadingly (such as minimal reductions in travel time).

Finally, this report looks at appraisal in the context of an increasing focus in NSW on urban renewal (see Section 6). Like transport infrastructure projects, the scale of time and investment in urban renewal demands a more intelligent approach to appraisal. Targeting the benefits of urban renewal early in the decision-making process will focus strategic government intervention to ensure urban renewal is planned and staged so as to realise the many wider economic benefits it is capable of producing.

A more robust, holistic approach to infrastructure appraisal in NSW will support better decision-making by government, produce better strategic and economic outcomes for the

State and help restore public trust in the delivery of major infrastructure and the associated spending of public money.

1 Conventional infrastructure appraisal in NSW

The process of deciding which infrastructure projects should be preferred and progressed by government is known as 'appraisal'. The process is required because need for public investment in infrastructure will always exceed resources and so choices have to be made. At the core of such choices should be the evidence that following a review of the options a specific infrastructure project or projects meet the identified needs, achieves the key objectives and delivers the required benefits better than other choices within the resources available. Essentially, in an appraisal process governments test the appropriateness and viability- or otherwise - of a proposed infrastructure investment against certain key criteria and evidence.

1.1 The infrastructure appraisal process

Although practice does vary across the world and there is, as we note, considerable professional debate about what criteria and evidence are appropriate to rely on, the infrastructure appraisal process everywhere tends, formally, to be a multi-stage one. Common core features of appraisal processes are:

- identification of the strategic need or problem to be resolved
- development of a *functional specification* that identifies what the solution should 'do' in order to address the strategic need or resolve the problem.
- identification of a range of options to deliver the *functional specification*
- options analysis – the testing of a number of alternatives, followed by
- a Cost-benefit Analysis of the preferred option.

Crucially, best practice appraisal approaches, as we shall see, also include widespread public and stakeholder involvement in both the identification of need and options appraisal. Options appraisal typically is not restricted to a single mode or sub-set of mode, but rather covers all realistic modes or combinations of mode that meet the social need identified. Some examples we have seen, such as that in Toronto (see below), enable a formative and transparent involvement of non-governmental experts and community leaders in appraisal.

In New South Wales, the government has provided the following guidance for the appraisal process and capital business cases:

- NSW Treasury Policy and Guidelines Paper 17-03 NSW Government Guide to Cost Benefit Analysis (TPP07-6)
- NSW Treasury Policy and Guidelines Paper 08-5 Guidelines for Capital Business Cases (TPP08-5)
- Infrastructure NSW's State Infrastructure Strategy 2018-2038 (SIS)

The NSW government advises that all significant government projects should be appraised through the process known as Cost-benefit Analysis (CBA) , as an essential component of preliminary and final business cases.

While CBA can assist in understanding the economic benefits, it is widely accepted that a CBA provides a measure to be considered in decision making but should not be the only measure. In NSW the most oft-cited examples are the Sydney Harbour Bridge and the original heavy rail network, neither of which would be sufficiently beneficial to justify their delivery under the CBA appraisal. They were, however, incredibly socially beneficial and overtime completely transformed the Sydney economy.

1.2 Infrastructure Australia's view on appraisal

Infrastructure Australia has suggested improvements to infrastructure appraisal in Australia. In a speech to the Committee for Economic Development of Australia on 25 June 2018, IA's Chief Executive Philip Davies released a progress report on the 2016 Australian Infrastructure Plan, "Prioritising Reform". The report acknowledges some progress to infrastructure reform across Australia, including heavy vehicle road use charging, long-term corridor protection and better integration of transport and land-use planning. However, Mr Davies observed that in relation to project selection, "there remains significant room for improvement". Governments should be doing more to ensure proper planning, evaluation of all available options and selecting options with positive cost-benefit ratios before announcing project funding. Mr Davies identified the risks of poor planning producing the wrong projects and denying funding to worthier investments. Section 1.4 below describes the key tool for appraisal (i.e. cost-benefit analysis) which provides the context for subsequent discussion on how to improve its application in project selection.

