Better Transport Futures

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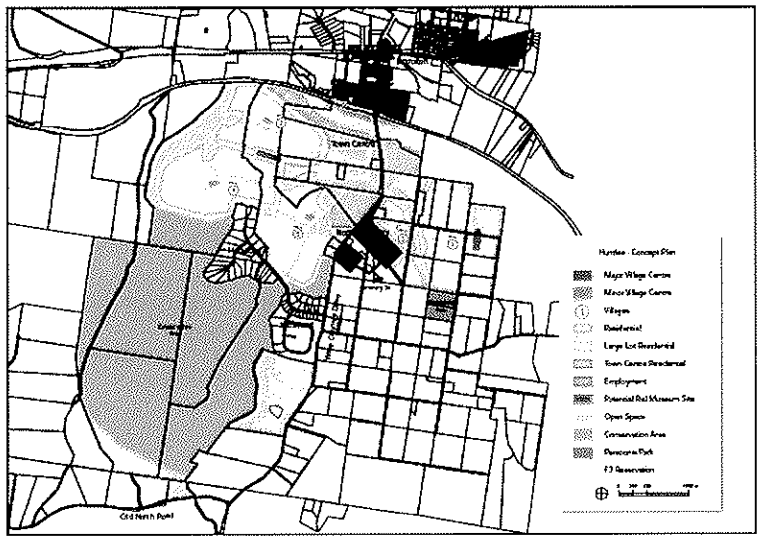
Transport Planning & Engineering

Proposed Huntlee Development Branxton, NSW

Huntlee Holdings Pty Limited



Concept Plan
"Mode Split" Technical Paper

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1. Executive Summary

There have been a number of issues raised by government agencies in relation to the approved Huntlee Concept Plan and in particular in terms of the proposed Transport Management Strategy developed to support the approved Concept Plan submission to the NSW Department of Planning on behalf of the NSW Government.

The purpose of this "Mode Split" Technical Response Paper is to highlight the key technical elements of the Huntlee Transport Management Strategy. This is presented in the context of the technical issues raised by the various authorities responsible for elements of the transport system. The paper also presents elements of a recommended process that seeks to identify a way forward to achieving mutually beneficial objectives satisfying the increased population demand of the Government's adopted Lower Hunter Regional Strategy as well as achieving satisfactory transport options again within the context of the Government's 25 to 30 year strategy. The overall approach embraces the Government's goals and objectives in relation to transport and linked environmental objectives with the appropriate levels and types of infrastructure to support the vision that is the Lower Hunter Regional Strategy.

The proposed Huntlee Transport Management Strategy stated amongst other things that:

"It must be stressed that the package of initiatives referred to here goes way beyond a set of strictly public transport measures. It includes the on site urban form initiatives, including the employment strategy. It includes the potential use of non motorised travel, both pedestrian and cycling afforded by these significant changes in land use."

This is a direct quote from the Transport Management Strategy prepared in support of the approved Huntlee New Town Concept Plan. It indicates the range and multitude of coordinated initiatives and solutions that have the potential to deliver the Transport Future envisioned for the Huntlee New Town.

Huntlee & Lower Hunter Regional Strategy – 25 to 30 years in the making

Huntlee represents a significant component of the NSW Governments' adopted Lower Hunter Regional Strategy. It is planned ultimately to provide 7200 dwellings and 160 Hectares of employment generating development. This equates to a planned population of over 20,000 people based on similar dwelling occupation levels for neighbouring towns (to that recorded in the latest census figures), and a potential for up to 3000 local jobs.

In addition to the population and employment activity, the Huntlee New Town coupled with the existing townships of Branxton and North Rothbury, will become centres for a range of local retail, business, education entertainment and health facilities to contribute to and maximise the level of self sufficiency of the new community.

This level of self sufficiency is incorporated as a fundamental cornerstone of the approved Huntlee Concept Plan. It will develop and strengthen as the community grows and may take 25 years to mature to the extent of neighbouring established towns of similar size such as Singleton and Cessnock.

Huntlee represents about 10% of the overall planned development of the Lower Hunter Regional Strategy, and is comparable in size to the development planned near centres such as Thornton North, Cessnock, Morisset, Kings Hill (Raymond Terrace) and others. The significant difference for Huntlee, when compared to these other growth areas is that Huntlee is being developed as a single new town, under one approved concept plan. This presents many advantages, not the least of which is the ability to manage development staging such that the local facilities required to achieve the levels of trip containment are equal to those in the already established towns of Cessnock and Singleton.

Trip Containment

Trip containment is not a new idea. In fact the NSW Roads and Traffic Authority has expressly recognised its significance in its publication "Guide to Traffic Generating Developments (GtTGD,RTA 2002)" which is a mandatory reference document for all investigations into traffic impacts in New South Wales.

"Note that not all trips are external trips. As a guide about 25% of trips are internal to the subdivision, involving local shopping, school and local social visits. When reviewing the impact of traffic generated on regional and sub-regional roads some adjustment is necessary depending on shops, schools and recreational facilities."(Source GtTGD, RTA 2002)

If you consider the latest available census statistics for the neighbouring areas of Cessnock and Singleton (See Sections 3 And 4 of this paper) the above principles are taken even further. There is a full range of activities including local employment, health facilities as well as education, retail and recreational facilities, such that, the level of trip containment to the local transport systems within these census areas is in excess of 50%.

The real challenge to all, Governments, developer and community alike, is to direct and coordinate development in such a manner that the overall objective is fostered and achieved.

Mode Split

So what of "Mode split"? What role does this play in the overall scheme of urban development and movement patterns?

Traditional views of "Mode split" in the Hunter Region would suggest that ~ 95% of people travelling in the peak commuter periods (which is the dominant impact period and the one that is focussed on in terms of sizing infrastructure needs) travel by car.

What is not recognised in this statistic (and it varies across the region) is that somewhere in the vicinity of 8 to 10% of these people travel as car passengers. That is, they do not represent another vehicle on the roads. So we are in fact talking about car drivers representing in the order of 80 to 85% of the peak commuter period transport task.

The break down of the Huntlee nominated "70:30" mode split is as follows:

- 70% car driver
- 30% non car driver transport which can include:
  - Car passenger
  - Public transport users
    - Rail
    - Bus
    - Other
  - Cyclists
  - Pedestrians
  - Non travellers (people who do not travel (e.g. illness, RDOs, leave), people who complete an activity or transaction requiring traditionally a trip to be made, by other means such as electronic communication.)

So what this means is that the extent to which the Huntlee new town (or any element of the Lower Hunter Regional Strategy and beyond) has to rely on external car based travel is planned to be reduced firstly by:

- Local Trip Containment similar to that experienced in Singleton and Cessnock now, and
- A modest shift in external travel habits, in the order of 10 % or less, away from private car based travel.

Employment Strategy

Local Jobs and activities are crucial to this strategy, and are a committed element of the Huntlee approved Plan. The process of delivering development staging will be a significant tool in influencing people's behaviours to live and work locally.

