

Davidson Transport Consulting

Dr Ken Davidson, Specialist Consultant in Transportation, ABN 2916 441 5500

PO Box 2174 (12A/172 Oxlade Dr) New Farm, Q 4005

Ph 07 3358 6686 Mobile 041 214 8898

Email: ken@davidsonstech.com.au Web: www.kbdavidson.com

Dr Ken Davidson
BE ME PhD FCIT FIEAust RPEQ

Dorset Council

REVIEW OF TRANSPORT NETWORK ISSUES

5 October 2007

SYNOPSIS

Dorset Council covers the north-eastern corner of Tasmania. Whilst its population is stable it is undergoing a major change in transport requirements with the huge growth of the timber industry and the creation of new tourism resorts.

The Council is concerned that the region's transport network has failed to keep pace with changes and has not been upgraded to the same extent as in competing regions, putting the North East at a relative disadvantage in accessibility and hence economic and social terms.

In particular there is concern that the link between Scottsdale and Launceston is poor and that inadequate attention is being given to the demands placed on elements of the network by the growing volume of heavy vehicle movements associated with the growth of tree farming. There is also concern that the state-funded road network no longer reflects the *de-facto* hierarchy of road use. Upgrade costs are higher because not only is the region typically hilly, but many of the region's major roads were sited up to two centuries ago and have narrow reserves and non-geometric alignments, creating major challenges in fitting them for safe and efficient carriage of high capacity freight vehicles.

In this review an attempt has been made to examine these issues rationally from a strategic perspective. Conclusions include:

- The State Government should be encouraged to develop a minimum road cross-section standard for roads on which heavy articulated freight vehicles are permitted.
- The Tasman Highway between Scottsdale and Launceston should be redesignated as the Golconda-Lilydale route under full state funding and the existing route handed back to Councils after remedial safety work has been done by DIER on the Sideling. This should be part of a general road classification review for the region.
- The new Tasman Highway route should be upgraded to highway standard (but not for heavy articulated freight vehicles) as soon as possible and using the GHD plan, and the Bridport - Scottsdale road should be upgraded to a standard consistent with that on the Bridport-Bell Bay road and suitable for all classes of heavy vehicles.
- Appropriate action should be taken to ensure that log movements between Break O'Day and Bell Bay use the Ben Ridge Road and heavy vehicles are discouraged or prohibited from using the C423 route from Mathinna Plains to Ringarooma unless they are bound for the softwood mills at Tonganah.
- The State Government should be encouraged to develop an integrated transport development strategy for the growing timber industry to include preferred locations for future chip mills and a limited number of designated routes for line-haul wood movements. Deliberation on the strategy should include whether the timber industry line-haul routes should be road or rail, and how to preserve attractive tourist routes.

Dorset Council

REVIEW OF TRANSPORT NETWORK ISSUES

5 October 2007

Credentials

Relevant Experience

Dr Ken Davidson has been a professional engineer working in all aspects of transport for 45 years. He started professional life as a Main Roads engineer before moving to academia to establish transport studies in the University of Queensland's Civil Engineering Department. His research interests were in network analysis and evaluation, in particular the land use impacts of transport system changes, which was the focus of his doctoral thesis. He was for a time responsible for transport administration in the Australian Capital Territory and in that capacity attended the Australian Transport Council and its principal advisory bodies.

For 8 years he managed Brisbane's bus and ferry service before becoming a consultant specialising in transport network strategy and evaluation. As a consultant he has undertaken a wide range of assignments in all states involving all land transport modes.

His rail work includes initiating and planning the proposed Melbourne-Brisbane-Darwin inland railway, many network strategy tasks with QR, and planning the introduction of Perth's electric trains.

His road work ranges from Main Roads engineer to a major bus public transport operator and from evaluation of the national highway network and network development strategy studies to local traffic impact studies and safety audits.

His land use impact work started in traditional transportation studies and extended to evaluating land use impacts of planned or proposed transport changes in London, Adelaide, Brisbane, Hobart and Toowoomba.

He was second-ever awardee of the Transport Medal of the Institution of Engineers Australia in 1991.

Knowledge of Tasmania

Dr Ken Davidson has had a significant professional association with Tasmania starting with a central role in work to ameliorate the impact of the closure of the Tasman Bridge in 1975. He was, for 6 years, a Commonwealth member of the Joint Committee on Second Hobart Bridge, which conceived, planned and delivered the Bowen Bridge and related infrastructure, of that Committee's predecessor which determined the best type and location of a second Derwent crossing, and of committees that delivered emergency assistance to Hobart immediately after the collapse. During this period he visited Tasmania about 100 times.

In 1990-91 he worked with Metro to conceive and deliver major improvements to Hobart's bus services, including the MX services which dramatically reduced trip times on major long routes.

Also in 1991 he was retained by the then Transport Department to develop an integrated public transport system for the Wynyard-Latrobe region to better allow education, health and welfare services to be shared among the NW coastal communities.

In 2007 he worked with George Town Council on access issues arising from the pulp mill proposal, in 1996 with Ulverstone Council on central area enhancements, and with Glenorchy Council in 1991 on network issues.

Davidson has an abiding fondness for Tasmania and returns often just to enjoy it. In all he has spent about 1 year in Tasmania and significantly more time than that working on Tasmanian matters.

Context

The Dorset road network has been in place for a long time. Some roads and the reserves on which they are built have been in place since settlement. Their reserves are narrow and their alignments are as established by horse-drawn vehicles, and hence do not have the benefit of geometric design. Those that have bitumen pavements tend to have narrow lanes with very narrow shoulders. Such roads are adequate for low traffic volumes and small, unarticulated freight vehicles, as was the case when most freight and passengers were carried by rail.

These arrangements were suitable for the land use pattern that was established in Dorset. Production was relatively high value, low volume, concentrated in dairying and horticulture. Supplies were relatively unsophisticated and in any case moved largely by rail. People movement also occurred by rail where it existed and was also relatively restricted, most people being able to satisfy their needs locally because the degree of specialisation was low: so small towns offered services comparable with those in larger centres. The level of tourism was low and generally did not involve extensive driving tours.