1.3 Better processes to avoid public contestation of major projects

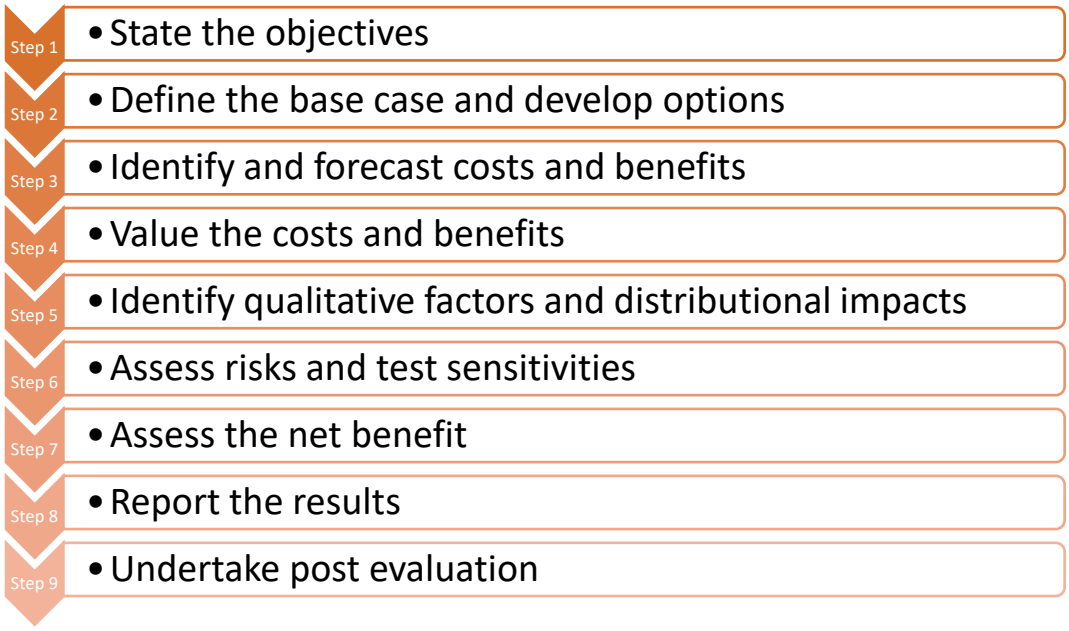
We also note the recent announcement of an inquiry by the NSW Public Accountability Committee into the impact of the WestConnex project. This development further highlights the need to improve the appraisal process to reduce the risk of major infrastructure projects being contested in the public arena years into their delivery phase.

1.4 Cost-benefit Analysis

1.4.1 A multi-step process with limitations

NSW government guidance suggests a nine-step approach to CBA (see Figure 1)

Figure 1: Steps to CBA



The guidelines acknowledge some limitations of CBA:

- it is not always possible to quantify impacts
- conventional CBA ignores equity concerns and distributional impacts (meaning the significant societal benefits can be lost in the process)
- CBA can be too onerous and expensive
- there is inherent uncertainty in assessing impacts that will occur in the future

In its State Infrastructure Strategy, Infrastructure NSW (iNSW) also acknowledged issues with the conventional approach to infrastructure planning:

- projects can be prematurely announced putting delivery at risk and leading to delays and higher costs
- projects have been selected without adequate consideration of alternatives
- CBA has taken a narrow approach to benefit identification
- appraisers tend to be overly optimistic in conducting CBA (optimism bias)

To mitigate these concerns, iNSW encouraged NSW Treasury to "continue to explore options to improve the quantification of social and environmental factors in cost-benefit analysis and manage optimism bias, consistent with best practice in other jurisdictions".

We echo the concerns listed here in relation to CBA by the state and federal infrastructure bodies and below outline our own suggestions for improving infrastructure appraisal and CBA in NSW. Our recommendations are grouped under the following topics:

- Capturing the right benefits in transport appraisals
- Increased public consultation

- Making appraisals and funding more city-focussed
- Appraising urban renewal programs
- Post-Operation Project Evaluation (POPE)

First, it is worth considering what CBA can tell us, and what it can't.

The need for a more holistic approach in which CBA plays its appropriate, limited, role, was emphasised recently in an overview of economic appraisal methods by the International Transport Forum (ITF). The ITF is an OECD forum for transport policy makers and in that capacity, based on extensive experience, it stresses that while 'CBA is and remains a valuable tool for bringing structure, rationality and transparency to infrastructure decisions', it is 'not in itself sufficient to make decisions'.

And while CBA is 'very well suited to comparing projects that concern the same mode, for example different road projects, 'intermodal comparisons are more problematic'. Indeed, it concludes that CBA does not provide complete guidance for intermodal comparisons, even if the projects are similar apart from mode'.

Furthermore, CBA is 'too limited to verifying the rate of return of a given project and does not focus sufficiently on the long term' and the methods that CBA uses 'are well adapted to analysing the variants of a project already chosen, but they cannot be implemented completely in the upstream stages, where decision-makers have the greatest need for guidance'.

In short, CBA can't tell us which mode is the right option for the job; whether it be road, rail or something else. More importantly, it isn't very good at telling us what the 'job' is that needs to be done. That requires a more holistic approach to appraisal, where the key infrastructure projects are ones which on evidence deliver the outcomes sought in a city's integrated land use and transport strategy: that integration being based on 'upstream' thinking and planning ahead of option-identification and delivery further 'downstream'.

As clearly demonstrated in published business cases for WestConnex, the options considered were simply variations of toll road regimes. It has been published that alternatives, such as public transport, were actually prohibited from being considered. This typical action occurs because the appraisal development is, typically in NSW, conducted by a funded project. From the outside, then, it appears that the only role of the appraisal is to support an already made decision. There is no desire or incentive for a capitalised project to undertake an appraisal that has any possibility of finding that the project is not the correct project.

2 Capturing the right benefits for transport projects

There is a mismatch between federal and state governments' ambition to boost jobs growth and economic prosperity in cities and the system used to prioritise transport investment and funding.

It is a system that developed during an era in which only modest budgets were available for managing the decline of cities: ill-suited to today when cities are once again the drivers of the country's current and future growth and success. Investment decisions, often heralded as

economic decisions, are made without reference to their impact on the competitiveness and economic performance of cities, nor their social effects whether positive or negative.