Transport Demands

Huntlee is a long term project committed to changing how communities are developed. It is important to consider the implications of maintaining the status quo in terms of approach to the consideration of the cumulative impacts of the development. This is a factor that applies across the whole Greater Metropolitan Region (GMR) and not just Huntlee or the Lower Hunter Region. It has far reaching impacts in terms of social and environmental goals, as wells as the community's ability to afford to provide infrastructure at the current rate to support an emphasis by Government for car travel.

If the traditional approach of applying traffic generation rates for isolated developments that rely on external attractions were applied, the overall traffic levels on external roads surrounding Huntlee/ Branxton would be around 6100 vehicle trips in the peak hour based on the current standard RTA rates for residential development.

If for example the extent of local trip containment currently experienced in Cessnock and Singleton isapplied, the level of external trip generation is in the order of 3000 trips.

Consequently if this level of overall trips were to exhibit a similar "mode split" to today's Hunter travel patterns then the level of additional car driver trips would be around 2600 trips.

Note that this process has been applied to only the "new" trips. It can and should be argued that this process, being developed over a 25 to 30 year time horizon can be applied to existing trip patterns also meaning that the base demands on the road element of the transport system would be reduced also (either by containment and shorter trips, or through a mode shift to another acceptable form of local transport).

- **Table 1-1 Trip Generation**

Trip Generation in Huntlee/Branxton	6100
Containment based on +50% per Cessnock/Singleton statistics	-3100
External Trip Generation	3000
Non-driver component	400
Additional car driver trips	2600

In terms of shifting travel away from car dependency the 10 to 15% represents around 700 to 1000 trips. Depending on the breakdown of car pooling, walking cycling, versus public transport, this could be around 7 bus loads spread across the 3 external routes from the area during the peak. (More is said on transport planning verification of these figures below.)

External Road Infrastructure Demands

At the moment there are 3 external regional roads supporting movement to and from the Huntlee / Branxton locality:

1. New England Highway (East)
2. New England Highway (West)
3. Wine Country Drive (South)

There is no significant road connection to the north of the locality.

In addition to the above existing routes the NSW Government approved an Environmental Impact Statement in 2001 for the proposed F3 Freeway (Seahampton) to New England Highway (Branxton) link. This new regional road is planned to form part of the National Highway network, (and the subject of a current joint Commonwealth and NSW Government Study). The F3 extension was considered supporting infrastructure within the Lower Hunter Regional Strategy.

The current Federal Government recently commissioned a significant study, the Lower Hunter Transport Needs Study (LHTNS). The study area for that work was centred on the Local Government Areas of Maitland, Cessnock and Singleton, and the F3 link was an integral part of that investigation.

At the time of writing this response paper the outcomes of the LHTNS have not been released so it is still unclear as to whether the F3 link in its EIS approved form will precede. The only issue this raises in relation to the approved Huntlee Concept Plan is what; if any, other infrastructure improvements may be required should a decision be made not to proceed with the F3 link.

It is understood this issue will be resolved well within the time horizon of the Lower Hunter Regional Strategy, and the approved Huntlee Concept Plan – i.e. within the 25 to 30 time horizon of the strategy.

If it is assumed the F3 link is built, the external road network capacity supporting the Huntlee / Branxton locality would then be at least 6 lanes in each direction. (Within the Huntlee new town it has always been expected Wine Country Drive, its deviation and possibly the existing New England Highway through Branxton, would be upgraded in capacity terms because of their role in supporting local traffic movements.) This means, based on accepted thresholds for urban peak travel of 1500 vehicles per lane per hour, there would be up to 9000 vehicles per hour of "external" road capacity.

Given that existing combined peak flows on these roads (from 2007 data) were in the order of 3500 vph this would suggest there would be ample capacity to cater for the Huntlee development's external impacts.

Huntlee Concept Plan Initiatives

Another factor in achieving the projected travel patterns, which is a stated position in many NSW Government publications (current and past) in terms of reducing reliance on private motor cars etc, is What alternate transport choices will residents of Huntlee have?

The Huntlee Transport Management Strategy presented the various components of its initiatives in relation to the following:

1. Urban form – and its effect on trip patterns
2. Alternate transport infrastructure
    a. Public transport
    b. Park and Ride options
    c. Cycling as a mode of transport
    d. Walking

One question raised in relation to the Huntlee Transport Management Strategy is that it relied on investigations completed for urban development proposals in Sydney "13 years ago". The fact remains that the transport principles being promoted here are drawn from work completed over 40 years ago (The

Buchanan Report "Traffic in Towns") which remains a direct reference of the RTA's Guide to Traffic Generating Developments today.

The conclusion here is that the principles are sound. The application of these has the best potential to achieve the Government's objectives for alternate transport infrastructure in the Hunter.

So what of Public Transport?

Initial investigations for the approved Huntlee Concept Plan placed some reliance on rail transport as part of the urban commuter transport system. However this has been ruled out by the NSW Government agencies responsible for rail operations and planning. Basically the rail is dedicated to transporting coal to the Port of Newcastle for export.

The Huntlee Transport Management Strategy has not abandoned rail as a transport choice. Rather the underlying principle of providing a transport hub for the new town within the Town Centre is proposed.

A significant commitment has also been made towards the provision of bus based public transport in lieu of the rail alternative.

What this means is that the expected local public transport services, car parking, cycling and walking infrastructure are still focussed on a hub within the new town's centre, where convenient interchange can be provided.

This concept has merit and application at centres across the region.

Transport Planning – The Process from here?

The various State Government transport agencies have raised a number of doubts as to whether the initiatives nominated in the Huntlee Transport Management Strategy can be achieved.

The Huntlee Transport Management Strategy was developed from principles relying on technical references that have been developed over many years.

It is recommended that a series of monitoring and evaluation tools be developed in collaboration, that are capable of assessing the ongoing staged development of the Huntlee New Town. This monitoring should also make use of the base modelling tools that exist in the region today.

The approved Huntlee Concept Plan did not undertake regional transport modelling, but rather it focussed on the elements of its development and impacts within the context of its locality. The role of regional planning is not that of any one developer, or development project and hence the approved Huntlee Concept plan did not complete regional planning work beyond its immediate vicinity.

It is appropriate to augment this first principles approach with another level of quantification of the transport tasks. Over time this will allow a more robust quantification of the actual transport needs that evolve, and the subsequent investment levels required in the various forms of transport infrastructure and services that form part of the Huntlee Transport Initiatives.

The completion of a modelling based transport assessment as a monitoring tool is recommended as a positive step in the process of monitoring and verification of the Huntlee Transport Initiatives and indeed those impacts of other development contained within the Lower Hunter Regional Strategy. It would allow testing of the transport principles nominated for Huntlee, against those nominated by Government, and those of other developers in the region, to arrive at a consistent framework for development and

supporting infrastructure which can be ratified, funded and implemented within the objectives of the Lower Hunter Regional Strategy.

One of the key benefits in developing this monitoring tool will be the ability to assess the extent to which the emerging urban form of Huntlee is able to influence mode choices.

First Steps – Consideration of Project Applications

The initial stages of Huntlee will not have the projected level of self containment but nor will they have the potential level of impacts of the full development. Consequently the traffic impacts of the Stage 1 applications have been considered in the traditional manner. This will result in a traditional level of access infrastructure improvements that is well within the overall framework of the completed Huntlee Town.