Within a generation or two, this situation has changed dramatically. Forestry is now a major land use with plantations supplanting many previously intense land uses and increasing dramatically both the volume and distance of product to be moved. Specialisation has increased in all service areas such that small towns cannot hope to offer anything like the full range of services to which people need or desire access: this has increased dramatically the movement of people. The nature of tourism has developed such that most tourists drive extensively in Tasmania and this has spawned product types, such as wine and resorts, which thrive on such tourism. The effective closing of the north-east's railway has also meant that all these increased transport needs have to be handled by road.

So the whole travel pattern has changed much faster than infrastructure authorities have been able to respond with comparable transport network improvements.

Furthermore, the scale of the enhancements required for some elements of the transport system has meant that when some major improvements are built they deliver huge locational advantages to the areas served by such upgraded links. This is particularly noticeable when comparing the North-East with the North West. The North West has benefitted with increased accessibility from massive improvements to the Bass Highway while keeping its railway; whereas the North East must continue to operate with no substantial road upgrades and a closed railway. That results in the North East having a lower level of locational accessibility relative to the North West. This reduces locational value and development propensity. Given that relative reduction in its accessibility¹, is it surprising that Scottsdale has lost its dairy and vegetable processing factories to the Devonport/Latrobe area? And, whatever the justification for Bass Highway upgrades (and these are not denied), is it equitable for the Government to deliver such largesse to one part of the community without offering any countervailing benefits to other parts?

The focus of the North East's frustration at its relatively reduced locational status is the lack of progress in upgrading its principal link to its regional centre Launceston, despite every study, hearing and enquiry recommending an immediate substantial upgrade to the Lilydale-Golconda-Scottsdale route.

The purpose of this paper is not to troll over the details of all the previous work but to see if it can be supported by a new look at the issues, or even identifying new issues which may have been overlooked.

¹ For a full discussion on the way transport accessibility delivers different locational value changes and the land use impacts of those changes see the author's Accessibility papers in www.kbdavidson.com.

Background

Dorset Council covers an area of 3220 sq.kms. in the North East corner of Tasmania. The area ranges from high mountain peaks to coastal lowlands but is generally hilly country given to horticulture, agriculture, dairying and timber production. Tourism is relatively minor but growing. Scottsdale, with 2500 residents is the main town and capital but Bridport, as a coastal resort, swells from half Scottsdale's size to 6000 or so in the summer holidays. Tourism is developing quickly along the coast east from Bridport with some world-class facilities.

Although the resident population overall is stable, economic activities are changing. Tourism is growing in the north-east and a large wind farm is planned there to harvest both westerly and easterly winds. Scottsdale has lost its food processing factories (butter and vegetable), but it has two large softwood mills nearby at Tonganah. It is the region's health and administration centre. There are many villages throughout the Municipality, mostly concentrated along the currently unused railway which runs east-west from Wyena to Herrick, but also beyond the rail head to Gladstone in the east, Weldborough in the south-east and Ringarooma in the south. The north coast is lightly populated except for Bridport which remains an active fishing port, the home of the Flinders Island ferry and a boat-building industry. The number of timber plantations (mostly hardwood) is increasing rapidly and there are significant areas of native timber able to be logged. An eco-tourism resort at Musselroe Bay in the far north-east, adjacent to the Mt William National Park, together with the wind farm proposed nearby will increase activity and lead to further developments in that under-used area.

The southern boundary is mostly mountainous with Mt Victoria rising to 1200m. This area feeds the Ringarooma River and the Great and Little Forester Rivers. The former is given to episodes of serious flooding but generally serves most of the population well. The farming areas around Scottsdale, Winnaleah and Ringarooma are blessed with red volcanic soil but the north coastal areas are typically light and sandy. The alluvial valleys of the rivers also have highly productive soils. The diversity of landforms is remarkable and much of the area is being used far below its potential.

The Municipality has much potential for development but its poor transport links form a large hurdle to all development. The fact that some spectacular developments have managed to clear the hurdle underlines what could be achieved with better transport. Examples of existing successful developments include:

- The development over the past 30 years of the wine industry;
- the recent development in the coastal dunes just east of Bridport of the Barnbogle Dunes Golf Links, which now is internationally regarded as among the world's best, and plans to emulate it nearby;
- The proposed eco-tourism resort at Musselroe Bay taking advantage of its isolation, environmental and scenic attributes and coastal interest;
- The proposed wind farm power station near Cape Portland designed to harness the winds which blow from all directions in this very exposed site;
- The discovery of the way the soil and climate (which in Australian terms is unusual in being cool temperate without extremes of either heat or cold) can combine to produce new niche crops, e.g. rhubarb, medicinal poppies, irises and other gardening specialities; and
- The increasing use of both prime and increasingly marginal (in terms of soil, topography and rainfall) country for tree farming as knowledge and experience increase.

The North East's major regional centre is Launceston, 40 to 140km away from Dorset. Nearly all requirements can be met there and, because Dorset has no major towns, it relies on Launceston to an unusually large extent (much more than, say, Devonport does because it is so much larger in its own right and because full regional services have been strategically shared among all north-west communities). For example, there are no senior high schools in Dorset so all Grades 11 and 12 students must travel to Launceston daily or become weekly boarders there. This has significant safety implications for the road link.

Tasmania's major port is at Bell Bay, which is also the closest site of all hardwood processing plants: so large tonnages, particularly of logs, move between Dorset and Bell Bay.

Scottsdale is the site of Tasmania's principal softwood mills which produce sawn timber; therefore the softwood industry generates significant movements both to and from Scottsdale.

There is limited intercourse with the south-east except for tourists circumnavigating Tasmania by road, mostly using the Tasman Highway between St Helens and Scottsdale. However the Break O'Day Municipality to the south also produces hardwood for processing at Bell Bay which needs to pass through Dorset, often on quite unsuitable roads.

A major problem for Dorset, and one which limits the creative use of its natural resources as well as detracting from both its economy and its society, is its transport system. In particular:

- its railway is unused,
- although it has three road links to Launceston, none is completely satisfactory and there remains no agreement on a strategy to secure a good link to the centre upon which Dorset depends to an unusually large extent,
- many of its roads are quite unsuitable for the heavy log trucks which use them to deliver harvested product from local plantation and available native forests to the main log truck route to Bell Bay, and
- in comparative accessibility terms, Scottsdale has declined in recent years because of differential road investment patterns (e.g. the dramatic enhancement of the North-West consequent upon the rebuilding of the Bass Highway), and this has harmed its economy and economic prospects.

