

## 4. PROPOSED ROAD SYSTEM

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### 4.1 ROAD SYSTEM

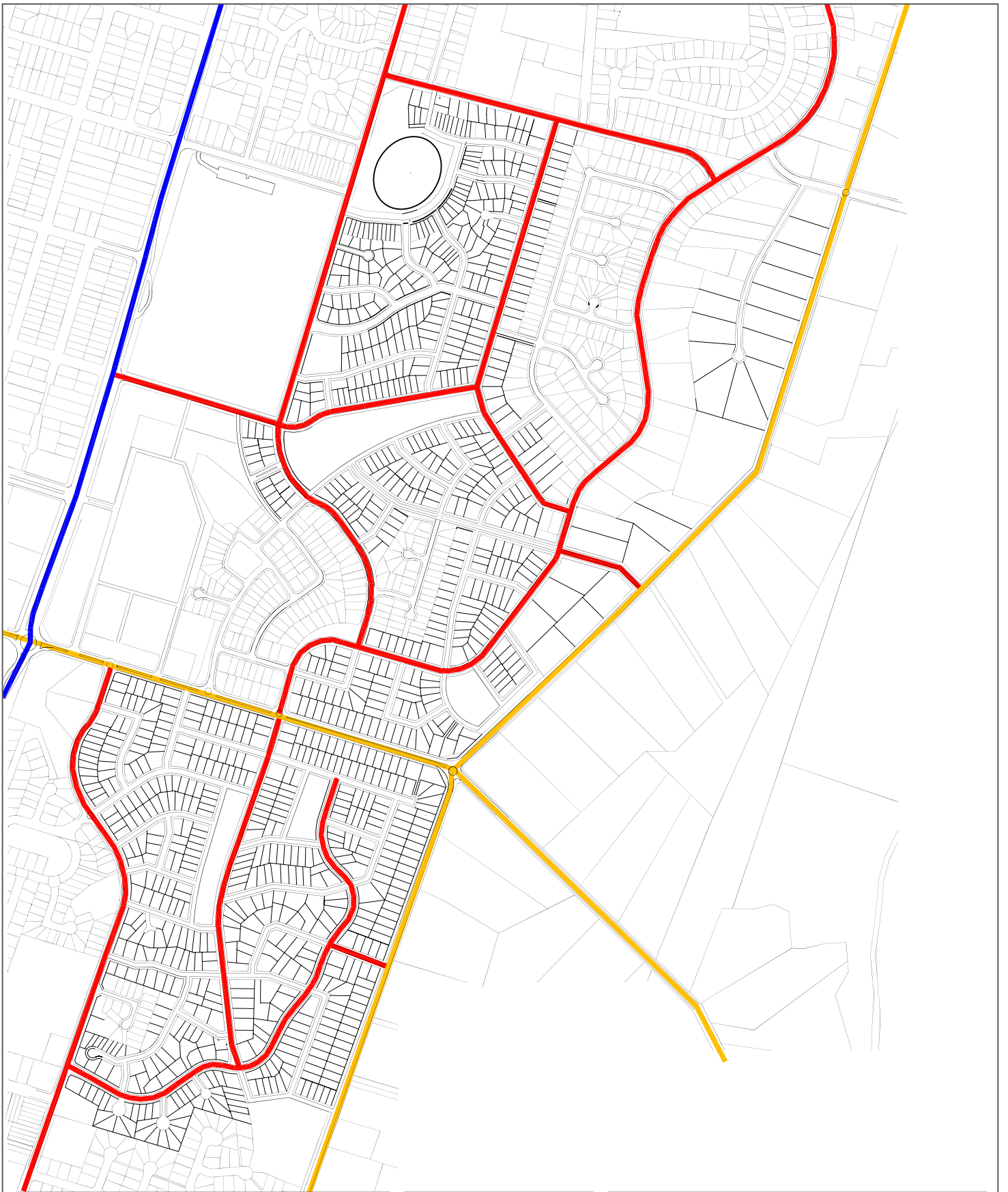
Under the Masterplan concept significant elements of the existing road system in the area will be reconfigured to reflect contemporary subdivision layout in order to achieve the objectives of:

- \* commonality with the private housing street system
- \* permeability, access and safety.