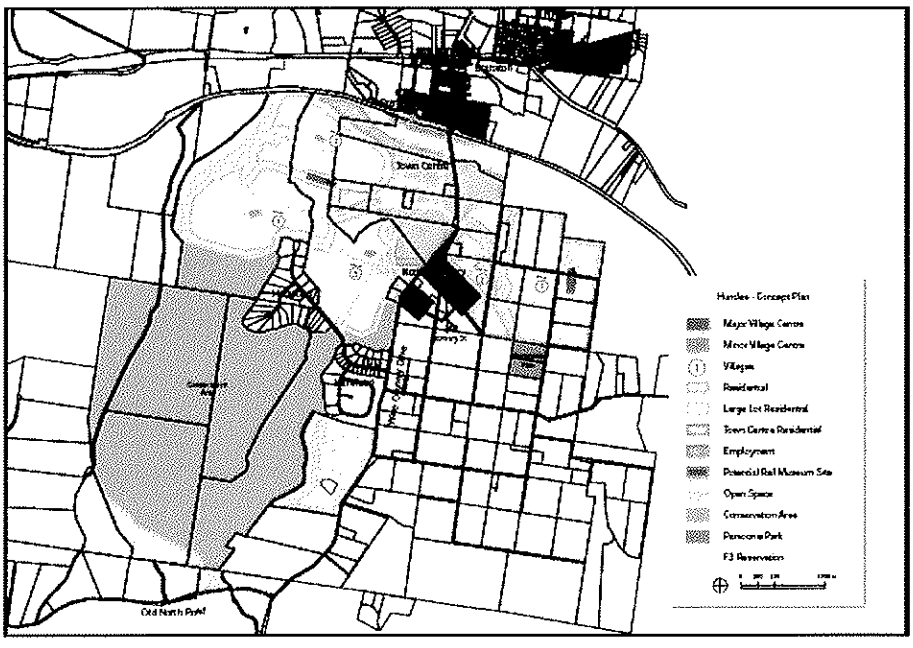
Forward Planning and Monitoring

The process put forward here allows for the following:

1. Initial establishment of elements of the Huntlee New Town product in the market place.
2. Ability to develop in more detail the staging plan including supporting infrastructure that will allow the Huntlee transport initiatives to be realised
3. Establishment of the mechanisms and tools that will allow monitoring of development progress.
4. Ability to constrain car dependency through the combination of local facilities and transport choices as the new town matures in line with Government policy positions in this regard.

RECOMMENDATION

It is recommended that the transport initiatives, framework and principles of the Huntlee Transport Management Strategy, including the additional monitoring regime nominated in this technical paper, be incorporated into the approved Huntlee Concept Plan documents and subsequent regional planning documents, and form the basis for ongoing negotiation of the Development Approvals process.



2. Introduction

2.1 Review of Transport Issues

Better Transport Futures was commissioned by Huntlee Holdings Pty Limited who have prepared a Part 3A application for the proposed Huntlee New Town development to providing supporting transport planning and engineering services.

In reviewing the Transport Strategy supporting the approved Huntlee Concept Plan, the Transport Authorities, Ministry of Transport (MoT), NSW Roads and Traffic Authority (RTA) and Local Councils have raised a number of concerns about the transport initiatives.

In particular both MoT and RTA have questioned the validity of mode share assumptions. It is the author's opinion that both MoT and RTA have not fully understood the long term planning goals of Huntlee, which have been crafted around the NSW Government's own objectives for urban development and transport planning.

The issues that MoT and RTA appear to have focused on in this regard are summarized below:

- *Proposed transport initiatives are unlikely to benefit the area to the degree assumed:*
  - *Limited scope for rail passenger services*
  - *Use of buses on public roads will require additional roadway capacity, particularly if transit lanes are required*
- *Therefore 70:30 mode share split is unjustified and unrealistic given current rates in the Lower Hunter are 95% utilisation of car trips*

The key issue is that the whole approach to transport is **MORE THAN JUST A MODAL SPLIT ISSUE.**

This paper presents additional information to support the approved Huntlee Concept Plan and its Transport Management Strategy, and highlights particularly that this is a 25 to 30 year strategy, consistent with the timeframe of the adopted Lower Hunter Regional Strategy.

2.2 Legislative Requirements

The Director General of the Department of Planning nominated a series of requirements that required attention in the investigations supporting the Part 3A application for Huntlee. These requirements are outlined below for reference.

2.2.1 Director General's Requirements Relevant to Transport

Traffic & Transport

(1) The environmental assessment needs to satisfactorily address:

(a) Impacts on regional road networks;
(b) Opportunities to minimise traffic on sensitive road frontages;
(c) Proposed access and circulation;
(d) Efficiency of emergency vehicle access/egress;
(e) Proposed access from the wider road network as well as the opportunities and constraints of alternative vehicular access points;
(f) Measures to introduce & promote public transport usage (incl. rail) & mode share; and

(g) Proposed pedestrian and cycle access within and to the site that connects to all relevant transport services and key off-site locations and measures to promote the use of these.

(2) An appropriate traffic impact assessment in conjunction with the principles and methodology of a traffic management plan (TMAP) should be prepared in accordance with relevant RTA Guidelines & Draft SEPP 66.

Ecologically Sustainable Development (ESD) & Greenhouse Gas Emissions

(1) The EA should demonstrate that all aspects of the concept plan satisfy the principles of ESD including compliance with BASIX.
(2) A comprehensive assessment of and report on the project's predicted greenhouse gas emissions is to be provided, including a report on the feasibility of measures to reduce emissions

Development Staging

(1) The issue of development staging should be clearly addressed in detail. This should include infrastructure staging, and annual targets for housing and job production linked to infrastructure provision.

2.3 Purpose of Mode Split Response Paper

The technical responses documented in this paper seek to provide additional information and assurance that the proposed Huntlee Transport Management Strategy is sound. It is also a positive contribution towards the region's and the state's objectives in terms of urban development and travel demand management. It seeks to achieve better environmental, social and economic outcomes.

The paper focuses on the transport elements of the development, its likely characteristics and how these compare to other towns and travel patterns in the region.

The paper incorporates an outline of a process of staged monitoring and evaluation. The process will permit adjustments to the transport plans over time.

The paper concludes with a series of recommendations as to how to take forward the staged development of Huntlee to secure a series of agreed outcomes for the development.

3 Demographics – The Planning Context of Huntlee

3.1 The Lower Hunter Regional Strategy

The Lower Hunter Regional Strategy was approved in 2006 by the NSW Government as the planning strategy to guide urban development in the Lower Hunter Region for the next 25 to 30 years.

The Huntlee development is an approved inclusion in the Lower Hunter Regional Strategy.

The Lower Hunter Regional Strategy

The adopted Lower Hunter Regional Strategy (See **Figure 3.1)** sets the guidelines and directions as to how development in the region will be managed on a sustainable basis over the next twenty five years.

The Regional Strategy provides a context and overarching framework for local government in the development of local strategic plans and local environmental plans.

The key issues that the Regional Strategy deals with are as follows.

Urban Structure Population growth; dwelling demand; sustainable settlement patterns including new release area/urban renewal mix.

