PART 3 - DESIRED STANDARD OF SERVICE (DSS)

The Desired Standards of Service (DSS) of each trunk infrastructure network is defined primarily for infrastructure planning purposes. They are not to be interpreted to imply guaranteed levels of performance for infrastructure networks.

IPA section 2.1.24 clarifies that intentions stated in the plan do not create an obligation to supply the infrastructure or that any right exists to expect or demand the standard of service stated.

The DSS are expressed in:

a) Quantitative standards that are primarily about the capacity of the network; and

b) Qualitative standards that are primarily about the performance of the network;

c) Environmental effects and user benefits may also be included for some networks where it may help to inform the expected benefits of the given desired standard of service.

The DSS have been developed to broadly align with the various design requirements, statutory environmental obligations, detailed customer service standards, criteria in the Strategic Asset Management Plan (SAMP), Integrated Environmental Management Systems, individual licenses, and industry standards.

In circumstances where the DSS may not be achieved, trunk infrastructure will aim to meet the standards to the greatest degree practicable.

Under the Water Reform implemented by the State Government, Water Supply and Sewerage infrastructure networks are no longer provided by Council whereby responsibility has been given to Unitywater.

3.1 Water Supply

The following abbreviations apply:

AD average day demand
ADWF average dry weather flow
MD maximum day demand
MDMM mean day maximum month demand
MH maximum hour demand
PDWF peak dry weather flow
PWWF peak wet weather flow

For the water supply network, Unitywater has adopted the following Desired Standards of Service:-

1. Water supplied for human consumption complies with the National Health and Medical Research Council's (NHMRC) *Australian Drinking Water Guidelines* for colour, turbidity and microbiology.
2. Potable water is collected, stored, treated and conveyed from source to consumers in the manner prescribed, and to the standards required, under the *Water Act 2000*.
3. Non-revenue water loss does not exceed industry best practice.
4. The water supply network is constructed to the adopted design parameters identified in Table 3.1 – DSS – Water Supply *(Unitywater).*

Separate demand assumptions and peaking factors have been adopted for each of the following cases:

- Case 1 Dwellings - Properties constructed prior to being subject to the water saving targets in the Queensland Development Code (QDC) - Conventional Potable Supply
- Case 2 Dwellings - Properties built subject to the water saving targets in the QDC - Conventional Potable Supply and Rainwater Tanks to Toilets
- Case 3 Dwellings - New development in greenfield areas - Dual Reticulation Supply + Rainwater Tanks

3.2 Sewerage

The following abbreviations apply:

AD	average day demand
ADWF	average dry weather flow
MD	maximum day demand
MDMM	mean day maximum month demand
MH	maximum hour demand
PDWF	peak dry weather flow
PWWF	peak wet weather flow

For the sewerage network, Unitywater has adopted the following Desired Standards of Service expressed in Table 3.2 - DSS - Sewerage *(Unitywater).* The same Design Parameters expressed in Table 3.2 apply for the Cooroy STP Catchment with the exceptions noted in Table 3.2a.

3.3 Transport

The Transport Networks are sub-categorised into distinct use functions consisting of Road, Public Transport and Pathway Networks.

Although the DSS has been developed to align with the uses applicable to each of these sub-categorised networks, the overall aim is to provide an integrated transport network/system encompassing all modes of transport to meet the objectives of The Noosa Community Transport Strategy and Noosa Integrated Local Transport Plan.

The defined transport systems are intended to progressively improve personal mobility within the shire. This will be achieved through appropriate integration of land use and transport systems, to achieve an effective road network and parking systems, closely integrated with public transport, bicycle and pedestrian systems.

The DSS for each sub-categorised network is expressed in tables:

i Table 3.3.1 - DSS - Roads;

ii Table 3.3.2 - DSS - Public Transport; and

iii Table 3.3.3 - DSS - Pathways

3.4 Stormwater Management

The DSS for stormwater management is expressed in Table 3.4 - DSS – Stormwater Management

3.5 Public Parks & Community Land

Public parks and community land networks has been categorised into the use function for Sport & Recreation Parks & Facilities. Land networks for Other Community Purposes have not been included in this PIP.

The DSS is expressed in Table 3.5 - DSS - Sport & Recreation Parks & Facilities.

