Byford Traditional Infrastructure Development Contribution Plan Report No.1

Prepared by Shire of Serpentine Jarrahdale

December 2013
(E13/4575)

APPENDICES:

1 Introduction

1.1 Background

The Byford development area is located within the Shire of Serpentine Jarrahdale, and is generally bound by Thomas Road to the north, the existing Byford Townsite to the east, South Western Highway to the southeast, Cardup Siding Road to the south and Hopkinson Road to the west.

The Byford District Structure Plan (DSP) has been prepared to guide the preparation of more detailed local structure plans (LSPs) facilitating subdivision and development within the Byford area. Infrastructure and land for public purposes will be required to cater for this development.

A copy of the Byford DSP Map is contained in Figure 1.

1.2 Purpose of Development Contribution Plan

Due to the existence of multiple landholdings within the Byford DSP area, the Shire has decided to prepare a development contribution plan (DCP) to share the cost of infrastructure, land and other items required to support the development of the area.

1.3 Purpose of Development Contribution Plan Report

This report has been prepared to set out in detail:

- The infrastructure, land and other items for which development contributions are to be collected.
- How land values are calculated and the valuation methodology applied.
- The cost estimates of infrastructure and other items.
- The periodic review of the cost estimates.
- The cost contribution rates applicable to individual precincts within the Byford development contribution area.
- The methodology to calculate development contributions applicable to landowners/developers and the operational aspects of the methodology.
- Principles for the priority and timing of infrastructure provision and land acquisition.
- The period of operation of the DCP.
- Various other operational matters.
- Examples of how development contributions will be calculated.

1.4 Status

This DCP Report has been prepared pursuant to Clause 10.3.10 of the Shire of Serpentine Jarrahdale Town Planning Scheme No. 2 (TPS 2).

The report should be read in conjunction with Clause 10.3 and Appendix 16A of TPS 2 and any relevant precinct-level LSP.

This DCP Report does not form part of TPS 2.

1.5 Principles

This DCP Report has been prepared pursuant to the guiding principles for development contribution plans, as set out in Clause 10.3.6 of TPS 2 and detailed below:

(a) Need and the nexus

The need for the infrastructure included in the plan must be clearly demonstrated (need) and the connection between the development and the demand created should be clearly established (nexus).

(b) Transparency

Both the method for calculating the development contribution and the manner in which it is applied should be clear, transparent and simple to understand and administer.

(c) Equity

Development contributions should be levied from all developments within a development contribution area, based on their relative contribution to need.

(d) Certainty

All development contributions should be clearly identified and methods of accounting for cost adjustments determined at the commencement of a development.

(e) Efficiency

Development contributions should be justified on a whole of life capital cost basis consistent with maintaining financial discipline on service providers by precluding over recovery of costs

(f) Consistency

Development contributions should be applied uniformly across a development contribution area and the methodology for applying contributions should be consistent.

(g) Right of consultation and review

Owners have the right to be consulted on the manner in which development contributions are determined. They also have the opportunity to seek a review by an independent third party if they believe the calculation of the costs of the contributions is not reasonable.

(h) Accountable

There must be accountability in the manner in which development contributions are determined and expended.

1.6 Area of Operation

The DCP Report applies to the Byford development contribution area (DCA) (see Figure 2), as indicated on the TPS 2 Scheme Maps and detailed within Part 10 of TPS 2.

1.7 Strategic Basis

The Byford DSP guides the preparation of LSPs, which in turn facilitate the eventual subdivision and development of land within Byford. This subdivision and development necessitates the provision of new and upgraded infrastructure, land for public open space and drainage purposes. In this context, the Byford DSP forms the strategic basis for the DCP Report.

Figure 1 – Byford District Structure Plan Map

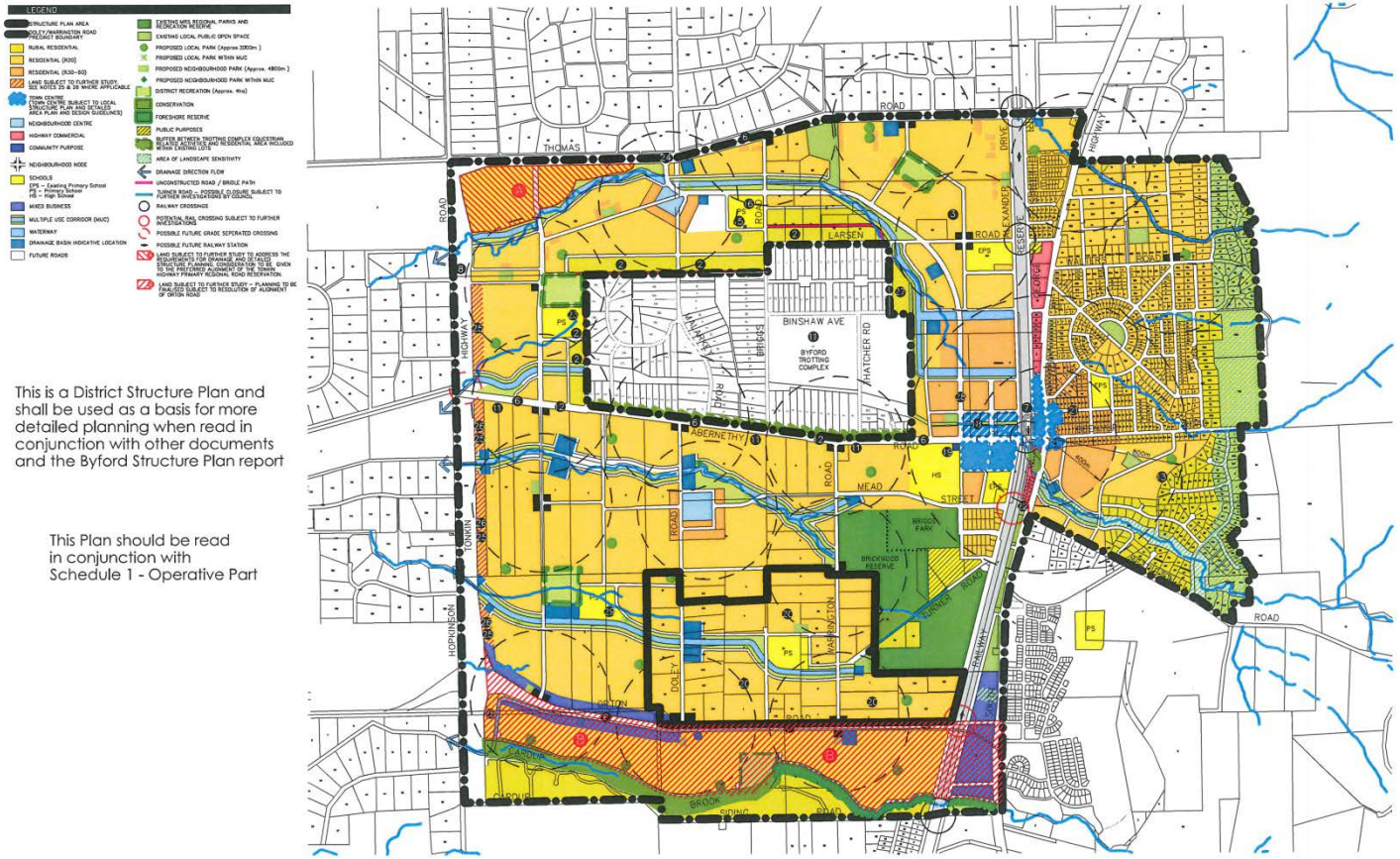

FIGURE 1: BYFORD DISTRICT STRUCTURE PLAN

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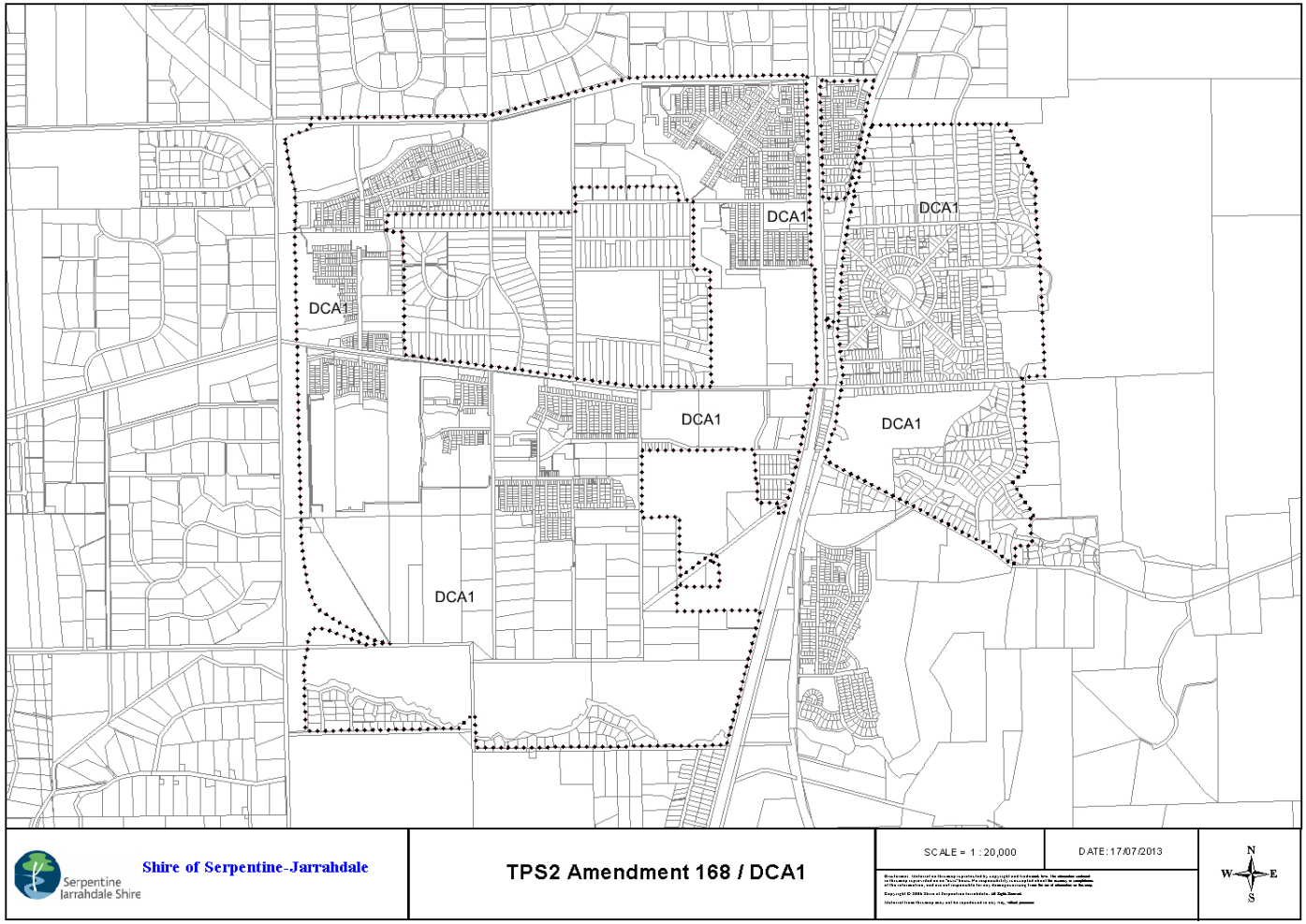
Figure 2 – Byford Development Contribution Area



2 Infrastructure, Land and Other Items

This section of the DCP Report identifies the infrastructure, land and other items for which development contributions will be collected in Byford. These items include:

- District distributor and local roads playing a district function;
- Land for public open space and drainage;
- Land for district open space and drainage;
- Water monitoring costs; and
- Administration costs.

2.1 Land Value

Many of these items include a land component. To determine the total cost of the items, an estimate of land value therefore needs to be identified. This rate for the purpose of calculating the value of land for public open space, drainage and infrastructure in June 2013, is $475,000 per hectare. This estimate is based on valuation advice for an indicative R20 zoned 5 hectare unimproved lot within the Byford DSP area.

Pursuant to Clause 10.3.11 of TPS 2, the cost estimate land value will be reviewed at least annually.

For the purposes of TPS 2 s.10.3 and Appendix 16A and this DCP Report, one englobo land value will apply to the entire Byford development contribution area, irrespective of precinct or structure plan classification, for the purpose of establishing the cost estimate allowance for land.

The net land value is to be determined in accordance with the definition of "value" in TPS 2 s.10.3.12 and having general regard to the International Valuation Standards Committee's definition of market value as adopted by the Australian Property Institute. To account for the direct transfer of land, the fair market value should be discounted by standard marketing costs including fees, commissions and advertising costs and by the prevailing DCP contribution liability which otherwise would have applied to the land.

2.2 Roads

The upgrading, construction and land acquisition of the following roads is included within the DCP:

- Thomas Road;
- Abernethy Road;
- Orton Road New;
- Kardan Boulevard;
- San Simeon Boulevard;
- Doley Road; and

- Warrington Road.

Figure 3 provides a graphical representation of the general extent to which the roads will be upgraded and/or constructed through the DCP.

Figure 3 – Road to be upgraded and/or constructed through DCA1 (including traffic control devices)

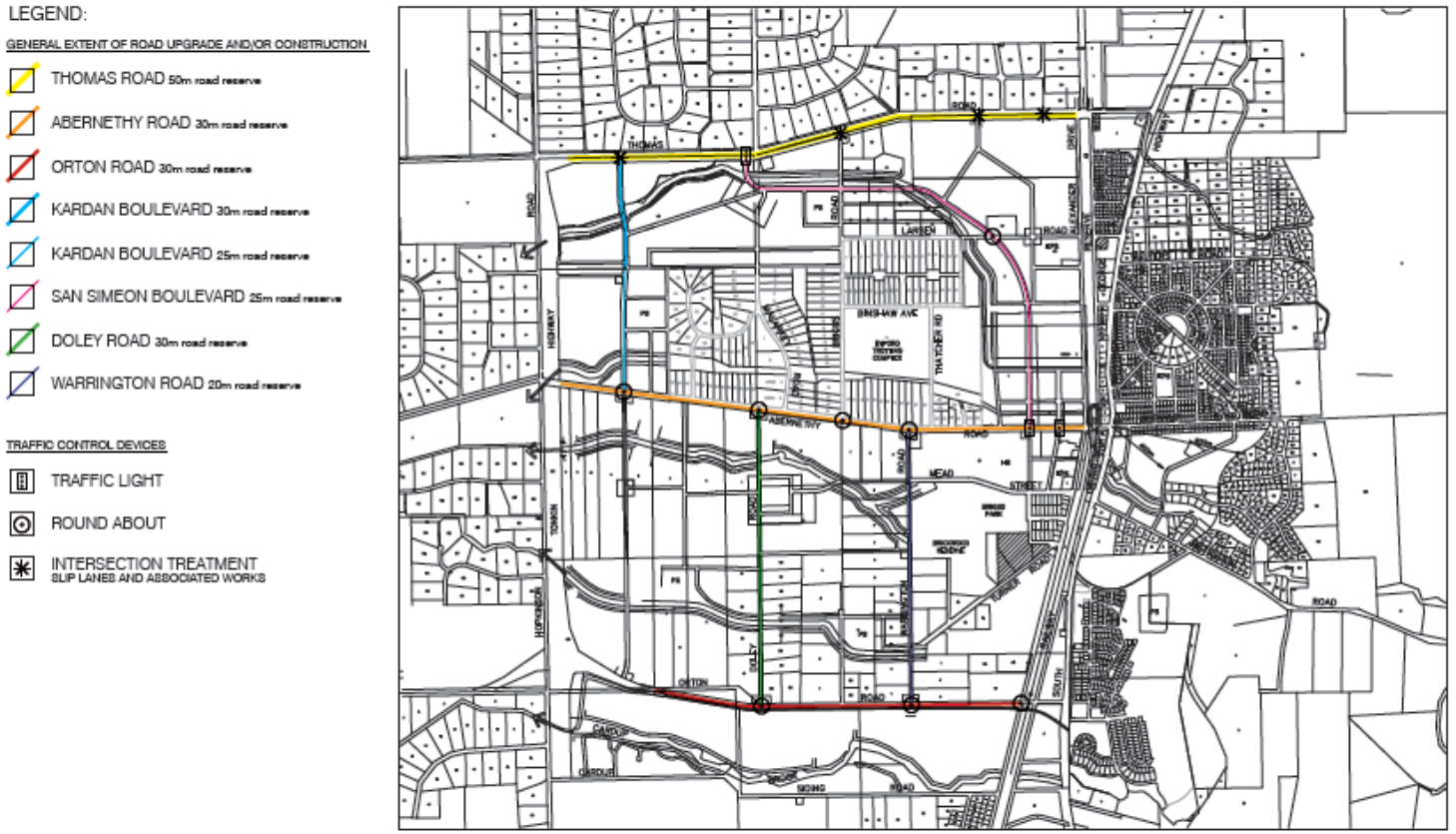


FIGURE 3: ROADS TO BE UPGRADED AND/OR CONSTRUCTED THROUGH THE DEVELOPMENT CONTRIBUTION ARRANGEMENT (AND TRAFFIC CONTROL DEVICES)

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2.2.1 Thomas Road – District Distributor

Thomas Road borders a significant portion of the Byford DSP area to the north. Under the Metropolitan Region Scheme (MRS), the road is reserved as an Other Regional Road and is identified as a district distributor. The portion of Thomas Road abutting the Byford DSP is under control of the Shire.

The road currently exists, but will require changes in width, alignment and configuration to support development envisaged under the DSP.

The width of the Thomas Road reserve will be 50m.

The upgrade of Thomas Road will occur between the Tonkin Highway Metropolitan Region Scheme (MRS) Primary Regional Road Reserve and the railway reserve to the east. The detailed design of Thomas Road is currently being undertaken.

In accordance with State Planning Policy No. 3.6 – Development Contributions for Infrastructure (SPP 3.6), the following items are included within the Development Contribution Plan (DCP) for Thomas Road:

- Land required to achieve a 50 metre wide road reserve;
- Earthworks for the unconstructed carriageway;
- The construction and upgrade of one carriageway;
- Associated drainage works including water sensitive urban design measures;
- Traffic control devices including the following intersection treatments:
  - (a) Kardan Boulevard – construction of a channelised intersection, slip lanes and associated works;
  - (b) San Simeon Boulevard – full cost of signalisation;
  - (c) Plaistowe Boulevard – construction of channelised intersection slip lanes and associated works; and,
  - (d) Briggs Road – construction of channelised slip lanes and associated works.
- Shared paths;
- Utility removal, relocation and insertion; and
- Associated costs including design and management.

The total cost for Thomas Road is estimated at $12,857,446 including land costs of $586,625. A detailed breakdown of the costs is provided in Appendix A. A cost offset of $8,005,800 has been estimated as a contribution from MRWA. It is recognised this figure is subject to change.

The following items are not included in the DCP for Thomas Road:

- Modifications to the current railway crossing configuration, as this may change in the future when detailed planning is undertaken by the Public Transport Authority for the future electrification of the railway line to Byford;
- Any upgrades to Thomas Road east of the railway crossing up to the dual carriageway near South Western Highway; and

- Any intersection treatment with Tonkin Highway. Tonkin Highway is a Primary Regional Road under the MRS and is a responsibility of Main Roads.

2.2.2 Abernethy Road – Local Road

Abernethy Road is located centrally within the Byford DSP area, providing an east-west connection and linking in with the proposed expansion of the Byford Town Centre. Abernethy Road is a Shire controlled road and is not reserved under the MRS. The existing state of Abernethy Road is rural in nature, with a narrow single carriageway allowing for one lane in either direction. The road is not proposed to provide a direct connection to the future extension of Tonkin Highway and will ultimately become a cul-de-sac at this point.

The width of Abernethy Road will generally be 30m.

The upgrade of Abernethy Road will occur between the Tonkin Highway MRS Primary Regional Road reserve and the railway crossing to the east. The portion of Abernethy Road adjacent to the Byford Trotting Complex will have half the cost of road widening, construction and upgrade borne by the DCP. The portion of Abernethy Road between Kardan Road and the cul-de-sac at Tonkin Highway will be retained as a single carriageway.

In accordance with SPP 3.6, the following items are included in the DCP for Abernethy Road:

- Land required to achieve a road reserve up to 30 metres in width;
- Earthworks for the whole road reserve;
- Complete road construction based on a single lane split carriageway with central median;
- Associated drainage works including water sensitive urban design measures;
- Traffic control devices including the following intersection treatments:
  - (a) San Simeon Boulevard – full cost of signalisation;
  - (b) Kardan Boulevard – full cost of roundabout;
  - (c) Doley Road – full cost of roundabout;
  - (d) Briggs Road – full cost of roundabout; and,
  - (e) Warrington Road – full cost of roundabout.
- Shared paths;
- Utility removal, relocation and insertion; and
- Associated costs including design and management.

