TRAFFIC ENGINEERING GUIDELINES
FOR GUERNSEY

ROAD HIERARCHY
Traffic Management Regimes
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Introduction:
Roads perform many functions and are subject to competing demands. A balance must be struck between road safety, traffic flow, environmental quality, and the impact on residents.

In accordance with the States Resolution of the 28th September 1989, the objectives of designating a road hierarchy for Guernsey and the production of traffic management regimes for the various road designations are in order to:
- reduce the degrading effects of motor vehicles upon the physical environment caused by air pollution, excessive noise and vibration;
- improve and enhance the environment, especially for vulnerable road users,
- balance the competing demands placed on individual roads, and
- ensure the optimum use of the existing road network.

The designation of a road hierarchy should not be seen in isolation but also within the context of public transport, parking and development control policies. The implementation of the policies should be on a step by step basis in which the motorist is educated to moderate his driving in accordance with the character of the road and the likely presence of vulnerable road users.

Description of Types of Routes within The Road Hierarchy:

Inter Harbour HGV Route:
The route between St.Sampson’s Harbour and the Weighbridge. This special route must accommodate 15m long vehicles and high traffic flows. This route is of strategic importance, linking the two main urban areas of the Island. It must also be able to accommodate traffic generated by the HTA’s and MURAs designated in the IDC’s UAP. For these reasons the functional emphasis is one of mobility and free traffic flow.

Traffic Priority Routes:
Traffic Priority Routes have high traffic flows and comprise the busiest of the Island’s main roads. These are key routes whose primary function is to distribute traffic throughout the Island. The functional emphasis is mobility and free traffic flow.

Local Circulation Routes:
Local Circulation Routes comprise main roads, which have lower traffic flows than Traffic Priority Routes, often with significant frontage activity. They must accommodate limited through traffic and traffic movements terminating within the surrounding areas.

Neighbourhood and Country Roads:
Predominately residential in character with little or no through traffic but may include other areas such as rural lanes. The functional emphasis is primarily one of access to individual properties and provision for vulnerable road users.
**Inter Harbour HGV Route:**
The route between St Sampsons Harbour and the Weighbridge is a special route, which must accommodate 15m long vehicles, very high traffic flows and gross vehicle weights up to 32T. This route is of strategic importance, linking the two main urban areas of the Island, it must also be able to accommodate traffic generated by the HTA’s and MURAs designated in the IDC’s UAP. For these reasons the functional emphasis is one of mobility and free traffic flow, therefore the following policies are recommended:

**IHR01**  “All reasonable measures should be investigated to reduce frontage activities along this route to a minimum and maintain highway and junction capacities.”

**IHR02**  “Any proposed measures (in conjunction with a planning application), along the Inter Harbour Route, which would lead to a reduction in disruption to the flow of traffic, or reductions in vehicular movements, should be favourably considered when determining an application.”

**IHR03**  “Very careful consideration should be given to the creation and the standard of any new accesses. The presumption should be to discourage direct access along this route in order to maintain highway capacity. Generally minimum design parameters must be achieved, with relaxations of the standard design parameters only being permissible in exceptional circumstances”

**IHR04**  “Careful consideration should be given to the parking regime along this route. Wherever possible parking should be regulated to minimise the disruption to the flow of traffic”

**IHR05**  “All reasonable opportunities should be taken to provide a footpath on both sides of the carriageway.”

**IHR06**  “Due to the high vehicular flows split pelican crossings should be provided as a pedestrian crossing facility. These formal crossings should be supplemented with central pedestrian refuges along the length of the Inter Harbour Route to provide enhanced informal crossing opportunities for pedestrians.”

**IHR07**  “The cycle path should be extended in order to promote cycle use. Cycle crossing points should be provided to enable cyclists to access and egress the cycle path.”

**IHR08**  “Consideration will be given to the suitability of Toucan Signal Crossings to provide joint cycle/pedestrian crossing facilities.”

Note: A Toucan Signal Crossing is a special type of road crossing designed to enable both pedestrians and cyclists to use the signal controlled crossing.
Traffic Priority Routes:
Traffic Priority Routes have high traffic flows and the capacity to accept 9T axle loads, and they comprise the busiest of the Island’s main roads. Generally they will have traffic flows between 600 – 1400 vph during peak periods. These are key routes whose primary function is to distribute traffic throughout the Island. The functional emphasis is mobility and free traffic flow.

Due to the high traffic flows a strict traffic management regime is required to ensure the optimum use of the existing road network and minimise congestion, therefore the following policy is recommended:

TPR01 “Developments which would have an adverse effect on traffic management, which are unsustainable in terms of traffic generation, or produce unacceptable interruptions to traffic flows or reductions in highway capacity, either by themselves or as part of a process of incremental change, should be resisted.”