Economics & employment Employment generation; unemployment, underemployment and skills development; wealth generation; labour force participation.

Natural Resources & Environment Protection of economic natural resources; protection and conservation of regionally significant biodiversity, agriculture, areas of scenic amenity, cultural heritage.

Housing and liveability Changing demographics (ageing population); changing household structure; housing needs including housing mix, adaptability, affordability; centres policy; quality of life.

The approved Huntlee Concept Plan was developed in response to each of these important issues and has incorporated these into the development of the approved Concept Plan.

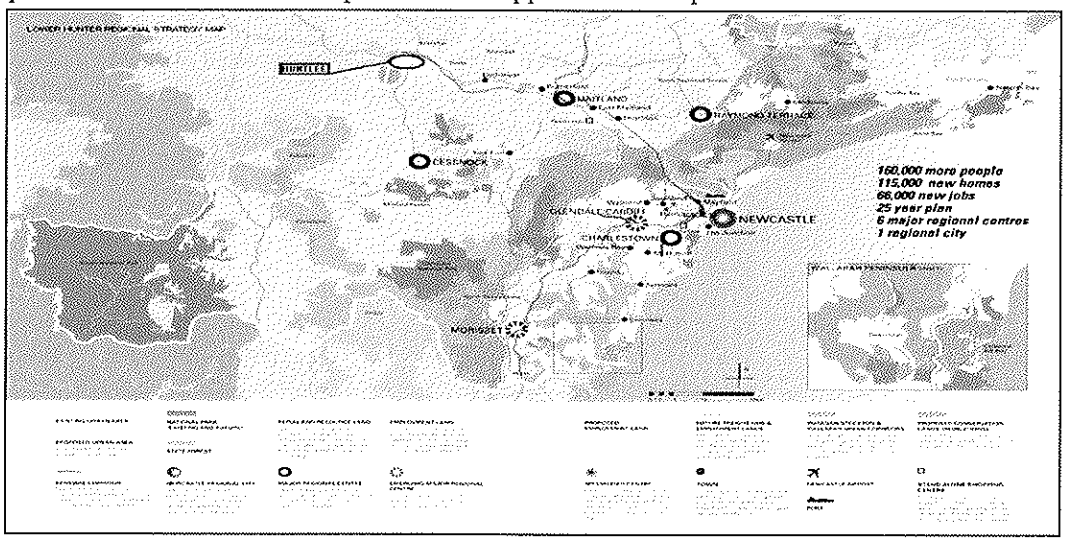


Figure 3.1 Lower Hunter Regional Strategy Map. (Source Department of Planning 2006)

In terms of the Huntlee Development a mix of higher density and traditional development yields has been proposed to achieve a higher overall average density than traditional Hunter Development in line with the NSW Government's staged objectives in this regard. This again becomes an important factor in the determination of transport demands as part of the Huntlee TMS.

Employment land and infrastructure requirements

As part of the Lower Hunter Regional Strategy land has been identified to satisfy the demands of growing populations, and the corresponding employment opportunities required to ensure the economic potential of the region can be realised.

The Huntlee Development incorporates a significant component of employment generating land - 160 hectares. This is important in that it will allow for a significantly higher level of containment than traditional development, again influencing the transport demands of the proposal.

Huntlee as a new release area (NRA)
The approved Huntlee Concept Plan aims to reduce its transport task by providing as many services and activities as possible, and thereby increasing containment and reducing the average trip distance and durations. This leads to lower emissions and demands on other infrastructure.

3.2 A Comparison with Some of Today's Towns

3.2.1 Cessnock

At the 2006 Census, Cessnock had a population of 46,206 (up 2.2% from 45,204 in 2001) of which 18316 resided in the urban centre of Cessnock, and 12532 within the urban centre of Kurri Kurri-Weston. Cessnock had a total of 17,232 occupied dwellings at the 2006 Census (up 4.3% from 16,514 at 2001), giving an average occupancy rate of 2.68 persons per dwelling (down from 2.73 in 2001). This occupancy rate is slightly below the average for the GMR of 2.69 persons per household but is higher than neighbouring Newcastle with an average of 2.41 persons per household and Lake Macquarie with 2.64, and lower than Maitland with 2.75 persons per household. Inner ring local government areas (for example Marrickville 2.33 and Leichhardt 2.22 persons per dwelling) tend to have lower average occupancy rates than middle (for example Holroyd 2.77 and Hurstville 2.71) or outer ring local government areas in the GMR (for example Blacktown 3.05 and Hawkesbury 2.86). Neighbouring Singleton had 2.87 persons per household.

3.2.2 Singleton

At the 2006 Census, Singleton LGA had a population of 21,937 of which 13665 resided in the urban centre of Singleton (the total was up by 7.6% from 20,384 at the 2001 Census). Singleton had a total of 7,639 occupied private dwellings (up by 9.2% from 6993 in 2001), giving an average occupancy rate of 2.87 persons per dwelling (down from 2.91 in 2001). This occupancy rate is well above the average for the rest of NSW of 2.53 (down from 2.62 at the 2001 Census) and the GMR 2.69 (down from 2.75 in 2001) and compares with 2.63 in Dungog, 2.4 in Gloucester, 2.7 in Muswellbrook and 2.5 in Upper Hunter. The occupancy rate in Singleton is higher than occupancy rates in neighbouring local government areas.

3.2.3 Maitland

At the 2006 Census, Maitland had a population of 61,880 (up a significant 15.9% from 53,383 in 2001). Maitland had a total of 22,511 occupied dwellings at the 2006 Census (up 15.6% from 19,475 at 2001), giving an average occupancy rate of 2.75 persons per dwelling (down very marginally from 2.74 in 2001). This occupancy rate is above the average for the GMR of 2.69 persons per household and is higher than neighbouring Newcastle with an average of 2.41 persons per household, Lake Macquarie with 2.64 and Cessnock with 2.68 persons per household. Inner ring local government areas (for example Marrickville 2.33 and Leichhardt 2.22 persons per dwelling) tend to have lower average occupancy rates than middle (for example Holroyd 2.77 and Hurstville 2.71) or outer ring local government areas in the GMR (for

example Blacktown 3.05 and Hawkesbury 2.86). Neighbouring Singleton has an average occupancy rate of 2.87 persons per household.

3.3 So How Does Huntlee Compare?

The approved Huntlee Concept Plan (See **Appendix A** to this Paper) has identified the likely future mix of development planned for the subject lands, including:

- 7200 residential dwellings;
- 160 Hectares of employment lands (town centre);
- 300 large lot residential dwellings

The Concept Plan was developed to give an overall indication of the likely development for the site, with a more detailed project application lodged only for Stage 1 of the development. (A separate Project Application has been prepared and lodged with Government supporting this first stage.)

If the average occupancy rate for Cessnock in 2006 is applied, then this planned development would realise a population of 20,100 people. If the existing populations of Branxton and North Rothbury are considered then the combined new town will be even more.

This makes the mature Huntlee/ Branxton certainly comparable in size to the current towns of Cessnock and Singleton.

When the proposed 160 hectares of town centre employment generating land is considered with its potential to provide local shops (retail) commercial premises (business activity), entertainment facilities, health and education facilities, the potential for containment of trips within the new town will be significant and potentially more than that assumed in earlier planning work.