The total DCP cost for Abernethy Road, given the Shire's decision to allocate proportionate costs against the future development of the Byford Trotting Complex for that section of Abernethy Road fronted by the trotting complex, is estimated at $12,914,765 including land cost of $1,258,750. A detailed breakdown of the costs is provided in Appendix B. A cost offset of $725,250 has been received as a contribution from MRWA.

The following items are not included in the DCP for Abernethy Road:

- Minor intersections treatments into Abernethy Road from the adjoining subdivisional road network. These will be subject to a standard truncation requirement;
- In accordance with normal subdivision cost apportionment, half the cost share associated with the portion of road adjacent to the Byford Trotting Complex is excluded from the DCP as it is the responsibility of future development within the Trotting Complex. The excluded 50% cost share includes the land for widening, earthworks, drainage, construction and associated works.
- Modifications to the current railway crossing configuration; as this may change in the future when detailed planning is undertaken by the Public Transport Authority for the future electrification of the railway line to Byford; and

2.2.3 Orton Road New – Local Road

Orton Road New is located in the southern portion of the DSP area, currently running east-west between Hopkinson Road and Warrington Road. Orton Road New is a Shire controlled road and is not reserved under the MRS.

The existing state of Orton Road New is rural in nature, with a narrow single carriageway allowing for one lane in either direction. The Byford DSP indicates that the road is to be realigned to the west of Doley Road and be extended from Warrington Road to Soldiers Road. Other changes to the alignment of the road are proposed towards Tonkin Highway where the road is proposed to connect into Tonkin Highway.

The width of Orton Road New will be up to 30m.

The upgrade and construction of Orton Road New will occur between the Tonkin Highway MRS Primary Regional Road reserve and Soldiers Road. The costs of the land for the Orton Road reserve will take account of the existing road reserve where possible.

In accordance with SPP 3.6, the following items are included in the DCP for Orton Road New:

- Land required to achieve a road reserve up to 30 metres in width;
- Earthworks for the whole road reserve;
- Complete road construction based on a single lane split carriageway with central median;
- Associated drainage works including water sensitive urban design measures;
- Traffic control devices including the following intersection treatments:

  (a) Doley Road – full cost of roundabout;

  (b) Warrington Road – full cost of roundabout; and,

  (c) Soldiers Road – full cost of roundabout.
- Shared paths;

- Utility removal, relocation and insertion; and
- Associated costs including design and management.

The total cost for Orton Road New is estimated at $14,172,882 including land costs of $1,049,750. A detailed breakdown of the costs is provided in Appendix C.

The following items are not included in the DCP for Orton Road New:

- Minor intersections treatments into Orton Road New from the adjoining subdivisional road network. These will be subject to a standard truncation requirement; and
- Any intersection treatment with Tonkin Highway. Tonkin Highway is a Primary Regional Road under the MRS and is a responsibility of Main Roads WA.

2.2.4 Kardan Boulevard – Local Road

Kardan Boulevard is located in the north-west portion of the DSP area, providing a north-south connection between Thomas Road and Abernethy Road and. Construction of the road is proposed under the Byford DSP as it will provide an important connection for district traffic and public transport movements.

In light of Kardan Boulevard's role, the Shire has, subject to final design, required a road width of 25 metres from Abernethy Road to Fawcett Road and 30 metres from Fawcett Road to Thomas Road.

The construction of Kardan Boulevard will occur between Thomas Road and Abernethy Road.

In accordance with SPP 3.6, the following items are included in the DCP for Kardan Boulevard:

- Land required over and above a standard 20 metre road reserve width to achieve a road reserve up to 30 metres in width;
- Earthworks for the whole road reserve;
- Complete road construction based on a single lane split carriageway with central median;
- Associated drainage works including water sensitive urban design measures;
- Shared paths;
- Utility removal, relocation and insertion; and
- Associated costs including design and management.

The total cost for Kardan Boulevard is estimated at $6,980,607 including land costs of $468,350. A detailed breakdown of the costs is provided in Appendix D.

The following items are not included in the DCP for Kardan Boulevard:

- Minor intersections treatments into Kardan Boulevard from the adjoining subdivisional road network. These will be subject to a standard truncation requirement;

- Land required to achieve a standard 20m road reserve, which will be ceded free of cost as part of the subdivision process.

2.2.5 San Simeon Boulevard – Local Road

San Simeon Boulevard is located in the northern portion of the DSP area, providing a northwest-southeast connection between Thomas Road and Abernethy Road. The road is also commonly referred to as the Thomas Road deviation and is identified in the DSP. San Simeon Boulevard will play an important district role by providing a direct connection for residents and traffic into the Byford Town Centre. The road will provide a direct access option to and from the Town Centre and assist in limiting vehicle movements through the Byford Trotting Complex.

In light of San Simeon's role, the Shire, subject to final design, has required a road width of 22.5 metres from Thomas Road to Larsen Road and 27.5 metres from Larsen Road to Abernethy Road. The 22.5 metre road reserve is proposed in areas adjacent to public open space and 27.5 metre in built up areas (i.e. the proposed town centre).

The construction of San Simeon Boulevard will occur between Thomas Road and Abernethy Road.

In accordance with SPP 3.6, the following items are included in the DCP for San Simeon Boulevard:

- Land required over and above a standard 20m road reserve width to achieve a road reserve up to 30 metres in width;
- Earthworks for the whole road reserve;
- Complete road construction based on a single lane split carriageway with central median;
- Traffic control devises including the following intersection treatments:

  (a) Larsen Road – full cost of roundabout; and,

  (b) Byford Town Centre main street – full cost of roundabout.
- Associated drainage works including water sensitive urban design measures;
- Shared paths;
- Utility removal, relocation and insertion; and
- Associated costs including design and management.

The total cost for San Simeon Boulevard is estimated at $13,518,885 including land cost of $1,041,200. A detailed breakdown of the costs is provided in Appendix E.

The following items are not included in the DCP for San Simeon Boulevard:

- Minor intersections treatments into San Simeon Boulevard from the adjoining subdivisional road network. These will be subject to a standard truncation requirement;
- Land required to achieve a standard 20m road reserve, which will be ceded free of cost as part of the subdivision process.

2.2.6 Doley Road – Local Road

Doley Road is located in the southern portion of the DSP area, providing a north-south connection between Abernethy Road and Orton Road New. Doley Road will play an important district role by providing vehicle access into the proposed local centre, which will cater for a wide catchment population. The Road is identified in the Byford DSP.

In light of this role, the Shire has, subject to final design, required a road width of 30m for Doley Road.

The construction of Doley Road will occur between Abernethy Road and Orton Road New.

In accordance with SPP 3.6, the following items are included in the DCP for Doley Road:

- Land required to achieve a road reserve up to 30 metres in width;
- Earthworks for the whole road reserve;
- Complete road construction based on a single lane split carriageway with central median;
- Associated drainage works including water sensitive urban design measures;
- Shared paths;
- Utility removal, relocation and insertion; and
- Associated costs including design and management.

The total cost for Doley Road is estimated at $10,893,310 including land cost of $831,250. A detailed breakdown of the costs is provided in Appendix F.

The following items are not included in the DCP for Doley Road:

- Minor intersections treatments into Doley Road from the adjoining subdivisional road network. These will be subject to a standard truncation requirement;
- Land required to achieve a standard 20m road reserve, which will be ceded free of cost as part of the subdivision process.

2.2.7 Warrington Road – Local Road

Warrington Road is located in the southern portion of the DSP area, providing a north-south connection between Abernethy Road and Orton Road New. The Road is identified in the Byford DSP and passes through an area of highly fragmented landownership. Warrington Road has been included within the Byford DCP to ensure a coordinated upgrade catering for increased traffic volumes.

The width of Warrington Road, subject to final design, will be 20 metres thus not requiring additional land for road widening.

The upgrade and construction of Warrington Road will occur between Abernethy Road and Orton Road New.

In accordance with SPP 3.6, the following items are included in the DCP for Warrington Road:

- Earthworks for the whole road reserve;
- Complete road construction based on an undivided single carriageway;
- Associated drainage works including water sensitive urban design measures;
- Shared paths;
- Utility removal, relocation and insertion; and
- Associated costs including design and management.

The total cost for Warrington Road is estimated at $6,688,693. A detailed breakdown of the costs is provided at Appendix G.

The following items are not included in the DCP for Warrington Road:

- Minor intersections treatments into Warrington Road from the adjoining subdivisional road network. These will be subject to a standard truncation requirement;
- Any land required to achieve a standard 20m road reserve, which will be ceded free of cost as part of the subdivision process or use of the existing road reserve.

2.2.8 Contingencies

Due to the civil construction industry being subject to cost variations due to capacity constraints and cost of materials changes, estimated costs generally include cost contingencies. The degree of contingency applied to each item relies on the level of works design, scale of works and other industry factors.

For a particular road, different contingency rates might apply to different cost items.

For road costs, generally a contingency of 10% to 20% will be applied. It is recognised the amount of contingency required is reduced by the use of cost escalators between each review. Reducing the contingency rate by half the applicable escalator rate is appropriate between cost reviews.

2.2.9 Road Items Not Included

Road Reserve Improvements

The amenity of urban areas can be substantially enhanced through public realm improvement works such as vegetation, hard landscaping, public art and higher design standards of infrastructure. Road reserves provide significant opportunities for amenity enhancement, especially in the case of wider reserves such as distributor roads and in the instance of split-carriageways.

Within the DSP area, Thomas Road, Abernethy Road, Orton Road New and the other distributor roads have the ability to incorporate significant improvement works.

There is, however, not a clear nexus between development in a new urban area and its associated increase in traffic, and the need for general road reserve improvements.

Nonetheless, it should be noted most developers undertake works to provide attractive streetscapes as a marketing feature, especially in the context of distributor and connector roads leading into new estates. As such, road reserve improvements, such as hard and soft landscaping and higher design standards of infrastructure, are not included in the DCP.

2.3 District Open Space Improvements

The Shire's Community Facilities and Services Plan (CFSP) states the playing fields required by the community ultimately will need to be provided with field lighting for training purposes, club storage areas, spectator toilets, and in some instances change room facilities complete with umpires and first aid rooms, and clubrooms for clubs to enable them to operate effectively.

These facilities will cater for the rapid growth in population and in memberships with local sporting clubs that are in need of new facilities. An area of district open space has been provided by developers in Byford Central for junior sporting use. Another senior sized playing field is being developed in the West Byford Primary School/ Kalimna District Open Space for which a Joint Use Agreement (JUA) has been negotiated. The Byford Primary School / Glades District Open Space will also provide a senior sporting field for which a Joint Use Agreement is required.

Another JUA also will need to be negotiated between the Shire, the Department of Education and the Catholic Education Office for the State High School and the Catholic K-12 School just north of the Recreation Centre. It is likely that at least two, senior sized (165m x 135m), AFL playing fields will be located on these sites along with two Hockey/Soccer/Rugby Pitches. Community consultation has identified the need for playing fields to be designed to cater for codes that are not yet operating in the Shire (such as Soccer, Hockey, and Rugby). This will require the playing fields to be larger than standard size to allow for the different dimensions of different sporting code's playing fields.

The rational for pursuing JUAs is that there are significant economies of scale and efficiencies involved which will allow schools to become a focal point for the community.

The partial construction of the District Open Space (DOS) facilities on land acquired by the DCP is included within the DCP at the following sites:

- Byford Central DOS (Soccer);
- Kalimna DOS (senior AFL oval); and
- The Glades DOS (senior AFL oval).

The scope of construction included in this DCP is confined to land and below surface works including drainage, irrigation and grassing. Further above ground works will be included in the Shire's proposed Community Infrastructure DCP.

Figure 4 – District Open Space to be improved and/or constructed through the DCP

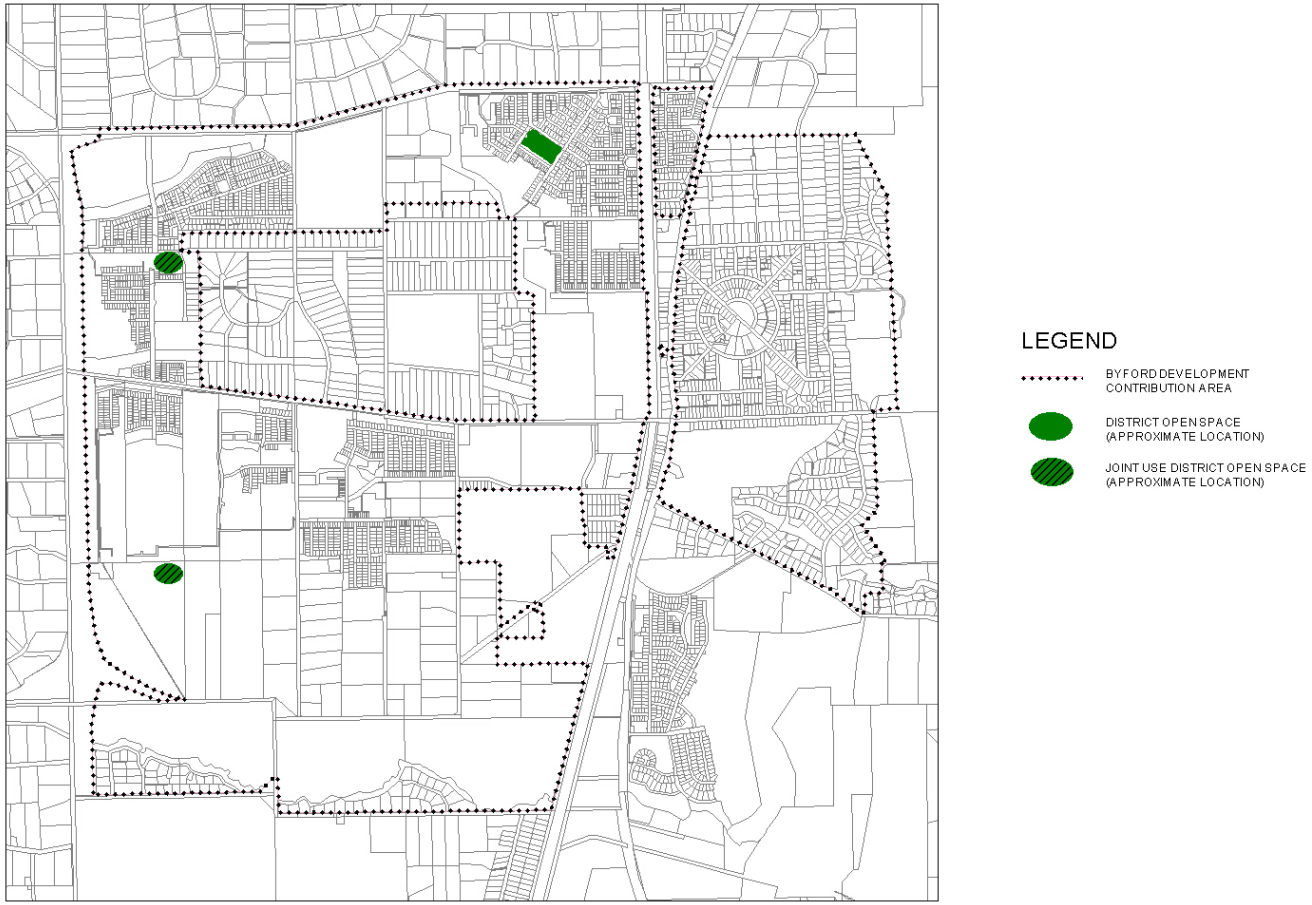


FIGURE 4: DISTRICT OPEN SPACE DEVELOPMENT

2.3.1 Byford Central District Open Space (Soccer)

The Byford Central DOS is too small for AFL competition (senior or junior) however it is the correct size for Soccer. The Youth strategy survey found that 19% of the respondents played soccer. There is a keen interest in Soccer within the Shire, however, this interest has not developed into sporting teams possibly due to the lack of volunteers and appropriately sized fields.

The following items are included in the DCP:

- Earthworks;
- Grassing;
- Irrigation; and
- Associated costs relating to construction including design and management.

The total cost for Byford Central DOS (Soccer) eligible works is estimated at $1,119,284. The cost estimate is based on actual costs escalated to July 2013. This oval is not associated with a school facility. A detailed breakdown of the costs is provided in Appendix H.

Figure 5 - Byford Central District Open Space (Soccer)

Figure 5 : Byford Central District Open Space

2.3.2 The West Byford Primary School/ Kalimna District Open Space Oval (Senior AFL)

This will be a full sized AFL Oval (165m / 135m) partially located on Department of Education land and will be subject to a JUA. The JUA shares the cost of developing the oval between the Shire and the Department of Education.

As with all clubs, the Centrals Senior and Junior Clubs are experiencing rapid growth in their playing membership due to the rapid population increase brought on by new developments. Based on figures provided by the club, the juniors are projected to add two new teams each year for the foreseeable future and the seniors will also add an additional team each year. The Cricket clubs are also experiencing growth. It is because of this growth that these clubs are out-growing their existing facilities and require new facilities to be able to keep up with demand from the increasing population. According to the Youth Strategy, almost a quarter (21%) of young people played football.

The following items are included in the DCP:

- Earthworks;
- Grassing;
- Irrigation; and
- Associated costs relating to construction including design and management.

The total cost for Kalimna DOS (AFL) is estimated at $982,485 based on claimed actual costs escalated to July 2013. The DCP share will be $491,242. A detailed breakdown of the costs is provided in Appendix I.

Figure 6 - The West Byford Primary School/ Kalimna District Open Space Oval (Senior AFL)

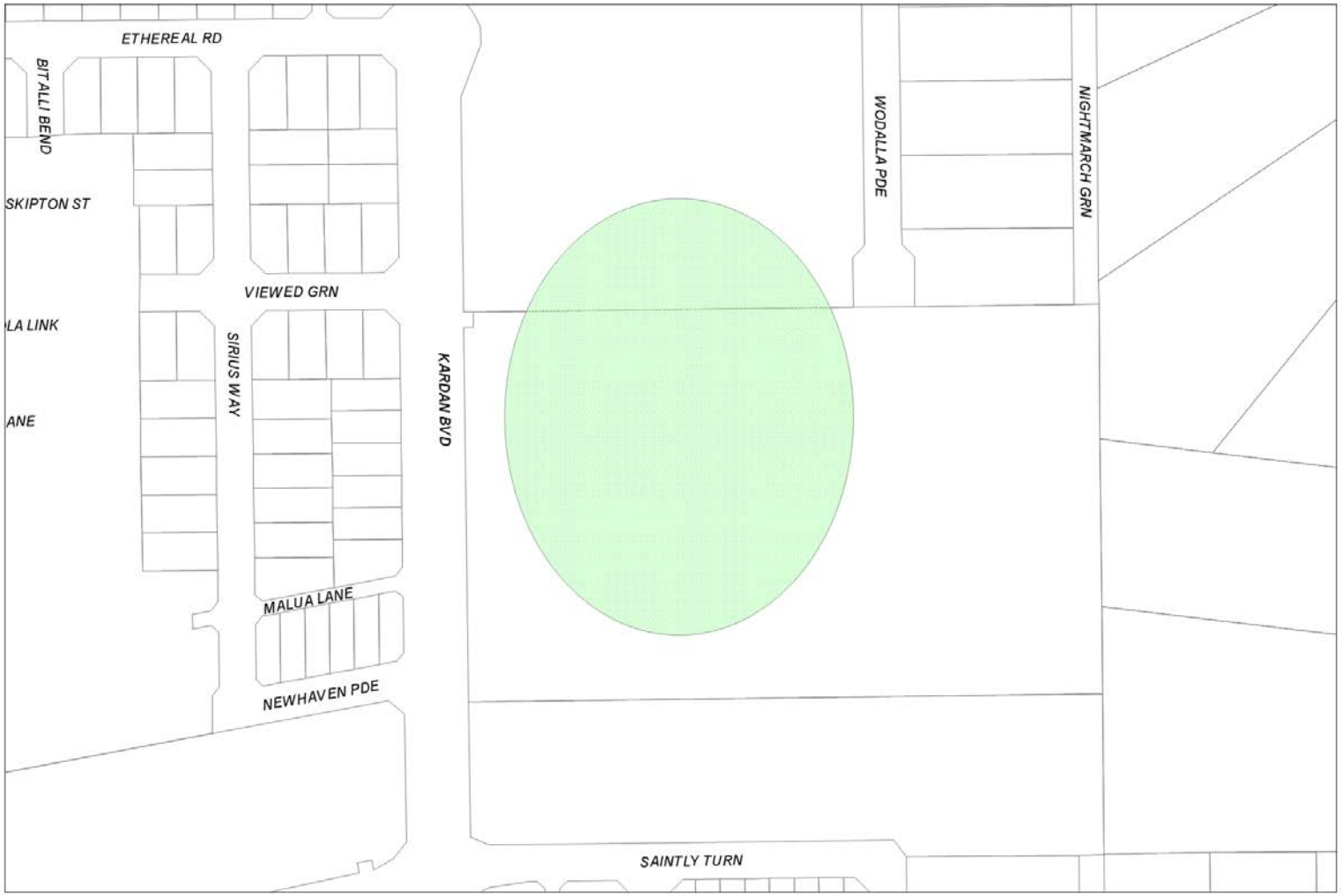


Figure 6 : Kalimna District Open Space

2.3.3 The Byford Primary School/The Glades District Open Space Oval (Senior AFL)

This will be a senior sized AFL size field which will be partially located on Department of Education land and a JUA is being negotiated. The JUA will share the cost of developing the oval between the Shire and the Department of Education.