Centralised decision-making means transport decisions are evaluated independently of their impact on the economy or interaction with other policies, something which astonishes non-economists and even some politicians. It also shocks the public, which struggles to comprehend how projects that clearly do not align with public aspirations for a better place to live receive such high appraisal priority. A bad project with a great CBA is still, after all, a bad project. Public value is multi-dimensional.

Major investment decisions must be shaped by a more holistic view of cities' needs and the aspirations of its citizens. This must start with the cities' own growth imperative and be supported by strong risk analysis, rather than a narrow transport appraisal system that assumes the development of the economy is broadly independent of the transport system.

Australia's current appraisal and funding system is based on the assumption that transport investments are made to generate welfare improvements for passengers, rather than to change the economy's output potential. The problem is that this is incapable of identifying likely future needs where the economic system is dynamic and is likely to result in damaging under-investment.

Where there is the potential for structural economic change, accompanied by major spatial change locally and regionally, such conventional transport criteria are unlikely to provide a sufficiently full view of likely future transport requirements. The changes experienced at Canary Wharf in the UK show that past trends are not a useful guide to the future in all circumstances.

Our current static framework for evaluation, particularly of large-scale and long-term projects is inappropriate. It will not capture the feedbacks that change the nature of places, even when so-called 'wider benefits' are taken into account. The alternative is to start from the proposition that growth can be created by transport investment that is locally determined in the context of integrated city region growth plans, and then consider what might happen in the absence of such investments.

2.1 Narrow focus on marginal travel time savings

In the current process, travel time benefits are aggregated across all future users to estimate the total economic value, which is then compared with the costs of the investment in order to reach a decision on value for money. This can mean aggregating the 'benefits' to a million users of only a 2-3 minute reduction per 60-70 minute journey. This results in a large overall number for the purposes of an appraisal of the 'significant benefits' of a project which has very marginal benefits for the individual.

To be clear: this aggregating approach focussed on the overall monetary value from all users can mean that the fact that the travel time reductions claimed are insignificant for actual individual mode users is usually elided in published CBAs. A more significant time-saving, even if it is on a lower number of journeys, should be valued more than an almost worthless saving of two or three minutes on a high number of journeys. However, current appraisal practice in NSW is to aggregate and prioritise as benefits even small time-savings to motorists, despite the precarious justification (and little evidence) for a few seconds or

minutes being of any value whatsoever. We recommend instead that CBAs should omit such small time savings for individuals on a de minimis basis.

SGS Economics found that the savings used to justify WCX were largely illusory, smaller than the actual five-minute rate of error in the model used to measure the savings. Thus less than 40 per cent of the proposed benefits are ever likely to be realised.

Furthermore, the projected savings are often eroded by congestion that then occurs at adjacent points to the evaluated network. Screenlines used in the WCX evaluation were found by SGS to be carefully selected to disguise the likely elimination of benefits gained on the tollway once the additional congestion that occurred when travellers reached their target local road network much quicker, and thus in compression, than previously possible.

However, such minor reductions on travel time are dealt with, our findings reinforce the view that despite extensive and continuing public investment in such road infrastructure in Sydney - with each scheme justified on the basis that the value of the time saved outweighs the construction costs - actual recorded travel time has tended to remain more or less constant.

Evidence from numerous studies internationally and also from our own local experience supports this. The NSW Bureau of Transport Statistics' Household Travel Survey undertaken in Sydney shows that not-withstanding continuous expansions in motorway capacity, the average daily travel time in Sydney has been stable at about 80 minutes a person for the last decade. Furthermore, if commute times have changed at all the evidence, despite increased expenditure and road supply, is that average work trips in Sydney appear to have crept up over the 2002/3 to 2014/15 period, from 32 to 35 minutes – and might have gone higher had it not been for the GFC and its knock on effects including higher oil prices (now moderated) which took some cars off the road in the latter part of this period. It is in response to such results that one leading academic has noted that 'the steady trend of travel time … shows no suggestion of a reflection of such variation in new capacity, and hence offers no support for the idea that average travel time would have been higher in the absence of new road construction' .

Table 1: Rising work trip durations in Sydney

	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Av. Work trip duration (mins)	32	31	32	33	34	34	34	34	34	35	35	35	35
Av. Non-work trip duration (mins)	18	18	18	18	18	18	18	18	18	19	19	19	19
Daily travel time per person (km)	81	81	81	80	82	82	82	79	80	80	81	80	80
Total travel per person (km)	32.2	32.1	32.1	31.7	31.9	31.8	31.4	30.6	31.2	31.9	31.9	31.0	31.0
Av. Trip length (km)	8.3	8.2	8.2	8.2	8.3	8.2	8.2	8.3	8.5	8.7	8.7	8.5	8.5
VKT per person (km)	18.9	18.8	18.8	18.2	18.3	18.1	17.9	17.5	18.0	18.4	18.5	17.7	17.5