Due to the high traffic flows it is more likely that sub-standard accesses will have an adverse effect on traffic management and road safety, therefore the following policies are recommended:

TPR02 “On urban Traffic Priority Routes which form key arterial routes into the centre of town, strict controls of frontage activities are required to mitigate traffic congestion. Very careful consideration should be given to both the creation and the design standards of proposed accesses. Generally minimum design parameters must be achieved, with relaxation of the standard design parameters only permissible in exceptional circumstances”

TPR03 “On sub-urban Traffic Priority Routes, frontage activities need to be controlled to ensure the flow of traffic is not unacceptably interrupted leading to traffic migration to minor roads. Careful consideration should be given to the design standards of accesses. Generally minimum design parameters should be achieved, with only relaxation of the standard design parameters only permissible in exceptional circumstances”

Due to the limited ability to undertake junction and highway improvements it is important to pursue traffic restraint policies in order to reduce overall traffic movements and ensure the optimum use of the existing road network and minimise congestion, therefore the following policies are recommended:

TPR04 “Any proposal leading to an intensification of use which in turn leads to a significant increase in traffic movements, must include proposals to mitigate the increase in traffic movements.”

TPR05 “Any proposed measures along a Traffic Priority Route which reduce the volume of vehicular movements, should be favourably considered when determining an application.”
The ability of pedestrians to cross the road is curtailed by high vehicular flows along Traffic Priority Routes, therefore the following policies are recommended:

TPR06 “Pelican Light controlled crossings should be provided as a pedestrian crossing facility, although Zebra crossings may be acceptable in some locations. These formal crossings should be supplemented with central islands acting as pedestrian refuges at key points to provide enhanced informal crossing opportunities.”

During peak hours substantial delays can be incurred due to parked and unloading vehicles interrupting the flow of traffic, therefore the following policy is recommended:

TPR07 “Special parking restrictions will be enforced during the AM peak (0800 to 0900) and the PM peak (1630 to 1800), along urban Traffic Priority Routes to ensure minimum disruption to the flow of traffic.”
Local Circulation Routes:
Local Circulation Routes comprise of main roads, which have lower traffic flows than Traffic Priority Routes, often with significant frontage activity. They must accommodate limited through traffic and larger volumes of traffic movements that terminate within the surrounding areas.

Along Local Circulation Routes the control of frontage activities is less important and a more relaxed regime of traffic management is permissible, however Local Circulation Routes are still important in distributing traffic throughout the Island, therefore the following policy is recommended:

LCR01 “Along Local Circulation Routes, any proposed developments should not adversely effect traffic management by themselves or as a process of incremental change. When considering the design standards of an access, minimum design parameters should be achieved, with only occasional departures from the standard design parameters permissible”

In order to reduce the degrading effects of the motor vehicle upon the physical environment and minimise the adverse effect on residents and vulnerable road users, but still enable the percolation of through traffic, traffic restraint measures may be required, and therefore the following policies are recommended:

LCR02 “On urban Local Circulation Routes within the town with high frontage activities, pedestrian activity and significant through traffic, opportunities should be taken to reduce overall traffic levels, in order to balance the needs of motorised traffic and that of vulnerable roads users and residents.”

LCR03 “On sub-urban Local Circulation Routes with significant frontage activities and pedestrian movements, opportunities should be taken to reduce the adverse effects of vehicular traffic and provide a safe environment for vulnerable road users, by introducing traffic restraint measures and sympathetic speed restrictions.”

LCR04 “On rural Local Circulation Routes with low flows, opportunities should be taken to reduce the adverse effect of vehicular traffic and promote a safe environment for vulnerable road users.”

In order to improve and enhance the environment, especially for vulnerable road users, it is important to promote non-car-based trips within the local area, therefore the following policies are recommended:

LCR05 “Local Circulation Routes should not present a barrier to the movement of vulnerable road users. The provision of a footpath is desirable, however, suitable traffic restraint measures are acceptable.”

LCR06 “Measures to aid cyclists, especially child cyclists travelling to and from school, should be investigated, and where necessary traffic restraint measures introduced.”
The ability of pedestrians to cross the road can be curtailed by the vehicular flows along Local Circulation Routes, therefore the following policies are recommended:

**LCR07** “Zebra crossings should be provided as a pedestrian crossing facility, where there is significant pedestrian activity. These formal crossings should be supplemented with central pedestrian refuges or pedestrian tables at key points to provide enhanced informal crossing opportunities.”
Neighbourhood Roads and Country Lanes:
Predominately residential in character with little or no through traffic but may include other areas such as rural lanes. The functional emphasis is primarily one of access to individual properties and provision for vulnerable road users.

Due to the low traffic flows experienced along Neighbourhood and Country Roads, the control of frontage activities is not important and a greatly relaxed regime of traffic management is permissible, therefore the following policies are recommended.

NCR01 “On urban neighbourhood roads, such as minor streets with significant frontage activity a safe environment should be created for vulnerable road users by using traffic restraint measures. New accesses are permissible but consideration should be given to the effect that additional parking will have in generating additional traffic movements.”