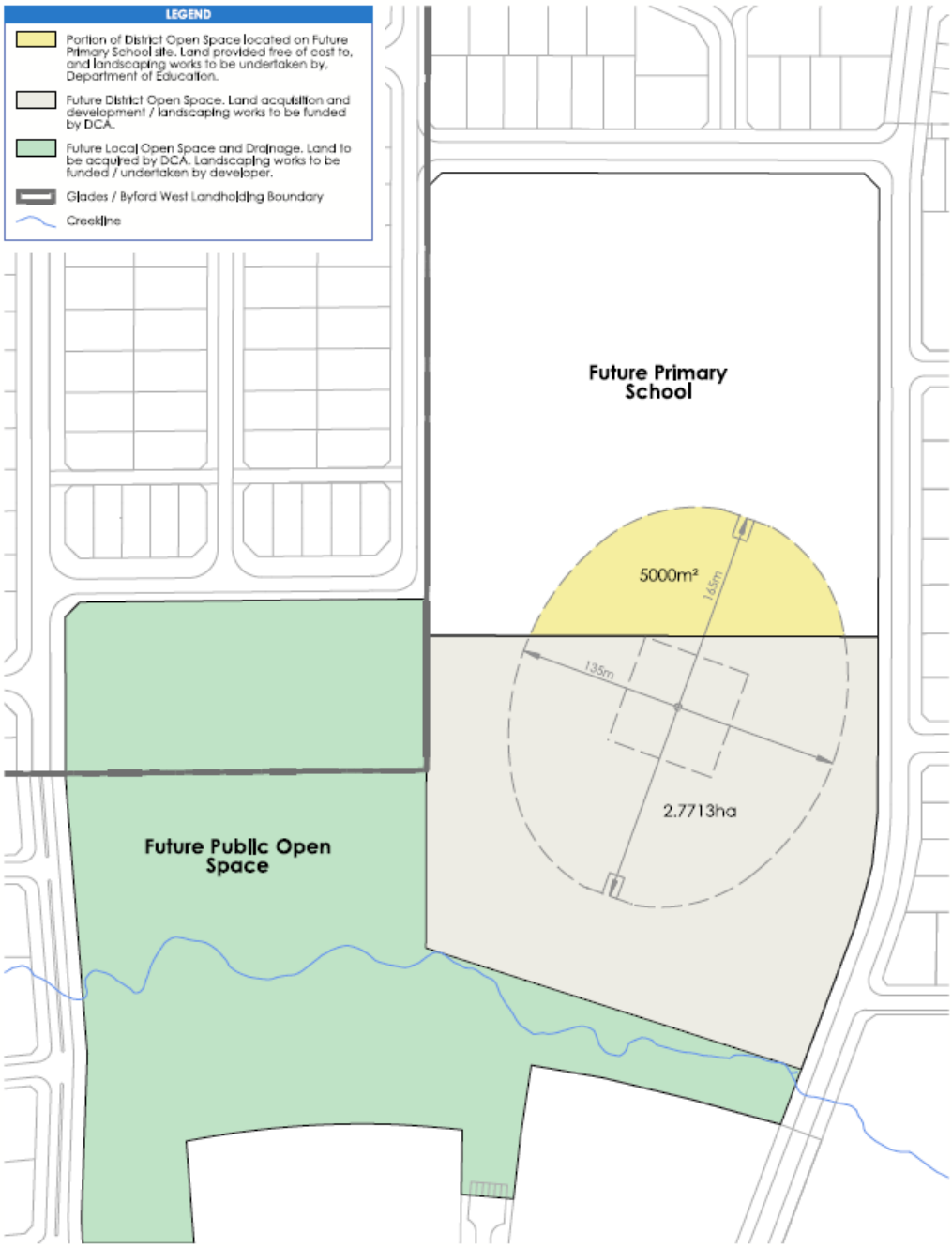
As with the revealed demand for the Kalimna DOS, The Glades is expected to experience a similar level of sporting demand.

The following items are included in the DCP:

- Earthworks;
- Irrigation;
- Grassing; and
- Associated costs relating to construction including design and management.

The costings originally estimated for The Glades DOS were based on a junior sized oval. The increase in status to a senior sized oval is assumed to result in similar costs as incurred for the Kalimna DOS. The total cost for the Byford Primary School/The Glades DOS (senior AFL sized oval) is therefore estimated at $934,161. The DCP share is assumed to be $467,080 in line with the contribution split at Kalimna. A detailed breakdown of the costs is provided in Appendix J.

Figure 7 - The Byford Primary School/The Glades District Open Space Oval (Senior AFL)



2.4 Land for Public Open Space and/or Drainage

A significant amount of land will be provided within the Byford DSP area for:

- Public open space (POS);
- District open space (DOS);
- Dual-function POS and drainage land; and
- Drainage purposes.

This land includes:

- A mix of multiple-use corridors with a dual drainage and recreation function;
- Local and neighbourhood parks;
- Larger district-level playing fields including where provided to complement school playing fields; and
- Land purely for drainage purposes.

In the context of planning undertaken for Byford, it is difficult in many instances to clearly identify and distinguish between land required for recreation and land required for drainage. This is due to:

- The existence of multiple-use corridors and other POS entailing a dual drainage and recreation function.
- Numerous LSPs being prepared based on different POS credit calculation methodologies based on different versions of Liveable Neighbourhoods.
- Deposited plans of subdivision being endorsed containing combined reserves for drainage and recreation.
- Early structure planning and subdivision being based on the adopted Byford Urban Stormwater Management Strategy. This Strategy has now been replaced with the Byford Townsite Drainage and Water Management Plan, that is guiding more recent LSPs and subdivision applications.

To ensure compliance with Clause 10.3.6 of TPS 2, all land required for public open space and drainage is included in the DCP. This will ensure transparency, equity in terms of land required for district benefit and simplicity of calculation.

Land for DOS and POS & Drainage and associated costs is contained in Appendix K.

2.4.1 Estimated Amount of Land for POS and Drainage

A significant amount of detailed planning has been completed for the Byford DSP area, in the form of LSPs. This level of planning allows for the specific identification of land areas required for drainage and/or POS. More recently the finalisation of the Byford Town Centre has identified additional land for drainage between South West Highway and George Street and to the east of the high school site.

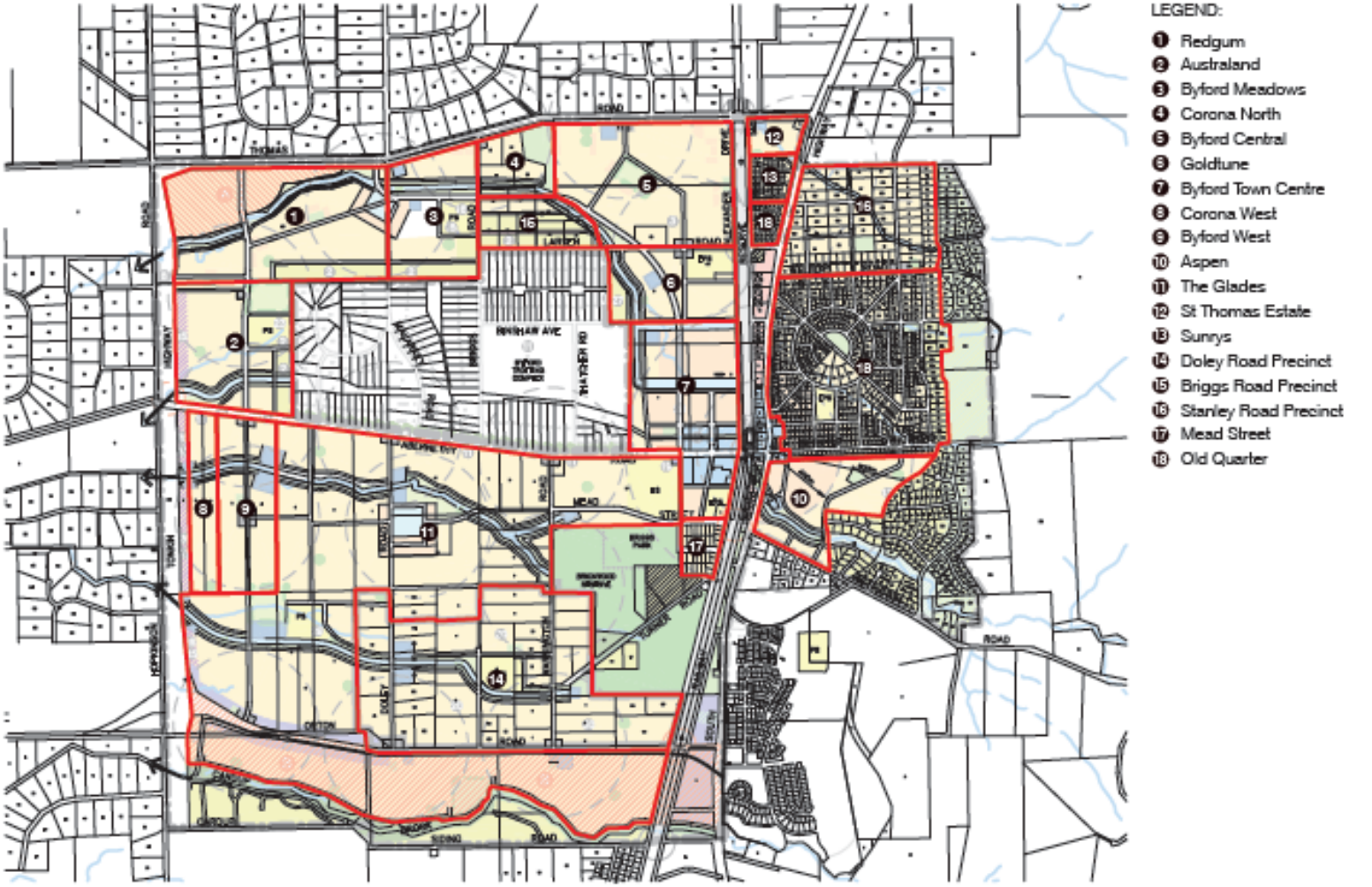
There are however several areas within Byford which have not yet been subject to the preparation of LSPs, including the Doley Road, Mead Street, Briggs Road and Stanley Road areas (see Figure 8). To ensure that appropriate funds are collected to allow for the future purchase of land required for public open space and drainage within these areas, it has been necessary to determine an estimated amount for each precinct.

The following methodology has been applied:

1. A review of LSPs and spatial data has been undertaken to identify the total amount of land covered by each LSP and the total amount of land required for POS and drainage.
2. From these totals, the percentage of land required for POS and drainage has been calculated.
3. Spatial data has been used to identify the total land area of areas in Byford for which LSPs have yet to be prepared.
4. The percentage identified in step 2 has then been applied to the total identified in step 3 to generate an estimated amount of land required for POS and drainage in these areas.
5. The POS and drainage land areas identified in step 1 and step 4 are then added to identify a total estimate of land required for POS and drainage within Byford DCA1.

Based on this methodology, it has been estimated that 116.0127 ha of land will be required for POS and drainage in the Byford DCP.

Figure 8 – Local Structure Plan Areas and Areas Not yet Subject to a LSP



The following tables provide a detailed breakdown of the calculations:

Local Structure Plan Area	Total Site Area (ha)	Public Open Space Land (ha)	Source
Redgum North & South	68.5500	10.8000	LSP Mar 2010 & LSP Apr 2005
Kalimna	52.6424	5.5800	LSP Oct 2008
Byford Meadows	29.4000	2.1000	LSP Jun 2010
The Reserve	8.7759	1.6800	LSP Oct 2009
Byford Central	65.000	3.8566	LSP Jan 2006
Goldtune	28.8500	5.8500	LSP Jun 2009
Byford Town Centre	78.5700	8.0675	LSP Apr 2013
Grange Meadows	16.6000	1.6000	LSP Apr 2010
Byford West	31.5600	4.0700	LSP Mar 2010
Aspen	32.3000	3.8000	LSP Oct 2009
The Glades	329.4532	43.4087	LSP Jul 2009
St Thomas Estate	5.4582	1.1868	DP 57070
Sunrays	6.3500	0.4400	GIS
Total	**753.5097**	**92.4396**	
Percentage of POS to Total Site Area		**12.27 %**	

Non-Structure Planned Areas	Total Site Area (ha)	Estimated Public Open Space Land (ha)	Applied % for Estimate
Doley Road Precinct	119.7200	14.6896	12.27 %
Briggs Road Precinct	18.7700	2.3031	12.27 %
Stanley Road Precinct	48.8300	5.9914	12.27 %
Mead Street	4.8000	0.5890	12.27 %
Total	**192.1200**	**23.5731**	

Total POS and Drainage Land Area		**116.0127**	

Notes:

- The St Thomas Estate and Sunrays sites were not subject to LSPs. POS and drainage land calculations were therefore undertaken on the basis of spatial data.
- The existing Byford Townsite (DCP Precinct C) is not subject to POS and drainage land contributions and has therefore not been included in the above calculations. Precinct C is, however, subject to DOS land obligations.
- Lot 7 Abernethy Road (adjacent to the proposed Tonkin Hwy reserve) is not included at this time as it is assumed that this land will be or is in the process of being purchased by Water Corporation.

2.4.2 Estimated Cost

Based upon the land value detailed in section 2.1 of this report, the total estimated cost of creditable POS in the Byford DCP is $55,106,030 as detailed in the table below:

Total estimated amount of public open space	**Land value**	**Total estimated cost**
116.0127 ha	$475,000/ha	$55,106,030

2.4.3 Items Not Included

State Policy provides a clear indication that the development of POS to a minimum standard, and maintenance for a minimum period of time, is at the developer's expense. As such, the development and initial maintenance of POS is not included within the Byford DCP and will be the responsibility of the subdivider.

In addition, land identified as having conservation value, for example Bush Forever sites, is excluded from the DCP.

It should be noted that the Shire Council has resolved not to require POS contributions from subdivision and development in the existing Byford Townsite, identified as DCP Area C on Plan 16A of Appendix 16 of TPS 2 except for land required for DOS.

While the DCP includes land for drainage purposes, it does not include drainage works themselves (i.e. earthworks, drainage infrastructure such as piping, pits, mechanical treatments, water sensitive urban design treatments or similar). These are considered to be subdivisional works, generally required by local water management strategies and urban water management plans, and are also very difficult to calculate given the varying nature of drainage infrastructure provided and proposed throughout Byford. Developers may treat drainage works in various ways to benefit their development. The requirement to provide optimal certainty in costing DCP items to achieve equity between developers over time reinforces the need to exclude drainage works. The drainage works contained within the proposed roads are permitted to be included in accordance with SPP3.6.

2.4.4 District Open Space

Land identified as District Open Space (DOS) occurs in three LSPs. These are Byford Central (2.4434 ha), Kalimna (Australand) (4.0 ha) and The Glades (2.7713ha)

The total land for DOS is 9.2147 ha. At $475,000 /ha, the budgeted cost of DOS land is $4,376,980.

2.5 Multiple Use Trails (Bridle Trails)

An extension of the existing bridle trail network in proximity to the Byford Trotting Complex is proposed under the Byford DSP.

The trails provide an important medium term function in facilitating the safe access and movement of horses in proximity to the Byford Trotting Complex and where semi-rural development abuts proposed urban development. The trails may assist in establishing an appropriate interface between semi-rural and urban development.

In addition to the functionality of rural development in close proximity to urbanisation, the trails also provide provision for future road reserves to facilitate the long term and eventual urbanisation of the Byford Trotting Complex. No time frame, planning or alike is associated with the development of the rural zoned land in proximity to the Byford Trotting Complex. The trails, therefore, facilitate future urbanisation of the Byford Trotting Complex and are thus more appropriately dealt with at that time.

There is no case shown whereby need and nexus can be established for the bridle trails to become a responsibility of the DCP and are, therefore, excluded from the DCP. Existing trails were provided as part of subdivision of land contiguous to the trotting complex and provide no benefit outside of these areas to future residents in the DSP.

2.6 Water Monitoring

The Byford Townsite Drainage and Water Management Plan (DWMP) establishes a framework for new urban development, such that established stormwater water quantity and quality design objectives can be achieved and the concerns and risks identified by the Department of Water (DoW) and the Water Corporation can be addressed. The DWMP reinforces the Shire's commitment to ensuring that water sensitive urban design principles are incorporated into new urban development.

During the course of the review of the Byford DSP in September 2006, the Water Corporation raised a number of concerns regarding regional drainage planning for the Byford area. In November 2006, a "round-table" forum was convened with the then Department for Planning and Infrastructure, DoW, the Shire and the Water Corporation to discuss regional drainage requirements and to determine an appropriate path forward. The DoW subsequently engaged consultants SKM to prepare the Byford Flood Plain Management Strategy and then later engaged consultants GHD to further progress this work in the form of a DWMP. In February 2008, a draft DWMP for Byford was released by the DoW for public comment. The DWMP was published as a final document in September 2008.

Since the publishing of the final DWMP, all LSPs, detailed area plans, subdivision and engineering drawing applications have been assessed against the water quantity and quality design objectives outlined in the DWMP.

The DWMP provides a summary of monitoring requirements and responsibilities (an extract is provided on the following page):

Responsible Agency	Timing	Monitoring Requirement
Developers	Period of 3 years pre-development (minimum of 18 months with at least 2 winters with approval of DoW)	Monitor key criteria for maintenance of hydrologic regimes, buffers and ecological corridors/linkages of environmental assets Monitor local superficial aquifer groundwater levels Monitor flow and water quality (including nutrients, TSS, and gross pollutants) at regular intervals (monthly) Monitor peak flows (snapshots) within developments and wetlands
	Period of 3 years post-development, including at least 1 year following completion of the majority (80%) of developments	Monitor key criteria for maintenance of hydrologic regimes, buffers and ecological corridors/linkages of environmental assets Monitor local superficial aquifer groundwater levels Monitor flow and water quality (including nutrients, TSS, and gross pollutants) at regular intervals (monthly) Monitor peak flows (snapshots) within developments and wetlands Monitor behavioural patterns with respect to non-structural measures for water quality management Monitor performance of new drainage systems
DoW	Ongoing	Monitor efficacy of water conservation measures and achievement of water consumption targets Monitor regional surface water flows and quality Monitor confined aquifer groundwater levels and regional superficial aquifer groundwater levels and quality Monitor groundwater abstraction in the DSP area Monitor surface water quality and flows at strategic locations in main drains and waterways Monitor structural BMPs for efficacy with advice from the BMP technical reference group Monitor performance of new drainage systems across catchments and property boundaries
SJ Shire – with funding from developer contributions scheme	From 3 years post-development	Monitor key criteria for maintenance of hydrologic regimes, buffers and ecological corridors/linkages of environmental assets Monitor local superficial aquifer groundwater levels Monitor water quality and flows within developments and wetlands Monitor behavioural patterns with respect to non-structural measures for water quality management
DEC	Ongoing	Evaluate health of significant environmental assets

Water quality and quantity monitoring within developments and wetlands will be implemented by the Shire. The draft Byford DSP Area Sampling and Analysis Plan prepared by the Shire identifies the sampling and analysis requirements. It is proposed that monitoring be carried out over the life of the DCP. There will be 5 monitoring events run over an annual period with monthly sampling. Monitoring will be completed in year 0, 4, 8, 12 and 16. Alternatively, monitoring may be carried out as a percentage of build-out (ie. 0, 25, 50, 75 and 100 percent). No monitoring has been carried out to date.

Both approaches will allow longer-term trends in water quality and quantity to be identified and monitored as the Byford DSP area is fully developed. Suitable remediation works or structural controls may be implemented to rectify any identified problems.

It is likely that subdivision and development would not be approved within the Byford area without the approval and ongoing implementation of the Byford Townsite DWMP. As such, it is considered reasonable that the all costs of, and associated with, the required water monitoring be funded by developers within Byford.

The DCP will assume funding responsibility for the post development water-monitoring program required by the Byford DWMP.

The total cost for required water monitoring is estimated at $944,547. A detailed breakdown of the costs is contained at Appendix L.