A purpose of this report is to examine how the transport system can best be used to preserve and enhance the economy and society of Dorset and to make suggestions as to how this can be achieved. It has been prepared against a background of long-standing serious disagreement between Dorset Council and the Tasmanian Government as to how the transport system serving the North East should be developed.

Consideration of these issues has raised related matters which also have needed to be addressed in this report before any proposal about the main issues can be developed. So these secondary (secondary only in the context of the purpose of this report) issues are discussed first.

Road Standards for Heavy Freight Vehicles

Many Tasmanian roads have narrow pavements, with very narrow shoulders, often with old alignments which predated geometric design, on historic narrow road reserves and in hilly country. Such roads have of course historically served the state well but part of the reason for this was that much of the transport task was performed by rail, the amount of movement was limited, and road freight vehicles were small.

Roads of this type do not perform well in current circumstances where rail use has declined (to nothing in the North East at present) and where the Australian Transport Commission continues to increase allowable load and dimension limits for heavy freight vehicles. In part DIER and Councils have defended themselves by limiting the routes upon which heavy vehicles may travel but there are very strong compromises involved, there are circumstances when heavy vehicles must use inadequate roads to gain basic access, and an inevitable consequence is that many roads are carrying trucks that are too big for the road and in numbers that other traffic cannot safely accommodate.

Most freight vehicles are built to the full allowable width of 2.5m. All vehicles need more than their own width to safely manoeuvre their way along a road but articulation increases the required width as does pavement roughness, camber, curvature, and curves that do not follow strict geometric shapes. The problem of course is exacerbated by traffic volume and the proportion of volume that is made up of heavy vehicles.

The emergence of the timber industry has increased the number and size of heavy freight vehicles moving on many of the State's roads and this is particularly the case in the North East. This has created dangerous situations and conflicts strongly with the tourist industry which is overwhelmingly based on car travel.

To ease the problem it is suggested that a strict policy be developed that allows articulated heavy freight vehicles only on roads that reach a certain geometric standard, that a slightly easier standard is applied to heavy rigid freight vehicles (because, although articulated vehicles may be said to track well, on rough, variably curved or cambered road their actual track is much wider than that of a rigid vehicle) and that a general load limit is developed for vehicles that can travel freely on any road. Vehicles may be granted individual trip licences to travel on restricted roads but there should be strict conditions placed upon their time of use (e.g. outside school and commuting travel periods). A consequence may be that some freight between some destinations is carried on inefficient vehicles but overall economy is probably enhanced and in any case that puts appropriate pressure on road authorities and land use location decision making, while retaining the safety and value of the road system for the great majority of road users.

The author is not an expert on road design standards and an expert should make the final determination but the following table gives an example of the sorts of standards that might be appropriate:

TABLE 1. Geometric Standard Required for Classes of Heavy Freight Vehicles to be Permitted

Vehicle Type	SEALED CARRIAGEWAY (see also Notes 1, 2 and 3) Minimum clear carriageway width (lane plus shoulder) required in open straight conditions	UNSEALED CARRIAGEWAY (See also Note 1) Minimum unobstructed carriageway width required
Full size B-doubles and semi-trailers	11m (3.5m lanes + 2m shoulders: desirably sealed to at least 1m)	12m (9m for very low volumes)
Smaller B-doubles	10m (3.5m lanes + 1.5m shoulders: desirably sealed to at least 0.5m)	11m (8m for very low volumes)
Rigid heavy freight vehicles	9m (3.5 to 3m lanes + 1 to 1.5m shoulders: desirably sealed to at least 0.5m)	10m (7m for very low volumes)
NOTES:		
<ol style="list-style-type: none"> 1. In all cases, appropriate curve widening should be in place. 2. On single lane sealed roads where both total and truck volumes are low, the total clear carriageway width should be unchanged but the seal width should be at least 4m. 3. On sealed roads, wherever the shoulder width is less than 3m, safe stopping bays at least 3m wide should be provided every 1km wherever practicable. 		

Note these suggestions for standards for types of trucks are in addition to those determined by overall traffic volume, and the highest requirement of the two should prevail.

Strategy for the Timber Industry

The discussion above highlights the need to make specific provision for heavy freight vehicles in the road network and in determining safe road design standards. This question is specifically relevant to the development of the timber industry and ensuring its maximum net contribution to Tasmania's economy.

The timber industry has developed dramatically in Tasmania over the past 20 years or so. It is transport-intensive and is having a major impact on transport systems. However there does not appear to exist a comprehensive strategy to deal with it. The strategy should be integrated and deal with issues including:

1. Where should elements of the industry, including plantations, chip mills, pulp mills, paper mills, sawmills, and treatment plants be located to maximise the value of the industry and what government actions are required to steer the industry in an optimum direction?
2. Where should rail be used and, if necessary, what measures can and should be put in place to ensure economic mode choices are made?
3. How should the industry's transport needs be met while ensuring other transport users are not disadvantaged and safety is maintained?
4. What infrastructure investment programs are needed?
5. How can the timber industry be used as a catalyst for further economic and social development of specific regions and Tasmania as a whole?

It is not the purpose of this paper to develop such a strategy but there are potential elements of it that would impact strongly on Dorset and should be discussed here.

Location of Industry Elements

As a general rule in most transport-intensive industries, processing plants are placed as close to production areas as possible to minimise the quantity of material to be transported and to maximise concentration of material to allow efficient line haul movement to the next stage.

For example, in the sugar industry, specific light rail systems have been built to link farms to mills which are both close to farms and well located for line haul on-movement. Various products and wastes are moved on in separate ways to different destinations.