NCR02 “On sub-urban neighbourhood roads, a safe environment should be created for vulnerable road users, and through traffic should be discouraged.”

NCR03 “On rural routes with low flows a safe environment should be created to encourage vulnerable road users, and through traffic should be discouraged in order to improve the environmental quality of the area.”

Due to the low traffic flows experienced along Neighbourhood Roads and Country Lanes, there will often be the opportunity to improve and enhance the road environment and reduce the degrading effects of motor vehicles upon the physical environment. In order to achieve these objectives a sympathetic traffic management regime is required, therefore the following policies are recommended:

NCR04 “Neighbourhood areas will be designated, and public consultation and agreement will be sought for each area, in order to implement traffic restraint measures.”

NCR05 “Neighbourhood Roads and Country Lanes should be made safe by discouraging through traffic and by the introduction of traffic restraint measures where necessary.”

NCR06 “Any proposed developments must be suitable in terms of the volume of traffic or the types of vehicles they will attract, with the presumption that HGVs will be excluded from Neighbourhood Roads and Country Lanes except by permit”

Policy NCR06 would require careful consideration of how any permit system would be operated to ensure that it could be administered efficiently and there are no adverse enforcement pressures on the police.
The ability of pedestrians to cross the road is unlikely to be curtailed by the vehicular flows along Neighbourhood Roads and Country Lanes, pedestrians should be able to cross at random points without any significant delay, however vehicular speeds may have an adverse effect on pedestrian activity therefore the following policies are recommended:

**NCR08** “Careful attention will have to be given to prevailing vehicle speeds, to ensure that appropriate speeds are achieved (typically these should be sub 20mph speeds).”

**NCR09** “Within Neighbourhood Roads and Country Lanes the motorist will be required to drive at appropriate speeds. This will follow a step by step approach, one of consultation, education and then enforcement.”
States Traffic Committee

Traffic Management Road Hierarchy
(Designation by Traffic Volumes)

Road Designation:
- Inter Harbour Route
- Traffic Priority Route
- Local Circulation Route
- Neighbourhood Road

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ROAD HIERARCHY
Traffic Management Regimes

APPENDICES

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ROAD HIERARCHY
APPENDIX 1: Road Hierarchy Issues:

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Duty of Care:

Property owners have a duty of care to ensure that the means of access and egress to or from their properties are safe in accordance with prevailing traffic movements and road conditions.

The States of Guernsey have a duty of care to ensure that the overall traffic regime is safe. In exercising its duty of care the States needs to lay down guidelines for the establishment of safe means of access and egress to and from properties.

Overall Philosophy:
The objectives of designating a road hierarchy for Guernsey and the production of traffic management regimes for the various road designations are intended to:

- reduce the degrading effects of motor vehicles on the physical environment caused by air pollution, excessive noise and vibration;
- improve and enhance the road environment, especially for vulnerable road users,
- balance the competing demands placed on individual roads, and
- ensure the optimum use of the existing road network.

The designation of a road hierarchy should not be seen in isolation but also within the context of public transport, parking and development control policies.

Mobility vs Access:
It is important to distinguish between mobility and access. Mobility, is the ability to move around the island without restraints, such as congestion and interruptions to traffic flow. Access is limited to being able get to an individual property. Vehicles accessing properties, whether individual residential units or major commercial developments, increase frontage activity, which in turn contributes to the interruption of traffic flow and tends to reduce mobility for all road users including pedestrians.

The ability of a road to enable access to properties, without unreasonable interruptions to the flow of traffic, depends on the traffic saturation which that the road experiences. Peak hour traffic flow is therefore an important factor in determining the traffic management regime along a particular road or route.

<table>
<thead>
<tr>
<th>Designation</th>
<th>Functional Emphasis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inter Harbour HGV Route</td>
<td>Mobility &amp; Traffic Flow</td>
</tr>
<tr>
<td>Traffic Priority Route</td>
<td></td>
</tr>
<tr>
<td>Local Circulation Routes</td>
<td>Access &amp; Environment</td>
</tr>
<tr>
<td>Neighbourhood Roads and Country Lanes</td>
<td></td>
</tr>
</tbody>
</table>

The diagram above illustrates the different road designations and their functional emphasis. The primary function of the Inter Harbour HGV Route is predominantly mobility and traffic flow with a small emphasis on access and environmental quality. At the other end of the scale, the primary

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function of Neighbourhood roads and country lanes is predominantly access and environmental quality with a small emphasis on mobility and traffic flow.

It can also be seen that Traffic Priority Routes and Local Circulation Routes have mixed functions. Traffic Priority Routes must be able to accommodate high traffic flows but also significant frontage activity. Local Circulation Routes must be able to accommodate high levels of frontage activity but also significant traffic flows.