Table 3.1 – DSS - Water Supply *(Unitywater)*

Description	Adopted Design Parameter
Water Demand	
1 Average Day Demand (AD)	Demands per Equivalent Tenement (ET) for Case 1 Dwellings (L/ET/day)

Land Use Group	Existing	2011	2016	2021	2031	Ultimate
Single Family Residential (SFR)	804	774	733	705	669	653
Multiple Family Residential (MFR)*	683	654	618	593	562	548
Rural Residential (RUR)	804	774	733	705	669	653
Commercial (COM)	804	785	767	758	754	750
Industrial (IND)	804	785	767	758	754	750

Demands per Equivalent Tenement (ET) for Case 2 Dwellings (L/ET/day)

Land Use Group	Existing	2011	2016	2021	2031	Ultimate
Single Family Residential (SFR)	405	390	366	353	340	336
Multiple Family Residential (MFR)*	493	476	451	436	425	421
Rural Residential (RUR)	405	390	366	353	340	336
Commercial (COM)	804	785	767	758	754	750
Industrial (IND)	804	785	767	758	754	750

Demands per Equivalent Tenement (ET) for Case 3 Dwellings (L/ET/day)

Land Use Group	Existing	2011	2016	2021	2031	Ultimate
Single Family Residential (SFR)	367	353	331	318	306	303
Multiple Family Residential (MFR)*	377	364	343	332	325	322
Rural Residential (RUR)	367	353	331	318	306	303
Commercial (COM)	603	589	575	569	566	563
Industrial (IND)	603	589	575	569	566	563

* MFR value is not per dwelling. 0.69 ET per attached dwelling has been assumed^^. The demand per residence identified for an attached dwelling has been divided by 0.69 to derive a demand per ET.

System Losses

	Existing	2011	2016	2021	2031	Ultimate
(%) production assumed as System Losses	16.0%	14.0%	12.0%	11.0%	10.5%	10.0%

Where: A detached residential dwelling is considered an equivalent tenement (ET) and a person living within a detached dwelling is considered an equivalent person (EP).

Assumed conversion ratios:

Detached Residential Dwellings: 2. 7 EP / ET

Attached Residential Dwellings: 1.8 EP / ET

For the areas covered by the Caloundra South and Palmview Infrastructure Agreements Attached dwellings have been loaded with 0.69 ET.

<table>
<tr><th>Description</th><th colspan="2">Adopted Design Parameter</th></tr>
<tr><td colspan="3">Peaking Factors</td></tr>
<tr><td>2</td><td colspan="2">Case 1 Dwellings
<table>
<tr><th>Land Use Group</th><th>MDMM</th><th>MD</th><th>MH</th></tr>
<tr><td>Single Family Residential (SFR)</td><td>1.5</td><td>1.9</td><td>4</td></tr>
<tr><td>Multiple Family Residential (MFR)</td><td>1.5</td><td>1.9</td><td>3.5</td></tr>
<tr><td>Rural Residential (RUR)</td><td>1.5</td><td>1.9</td><td>4</td></tr>
<tr><td>Commercial (COM)</td><td>1.5</td><td>1.9</td><td>2.85</td></tr>
<tr><td>Industrial (IND)</td><td>1.5</td><td>1.9</td><td>2.66</td></tr>
</table></td></tr>
<tr><td>3</td><td colspan="2">Case 2 Dwellings
<table>
<tr><th>Land Use Group</th><th>MDMM</th><th>MD</th><th>MH</th></tr>
<tr><td>Single Family Residential (SFR)</td><td>2.6</td><td>3.7</td><td>7.8</td></tr>
<tr><td>Multiple Family Residential (MFR)</td><td>1.8</td><td>2.5</td><td>4.6</td></tr>
<tr><td>Rural Residential (RUR)</td><td>2.6</td><td>3.7</td><td>7.8</td></tr>
<tr><td>Commercial (COM)</td><td>1.5</td><td>1.9</td><td>2.85</td></tr>
<tr><td>Industrial (IND)</td><td>1.5</td><td>1.9</td><td>2.66</td></tr>
</table></td></tr>
<tr><td>4</td><td colspan="2">Case 3 Dwellings
<table>
<tr><th>Land Use Group</th><th>MDMM</th><th>MD</th><th>MH</th></tr>
<tr><td>Single Family Residential (SFR)</td><td>2.0</td><td>2.5</td><td>4.2</td></tr>
<tr><td>Multiple Family Residential (MFR)</td><td>1.9</td><td>2.4</td><td>4.1</td></tr>
<tr><td>Rural Residential (RUR)</td><td>2.0</td><td>2.5</td><td>4.2</td></tr>
<tr><td>Commercial (COM)</td><td>1.5</td><td>1.8</td><td>2.7</td></tr>
<tr><td>Industrial (IND)</td><td>1.5</td><td>1.8</td><td>2.5</td></tr>
</table></td></tr>
<tr><td colspan="3">System Pressure</td></tr>
<tr><td>5</td><td>Minimum Operating Pressure</td><td>At maximum hour demand, the minimum pressure at the water meter shall not be less than 20m of head.
(In isolated high level areas, the minimum operating pressure may be reduced to 16 m above the highest elevation on any lot with the water level in the reservoir not more than 1.0 m above reservoir floor level.)</td></tr>
<tr><td>6</td><td>Maximum Operating Pressure</td><td>80m of head at the property’s water meter</td></tr>
<tr><td colspan="3">Fire Fighting Requirements</td></tr>
<tr><td>7</td><td>System Pressure</td><td>12 m minimum pressure head at the hydrant/dedicated service location, and minimum 6m pressure head at any location in the water supply zone during the fire event with model conditions as detailed in Items 8, 9 and 10.</td></tr>
</table>