The proposed new road system (integrated with the existing) is presented in terms of road hierarchical function in Figure 8. This road hierarchy outcome largely reflects that which exists at the present time in relation to the minor collector roads through the area with the current lack of continuity on the central north-south minor collector being rectified.

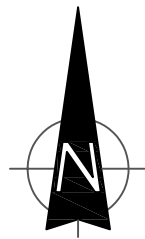
The proposed road network displays the attributes of contemporary subdivision road planning where:

- \* a grid system with multiple cross intersections is largely avoided
- \* there is continuity for collector routes
- \* permeability is achieved but not with a monotonous speed inducing grid pattern
- \* there is convenient access to/from the major roads without due travel through the area
- \* service vehicles, particularly refuse removal trucks, are able to achieve ready access and circulation.



**LEGEND**

-  Sub-Arterial
-  Major Collector
-  Minor Collector



**PROPOSED ROAD  
FUNCTION**

**FIG 8**

The proposed road types are indicated on the relevant cross sections contained overleaf.

These cross sectional details draw upon a range of considerations including Council's 'Engineering Guide to Development 2004' and Landcom's experience in the design and operation of the various road types.

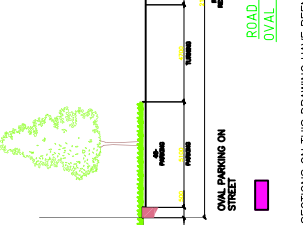
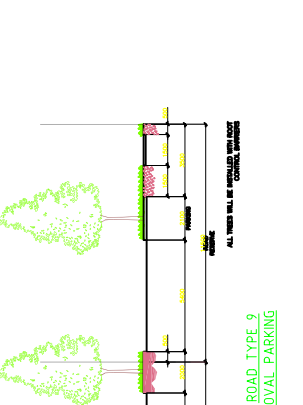
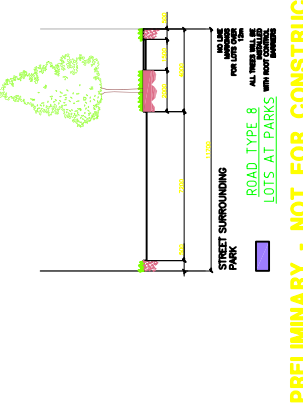
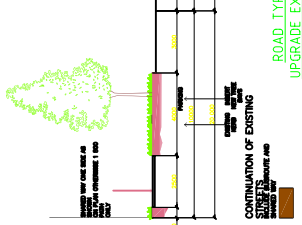
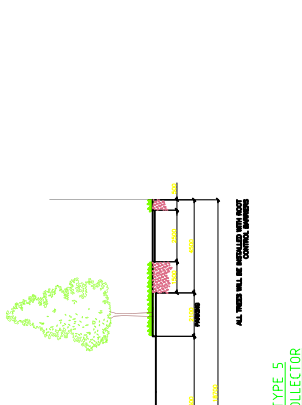
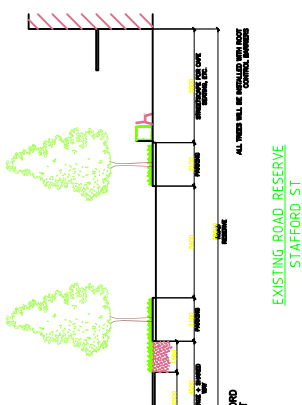
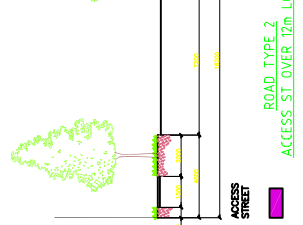
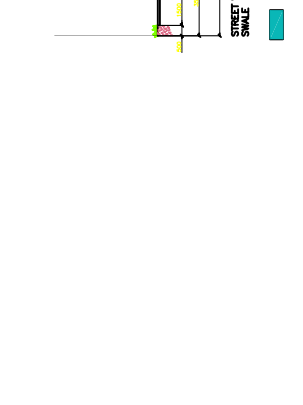
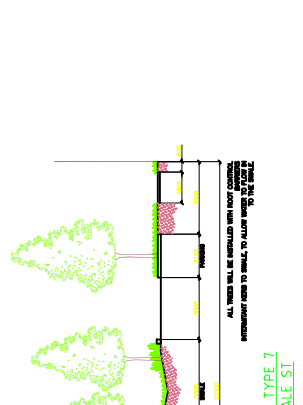
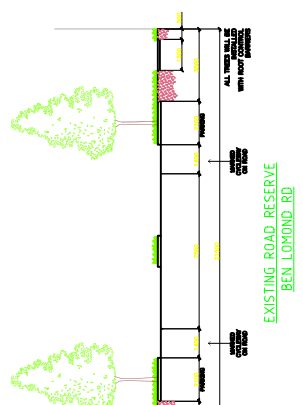
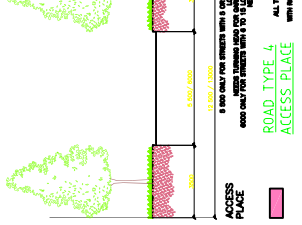
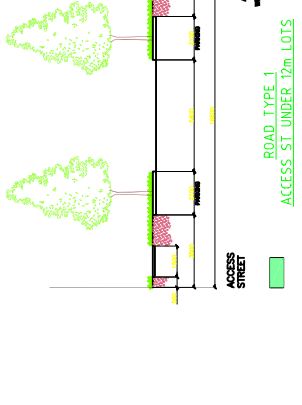
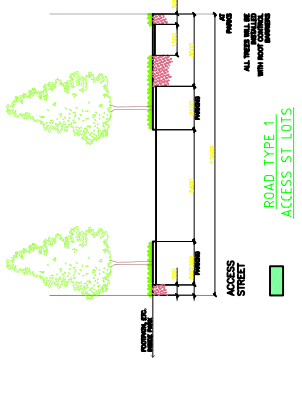
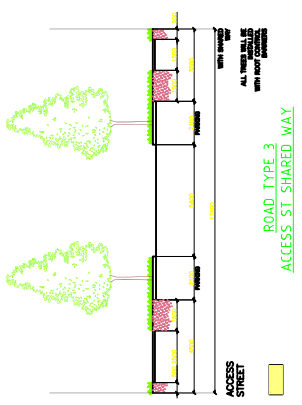
## **4.2 ROAD GEOMETRY**