Environmental Capacity:

One of the functions of a road is that of a living space where social interaction occurs, a second is to accommodate vulnerable road users. The concept of an environmental capacity is to reflect the effect on vulnerable road users, residents and the general environmental quality of the road.

Severance to movement, pollution, noise, and vibrations are the main factors which are often associated with the environmental capacity of a road, and are key elements in the degrading effects of the motor vehicle upon the physical environment.

Severance to Movement:

In determining the impact on vulnerable road users, severance is an important concept. Severance occurs when roads form barriers to the movement of vulnerable road users, either due to the physical inability to cross a road or being “intimidated” by the presence of vehicular traffic. It is important because it reflects both the physical and psychological impacts of vehicular traffic, and the overall suppression of movements undertaken by vulnerable road users.

The degree of severance is linked to traffic volume, prevailing vehicle speeds and the number of HGVs. In order to reduce severance traffic volume should be reduced, vehicular speeds should be moderated and HGVs discouraged.

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Pedestrian delay has "often been considered as a proxy for other aspects of the pedestrians environment such as intimidation, worry or apprehension, danger and impatience" (Roads and Traffic in Urban Areas).

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Veh/hr peak</td>
<td>50</td>
<td>100</td>
<td>250</td>
<td>300</td>
<td>350</td>
<td></td>
</tr>
<tr>
<td>13ft (3.9m)</td>
<td>0.1</td>
<td>0.3</td>
<td>1.0</td>
<td>1.2</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>18ft (5.4m)</td>
<td>0.2</td>
<td>.4</td>
<td>1.4</td>
<td>1.8</td>
<td>2.2</td>
<td></td>
</tr>
<tr>
<td>22ft (6.6m)</td>
<td>0.4</td>
<td>.7</td>
<td>2.0</td>
<td>2.5</td>
<td>3.1</td>
<td></td>
</tr>
<tr>
<td>30ft (9.0m)</td>
<td>0.6</td>
<td>1.1</td>
<td>2.6</td>
<td>4.4</td>
<td>5.4</td>
<td></td>
</tr>
<tr>
<td>36ft (10.8m)</td>
<td>0.8</td>
<td>1.6</td>
<td>4.5</td>
<td>5.6</td>
<td>--</td>
<td></td>
</tr>
</tbody>
</table>

Determined from Appendix 1, p204, Traffic in Towns., delay in seconds

<table>
<thead>
<tr>
<th>Percentage of pedestrians delayed by mean delay:</th>
<th>Mean Delay (s)</th>
<th>0.6</th>
<th>1.0</th>
<th>1.5</th>
<th>2.0</th>
<th>2.7</th>
<th>3.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>% all Delayed</td>
<td></td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
<td>70</td>
</tr>
</tbody>
</table>

Determined from Appendix 1, p204, Traffic in Towns.

It has estimated that a delay of less than 4 seconds, to cross a road, creates no impediment to a pedestrian's freedom of movement. As the crossing delay rises above 4 seconds with increased vehicle flow pedestrians start to experience an impediment to crossing. As this delay rises more pedestrians experience greater impediment and frustration, until it becomes necessary to provide a pedestrian crossing for the convenience of pedestrians and avoid pedestrians taking risks and trying to cross in unsuitable gaps in the traffic flow.

Studies have found that pedestrian activity became more diverse, with pedestrians using more of the road, when vehicle flows were reduced, even through some roads previously had low levels of traffic. Narrow carriageways, central islands and road humps attract and aid pedestrians to cross roads.

Traffic flows exceeding 300 vph are increasingly likely to cause pedestrian severance, suppress pedestrian activity, and limit a pedestrian's freedom of movement.

Pollution:
The level of pollution is directly related to the style of driving within the area, this is exacerbated by cold conditions. At junctions, on steep gradients, possibly at road humps and where acceleration or deceleration is necessary, then pollution levels may be higher than predicated by speed and flow alone.

| Representative Composition of Exhaust Gases (ppm) by Style of Driving |
|-------------------------------------------------|-----------------|-----------------|-----------------|-----------------|
| Pollutant                                       | Idling          | Accelerating    | Cruising        | Deceleration    |
| Carbon Monoxide                                 | 69000           | 29000           | 27000           | 39000           |
| Hydrocarbons                                    | 5300            | 1600            | 1000            | 10000           |
| Oxides of Nitrogen                              | 30              | 1020            | 650             | 20              |
| Aldehydes                                       | 50              | 20              | 10              | 290             |

Source: TRRL Report LR455 (1972) p4 (originally from Pegg & Ramsden)

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Carbon Monoxide is used to indicate the level of air pollution (Manual for Environmental Assessment). CO concentrations should not exceed 9ppm, for an eight hour period, more than once in a year. This can be determined as a function of flow, distance, and speed.

From the expressions developed by Hickman (TRRL R752 1982) the following can be estimated.