2.7 Outstanding Costs

Cost estimates relate to future works only. A cost to be recognised is the outstanding cost of completed works less contribution payments received.

Completed works cover all infrastructure works, land transfers and administration including water monitoring. The value of these works reduces the cost estimates applying to future works.

It is important to note that pre-funded works, where a credit has been given, constitute completed works. In the same vein, credits used to offset contribution payments become contribution payments received.

Outstanding costs are therefore the net of the cost of completed works less the value of paid contributions. It only will be possible to account for completed works and contributions paid after all Interim Deed credits and liabilities have been calculated following approval of this DCP Report and in accordance with LPP75.

DCP lot numbers also will be revised to account for lots developed.

2.8 Administrative Items

There is no obligation on the Shire to prepare and administer a DCP other than to support good and orderly development. The existence of a DCP is, however, important to landowners and developers where there are district level works that need to be provided as a precursor to subdivision.

Administrative items include all expended and estimated future costs associated with administration, planning and development of the Byford District Structure Plan, District Water Management Plan/s, preparation and implementation of the Byford Development Contribution Plan and any technical documents necessary for the implementation of the above, including:

Planning studies;

- Traffic studies;
- Drainage studies (including water management strategies);
- Road design costs where not allocated to specific roads;
- Other related technical and professional studies;
- Borrowing costs (including loan repayments); and
- Scheme Management Costs (including administration and management of the DCP).

Statutory planning costs are not included in the DCP except where directly benefitting the Byford DCP (for example, preparation of Amendment 168). Costs associated with Amendment 167 are not included.

The total cost for past and forecast administrative items is estimated at $4,857,067. A detailed breakdown of the costs is provided in Appendices M and N.

2.9 Total Cost

The following table provides a summary of the total cost for all infrastructure, land and other items within the DCP.

Table 2.9 Summary of Costs

Item	Cost ($)
Thomas Road	12,857,446
Abernethy Road	12,914,765
Orton Road	14,172,882
Kardan Boulevard	6,980,607
San Simeon Boulevard	13,518,885
Doley Road	10,893,310
Warrington Road	6,688,693
District Open Space – Improvements	2,073,045
Land for District Open Space	4,376,980
Land for Public Open Space & Drainage	55,106,030
Water Quality Management	944,547
DCP Administration	4,857,067
Total (Gross)	**145,384,266**
MRWA Grants for Thomas and Abernethy Roads	**8,731,050**
Total (Net)	**136,653,216**

2.10 Cost Escalators

Three cost escalators are used as described in 3.4.2. These are, namely:

2.10.1 Administration Escalation Rate (AER)

The Administration Escalation Rate (AER) is the rate at which the Western Australian Treasury Corporation (WATC) lends money to Local Government Authorities for a term of one year. For the 12 months from June 2013 the rate is 2.9%.

2.10.2 Infrastructure Escalation Rate (IER)

The Infrastructure Escalation Rate (IER) of 2.4% (2013/14 forecasts) is taken from a cost series produced by the WA Local Government Association (WALGA). The Road and Bridge Construction forecast is seen as the most appropriate index for infrastructure costs. This index is based on Construction Forecasting Council forecasts.

2.10.3 Land Value Escalation Rate (LVER)

The Land Value Escalation Rate (LVER) of 5.0% is a forecast provided by the land valuer who assessed the englobo land value rate for this Report.

3 Development Contribution Methodology

This section of the DCP Report sets out the methodology for determining the development contributions applicable within certain precincts of the Byford development contribution area. In a general sense, the development contribution area is divided into precincts and development contributions for each precinct will be made on a 'per lot' or dwelling basis. Additional detail and clarification on the operation of the methodology is provided in the following sections.

3.1 Precincts

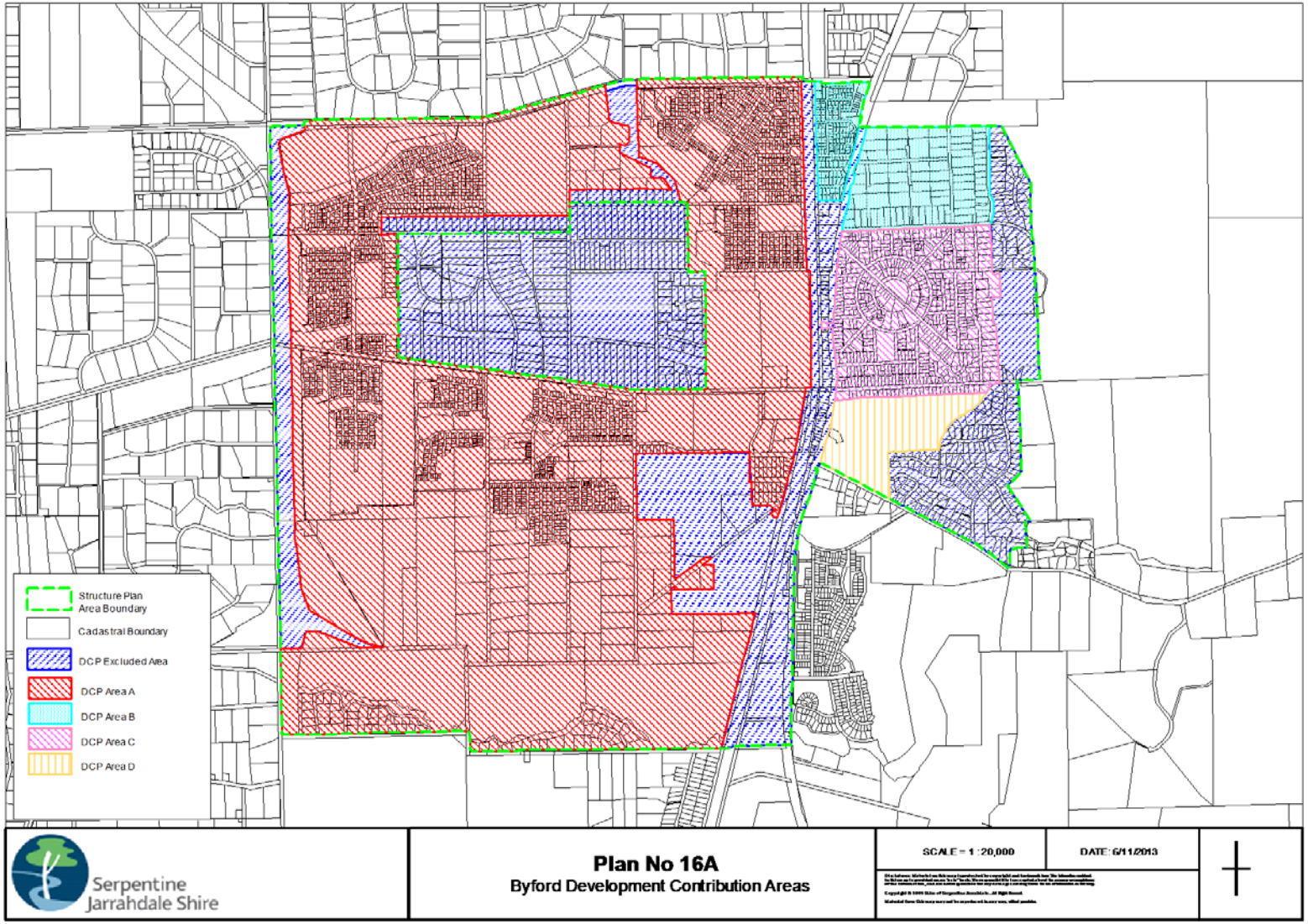
The Byford development contribution area is divided into four precincts, as indicated in Plan 16A of Appendix 16A of TPS 2. Development within each precinct will be required to contribute to a certain set of infrastructure and land items based on the perceived need for and use of those items within the precinct.

The following matrix identifies the precincts and what items they are required to contribute toward:

Table 3.1 (a) Precinct Contribution Items

Item/Precinct	**A**	**B**	**C**	**D**
Thomas Road	✓	✓	✓	✓
Abernethy Road	✓	✓	✓	✓
Orton Road	✓	✓	✓	✓
Kardan Boulevard	✓	×	×	×
San Simeon Boulevard	✓	×	×	×
Doley Road	✓	×	×	×
Warrington Road	✓	×	×	×
District Open Space Improvements	✓	✓	✓	✓
Land Acquisitions for District Open Space	✓	✓	✓	✓
Land Acquisitions for Public Open Space & Drainage	✓	✓	×	✓
Water Quality Management	✓	✓	✓	✓
DCP Administration	✓	✓	✓	✓

Figure 9 – Plan 16A of Appendix 16 of Town Planning Scheme No. 2 – Byford Development Contribution Area Precincts



Precincts B, C and D will not be required to contribute towards Kardan Boulevard, San Simeon Boulevard, Doley Road or Warrington Road. All of these roads are located within Precinct A and are considered to predominately cater for vehicular traffic within new development areas west of the railway reserve.

Council has resolved not to require POS contributions from subdivision and development in the existing Byford Townsite, identified as DCP Precinct C. This is due to the absence of a POS strategy or LSP identifying strategic locations for additional recreation lands. A strategy or LSP is necessary as it is difficult to achieve reasonably sized and consolidated areas of POS in the context of small and fragmented landholdings. Precinct C will, however, be required to contribute to DOS land and associated below surface improvements.

Furthermore, in the absence of an LSP and detailed drainage investigations, it has not been possible to determine the drainage requirements for Precinct C. The area, therefore, will not be required to contribute toward land for drainage purposes. This situation may be reviewed in the future pending further detailed planning and detailed investigations into drainage requirements.

Precincts A, B and D will be required to contribute toward land for POS and/or drainage. This land is required to cater for the recreational and drainage demands of development and has been identified in the Byford DSP and LSPs.

Due to the district function of Orton Road New linking with Tonkin Highway, Abernethy Road providing access to the Town Centre and Thomas Road providing a connection between South Western Highway and Tonkin Highway, all precincts are required to contribute towards these items.

All precincts will be required to contribute towards water monitoring and administrative costs. These items are required to facilitate the preparation of the Byford DSP and subsequently facilitate the preparation of LSPs and allow for subdivision and development to occur.

3.2 Estimation of Lot/Dwelling Potential

The development contribution methodology is based on a per lot/dwelling basis. Therefore it is necessary to estimate the potential number of additional lots/dwellings to be created in the Byford area. This estimate will be used to determine the development contribution rates per lot/dwelling.

The following methodology has been applied:

1. A review of LSPs and spatial data has been undertaken to identify the estimated total lot/dwelling yield for each area covered by an LSP or approved subdivision application.
2. The lot/dwelling estimates for greenfield areas not yet subject to LSPs have been determined through identifying their total land area, deducting 40 percent of this land area (accounting for land required for public purposes such as roads, POS and drainage), and then determining the subdivision/development potential of the remaining land area based on its residential density coding.

3. The lot/dwelling estimates for infill sites (ie. existing urban) not yet subject to LPSs were determined through manual calculations of the development potential of each landholding based on an R20 residential density of 450m².

4. By adding the lot/dwelling yields calculated in steps 1-3, the total estimated lot/dwelling yield for the Byford DCP area has been identified.

Based on this methodology, it has been estimated that 10,938 lots/dwellings will be created within the Byford DCP area as at the time of this Report. As lots extinguish their liability to pay contributions, the future lot count is revised at each cost review.

The table on the following page provides a detailed breakdown of the calculations:

Table 3.2 (a) Estimated Future Lot Yield By Project By Precinct

Local Structure Plan Areas	**Total Site Area (ha)**	**Estimated Lot / Dwelling Yield**				**Source**
		A	**B**	**C**	**D**	
Redgum North & South	68.5500	641				LSP Mar 2010 & LSP Apr 2005
Kalimna	52.6424	398				LSP Oct 2008
Byford Meadows	29.4000	300				LSP Jun 2010
The Reserve	8.7759	120				LSP Oct 2009 *
Byford Central	65.0000	713				LSP Jan 2006
Goldtune	28.8500	321				LSP Jun 2009
Byford Town Centre	78.2900	1,010				LSP Apr 2013
Grange Meadows	16.6000	225				LSP Apr 2010
Byford West	31.5600	380				LSP Mar 2010
Aspen	32.3000				360	LSP Oct 2009 *
The Glades	329.4532	3,315				LSP Jul 2009
St Thomas Estate	5.4582		60			DP 5070
Sunrays	6.3500		83			GIS
Total	**753.2297**	**7,423**	**143**	**-**	**360**	

*Utilising provision 3.4.2 of the DCP for computation.

Non- Structure Planned Areas	Total Site Area (ha)	Estimated Lot / Dwelling Yield				Source
		A	B	C	D	
Doley Road Precinct	119.7200	1596				Total area minus 40% (land for public purposes) divided by 450 sqm (R20)
Briggs Road Precinct	18.7700	28				Total area minus 40% (land for public purposes) divided by 4000sqm (Rural Living)
Stanley Road Precinct	48.8300		651			Total area minus 40% (land for public purposes) divided by 450sqm (R20)
Mead Street	4.8000	106				Total area (no land for public purposes) divided by 450sqm (R20)
Old Quarter	NA			631		Manual Calculations
Total		**1,730**	**651**	**631**	**-**	

Total Lots / Dwelling Yield		**9,153**	**794**	**631**	**360**	Structure Planned & Non-Structure Planned

Notes:

- Land for public purposes (ie. POS, drainage and similar) is expected to be provided within the Doley and Briggs Road precincts. As such, a 40 percent deduction has been applied to the total site area of each precinct.
- It is assumed that no land will be provided for public purposes within the Mead Street precinct given its existing development pattern. As such, a 40 percent deduction has not been utilised.
- In the absence of finalised LSPs depicting residential densities, an R20 code has been utilised to determine the lot/dwelling estimates for the Doley Road, Briggs Road and Mead Street precincts.
- Due to the nature of infill development proposed for the Stanley Road and Old Quarter precincts, lot/dwelling estimates have been made on the basis of manual calculations of the subdivision/development potential of each lot.

The following table identifies the current total estimated lot/dwelling yield for each of the Byford DCA precincts:

Table 3.2 (b) Estimated Future Lot Yield Totals By Precinct

DCA Precinct	Estimated Lot/Dwelling Yield
A	9,153
B	794
C	631
D	360
Total	10,938

3.3 Identifying the Contribution Rate for Each Precinct

As previously identified, the Byford development contribution area is divided into four precincts. Each precinct will contribute toward certain infrastructure and cost items. Each precinct will therefore have a different contribution rate.

To determine the contribution rate for each precinct, it is first necessary to identify the current total number of lot/dwellings which will be contributing to each item. From this, the contribution rate per lot/dwelling for each infrastructure item or cost can be determined. A breakdown is provided in the following table:

Table 3.3 (a) Contribution Rate Per Lot By Cost Item

Item/Precinct	Cost ($)	Precinct	Lots Contributing	Contribution Per Lot
Thomas Road *	4,851,646	All	10,938	444
Abernethy Road *	12,189,515	All	10,938	1,114
Orton Road	14,172,882	All	10,938	1,296
Kardan Boulevard	6,980,607	A	9,153	763
San Simeon Boulevard	13,518,885	A	9,153	1,477
Doley Road	10,893,310	A	9,153	1,190
Warrington Road	6,688,693	A	9,153	731
District Open Space Improvements	2,073,045	All	10,938	189
Land Acquisitions for District Open Space	4,376,980	All	10,938	400
Land Acquisitions for Public Open Space & Drainage	55,106,030	A, B & D	10,307	5,346
Water Quality Management	944,547	All	10,938	86
DCP Administration	4,857,067	All	10,938	444
Total	**136,653,216**			

* Reduced by value of MRWA grants

The infrastructure and cost contribution rates per lot/dwelling applicable to each precinct can then be calculated, by adding the cost of each applicable item. The

table below identified the development contribution rate per lot/dwelling for each precinct.

Table 3.3 (b) Contribution Rate Per Lot By Precinct

Item/Precinct	**Contribution Per Lot**	**A**	**B**	**C**	**D**
Thomas Road	444	✓	✓	✓	✓
Abernethy Road	1,114	✓	✓	✓	✓
Orton Road	1,296	✓	✓	✓	✓
Kardan Boulevard	763	✓	×	×	×
San Simeon Boulevard	1,477	✓	×	×	×
Doley Road	1,190	✓	×	×	×
Warrington Road	731	✓	×	×	×
District Open Space Improvements	189	✓	✓	✓	✓
Land Acquisitions for District Open Space	400	✓	✓	✓	✓
Land Acquisitions for Public Open Space & Drainage	5,346	✓	✓	×	✓
Water Quality Management	86	✓	✓	✓	✓
DCP Administration	444	✓	✓	✓	✓
Total Contribution Per Lot	**-**	**13,480**	**9,319**	**3,973**	**9,319**

3.4 Calculating the Contribution Rate for Landowners/Developers

At any point in time, the contribution rate/lot will vary according to Precinct and number of days since the last Cost Review.

The contribution rate is adjusted after each cost review in terms of contributions received, expenditure, cost estimates for each cost item and number of lots with paid contributions.

Various types of residential and non-residential subdivision and development will occur within Byford. The following sections identify how the methodology applies to each of these scenarios. For the purposes of calculating an R20 equivalent a minimum area of 450 m^2 will be implemented, as per State Planning Policy 3.1 (The Residential Design Codes).

3.4.1 Cost Review Input Into Contribution Rate Revisions

Cost Reviews will be undertaken at least annually

At the time of adoption of a cost review, the following contribution rate inputs will be reset:

(a) Table 2.8 Summary of Costs
(b) Table 3.2 (a) Estimated Future Lot Yield by approved Local Structure Plan by Precinct
(c) Table 3.2 (b) Estimated Future Lot Yield by intended Local Structure Plan by Precinct
(d) Table 3.3 (a) Contribution Rate Per Lot by Cost Item
(e) Table 3.3 (b) Contribution Rate Per Lot by Precinct
(f) Outstanding Cost of Completed Works (Expenditure on all Cost Items – Value of all Contributions Received)
(g) Infrastructure Cost Escalator
(h) Land Value Escalator
(i) Administration Cost Escalator
(j) Precinct Daily Escalation Rate

3.4.2 Calculating the Contribution Rate between Cost Reviews

To ensure costs are current during the time between cost reviews, all costs will be escalated on a daily basis calculated from an annual escalation rate. Escalation rates will separately apply to infrastructure costs, land costs and administration costs. The escalation rates will be set at each cost review. The starting point for daily escalation is the approval date for the prevailing cost review.

Given that each Precinct cost entail a different bundle of items, it is necessary to calculate a weighted escalation rate for each precinct.

Precinct ER = (%IC/TC x IER) + (%LV/TC x LVER) + (%AC/TC + AER)

Where for each precinct:

ER is the weighted Escalation Rate;

DER is the daily escalation rate (ER/365)

IC is the estimated Infrastructure Cost;

LV is the estimated Land Value;

AC is the estimated Administration Cost (Administration Cost includes Water Monitoring and Outstanding Cost of Completed Works);

TC is the Total Cost being IC + LV + AC;

IER is the Infrastructure Escalation Rate;

LVER is the Land Value Escalation Rate;

AER is the Administration Escalation Rate; and,

D is the number of days since the last cost review.

3.4.3 Standard Residential Subdivision or Development

In the instance of standard residential subdivision or development, development contributions for each precinct will be determined in the following manner:

Precinct contribution rate per lot/dwelling x DER x D × number of additional lots or dwellings being created

=

Required development contribution

The calculation methodology works on the additional number of lots/dwellings being created. This approach is based upon each original lot either having, or having the potential to entail a single dwelling without the requirement for substantial infrastructure upgrades. The creation of the first dwelling or lot would therefore in effect, retain the status quo and not necessitate a contribution toward infrastructure upgrades, land and other items.

3.4.4 Non-Standard Residential Subdivision or Development

There may be instances in the Byford DSP area where the large-scale permanent residential development of a site is proposed without any standard residential subdivision and/or development (ie. a lifestyle village, retirement village, caravan park, park home estate or similar).

Development contributions will be required from such forms of non-standard residential subdivision/development as for Standard Residential Subdivision or Development shown in 3.4.3 above.

3.4.5 Non-Residential Subdivision or Development

Portions of land within the Byford area are expected to be developed for non-residential purposes, including retail/commercial, community purpose (or similar) and private schools. All forms of development contribute toward a need for new and improved infrastructure including roads. Non-residential development is no different in this regard.

Non-residential subdivision or development will be required to contribute toward land for public open space and drainage. The multiple use corridors in Byford provide both a drainage and recreation function, and will provide a means of access to non-residential developments.

Development contributions for non-residential subdivision or development will be calculated based upon the number of dwellings/lots that could have been created/developed at an R20 density (ie. the R20 subdivision/development potential of the site), minus the equivalent of the first lot created in a subdivision or first dwelling created in a development. For each precinct:

Precinct contribution rate per lot/dwelling x DER x D × R20 subdivision/development potential of the site – the equivalent of one lot or one dwelling

=

Required development contribution

Land for primary and secondary public schools use will be exempt from paying development contributions.

