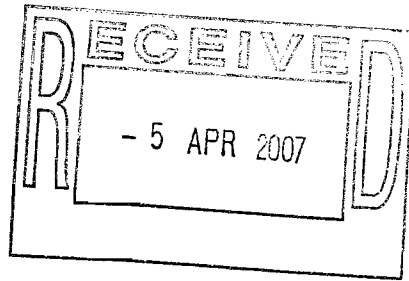


2 April, 2007



10,000 Friends of
Greater Sydney®*

**Working Towards
a Sustainable
Greater Sydney**

F3 to M7 Review Secretariat
PO Box 593
CANBERRA, ACT 2601

Dear Sirs,

**Re: Australian Government Review of the F3 to M7
Corridor Selection**
RESUBMISSION UPDATING DOCUMENT
DATED 26 March 07

10,000 Friends of Greater Sydney (FROGS) makes this submission as an independent community organisation aided by leading professionals with the aim to assist governments to make the right decision regarding transport in the Sydney-Newcastle Corridor.

The submission draws on the earlier review of transport for this corridor by this group under the Warren Centre banner at Sydney University, titled "*Sydney - Hunter Connection*", a copy of which is attached.

The current determination for connecting the F3 to the M7 represents careless planning and is not in the best interest of the community it seeks to serve. The current proposal seeks to be an all embracing single solution to a complex transport issue of movement of people and freight between the Sydney, Central Coast and Hunter Regions. Taking a too narrow view it is not surprising that it comes up with the wrong solution, socially, environmentally and most significantly economically.

FROGS has no issue with the work undertaken by consultants Sinclair Knight Merz or Masson, Wilson, Twiney or the data and information portrayed. However, as these consultants are

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well aware, their involvement in the project was unduly constrained by their terms of reference and they were inhibited from presenting a better, wider solution.

Any transport project must make a contribution to the overall strategy and vision for movement of people and goods within the area served, in this case the Sydney-Central Coast-Hunter Regions. The transport Vision depicted in the "*Sydney -Hunter Connection*" was for a three pronged ultimate transport system comprising:

- Very fast passenger rail between the three Regions to serve people movement and relieve the heavy rail route thereby enabling it to give higher priority to freight;
- The existing F3 connected to the Sydney Orbital (now being reviewed); and
- A western link between the Sydney Orbital and the F3 that bypassed Gosford.

The latter connection as well as serving movement between the rapidly growing Western Sydney and the Hunter and beyond also was envisaged as providing an alternative to the F3 when closed by bush fire or other reasons; in this sense it added security to the Regions' transport system.

From this Vision the road strategy thence becomes to develop the two routes with priority for construction based on demand for movement, the contribution each route makes to that demand and the available funding for the work. Such assessment then clearly shows from the work by the consultants that both routes need to be planned. Once such a determination is accepted work can proceed on the assessment of the first priority the F3 to Orbital connection recognising the ultimate need for both routes and eventually very fast rail.

This quickly leads to the conclusion that the right link F3 to Orbital must cater for the demand along that route with the western route eventually developed. This results, from the data and analysis undertaken by the consultants, in the link being established as an extension from the southern end of the F3 to the Orbital at Marsfield.

Other factors pertinent to the over narrow focus of the current study include;

- The F3 to Orbital connection at Marsfield provides relief to both Pennant Hills Road and also the Pacific Highway south of Hornsby, which the current proposal does not.

- The economic assessment fails to take into account future requirements for upgrading the F3 between Sydney and Gosford to 8 lanes, a virtually impossible task except at exorbitant cost, if a western route is not provided.
- The western route is not an alternative to the F3 to Orbital Link but an adjunct to it. It can be progressively developed as demand increases. For example a new bridge over the Hawkesbury River linked to the existing road network would offer low level immediate traffic relief; this bridge would be highly financially viable as a toll bridge and economically sound as it would obviate the need for the present costly operation of road ferries at Wisemans Ferry.
- The regional significance of the Kariong F3 Interchange has been overlooked by the two studies undertaken (SKM and MWT). It should be recognised that almost 50% of morning peak hour freeway traffic south of Kariong (southbound), enters the freeway at Kariong and similarly some 45% for the evening peak hour (northbound) exits at Kariong (refer RTA Traffic Counts No 5.005 and 5.015 in MWT report). Already, the interchange itself and its feeder roads such as the Central Coast Highway to Erina are severely saturated at peak times and they require a major review, preferably in conjunction with any M7 to F3 corridor study. Given the geographical constraints and the Gosford City Centre Local Environmental Plan 2005 which proposes to revitalise (and populate) the Gosford town centre and waterfront, an alternative long term east-west corridor from the F3 Freeway at Somersby to Erina should be investigated.