Similarly for the timber industry it would seem appropriate that chip mills and sawmills be located as close to plantations as possible and on line-haul routes. Cartage of waste is thus eliminated and movement of chips or sawn timber can be performed with maximum efficiency. On the face of it, the current location of three chip mills at Bell Bay would not accord with this principle. If log trucks only had to travel to a nearby sawmill, treatment plant or chip mill, the cost penalty for using smaller vehicles more suited to local roads would be less and the investment required to provide for the movement of the smaller vehicles on local road networks would also be less. Overall economic efficiency could thus be maximised. Elements of the maximising equation would be:

- plantation location,
- mill location,
- standard of local roads,
- vehicle size suited to local roads, and
- length of line haul, to port or next treatment stage, where maximum-efficiency vehicles could be used on specially prepared and designated routes.

Hence existing local roads would be more likely to be adequate, maintenance costs would be less and only a limited length of roads for heavy high efficiency vehicles would be needed.

Mode Choice

The extent to which rail use for line haul movement of timber or its products can or should be achieved will depend largely on the location of processing elements as discussed above. With initial processing concentrated at limited points (such as all the North-East's chip mills being at Bell Bay at present), the local haulage of logs becomes the line haul movement as well so rail is cut out because of the relatively short distances involved. If, however, processing was closer to the growing areas, delivery from farm to factory would be short and achieved by road on trucks suited to the roads involved, and then line haul to port or next level of processing could be by either road or rail. That is, rail use has more potential if initial processing is located close to farms and on the railway because there needs to be no road component of the trip at all (loading and unloading of rail wagons would occur on-site).

Hence an integrated strategy for the timber industry could realistically include rail not only in the South and North West but in the North East as well if processing plants could be located sympathetically.

Rail operations involving movement of chips or the direct export of sawn timber or treated logs could be very efficient if integrated into the logistics of the processing elements. With chips for example, unit trains could be loaded and unloaded automatically and run on continuous round-trip schedules involving no shunting at all if balloon loops existed at each terminus (as was detailed for Bell Bay in my report to George Town Council).

The secret of effective rail use is therefore concentration of product at a point on the railway as close as possible to the farm and location of the first level of processing at that point of concentration.

Say an effective wood chip mill is available for throughput of 1mt per year. Then as plantations develop it would be expected there could be more than one in the Scottsdale region, one at the railhead at Tonganah and the other(s) further west somewhere along the railway. A balloon loop at Tonganah would allow shunting-free operation of the whole line with all trains turning at Tonganah and loading at chip mills from there west. With the sorts of purpose-built trains proposed in connection with the Bell Bay pulp mill, about 750, 000 tonnes of chips per year could be carried by 1 train per day.

The introduction of such a strategy would eliminate line-haul log truck movements in the whole Tonganah-Scottsdale-Lilydale corridor.

For plantations north of this corridor they could either use a new mill near the coast with line haul of chips by road to Bell Bay along the already-suitable Bridport Main Road, or continue to use the mills at Bell Bay with log trucks continuing to use the same road.

The adoption of rail as the line-haul mode in the North East, associated with successful implementation of location of chip mills nearer plantations, could completely solve the problem of heavy log truck movements in the corridor away from the Bridport Main Road. Logs could be carted to local mills by trucks suited to individual access roads' capabilities and, because distances would be short, inability to use heavier and more efficient trucks would not be a significant penalty and would certainly be less costly than wholesale upgrading of roads to allow line-haul log trucks to use them.

Meeting Timber Industry Transport Needs Without Compromising Other Users

Where line-haul style log trucks remain on roads of insufficient standard to allow their use without sacrificing the safety and comfort of other road users, other road users are significantly compromised.

The most obvious solution is to bring processing facilities as close as possible to plantations but on transport routes which permit efficient line haul on-movement of product. That way, log trucks suitable for access roads can be mandated without sacrificing industry efficiency, and on-movement line haul can occur either on roads suitable for large heavy freight vehicles or by rail.

The much more costly solution is to develop more roads suitable for efficient line-haul movement of log trucks. The standard of road necessary for such movement is suggested in Table 1 above. The trick in this case would be to try to develop heavy haul routes which are separate from main resident and tourist travel routes and then keep the heavy vehicles off the general routes by the use of regulation (e.g. load limits or time-based permits).

It is worth noting in this context that log trucks can operate quite efficiently on unsealed roads, witness the extensive use of private forestry roads. For example the Ben Ridge Road from Mathinna Plains to Targa is in part a private forestry road that is much more suitable for log trucks than the alternative route through Ringarooma, even though it is largely unsealed. What limits its use is a toll placed by one private owner. And that limitation puts Dorset Council to large cost in trying to make and keep a safe route on the Olivers Hill climb on the Ringarooma-Mathinna Plains Road. This situation could no doubt have been described in a very entertaining fashion by Gilbert and Sullivan because it forces major system inefficiencies through minor individual optimisation.

Ben Ridge Road may be just one of a number of examples of where line-haul log trucks could be accommodated efficiently on unsealed roads away from the main general traffic routes. Setting up infrastructure and regulating in such a way as to mandate or at least encourage their use as line-haul truck routes may be another possible means of optimising overall costs in the transport sector.

Map 1. Road Network from Timber Industry perspective (Courtesy DIER)



Road Safety

The question of overall road safety should be an integral element of this aspect of strategy development. As discussed throughout this report, log trucks in particular detract from at

least the comfort and probably the safety of other road users on roads not built explicitly for use by heavy freight vehicles, and this includes most roads in the North East. Log truck use should not be allowed on roads used by school buses and significant volumes of normal domestic traffic when those roads combine aspects of poor alignment, variable crossfall, narrow width and narrow shoulders.

This matter is of particular importance in the North East because of the high proportion of long-distance school and education travel involved, given that there are virtually no education facilities beyond junior high school, and even that level is sparsely distributed.

Required Infrastructure Investment Programs

It appears highly likely the timber industry is here to stay and trees will remain as the most economic crop in much of Tasmania for the foreseeable future. That being the case, the industry is sure to grow. Growth will be assured by the decline and no-doubt eventual elimination of logging in old growth forest remnants throughout the world, by the seeming insatiable need for paper, and by the abiding desire of people for wooden products.

Of course it does not necessarily follow that plantations are the best use for highly fertile soils like those around Scottsdale or that plantations will replace dairy and fat lamb production in the Waterhouse-Gladstone region. It will probably be true that plantations would be the best farming use for more hilly land. Whatever, these are matters for strategic consideration; but it should be possible to make reasonable estimates of ultimate timber production likelihood and its likely distribution in the North East and throughout Tasmania.