The comparative statistics on containment and trips from these local towns are outlined in the next section of this paper.

4 Hunter Travel Characteristics

An overview of all types of personal travel is provided by the Household Travel Survey, a continuous survey undertaken by the State Government within the Greater Metropolitan Region. The survey includes the Newcastle Statistical Subdivision which covers the Cessnock and Maitland Statistical Local Area (SLA) (Similar to the Local Government Areas) but not Singleton,, which lies outside the Newcastle Statistical Subdivision (and technically also outside the Lower Hunter Region).

The following charts and tables identify the number of trips undertaken by residents within the Lower Hunter Region firstly by trip purpose and then by mode of travel.

The public transport system is limited to main road bus services to Hexham, Maitland, Singleton, Kurri Kurri, Cessnock and Port Stephens, and a single passenger train service along the Hunter Valley through and beyond Maitland and Singleton to Scone and Dungog on separate lines.

The NSW State Government transport survey results clearly show the personal travel characteristics of the population of the Greater Sydney Region that includes the majority of the Lower Hunter Study area. The transport data sourced from the 2006 Journey to Work Survey undertaken by the Ministry of Transport, NSW show the travel characteristics indicated in Table 4-1 below. This table is based on the Local Government areas and includes the Sydney Suburbs of Ashfield and Baulkham Hills as a comparison to the Hunter Local Areas.

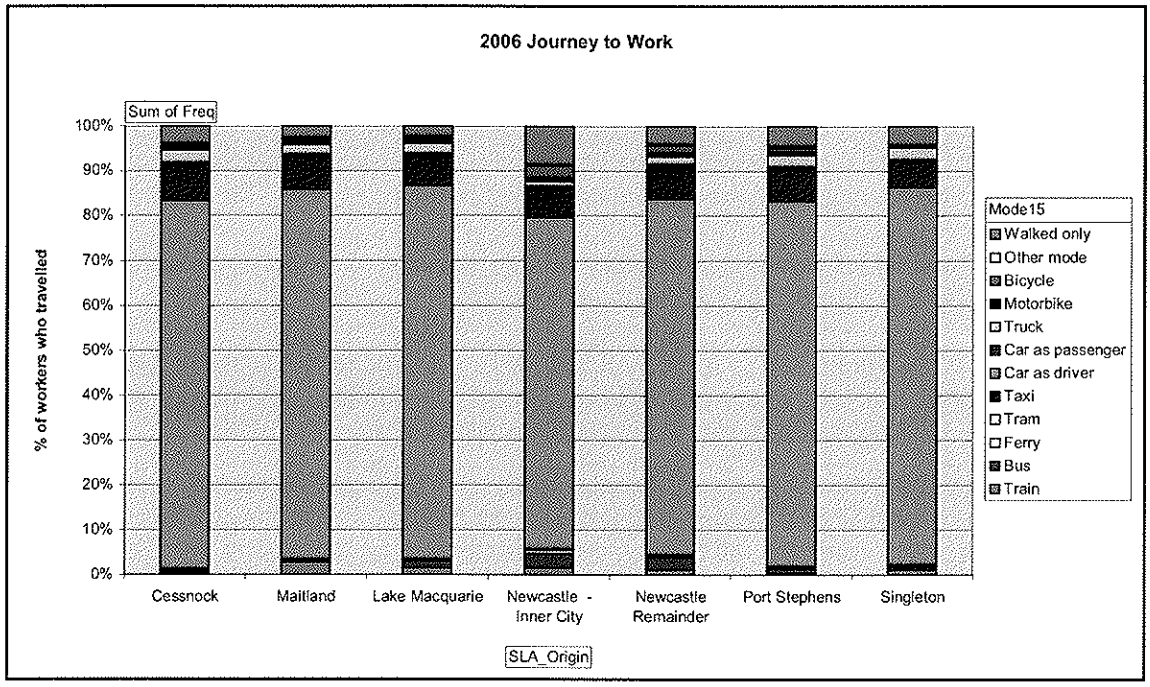
The majority of the data in Table 4-1 relates purely to the daily 2006 Journey to Work. Data from the 2005 Household Travel Survey, which includes all trips made by a household in a day, complements this information. However, due to the different survey dates and techniques, the data cannot be directly compared. Relevant data from this survey is also presented below in Table 4-1 :

- **Table 4-1 2006 Journey to Work Survey Data.**

Local Govt area	No of resident workers	No of work trips per day	% residents live and work in same zone#	% Car drivers JTW/HTS*	%Car Passengers JTW/HTS*	% public transport JTW/HTS*	% residents who work from home	% residents who did not go to work on survey day.
Cessnock	16010	12577	68	82/57	8/23	2/7	5	14
Lake Macquarie	75677	61776	72	83/56	7/26	4/5	3	13
Newcastle	61413	50263	50	77/47	8/18	4/5	3	14
Maitland	25372	20528	59	82/60	8/24	4/3	4	14
Port Stephens	23219	18524	64	81/60	9/22	1/4	5	14

*JTW/HTS = 2006 Journey to Work Survey / 2005 Household Travel Survey is based on the Local Government Zones used in the 2006 Survey.

■ **Figure 4-1 JTW Table analysis mode SLA of origin**



The data shown in Table 4-1 can be summarised as follows:

1. In the four core Lower Hunter Local areas of Maitland, Cessnock, Lake Macquarie and Port Stephens, the predominance of the private car for the Journey to Work is clear with between 81% and 83% of all Journey to Work trips being made as the Car Driver, and a further 7 – 9% being made as a car passenger. For the trips made throughout the day, there is slightly more use of public transport in the Lower Hunter compared to the significant drop seen in the Sydney suburbs data. This represents a private car share of around 90% or more.
2. Low levels of public transport use in the Lower Hunter, such as 2% of work trips in Cessnock, and 4% of work trips in Maitland, reflect the low level of public transport provision together with the high private car use compared to the Sydney suburbs, (40% public transport use in Ashfield).
3. A significant percentage of the population live and work in the same Local Government zone. With the exception of the Newcastle zone, the Lower Hunter area had a live/work self containment percentage of approximately 60% and over, whilst the two Sydney areas had 46% containment or less.
4. Approximately 16 – 19% of work related trips do not occur on a given day, due to staff not going to work for reasons such as sickness, or holidays. This figure also includes the number of people who now work from home.

The 2005 Household Travel Survey provides more detailed information regarding the trips made in each Household throughout the day as follows in Table 4- 2

Table 4-2 Key Transport Indicators - 2005 Household Travel Survey Data.

	Ave size of Household	Trips per person/wkday	Trips per household/wkday	Vehicles per household	Total km travel per person/day	Ave trip length (km)	Ave trip duration (mins) all purposes	VKT / person, km	Av work trip duration (mins)	Av non work trip duration (mins)	Daily travel time per person (mins)
Cessnock	2.7	3.6	9.7	1.79	51.2	14.2	19	32.3	22	18	68
L.ake Macquarie	2.7	4.1	11	1.65	43.2	10.5	18	26.4	26	16	74
Maitland	2.8	3.7	10.3	1.66	49.3	13.2	18	32.7	26	16	65
Newc –Inner	1.9	4.4	8.3	.99	28.2	6.5	16	17.6	20	15	70
Newc-Outer	2.4	4	9.6	1.38	25.2	6.2	14	15.9	20	13	57
Port Stephens	2.6	4	10.5	1.7	56.1	14	17	37.9	22	16	68
Overall Newcastle SSD*	2.6	4	10.3	1.58	41.2	10.3	17	26.2	24	15	67

*SSD – Statistical Sub-Division

Table 4 3 below shows the reason for travel as a percentage of the number of trips and as a percentage of the kilometres travelled.