<table>
<thead>
<tr>
<th>Prediction of CO (ppm) by Traffic Flow:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(18 hr)</td>
</tr>
<tr>
<td>peak hr</td>
</tr>
<tr>
<td>CO ppm</td>
</tr>
</tbody>
</table>

*Distance is 7.5m from centre of road, Mean Speed 17km/h (85v 32km/h or 20mph) of Traffic*

Taking CO concentrations as indicative of overall pollution, traffic flows approaching 1200 vph are likely to breach recognised pollution standards.

Noise:

Some residents may be undisturbed at high noise levels (ie above 65 dBA) but other residents may be highly annoyed at quite low noise levels (ie below 50 dBA). Significant sleep disturbance is unlikely to occur where night-time indoor noise levels are below 50 dBA. Significant speech interference occurs at around 65 dBA.

The planning policy guidance note provides the following guidelines for noise sensitive developments, such as schools (where audible communication is important), and dwellings. Any activity where speech communication is important should be considered sensitive.

<table>
<thead>
<tr>
<th>LAeq (16 hr) DETR Circular: Planning and Noise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Night School Road</td>
</tr>
<tr>
<td>&lt;42  &lt;52 &lt;55</td>
</tr>
<tr>
<td>42-57 52-57 55-63</td>
</tr>
<tr>
<td>57-66 52-71 63-72</td>
</tr>
<tr>
<td>&gt;66  &gt;71 &gt;73</td>
</tr>
</tbody>
</table>

Traffic noise is largely a product of flow and speed, but HGV composition, road surface texture depth and other factors should also be considered.

<table>
<thead>
<tr>
<th>Predicted noise level by flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 hr flow (peak hr)</td>
</tr>
<tr>
<td>Leq dBA</td>
</tr>
<tr>
<td>LAeq dBA</td>
</tr>
</tbody>
</table>

*Distance 7.5m, Mean Speed 27km/h (85v 32km/h or 20mph), HGV 4%, TD 1.5mm Bitmac.*

Note: Noise is measured as sound pressure levels or decibels (dB), each 3dB increase represents a doubling in sound pressure level. The sound pressure level is weighted to take into account the sensitivity of the human ear to the different frequencies, this weighting is referred to as dBA. Noise prediction models used in transport studies are based on L10 dBA, this is a statistical distribution of sound levels, where for any given value only 10% of the readings should exceed that value. Environmental studies tend to use LAeq dBA which is an average based on energy of the sound.

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Noise levels caused by road traffic must increasingly be taken into account, when traffic flows are between 300 vph and 1200 vph.

Vibrations:
There is no proven assessment of the effect of ground borne vibrations to buildings. However airborne vibration can lead to a number of effects, ie window rattling and floor movement, this occurs where there is a large volume of HGV traffic. Vibration can materially affect the quality of life of the occupants and therefore it should be examined (Institution of Environmental Assessment).

Where vibrations would adversely affect people or properties it is important to reduce the incidence of HGV’s and congestion.

Environmental Capacity Conclusion:
Where traffic flows are below 300 vph there is unlikely to be pedestrian severance, and residents are unlikely to be adversely effected by traffic noise or pollution.

Where traffic flows exceed 300 vph pedestrians will increasingly be affected by severance, and residents adversely effected by traffic noise.

Where traffic flows approach 1200 vph it is increasingly likely that pollution levels will exceed recommended standards.

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Traffic Management & Congestion:
Most traffic congestion will occur at junctions, however, where high traffic flows are experienced and there is significant frontage activity congestion may also occur along a length of highway.

Level of Service:
Because of environmental, political and fiscal constraints it is necessary to determine the level of service, which is to be provided to the motorist in terms of such factors as, speed and travel time, freedom to manoeuvre, traffic interruptions, comfort and convenience, and safety.

<table>
<thead>
<tr>
<th>Level of Service to the Motorist</th>
<th>Freedom to manoeuvre</th>
<th>Freedom to select desired speed</th>
<th>Interruptions to traffic flow</th>
<th>Level of comfort and convenience</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Unaffected</td>
<td>Total freedom</td>
<td>Free flow</td>
<td>Very high</td>
<td></td>
</tr>
<tr>
<td>B Slightly affected</td>
<td>Diminished freedom</td>
<td>Stable flow</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>C Affected</td>
<td>Limited</td>
<td>Stable flow</td>
<td>Moderate</td>
<td></td>
</tr>
<tr>
<td>D Severely affected</td>
<td>Restricted</td>
<td>Limited Queues</td>
<td>Moderate</td>
<td></td>
</tr>
<tr>
<td>B Severely affected</td>
<td>Severely restricted</td>
<td>Queues</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>F Totally affected</td>
<td>Non existent</td>
<td>Extensive Queues</td>
<td>Very low</td>
<td></td>
</tr>
</tbody>
</table>

It is unlikely level of service A could be widely achieved in Guernsey and it may in any case prove undesirable to do so. Levels of service E & F would produce unnecessary pollution and driver frustration.

For Guernsey the level of service that is appropriate lies between B and D.