The consultants involved are aware that a two road connection is the best transport solution but seem to be constrained from presenting this view. Once accepted the work now to be undertaken becomes clear, the F3 to Orbital Link at Marsfield.

It is recommended in the strongest possible terms that the Review Team take a wider view of the need for movement of people and goods between the Sydney, Central Coast and Hunter Regions before coming to its conclusion on the appropriate F3 to Orbital Link. Only in this way will the community be served. The current proposal is wrong and if constructed will join those errors of the Cross City and Lane Cove Tunnels in Sydney.

In addition it is recommended that the consultants present a triple bottom line account (social, environmental and economic) of the impact of the preferred proposals so that the community can understand the full impact of the strategic choice. Consideration of environmental and greenhouse impacts must be part of

the top level strategic choice and not relegated to a consideration of lower level environmental factors once the strategic choice has been made. The big impacts are at the level of the key strategic choice and this must be recognised by government in their planning processes.

Yours sincerely

A handwritten signature in black ink, appearing to read 'DM Dent', written in a cursive style.

Desmond M Dent
CEO and Company Secretary



Sydney - Hunter Transport Connection

We need strategic integrated transport solutions for Greater Sydney, not isolated road projects

The proposed link between the Sydney Orbital and the F3 freeway is currently being considered solely as a localised road project in isolation from the wider issues for access between the Sydney regions and the Central Coast and Hunter regions. This underlines the failure by the Federal and State Governments to develop a strategic transport plan for this link that both focuses on the Vision for Greater Sydney and also relates to the Metro Strategy.

Linking of the Sydney regions with the Central Coast and Hunter regions must be considered in the broader context of overall transport and network planning.

Submission Summary

- The Sydney Orbital/F3 freeway link as currently proposed by the Federal Department of Transport and Regional Services (DoTaRS) fails to meet the need for effective transport linkages between Sydney, the Central Coast and Hunter regions over time. It condemns the Hills region of Sydney to insufferable heavy traffic intrusion for the foreseeable future and denies the North Shore region relief from severe traffic congestion for an indeterminate period. It fails to address the need for future people and freight movement between these regions. It brings into question therefore the longer term economic soundness of the investment.

- A proper solution for linking the regions must consider:
 - all modes of transport, roads and especially rail
 - people and freight movement
 - social consequences, land use impact and residential amenity
 - environmental impact
 - economic justification and financial feasibility
 - security of access and
 - integration with the broader transport planning objectives for the nation.

The Sydney Orbital/F3 freeway connection must be reviewed and developed as a broad overall planning solution, not simply as a response to fill a missing traffic link in the National Highway network. Rather, it should be the appropriate initial component of a strategic Sydney - Hunter transport connection.

The strategic solution presented for consideration below embraces a high-speed rail connection and two road network links. It considers all the factors above, meets future community transport needs in a sustainable manner, and appears economically sound and financially feasible. Most significantly, it supports and drives the *City of Cities* Vision for Greater Sydney.