Armed with that information, with a well-developed strategy for the economic location of first-order processing plants (chip and saw mills and log processing), and with an understanding of the location of ports and/or second order processing plants (like pulp and paper), it should be possible to develop a plan for the necessary minimum network of rail and line-haul road routes to serve the ultimate timber industry.

The network plan would presumably try to keep these routes separate, where desirable, from those used for general commerce and personal travel. [The extent to which such separation would be desirable would depend upon the extent to which the requirements of the two types of traffic can efficiently be handled on the one route. Generally the busier the route the more economic it would be to combine them. The Bass Highway for example could easily handle both; so, probably, could the Bridport Main Road and the East Tamar Highway when currently funded upgrading is complete. But on roads with less traffic and a vital domestic role, such as the Golconda Road, eliminating the line-haul timber role would be likely to be economic.] Such routes should then be programmed for the investment needed to allow them to operate efficiently in their line-haul mode.

The network plan would also need to consider where local access to first-order processing plants would be concentrated so as to develop an investment strategy that would allow for use of increasingly efficient vehicles for local movement of logs from farm to processing wherever the cost of the road investment would be less than the cost of using smaller, less efficient log delivery vehicles.

Using the Timber Industry as a Catalyst for Further Economic Development

Dorset Municipality is slowly losing population. Its current population of about 7250 is expected to drop to 7000 within 9 years if current trends continue². This sort of decline is not conducive to enhancements in the region's infrastructure. Losses of significant industries such as a butter factory and vegetable processing have occurred in recent years.

² Source: DIER, in a private communication.

Against this should be balanced the continuing attraction of Bridport as a holiday centre, the success of the Barnbougle golf links and the planned wind farm and eco-tourism centre at Musselroe Bay. On top of all this is the burgeoning growth of the timber industry.

The fact that Dorset has not grown while reasonably comparable area like the Devonport hinterland have, has a lot to do with changing relative accessibility and the way Scottsdale's has relatively declined compared to Devonport-Latrobe because of the Bass Highway and the NW railway remaining open.

As discussed in detail in the papers referred to in Footnote 1, accessibility at a point is a function of the distribution of activity and the efficiency with which the transport network serves or links those activities. Increasing nearby jobs increases accessibility and so does improving transport links. Increasing accessibility increases land value and its propensity for further development. That is why the distribution of transport infrastructure investment is an equity issue as well as a developmental one.

The timber industry could thus be used to regain some of that relative loss in accessibility. The most obvious way would be if, as suggested above, more processing plants (such as chip mills) were to be located within the Municipality. A second way would be if that resulted in a re-opening of the railway to be the line-haul route for processed timber products. A third way could perhaps be to add further value locally to softwood products produced in the two softwood sawmills.

Of course, as the timber industry matures, related activities should also be sought creatively by both Dorset and Tasmania. Perhaps such activities cannot even be imagined at this point in time but it would be important to be creatively alive to their possibility and be ready with some attractive locations for them to be set up.

Perhaps most important in the context of present issues could be that a fall-out from developing an integrated timber industry strategy should be a recognition that just because the Bridport Main Road is set up as the line-haul route for logs and timber products and indeed for all heavy freight movement, that does not mean it has to be seen as the Scottsdale area's main domestic access, and that there are good reasons for suggesting it should not be. This could be used as a further argument for strategic investment in the Golconda Road.

Issues for Dorset

The developing timber industry is probably having a greater impact on Dorset than most other parts of Tasmania because of the strong impact it is having on its land use pattern. However as things stand at present, Dorset does not seem to be in a position to share the benefits to an equal extent. The development of an integrated strategy for development of the timber industry should have a positive impact in bringing more benefits to Dorset through such possibilities as:

- siting more processing plants locally and better protecting the ones that exist
- reopening the railway
- creating a better way to regulate log truck size and hence protect local roads
- formalising routes and modes for line-haul movement of products and logs and hence reducing or eliminating their presence from other roads
- allowing non-line-haul routes to be developed to a standard attractive for normal traffic without having to provide for heavy articulated freight vehicles (and hence creating a better environment for the upgrade of the Golconda Road in particular)
- using the timber industry as a catalyst for other developments.

Dorset Involvement in State Road Projects

Dorset maintains a road building and maintenance capability of its own and it is in a relatively isolated location. There are worthwhile economies of scale available in road plant and expertise and these can be accessed progressively as the work available to a road building and maintenance organisation increases.

At present Dorset does no road work on behalf of DIER nor does it seek to be a DIER contractor, yet DIER is the largest outside organisation working on roads in Dorset and it does not maintain a separate depot in the Municipality.

It is suggested that Council approach DIER with a view to undertaking as much DIER work as possible within the Municipality and perhaps near its boundaries if adjacent Local Authorities are not interested in similar arrangements.

By way of example, in Queensland it is common, indeed usual, for Councils to undertake all maintenance on State roads (sometimes major State Highways may be excluded from this arrangement in locations where Main Roads has a local resident roadwork force) within their boundaries; and frequently to undertake construction projects on State roads either on a day labour or contract basis. This is done on the State's recognition that Local Government local road building capability is thereby preserved and enhanced thus ensuring a good distribution of road plant and capability throughout the State.

Were Council successful in such an approach, it would expect costs on its own projects to reduce (through economies of scale and access to better plant) and it would allow a larger number of local residents to gain permanent employment within the road building industry, hence helping to stabilise or increase local population and adding to the local skill base. With a larger road building capability, the Council may successfully bid for related projects or private road building tasks that might otherwise be won by contractors who bring outsiders in on a daily basis, which would have much lower economic flow-on effects within the Municipality than if the work was performed by locals.

The Land Transport System and its Inadequacies

Rail

There is an unused, but still in place, railway between Launceston, Lilydale, Lebrina, Wyena, Golconda, Nabowla, Lietinna, Scottsdale and Tonganah. It connects with the Bell Bay line about 4km north of Rocherlea.