For private education establishments and associated development, development contributions will be levied at 0.3 percent of the total development costs of the site, as agreed with the Shire based on the building licence application.

For the purposes of determining the total development contribution amount of the DCP, the following estimates have been made for each private school site based on developer advice:

- Abernethy Road private school proposal - $15,000,000.00 based on Building Licence submission.

This 0.3 percent calculation method will only be applied where the private education establishment has entered into a joint use agreement with the Shire and/or Department of Education regarding the co-location and use of district open space and school ovals and associated facilities. The joint use agreement must ensure that the co-located and used facilities are publically accessible. Based on this approach, the discounted DCP contribution amounts to $45,000 for the Catholic K - 12 school.

Where a joint use agreement is not in place as described above, development contributions will be levied based on the R20 subdivision/development potential of the site.

3.4.6 Mixed Use Development

In the context of mixed use development, the contribution rate is based upon the number of dwellings/lots that could have been created/developed at an R20 density, or the actual number of residential dwellings/lots being created at the time of subdivision/development, whichever is the greater, minus the equivalent of the first lot created in a subdivision or first dwelling created in a development.

Calculation based on the R20 site calculation. For each precinct:

Precinct contribution rate per lot/dwelling x DER x D × R20 subdivision/development potential of the site – the equivalent of one lot or one dwelling

=

Required development contribution

Calculation based on the number of dwellings:

Precinct contribution rate per lot/dwelling x DER x D × actual number of residential lots/dwellings being created – the first dwelling being created

=

Required development contribution

Calculation examples are provided in section 7 of this report.

3.5 Future Subdivision/Development Potential

It is acknowledged that land within the Byford area may be developed to a density lower than that envisaged by the Byford DSP. Such development may however allow for additional subdivision and/or development in the future.

Contributions will be required for the creation of additional lots/dwellings post-initial development at the time that those additional lots/dwellings are created. Such additional contributions will be required in accordance with the DCP.

It should be noted that future lot yield is the base for calculation of contribution/lot. At each cost review the future yield will be adjusted to account for lots on which contributions have been paid.

3.6 Exemptions

Clause 10.3.13.3 of TPS 2 details various situations in which a development contribution is not required.

3.7 Interim Arrangements and Transition to a Finalised Contribution Arrangement

In the absence of a finalised DCP for Byford, the Shire had been entering into interim arrangements with subdividing and developing landowners in Byford. These arrangements involve the use of legal agreements to facilitate the collection of interim development contributions, and have been based on a per lot/dwelling methodology..

The Council has now approved LPP 75, Interim Development Deeds, which deals with the methodology for acquitting the Deeds upon gazettal of Amendments 167 and 168 and approval of this DCP Report. In essence, Deed credits and liabilities will be calculated by applying historical costs and land values to contribution liabilities deflated back to the time of subdivision clearance. This approach maintains the time nexus between costs and revenue (sales).

In the interests of ensuring a simple transition between the legal agreements and a formal DCP for Byford, there was no option but to utilise the per lot/dwelling methodology for the Byford DCP.

4 Priority and Timing of Provision

The following key principles are utilised to guide the identification of priorities for the provision of infrastructure and land acquisition, including:

- Minimising financial risk to the DCP– This can be achieved through the timely acquisition of land required for public purposes (public open space, roads etc.).
- Ensuring a constant turnover of funds – By managing the cash flow of the DCP, the Shire can optimise the use of funds between land acquisition and civil works and recoupment of developer pre-funding.
- Prioritising, where owner financial hardship is proven, the purchase of land identified for public purposes that encompasses all of, or a substantial portion of one landholding – Many of these landholdings are essentially "quarantined" from subdivision and/or development and would be difficult to sell to a private buyer.
- Constructing infrastructure on an "as needs" basis to facilitate development – This is especially apparent in the context of road upgrades.
- Undertaking works and land acquisition in areas of fragmented ownership – this assists in the successful and coordinated development of these areas. In areas of consolidated ownership, most infrastructure and land is provided by the developer as offsets to cost contributions.
- Grant funding opportunities – the Shire will actively seek grant funding to assist in the provision of DCP infrastructure. In most instances, the use of grant funding is reliant on the Shire providing a matching or partial contribution. The Shire may utilise DCP funds and elevate the priority and timing of an infrastructure item to capitalise on grant funding opportunities. This approach is beneficial to the long-term financial viability of the DCP.

The following items have been determined by the Shire as interim priority items. The timing of these items cannot be identified at present, as the Shire cannot reasonably predict the flow of development contribution funds into the DCP.

- Reconciliation of Interim Development Deed credits/liabilities;
- Thomas Road/Kardan Boulevard intersection;
- Thomas Road/Plaistowe Boulevard Intersection;
- Thomas Road second carriageway; and
- Past Administration costs

A detailed schedule of priorities and timing at this stage is considered premature and potentially unreliable. The identification of priorities will be undertaken on at least an annual basis as part of the cost estimate review and associated DCP Report update.

5 Period of Operation and Review

The DCP will operate for a period of 20 years from date of gazettal of the related scheme amendment to incorporate the DCP into TPS 2 as Appendix 16A.

The DCP will be reviewed when considered appropriate, having regard to the rate of subsequent development in the area since the last review and the degree of development potential still existing, but not exceeding a period of 5 years.

The DCP Report, incorporating cost estimates and cost escalators, will be reviewed at least annually, allowing for more frequent reviews to be completed on an as-required basis having regard to cost volatility and development priorities. The view of the Byford Infrastructure Reference Group will be sought when revising the cost estimates.

Where the costing and details of the DCP Report are:

- revised based on accounting for completed works;
- revised based on construction cost increases/decreases;
- revised based on land value increases/decreases; and
- revised based on revisions to the anticipated undeveloped lot yield;

and not subject to other material change, the revised DCP Report may not be advertised for public comment, but will remain available for public inspection. All landowners with current subdivision approvals will be automatically advised of each revision of the DCP Report. The Byford Infrastructure Reference Group (BIRG), comprising all major landowners, will be consulted as part of its regular agenda.

6 Operational Matters

This section of the DCP Report addresses various operational matters associated with the Byford DCP.

6.1 Estimation of Costs

This matter is dealt with in Clause 10.3.11 of TPS 2.

6.2 Land Valuation

The definition of value is dealt with in Clause 10.3.12 of TPS 2. The valuation base is further refined to cover the process in the Byford DCA whereby:

The net land value is to be determined in accordance with the definition of "value" in cl.10.3.12 and having general regard to the International Valuation Standards Committee's definition of market value as adopted by the Australian Property Institute. To account for the direct transfer of land, the fair market value should be discounted by standard marketing costs including fees, commissions and advertising costs and by the prevailing DCP contribution liability which otherwise would have applied to the land.

Market Value shall be determined by methodology primarily based on comparable sales evidence. Analysis of comparable sales shall account for all circumstances that might affect value, either advantageously or prejudicially, and that development contributions or other statutory charges are not attributable to the Land.

Market Values of Land shall include GST.

Valuations should have due regard to the characteristics of the Land including:

a) highest and best use, zoning, development density and efficiency;
b) physical characteristics such as size, topographical, aesthetic, geological and environmental factors;
c) location, access and surrounding amenities;
d) market conditions and the then present demand for land; *and*
e) development levies.

6.3 Liability for Contributions

This matter is dealt with in Clause 10.3.13 of TPS 2.

6.4 Payment of Contributions

This matter is dealt with in Clauses 10.3.14 of TPS 2.

6.5 Arbitration

This matter is dealt with in Clause 10.3.19 of TPS 2.

6.6 Implementation

Development contributions may be calculated and applied as conditions of subdivision, strata subdivision and development.

6.7 Form of Contributions

Pursuant to Clause 10.3.14 of TPS 2, conditions relating to development contribution requirements can, to the satisfaction of the Shire, be satisfied by:

- The ceding of land;
- The construction of infrastructure works which are transferred to public authorities on completion;
- The provision of monetary contributions to acquire land or undertake works by the Shire, public authorities or others where covered by the DCP; or
- A combination of the above.

6.8 Pre-funding of Infrastructure Items

6.8.1 Context

Where,

- The Developer wishes to undertake works specified in Appendix 16A;
- The works are necessary for the progression of an approved subdivision; and,
- The Shire does not hold sufficient DCP funds to undertake the works and/or has not prioritised such works,

The Shire will support pre-funding and delivery of the infrastructure provided there are good reasons for doing so.

6.8.2 Pre-funding Agreement

By way of an exchange of letters, the Shire and the Developer will agree the extent, composition and timing of the infrastructure works to be pre-funded. Once agreed, the works become the Approved Works. The Approved Works must be identified sufficiently to ensure the cost and quantities of remaining works in that item can be quantified. This is particularly relevant where linear rates are involved.

6.8.3 Principles for Cost Recoupment

The recoup is to be based on the Current Cost Estimate in Accordance with TPS 2 clause 10.3.11 whereby,

- The current cost estimate (excluding contingency allowance) as described in the prevailing DCP Report shall constitute the claimable amount for the completed Approved Works

- The cost estimate will be subject to escalation at the rate prescribed from time to time in the DCP Report up to the time of agreed practical completion of the works
- The cost estimate may be revised due to the periodic Cost Review in which case the updated cost estimate will prevail
- If the actual cost of the works exceeds the escalated cost estimate, the developer may claim an additional amount not exceeding the contingency allowance provided for this item of work. Such a claim shall be independently substantiated to the satisfaction of the Shire
- Credit for land will be at valuation in accordance with 10.3.13 of TPS 2 where the valuation is current at time of transfer.

Note: Grants or other external Funding shall be deducted from any recoup or credit to the account of the developer

6.8.4 Acceptance of Works

The Developer shall ensure the works are:

- Undertaken in a proper and workmanlike manner
- In accordance with plans and specifications constituting the Approved Works
- Completed within the agreed period

Following written notification from the Developer that the Approved Works are complete as above, the Shire will confirm the delivery of the Approved Works to its satisfaction.

The Shire can modify, accept or reject the claim where justified, following review of standard and cost. Referral to the Byford Industry Reference Group for comment should be made where rejection of the claim is proposed.

6.8.5 Accounting for Recoupment

On acceptance of the approved Works by the Shire, the cost of the works shall be credited to the DCP account of the Developer.
The balance in this account may be used to offset any cost contribution liabilities owed by the Developer.
Any balance owed to the Developer on completion of all subdivision on land held by the Developer within the Byford DSP area shall be paid to the Developer within 90 days of the condition clearance of the final subdivision in the DSP area subject to:

(a) there being sufficient funds available in the DCP account; and,
(b) having regard to the business plan by the Shire for delivery of outstanding DCP works.

7 Examples of Calculation

The following examples are provided to explain the method of calculating the development contribution applicable to a certain development scenario.

7.1 Example 1

A residential subdivision creating 50 additional lots within precinct A.

Precinct	Development contribution rate per lot/dwelling	Number of additional lots/dwellings	Total development contribution
A	$13,480	50	$674,000

7.2 Example 2

A residential subdivision creating 100 additional lots within precinct A and providing 1 hectare of public open space.

Precinct	Development contribution rate per lot/dwelling	Number of additional lots/dwellings	Total development contribution
A	$13,480	100	$1,348,000
Public open space credit	**Amount of public open space and drainage land being provided**	**Land value per hectare**	**Credit amount**
✓	1ha	Subject to market valuation	market value
		Total net development contribution (contribution minus credit)	$1,348,000 less market value of 1.0 ha

7.3 Example 3

A commercial development on a 4000m² lot within precinct B.

4500m² (lot size) / 450m² (average lot size under the R20 residential density code) – one lot

=

9 lots/dwellings (yield calculation for the purposes of determining development contribution for commercial development)

Precinct	Development contribution rate per lot/dwelling	Number of additional lots/dwellings	Total development contribution
B	$9,319	9	$83,871

7.4 Example 4

A mixed-use development on an 9000m² lot incorporating seven residential dwellings within precinct C.

In the context of mixed use development, the contribution rate is based upon the subdivision/development potential of the subject site based on a residential density code of R20 or the number of lots/dwellings created, whichever is the greater.

Calculation 1 – Subdivision/development potential of the site based on a residential density code of R20:

9000m² (lot size) / 450m² (average minimum lot size under the R20 residential density code)

=

20 lots/dwellings

Or

Calculation 2 – The number of dwellings created.

=

8 residential dwellings

The contribution rate will be based upon 19 lots/dwellings being created, as this is the greater of calculations 1 and 2 (minus one lot/dwelling).

Precinct	Development contribution rate per lot/dwelling	Number of additional lots/dwellings	Total development contribution
C	$3,973	19	$75,487

7.5 Example 5

A mixed-use development on a 5,000m² lot incorporating seven residential dwellings within precinct A, providing 1000m² of public open space and 150m² for the widening of Orton Road New.

Calculation 1 – Subdivision/development potential of the site based on a residential density code of R20:

5000m² (lot size) / 450m² (average lot size under the R20 residential density code)

=

11 lots/dwellings

Calculation 2 – The number of dwellings created.

= 7 residential dwellings

The contribution rate will be based upon 10 lots/dwellings being created, as this is the greater of calculations 1 and 2 (minus one lot/dwelling)

Precinct	Development contribution rate per lot/dwelling	Number of additional lots/dwellings	Total development contribution
A	$13,480	10	$134,800
Public open space credit	**Amount of public open space and drainage land being provided**	**Market value**	**Credit amount**
✓	0.1ha	Valuation amount	Valuation amount
Orton Road New widening land credit	**Amount of Orton Road New widening land being provided**	**Market value**	**Credit amount**
✓	0.015ha	Valuation amount	Valuation amount
		Total net development contribution (contribution minus credit)	$134,800 less credits

Byford Development Contribution Plan Report - Appendices

Prepared by Shire of Serpentine Jarrahdale

December 2013

Appendix A – Thomas Road Costs

Serpentine Jarrahdale Shire
Byford Development Contribution Plan
Thomas Road

Item	Description	Number	Volume	Length	Area	Rate	Cost	Contingency		Local Govt Fees	Prelims & Project Management	Total Cost
		Qty	m^3	m	m^2	$	$	$	$	$	$	$
	Percentage of Cost							8.80%	18.80%	1.5%	15.0%	
R1-1	**Earthworks**											
R1-1.1	Site clearing				30,000	2.00	60,000		11,280	900	9,000	**81,180**
R1-1.2	Stripping 100 mm topsoil and stockpile for respreading (assuming 60% of earthwork area)				30,000	2.10	63,000		11,844	945	9,450	**85,239**
R1-1.3	Backfilling unsuitable material excavations with site excavated material or imported material		30,000			26.50	795,000		149,460	11,925	119,250	**1,075,635**
R1-1.4	Subgrade preparation for pavement				24,192	5.44	131,604		24,742	1,974	19,741	**178,061**
R1-1.5	Stablisation and Mulch (Provisional Sum)				10,000	0.44	4,400		827	66	660	**5,953**
R1-1.0	**Total - Earthworks**						**1,054,004**	-	**198,153**	**15,810**	**158,101**	**1,426,068**
R1-2	**Drainage**											
R1-2.1	Surface drainage, storm water drainage, drainage structures (Provisional Sum)	1				1,338,750	1,338,750		251,685	20,081	200,813	**1,811,329**
R1-2.2	Water Sensitive Landscape (Provisional Sum)	1				630,000	630,000		118,440	9,450	94,500	**852,390**
R1-2.0	**Total - Drainage**						**1,968,750**	-	**370,125**	**29,531**	**295,313**	**2,663,719**
R1-3	**Pavement & Surfacing**											
R1-3.1	Supply and place 250mm thick limestone sub-base compacted to 95% MMDD				24,192	15.38	372,073	32,742		5,581	55,811	**466,207**
R1-3.2	Supply and place 100mm crushed rock base course compacted to 98% MMDD				24,192	9.70	234,662	20,650		3,520	35,199	**294,032**
R1-3.3	Apply 10mm thick primer seal to base course				24,192	5.25	127,008	11,177		1,905	19,051	**159,141**
R1-3.4	Construct 30mm compacted depth dense graded asphalt (10mm nominal granite aggregate size)				21,168	17.85	377,849	33,251		5,668	56,677	**473,445**
R1-3.5	Semi Mountable Kerbing			6,080		51.27	311,722	27,432		4,676	46,758	**390,587**
R1-3.6	Brick paving units on and including 30mm sand bedding (in medians)				800	75.60	60,480	5,322		907	9,072	**75,781**
R1-3.7	Construct 100mm thick, class N20 concrete, broom finished dual use pathway With control joints at 1.25m centres and 12mm wide expansion joints at 5m centres				9,072	73.50	666,792	58,678		10,002	100,019	**835,490**
R1-3.8	Channelisation Dual Carriageway	3				210,000	630,000	55,440		9,450	94,500	**789,390**
R1-3.0	**Total - Pavement & Surfacing**						**2,780,586**	**244,692**	-	**41,709**	**417,088**	**3,484,074**
R1-4	**Traffic Facilities**											
R1-4.1	Signal Intersection (Provisional Sum)	1				262,500	262,500		49,350	3,938	39,375	**355,163**
R1-4.2	Signs (Provisional Sum)	1				15,750	15,750		2,961	236	2,363	**21,310**
R1-4.3	Pavement Marking (Provisional Sum)	1				15,750	15,750		2,961	236	2,363	**21,310**
R1-4.4	Traffic Management (days)	150				2,625	393,750		74,025	5,906	59,063	**532,744**
R1-4.0	**Total - Traffic Facilities**						**687,750**	-	**129,297**	**10,316**	**103,163**	**930,526**
R1-5	**Public Utilities**											
R1-5.1	Western Power - Roadway Lighting (Provision Sum)	1				990,780	990,780		186,267			**1,177,047**
R1-5.2	Western Power - Underground Existing	1				1,365,000	1,365,000		256,620			**1,621,620**
R1-5.3	Telstra	1				519,750	519,750		97,713			**617,463**
R1-5.4	Water Corporation	1				216,353	216,353		40,674			**257,027**
R1-5.5	WestNet Energy	1				54,600	54,600		10,265			**64,865**
R1-5.0	**Total - Public Utilities**						**3,146,483**	-	**591,539**	-	-	**3,738,022**
R1-6	**Miscellaneous**											
R1-6.1	Stages - As Constructed	2				10,500	21,000		3,948	315	3,150	**28,413**
R1-6.0	**Total - Miscellaneous**						**21,000**	-	**3,948**	**315**	**3,150**	**28,413**
	TOTAL CIVIL WORKS						**9,658,573**	**244,692**	**1,293,062**	**97,681**	**976,814**	**12,270,821**
R1-7	**Land for Road Widening**											
R1-7.1	Land acquisitions				12,350	47.50	586,625					**586,625**
R1-7.0	**Total - Land for Road Widening**						**586,625**	-	-	-	-	**586,625**
	TOTAL ROAD COST						**10,245,198**	**244,692**	**1,293,062**	**97,681**	**976,814**	**12,857,446**