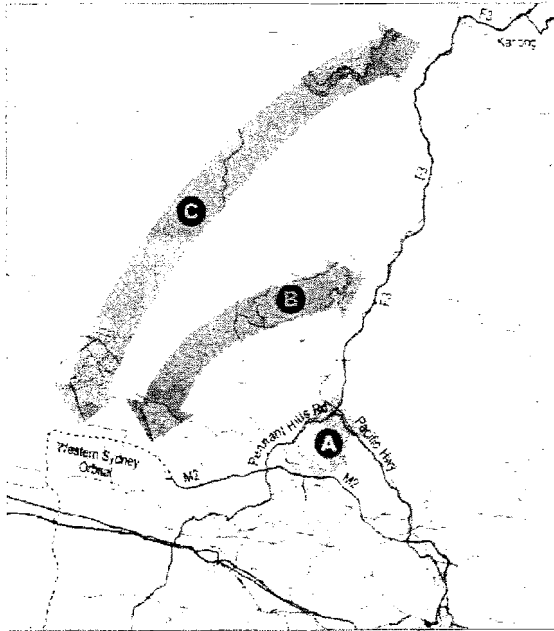


Details of Submission

THE CURRENT ISOLATED ROAD PROJECT - ITS BENEFITS AND DEFICIENCIES

The proposal for a Sydney Orbital/F3 freeway road link developed by DoTaRS sought a

Figure 1: Three broad corridor types



Source: SKM Newsletter 2

economic and inter-regional transport grounds. The indicative route for the Purple option would be mostly in tunnel running 30 to 40 metres underneath Pennant Hills Road. There is likely to be no significant impact on terrestrial ecology, water quality, heritage sites or open spaces. Pennant Hills Road south of the M2 would be required to be widened as far as the North Rocks Road intersection as part of the project to provide acceptable traffic flows and no queuing in the tunnels. This option has been selected as the preferred option as it would have the following benefits:

- It would result in a significant improvement in urban amenity (reduced severance, reduced traffic noise and improved accessibility) along Pennant Hills Road as a result of substantial relief to traffic congestion on surface roads that would occur from opening the new link.
- There would be opportunities to reallocate road space on Pennant Hills Road to realise benefits for other users, improve the general amenity of the area and access to Pennant Hills and Thornleigh railway stations.

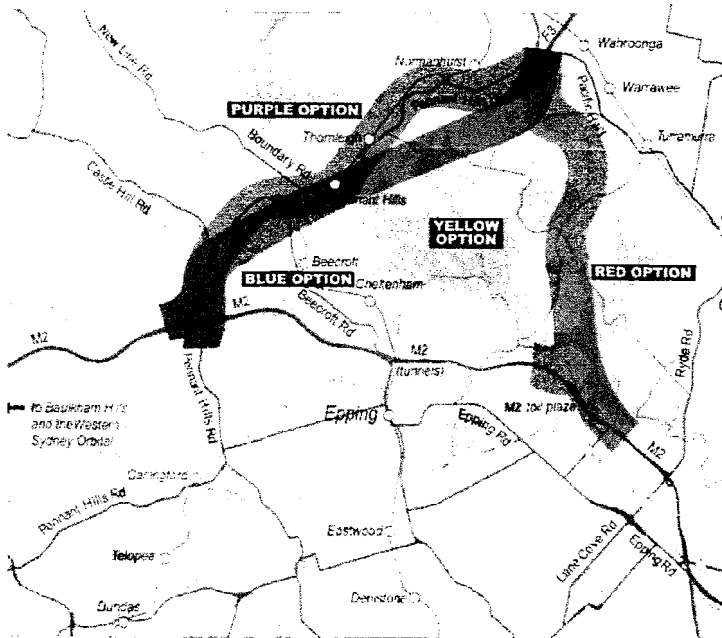
single road solution to link the Sydney Orbital to the F3 freeway. It examined a wide range of road options to provide this link shown as corridor types A, B and C in Figure 1, all within a time frame 2005-2021. It then "concluded that Type A options, linking the F3 at Wahroonga with the M2 at or east of the Pennant Hills Road interchange, would best serve the National Highway transport objectives and best improve local amenity along Pennant Hills Road."¹

The DoTaRS study then examined four route options within the type A corridor and selected the 'purple route' shown in Figure 2, on the next page, as the preferred route for further development as a twin tunnel connection. The study found that "the Type A Purple Option would best meet the National Highway objectives and is justified on social, environmental,

¹ Sinclair Knight Merz (SKM), Newsletter No. 2 July 2003 and Newsletter No. 3 May 2004, *F3 to Sydney Orbital Link Study*, Sydney.



Figure 2: Four feasible "Type A" tunnel route options



- There would be an improvement in air quality along Pennant Hills Road and a reduction in vehicle emissions and traffic noise for properties along Pennant Hills Road and in close proximity to Pearce's Corner.