The design of the road cross sections and longitudinal arrangements for the access and minor collector roads take into account the following:

- \* the intended function
- \* the urban design objectives
- \* the projected traffic volumes
- \* the desired speed outcome
- \* the number of lots served along with the nature of the frontage use
- \* the provision for pedestrians and cyclists
- \* the provision for parking
- \* the provision for buses and service vehicles
- \* the particular influences (existing street, 90° parking, swale)
- \* the commonality with private housing roads.

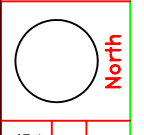
An indication of appropriate road widths is provided by:

- \* Austroads Part 2 'Road Capacity' as follows:
  - Local Access Street  
15 metre reserve, 7 metre roadway
  - Minor Collector Road  
18 metre reserve, 8.5 metre roadway
- \* Austroads Part 13 'Pedestrians' indicates a desirable footway width for people using a wheel chair of 1.2 metres (note: passing is available at driveway crossings)
- \* Austroads Part 14 'Bicycles' indicates a desirable width for shared pedestrian/cyclist pathways of 2.5 metres.



**PRELIMINARY - NOT FOR CONSTRUCTION**

Project No.	035864-M10
Revision No.	10 of 19
Client Project No.	
Project Name	MINTO URBAN RENOVATION PROJECT INFRASTRUCTURE MASTERPLANS
Location	
Architect / Project Manager	WOODS BAGOT
Client	LANDCOM



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Rev	Description	Date	By	Checked
B	STAGE REVISIONS ADJUSTED	27.04.25		
A	ISSUED FOR DISCUSSION	14.02.25		

THE SECTIONS ON THIS DRAWING HAVE BEEN COMPLETED BY WOODS BAGOT (DWG No. 2-24-1300\_sections\_types.dwg)

The 'make up' of the various adopted road cross sections is as follows:

	<b>Reserve</b>	<b>Roadway</b>	<b>Parking</b>	<b>Comment</b>
Access Place (up to 15 lots)	12.5-13.0	5.5-6.0	Not defined	No pathway
Access Street (Lots under 12m)	16.6	5.4	2.1	1.5 pathways
Access Street (lots over 12m)	15.2	7.2	Not defined	1.5 pathways
Access Street (shared path)	17.6	5.4	2.1 bays	1.5 pathway 1.6 2.5 shared path
Minor Collector (bus route and shared path)	18.7	6.5	2.1 bays	1.5 pathway 2.5 shared path
Swale Street	22.2	2 x 3.0	2.1 bays	5.0m swale 1.5 pathways
Oval Street (90° parking)	21.3	5.4	2.1 + 5.1 bays	4.7 manoeuvring 1.5 pathway
Ben Lomond (on-street cycleways)	21.5	2 x 3	Nil	1.5 pathways 1.4 cycleways 1.5 median

The cross sections adopt quite generous widths and parking is provided along the continuous kerb or in indented bays.

Assessment of these design provisions indicates compliance with the normal minimum standards apart from:

**\* On-Street Cycleways**

Austrroads Part 14 specifies a minimum width of 1.5 metres for cycleway and 3.0 to 3.5 metre for traffic lane in a 60 kmph environment while the RTA's NSW Bicycle Guidelines specify 1.4 to 2.5 metres (cycleway) and 2.8 to 3.3 metre (traffic lane) without reference to speed. The proposed provision along Ben

Lomond Road would appear to be quite minimal given that the traffic lane is defined by a median island (particularly if it has a barrier kerb to protect median island planting).

\* Median Island and Swale Trees

Centre of the road planting will need to have regard for road design principals particularly for achieving appropriate sight distances.

\* Ben Lomond Road

With only one traffic lane in each direction vehicles waiting to turn right at intersections will block through vehicle movements (except where roundabout control is provided).

## 5. TRAFFIC IMPLICATIONS

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### 5.1 TRAFFIC GENERATION

The RTA Development Guidelines provide generic criteria in relation to the assessed traffic generation of various categories of residential dwellings as follows:

#### Single Dwellings

- 'Outer Sydney area, new dwellings, large lots, poor public transport'
- 0.85 vtpm (peak hour) with 25% internal to subdivision

*Note: This criteria was established in the late 1970's and its source is not clear*

#### Medium Density

- 'Affluent areas'
- 0.4 to 0.5 vtpm (peak hour) for one to two-bedroom
  - 0.5 to 0.65 vtpm (peak hour) for three-bedroom +

*Note: This criteria was established in the early 1980's by survey and assessment of a wide range dwelling types and locations*

Traffic generation characteristics of residential development display a high 'intrinsic' relationship albeit socio-economic etc and a recent large scale study of the new Glenmore Park development area (Penrith LGA) has provided an interesting reappraisal in relation to traffic generation characteristics of contemporary housing in new residential estates.

Glenmore Park is a large 'contained' residential precinct with some 5,447 occupied dwellings, two high schools and a small retail centre. Traffic surveys at the entry/exit intersections for Glenmore Park on a normal weekday were assessed to provide an overall 'external' generation per dwelling of:

AM peak            0.58 vtpd per dwelling  
                             25% IN, 75% OUT

PM peak            0.65 vtpd per dwelling  
                             72% IN, 28% OUT

A more detailed analysis of a 'constrained' sub-precinct of 340 occupied dwellings indicated generation rates (internal to the Glenmore Park precinct) of 0.65 vtpd per dwelling in the AM and 0.72 vtpd per dwelling in the PM.

A similar survey and assessment 'exercise' has been undertaken for existing dwellings in the Study Area. Surveys were undertaken for the precinct accessed by Longhurst Road south of Benham Road during the morning and afternoon peak periods. The 'contained' precinct has a total of 154 occupied single dwellings including elements of public housing and large lot housing.