2.2 Ignoring induced demand effects

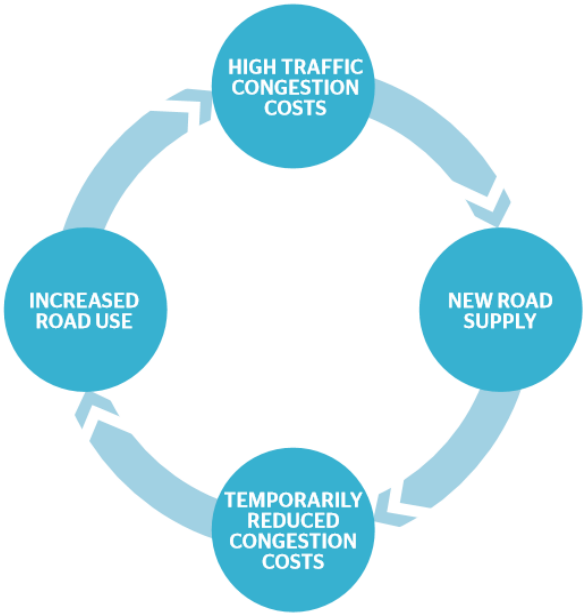
Induced demand happens when increasing the supply of roadways actually triggers demand to use them, especially when the supply is free or under-priced. That is, supply can actually create demand. Extra supply does this through initially lowering driving times thereby causing more people to drive and thus cancelling out all initial reductions in congestion. Congestion constrains growth in peak-period trips, but if road capacity is increased, peak-period trips also increase until congestion again constrains traffic growth.

This is the ‘triple convergence’ of induced demand, which occurs as additional travellers will tend to converge on new roads from:

- other times of travel;
- other routes of travel; or
- other modes of travel.

A failure to fully account for this effect distorts the appraisal process and leads to perverse consequences. Wherever supply-side strategies have been attempted, it has been shown – and not just academically but in the lived experience of commuters – that if you build it, they will come. As shown in Figure 2 below, this process amounts to a self-reinforcing loop.

Figure 2: Induced demand loop



Without this understanding of induced demand, the current appraisal methodology either at its worst ignores the phenomenon or at best produces forecasts of induced demand that fall well short of those observed in practice or stressed in academic research. Transport models must be reconceived as interacting systems where all the elements of trip making (generation, distribution, mode choice and routing) have simultaneous feedbacks with each-other. Such feedbacks must inform a proper appraisal process.

Such appraisals must also accept that the social and place impacts are real and those "costs" must be given a real value. The property impacts of pollution stacks, the loss of property values around portals, the health impact of increased noise at every concentrated entrance and exit. The network impacts as vehicles that once accessed at regular intervals the existing trunk route being funnelled to the limited number of entrances and exits, significantly effecting communities for kilometres around the project portals. If a project such as WCX is in fact truly believed by Government to be beneficial for the community it represents, then it should measure the effects across all of those effected. It should also include all the costs of all "supporting infrastructure" such as heavily modified local road networks on the routes to and from portals, not just the core project construction cost. If it has to fudge any of these elements, then there is no project justification.

2.3 Wider benefits of transport infrastructure – the UK approach

In the UK in the first part of this century, the UK government developed a New Approach to Appraisal (NATA) which recognised that traditional transport economic appraisal was not reflecting the full value for money of public transport schemes, nor their contribution to wider policy objectives which could not be monetised within a benefit-cost ratio.

Within the NATA framework, the impacts of transport projects were categorised in terms of five high level criteria reflecting the Government's objectives for transport. Each of these

criteria were divided into a number of sub-criteria and it is against each of these sub-criteria that the impacts of a proposal were assessed. The division of the five criteria is shown below:

- Economy: Public Accounts, Transport Economic Efficiency: Business Users & Transport Providers, Transport Economic Efficiency: Consumers, Reliability, Wider Economic Impacts
- Safety: Accidents, Security
- Environment: Noise, Local Air Quality, Greenhouse Gases, Landscape, Townscape, Heritage of Historic Resources, Biodiversity, Water Environment, Physical Fitness, Journey Ambience
- Accessibility: Option values, Severance, Access to the Transport System
- Integration: Transport Interchange, Land-Use Policy, Other Government Policies

However, the problem remained that, despite an appraisal framework in the UK that permitted consideration of wider benefits, the mechanisms by which transports schemes generated such benefits were not identified, quantified or most importantly valued. This is where agglomeration benefits come in as cities exist because of and to promote agglomeration. Appraisal needs to recognise and support this and the role that mass transit modes like rail play in enabling successful agglomeration, a role not captured in traditional transport economic appraisals.

2.4 Transport infrastructure to support cities and agglomeration

An essential reason for the existence of cities is that the productivity benefits from undertaking economic activity in high-density areas outweigh the costs of other factors such as paying for the additional transport. Even though businesses have to pay higher rents, wages etc. when they locate in a city centre, they still find it worthwhile to do so. Why do such productivity benefits come about? Four specific examples can be identified of why clustering enhances productivity – and they all lead back to agglomeration benefits. Clustering leads to:

- a larger, deeper, labour market – providing employers with more choice of skills and more competition for jobs;
- more competing and complementary businesses and institutions – providing additional pressure for innovation and efficiency and enabling greater specialisation amongst support services;
- a larger, deeper, client market – London's Finance and Business Services(FBS) sector for instance is a global player attracting business from around the world;
- greater potential for contact and knowledge sharing – both informally via social interaction and more formally via conferences.