Description		Adopted Design Parameter
8	Fire Flow	For predominantly residential development no more than 3 storeys in height - 15 L/s simultaneous with the background demand prescribed in Item 9 for a period of 2 hours. For predominantly commercial/industrial development or residential buildings greater than 3 storeys in height - 30 L/s simultaneous with the background demand prescribed in Item 9 for a period of 4 hours. Note that each special risk/hazard land use may require an even greater fire flow.
9	Background demand	2/3 of MH demand
Storage		
10	Ground Level Storage	Required Storage = [1.3 x MD] Potable Ground Level Reservoirs in Dual Reticulation Networks = [1.8 x MD]
11	Elevated Storage	Required Storage Volume = Operating Volume + Fire Fighting Reserve Where: Operating Volume = 6 x (MH – 1/12 MDMM) Fire Fighting Reserve = 150 kL Or Maintenance of storage is demonstrated through dynamic modelling where the operation of the supply pumping station is acceptable and the pumping station contains adequate security against power failure. Performance is to be tested using dynamic modelling
Pumping Capacity		
12	Duty pump capacity to serve ground level reservoirs.	Supply MDMM demand in no more than 20 hours of operation in any 24 hour period.
13	Pumps serving elevated storage.	Pump must discharge not less than:- [(6 x MH) – Operating Volume]/(6 x 3600) Where: Operating Volume is as prescribed in item 13 above.
14	Standby Pump Capacity	Equal to the capacity of the largest duty pump

<table>
<tr><th colspan="2">Description</th><th>Adopted Design Parameter</th></tr>
<tr><td colspan="3">Pipeline Design</td></tr>
<tr><td>15</td><td>Trunk Main Capacity</td><td>Sized for MDMM flows</td></tr>
<tr><td>16</td><td>Reticulation Capacity</td><td>Sized for Maximum Hour and Fire Flow</td></tr>
<tr><td>17</td><td>Friction Default Values</td><td>Hazen Williams Coefficients of Friction:
<table>
<tr><th rowspan="2">Material</th><th colspan="5">Diameter (mm)</th></tr>
<tr><th>100</th><th>150-200</th><th>250-300</th><th>375-600</th><th>>600</th></tr>
<tr><td>Mild steel concrete lined (MSCL)</td><td>110</td><td>120</td><td>125</td><td>130</td><td>135</td></tr>
<tr><td>Ductile iron concrete lined (DICL)</td><td>100</td><td>110</td><td>120</td><td>125</td><td>130</td></tr>
<tr><td>Ductile iron (DI)</td><td>100</td><td>110</td><td>115</td><td>120</td><td>125</td></tr>
<tr><td>Cast iron concrete lined (CICL)</td><td>100</td><td>110</td><td>120</td><td>125</td><td>130</td></tr>
<tr><td>Cast iron (CI)</td><td>100</td><td>110</td><td>115</td><td>120</td><td>125</td></tr>
<tr><td>UPVC</td><td>110</td><td>120</td><td>125</td><td>130</td><td>135</td></tr>
<tr><td>Asbestos cement (AC)</td><td>100</td><td>110</td><td>115</td><td>120</td><td>125</td></tr>
<tr><td>Other</td><td>100</td><td>110</td><td>115</td><td>120</td><td>125</td></tr>
</table></td></tr>
<tr><td>18</td><td>Maximum Flow Velocity</td><td>Not to exceed 2.5 m/s</td></tr>
</table>

Table 3.2 – DSS – Sewerage *(Unitywater)*

<table>
<tr><th colspan="2">Description</th><th>Adopted Design Parameter</th></tr>
<tr><td colspan="3">Occupancy Ratio</td></tr>
<tr><td>1</td><td>Equivalent Person (Sewerage) / Equivalent Tenement (EPS/ET).</td><td>2.7 EPS/ET
Note that one equivalent person (sewerage) is equivalent to the service demand from a single occupant of an average occupied detached house, while one equivalent tenement is equivalent to the service demand from an average occupied detached house.</td></tr>
<tr><td colspan="3">Sewage Loading</td></tr>
<tr><td>2</td><td>Average Dry Weather Flow (ADWF).</td><td>600 L/ET/d.</td></tr>
<tr><td>3</td><td>Peak Wet Weather Flow (PWWF).</td><td>5 X ADWF for conventional gravity sewers
4 X ADWF for reduced Infiltration gravity sewers</td></tr>
<tr><td>4</td><td>Peak Dry Weather Flow (PDWF).</td><td>C_2 X ADWF where $C2 = 4.7 \times (2.7 \times ET)^{-0.105}$</td></tr>
<tr><td colspan="3">Gravity Sewer Design</td></tr>
<tr><td>5</td><td>Flow calculation method.</td><td>Manning’s Equation</td></tr>
<tr><td>6</td><td>Manning’s ‘n’.</td><td>
<table>
<tr><th>Material</th><th>Manning’s Roughness Coefficient (n Value)</th></tr>
<tr><td>Cement Mortar</td><td>0.013</td></tr>
<tr><td>Ceramics</td><td>0.014</td></tr>
<tr><td>Smooth Concrete</td><td>0.012</td></tr>
<tr><td>Normal Concrete</td><td>0.013</td></tr>
<tr><td>Rough Concrete</td><td>0.015</td></tr>
<tr><td>Iron (cast)</td><td>0.014</td></tr>
<tr><td>Iron (wrought)</td><td>0.015</td></tr>
<tr><td>PVC / Plastic / PE</td><td>0.013</td></tr>
<tr><td>Stone</td><td>0.013</td></tr>
<tr><td>Vitrified Clay</td><td>0.014</td></tr>
</table>
</td></tr>
<tr><td>7</td><td>Minimum Size</td><td>150mm</td></tr>
</table>