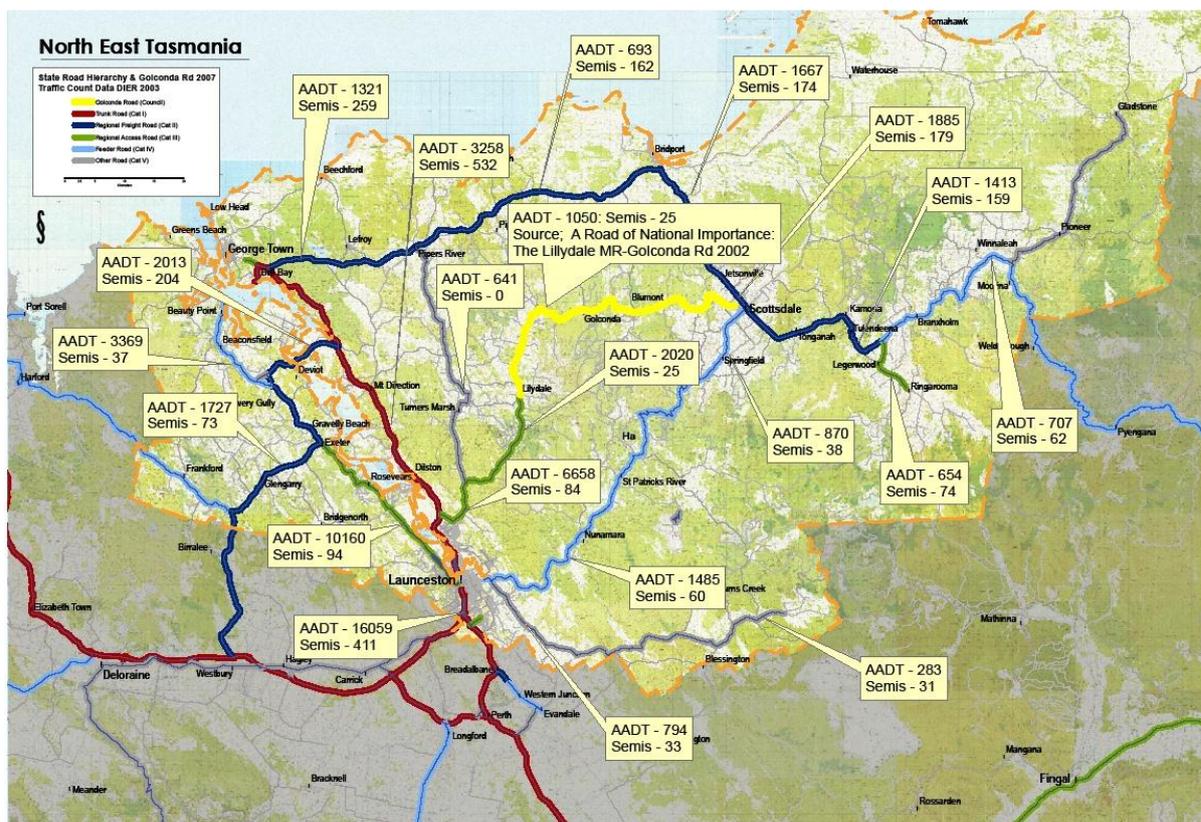
The potential use of this has been discussed in the previous section. It could be brought into the suggested use without significant upgrading. However its use by unit trains within the timber industry would, to be efficient, require the addition of a balloon loop at the Tonganah terminus which would eliminate the need for any local shunting. If most timber or timber product trains had Bell Bay as their destination, it would also be desirable to build a direct link between the Tonganah Line and the Bell Bay end of the Bell Bay Line. If Bell Bay also had a balloon loop as suggested in our recent report to George Town Council, unit trains would be able to operate between anywhere on the Tonganah Line and Bell Bay without any shunting, thus minimising line haul transport costs and helping rail to be a real competitor with road for this plant-to-plant or plant-to-port line-haul market, and thus reducing or eliminating line-haul hardwood log or wood chip trucks on roads north or west from Scottsdale. [Purpose built unit wood chip trains would be able to be loaded and unloaded automatically, thus reducing logistics costs to a minimum.] If the softwood processors at Tonganah could also be organised to use rail for distant inputs and outputs, effectively all line-haul timber movements could be removed from the area's roads.

If the suggested timber industry strategy does not result in the railway's re-opening, it is suggested it should be maintained in mothballs for potential future use by a new industry that its presence might attract to the area.

Road

The road aspect of the land transport system is illustrated in Maps 2 below, Map 1 in the previous section and Maps 3, 4 and 5 in the Attachments. There is little to be gained by describing it in detail as well. There is a number of problems and inadequacies with the current system and these will be discussed in turn, with the most basic ones first and those which derive from them later.

Map 2. Traffic Volumes (Courtesy DIER)



Links Between Scottsdale and Launceston

There are three recognised links between Scottsdale and Launceston: the Tasman Highway, the Scottsdale-Golconda-Lilydale route, and the Bridport Main Road-East Tamar Highway.

Each route carries less than 1000 vehicles per day at its quietest point³ (See Map 2 above) with the Bridport route carrying the greatest number of heavy vehicles and the Golconda-Lilydale route probably having the highest overall volume. Tasman Highway is the most direct, followed by Golconda. The Bridport route is the only one cleared for use by full size B-double freight trucks.

³ The lowest measured volume for Golconda Road is 1060 vehicles per day but this may not be at its quietest point

Table 2. Summary of Scottsdale-Launceston alternative routes

Route	Length	Ownership	Limitations	Traffic
Tasman	63	State	Sideling, & Sideling-Scottsdale	870 (38) eastern, 145 (60) western
Golconda	72	Local/State W of Lilydale	Lilydale-near Scottsdale	1050 (25) nr Golconda, 2020 (25) W of Lilydale, 6685 (84) N of Rocherlea
Bridport	108	State	Scottsdale- Bridport, parts of E Tamar Hwy	Av 1750 (175) bet. Scottsdale & Bridport, 693 (162) nr Pipers Brook, 1321 (259) E of Hwy, 3258 (523) Hwy nr Mt Direction

Table 2 gives a summary of basic information about the three routes. Road classification for current design purposes is shown in Map 2 above.

The catch between these three roads is that the shortest route (Tasman) has a section, the Sideling, that is mountainous and practically impossible to improve significantly; the middle route, that serves the string of villages the railway spawned, and carries the highest overall volume, has a poor alignment and only part of it (Lilydale west) is a State road; and the route best able to carry heavy vehicles and which has been developed to the highest standard, is the longest by 36km (50% longer than Golconda).