Agglomeration is a common process particularly in knowledge-based economies and explains why jobs cluster and hence why cities exist. Transport improvements are an important contributor to agglomeration - particularly mass transit options which can deliver more people into high value service economy city centres where land is limited. On the other hand,

a transport network that focuses on roads is likely to increase congestion and disperse both residential development and jobs, missing out on the valuable agglomeration benefits that increase the return to society on major transport infrastructure investment. The effective density of a city will be improved if links between firms within the city are improved. In addition, overall city employment will be increased if constraints on getting into the centre are relaxed. So, cities exist (at least in part) because of the link between density and higher productivity, and transport improvements help to increase density in the first place.

3 Enhancements to support appraisal of the right projects

3.1 Engage the community earlier and more often

It is striking how much emphasis is put in the UK (both in the UK Treasury Green Book and in the UK Department for Transport's Transport Analysis Guidance (TAG)) on transparency and early and repeated public consultation, genuine feedback into process re-engineering and stake-holder engagement.

In TAG, from early on (stage 1), 'All interested parties - including local people, local authorities, regional partners, statutory bodies, businesses, environmental interests, transport users and operators - will need to be involved in the study, and help shape decisions'. Such 'wide participation and consultation' will be 'a key factor in gaining public support and gauging acceptability for options put forward in the studies'. Note this means not just information provision and goes beyond consultation to participation 'either through the steering group or through other means by which the public and other interests have a direct influence on the outcome of the study'. Their views can then 'be accounted for in selecting the better performing options to be taken forward for further appraisal in Stage 2' (p. 5).

TAG not only requires public consultation in the option development state (stage 1). It also includes ongoing stakeholder engagement throughout the further appraisal of options, and a second round of public consultation on the appraised options before a preferred option is selected. This public consultation will aid the option selection process as well as inform the detailed design process.

These notions build on the earlier TAG criteria for developing transport solutions: transparency, avoidance of bias, and public acceptability. Transparency and engagement are rightly considered key parts of the appraisal process - for reasons of improved efficiency, accountability and thus public 'buy-in'. Such proactive openness and public inclusion will then help minimise delays later in the process Potential problems are raised early which might otherwise only be raised later at greater cost and controversy.

Transparency and engagement clearly help with public acceptability which needs to be maximised particularly in big city-shaping transport projects. While it is not to be expected that everyone will agree with every scheme, within this constraint, it is possible to maximise acceptance, by ensuring that people feel both that they have the access to the relevant information, evidence and objectives which have informed the appraisal process and that their views have been heard, respected and taken into consideration.

A key acceptability factor is indeed how far people were listened to during the process of defining the transport problem. This means not just consulting after there has effectively been a professional or political decision on what type of infrastructure, mode and project are 'required'. It means involving communities openly in the identification of urban problems and infrastructure solutions. It means them being seriously involved in options analysis not just being offered several limited 'alternatives', which are really just modest variations on alignment rather than choice of modes.

Transparency also means limiting the use of withholding information from the public on the grounds of commercial confidentiality. Too often we have seen business cases withheld or highly redacted at stages of the process where the public should be kept 'in the loop' to maximise the value of public consultation and ensure the right projects are selected. This method of essentially censoring public debate may well assist specific projects to proceed under lesser scrutiny. However, the cost extends to not only undermine the legitimacy of that project's selection and appraisal but rightly increase public dissatisfaction and mistrust in the infrastructure appraisal process more generally.

Thus, we recommend meaningful and substantive public participation in the development of infrastructure plans and programs by engaging stakeholders early and throughout the planning process. Early and continuing engagement with the public is a vital part of the infrastructure planning process and can play a key role in building community consensus and support for transportation investments. Inter alia, we commend Infrastructure Victoria and NZTA for its use of citizen juries in designing its new State infrastructure strategy, but believe this should be extended to ensure community views are properly represented and the advice of a broad range of experts is made available to support decisions.

3.2 Avoid siloed decision-making

One other reform needs to be suggested to allow the appraisal process to work for cities. Siloed government leads to modal bias. If your very purpose as a department is to build roads you are simply not going to recommend a rail project. This structural problem requires a number of reforms. One is that no significant infrastructure project in Sydney should proceed past the 'strategic fit' requirement without the approval of the Greater Sydney Commission to show it conforms with the Greater Sydney Region Plan. Beyond that the day cannot be far distant when we see a fully unified transport department subsume a roads section. Cities cannot have the infrastructure they need in the round – or community confidence in the growth strategy for their city – where there is a separate and powerful department for a single mode.

3.3 Expanded funding options to support the right projects

Cities need to have funding guarantees that cut across political cycles, fiscal devolution that allows cities to keep a greater proportion of the tax revenue generated by investment, and additional powers over transport services. We know from cities around the world that devolution and more integrated approaches to investment will secure better infrastructure, unlock growth and create new, locally determined funding opportunities

With very little control over services, funding, or borrowing, constraining their ability to give a clear focus across policies at the local level to promote sources of competitive advantage in the interests of local and national productivity. Australia's system means city funding comes

down a complex set of pipes, with no connections or integration at the city level. A more devolved system could not only take a more coherent view of the investment needs of cities, but also prioritise on the basis of a wider set of criteria than is currently possible.