<table>
<tr><th colspan="2">Description</th><th>Adopted Design Parameter</th></tr>
<tr><td>8</td><td>Minimum velocity at PDWF.</td><td>0.7 m/s</td></tr>
<tr><td>9</td><td>Depth of Flow at PWWF – Existing system.</td><td>Maximum hydraulic grade level = 1.0 m below MH cover level and no spillage through overflow structures.</td></tr>
<tr><td>10</td><td>Depth of Flow at PWWF – Proposed sewers.</td><td>≤ 0.75 x Pipe Diameter</td></tr>
<tr><td>11</td><td>Minimum Grades</td><td>
<table>
<tr><th>Diameter (mm)</th><th>Grade %</th></tr>
<tr><td>150*</td><td>0.55</td></tr>
<tr><td>225</td><td>0.33</td></tr>
<tr><td>300</td><td>0.25</td></tr>
<tr><td>375</td><td>0.17</td></tr>
<tr><td>450</td><td>0.14</td></tr>
<tr><td>525</td><td>0.12</td></tr>
<tr><td>600</td><td>0.10</td></tr>
<tr><td>750</td><td>0.08</td></tr>
</table>
* For ET's < 2 the minimum grade for a 150 mm diameter main = 1.25%
* For ET's 2-5 the minimum grade for a 150 mm diameter main = 1.00%
</td></tr>
<tr><td colspan="3">Rising Main Design</td></tr>
<tr><td>12</td><td>Flow Equation.</td><td>Hazen Williams.</td></tr>
<tr><td>13</td><td>Friction Factors.</td><td>
<table>
<tr><th>Material</th><th>Hazen Williams Roughness Coefficient (C Value)</th></tr>
<tr><td>Cement Mortar</td><td>130</td></tr>
<tr><td>Ceramics</td><td>110</td></tr>
<tr><td>Smooth Concrete</td><td>140</td></tr>
<tr><td>Normal Concrete</td><td>130</td></tr>
<tr><td>Rough Concrete</td><td>100</td></tr>
<tr><td>Iron (cast)</td><td>110</td></tr>
<tr><td>Iron (wrought)</td><td>100</td></tr>
<tr><td>PVC / Plastic / PE</td><td>130</td></tr>
<tr><td>Stone</td><td>130</td></tr>
<tr><td>Vitrified Clay</td><td>110</td></tr>
</table>
</td></tr>
</table>

Description		Adopted Design Parameter
14	Maximum Velocity.	Maximum velocity under single pump operation (new mains) - 2 m/s (1.5 m/s target) Maximum velocity under all pump operation (new mains) - 2.5 m/s Existing mains - 2.5 m/s (single pump) and 3 m/s (all pumps)
Wet Well Performance Criteria		
15	Wet Well Operating Storage	[0.9 X Single pump capacity) / N] Where N = number of pump starts N = 12 starts for motors less than 50kW N = 5 starts for motors greater than 50kW Operating Storage is between pump start and pump stop levels
16	Minimum Wet Well Diameter	2.4m
Pumping Station Performance Criteria		
17	Duty Pump Capacity for existing pumping stations.	$C_1 = 15 \times (2.7 \times ET)^{-0.1587}$ Minimum value of $C_1 = 3.5$ Not less than C1 x ADWF Where PWWF = 5 X ADWF
18	Duty Pump Capacity for new pumping stations in areas with conventional sewer networks	5 x ADWF
19	Duty Pump Capacity for new pumping stations in areas with reduced infiltration gravity sewers	4 x ADWF
20	Standby Pump Capacity.	Equivalent to capacity of the duty pump.
Emergency Storage Performance Criteria		
21	Emergency Storage.	Conventional Sewers: 4 hours of ADWF (can include system storage below the wet well overflow level) Reduced Infiltration: 12 hours of ADWF (can include system storage below the wet well overflow level)