<table>
<thead>
<tr>
<th>Road Width (m)</th>
<th>4.1</th>
<th>4.8</th>
<th>5.5</th>
<th>6.1</th>
<th>6.7</th>
<th>7.3</th>
<th>9.0</th>
<th>10.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic Flow (vph) No Frontage Activity</td>
<td>240</td>
<td>600</td>
<td>950</td>
<td>1300</td>
<td>1700</td>
<td>2000</td>
<td>2600</td>
<td>3000</td>
</tr>
<tr>
<td>Traffic Flow (vph) Frontage Activity</td>
<td>200</td>
<td>500</td>
<td>800</td>
<td>1100</td>
<td>1400</td>
<td>1700</td>
<td>2200</td>
<td>2500</td>
</tr>
</tbody>
</table>

The above table is derived from the UK Departments of Transport advice on design flows and road widths. The figures in Italics have been extrapolated.

Many of Guernsey's roads are between 4.5m and 6.0m wide, indicating that most roads in Guernsey will satisfactorily accommodate between 300 vph and 1200 vph dependent on road width and frontage activity.

The importance of individual routes to motorists:
In determining the Road Hierarchy the vehicle flows can be utilised to reflect the importance of a road to motorists. Roads with low flows are not as important to mobility as roads with high flows.

The main areas of population are in the northern part of the Island and along the east-coast, correspondingly this is where traffic levels are the highest. In these areas it is important to have a stricter traffic management regime.

Although traffic flows in the country parishes are considerably lower, care will have to be taken in the development of a traffic regime, in order to balance motorist's mobility and the provision of a road environment that is safe and attractive to vulnerable road users.

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STATES TRAFFIC COMMITTEE
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APPENDIX 2: Design Parameters:

Adherence to Design Standards:
The design parameters have been developed in accordance with accepted traffic engineering practice taking into account the local road conditions and speed restrictions. These design parameters represent the minimum standard that should be achieved if traffic management and road safety objectives are to be achieved.

In some circumstances the design parameters may be relaxed. A relaxation occurs where the standard of design fails to achieve all the design parameters, but does not depart from the standard by more than one design increment.

In some circumstances the design parameters may be departed from. A departure is where the standard of design fails to achieve all the design parameters, and where the design departs from the standard by more than one design increment.

Design Parameters:
The following design parameters should be applied to the design of an access or the junction of a private road on to the public highway.

There are two main design parameters, design vehicle and design speed.

<table>
<thead>
<tr>
<th>Design Increment</th>
<th>Design Vehicle</th>
<th>Design Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>15m HGV</td>
<td>35</td>
</tr>
<tr>
<td>2</td>
<td>HGV</td>
<td>25</td>
</tr>
<tr>
<td>3</td>
<td>service vehicles</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>cars and light vans</td>
<td>15</td>
</tr>
<tr>
<td>5</td>
<td>Single car</td>
<td>&lt;10</td>
</tr>
</tbody>
</table>

Design Vehicle:
The designer must select the design vehicle type, based on the traffic flow that the access will have to accommodate and the likely presence of service vehicles or HGVs.

<table>
<thead>
<tr>
<th>Typical Road Type</th>
<th>Nos of Dwelling</th>
<th>Peak Hour Flow (vph)</th>
<th>Design Vehicle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic Priority Route</td>
<td>NA</td>
<td>600-1400</td>
<td>HGV</td>
</tr>
<tr>
<td>Local Circulation Route</td>
<td>NA</td>
<td>300-600</td>
<td>service vehicles</td>
</tr>
<tr>
<td>Neighbourhood Road</td>
<td>50+</td>
<td>60+</td>
<td>service vehicles</td>
</tr>
<tr>
<td>Neighbourhood Road</td>
<td>4-50</td>
<td>60</td>
<td>cars and light vans</td>
</tr>
<tr>
<td>Private Drives</td>
<td>1-3</td>
<td>4</td>
<td>single car</td>
</tr>
</tbody>
</table>

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Access Geometry:
The design vehicle type, overall traffic flows, road safety, and road designation will dictate the geometry of the access in question.

The radii and carriageway width are primarily dependent on the design vehicle selected.

<table>
<thead>
<tr>
<th>Design Vehicle</th>
<th>Required Minimum Radii</th>
<th>Required Minimum Carriageway Width</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 Way</td>
<td>One way</td>
</tr>
<tr>
<td>single car</td>
<td>na</td>
<td>2.8m</td>
</tr>
<tr>
<td>cars and light vans</td>
<td>4m</td>
<td>4.7m</td>
</tr>
<tr>
<td>service vehicles</td>
<td>6m</td>
<td>5.0m</td>
</tr>
<tr>
<td>HGVs</td>
<td>10m</td>
<td>5.5m</td>
</tr>
</tbody>
</table>

The access should have sufficient width to enable the design vehicle to exit and enter the drive without crossing into the path of on-coming traffic or to tuck into an access.