- **Table 4- 3 Reason for travel**

% of trips/%of distance travelled	Cessnock %	L.Macquarie %	Maitland %	Newc Inner %	Newc Outer %	Port Stephens %	Overall Newcastle SSD %
Purpose							
Commute	13/16	11/18	14/17	19/22	11/15	11/17	12/17
Work related business	7/12	9/13	8/12	6/19	8/16	7/14	8/14
Edu/Child care	10/11	8/6	10/11	6/8	7/7	7/7	8/7
Shopping	18/15	17/14	17/10	16/6	19/15	16/15	18/13
Personal Business	12/13	12/11	9/7	9/5	11/8	12/13	10/11
Social/Rec	21/16	22/24	21/27	31/31	25/23	26/21	23/23
Serve passenger	17/15	17/13	20/15	7/6	19/25	17/25	14/18
Other	2/2	2/1	2/1	7/2	2/2	3/1	1/2

Source 2005 Household Travel Survey – Key Transport indicators.

This table shows that work related trips tend to be longer and reflect a higher proportion of the kilometres travelled than the other reasons for travel such as shopping, social and personal business.

The statistical data supports and reinforces the high dependence of Lower Hunter people on private car travel.

Conclusions

Our conclusions drawn from this review of Hunter travel statistics are:

1. The Hunter Valley areas show a consistent household size, although this is expected to decrease in the next 25 years.
2. The daily trip generation for a household ranges from 9.7 to 11 trips per day in the Lower Hunter Zones.
3. The average work trip duration ranges from 22 minutes to 26 minutes for the Lower Hunter zones. This is 10 minutes shorter than in the two Sydney suburbs despite the average trip length generally being longer in the Hunter zones.(Longer, but faster trips)
4. The Lower Hunter zones recorded up to 25km longer total kilometres travelled each day than the inner city zones, whilst the total travel time spent each day was between 10 and 30 minutes shorter.
5. Overall, car travel is the dominant mode throughout the Lower Hunter, with 81% of all trips being made by car (as driver)
6. Car travel remains the dominant mode of transport within the Lower Hunter Region, with JTW statistics indicating around ~80% of trips as car driver, with a further 8 to 10% as car passenger.
7. The level of journey to work trip containment within an SLA is significantly higher than has been indicated previously, with Maitland exhibiting around 60%, and Cessnock closer to 70%.
8. The proportion of trip purposes for "local" activities such as shopping, school and social/ recreation represents almost half of all trips undertaken.
9. The combination of work commuter and work based trips represents only around 20% of the overall trip purposes.

Public Transport mode shares remain very low across the region (which presents a significant opportunity in terms of increasing mode share.)

5 The Making of Travel

5.1 Defining Travel

A trip is defined by the RTA in its Guide to Traffic Generating Developments (RTA October 2002) as "a one way vehicular movement from one point to another excluding the return journey."

In fact the trip does not have to be a vehicular movement as people have a choice to make in terms of the mode they choose to complete the required travel.

In this regard, and in all traditional transport planning and modelling investigations, trips are considered in a four step process:

1. Trip Generation
2. Trip Distribution
3. Mode Choice
4. Trip Assignment

There are many tools available for practitioners to apply and develop models dealing with the above process. In the case of the Lower Hunter the NSW RTA has developed a road traffic model that deals with the road based component only of the transport task.

5.2 Trip Issues affecting Huntlee

The Huntlee Transport Management Strategy outlined a number of initiatives that are considered to be important with regard to influence the level, type and magnitude of different forms of travel. This includes:

1) **Trip Generation** – the ability to influence the choice for trips in the first place. By considering the built form, of a town in its holistic sense, the trip may never happen (e.g. electronic communications etc could take its place) **The built form of Huntlee has been considered in this regard.**

2) **Trip Distribution** – Again the built form of a town and its components will have a key impact on this feature, both in terms of average trip lengths, and **"Trip containment"**. By providing the necessary services within the Huntlee / Branxton new town, people can go about their daily tasks (School, shopping, health, and some business) without even leaving the town.

3) **Modal Choice** – This is the issue which government officers appear to focus on more than anything else. Of note is the apparent assumption that in all modelling and future planning exercises trip patterns, both in terms of generation in the first place, and then distribution are static indefinitely. This assumption is considered to be incorrect and is not consistent with the Government's own goals and objectives for urban planning as stated in the State plan. It makes no allowance for the distribution of new productions and attractions of trips which will definitely influence travel outcomes.

4) **Transport Environmental and Travel Demand Objectives** – A review of State Government documentation indicates that the Lower Hunter Region is not being considered in a comparative manner in terms of travel goals in other urban areas, which include Wollongong, the Central Coast, Blue Mountains and Sydney. As part of the Greater Metropolitan Region, it is not clear why the Lower Hunter Region is considered to be incapable of achieving the same urban outcomes as the rest of the GMR. There are many statistical facts that demonstrate similarities to much of the GMR in terms of demographic profile and so on. It is not clear why it is considered that Newcastle and the Lower Hunter Region as an urban area is a special case, and that mode split objectives nominated for the rest of the GMR do not apply. It is our opinion that the principles adopted elsewhere in the GMR are valid and just as applicable to the Lower Hunter Region.

5) If the full transport task is considered, from Trip Generation to Trip Assignment on networks and applying data from comparable towns in the region , it can be shown that the principles adopted for

HUNTLEE are in fact conservative, when compared to the level of self containment that exist is already in towns such as Singleton and Cessnock.

6) Our research of travel patterns in Cessnock and Singleton drawn from the published statistical databases available through the Transport Data Centre and ABS Census data has covered adjacent towns as being representative of the "end state" that we believe can be achieved for HUNTLEE/Branxton. This analysis shows that the existing level of containment for these towns is in fact very close to 50% of all travel. What this means is that the significant transport task will actually be dealt with by the new Huntlee transport infrastructure that is required to support its development.

7) What this means in practical terms is that 50% of the travel generated by the town, is contained within the town. It will use:
   a) the new road network that will be built as part of the development
   b) the new public transport services that have been committed to by the proponent as part of the development
   c) the new cycle and pedestrian facilities that will be built as part of the development

8) It is not clear to what extent the transport authorities recognise the extent to which the development will be self contained. Having established that the basis of external trip generation is not always that strictly defined in numerical terms in the RTA's Guide to Traffic Generating Developments (GtTGD), which deals primarily with the external impacts of a development, it should be noted that the Guide itself recognises the effects of trip containment as described above and allows a factor of 25% for such containment "for subdivisions." In the case of whole towns, the statistics for Cessnock and Singleton alone indicate this level of containment is far higher.