Table 3.2a- DSS - Sewerage *(Unitywater)* - Cooroy STP Catchment

Item	Description	Adopted Design Parameter
Sewage Loading		
2	Average Dry Weather Flow (ADWF).	225 L/EP/d.
Rising Main Design		
13	Friction Factors.	100 for pipe diameter < 150mm 110 for pipe diameter > 150mm but < 300mm 120 for pipe diameter > 300mm

Table 3.3.1 - Desired Standard of Service – Transport - Roads

QUANTITATIVE STANDARDS (primarily about the capacity of the network)		
ITEM	**TYPE OF ROAD**	**DESIRABLE STANDARD**
Road Standard Design Guidelines	Gravel road	Up to 1,000 vehicles per day (Non-Urban areas)
	Two-way two-lane road	• 16,000-20,000 vehicles per day (Urban areas) • 1,000-5,000 vehicles per day (Non-Urban areas)
	Four lane divided road	35,000-40,000 vehicles per day
	Unsignalised T-junction	• Degree of saturation of 0.70 • Intersecting flows of 16,000 vehicles per day and 4,000 vehicles per day (Urban areas) • Intersecting flows of 1,000 vehicles per day and 250 vehicles per day (Non-Urban areas)
	Single lane roundabout	• Degree of saturation of 0.70 • Intersecting flows of 16,000 vehicles per day and 8,000 vehicles per day
	Two-lane roundabout	• Degree of saturation of 0.70 • Intersecting flows of 35,000 vehicles per day and 16,000 vehicles per day
	All roads	Include provisions for on-road cyclists
QUALITATIVE STANDARDS (primarily about the performance of the network)		
ITEM	**ROAD NETWORK**	**SPECIFICATION OBJECTIVES & STANDARDS**
Desired Network Characteristics to reflect the Shire's Character & Lifestyle	All	• Maintaining low stress levels in the use of the road system; • Avoidance of significant traffic delays; • Excluding the use of traffic signals; • Maintenance of a predominantly two-way two-lane road network; • Encourage a modal shift from reliance of private motor vehicle usage to public & other modes of transport in accordance with The Noosa Community Transport Strategy & Noosa Integrated Local Transport Plan
Desired Standard of Service[1] (during weekday peak periods)	In Urban areas	• C to D - good conditions outside peak holiday periods with only short delays at major intersections; and • D to E - moderate congestion during peak holiday periods, with congestion severe enough to discourage private transport increasing use of public transport trip making.
	In Non-Urban areas	• B to C - good conditions in all periods with only short delays at major intersections
Construction Design Standards	All	• Pavements designed with a design life of 20 years and the anticipated number of equivalent standard axles over its design life. • Mainroads – Standard Specifications Roads – Third Edition, December 1999, Registration number 80.601 Issued by the Queensland Department of Main Roads Technology and Environmental Division Volume 1 & 2. • Austroads & Standards Australia- Guide to Traffic Engineering Practice - Complete Series.
Safety	All	Network considerations to include suitability for all forms of road users as detailed in Noosa Integrated Local Transport Plan including: • motor vehicles (private & public); • on-road cyclists; • road crossings by pedestrians

[1] In this instance the standard of service is taken to mean the level of service as defined in *Austroads (1988) Guide to Traffic Engineering Practice, Part 2 - Roadway Capacity*

Table 3.3.2 - Desired Standard of Service – Transport - Public Transport

QUANTITATIVE STANDARDS (primarily about the capacity of the network)		
ITEM	**NETWORK**	**DESIRABLE STANDARD**
Desired Standard of Service[1] (during weekday peak periods)	Coastal Area Public Transport Network	• The provision of a major loop bus service specifically designed to provide a clear and attractive alternative to private car travel with routes linking the major destination areas within the coastal area including residential areas, business districts, recreation, sporting and community facilities. • 1 of Type A facility based on passenger volumes & service frequency; • 4 of Type B facility based on passenger volumes within central business districts; • Type C & D Bus stop locations approximate spacing 400m along route based on passenger volumes.
	Rural to Coastal Area Public Transport Link	• The provision of a major bus service specifically designed to provide a clear and attractive alternative to private car travel linking the Cooroy, Pomona & Cooran central business districts to the Coastal Area Network; • 1 of Type A facility in the central Cooroy business district; • 1 of Type B facility in the central Pomona business district; • Type C & D Bus stop locations based on passenger volumes along the service route.
QUALITATIVE STANDARDS (primarily about the performance of the network)		
ITEM	**SPECIFICATION OBJECTIVES & STANDARDS**	
Desired Network Characteristics to reflect the Shire's Character & Lifestyle	• Access to the network is via acceptable walking distances; • Avoidance of significant waiting periods during peak times; • The bus as a realistic travel option at all times; • High level of customer satisfaction. • All bus stops are constructed to fit in with the Noosa "Look and Feel" concept defined in the Noosa Corporate Plan.	
Construction Design Standards	• Pavements designed with a design life of 20 years and the anticipated number of equivalent standard axles over its design life. • Mainroads – Standard Specifications Roads – Third Edition, December 1999, Registration number 80.601 Issued by the Queensland Department of Main Roads Technology and Environmental Division Volume 1 & 2. • Disability Standards for Accessible Public Transport 2002 amended under subsection 31 (1) of the Disability Discrimination Act 1992. Prepared on the 11th May 2005 from amendments to Disability Standards for Accessible Public Transport Amendment 2004 (No. 2). o Compliance with the relevant Standards by 25% of each type of service in relation to: ▪ Access paths, Manoeuvring areas, Ramps, Boarding, Allocated space, Doorways and doors, Stairs, Controls and Ground Tactiles to assist Visually impaired to boarding point. • Australian Standard – Design for access and mobility Part 1: General requirements for access-new building work. AS 1428.1 – 1998. • Australian Standard – Design for access and mobility Part 2: Enhanced and additional requirements – Buildings and facilities. AS 1428.2 – 1992.	
Safety	Network considerations to include suitability for all forms public transport users eg: • Disabled persons; • Children; • Safety of pedestrians in and around all Bus stops; and • A high level of visibility in and around all bus stops for the benefit of drivers and passengers.	