An excellent report by GHD, *North East Tasmania Access Study*, dated March 2002 considered, among other things, these options, and undertook detailed community consultation, and various evaluation analyses. It concluded that the Lilydale-Golconda corridor should be “the preferred freight and passenger route between Launceston and Scottsdale.” GHD undertook detailed planning exercises and recommended in detail projects needed to bring the road up to a suitable alignment, cross section and pavement standard. Its recommended route with deviations is shown in Map 5 in the attachment.

Many other investigations and hearings have come to the same conclusion and Dorset Council strongly supports it, continuing to look for ways to get the concept accepted.

A Way Forward for Road Links Between Scottsdale and Launceston?

DIER is resisting efforts by Council to have the Lilydale-Scottsdale via Golconda road declared as a State road. Apparently it argues that the Bridport Main Road is the heavy vehicle route and the Tasman Highway the direct route. However every group, hearing or study that has investigated the issue has concluded that the Golconda route is the logical domestic connection between Scottsdale and Launceston. Even DIER’s own classification system shows the Tasman Highway as only a category 4 feeder route and its own Launceston-Lilydale part of the Golconda route as a category 3 freight route (see Map 2). It serves only very limited population centres *on-route*.

Our advice is that the existing Tasman Highway’s only through-route attraction to some travellers and carters from Scottsdale is that it gives easier access to sites on the eastern side of Launceston and perhaps to Hobart.

Perhaps it is time to accept what DIER’s classification already acknowledges, that the Tasman Highway no longer competes with the alternatives as a through route despite its Highway designation. The Sideling has very steep, narrow and winding climbs and descents in both directions. The section is dangerous when freight vehicles mix with normal traffic and improving beyond installing more basic safety features is practically impossible because of the steepness of the hillsides.

It is suggested that, in relation to the existing Tasman Highway between Scottsdale and Launceston:

- its use be limited to single axle rigid trucks and ordinary domestic traffic
- the Tasman Highway appellation be removed and transferred to the Golconda route
- DIER install guardrails against all steep hillsides, and do what is possible to widen or make safer sharp corners
- After completing the Sideling's safety upgrade and making necessary improvements between Scottsdale and the Sideling, DIER transfer that part of the road in Dorset to the Municipality in return for making the Golconda section a State road with limited availability to articulated vehicles, and transfer to the Golconda-Lilydale-Launceston route the "Tasman Highway" appellation
- DIER invite Launceston City Council to work with it to develop an eastern route from Rocherlea to eastern Launceston which would connect to reasonable access routes to the Midland and Bass Highways other than going through the city centre (thus eliminating the main remaining reason for using the existing Tasman Highway as a through route).

The Launceston-Lilydale-Golconda route then becomes the normal domestic route between Scottsdale and Launceston. It would be used by school buses and any community transport vehicles, picking up and setting down at the many villages along its route. It would be kept free of heavy freight vehicles by regulation and load limits and hence it could be built in closer sympathy with the hilly terrain through which it travels. It would not need to be rebuilt to allow high speeds throughout, and, apart from the deviations identified by GHD, could generally use the existing alignment except where curve easing was inexpensive. Safety would be ensured on the resultant variable-speed road with universal seal widening to 3.2m lanes backed by 1.0m shoulders and judicious curve widenings. It is thus suggested that, in relation to the Golconda route, in addition to what has been listed above in respect to the existing Tasman Highway:

- DIER extends its Lilydale Main Road to Scottsdale using the Golconda route
- DIER accepts in principle, and makes the basis of its upgrading program, the proposals developed by GHD in its 2002 report, in particular the limited deviations it recommended
- DIER sets in place a program to upgrade the road progressively to a standard similar to the Lilydale Road but prohibits articulated vehicles and limits the size of heavy rigid vehicles allowed to use the road except on special one-off licences: i.e. it builds the road to facilitate normal domestic communication between Scottsdale and its regional centre of Launceston
- DIER accepts that the program has significant safety benefits because of the use of the route by school children and by many locals needing to access Launceston for basic services
- DIER undertakes this program immediately, on the basis of the GHD report, and without waiting for any further study or for the completion of a timber industry strategy.

Cont.

The Bridport route thus retains its role as the heavy freight route. This makes sense because that route serves directly the Bell Bay port and industrial complex and gives best access to the Batman Bridge which gives heavy vehicles a bypass of Launceston to the Bass Highway. Heavy articulated freight vehicles to and from Launceston and Hobart have further to travel on this route but its straightness, easy grades, and direct route through Launceston would reduce the cost and even time differences compared to other alternatives. The Bridport Main Road between Scottsdale and Bridport and a few other sections between Bridport and the East Tamar Highway need to be upgraded to the largest freight standard as listed in Table 1.

East of Scottsdale and the North East Corner

East of Scottsdale the Tasman Highway has been developed to a reasonable standard, although it is not available as a “High Productivity Vehicle” route beyond Branxholm: the route for these vehicles from the east coast is at present through Mathinna and Ringarooma, a matter which is discussed below.

In the north east corner, there is a State route from the Tasman Highway to Gladstone, but the road from Bridport through Waterhouse is only a local road. This does appear to represent a lack of coverage of State roads across Tasmania. Dorset was prepared to trade the Gladstone road for the Golconda route but that would worsen the coverage of State roads.

Whatever the outcome of any trading that occurs between Dorset and DIER on the network of state roads, it is recommended that the State road coverage in the north east corner be kept under review, particularly in the context of current and possible future consequent developments in the far north-east and whether that corner also becomes popular for forest plantations.

Ringarooma-Mathinna Plains

The fact that the Ringarooma-Mathinna route is declared as a High Productivity Vehicle route despite the fact that it is not a State road (the State part of the route goes north from Ringarooma) is a matter for serious concern to Dorset because of the very difficult Olivers Hill mountain section to and from Mathinna Plains. This section comes nowhere near meeting the heavy vehicle route standards suggested in Table 1 and combines a narrow pavement with very sharp curves and unprotected cliff edges. The cost of bringing the road up to a suitable standard would be very high and very difficult for Dorset to handle alone.