Appendix B – Abernethy Road Costs

Serpentine Jarrahdale Shire
Byford Development Contribution Plan
Abernethy Road

Item	Description	Number	Volume	Length	Area	Rate	Cost	Contingency		Local Govt Fees	Prelims & Project Management	Total Cost	DCP Share
		Qty	m^3	m	m^2	$	$	$	$	$	$	$	$
	Percentage of Cost							8.80%	18.80%	1.5%	15.0%		71.25%
R2-1	**Earthworks**												
R2-1.1	Site clearing (assuming 60% of earthwork area)				20,000	2.05	41,000	3,608		615	6,150	**51,373**	**36,603**
R2-1.2	Stripping 100 mm topsoil and stockpile for respreading (assuming 60% of earthwork area)				20,000	1.03	20,600	1,813		309	3,090	**25,812**	**18,391**
R2-1.3	Excavation and removal of unsuitable material		9,383			26.50	248,650	21,881		3,730	37,297	**311,558**	**221,985**
R2-1.4	Backfilling unsuitable material excavations with site excavated material or imported material		12,510			25.00	312,750	27,522		4,691	46,913	**391,876**	**279,211**
R2-1.5	Subgrade preparation for pavement				27,939	3.60	100,580	8,851		1,509	15,087	**126,027**	**89,794**
R2-1.6	Stablisation and Mulch (Provisional Sum)				20,000	0.44	8,800	774		132	1,320	**11,026**	**7,856**
R2-1.0	**Total - Earthworks**						**732,380**	**64,449**	-	**10,986**	**109,857**	**917,672**	**653,841**
R2-2	**Drainage**												
R2-2.1	Surface drainage, storm water drainage, drainage structures (Provisional Sum)	1.0				1,591,850	1,591,850		299,268	23,878	238,778	**2,153,773**	**1,534,563**
R2-2.2	Water Sensitive Landscape (Provisional Sum)	1.0				256,750	256,750		48,269	3,851	38,513	**347,383**	**247,510**
R2-2.0	**Total - Drainage**						**1,848,600**	-	**347,537**	**27,729**	**277,290**	**2,501,156**	**1,782,074**
R2-3	**Culverts**												
R2-3.1	Abernethy Road - supply and install culverts			175		1,027	179,725		33,788	2,696	26,959	**243,168**	**173,257**
R2-3.0	**Total - Culverts**						**179,725**	-	**33,788**	**2,696**	**26,959**	**243,168**	**173,257**
R2-4	**Pavement & Surfacing**												
R2-4.1	Supply and place 200mm thick limestone sub-base compacted to 95% MMDD				27,939	10.00	279,390	24,586		4,191	41,909	**350,076**	**249,429**
R2-4.2	Supply and place 100mm crushed rock base course compacted to 98% MMDD				27,939	9.00	251,451	22,128		3,772	37,718	**315,068**	**224,486**
R2-4.3	Apply 10mm thick primer seal to base course				27,939	3.50	97,787	8,605		1,467	14,668	**122,526**	**87,300**
R2-4.4	Construct 30mm compacted depth dense graded asphalt (10mm nominal granite aggregate size)				26,465	13.50	357,278	31,440		5,359	53,592	**447,669**	**318,964**
R2-4.5	Semi Mountable Kerbing			7,218		49.00	353,682	31,124		5,305	53,052	**443,164**	**315,754**
R2-4.6	Brick paving units on and including 30mm sand bedding (in medians)				845	75.00	63,375	5,577		951	9,506	**79,409**	**56,579**
R2-4.7	Construct 100mm thick, class N20 concrete, broom finished dual use pathway With control joints at 1.25m centres and 12mm wide expansion joints at 5m centres				11,125	60.00	667,500	58,740		10,013	100,125	**836,378**	**595,919**
R2-4.8	Single lane roundabout	3				102,700	308,100	27,113		4,622	46,215	**386,049**	**275,060**
R2-4.0	**Total - Pavement & Surfacing**						**2,378,562**	**209,313**	-	**35,678**	**356,784**	**2,980,338**	**2,123,491**
R2-5	**Traffic Facilities**												
R2-5.1	Signal Intersection (Provisional Sum)	2				262,500	525,000	46,200		7,875	78,750	**657,825**	**468,700**
R2-5.2	Signs (Provisional Sum)	6				5,200	31,200	2,746		468	4,680	**39,094**	**27,854**
R2-5.3	Pavement Marking (Provisional Sum)	6				5,200	31,200	2,746		468	4,680	**39,094**	**27,854**
R2-5.4	Traffic Management (days)	85				2,570	218,450	19,224		3,277	32,768	**273,718**	**195,024**
R2-5.0	**Total - Traffic Facilities**						**805,850**	**70,915**	-	**12,088**	**120,878**	**1,009,730**	**719,433**
R2-6	**Public Utilities**												
R2-6.1	Western Power - Roadway Lighting (Provision Sum)	1.0				1,050,000	1,050,000		197,400			**1,247,400**	**888,773**
R2-6.2	Western Power - Underground Existing	1.0				2,100,000	2,100,000		394,800			**2,494,800**	**1,777,545**
R2-6.3	Telstra	1.0				3,465,000	3,465,000		651,420			**4,116,420**	**2,932,949**
R2-6.4	Water Corporation	1.0				413,500	413,500		77,738			**491,238**	**350,007**
R2-6.5	WestNet Energy	1.0				283,500	283,500		53,298			**336,798**	**239,969**
R2-6.0	**Total - Public Utilities**						**7,312,000**	-	**1,374,656**	-	-	**8,686,656**	**6,189,242**
R2-7	**Miscellaneous**												
R2-7.1	Stages - As Constructed	4				4,110	16,440	1,447		247	2,466	**20,599**	**14,677**
R2-7.0	**Total - Miscellaneous**						**16,440**	**1,447**	-	**247**	**2,466**	**20,599**	**14,677**
	TOTAL CIVIL WORKS						**13,273,557**	**346,124**	**1,755,981**	**89,423**	**894,234**	**16,359,319**	**11,656,015**
R2-8	**Land for Road Widening**												
R2-8.1	Land acquisitions				26,500	47.50	1,258,750					**1,258,750**	**1,258,750**
R2-8.0	**Total - Land for Road Widening**						**1,258,750**	-	-	-	-	**1,258,750**	**1,258,750**
	TOTAL ROAD COST						**14,532,307**	**346,124**	**1,755,981**	**89,423**	**894,234**	**17,618,069**	**12,914,765**

Appendix C – Orton Road Costs

Serpentine Jarrahdale Shire
Byford Development Contribution Plan
Orton Road

Item	Description	Number	Volume	Length	Area	Rate	Cost	Contingency		Local Govt Fees	Prelims & Project Management	Total Cost
		Qty	m^3	m	m^2	$	$	$	$	$	$	$
	Percentage of Cost							8.80%	18.80%	1.5%	15.0%	
R3-1	**Earthworks**											
R3-1.1	Site clearing (assuming 60% of earthwork area)				40,000	2.05	82,000	7,216		1,230	12,300	**102,746**
R3-1.2	Stripping 100 mm topsoil and stockpile for respreading (assuming 60% of earthwork area)				40,000	1.03	41,200	3,626		618	6,180	**51,624**
R3-1.3	Excavation and removal of unsuitable material		57,000			26.50	1,510,500	132,924		22,658	226,575	**1,892,657**
R3-1.4	Backfilling unsuitable material excavations with site excavated material or imported material		28,500			25.00	712,500	62,700		10,688	106,875	**892,763**
R3-1.5	Subgrade preparation for pavement				34,204	3.60	123,134	10,836		1,847	18,470	**154,287**
R3-1.6	Stablisation and Mulch (Provisional Sum)				20,000	0.44	8,800	774		132	1,320	**11,026**
R3-1.0	**Total - Earthworks**						**2,478,134**	**218,076**	-	**37,172**	**371,720**	**3,105,102**
R3-2	**Drainage**											
R3-2.1	Surface drainage, storm water drainage, drainage structures (Provisional Sum)	1				1,689,312	1,689,312		317,591	25,340	253,397	**2,285,639**
R3-2.2	Water Sensitive Landscape (Provisional Sum)	1				616,540	616,540		115,910	9,248	92,481	**834,179**
R3-2.0	**Total - Drainage**						**2,305,852**	-	**433,500**	**34,588**	**345,878**	**3,119,818**
R3-3	**Pavement & Surfacing**											
R3-3.1	Supply and place 225mm thick limestone sub-base compacted to 95% MMDD				34,204	13.35	456,623	40,183		6,849	68,494	**572,149**
R3-3.2	Supply and place 100mm crushed rock base course compacted to 98% MMDD				34,204	9.00	307,836	27,090		4,618	46,175	**385,719**
R3-3.3	Apply 10mm thick primer seal to base course				34,204	3.50	119,714	10,535		1,796	17,957	**150,002**
R3-3.4	Construct 30mm compacted depth dense graded asphalt (10mm nominal granite aggregate size)				31,670	13.50	427,545	37,624		6,413	64,132	**535,714**
R3-3.5	Semi Mountable Kerbing			4,800		49.00	235,200	20,698		3,528	35,280	**294,706**
R3-3.6	Flush kerb			9,600		60.00	576,000	50,688		8,640	86,400	**721,728**
R3-3.7	Brick paving units on and including 30mm sand bedding (in medians)				500	75.00	37,500	3,300		563	5,625	**46,988**
R3-3.8	Construct 100mm thick, class N20 concrete, broom finished dual use pathway With control joints at 1.25m centres and 12mm wide expansion joints at 5m centres				11,300	60.00	678,000	59,664		10,170	101,700	**849,534**
R3-3.9	Single lane roundabout	3				102,700	308,100	27,113		4,622	46,215	**386,049**
R3-3.0	**Total - Pavement & Surfacing**						**3,146,518**	**276,894**	-	**47,198**	**471,978**	**3,942,588**
R3-4	**Traffic Facilities**											
R3-4.1	Signs (Provisional Sum)	1				10,270	10,270	904		154	1,541	**12,868**
R3-4.2	Pavement Marking (Provisional Sum)	1				10,270	10,270	904		154	1,541	**12,868**
R3-4.3	Traffic Management (days)	100				2,570	257,000	22,616		3,855	38,550	**322,021**
R3-4.0	**Total - Traffic Facilities**						**277,540**	**24,424**	-	**4,163**	**41,631**	**347,758**
R3-5	**Public Utilities**											
R3-5.1	Western Power - Roadway Lighting (Provision Sum)	1				682,500	682,500		128,310			**810,810**
R3-5.2	Western Power - Underground Existing	1				1,260,000	1,260,000		236,880			**1,496,880**
R3-5.3	Telstra	1				189,000	189,000		35,532			**224,532**
R3-5.4	WestNet Energy	1				42,000	42,000		7,896			**49,896**
R3-5.0	**Total - Public Utilities**						**2,173,500**	-	**408,618**	-	-	**2,582,118**
R3-6	**Miscellaneous**											
R3-6.1	Stages - As Constructed	5				4,110	20,550	1,808		308	3,083	**25,749**
R3-6.0	**Total - Miscellaneous**						**20,550**	**1,808**	-	**308**	**3,083**	**25,749**
	TOTAL CIVIL WORKS						**10,402,095**	**521,201**	**842,118**	**123,429**	**1,234,289**	**13,123,132**
R3-7	**Land for Road Widening**											
R3-7.1	Land acquisitions				22,100	47.50	1,049,750					**1,049,750**
R3-7.0	**Total - Land for Road Widening**						**1,049,750**	-	-	-	-	**1,049,750**
	TOTAL ROAD COST						**11,451,845**	**521,201**	**842,118**	**123,429**	**1,234,289**	**14,172,882**

Appendix D – Kardan Boulevard Costs

Serpentine Jarrahdale Shire
Byford Development Contribution Plan
Kardan Boulevard

Serpentine Jarrahdale Shire

Item	Description	Number	Volume	Length	Area	Rate	Cost	Contingency		Local Govt Fees	Prelims & Project Management	Total Cost
		Qty	m^3	m	m^2	$	$	$	$	$	$	$
	Percentage of Cost							8.80%	18.80%	1.5%	15.0%	
R4-1	**Earthworks**											
R4-1.1	Site clearing (assuming 60% of earthwork area)				10,000	2.05	20,500	1,804		308	3,075	**25,687**
R4-1.2	Stripping 100 mm topsoil and stockpile for respreading (assuming 60% of earthwork area)				10,000	1.03	10,300	906		155	1,545	**12,906**
R4-1.3	Excavation and removal of unsuitable material		14,976			26.50	396,864	34,924		5,953	59,530	**497,271**
R4-1.4	Backfilling unsuitable material excavations with site excavated material or imported material		7,488			25.00	187,200	16,474		2,808	28,080	**234,562**
R4-1.5	Subgrade preparation for pavement				21,033	3.60	75,719	6,663		1,136	11,358	**94,876**
R4-1.6	Stablisation and Mulch (Provisional Sum)				10,000	0.44	4,400	387		66	660	**5,513**
R4-1.0	**Total - Earthworks**						**694,983**	**61,158**	-	**10,425**	**104,247**	**870,813**
R4-2	**Drainage**											
R4-2.1	Surface drainage, storm water drainage, drainage structures (Provisional Sum)	1				981,750	981,750	86,394		14,726	147,263	**1,230,133**
R4-2.2	Water Sensitive Landscape (Provisional Sum)	1				616,200	616,200	54,226		9,243	92,430	**772,099**
R4-2.0	**Total - Drainage**						**1,597,950**	**140,620**	-	**23,969**	**239,693**	**2,002,231**
R4-3	**Kardan Boulevard - Culvert Crossings for Floodways**											
R4-3.1	Site clearing (assuming 60% area of earthwork area)				62,000	0.62	38,440	3,383		577	5,766	**48,165**
R4-3.2	Stripping 100 mm topsoil and stockpile for respreading (assuming 60% of earthwork area)				62,000	2.13	132,060	11,621		1,981	19,809	**165,471**
R4-3.3	Supply and install culverts	10				30,000	300,000	26,400		4,500	45,000	**375,900**
R4-3.4	Subgrade preparation for pavement				900	5.32	4,788	421		72	718	**5,999**
R4-3.5	Supply and place 200mm thick limestone sub-base compacted to 95% MMDD				900	10.00	9,000	792		135	1,350	**11,277**
R4-3.6	Supply and place 100mm crushed rock base course compacted to 98% MMDD				900	9.00	8,100	713		122	1,215	**10,149**
R4-3.7	Apply 10rnm thick primer seal to base course				900	3.50	3,150	277		47	473	**3,947**
R4-3.8	Construct 30mm compacted depth dense graded asphalt (10mm nominal granite aggregate size)				900	13.50	12,150	1,069		182	1,823	**15,224**
R4-3.9	Semi Mountable Kerbing			60		49.00	2,940	259		44	441	**3,684**
R4-3.10	Flush kerb			60		60.00	3,600	317		54	540	**4,511**
R4-3.11	Supply and install culverts - Kalimna Estate			60		1,027	61,620	5,423		924	9,243	**77,210**
R4-3.12	Traffic Management (days)	30				2,570	77,100	6,785		1,157	11,565	**96,606**
R4-3.0	**Total - Kardan Boulevard - Culvert Crossings for Floodways**						**652,948**	**57,459**	-	**9,794**	**97,942**	**818,144**
R4-4	**Pavement & Surfacing**											
R4-4.1	Supply and place 200mm thick limestone sub-base compacted to 95% MMDD				21,033	10.00	210,330	18,509		3,155	31,550	**263,543**
R4-4.2	Supply and place 100mm crushed rock base course compacted to 98% MMDD				21,033	9.00	189,297	16,658		2,839	28,395	**237,189**
R4-4.3	Apply 7mm thick primer seal to base course				21,033	3.50	73,616	6,478		1,104	11,042	**92,240**
R4-4.4	Construct 30mm compacted depth dense graded asphalt (10mm nominal granite aggregate size)				15,573	13.50	210,236	18,501		3,154	31,535	**263,425**
R4-4.5	Semi Mountable Kerbing			5,500		49.00	269,500	23,716		4,043	40,425	**337,684**
R4-4.6	Flush kerb			360		60.00	21,600	1,901		324	3,240	**27,065**
R4-4.7	Brick paving units on and including 30mm sand bedding (in medians)				200	75.00	15,000	1,320		225	2,250	**18,795**
R4-4.8	Construct 100mm thick, class N20 concrete, broom finished dual use pathway With control joints at 1.25m centres and 12mm wide expansion joints at 5m centres				4,485	60.00	269,100	23,681		4,037	40,365	**337,182**
R4-4.9	Single lane roundabout	3				102,700	308,100	27,113		4,622	46,215	**386,049**
R4-4.10	Channellised Treatment	1				205,400	205,400	18,075		3,081	30,810	**257,366**
R4-4.0	**Total - Pavement & Surfacing**						**1,772,178**	**155,952**	-	**26,583**	**265,827**	**2,220,539**
R4-5	**Traffic Facilities**											
R4-5.1	Signs (Provisional Sum)	1				10,270	10,270	904		154	1,541	**12,868**
R4-5.2	Pavement Marking (Provisional Sum)	1				10,270	10,270	904		154	1,541	**12,868**
R4-5.3	Traffic Management (days)	60				2,570	154,200	13,570		2,313	23,130	**193,213**
R4-5.0	**Total - Traffic Facilities**						**174,740**	**15,377**	-	**2,621**	**26,211**	**218,949**
R4-6	**Public Utilities**											
R4-6.1	Western Power - Roadway Lighting (Provision Sum)	1				341,250	341,250	30,030				**371,280**
R4-6.0	**Total - Public Utilities**						**341,250**	**30,030**	-	-	-	**371,280**
R4-7	**Miscellaneous**											
R4-7.1	Stages - As Constructed	2				4,110	8,220	723		123	1,233	**10,300**
R4-7.0	**Total - Miscellaneous**						**8,220**	**723**	-	**123**	**1,233**	**10,300**
	TOTAL CIVIL WORKS						**5,242,269**	**461,320**	-	**73,515**	**735,153**	**6,512,257**
R4-8	**Land for Road Widening**											
R4-8.1	Land acquisitions				9,860	47.50	468,350					**468,350**
R4-8.0	**Total - Land for Road Widening**						**468,350**	-	-	-	-	**468,350**
	TOTAL ROAD COST						**5,710,619**	**461,320**	-	**73,515**	**735,153**	**6,980,607**

Appendix E – San Simeon Boulevard Costs

Serpentine Jarrahdale Shire
Byford Development Contribution Plan
San Simeon Boulevard

Item	Description	Number	Volume	Length	Area	Rate	Cost	Contingency		Local Govt Fees	Prelims & Project Management	Total Cost
		Qty	m^3	m	m^2	$	$	$	$	$	$	$
	Percentage of Cost							8.80%	18.80%	1.5%	15.0%	
R5-1	**Earthworks**											
R5-1.1	Site clearing (assuming 60% of earthwork area)				60,000	2.05	123,000		23,124	1,845	18,450	**166,419**
R5-1.2	Stripping 100 mm topsoil and stockpile for respreading (assuming 60% of earthwork area)				60,000	1.03	61,800		11,618	927	9,270	**83,615**
R5-1.3	Excavation and removal of unsuitable material		21,312			26.50	564,768		106,176	8,472	84,715	**764,131**
R5-1.4	Backfilling unsuitable material excavations with site excavated material or imported material		10,656			25.00	266,400		50,083	3,996	39,960	**360,439**
R5-1.5	Embankment foundation compaction				24,416	1.90	46,390		8,721	696	6,959	**62,766**
R5-1.6	Subgrade preparation for pavement				40,000	3.60	144,000		27,072	2,160	21,600	**194,832**
R5-1.7	Stablisation and Mulch (Provisional Sum)				40,000	0.44	17,600		3,309	264	2,640	**23,813**
R5-1.0	**Total - Earthworks**						**1,223,958**	-	**230,104**	**18,359**	**183,594**	**1,656,016**
R5-2	**Drainage**											
R5-2.1	Surface drainage, storm water drainage, drainage structures (Provisional Sum)	1				1,648,500	1,648,500		309,918	24,728	247,275	**2,230,421**
R5-2.2	Water Sensitive Landscape (Provisional Sum)	1				525,000	525,000		98,700	7,875	78,750	**710,325**
R5-2.0	**Total - Drainage**						**2,173,500**	-	**408,618**	**32,603**	**326,025**	**2,940,746**
R5-3	**San Simeon Boulevard - Culverts for Byford Townsite Drainage and Water Management Plan Floodways**											
R5-3.1	San Simeon Boulevard - Byford Town Centre 1 - Beenyup Brook - Supply and Install Culverts			240		1,027	246,480		46,338	3,697	36,972	**333,487**
R5-3.2	San Simeon Boulevard - Byford Town Centre 2 - Supply and Install Culverts			240		1,027	246,480		46,338	3,697	36,972	**333,487**
R5-3.3	San Simeon Boulevard - Byford Town Centre 3 - Evans Way - Supply and Install Culverts			210		1,027	215,670		40,546	3,235	32,351	**291,802**
R5-3.4	San Simeon Boulevard - Byford Central - Supply and Install Culverts - Oaklands Main Drain			240		1,027	246,480		46,338	3,697	36,972	**333,487**
R5-3.5	San Simeon Boulevard - Byford Central - Larson Road Culvert Upgrade - Supply and Install Culverts - Oaklands Main Drain			240		1,027	246,480		46,338	3,697	36,972	**333,487**
R5-3.6	San Simeon Boulevard - Briggs Road MUC Crossing - Supply and Install Culverts - Oaklands Main Drain			240		1,027	246,480		46,338	3,697	36,972	**333,487**
R5-3.7	San Simeon Boulevard - Malarky Road - Supply and Install Culverts - Oaklands Main Drain			120		1,027	123,240		23,169	1,849	18,486	**166,744**
R5-3.8	San Simeon Boulevard - near Thomas Road Intersection - Supply and Install Culverts - Oaklands Main Drain			150		1,027	154,050		28,961	2,311	23,108	**208,430**
R5-3.0	**Total - San Simeon Boulevard - Culverts for Byford Townsite Drainage and Water Management Plan Flood**						**1,725,360**	-	**324,368**	**25,880**	**258,804**	**2,334,412**
R5-4	**Pavement & Surfacing**											
R5-4.1	Supply and place 225mm thick limestone sub-base compacted to 95% MMDD				40,000	13.35	534,000	46,992		8,010	80,100	**669,102**
R5-4.2	Supply and place 100mm crushed rock base course compacted to 98% MMDD				40,000	9.00	360,000	31,680		5,400	54,000	**451,080**
R5-4.3	Apply 10mm thick primer seal to base course				40,000	3.50	140,000	12,320		2,100	21,000	**175,420**
R5-4.4	Construct 30mm compacted depth dense graded asphalt (10mm nominal granite aggregate size)				35,000	13.50	472,500	41,580		7,088	70,875	**592,043**
R5-4.5	Semi Mountable Kerbing			12,000		49.00	588,000	51,744		8,820	88,200	**736,764**
R5-4.6	Flush kerb			6,000		60.00	360,000	31,680		5,400	54,000	**451,080**
R5-4.7	Brick paving units on and including 30mm sand bedding (in medians)				600	75.00	45,000	3,960		675	6,750	**56,385**
R5-4.8	Construct 100mm thick, class N20 concrete, broom finished dual use pathway With control joints at 1.25m centres and 12mm wide expansion joints at 5m centres				9,250	60.00	555,000	48,840		8,325	83,250	**695,415**
R5-4.9	Single lane roundabout	2				102,700	205,400	18,075		3,081	30,810	**257,366**
R5-4.0	**Total - Pavement & Surfacing**						**3,259,900**	**286,871**	-	**48,899**	**488,985**	**4,084,655**
R5-5	**Traffic Facilities**											
R5-5.1	Signs (Provisional Sum)	1				10,270	10,270		1,931	154	1,541	**13,895**
R5-5.2	Pavement Marking (Provisional Sum)	1				10,270	10,270		1,931	154	1,541	**13,895**
R5-5.3	Traffic Management (days)	100				2,055	205,500		38,634	3,083	30,825	**278,042**
R5-5.0	**Total - Traffic Facilities**						**226,040**	-	**42,496**	**3,391**	**33,906**	**305,832**
R5-6	**Public Utilities**											
R5-6.1	Western Power - Roadway Lighting (Provision Sum)	1				945,000	945,000		177,660			**1,122,660**
R5-6.0	**Total - Public Utilities**						**945,000**	-	**177,660**	-	-	**1,122,660**
R5-7	**Miscellaneous**											
R5-7.1	Stages - As Constructed	6				4,110	24,660		4,636	370	3,699	**33,365**
R5-7.0	**Total - Miscellaneous**						**24,660**	-	**4,636**	**370**	**3,699**	**33,365**
	TOTAL CIVIL WORKS						**9,578,418**	**286,871**	**1,187,881**	**129,501**	**1,295,013**	**12,477,685**
R5-8	**Land for Road Widening**											
R5-8.1	Land acquisitions				21,920	47.50	1,041,200					**1,041,200**
R5-8.0	**Total - Land for Road Widening**						**1,041,200**	-	-	-	-	**1,041,200**
	TOTAL ROAD COST						**10,619,618**	**286,871**	**1,187,881**	**129,501**	**1,295,013**	**13,518,885**