The study investigated an alternative option of investing \$2 billion into rail but considered only the current ineffective heavy rail system for inter-regional linking; not surprisingly the study found "that rail is unlikely to meet the future inter-regional transport task even if major rail infrastructure upgrades occur."²

While it must be acknowledged that the DoTaRS study has been thorough in its approach to selecting a cost-effective

Source: SKM Newsletter 2

solution to the isolated problem of linkage in the National Highway road network, it must also be recognised that the narrow focus in space and time has simply failed to identify the real problem.

This problem is one of overall transport access between the Sydney regions and the Central Coast and Hunter regions of Greater Sydney. As a consequence, even though it looked at demand for movement between these regions, it has failed to address the broader problem by failing to examine in the wider context:

- ▶ land use aspects of a changing Greater Sydney, particularly in the western area
- ▶ the broader transport options for linking the regions of Greater Sydney
- ▶ economic development of the Greater Sydney regions
- ▶ freight movement between the regions
- ▶ enhancement of road network operation between the regions.

The study focussed only on the Pennant Hills Road corridor (even though the surrounding network was modelled) and ignored future operation of the Sydney Orbital between Western Sydney and Hornsby, the Pacific Highway south of Hornsby and the F3 freeway between Warrawee and Gosford.

However it must be appreciated that regardless of any link between the Central Coast and Hunter regions and the Sydney regions, Pennant Hills Road will continue to be heavily trafficked. The study indicated that of the 75,600 vehicles per day on Pennant Hills Road in 2002, only 23 per cent were interregional and long distance; the remainder were making localised journeys along Pennant Hills Road. The F3 freeway between Sydney and Gosford will also continue to be heavily trafficked. Of the 71,200 vehicles per

² Sinclair Knight Merz (SKM), 2004, F3 to Sydney Orbital Link Study, Sydney.



day on that route in 2002, 60 per cent were destined for the Central Coast; only 40 per cent were travelling a longer distance.

In terms of freight, rail carries 5 million tonnes per year through the corridor, which is a very significant 14 per cent of total freight through the corridor. 50 per cent of this freight passes through Sydney where rail is restricted by the curfew on the Sydney network during commuter peaks.

An average of 11,300 trucks per day crossed the Hawkesbury River Bridge on the F3 on weekdays in 2002. In the same year, an average of 8,800 heavy vehicles (50 per cent of them articulated vehicles) per day travelled along Pennant Hills Road on weekdays, 20 per cent of which served local shops. Significantly, another 25 per cent of these trucks had destinations north of Newcastle in northern NSW or Queensland. The selected tunnel option would remove 80 per cent of trucks from Pennant Hills Road, leaving the remaining 20 per cent to serve their local destinations. Also in the same year, the Pacific Highway south of Wahroonga carried 4,000 heavy vehicles per day, 1,200 of them articulated vehicles.

The SKM study forecast growth within the corridor over the next 20 years to be 30 per cent for road travel demand, a growth rate of 1.5 per cent a year. Truck traffic however is expected to double over that period.

A STRATEGIC TRANSPORT PLAN TO LINK THE SYDNEY REGIONS TO THE CENTRAL COAST AND HUNTER REGIONS OF GREATER SYDNEY

A strategic transport plan to link the Sydney regions with those on the Central Coast and the Hunter must embrace:

- ∇ all modes of transport roads and especially rail
- ∇ people and freight movement
- ∇ social consequences, land use impact and residential amenity
- ∇ environmental impact
- ∇ economic justification and financial feasibility, and
- ∇ security of access.

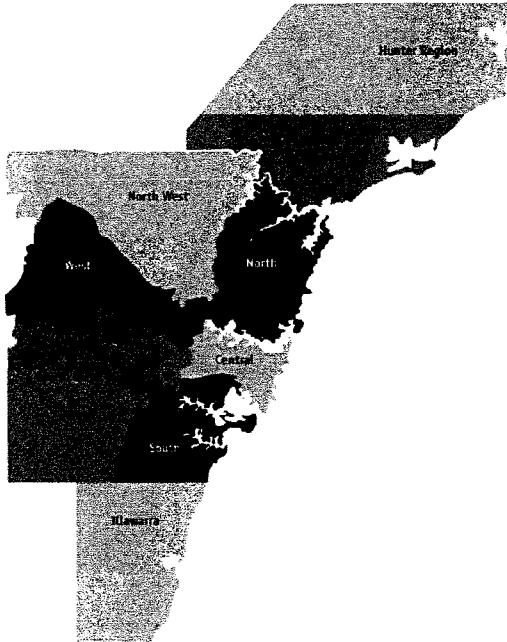
While the study did address these aspects, it appeared to do so in the narrow rather than the broad sense required for a future plan.