9) Irrespective of the level of containment (be it the RTA's nominated 25% factor or a higher value in line with the statistics for nearby towns of comparable size to the planned Huntlee, and allowing for trips to be made by means other than car, local walk trips, cycle trips etc,) the premise of the HUNTLEE mode split of "70:30" is as follows:

   a) 70% of trips are made by car drivers, sole occupancy
   b) The 30% includes the following "modes" for trips:
      i) Park n Ride Trips – the car component is limited to a local trip within the HUNTLEE town to a point of interchange with another form of transport (Train, Bus, Car pooling etc.)
      ii) Car Passengers
      iii) Public transport (Bus, Rail or whatever)
      iv) Cycle trips
      v) Walk Trips

10) Note the actual statistics for Cessnock indicate a lower level of car drive trips already. The principle being put forward here is the notion of achieving a shift in travel behaviour away from private cars, by any or all of the alternatives that can and should be made available within Huntlee(and are planned to be delivered)

11) The above philosophy is entirely consistent with everything that the NSW Government has committed to in terms of long range urban planning.

12) If this philosophy were to be adopted as Government policy (even though the author believes it already is Government policy) then it would apply equally to the existing built environment just as much as any new town, and hence the flow on benefits in terms of reduced car dependency and positive environmental and financial outcomes would be even greater.

It is not the place of this paper to quantify this level of benefit. Such an exercise requires considerable detailed modelling and support analysis at the regional level (not just for the Huntlee project.

6 So what will be the Huntlee Transport Demands?

6.1 Predicted Travel Demands

If the traditional approach of applying traffic generation rates for isolated developments that rely on external attractions were applied, the overall traffic levels on external roads surrounding Huntlee/ Branxton would be around 6100 vehicle trips in the peak hour based on the current standard RTA rates for residential development.

If for example the extent of local trip containment currently experienced in Cessnock and Singleton is applied, the level of external trip generation is in the order of 3000 trips.

Consequently if this level of overall trips were to exhibit a similar "mode split" to today's Hunter travel patterns then the level of additional car driver trips would be around 2600 trips.

Note that this process has been applied to only the "new" trips. It can and should be argued that this process, being developed over a 25 to 30 year time horizon can be applied to existing trip patterns also meaning that the base demands on the road element of the transport system would be reduced also (either by containment and shorter trips, or through a mode shift to another acceptable form of local transport).

- **Table 6-1 Trip Generation**

Trip Generation in Huntlee/Branxton	6100
Containment based on +50% per Cessnock/Singleton statistics	-3100
External Trip Generation	3000
Non-driver component	400
Additional car driver trips	2600

In terms of shifting travel away from car dependency the 10 to 15% represents around 700 to 1000 trips. Depending on the breakdown of car pooling, walking cycling, versus public transport, this could be around 7 bus loads spread across the 3 external routes from the area during the peak. (More is said on transport planning verification of these figures below.)

The above trip generation calculations serve as a guide to overall trip production. The actual level of movement on any one road or corridor has been considered separately in earlier investigations. This earlier analysis could be reviewed using modelling tools that have been indicated as being available from the RTA (but not as yet released to the proponent.)

6.2 Relationship to current Stage One Project Applications

The Stage 1 Project Applications have NOT adopted the above approach. This is because it cannot rely on the new town's long term ability to achieve containment of activities until they are in place.

It is important in this argument to demonstrate that the new town centre and other local facilities are being planned and delivered as close as possible to demand. This will be an important element of the staging of the new town as it develops.

In the interim, the solutions for Stage 1 access have to consider higher trip generation levels as facilities further afield are utilised. Thus traditional traffic generating characteristics have been applied in line with the standard procedures outlined in the RTA's Guide to Traffic Generating Developments.

The Challenge becomes capturing these trips back to a local level and onto alternate modes by choice when the activities are developed in the long term.

The evidence from Singleton and Cessnock would suggest that over the life time of the approved Concept Plan and Lower Hunter Regional Strategy, that this is indeed possible.

6.3 Where does Public Transport fit? – A Realistic Role

Public transport in the vicinity of the site is currently limited, mainly due to the low density residential and limited commercial development within the vicinity of the Huntlee site. As part of the Huntlee New Town, public transport has the opportunity to be an important part of the development of the site and is planned to be integrated from the beginning of the development. The size of the development has the potential to ultimately develop a high quality local public transport system, providing a good means of access for the future residents and workers within the site. With the provision of a good public transport system to connect the site activity centres, the amount of internal traffic movements could be significantly reduced, reducing demands on road infrastructure construction and associated costs.

Links from the local transport system to the external network have the potential to reduce private vehicle demands along the existing and planned road network. There will be commuter demands to and from the site towards the major centres of the Lower Hunter Region including Maitland and Newcastle to the east and Cessnock to the south, as well as some demands to other centres further west and up the Hunter Valley such as Singleton.

Local public transport has the opportunity to provide a combination of features, such as bus routes linking the internal attractions such as schools, shops, recreational facilities, work locations, etc, and a hub possibly at the existing Branxton Station which allows a focussed development of park and ride facilities, links to the regional rail network (either directly or via bus services).

The basic principals of the public transport facilities proposed in the Transport MAngement Strategy supporting the approved Huntlee Concept plan include the following:

- Provide **priority internal routes** connecting high intensity centres e.g. town centre, schools, shops, business park area;
- A focus on **an improved Branxton / Huntlee public transport hub** focussed on the Huntlee Town Centre, connecting internal bus routes with trunk routes to the major centres external to the site;
- A **trunk cycle network** as an integral component of the development of Huntlee to supplement and support local public transport initiatives
- Consultation with Council and existing public transport providers within the vicinity of the site to determine priorities and opportunities to tie-in with and augment existing services and facilities.

The major focus for increased public transport use by passengers will be using local bus transit to and from the Huntlee town centre, as a focus for improved transport interchange. This could include park and ride facilities, depending on the most efficient and cost effective delivery of future public transport services. The existing rail station provides limited facilities for current passengers due to its dedicated use for coal.

In terms of service provisions this is expected to be developed in line with the current obligations and contractual arrangements under the control of the Ministry of Transport.

In terms of achieving the nominated shift in travel away from car based travel, this can be achieved in a number of forms, including no vehicle based solutions. If extent of this shift is notionally represented by a factor of 10% of travel, which in the external context of the site represents around 300 peak trips spread over 3 alternate transport corridors. If a component of High Occupancy Vehicles, cycling, and both rail and bus are considered the component demand for any one of these elements will be considerably smaller than this overall demand estimate. If it is assumed that two thirds of this potential demand was to be carried by bus, this would represent 4 buses spread over the 3 approach corridors.

This component of the transport task is able to be assessed and monitored as part of the process put forward in this paper, if the quantitative modelling tools are applied to multiple transport modes. In any case the success of the initiatives in terms of patronage can be monitored against the nominated goals for the Huntlee new town project.

6.4 Commuter Parking

The Huntlee Concept Plan Transport Management Strategy nominated the implementation of commuter parking at the town centre transport hub as a component of the Huntlee Transport Initiatives. This will provide benefits to all members of the community.