Appendix F – Doley Road Costs

Serpentine Jarrahdale Shire
Byford Development Contribution Plan
Doley Road

Item	Description	Number	Volume	Length	Area	Rate	Cost	Contingency		Local Govt Fees	Prelims & Project Management	Total Cost
		Qty	m^3	m	m^2	$	$	$	$	$	$	$
	Percentage of Cost							8.80%	18.80%	1.5%	15.0%	
R6-1	**Earthworks**											
R6-1.1	Site clearing (assuming 60% of earthwork area)				20,000	2.05	41,000	3,608		615	6,150	**51,373**
R6-1.2	Stripping 100 mm topsoil and stockpile for respreading (assuming 60% of earthwork area)				20,000	1.03	20,600	1,813		309	3,090	**25,812**
R6-1.3	Excavation and removal of unsuitable material		12,636			26.500	334,854	29,467		5,023	50,228	**419,572**
R6-1.4	Backfilling unsuitable material excavations with site excavated material or imported material		6,318			25.000	157,950	13,900		2,369	23,693	**197,911**
R6-1.5	Subgrade preparation for pavement				23,254	3.600	83,714	7,367		1,256	12,557	**104,894**
R6-1.6	Stablisation and Mulch (Provisional Sum)				20,000	0.44	8,800	774		132	1,320	**11,026**
R6-1.0	**Total - Earthworks**						**646,918**	**56,929**	-	**9,704**	**97,038**	**810,589**
R6-2	**Drainage**											
R6-2.1	Surface drainage, storm water drainage, drainage structures (Provisional Sum)	1				2,415,000	2,415,000		454,020	36,225	362,250	**3,267,495**
R6-2.2	Water Sensitive Landscape (Provisional Sum)	1				315,000	315,000		59,220	4,725	47,250	**426,195**
R6-2.0	**Total - Drainage**						**2,730,000**	-	**513,240**	**40,950**	**409,500**	**3,693,690**
R6-3	**Doley Road - Culverts for Byford Townsite Drainage and Water Management Plan Floodways**											
R6-3.1	Doley Road - Supply and Install Culverts - Tributary 6			60		1,027	61,620		11,585	924	9,243	**83,372**
R6-3.2	Doley Road - Supply and Install Culverts - Tributary 7			40		790	31,600		5,941	474	4,740	**42,755**
R6-3.0	**Total - Doley Road - Culverts for Byford Townsite Drainage and Water Management Plan Floodways**						**93,220**	-	**17,525**	**1,398**	**13,983**	**126,127**
R6-4	**Pavement & Surfacing**											
R6-4.1	Supply and place 200mm thick limestone sub-base compacted to 95% MMDD				23,254	10.00	232,540	20,464		3,488	34,881	**291,373**
R6-4.2	Supply and place 100mm crushed rock base course compacted to 98% MMDD				23,254	9.00	209,286	18,417		3,139	31,393	**262,235**
R6-4.3	Apply 10mm thick primer seal to base course				23,254	3.50	81,389	7,162		1,221	12,208	**101,980**
R6-4.4	Construct 30mm compacted depth dense graded asphalt (10mm nominal granite aggregate size)				19,744	13.50	266,544	23,456		3,998	39,982	**333,980**
R6-4.5	Semi Mountable Kerbing			200		49.00	9,800	862		147	1,470	**12,279**
R6-4.6	Flush kerb			7,500		60.00	450,000	39,600		6,750	67,500	**563,850**
R6-4.7	Brick paving units on and including 30mm sand bedding (in medians)				200	75.00	15,000	1,320		225	2,250	**18,795**
R6-4.8	Construct 100mm thick, class N20 concrete, broom finished dual use pathway With control joints at 1.25m centres and 12mm wide expansion joints at 5m centres				8,774	60.00	526,440	46,327		7,897	78,966	**659,629**
R6-4.9	Single lane roundabout	4				102,700	410,800	36,150		6,162	61,620	**514,732**
R6-4.0	**Total - Pavement & Surfacing**						**2,201,799**	**193,758**	-	**33,027**	**330,270**	**2,758,854**
R6-5	**Traffic Facilities**											
R6-5.1	Signs (Provisional Sum)	1				10,270	10,270	904		154	1,541	**12,868**
R6-5.2	Pavement Marking (Provisional Sum)	1				10,270	10,270	904		154	1,541	**12,868**
R6-5.3	Traffic Management (days)	100				2,055	205,500	18,084		3,083	30,825	**257,492**
R6-5.0	**Total - Traffic Facilities**						**226,040**	**19,892**	-	**3,391**	**33,906**	**283,228**
R6-6	**Public Utilities**											
R6-6.1	Western Power - Roadway Lighting (Provision Sum)	1				1,714,650	1,714,650		322,354			**2,037,004**
R6-6.2	Telstra	1				241,500	241,500		45,402			**286,902**
R6-6.3	WestNet Energy	1				33,600	33,600		6,317			**39,917**
R6-6.0	**Total - Public Utilities**						**1,989,750**	-	**374,073**	-	-	**2,363,823**
R6-7	**Miscellaneous**											
R6-7.1	Stages - As Constructed	5				4,110	20,550	1,808		308	3,083	**25,749**
R6-7.0	**Total - Miscellaneous**						**20,550**	**1,808**	-	**308**	**3,083**	**25,749**
	TOTAL CIVIL WORKS						**7,908,277**	**272,387**	**904,838**	**88,778**	**887,779**	**10,062,060**
R6-8	**Land for Road Widening**											
R6-8.1	Land acquisitions				17,500	47.50	831,250					**831,250**
R6-8.0	**Total - Land for Road Widening**						**831,250**	-	-	-	-	**831,250**
	TOTAL ROAD COST						**8,739,527**	**272,387**	**904,838**	**88,778**	**887,779**	**10,893,310**

Appendix G – Warrington Road Costs

Serpentine Jarrahdale Shire
Byford Development Contribution Plan
Warrington Road

Item	Description	Number	Volume	Length	Area	Rate	Cost	Contingency		Local Govt Fees	Prelims & Project Management	Total Cost
		Qty	m^3	m	m^2	$	$	$	$	$	$	$
	Percentage of Cost							8.80%	18.80%	1.5%	15.0%	
R7-1	**Earthworks**											
R7-1.1	Site clearing (assuming 60% of earthwork area)				5,000	2.05	10,250	902		154	1,538	**12,843**
R7-1.2	Stripping 100 mm topsoil and stockpile for respreading (assuming 60% of earthwork area)				5,000	1.03	5,150	453		77	773	**6,453**
R7-1.3	Excavation and removal of unsuitable material		9,900			26.500	262,350	23,087		3,935	39,353	**328,725**
R7-1.4	Backfilling unsuitable material excavations with site excavated material or imported material		4,950			25.000	123,750	10,890		1,856	18,563	**155,059**
R7-1.5	Subgrade preparation for pavement				16,497	3.600	59,389	5,226		891	8,908	**74,415**
R7-1.6	Stablisation and Mulch (Provisional Sum)				5,000	0.44	2,200	194		33	330	**2,757**
R7-1.0	**Total - Earthworks**						**463,089**	**40,752**	-	**6,946**	**69,463**	**580,251**
R7-2	**Drainage**											
R7-2.1	Surface drainage, storm water drainage, drainage structures (Provisional Sum)	1				1,377,600	1,377,600		258,989	20,664	206,640	**1,863,893**
R7-2.0	**Total - Drainage**						**1,377,600**	-	**258,989**	**20,664**	**206,640**	**1,863,893**
R7-3	**Pavement & Surfacing**											
R7-3.1	Supply and place 200mm thick limestone sub-base compacted to 95% MMDD				16,497	10.00	164,970	14,517		2,475	24,746	**206,707**
R7-3.2	Supply and place 100mm crushed rock base course compacted to 98% MMDD				16,497	9.00	148,473	13,066		2,227	22,271	**186,037**
R7-3.3	Apply 10mm thick primer seal to base course				16,497	3.50	57,740	5,081		866	8,661	**72,348**
R7-3.4	Construct 30mm compacted depth dense graded asphalt (10mm nominal granite aggregate size)				12,987	13.50	175,325	15,429		2,630	26,299	**219,682**
R7-3.5	Semi Mountable Kerbing			3,570		49.00	174,930	15,394		2,624	26,240	**219,187**
R7-3.6	Brick paving units on and including 30mm sand bedding (in medians)				200	75.00	15,000	1,320		225	2,250	**18,795**
R7-3.7	Construct 100mm thick, class N20 concrete, broom finished dual use pathway With control joints at 1.25m centres and 12mm wide expansion joints at 5m centres				6,143	60.00	368,580	32,435		5,529	55,287	**461,831**
R7-3.8	Single lane roundabout	2				102,700	205,400	18,075		3,081	30,810	**257,366**
R7-3.0	**Total - Pavement & Surfacing**						**1,310,417**	**115,317**	-	**19,656**	**196,563**	**1,641,953**
R7-4	**Traffic Facilities**											
R7-4.1	Signs (Provisional Sum)	1				5,135	5,135	452		77	770	**6,434**
R7-4.2	Pavement Marking (Provisional Sum)	1				5,135	5,135	452		77	770	**6,434**
R7-4.3	Traffic Management (days)	60				2,055	123,300	10,850		1,850	18,495	**154,495**
R7-4.0	**Total - Traffic Facilities**						**133,570**	**11,754**	-	**2,004**	**20,036**	**167,363**
R7-5	**Public Utilities**											
R7-5.1	Western Power - Roadway Lighting (Provision Sum)	1				1,847,100	1,847,100	162,545				**2,009,645**
R7-5.2	WestNet Energy	1				367,500	367,500	32,340				**399,840**
R7-5.0	**Total - Public Utilities**						**2,214,600**	**194,885**	-	-	-	**2,409,485**
R7-6	**Miscellaneous**											
R7-6.1	Stages - As Constructed	5				4,110	20,550	1,808		308	3,083	**25,749**
R7-6.0	**Total - Miscellaneous**						**20,550**	**1,808**	-	**308**	**3,083**	**25,749**
	TOTAL CIVIL WORKS						**5,519,826**	**364,516**	**258,989**	**49,578**	**495,784**	**6,688,693**
R7-7	**Land for Road Widening**											
R7-7.1	Land acquisitions				-	47.50	-					-
R7-7.0	**Total - Land for Road Widening**						-	-	-	-	-	-
	TOTAL ROAD COST						**5,519,826**	**364,516**	**258,989**	**49,578**	**495,784**	**6,688,693**

Appendix H – Byford Central District Open Space (Soccer Field) Costs

Serpentine Jarrahdale Shire
Byford Development Contribution Plan
Byford Central District Open Space

Item	Description	Number	Length	Width	Volume	Area	Quantity	Rate	Cost	Escalation from Jan 2010	Total Cost
		Qty	m	m	m^3	m^2	Qty	$	$	$	$
	Percentage of Cost									16.68%	
D1-1	**Earthworks**										
D1-1.1	Preliminaries								7,940	1,324	**9,264**
D1-1.2	Survey								2,000	334	**2,334**
D1-1.3	Site Works - Cut & Fill								100,518	16,766	**117,284**
D1-1.4	Shaping Swales, Batters & Sump								29,795	4,970	**34,765**
D1-1.5	Reinstate Kerbing								1,000	167	**1,167**
D1-1.6	Clean Draining Screened Sand to Turf (100mm)								46,400	7,740	**54,140**
D1-1.7	100mm Sub-surface Drainage								48,000	8,006	**56,006**
D1-1.8	Sub-surface to Swales								22,200	3,703	**25,903**
D1-1.9	Bund-end of Portwine Ave								500	83	**583**
D1-1.10	Hydro Mulch								43,197	7,205	**50,402**
D1-1.11	Sandfill to Living Stream								25,400	4,237	**29,637**
D1-1.12	Site Works								102,443	17,087	**119,530**
D1-1.13	Dust Control								167,200	27,889	**195,089**
D1-1.0	**Total - Earthworks**								**596,593**	**99,512**	**696,105**
D1-2	**Grassing**										
D1-2.1	Supply and Install Turf								120,582	20,113	**140,694**
D1-2.2	Maintenance								115,000	19,182	**134,182**
D1-2.0	**Total - Grassing**								**235,582**	**39,295**	**274,876**
D1-3	**Reticulation**										
D1-3.1	Irrigation								127,102	21,201	**148,303**
D1-3.0	**Total - Reticulation**								**127,102**	**21,201**	**148,303**
	TOTAL OVAL CONSTRUCTION AND FITOUT COST								**959,277**	**160,007**	**1,119,284**

Appendix I – Kalimna District Open Space (Senior AFL Oval) Costs

Serpentine Jarrahdale Shire
Byford Development Contribution Plan
Kalimna District Open Space

Serpentine Jarrahdale Shire

Item	Description	Number	Length	Width	Volume	Area	Rate	Cost	Escalation from March 2010	Escalation from October 2012	Total Cost
		Qty	m	m	m^3	m^2	$	$	$	$	$
	Percentage of Cost								15.79%	2.10%	
D2-1	**Bulk Earthworks**										
D2-1.1	Establishment	1					6,511	6,511	1,028		**7,539**
D2-1.2	Removal of Unsuitable Subgrade					12,200	0.10	1,220	193		**1,413**
D2-1.3	Strip, Stockpile & Respread Topsoil					12,783	0.43	5,497	868		**6,365**
D2-1.4	Proof Roll					12,150	0	972	153		**1,125**
D2-1.5	Cut to Fill				2,292		2.35	5,386	850		**6,237**
D2-1.6	Import Fill				2,227		18.23	40,598	6,410		**47,009**
D2-1.7	Stabilisation of Lots					12,783	0.22	2,812	444		**3,256**
D2-1.0	**Total - Bulk Earthworks**							**62,996**	**9,947**	-	**72,943**
D2-2	**Earthworks & Sub-soil Drainage**										
D2-2.1	Excavate & Backfill Trenches		1,128.7				12.50	14,109		296	**14,405**
D2-2.2	100mm Draincoil		866.4				59.22	51,308		1,077	**52,386**
D2-2.3	300mm RC Pipework with Subsoil		250.3				114.36	28,624		601	**29,225**
D2-2.4	Drainage Pits	4					2,233.75	8,935		188	**9,123**
D2-2.5	Bore Under Kardan Boulevard	1					47,330	47,330		994	**48,324**
D2-2.6	Establishment	1					14,834	14,834		312	**15,145**
D2-2.7	Strip, Stockpile & Respread Topsoil					7,014	0.45	3,156		66	**3,223**
D2-2.8	Cut to Fill/Spoil				3,443		4.03	13,874		291	**14,165**
D2-2.9	Import Fill				893		12.84	11,462		241	**11,703**
D2-2.10	Dust Control	1					415.00	415		9	**424**
D2-2.11	Final Grade & Clean Up of Site					7,252	2.50	18,130		381	**18,511**
D2-2.12	Sub-soil Bulk Variations	1					80,716	80,716		1,695	**82,411**
D2-2.0	**Total - Earthworks & Sub-soil Drainage**							**292,893**	-	**6,151**	**299,044**
D2-3	**Preliminaries**										
D2-3.1	Preliminares & establishment (including insurance)	1					8,074	8,074		170	**8,243**
D2-3.0	**Total - Preliminaries**							**8,074**	-	**170**	**8,243**
D2-4	**Site Works**										
D2-4.1	Siteworks & fine grading to turf & planting areas	1				15,719	0.73	11,475		241	**11,716**
D2-4.2	Earthworks					11,142	1.33	14,819		311	**15,130**
D2-4.3	Tree Removal	1					838	838		18	**856**
D2-4.4	Weed Eradication	1				22,011	0.26	5,723		120	**5,843**
D2-4.0	**Total - Site Works**							**32,855**	-	**690**	**33,545**
D2-5	**Softworks**										
D2-5.1	Supply & Install Roll-on Turf (including humus)	1				24,256	7.89	191,380		4,019	**195,399**
D2-5.0	**Total - Softworks**							**191,380**	-	**4,019**	**195,399**
D2-6	**Irrigation**										
D2-6.1	Design, Supply & Installation of Irrigation to Trees, Turf & Planted Areas	1				28,303	2.82	79,814		1,676	**81,491**
D2-6.0	**Total - Irrigation**							**79,814**	-	**1,676**	**81,491**
D2-7	**Miscellaneous**										
D2-7.1	Landscaping Bulk Variations	1					48,680	48,680		1,022	**49,702**
D2-7.2	Rectification of Existing Bore	1					5,328	5,328		112	**5,440**
D2-7.3	New DOS Bore	1					124,256	124,256		2,609	**126,865**
D2-7.0	**Total - Miscellaneous**							**178,264**	-	**3,744**	**182,008**
D2-8	**Local Authority Charges & Consultant Fees**										
D2-8.1	Local Authority Supervision Fees	1					2,158.71	2,159		45	**2,204**
D2-8.2	Civil Engineer	1					15,912	15,912		334	**16,246**
D2-8.3	Land Surveyor	1					2,367	2,367		50	**2,417**
D2-8.4	Landscape Architect	1					61,236	61,236		1,286	**62,522**
D2-8.5	Project Management Fees	1					25,881	25,881		544	**26,425**
D2-8.0	**Total - Local Authority Charges & Consultant Fees**							**107,555**	-	**2,259**	**109,813**
	TOTAL OVAL CONSTRUCTION AND FITOUT COST							**953,830**	**9,947**	**18,708**	**982,485**

Appendix J – Byford Primary School/The Glades District Open Space (Senior AFL Oval) Costs

Serpentine Jarrahdale Shire
Byford Development Contribution Plan
Byford Primary School/The Glades District Open Space