[1] . In this instance the standard of service is taken to mean the level of service defined in both the *Noosa Community Transport Strategy* February 2006 and the Draft Public Transport Infrastructure Manual (2007) TRANSlink Qld Transport.

QUALITATIVE STANDARDS (Continued)		
ITEM	**SPECIFICATION OBJECTIVES & STANDARDS**	
Bus Stop Standard Design Guidelines Ref: Draft Public Transport Infrastructure Manual (2007) TRANSlink Qld Transport	**Type of Facility**	**Desirable Standard**
	Transit Centres (Type A) Servicing locations where there are moderate to high passenger volumes and high bus service frequency.	Bus stop consisting of large seating and shelter infrastructure, with Bus Stop Blade design signage and provisions for off - road bus bays and standing room for bus fleets and integrated with suitable car parking facilities.
	Hubs (Type B) Servicing locations where there are moderate to high passenger volumes and moderate to high bus services (at least every half hour).	Bus stop consisting of large seating and shelter area with Bus Stop Blade design signage and integrated with suitable car parking facilities.
	Regular Shelters (Type C) Servicing locations where there are moderate passenger volumes (every half hour).	Bus stop consisting of seat, shelter and J-pole signage.
	Standard Stops (Type D) Servicing predominantly low passenger volumes (less than every half hour).	Bus stop consists of flag signs and seating.

Table 3.3.3 - Desired Standard of Service – Transport - Pathways

QUANTITATIVE STANDARDS (primarily about the capacity of the network)	
ITEM	**DESIRABLE STANDARD**
Quantity / Location	The provision of off-road pathways is specifically designed to: • Provide the main north-south & east-west linkage choices with routes linking major destinations within the major urban areas including residential areas, business districts, recreation, sporting and community facilities; • Form an integrated component of the movement network and open space system; • Provide a link to the Public Transport Network.
QUALITATIVE STANDARDS (primarily about the performance of the network)	
ITEM	**SPECIFICATION OBJECTIVES & STANDARDS**
Desired Network Characteristics to reflect the Shire's Character & Lifestyle	• Provide a clear, attractive and healthy alternative to private car travel; • Access to the trunk network is via acceptable walking distances generally in order of up to 1.5km within urban areas to 3.0km for rural settlement areas; • High level of customer satisfaction promoting an active & healthy lifestyle by encouraging walking and cycling; • Linkages allow for direct and safe movement; • All routes are constructed to fit in with the Noosa "Look and Feel" concept defined in the Noosa Corporate Plan; • Provision of end of trip facilities at all major activity centers including business centers, educational facilities, major recreational, major sporting and community facilities.
Construction Design Standards	• Pavements designed with a design life of 20 years; • Design of the pathway network is to generally comply with established codes and standards (taking into consideration on the levels of anticipated usage) including: o Austroads & Standards Australia - Guide to Traffic Engineering Practice, in particular Part 13 Pedestrians & Part 14 Bicycles; o Queensland Transport Cycle Notes (A reference Tool for Planning and Design)
Safety	Network considerations to generally be suitable for all types of shared usage for: • Pedestrians including disabled persons and children; and • Cyclists for recreational, tourist, commuter, school and general purposes; • Safety of all users in and around all connections to the public transport network and in the crossings of road networks; and • A high level of visibility with regard to personal safety of users. • Pathways have lighting in key locations and are signposted with wayfinding signage