Log trucks from the Fingal region heading for both Bell Bay and Tonganah use the route and volumes of them are reasonably high (see Maps 2 and 4).

This is a matter an integrated timber industry strategy should be able to address and resolve. For example, one of the curiosities is that there is, in Ben Ridge Road (see Map 1), an acceptable heavy articulated vehicle route. It comes out onto the current Tasman Highway at Targa west of the Sideling and allows good access to the East Tamar Highway via Prossers Road from Nunamara. The catch is that it is in part a private forestry road and as such it attracts a toll of \$4 per tonne for log trucks. While private owners can charge for road use by freight vehicles and municipal and state owners cannot, economic misallocation and hence economic inefficiencies occur.

It is suggested that, perhaps through an integrated timber industry strategy, or more immediate means, Dorset should strive for a mutual agreement between Council and DIER that a load limit should be placed on the Mathinna Plains Road so that log trucks bound for Bell Bay have to use Ben Ridge Road.

This would leave the matter of log trucks approaching the softwood mills at Tonganah from the south. Perhaps they could be allowed a licence to use the Mathinna Plains Road during certain hours when other traffic on the Olivers Hill section is minimal.

Pipers Brook Road

One suggestion that has been made is that the upgrading of the Golconda route should be associated with a major upgrade of Pipers Brook Road and that this combination could be a better heavy vehicle route between Scottsdale and Bell Bay than Bridport Main Road. This suggestion is not supported as far as heavy freight vehicles are concerned. It is the author's opinion that heavy freight vehicles should either be on rail (if that is how an integrated timber industry strategy as discussed above sees it) or on the Bridport Main Road, suitably upgraded between Scottsdale and Bridport.

However the upgrade of the Golconda route will inevitably lead to an increase of domestic traffic on Pipers Brook Road, and this should be supported particularly from a tourism viewpoint. Pipers Brook Road is in reasonably hilly country and would not be easy to upgrade to continuous high speed standard but a standard of upgrade somewhat below what is being proposed for the Golconda route should be considered, and of course, heavy freight vehicles should not be allowed except under special and time-based licence.

The upgrading of Pipers Brook Road does call into question the role of nearby and parallel Pipers River Road and raises the question that if only one should be a State road (and that is currently Pipers River Road), which should it be? It would be easy to argue that it should be Pipers Brook. Reasons would be that it would result in a lesser overall length of State road if the Golconda route becomes a State road, and that, when upgraded, it would become the standard route to Bridport.

Thus it is suggested that the Pipers Brook Road be upgraded to be comfortable for domestic traffic but that it should not be designated for use by heavy articulated freight vehicles. Consideration should be given, in any review of the composition of the State-funded road network, to its being substituted for Pipers River Road as the State road to the north-east coast.

Direct Route to Batman Bridge and the North West

The Batman Bridge together with the Frankford and Birrale Main Roads comprises the only route between the North East and North West that avoids the centre of Launceston (with the partial exception of the existing Tasman Highway route that does offer a suburban route through Launceston, but this route is recommended here for downgrading to local traffic only because of the difficulties of the Sideling). One suggestion that has been made is to develop a more direct route between about Lebrina and the Batman Highway for vehicles using an upgraded Golconda route.

However, since it is recommended that the Golconda route be upgraded to provide a quality domestic link and not a heavy vehicle route, heavy freight vehicles would continue to use the Bridport Main Road route and it already has a reasonably direct link with the Batman Bridge. Although there would be domestic traffic between the North East and North West that would benefit from being able to avoid the centre of Launceston, there are already roads available whereby such vehicles can filter between the Golconda route and the Batman Bridge.

A new direct route between Lebrina and the Batman Highway is seen as of low priority unless unforeseen developments result in a marked increase in need for a direct domestic route between the North East and North West.

Conclusion

Dorset has suffered a relative decline in locational accessibility since the new Bass Highway has been built and in this sense has been treated inequitably by the Tasmanian Government. Dorset's problem is exacerbated because it relies so heavily on Launceston for virtually all higher order services and its reliance is much greater than, say, Devonport/Latrobe because they are part of a North West Coast community which shares such services among its main centres. This heavy reliance increases the need to address safety issues on the route most used for domestic travel to Launceston.

Another major factor that contributes to Dorset's transport problem is the rapid growth of the timber industry without the benefit of an integrated strategy for its optimum economic development and for dealing with the road problems caused by the rapid increase in number and distribution of heavy log trucks.

Within the transport network itself, Dorset's railway is currently unused and there are three road routes between Scottsdale and Launceston with no agreement between the parties about jurisdiction and how each should be used, upgraded or funded.

The following recommendations are made:

1. **The State Government should be encouraged to develop a minimum road cross-section standard for roads on which heavy articulated freight vehicles are permitted and these standards should be partnered with existing standards based on overall traffic volume in deciding the standard for a particular route.**
2. **The "Tasman Highway" appellation between Scottsdale and Launceston should be changed to the Golconda-Lilydale and the State funding for the route should be extended to Scottsdale. As a trade-off, the existing Tasman Highway route in Dorset should be handed back to the Council after remedial safety work has been done by DIER on the Sideling and the road from there to Scottsdale. This should be part of a general road classification review for the region.**
3. **The new Tasman Highway route via Golconda should be upgraded to highway standard (but not for heavy articulated freight vehicles) and the B84 State-funded road between Bridport and Scottsdale should be upgraded to a standard consistent with that on the Bridport Main Road west of Bridport and suitable for heavy articulated freight vehicles.**
4. **Appropriate action should be taken to ensure that log movements between Break-O' Day and Bell Bay use the Ben Ridge Road and heavy vehicles are discouraged or prohibited from using the C423 route from Mathinna Plains to Ringarooma unless they are bound for the softwood mills at Tonganah, in which case they could be permitted under time-restricted licence to maximise safety on the Olivers Hill section.**
5. **Because it is not recommended that the Golconda route be developed as a heavy articulated freight vehicle route, neither is it recommended that Pipers Brook Road be similarly developed. However it should be developed as a comfortable tourist and domestic travel route and considered for inclusion as a State funded road as an alternative to Pipers River Road.**

Dr Ken Davidson

5 October 2007