We need to see a city, state and Federal government partnership not just for discrete short term projects but for longer term: about outcomes for the place and its people over time. We need to see this partnership to agree to move from governments funding projects via grants to key interventions or policy shifts agreed in an investment framework of a city business plan, with strategic objectives such as to:

- raise Gross Regional Product in a certain period by an agreed amount
- raise the proportion of graduates in the resident population
- raise the innovation rate in the city or
- improve job density and access to high value jobs
- agree an approach to valuation and appraisal which fits specific city needs and objectives
- create an agreed evidential basis of status quo situation before interventions so changes in outputs or outcomes can be measured and appropriate steps taken to remediate performance
- that also means agreeing a common approach to benchmarking city performance
- identify new funding streams to enable development – for example value capture or agreement on a long term strategic area approach to development levies or taxes.

This allows us to consider the capital financing of transport projects in a new way. A project which offers proven, realistic potential to add to jobs and productivity will raise the total sum of taxes generated and present new sources of finance over time. And in due course, there will be continued streams of activity-generating benefits.

By viewing spending priorities in this way, we can break with the constraints of short-term decision-making and spending approaches to create a virtuous investment and performance that rewards a spirit of entrepreneurialism in our cities.

3.3.1 Expanded funding case study: The Greater Manchester example

Combinations of factors are what create a place and which leverage variety of investment. The Manchester Metrolink, when first opened, beat expectations of ridership and leveraged private investment into the city. Reinvestment in St Peter's Square in Manchester, as well as in the airport, has also been leveraged as a result of better connectivity that has been secured through the current Metrolink expansion programme.

However, it is important to note that this expansion programme has been facilitated by a locally-led, risk-based funding programme with a significant proportion of finance secured through borrowings against future farebox returns and local Council Tax receipts. This approach has allowed Greater Manchester to deliver regeneration-led investment projects, such as the Manchester Airport Metrolink extension, which perform less favourably under national welfare-based analysis approaches, than the productivity-led analysis and prioritisation used by the Greater Manchester authorities.

3.3.2 Innovative funding and investment frameworks

3.3.2.1 Earnback model

The UK government has agreed in principle that up to £1.2 billion invested up front in infrastructure improvements by Greater Manchester will be 'paid back' to the combined authority as real economic growth is seen. This is the first tax increment finance-style scheme in England outside London.

3.3.2.2 Investment framework

The Manchester example also saw a major shift towards local decision-making by endorsing the Investment Framework which Greater Manchester will use to align funding and assets to prioritise economic growth in the region and cut red tape. This approach, already used in the Greater Manchester Transport Fund, prioritises projects for investment based on their economic impact. By bringing together different funding streams into one pot and increasing the ability to make local decisions on priorities, funding can be invested with much greater flexibility.

4 Post-Opening Performance Evaluation (POPE)

While evaluation is similar in technique to appraisal, it uses historic rather than forecast data, and takes place after the event. Such evaluation is crucial as its main purpose must be to ensure that lessons are widely learned, communicated and applied when assessing new proposals. Such a review of actual outcomes and benefits against predicted results from infrastructure projects strikes is international best practice – and should be developed further in NSW. It is difficult to see how state infrastructure appraisal and procurement processes – or the performance of infrastructure itself - can be improved without such evaluation or POPE (Post-Opening Performance Evaluation), though thus far in NSW it must be emphasised that it has not been the norm to employ such an approach. Such evaluation is best practice – and the community expects it now.

Of course, whether or not government and their agencies review their infrastructure choices, the community does. They know when something works and when it doesn't. They see when a toll road fails financially or doesn't sort out congestion. They know first-hand if the promise of a quicker road commute fails to get them home on time. They know an empty or over-full train when they see it. Public confidence in the provision of transport infrastructure is undermined when it fails to live up to the promise of its boosters. POPE is vital to restore confidence by improving infrastructure planning and delivery through learning from performance data.

POPE is also a valuable way of calibrating the values placed on various elements in appraisals, so that over time they become more reliable and real and less open to gaming by project proposers.

4.1 POPE in the UK

POPE studies are undertaken for all of the UK Highways Authority's 'Major Schemes' and indeed Local Network Management Schemes. The key aim of POPE is 'to identify the extent to which the expected impacts of highway schemes have materialised and to inform thinking on current and future national scheme appraisal methods' . POPE studies are undertaken for each Major Scheme one year and five years after opening and the results are published on the

Highways Authority website. POPE is also the mechanism whereby the HA can determine the extent to which major schemes once implemented:

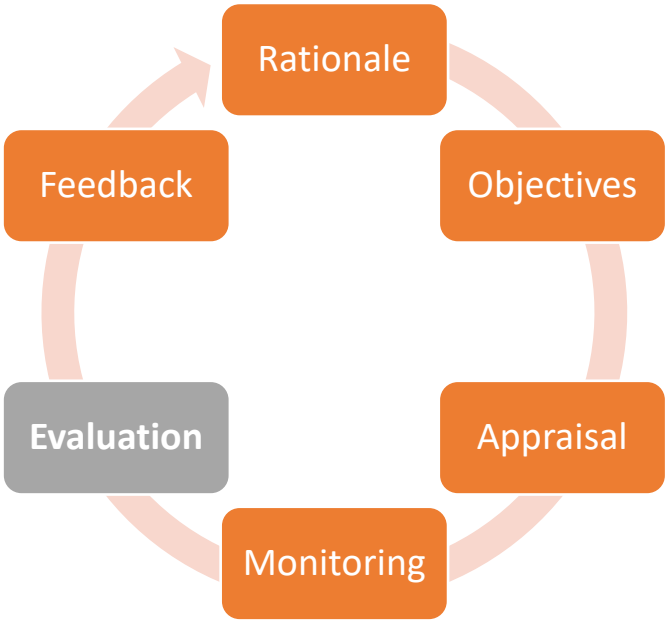
- are achieving their objectives
- offer value for money
- realise the estimated costs and benefits
- deliver or fall short in the accuracy of forecasts of scheme impacts compared with observed outcomes