The results of the surveys revealed the following traffic generation outcomes:

AM peak            0.62 vtpd per dwelling  
                             20% IN, 80% OUT

PM peak            0.70 vtpd per dwelling  
                             75% IN, 25% OUT

It is apparent that this more contemporary and intrinsic traffic generation data provides a better guide to the traffic outcome of the Minto Renewal Scheme (than the RTA Guideline). Regard also needs to be given to:

- \* the existing/former dwelling type/occupant – in this regard it is relevant that of the existing DOH housing stock 21% are detached cottages while 79% are attached terrace style housing. It is also relevant that 26% of Minto Department of Housing households do not have access to a household car (compared to 20.3% for all of Minto and 13.1% for all of Sydney)

- \* the future dwelling type/occupant – in this regard it is relevant that the 1,118 new dwellings will be 30% public and 70% private and some 20% of dwellings could be ‘integrated’ (affordable) units.

The lower car ownership of public housing occupants and the different generation rate between detached dwellings and integrated dwellings are particular influences on traffic generation rates. For the purpose of this assessment the following traffic generation assumptions have been made:

Private single dwelling	0.70 vtp
Public single dwelling	0.65 vtp
Integrated/attached dwelling	0.60 vtp

*NB: 15% external*

The existing/former 1,007 public dwellings would generate a total of some 520 vtp (442 vtp externally). The projected future scenario with development under the Masterplan is as follows:

794 private dwellings	556 vtp (472 vtp external)
324 public dwellings (including integrated)	202 vtp (172 vtp external)
<b>Total External</b>	<b>644 vtp</b>

It is apparent that the Masterplan development outcome will result in some 238 additional generated vehicle trips per hour (comprising some 200 additional external trips). Some 200 existing dwellings have already been vacated and accordingly the projected traffic generation following completion of redevelopment will be some 300 vtp more than that occurring at the present time.

## 5.2 TRAFFIC DISTRIBUTION

The major external trip determinant during the morning and afternoon peak hours is ‘journey-to-work’ and these trips are very much influenced by the nature and

convenience of the arterial road system serving the area. The assessed distribution of vehicle trips generated by dwellings in the area is as follows:

Hume Highway via Ben Lomond Road	-	35%
Campbelltown via Pembroke Road	-	30%
Glenfield via Pembroke Road/Minto Road	-	10%
Minto Mall, Schools (internal)	-	15%
Other	-	10%

In order to assess the potential traffic flows on the roadways in the area following implementation of the scheme the Minto Trip Assignment Model was adjusted to have regard for:

- \* the refined trip generation zones
- \* the refined traffic generation outcome
- \* the refined road pattern
- \* the refined trip distribution circumstances.

The trip assignment model has its basis in:

- \* dividing the area into defined zones
- \* determining a route from each zone to each attractor
- \* assigning nodes at intersections along the minor collector routes
- \* combining all routes into an origin an destination matrix.

The underlying assumptions in the model are that:

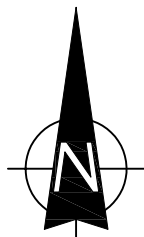
- \* vehicles will take the shortest routes to/from the higher order roads
- \* all trips to/from a zone will take the same route to/from the destination.

The trip generation zones are shown in Figure 9.



**LEGEND**

● Nodes



**TRIP GENERATION  
ZONES**

**FIG 9**

### **5.3 TRAFFIC IMPACT**

The traffic impact of the renewal scheme will have potential ramifications in relation to:

- \* road type and intended function
- \* road and intersection capacity
- \* traffic related environmental and safety circumstances.

Details of the projected morning and afternoon peak traffic flows on the internal minor collector roads are provided on Figure 10 as derived from the Trip Assignment Model.

An indication of traffic related 'environmental goals' is provided by the RTA development goals as follows:

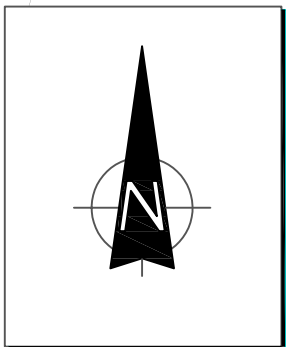
- \* local residential streets less than 2,000 vpd (200 vph)
- \* collector streets less than 3,000 vpd (300 vph).

It is apparent that the projected traffic generation outcome will not compromise the traffic related environmental capacity goals of either the existing roads or the proposed new roads in the area. It is also apparent that there will be no unsatisfactory intersection capacity or control issues arising from the renewal scheme.



**LEGEND**

- AM TRAFFIC
- PM TRAFFIC



**FUTURE TRAFFIC FLOWS**

**FIG 10**