The Vision for Greater Sydney

In its research project *Sustainable Transport in Sustainable Cities (STinSC)*³ The Warren Centre set a Vision for Sydney and established a strategic plan to achieve that Vision. The Vision was for a city of six cities (regions) for Sydney combined with cities of the

Figure 3: A City of Cities



Source: The Warren Centre *Sustainable Transport in Sustainable Cities* project

Central Coast, the Hunter and Illawarra to form Greater Sydney, depicted in Figure 3. All would operate as independent regions within which residents could largely live, work, play and learn but all would be interconnected by highly effective transport for both people and freight.

In pursuit of this Vision, land use would create mixed-use activity centres in each region; transport would serve each region and centre and the regions and their major centres would be linked by an effective road and rail network.

This Vision would minimise travel demand as well as enhance the lifestyle of Greater Sydney residents.

The NSW Government Metro Strategy has embraced the City of Cities for Sydney and the centres policy for mixed use in those centres but is yet to define the city regions within Sydney. That strategy has also included the 'good things' in transport discussed below.

A transport system

Effective road and rail transport must be planned as a network of routes to serve the demand for travel between various origins and destinations. A single route is rarely effective as it concentrates traffic and does not serve the broad distribution of origins and destinations sought. In addition, distribution of traffic at the end of a major road route becomes a problem and usually results in intolerable congestion, as exemplified by the F3 freeway at Wahroonga where it rejoins the arterial network of the Pacific Highway and Pennant Hills Road.

Obviously there are good things to be said about the current road and rail infrastructure. Sydney is rapidly attaining an effective regional road network to link its regions. The Sydney Orbital will be completed in 2006 and the F3, F4 and F6 freeways are largely in place. Connections between the F3 and F6 and the Orbital and between the F4 and the CBD and Airport are the only missing elements.

Likewise Sydney's heavy rail network effectively links its suburban centres. The rail clearway program currently underway will separate routes into discrete elements by carrying one line over the other at intersections. This will help prevent breakdowns in one part of the system impacting on the entire network, will improve operation and

³ Towards a City of Cities. Final Report. Sustainable Transport in Sustainable Cities project. The Warren Centre, Sydney University, July 2002. Web: www.warren.usyd.edu.au/transport



enable State Rail to provide 'horses-for-courses' metro trains in the inner city and double-deck trains to serve the suburbs.

However, the heavy rail network has tried for too long to be all things for all people – a metro for the inner city, a suburban rail for the suburbs and regional rail for the outer regions of Central Coast, Newcastle and Wollongong. While it can be effective as a suburban rail system with the improvements now proposed, heavy rail cannot be expected to compete with the car as an effective link to the outer regions. In addition, any attempts to make it do so will inhibit freight movement between the outer regions and Sydney.

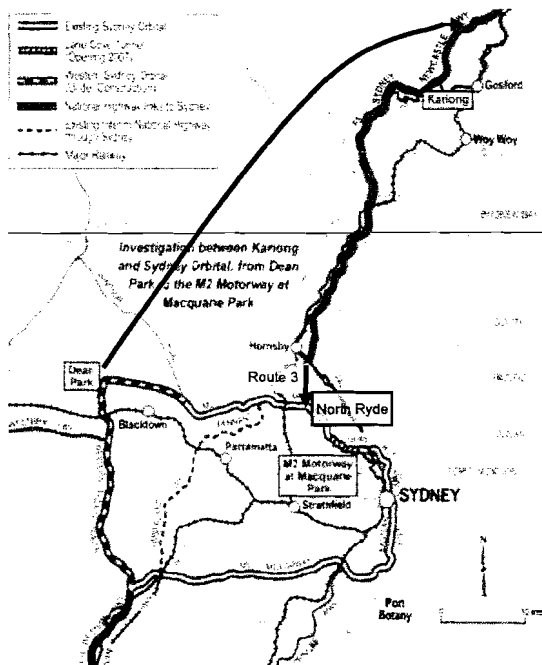
What Greater Sydney needs to link the six Sydney regions with the Central Coast and Hunter regions is:

- ▶ an arterial road network to serve people and freight movement effectively between activity centres; and
- ▶ a passenger rail link between the major centres that is sufficiently effective to meet passenger demand and compete with the car.