4.2 Good quality evaluation feeds into future system improvement

So significant a part of the process is evaluation that the UK Government has dedicated guidance on it known as the Magenta Book. What it calls ‘good quality evaluations’ feed into future policy development or project selection and design and ‘occupy a crucial role in the policy cycle’. It adds: ’Not evaluating or evaluating poorly will mean that policy makers will not be able to provide meaningful evidence in support of any claims they might wish to make about a policy’s effectiveness. Any such claims will be effectively unfounded’.

Evaluation is an integral part of a broad policy cycle that the UK Treasury Green Book formalises in the acronym ROAMEF. This stands for Rationale, Objectives, Appraisal, Monitoring, Evaluation and Feedback (see Figure 3).

Figure 3: The ROAMEF Policy Cycle



4.3 Local government and smart POPE

Given the role of local government in designing and delivering key infrastructure and in developing ‘smart city’ initiatives, there is a unique potential to bring the two together in a ‘smart infrastructure evaluation’ project. Evaluation of actual performance by infrastructure will clearly be greatly improved by new digital technologies/sensors. Properly designed, implemented and deployed, these will enable us to derive early (indeed immediate) and ‘big’ data from infrastructure performance and provide feedback which can help identify what

lessons can be learned from success or failure in achieving claimed outcomes, so as to improve the appraisal and procurement process.

Local Government should, as the curator of place for its community, have the capacity to provide metrics on the changes to land value, liveability indices and economic performance of the connected networks that influence community benefits.

5 Appraisal of urban renewal programs

The NSW Government has committed to identifying opportunities for urban renewal as recognised in the Sydney Region Plan - Vision to 2056. Urban renewal is needed to provide housing supply, investment and to ensure prosperity of NSW's urban centres.

Urban renewal is currently guided by development controls, masterplans and planning schemes to identify locations for urban renewal. However, there is a lack of established frameworks to prioritise and guide urban renewal based on best economic and social benefits for the city.

5.1 The policy case for government involvement in urban renewal

While urban renewal can happen incrementally as established urban areas are modernised and change, it may also be facilitated by a dedicated public effort. Some renewal schemes involve the redevelopment of low income or social housing stocks. The economic equation in these areas is such that, to maintain affordable dwellings or social housing, governments are required to commercially redevelop large portions of their land holdings

In the last 20 to 30 years, Australian capital cities have become more dependent on service sector activity and less dependent on manufacturing and industry. This structural change decreased the need for industrial land uses and left parts of inner city areas underused and blighted (e.g. dockland in Melbourne, Pyrmont in Sydney). Repurposing of these areas has often involved significant government effort to remove impediments to private sector led land use redevelopment (including remediation and site assembly).

There are a number of government own land holdings in former industrial areas that are underused and offer possible opportunities for redevelopment. These sites are often in strategic and well-connected locations capable of accommodating a mixture of uses including housing and employment. The role of government in realising the potential of these underused land holdings is critical. From de-risking sites, selling them to developers, and to ensuring the future uses are in the community interest.

There are several successful renewal projects which have demonstrated community benefits. The High line in New York is a unique ribbon of parkland and civic amenities winding through the city, built on a refurbished, elevated rail line dating from the 1930s that had long been scheduled for demolition. The renewal now generates about $900 million in tax revenues for New York City.

The City is aware that Arup has recent ex-post economic appraisal of the Pyrmont Ultimo urban renewal scheme. The appraisal valued several benefits including:

- Attracting more people to NSW
- Increasing productivity

- Increasing employment prospects due to provision of affordable housing
- Public health care cost savings
- Public infrastructure cost savings for Sydney
- Open space benefits

The Arup study demonstrated how Cost Benefit Analysis can be used to value the economic impact of renewal schemes. The overall recommendation is that where the purpose of a transport proposal is to help facilitate centre based economic development or renewal this should be implicit in the infrastructure business case and economic appraisal. This can result in better project selection and a stronger economic case.

5.2 Target objectives for urban renewal

We have identified the following objectives for government when pursuing urban renewal programs:

- Additional housing: Urban renewal that results in additional housing in infill location can shorten the distance many individuals need to travel in order to access employment and other services. For car users, this reduces travel time and vehicle-operating costs, but also reduces the costs imposed on other road-users through the contribution to overall congestion.
- Access to public transport: Urban renewal schemes near public transport can encourage mode shift from private vehicles and reduce the need for individuals to own vehicles. This increases public transport fare revenue and reduces the need for parking provision in new developments
- Access to jobs: Urban renewal that includes a variety of housing types in transport rich locations close to employment centres helps to support productivity and reduce job search costs, providing the ability for people to access the types of jobs they are best suited to. Affordable housing in job rich locations can increase the ability for some to participate in the workforce given improved access training and job opportunities within reasonable travel times
- Reduce sprawl and costs to government: Urban renewal can slow the pace of urban sprawl and avoid the need for government to provide infrastructure on the urban fringe. This can provide a large benefit to governments. The costs to service urban fringe areas are higher due to new infrastructure delivery and low economies of scale being reached. By contrast, renewal in established urban areas can occur with some supporting infrastructure already in place including roads, water and sewer networks, power and communications systems as well as access to transit and community facilities.