The scale of this initiative needs to be considered in more detail along with other elements of the staged development, its monitoring and implementation, particularly in relation to the development of the town centre where the presence of such car parking needs to be weighed against the other demands for providing town centre parking.

6.5 And the Softer Modes – Local Trips

The extent to which walking and cycling can contribute in a positive way to the overall transport task, and in a more substantial proportion of contained local trips, will be a direct reflection of the urban form adopted, and the extent to which significant local walking and cycling facilities are developed as an integral and serious component of the new town.

This means meeting all the requirements for consistent cycle ways, dual use paths and so on, with end user facilities to meet the guidelines laid down by Government.

The Huntlee team is committed to developing this high level of local movement network so that higher than traditional levels of travel by these local modes are achieved.

7 Evaluation Process for Transport Futures

7.1 Proposed Performance Measures

The Huntlee Transport Management Strategy proposed a series of performance standards and measures that could be applied to evaluate the staged implementation and options for the Huntlee TMS. They were developed in line with work on previously considered significant land development and TMAP investigations within the GMR as the basis for considering alternate transport initiatives aimed at addressing government environmental goals:

- **VKT reduction** - to reduce the number and length of private car journeys (VKT) generated by the development of the site. This is a direct benefit of higher Trip Containment.

- **Mode share** - to achieve a mode split of 70% car driver and 30% other transport (High Occupancy Vehicles (HOV), public transport, walk, cycle, e-trips) for all trips. This contributes to the Government's stated objective of reducing car dependency

- **Development phasing** - to ensure that transport infrastructure and services are provided in coordination with the phasing of development and that development matches as best as possible the goal of achieving self containment within the Huntlee New Town. This includes developing proactively:

- **Employment scenarios** (trip reduction) for the Huntlee new town.

The only nominated measure put forward here was the notional 70:30 mode split, or in practical terms a notional shift of around 10% of car drivers to other forms of peak period travel.

It is not appropriate for this, or any other measure relating to reduced trip length targets, employment targets and so on to be set by the Huntlee proponents alone. This is a matter that requires a whole of Government and whole of community approach if it is to succeed.

The proponent of the Huntlee new town has already demonstrated a willingness to commit to this process. This includes a significant voluntary contribution towards the subsidy of local bus based public transport, a proposed transport facility in the vicinity of the new Huntlee Town Centre, as well as the integral transport infrastructure required to support the overall development.

For the initiatives to be successful for the whole of the community, new and old, they will require a significant level of cooperation from the authorities charged with overseeing the transport systems.

7.2 Public Transport Performance

The original investigations of the proposed Huntlee new town considered making significant use of the nearby rail infrastructure, accessed via Branxton Railway Station, with appropriate upgrades to that local facility.

Subsequent advice from the NSW Government has eliminated rail as a public transport option for the foreseeable future, and certainly for the time frame that represents the development of the Lower Hunter Regional Strategy and Huntlee as a component of that strategy.

Consequently the strategy shifted its focus towards a road based (bus) solution for provision of public transport.

Initially also there were significant regional public transport contributions nominated in the draft Huntlee Voluntary Planning Agreement with the Government. These contributions were removed after the NSW Government announced that bus subsidies etc were not able to be levied.

There is now a condition that states the following:

The proponent shall contract a private bus operator or make other appropriate arrangements to provide bus services to the residential villages, town centre and large-lot residential area to the development to achieve a 70% car transport mode share. Details of the proposed private operator service arrangements, including bus routes and service frequency shall be provided with future applications for each subsequent stage.

The ability of the proponent to contract private bus operations must be considered under the legislation governing bus operations throughout NSW. Whilst existing public transport in the vicinity of the site is currently limited, mainly due to the low density residential and limited commercial development within the vicinity of the Huntlee site, there are existing contracted bus services and ongoing commitments that require consideration in developing the long term plans for servicing the area.

It is recognised by the proponent that public transport has the opportunity to be an important part of the development of the site and is planned to be integrated from the beginning of the development. As part of the Huntlee New Town and in its earliest stages the proponent has made a commitment to providing services up front to support the principles of the long term transport strategy.

The size of the completed development in 25 years time has the potential to develop a high quality local public transport system, providing a good means of access for future residents and workers within the site. With the provision of a good public transport system connecting the site activity centres, the amount of internal traffic movements could be significantly reduced, reducing demands on local road infrastructure construction and associated costs.

The major focus for increased public transport use by passengers will be using local bus transit to the Huntlee town centre, as a focus for improved transport interchange. This could be for a mix of interchange activity including park and ride facilities, depending on the most efficient and cost effective delivery of future public transport services..

In addition to the infrastructure components of the approved Huntlee Concept Plan, the proposed monitoring and evaluation program will require consultation with Council and existing public transport providers and regulators within the context of the Huntlee new town to determine priorities and opportunities to tie-in with and augment existing services and facilities over the life time of the project.

Finally it must be noted that the extent and level of public transport servicing required for a new town of 20,000 people will require staging in line with the staged development of the Huntlee new town.

Of note in this regard is the particular commitment of the proponent to deliver up front services to the first stages of the development.

8 Summary and Recommendations

This paper is summarised as follows:

- The Transport Management Strategy as proposed for the Huntlee New Town is a long term strategy
- The TMS relies on a range of initiatives, not just "modal split" to deliver reduce car dependency and lower levels of traffic generation.
- The principles adopted are consistent with our understanding of Government objectives, and if implemented on a regional scale (i.e. not just within the Huntlee development) would have the following potential effects:
  - The demand for expensive transport infrastructure solutions (which appear unaffordable for the community through its Governments) would be substantially reduced
  - The approach contributes positively to the Government's objectives aimed at reducing car based impacts on air quality and other environmental impacts such as congestion and Green House Emission effects.
  - The level of self containment demonstrated by Cessnock and Singleton now means that the level of external trip generation adopted may actually be high and conservative.
- The Stage 1 Project Application for Huntlee has followed a traditional traffic impact assessment process, to reflect the fact that the full range of Huntlee facilities will not be available for some time.
- The monitoring process put forward here presents an opportunity to quantify the end state goals and objective, including appropriate levels of infrastructure, such that over investment is avoided.
- The ability to use infrastructure constraints as a road demand management tool is a legitimate means of achieving the stated goals of the Huntlee Transport Management Strategy, and is understood to be consistent with the RTA's approach to road demand management.
- The process put forward for ongoing planning and monitoring allows the staged development to proceed, with evaluation and adjustment of the strategy to match the stated objectives as is required over the life of the development.

RECOMMENDATIONS:

- Adoption of the principles of the Huntlee Transport Management Strategy supporting the approved Huntlee Concept Plan
- Development of monitoring and evaluation tools to allow assessment of the progress of the development against the objectives of the strategy, and allowing for adjusting as required over time. (The initiatives may be more successful than first envisaged)
- Active dialogue in developing the monitoring tools through Department of Planning with
  - MoT
  - RTA
  - Councils
- Actively seek access to RTA regional (TransCAD model) This will assist in developing the necessary base quantification of development stages, and provide confirmation of the appropriate levels of transport infrastructure to support Huntlee and the other elements of the Lower Hunter Regional Strategy.

Appendix A Approved Site Concept Plan