The road network

The Sydney Orbital and the F3 freeway are shown in Figure 4. The Sydney Orbital is nearing completion with the western leg (the M7) opened in December 2005. It is basically a four-lane divided freeway with sections to be widened to six lanes when

Figure 4: Study Area with additional route and alternative link shown



Source: SKM Newsletter 2 with Warren Centre additional routes added

demand dictates. The F3 freeway is essentially a four-lane divided freeway between Wahroonga and Newcastle but, with increasing travel demand between Sydney and the Central Coast, it is currently being widened to six lanes between Wahroonga and Gosford.

The data in the SKM report indicates that major increase in demand for people travel is between the Central Coast and Sydney (with a slower rate of increase between Newcastle and Gosford and Newcastle and Sydney). At the same time, Sydney's freight centre is moving west, with extensive development occurring along the line of the M7. While this demand is historically more related to access within Sydney and towards the Hume Highway and the south, it is becoming increasingly focused on Newcastle and beyond rather than the Central Coast.

To bring this freight eastwards to join the F3 at Wahroonga and to mix it with the heavily congested traffic between Wahroonga and

Gosford is illogical. It will compound the problems of road access between Sydney and Gosford, even though the major origins and destinations for trucks now and in the future will continue to be along the present Orbital-F3 corridor.



A more direct route that better serves this western Sydney demand, that avoids the congested Wahroonga-Gosford portion of the F3 and that might reduce distance travelled when fully developed, is illustrated by the larger arrow in Figure 4. As indicated, routes were examined in the SKM study between the Orbital and Kariong but, because the study focused narrowly on selecting a single road link, they were considered as alternatives, not adjuncts, to the primary route.

There would be considerable merit in further examination of a western route, provided it bypasses the heavily trafficked section of the F3 south of Gosford. This would then cast the inner corridor into a different light as it could provide for Gosford commuter traffic as well as service Gosford-Sydney freight. As well as providing a much-needed freight route, this western corridor would also help north-south traffic bypass Sydney.

While this route could initially be a lower standard two-lane arterial, future upgrading and widening should be included in the planning. The present Northern Road could be the nucleus for this route with a new bridge over the Hawkesbury River east of Wisemans Ferry.

The link could join the F3 freeway between Kariong and Peats Ridge thus bypassing Gosford and the heavily trafficked section of the F3 south to Wahroonga. The link could possibly utilise the two-lane freeway standard route between Peats Ridge and Somersby. The section between Wisemans Ferry and Peats Ridge has highly sensitive wetland areas, which would need to be avoided or bridged as improvements are effected.

With 25 per cent of trucks on Pennant Hills Road having destinations beyond Newcastle and possibly even more destinations within the Newcastle region, this route would dramatically reduce truck traffic through the Pennant Hills corridor and the heavily trafficked section of the F3 between Wahroonga and Kariong.

The link between the Orbital and the F3 at Wahroonga could then focus on the major people movement between the two and optimise performance of the overall road network in this region of Sydney, aiming to ease movement to the south to the CBD along the Pacific Highway and the link to the west along Pennant Hills Road. This link is indicated by the small arrow in Figure 4 above.

The rail network

With the large and growing movement of people between the Central Coast and Sydney, between the Central Coast and Newcastle and to a lesser extent between Newcastle and Sydney, it is ineffectual planning to expect car travel alone to meet this demand. The movement is large enough and concentrated enough to warrant a much more effective large-scale people mover, namely rail.

However, the present heavy rail link between Sydney, the Central Coast and Newcastle is ineffective as an inter-regional public transport people mover. The DoTaRS study comment that "rail is unlikely to meet the future inter-regional transport task even if major rail infrastructure upgrades occur" is considered totally accurate in relation to the existing heavy rail system.