It is particularly worth noting that urban renewal benefits are hugely relied upon to justify public transport infrastructure, perhaps overly so, because of the distortions of the current appraisal process. However, in the roads case, the disbenefits of sterilizing large tracts of land around portals and with pollution stacks is not counted. Oddly, though, projects such as WCX are appraised on the urban development benefits along the corridor to be “relieved” of traffic. WCX was largely appraised as positive because of the proposed uplift to be delivered along Parramatta Rd. However, subsequently, these benefits appear unable to be realised because WCX estimates traffic will increase on Parramatta Rd post WCX construction.

6 Conclusion

Sydney's infrastructure boom can deliver even more benefits with a reformed appraisal process. The elements of the reform package are not just available from cherry picking the best international practice (though that should be done). They are also available by building on the best practice and change in approach being advanced here in NSW through bodies such as the Greater Sydney Commission and initiatives such as the City Deal for Western Sydney.

Certain principles must underpin this reform process to ensure we select the right infrastructure and to reassure the public about the objectivity and empiricism behind decisions. With tens of billions being allocated to infrastructure as of writing, it is important that this process is based – and is seen to be based by Sydneysiders - on firm evidence that a specific road or rail project is the answer to a specific need or fits a key strategic purpose for our city.

It should be tested rigorously against other options and modes – for example, does a railway answer the need better than a road project? We also need to test whether a 'no new infrastructure option' involving the more efficient 'sweating' of existing assets might deliver as much public benefit as a multi-million dollar new piece of kit. Road pricing and demand management are for example far more effective at managing congestion than new road capacity. This also means that the appraisal process needs to be multi-modal or modal-neutral and not over-influenced by the inevitably siloed bias of a single government agency.

A project's value for money, its total costs and benefits and all its potential up and down sides should be objectively and transparently be assessed. Currently too much weight in the selection process is giving to projects which purport to significantly reduce travel-time – 80% of the benefits claimed for a road scheme can be travel time reductions which research and our own experience demonstrate are never ultimately realised.

At the same time, too little weight is given to the residential value uplift achieved by some modes over others. This is a crucial benefit of rail projects whose value uplift should be captured by the public sector to subsidise infrastructure costs. Rail projects enable higher density, reduce a city's sprawl and encourage economic agglomeration – all such benefits count for little in our current approach.

Crucially, the project's capacity to raise or depress productivity and create jobs should be a key factor as will how the project fits with and reinforces the objectives of the overall development plan for Sydney – for example, will this project reduce or further entrench our city's sprawl and better connect the West with economic opportunity? Current appraisal processes don't require such a strategic fit with the statutory plan for growing Sydney. They must.

To ensure that any such benefits are in fact realised, before the project is implemented a data baseline for the area impacted by the infrastructure project should be modelled so that after implementation a true picture can be identified of the actual benefits achieved in relation to benefits claimed beforehand. Then we can know whether those travel time reductions actually happened, congestion improved, remained the same or went backwards, whether residential values rose or fell, did the number of jobs claimed actually eventuate and overall

and crucially, did the strategic improvement sought for the city from this project take place: overall, did the city function better or worse as a result of this project? On the basis of this learning and feedback, our appraisal, infrastructure planning and procurement process would be significantly improved.

At the heart of this reformed appraisal process would be a deep and transparent process of community engagement not only on the basis of ensuring accountability but also to secure buy-in to the project as a legitimate and perhaps only answer to the strategic need identified. Big infrastructure projects have massive city-shaping and indeed potentially city-damaging consequences, as well as massive costs. Clearly, the community should have open and continued access to the key information or arguments driving infrastructure decision-making and their views must be factored deeply into the process. We will get better decisions that way.

Finally, politicians of all colours should try to stop announcing projects as coming well before they are even appraised , putting undue pressure on the system to produce appropriate business cases, as an announced project can obviously never be unannounced, whatever the evidence. Otherwise they do run the risk of community appraisal at the ballot box, though serious social and economic damage can ripple through the citizenry for decades as a result of rushed decisions to proceed.

We can and must do better. There are emerging examples of better practice which we must learn from and apply more deeply. The consultation on the rail options and airport links for Western Sydney commendably ask for wider evidence of land-use benefits than is usual and importantly ask for views on the ‘city-shaping’ impact of options: that is, what option will improve the way the city works best? Similarly, discussions around the MetroWest project are focussing on the economic uplift for Paramatta and Sydney overall from a rail alignment, and the impact on residential numbers and densities. Crucially, the new TfNSW transport strategy looks to be much more about linking infrastructure with land-use than any previous approach. These are positive moves towards a better appraisal process.