Where traffic flows are likely to be below 30 vph a ramped entrance or dropped kerbs across the access may be required instead of a kerbed bell mouth, in order to maintain a continuous pedestrian route. In areas with high pedestrian activity this may be increase.

It is likely that during the reconstruction of public highways that existing bell mouth entrances will be converted to entrances with dropped kerbs, in order to improve the continuity of a pedestrian route.

Design Speed:
The design speed is the 85th percentile of expected speeds, i.e. 85% of vehicles will not exceed the design speed. It is not practical to use the maximum speed as the design speed, as it is not a reliable or a reflective measurement of prevailing vehicular speeds.

<table>
<thead>
<tr>
<th>Route Designation</th>
<th>Design Speed</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inter Harbour Route</td>
<td>35 mph</td>
<td>no speed reducing features</td>
</tr>
<tr>
<td>Traffic Priority Routes and</td>
<td>35 mph</td>
<td>no speed reducing features</td>
</tr>
<tr>
<td>Local Circulation Routes</td>
<td>25 mph</td>
<td>some speed reducing features</td>
</tr>
<tr>
<td>Neighbourhood Roads and</td>
<td>20 mph</td>
<td>significant speed reducing features</td>
</tr>
<tr>
<td>Country Lanes</td>
<td>15 mph</td>
<td>substantial speed reducing features</td>
</tr>
<tr>
<td>Private Drives</td>
<td>&lt;10 mph</td>
<td></td>
</tr>
</tbody>
</table>

Visibility Splay:
Visibility splays should be clear, and maintained clear, of all obstructions above a height of 900mm (750mm high where significant numbers of small children are present), and care should be taken to ensure that visibility is maintained up to a height of 2 metres, where significant HGVs are likely.

The horizontal distance over which unobstructed visibility should be maintained will depend upon the stopping distance of vehicles, which in turn is dependant on prevailing vehicle speeds, road texture and road gradient.
Visibility splays are defined by X and Y Distances.

- the X Distance is measured from the edge of the major carriageway along the centre line of the access,
- the Y Distance is measured from the centre line of the minor access along the near edge of the major carriageway. Account must be taken of the horizontal and vertical alignments of the roads involved.

<table>
<thead>
<tr>
<th>Access Type</th>
<th>X Distance</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Drive</td>
<td>2.0m</td>
<td>relaxation for private drives</td>
</tr>
<tr>
<td>Neighbourhood Road</td>
<td>2.4m</td>
<td>preferred standard</td>
</tr>
<tr>
<td>Local Circulation Route</td>
<td>4.5m</td>
<td>heavily trafficked junctions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Design Speed</th>
<th>Y Distance</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 mph</td>
<td>33 m</td>
<td>no speed reducing features</td>
</tr>
<tr>
<td>25 mph</td>
<td>33 m</td>
<td>some speed reducing features</td>
</tr>
<tr>
<td>20 mph</td>
<td>20 m</td>
<td>significant speed reducing features</td>
</tr>
<tr>
<td>15 mph</td>
<td>20 m</td>
<td>substantial speed reducing features</td>
</tr>
</tbody>
</table>

Other Considerations:
The access should be square to the carriageway and be sited at a distance not less than 20m from a junction.

Any gates should be set back to allow a vehicle to wait off the carriageway/footpath while the gates are opened.

Car parking spaces should be a minimum of 5m in length and vehicles, when parked, must not project out of the access. If the access is onto a main road a turning space within the private drive may be necessary in the interests of road safety and traffic management.

The proposed access should not prejudice the safety of access to adjacent properties by limiting their existing visibility.

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Vehicle Turning Templates:

90° Turning Templates for typical design vehicles at 1:250
ROAD HIERARCHY

APPENDIX 3: Interpretation of Roadside Character:

IDC Plans and Zonings:

*Predominantly developed* is any area zoned as Built-Up, Urban and Rural Conservation Areas, MURA's or Key Industrial Areas.

*Predominantly open* is any area zoned as Green Zone 1 to 3 (RAP's) or Green Areas (UAP).

An *Urban* route is any highway that lays within the boundary the IDC’s UAP, and runs through an area that is *predominantly developed*.

A *sub-urban* route is any highway that either lays
- outside the boundary of the UAP, but that runs through an area that is *predominantly developed*.
- within the boundary of the UAP, but that runs through an area that is not *predominantly developed*.

A *rural* route is any highway lays outside the boundary the IDC’s UAP, but which runs through an area that is *predominantly open*.

In order to prevent a fragmented set of standards and policies along a route, where a route runs through areas that are zoned as *predominately developed* and *predominantly open*, then if more than 40% of the roadside frontage is zoned as developed, then the whole of that route will be deemed to be *sub-urban* in character.

STC Exceptions:

Where a route within the UAP would have been considered to be *sub-urban* in character but forms a recognised artery route into the centre of St Peter Port, that route will be deemed to be *urban*.