Longer distance inter-regional travel calls for modern high-speed rail. The paper 'A High Speed Trans-Urban System for the 21st Century' in the report *Flying: Planes and Trains*⁴ of the *STinSC* project depicted a feasible very high speed train (VHST) network (Figure 5

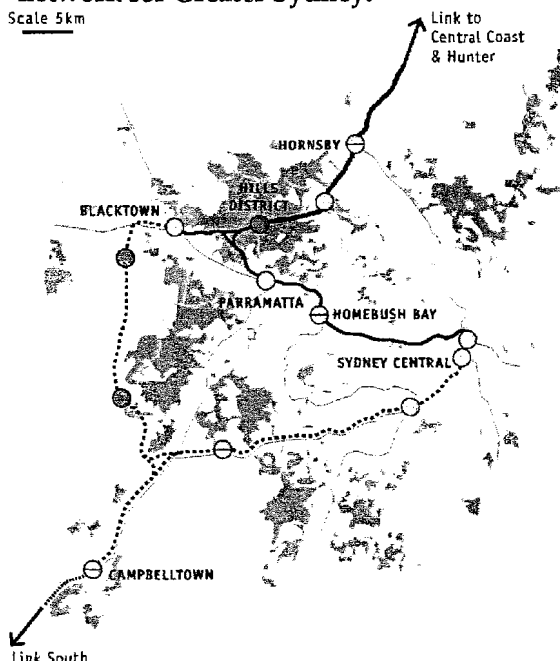
⁴ The Warren Centre for Advanced Engineering, 2002, 'Flying: Planes and Trains', *Sustainable Transport in Sustainable Cities*. www.warren.usyd.edu.au/transport



below) for Greater Sydney connecting Sydney regions to those of the Central Coast and the Hunter.

Figure 5: A very high speed train network for Greater Sydney.

Scale 5km



Source: The Warren Centre Flying: Planes and Trains

than continually widening the F3 freeway and its feeder roads. For example, the widening of the freeway between Wahroonga and Kariong to six lanes to meet existing demand is still not completed, yet we may well have to start planning now to widen the freeway to eight lanes within a decade. Where will this stop?

Meeting social objectives

Gosford City Council's Community Plan highlights a range of social issues associated with commuting. Wage earner/s who leave and arrive home in the dark and so cannot participate in family and community life is one example of stress caused by long commutes.

The Community Plan recommends improvements to commuting time through developments such as a fast ferry and faster train services for the above and other reasons. Such improvements would help ease the stress of long-distance commuting by car. They would benefit community life, which is affected by the lack of suitable public transport services during business hours and they would benefit the local economy, which is affected because commuters spend their money outside the central Coast.

The AusRAP study⁵ identified that the F3 from the Hawkesbury River to the Calga interchange has the worst safety performance in New South Wales based on casualty crashes per kilometre. To add traffic unnecessarily to this section of road is socially irresponsible. If the Federal Government was called upon to upgrade this section of the

This VHST network would be an entirely new network independent of the heavy rail network yet interfaced with it, to the freeway network and to Sydney airports at key interchange locations.

Flying: Planes and Trains indicated that the network would be so attractive to patrons that it would not only cover its operating costs from fares but also largely meet the infrastructure cost – a unique achievement for a public transport system and a measure of its likely effectiveness. Who would choose to travel by car for two or three hours when projected high-speed train travel times would be approximately 30 minutes between the Central Coast and the Sydney CBD and 50 minutes between Newcastle and the CBD?

Continuing the comparison, the Parramatta -Newcastle leg of the VHST network is projected to cost about \$3 billion. Surely this is more cost-effective

⁵ AusRAP Australian Road Assessment Program, 2005, *How Safe Are Our Roads? Rating Australia's National Highways for Risk*, Australian Automobile Association.



F3 through one of the most daunting topographical areas in Australia it would also be concerned to meet this responsibility.

The VHST proposal would make a major contribution towards easing the social problems of commuting - less driving stress, shorter travel times, more family time and increased ability to participate in community activities. In addition, The Warren Centre's *Sustainable Transport in Sustainable Cities* study showed that an effective transport system would be a most effective driver to achieving the City of Cities concept. Effective transport such as the VHST would make it possible for many more residents of a region such as the Central Coast and Hunter to live, work, play and learn within their own region. This is because the transport would grow the economy of the outer region by making it easier for businesses to relocate the whole or part of their operations to the outer region, thereby increasing employment growth within it.