Table 3.4 - Desired Standard of Service – Stormwater Management

QUANTITATIVE STANDARDS (primarily about the capacity of the network)	
ITEM	**DESIRABLE STANDARD**
Overall objective	In accordance with Urban Stormwater Management Strategy, Noosa Council 2002, to Manage Stormwater Quantity to Ensure flooding impacts are minimised and environmental base flows in creeks and rivers are maintained.
Design	In accordance with: • Noosa Council Engineering Design Standards – Appendix 1 Stormwater Drainage Manual; • The Noosa Plan, Water Sensitive Design Code.
QUALITATIVE STANDARDS (primarily about the performance of the network)	
ITEM	**SPECIFICATION OBJECTIVES & STANDARDS**
Overall objectives	In accordance with: • Environmental Protection (Water) Policy 1997; • Noosa River Environmental Values and Water Quality Objectives; • Mary River Environmental Values and Water Quality Objectives; • South East Queensland Regional Water Quality Management Strategy September 2001; • Queensland Water Quality Guidelines 2006 (EPA); • Noosa River Plan 2004; • Noosa River Catchment Management Strategy 2002; • Urban Stormwater Management Strategy, Noosa Council 2002.
Stormwater Pollutants	In accordance with the water quality objectives to protect environmental values under the: • Noosa River Environmental Values and Water Quality Objectives - Environmental Protection (Water) Policy 1997; • Mary River Environmental Values and Water Quality Objectives - Environmental Protection (Water) Policy 1997.
Soil Erosion and Sediment Transport	In accordance with the water quality objectives to protect environmental values under the: • Noosa River Environmental Values and Water Quality Objectives - Environmental Protection (Water) Policy 1997; • Mary River Environmental Values and Water Quality Objectives - Environmental Protection (Water) Policy 1997. On Site Construction standards to minimise soil erosion & sediment transport in accordance with: • Soil, Erosion & Sediment Control, Engineering Guidelines for Queensland Construction Sites, June 1996, The Institution of Engineers, Australia, Queensland Division.
Waterway - Health and Amenity	In accordance with the water quality objectives to protect environmental values under the: • Noosa River Environmental Values and Water Quality Objectives - Environmental Protection (Water) Policy 1997; • Mary River Environmental Values and Water Quality Objectives - Environmental Protection (Water) Policy 1997. In accordance with the Vision & Desired Environmental Outcomes for the Noosa River System in accordance with the Noosa River Plan 2004 - Parts 1& 2.
Design	In accordance with The Noosa Plan: • Water Sensitive Design Code – addressing water harvesting and reuse, runoff treatment and natural stormwater treatment strategies, such as swales, bio-retention systems, vegetated filtration strips and GPTs; • Waste Management Code and supporting planning scheme policy - addressing the design and location of bin storage areas, recycling, waste separation and bin wash down areas; • Landscaping Code - addressing effective landscape treatment and water management to optimise stormwater filtration and minimise sedimentation and erosion activity and runoff; • Erosion and Sediment Control Code – addressing the minimisation and control of erosion and transport of sediments off site; • Biodiversity Overlay – addressing the management, conservation and rehabilitation of biodiversity values including Riparian vegetation, aquatic fauna, soils, landforms, waterways and drainage lines.

Table 3.5 - Desired Standard of Service – Public Parks & Community Land - Sport & Recreation Parks and Facilities

QUANTITATIVE STANDARDS (primarily about the capacity of the network)					
ITEM	**DESIRABLE STANDARD**				
Quantity of Sport & Recreation Parks and Indoor Sport & Recreation Facilities[##]	**Predominant Land Use***	**Recreation Parks* (ha / 1000 pop)**	**Sports Parks* (ha / 1000 pop.)**	**Indoor Sport & Recreation* Facilities (ha / 1000 pop.)**	**Total (ha / 1000 pop.)**
	All Types of Housing & Mixed Use	3 ha / 1000	2 ha / 1000	0.2 ha /1000	5.2 ha / 1000
	Business Centres & Industry	0.25 ha / 1000	Nil	Nil	0.25 ha / 1000
	Rural & Rural Settlement	0.25 ha / 1000	2 ha / 1000	0.2 ha /1000	2.45 ha / 1000
Size of Sport & Recreation Parks (relating to new acquisitions)	**Park Type***	**Desired Park Areas** (Varies according to the recreation features and sporting activities being catered for)			
		Local*	**District / Town***	**Shire-wide***	
	Recreation Parks	0.5 - 2.0 ha	1 - 10 ha	2 - 30+ ha	
	Sports Parks	NA	2 - 10 ha	2.5 - 20+ ha	
Distribution of Sport & Recreation Parks and Indoor Sport & Recreation Facilities	**Park Hierarchy***	**Population Serviced**	**Predominant Land Use***		
			Residential (Urban)	**Rural or Rural Settlement**	
	Local	500 – 2,500	Within 0.5 km	Within 5 km	
	District	10,000 – 15,000	Within 2.5 km	Within 10 km	
	Shire-wide	50,000 +	Within 15 km	Within 15 km	
Service of Sport & Recreation Parks and Indoor Sport & Recreation Facilities	**Park Type* & Hierarchy***	**Catchment Depending on Residential Zone Type**			
	Recreation local	Urban = 0.5 km; Rural = 5.0 km			
	Recreation district	Urban = 2.5 km; Rural = 10.0 km			
	Recreation shire-wide	15.0 km			
	Sports parks district	Urban = 2.5 km; Rural = 10.0 km			
	Sports parks shire-wide	15.0 km			
	Indoor sport and recreation district	Urban = 2.5 km; Rural = 10.0 km			
	Indoor sport and recreation shire-wide	15.0 km			

[##]**NOTE:** Recreation parks, sports parks and indoor sport & recreation facilities for Business Centres & Industry (0.25ha/1000), and Rural & Rural Settlement (2.245ha/1000) are included in the provision for Housing & Mixed Use (5.2ha/1000) i.e. the total planned provision for public parks and land for community purposes in Noosa is 5.2ha / 1000 people.