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## ROAD HIERARCHY

**APPENDIX 4: Sample Road Hierarchy Designations:**

<table>
<thead>
<tr>
<th>Route:</th>
<th>Peak Hour Flow</th>
<th>Bus Route</th>
<th>Modified Flow Bus Route</th>
<th>Relaxation or Departure:</th>
<th>Designation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grange</td>
<td>1660</td>
<td>I</td>
<td>1909</td>
<td>2195</td>
<td>None</td>
</tr>
<tr>
<td>Victoria Rd</td>
<td>370</td>
<td>I</td>
<td>---</td>
<td>425</td>
<td>None</td>
</tr>
<tr>
<td>St Jacques</td>
<td>280</td>
<td>I</td>
<td>---</td>
<td>322</td>
<td>None</td>
</tr>
<tr>
<td>St Jacques</td>
<td>280</td>
<td>I</td>
<td>---</td>
<td>322</td>
<td>Relaxation</td>
</tr>
<tr>
<td>Fosse Andre</td>
<td>310</td>
<td>I</td>
<td>---</td>
<td>356</td>
<td>None</td>
</tr>
<tr>
<td>Fosse Andre</td>
<td>310</td>
<td>I</td>
<td>---</td>
<td>263</td>
<td>Relaxation</td>
</tr>
<tr>
<td>Grande Rue (SM)</td>
<td>780</td>
<td>I</td>
<td>897</td>
<td>1031</td>
<td>None</td>
</tr>
<tr>
<td>Rte de Longfrie</td>
<td>400</td>
<td>I</td>
<td>460</td>
<td>529</td>
<td>None</td>
</tr>
<tr>
<td>Rte de Longfrie</td>
<td>400</td>
<td>I</td>
<td>460</td>
<td>529</td>
<td>Departure</td>
</tr>
<tr>
<td>Rte de Plaisance</td>
<td>560</td>
<td>I</td>
<td>644</td>
<td>740</td>
<td>None</td>
</tr>
<tr>
<td>Clos Landais</td>
<td>180</td>
<td>I</td>
<td>207</td>
<td>238</td>
<td>Departure</td>
</tr>
<tr>
<td>Grande Rue (SSv)</td>
<td>150</td>
<td>I</td>
<td>172</td>
<td>198</td>
<td>None</td>
</tr>
<tr>
<td>Gigands</td>
<td>470</td>
<td>I</td>
<td>540</td>
<td>621</td>
<td>None</td>
</tr>
<tr>
<td>Gigands</td>
<td>470</td>
<td>I</td>
<td>540</td>
<td>621</td>
<td>Relaxation</td>
</tr>
</tbody>
</table>

**Key**

- IHR - Inter Harbour Route
- TPR - Traffic Priority Route
- LCR - Local Circulation Route
- NR - Neighbourhood Roads and Rural Lanes
- (U) - Urban
- (S) - Sub-Urban
- (R) - Rural

**NOTE:** 

- N/A
- 600-1400 vph
- 300-600 vph
- <300 vph

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APPENDIX 5: Designation Criteria:

Criteria for Designation of the Road Hierarchy:
The design parameters and the functional emphasis of each road should be considered in terms of the relative priority for vehicular traffic and mobility against that given to other activities, especially Vulnerable Road Users, these include cyclists, pedestrians and equestrians.

<table>
<thead>
<tr>
<th>Designation</th>
<th>Peak Traffic Flows (vehicles per hour)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inter-Port HGV Route</td>
<td>(600-1,200)</td>
</tr>
<tr>
<td>Traffic Priority Route</td>
<td>(200-600)</td>
</tr>
<tr>
<td>Local Circulation Routes</td>
<td>(200-600)</td>
</tr>
<tr>
<td>Neighbourhood Roads and Country Roads</td>
<td>(1-300)</td>
</tr>
</tbody>
</table>

Traffic flows have been taken to indicate the importance of individual roads to the overall road network, this will be modified for routes that are used as bus routes or have other strategic importance.

Relaxation and Departures from Criteria:
In order to avoid unnecessary changes to the traffic management regime along a recognised route causes by changes in its designation within the road hierarchy it may be necessary to make relaxations or departures to the selection criteria, by designating sections of roads at a lower or higher point in the hierarchy.

A relaxation in the designation criteria is where a 15% change in traffic flow would lead to a change in designation. A departure from the designation criteria is where a change greater than 15% in the traffic flow would be required to lead to a change in designation.

Bus routes may have a 15% surcharge in traffic flow without leading to a relaxation in the designation criteria, in order to give recognition to the importance of that route within the road hierarchy.

This process also provides the framework for political level input into the designation of the road hierarchy. Relaxations should be considered where a recognised route would have an unnecessarily fragmented traffic management regime along its length. Departures should be considered only in the most exceptional circumstances where there are manifest benefits to both traffic management and road safety.

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