Observing environmental responsibilities

An issue for Australian cities today is their over-dependence on car travel. This increases the land take for roads and car parks and encroaches adversely on natural landscapes, agricultural land and sensitive land areas. While Sydney falls within the middle range of car dependency in the world⁶, there is vast room for improvement to more sustainable levels; see table below for data in 1990.

Table 1: Public transport as percentage of total travel

	US cities	Australian cities	Sydney	Canadian cities	European cities	Wealthy Asian cities	Developing Asian cities
% of total motorised passenger km on transit	3.1	7.7	15.8	10.2	22.6	64.1	40.2

Source: Kenworthy and Laube, 2000

The VHST discussed above is a positive and viable means to reduce car dependency and the adverse environmental consequences it produces.

In contrast the western M7-F3 road link would pass through sensitive wetland north of the Hawkesbury River and the impact of this route would need to be managed sensitively to minimise this impact, balancing the effect with the environmental benefits of shorter truck travel times, less truck traffic through residential areas and less need to increase road capacity between Wahroonga and Kariong.

The economic soundness

In terms of cost effectiveness, a western route would give a better result than the alternative of focusing solely on the 'purple route' Orbital-F3 with its downside cost of widening the F3 and the feeder roads to it. The western route provides a direct route for travel bypassing Gosford from Western Sydney to Newcastle and beyond; the substantial saving in running costs render the connection a most viable toll road opportunity. However both a western route and an Orbital -F3 link are required in plans for any future linkage between these regions.

Even greater community benefits can be realised in terms of the contribution to the Vision for Greater Sydney of a *City of Cities*. The STinSC project showed that very high standard transport links between Sydney and the outer regions would stimulate the

⁶ Kenworthy, J & Laube, F 2000, Do Different Cities Share the Same Issues?, 'The State of Play', *Sustainable Transport in Sustainable Cities*, The Warren Centre, for Advanced Engineering



economic development of the outer region; highly accessible worker and customer markets within easy reach of Sydney would be highly attractive to investors.

In addition, a new VHST link would transfer demand from the existing heavy rail route, thereby increasing its availability for freight between the Hunter and Sydney regions. A VHST through to Parramatta would also take up some of the demand between the Central Coast and the Sydney Western region, again freeing up further capacity for freight trains.

The financial feasibility

We are financing and can continue to finance road enhancement through judicious use of tolls; the cost effectiveness of the direct Western Sydney-to-Newcastle link for freight would pay for itself in time savings alone. Current experience with tolling shows that, at the correct level, tollways can still provide sufficient benefit to be attractive to users and can enable some, if not all, of the cost of providing and running infrastructure to be recovered.

A financing option could be the reintroduction of a toll on the F3; it and the F6 to Wollongong are, after all, the only two freeways in Sydney without tolls and this raises a question of equity. A modest toll on the F3 would generate considerable income that could help the VHST Hunter link come into being sooner rather than later and bring with it the benefits of moving towards a sustainable Greater Sydney.

The VHST rail system has similar potential to be a cost-effective private-public sector-participation (PPP) development.

Recent infrastructure investments indicate that there is sufficient investment capital around and PPPs are a convenient way of accessing these funds. Alternative methods, such as bonds, might also warrant some consideration.

WARREN CENTRE RECOMMENDATIONS

In response to the above discussion The Warren Centre recommends that:

- the Federal and State Governments re-appraise the transport linkage of the Sydney regions with those of the Central Coast and Hunter on a broader strategic basis taking into account the full ambit of future economic viability and financial costs; and
- the Federal and State Governments examine the transport options for:
 - a western road link between the M7 and the F3, bypassing Gosford
 - an Orbital/F3 connection between Pearce's Corner and North Ryde to better accommodate people and Sydney freight movement and provide traffic relief to both the Pacific Highway and Pennant Hills Road, and
 - a VHST rail connection between Parramatta and Newcastle as the northern portion of the VHST network for Greater Sydney.