QUALITATIVE STANDARDS (primarily about the performance of the network)		
ITEM	**SPECIFICATION OBJECTIVES & STANDARDS**	
Quality of Land	**SUITABLE LAND** for recreation and sport activities must be suitable for the intended use and would normally be considered as land that meets the following criteria:	**UNSUITABLE LAND** would normally be considered as:
	Land with slopes suitable for its intended use, i.e: • Sports facilities – final slope of 1:100 • Recreation parks variable but usually with 75% between flat and 1:10 maximum slope	Steeply sloping land; or
		Land used as a separation or buffer area to any transport corridor, industrial or commercial use; or
	Well drained land above the 1:5 Average Recurrence Interval level (Q5 flood level) with at least 10% above the 1:100 ARI level or the highest known flood level, whichever is the greater; and	Power easements (Council may consider the use of such land as a linear link for walking, cycling or other transport network); or
		Land encumbered by any other infrastructure distribution network that may limit park development opportunities or present a hazard to users; or
	Contaminated land where the levels of all contaminants are below the appropriate Environmental Protection Agency (EPA) threshold levels, and an approved Site Management Plan and Suitability Statement have been issued, by the EPA, for the intended use.	Land affected by chemical contaminants, soil stability problems or hazardous substances presenting a hazard to users; or
		Land containing other hazards that pose a risk to users.
	Should satisfy the requirements contained in the Noosa Plan, Sections 14.155 (Open Space and Road Reserves), 14.156 (Environmental Protection and Conservation), and 14.196 (Open Space).	

QUALITATIVE STANDARDS (continued)																					
ITEM	**SPECIFICATION OBJECTIVES & STANDARDS**																				
Typical Facility Provisions for Sport & Recreation Parks	**Park Setting* / Park Type***	**Typical Level of Embellishment**																			
		Roads (Internal)	**Parking**	**Fencing / bollards**	**Paths (walking & cycling)**	**Landscape Rehabilitation**	**Lighting**	**Toilets**	**Seating**	**Shelter / Shade Structure**	**Play Facilities**	**Tap / bubbler**	**BBQ Facilities**	**Rubbish bins**	**Camping Facilities**	**Boat Launching**	**Club Facilities**	**Change Rooms**	**Sporting Fields / Facilities**	**Irrigation**	**Information (e.g. signage)**
	Natural Settings*																				
	Recreation Parks	?	>	?	?	>	?	?	?	?	?	?	?	?	?	?					?
	Semi-Natural Settings*																				
	Recreation Parks	?	>	?	>	>	?	?	?	?	?	?	>	?	?	?	?	?	?	?	?
	Sports Parks	?	>	>	>	>	?	>	?	?	?	?	?	?	?	>	>		>	?	>
	Semi-Developed Settings*																				
	Local Recreation Parks	?	?	?	?	>	?	?	?	?	?	?	?	?	?	?					?
	District / Town Recreation Parks	?	>	>	>	>	?	>	>	>	>	>	>	>	?	?	?	?			>
	Shire-Wide Recreation Parks	?	>	>	>	>	?	>	>	>	>	>	>	>	?	?	?	?			>
	District / Town Sports Park	?	>	>	?	>	>	>	>	>	?	>	>	>	?	?	>	>	>	?	>
	Shire-Wide Sports Park	>	>	>	?	>	>	>	>	>	?	>	>	>	?	?	>	>	>	?	>
	Developed Settings*																				
	Local Recreation Parks	?	?	?	?	>	?	?	>	>	>	>	?	>	?	?	?	?			>
	District / Town Recreation Parks	?	>	>	>	>	?	>	>	>	>	>	>	>	?	?	?	?			>
	Shire-Wide Recreation Parks	>	>	>	>	>	?	>	>	>	>	>	>	>	?	?	?	?			>
	District / Town Sports Park	>	>	>	>	>	>	>	>	>	?	>	>	>	?		>	>	>	>	>
	Shire-Wide Sports Park	>	>	>	>	>	>	>	>	>	?	>	>	>	?		>	>	>	>	>
	Key to symbols: > = normally provided; ? = not normally provided; ? = may be provided if appropriate &/or essential; Blank = not applicable																				

*** NOTE:** All terms relating to Predominant Land Use, Park Type, Park Hierarchy and Park Settings have the qualifications as defined in the "Noosa Park Strategy – January 2006".