Item	Description	Number	Length	Width	Volume	Area	Quantity	Rate	Cost	Escalation from March 2010	Escalation from October 2012	Total Cost
		Qty	m	m	m^3	m^2	Qty	$	$	$	$	$
	Percentage of Cost									15.79%	2.10%	
D3-1	**Bulk Earthworks**											
D3-1.1	Establishment	1					1	6,511	6,511	1,028		**7,539**
D3-1.2	Removal of Unsuitable Subgrade					12,200	12,200	0.10	1,220	193		**1,413**
D3-1.3	Strip, Stockpile & Respread Topsoil					12,783	12,783	0.43	5,497	868		**6,365**
D3-1.4	Proof Roll					12,150	12,150	0	972	153		**1,125**
D3-1.5	Cut to Fill				2,292		2,292	2.35	5,386	850		**6,237**
D3-1.6	Import Fill				2,227		2,227	18.23	40,598	6,410		**47,009**
D3-1.7	Stabilisation of Lots					12,783	12,783	0.22	2,812	444		**3,256**
D3-1.0	**Total - Bulk Earthworks**								**62,996**	**9,947**	-	**72,943**
D3-2	**Earthworks & Sub-soil Drainage**											
D3-2.1	Excavate & Backfill Trenches		1,128.7				1,129	12.50	14,109		296	**14,405**
D3-2.2	100mm Draincoil		866.4				866	59.22	51,308		1,077	**52,386**
D3-2.3	300mm RC Pipework with Subsoil		250.3				250	114.36	28,624		601	**29,225**
D3-2.4	Drainage Pits	4					4	2,233.75	8,935		188	**9,123**
D3-2.5	Establishment	1					1	14,834	14,834		312	**15,145**
D3-2.6	Strip, Stockpile & Respread Topsoil					7,014	7,014	0.45	3,156		66	**3,223**
D3-2.7	Cut to Fill/Spoil				3,443		3,443	4.03	13,874		291	**14,165**
D3-2.8	Import Fill				893		893	12.84	11,462		241	**11,703**
D3-2.9	Dust Control	1					1	415.00	415		9	**424**
D3-2.10	Final Grade & Clean Up of Site					7,252	7,252	2.50	18,130		381	**18,511**
D3-2.11	Sub-soil Bulk Variations	1					1	80,716	80,716		1,695	**82,411**
D3-2.0	**Total - Earthworks & Sub-soil Drainage**								**245,563**	-	**5,157**	**250,720**
D3-3	**Preliminaries**											
D3-3.1	Preliminares & establishment (including insurance)	1					1	8,074	8,074		170	**8,243**
D3-3.0	**Total - Preliminaries**								**8,074**	-	**170**	**8,243**
D3-4	**Site Works**											
D3-4.1	Siteworks & fine grading to turf & planting areas	1				15,719	15,719	0.73	11,475		241	**11,716**
D3-4.2	Earthworks					11,142	11,142	1.33	14,819		311	**15,130**
D3-4.3	Tree Removal	1					1	838	838		18	**856**
D3-4.4	Weed Eradication	1				22,011	22,011	0.26	5,723		120	**5,843**
D3-4.0	**Total - Site Works**								**32,855**	-	**690**	**33,545**
D3-5	**Softworks**											
D3-5.1	Supply & Install Roll-on Turf (including humus)	1				24,256	24,256	7.89	191,380		4,019	**195,399**
D3-5.0	**Total - Softworks**								**191,380**	-	**4,019**	**195,399**
D3-6	**Irrigation**											
D3-6.1	Design, Supply & Installation of Irrigation to Trees, Turf & Planted Areas	1				28,303	28,303	2.82	79,814		1,676	**81,491**
D3-6.0	**Total - Irrigation**								**79,814**	-	**1,676**	**81,491**
D3-7	**Miscellaneous**											
D3-7.1	Landscaping Bulk Variations	1					1	48,680	48,680		1,022	**49,702**
D3-7.2	Rectification of Existing Bore	1					1	5,328	5,328		112	**5,440**
D3-7.3	New DOS Bore	1					1	124,256	124,256		2,609	**126,865**
D3-7.0	**Total - Miscellaneous**								**178,264**	-	**3,744**	**182,008**
D3-8	**Local Authority Charges & Consultant Fees**											
D3-8.1	Local Authority Supervision Fees	1					1	2,158.71	2,159		45	**2,204**
D3-8.2	Civil Engineer	1					1	15,912	15,912		334	**16,246**
D3-8.3	Land Surveyor	1					1	2,367	2,367		50	**2,417**
D3-8.4	Landscape Architect	1					1	61,236	61,236		1,286	**62,522**
D3-8.5	Project Management Fees	1					1	25,881	25,881		544	**26,425**
D3-8.0	**Total - Local Authority Charges & Consultant Fees**								**107,555**	-	**2,259**	**109,813**
	TOTAL OVAL CONSTRUCTION AND FITOUT COST								**906,500**	**9,947**	**17,714**	**934,161**

Appendix K – Land Acquisitions for District Open Space, Public Open Space & Drainage

Serpentine Jarrahdale Shire
Byford Development Contribution Plan
Land Acquisitions for District Open Space, Public Open Space & Drainage

Item	Description	Total Land Area m^2	DOS * Required m^2	POS * Required m^2	Rate Per m^2 $	DOS Cost * $	POS Cost * $	Total Cost $
D4-1	**Land - Structure Planned**							
D4-1.1	Redgum North & South	685,500	-	108,000	47.50	-	5,130,000	**5,130,000**
D4-1.2	Kalimna	526,424	40,000	55,800	47.50	1,900,000	2,650,500	**4,550,500**
D4-1.3	Byford Meadows	294,000	-	21,000	47.50	-	997,500	**997,500**
D4-1.4	The Reserve	87,759	-	16,800	47.50	-	798,000	**798,000**
D4-1.5	Byford Central	650,000	24,434	38,566	47.50	1,160,615	1,831,885	**2,992,500**
D4-1.6	Goldtune	288,500	-	58,500	47.50	-	2,778,750	**2,778,750**
D4-1.7	Byford Town Centre	785,700	-	80,675	47.50	-	3,832,063	**3,832,063**
D4-1.8	Grange Meadows	166,000	-	16,000	47.50	-	760,000	**760,000**
D4-1.9	Byford West	315,600	-	40,700	47.50	-	1,933,250	**1,933,250**
D4-1.10	Aspen	323,000	-	38,000	47.50	-	1,805,000	**1,805,000**
D4-1.11	The Glades	3,294,532	27,713	434,087	47.50	1,316,368	20,619,133	**21,935,500**
D4-1.12	St Thomas Estate	54,582	-	11,868	47.50	-	563,730	**563,730**
D4-1.13	Sunrays	63,500	-	4,400	47.50	-	209,000	**209,000**
D4-1.0	**Total - Land - Structure Planned**	**7,535,097**	**92,147**	**924,396**		**4,376,983**	**43,908,810**	**48,285,793**
	Percentage POS of Total Developed Area			**12.27%**				
D4-2	**Land - Non-Structure Planned**							
D4-2.1	Doley Road Precinct	1,197,200	-	146,896	47.50	-	6,977,560	**6,977,560**
D4-2.2	Briggs Road Precinct	187,700	-	23,031	47.50	-	1,093,973	**1,093,973**
D4-2.3	Stanley Road Precinct	488,300	-	59,914	47.50	-	2,845,915	**2,845,915**
D4-2.4	Mead Street	48,000	-	5,890	47.50	-	279,775	**279,775**
D4-2.0	**Total - Land - Non-Structure Planned**	**1,921,200**	-	**235,731**		-	**11,197,223**	**11,197,223**
	TOTAL LAND ACQUISITIONS	**9,456,297**	**92,147**	**1,160,127**		**4,376,983**	**55,106,033**	**59,483,015**

* Both DOS and POS land requirements and costs include a drainage component.

Appendix L – Water Quality Management Costs

Serpentine Jarrahdale Shire
Byford Development Contribution Plan
Water Quality Management

Item	Description	Hours	People	Salary	Sample Number	Sample Runs	Cost Per Sample	Sites	Rate	Cost	Contingency	Annual Cost	Years	Total
		Qty	Qty	$/hr	Qty	Qty	$	Qty	$		23.55%			
W-1	**Sampling Program Management**													
W-1.1	Preparation of Sample and Analysis Plan (SAP)	16	1	91.92						1,471	346	1,817	1	1,817
W-1.2	Sampling Preparation	36	1	181.82						6,546	1,541	8,087	5	40,435
W-1.3	Sample Collection	144	1	181.82						26,182	6,166	32,348	5	161,740
W-1.4	Data Management (site and program registration, data entry, verification/validation)	37	1	91.92						3,401	801	4,202	5	21,010
W-1.5	Preparation / assistance with annual report	40	5	91.92						18,384	4,329	22,713	5	113,567
W-1.6	Travel costs/courier costs	-	-	-					500	500	118	618	5	3,089
W-1.0	**Total - Sampling Program Management**									**56,483**	**13,302**	**69,785**		**341,658**
W-2	**Water Analysis**													
W-2.1	Total Nitrogen				15	9	16.44			2,219	523	2,742	5	13,710
W-2.2	Dissolved Organic Nitrogen, DON				15	9	16.44			2,219	523	2,742	5	13,710
W-2.3	Dissolved Organic Carbon, DOC				15	9	24.96			3,370	794	4,163	5	20,816
W-2.4	Total Organic Carbon, TOC				15	9	31.72			4,282	1,008	5,291	5	26,453
W-2.5	Total Oxidised Nitrogen, TON (NO_3-N + NO_2-N)				15	9	8.18			1,104	260	1,364	5	6,822
W-2.6	Ammoniacal Nitrogen, NH3-N				15	9	12.49			1,686	397	2,083	5	10,416
W-2.7	Total Phosphorus				15	9	13.19			1,781	419	2,200	5	11,000
W-2.8	FRP Ortho Phosphorus, PO4-P				15	9	8.18			1,104	260	1,364	5	6,822
W-2.9	Total Suspended Solids, TSS				15	9	13.03			1,759	414	2,173	5	10,867
W-2.10	Metals Set-up (Filtered)				15	2	14.19			426	100	526	5	2,630
W-2.11	Heavy Metals (Al, As, Cd, Cr, Cu, Co, Fe, Hg, Mn, Mo, Ni, Pb, Se & Zn)				15	2	87.25			2,618	616	3,234	5	16,170
W-2.12	Total Recoverable Hydrocarbons (TRH)				15	2	84.85			2,546	599	3,145	5	15,725
W-2.13	Polycyclic Aromatic Hydrocarbons and BTEX				15	2	243.30			7,299	1,719	9,018	5	45,090
W-2.14	Total Water Hardness (as CaCO3)				15	2	12.49			375	88	463	5	2,315
W-2.0	**Total - Water Analysis**									**32,787**	**7,721**	**40,509**		**202,544**
W-3	**Sediment Analysis**						-							
W-3.1	Total Recoverable Hydrocarbons (TRH)				14	2	84.85			2,376	560	2,935	5	14,677
W-3.2	Polycyclic Aromatic Hydrocarbons & BTEX				14	2	176.56			4,944	1,164	6,108	5	30,540
W-3.3	Metals Set-up				14	2	33.98			951	224	1,176	5	5,878
W-3.4	Total Heavy Metals (Al, As, Cd, Ca, Cr, Cu, Fe, Pb, Mn, Hg, Ni, Se & Zn)				14	2	87.25			2,443	575	3,018	5	15,092
W-3.5	Moisture				14	2	13.63			382	90	472	5	2,358
W-3.0	**Total - Sediment Analysis**									**11,096**	**2,613**	**13,709**		**68,543**
W-4	**Analysis - Other**													
W-4.1	Troll 9500 Profiler XP								20,000	20,000	4,710	24,710	1	24,710
W-4.2	Distilled Water (20L)								100	100	24	124	5	618
W-4.3	Nitrile Gloves								100	100	24	124	5	618
W-4.0	**Total - Analysis - Other**									**20,200**	**4,757**	**24,957**		**25,946**
W-5	**Superficial Groundwater Monitoring**													
W-5.1	Installation of monitoring wells for superficial aquifer monitoring							12	955	11,460	2,699	14,159	1	14,159
W-5.2	Monitor local superficial aquifer groundwater levels (Monthly) - Labour	9	1	181.82				12		19,637	4,624	24,261	5	121,305
W-5.3	Monitor local superficial aquifer groundwater levels (Monthly) - Equipment								455	455	107	562	1	562
W-5.0	**Total - Superficial Groundwater Monitoring**									**31,552**	**7,430**	**38,982**		**136,026**
W-6	**Surface Water Level Monitoring**													
W-6.1	Monitor flows in Multiple Use Corridors - labour	9	1	181.82				12		19,637	4,624	24,261	5	121,305
W-6.2	Installation of surface water level loggers - 12 sites							12	3,273	39,276	9,249	48,525	1	48,525
W-6.0	**Total - Surface Water Level Monitoring**									**58,913**	**13,874**	**72,786**		**169,830**
	Total - Water Quality Management									**211,030**	**49,698**	**260,728**		**944,547**

Appendix M – Development Contribution Plan Administration Costs

Serpentine Jarrahdale Shire
Byford Development Contribution Plan
DCP Administration

Item	Description	Salary $	On-Costs	DCP Allocation	Annual $	Years	Total $
A-1	**Byford DCP**						
A-1.1	Audit				5,000	20	100,000
A-1.2	Legal				10,000	20	200,000
A-1.3	DCP Cost Review & Consultation				10,000	20	200,000
A-1.0	**Total - Byford DCP**				**25,000**		**500,000**
A-2	**Consultants**						
A-2.1	Planning Consultant				10,000	20	200,000
A-2.2	Land Valuation				30,000	20	600,000
A-2.0	**Total - Consultants**				**40,000**		**800,000**
A-3	**SJ Shire Salaries & On-costs - Corporate Services - DCP Team**						
A-3.1	Finance Officer	71,890	**25%**	**20%**	17,973	20	359,450
A-3.2	Planner	71,890	**25%**	**40%**	35,945	20	718,900
A-3.3	Support Officer	56,485	**25%**	**50%**	35,303	20	706,063
A-3.0	**Total - SJ Shire Salaries & On-costs - Corporate Services - DCP Team**				**89,221**		**1,784,413**
A-4	**SJ Shire Salaries & On-costs - Engineering Services**						
A-4.1	Manager Infrastructure & Design	85,241	**25%**	**10%**	10,655	20	213,103
A-4.2	Water Sensitive Urban Design Project Manager	89,349	**25%**	**5%**	5,584	20	111,686
A-4.0	**Total - SJ Shire Salaries & On-costs - Engineering Services**				**16,239**		**324,789**
	Total - DCP Administration				**170,460**		**3,409,201**

Appendix N – Historical Administration Costs: Structure Plan and DCP Establishment

Serpentine Jarrahdale Shire
Byford Development Contribution Plan
Historic Costs - Administration - Structure Plan & DCP Establishment Costs

Item	Description	Total	Pre 06/07	06/07	07/08	08/09	09/10	10/11	11/12	12/13
H-1	**Byford District Structure Plan - Planning**									
H-1.1	Aurecon	6,364				6,364				
H-1.2	Chrone - Chris O'Neil & Ass	5,390		3,795	1,595					
H-1.3	Paysage Plandscapes	7,091		7,091						
H-1.4	Taylor Burrell Barnett	26,377	16,481	7,257	326	2,314				
H-1.5	TAKTICS 4	8,500		8,500						
H-1.6	Elliott Cartographics	4,969		4,969						
H-1.7	Mackay Urban Design	11,700	6,600	5,100						
H-1.8	Connell Wagner	1,295			1,295					
H-1.9	Miscellaneous	116	-	30	-	-	-	86		
H-1.0	**Total - Byford District Structure Plan - Planning**	**71,802**	**23,081**	**36,742**	**3,216**	**8,678**	**-**	**86**	**-**	**-**
H-2	**Byford District Structure Plan - Traffic Studies**									
H-2.1	Maunsell Australia	18,780		18,780						
H-2.2	Cardno (WA) Pty Ltd	20,901		20,901						
H-2.3	Austraffic (WA) Pty Ltd	6,300					6,300			
H-2.4	Traffic and Transport Solutions	2,400					2,400			
H-2.0	**Total - Byford District Structure Plan - Traffic Studies**	**48,381**	**-**	**39,681**	**-**	**-**	**8,700**	**-**	**-**	**-**
H-3	**Byford Urban Water Management Strategy**									
H-3.1	Parsons Brinckerhoff	99,730	99,730							
H-3.0	**Total - Byford Urban Water Management Strategy**	**99,730**	**99,730**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
H-4	**Byford DCP Report**									
H-4.1	Urbis	42,342					34,967	7,375		
H-4.2	Connell Wagner	101,090			40,030	61,060	-			
H-4.3	Aurecon	39,325				3,300	28,655	7,370		
H-4.4	McLeod's	73,757	3,606	21,583	25,362	2,369	10,838	10,000		
H-4.5	Worley parsons	40,713	40,713							
H-4.6	Laurie Piggott Consulting	21,846			4,355	12,871	4,620			
H-4.7	Robert Willis Consulting	76,218					37,713	33,660	4,845	
H-4.8	Porter Consulting Engineer	3,964					3,964			
H-4.9	Whelans (WA) Pty Ltd	12,500					12,500			
H-4.0	**Total - Byford DCP Report**	**411,753**	**44,319**	**21,583**	**69,747**	**79,599**	**133,256**	**58,405**	**4,845**	**-**
H-5	**Interest Costs**									
H-5.1	Byford Developer Contribution Plan	10,575				3,689	3,027	2,314	1,546	
H-5.2	Population Projection Study	6,768				2,361	1,937	1,481	989	
H-5.3	Byford Developer Contribution Plan	3,944					1,638	1,313	993	
H-5.4	Road Design Cost - Byford Developers Contribution	13,148					5,461	4,377	3,310	
H-5.5	Byford Developer Contribution Plan	18,710						10,323	8,387	
H-5.6	Byford Developer Contribution Plan	11,306						6,238	5,068	
H-5.7	Byford Developer Contribution Plan - Loan 111	2,739							2,739	
H-5.8	Byford Developer Contribution Plan	30,302								30,302
H-5.0	**Total - Interest Costs**	**97,491**	**-**	**-**	**-**	**6,049**	**12,063**	**26,045**	**23,032**	**30,302**
H-6	**Corporate Services - DCP Establishment Costs**									
H-6.1	Salary & On-costs - Finance Officer	99,497				22,928	26,848	28,500	21,221	
H-6.2	Salary & On-costs - Planner	124,779				38,423	20,990	32,953	32,414	
H-6.0	**Total - Corporate Services - DCP Establishment Costs**	**224,276**	**-**	**-**	**-**	**61,351**	**47,838**	**61,453**	**53,635**	**-**
H-7	**Development Services**									
H-7.1	Salary & On-costs - Director Development Services	47,198	6,500	6,500	6,500	6,705	6,734	6,858	7,401	
H-7.2	Salary & On-costs - Executive Manager	33,938	-	-	-	9,369	12,159	12,409	-	
H-7.3	Salary & On-costs - Senior Planner	64,884	-	-	-	-	-	36,152	28,732	
H-7.4	Salary & On-costs - Planning Projects Support Officer	23,611	-	-	-	-	-	11,805	11,806	
H-7.0	**Total - Development Services**	**169,631**	**6,500**	**6,500**	**6,500**	**16,074**	**18,893**	**67,224**	**47,940**	**-**
H-8	**Byford DCP Establishment Costs - Engineering Services**									
H-8.1	Salary & On-costs - Executive Manager (Infrastructure)	22,921	-	-	-	4,917	2,616	4,898	10,490	
H-8.2	Salary & On-costs - Project Manager (Water Sensitive Urban Design)	13,433	-	-	-	3,078	5,130	5,225	-	-
H-8.0	**Total - Byford DCP Establishment Costs - Engineering Services**	**36,355**	**-**	**-**	**-**	**7,995**	**7,746**	**10,123**	**10,490**	**-**
H-9	**Byford DCP Land Valuations**									
H-9.1	Lmw Hegney Perth Peer Review - Valuation On Lot 9001 Thatcher Road, Byford (Marri Park Estate) Peer Review	4,050							4,050	
H-9.2	Propell National Valuers Pty Ltd Englobo Land Valuation	5,500							5,500	
H-9.3	Knight Frank	23,700								23,700
H-9.4	McGees	46,581								46,581
H-9.5	MMJ Realty	4,800								4,800
H-9.6	Ross Hughes Property	2,500								2,500
H-9.7	Savilles Valuations Pty Ltd	2,835								2,835
H-9.0	**Total - Byford DCP Land Valuations**	**89,966**	**-**	**-**	**-**	**-**	**-**	**-**	**9,550**	**80,416**
H-10	**Byford DCA Costs**									
H-10.1	Bodhi Alliance Consulting Services - Stakeholder Engagement Strategy	3,600							3,600	
H-10.2	SPP Consulting (WA) Pty Ltd - Project Manager To Act On Behalf Of Shire	129,930							32,300	97,630
H-10.3	Leith Counsel Consulting - DCP Accounting	15,390								15,390
H-10.4	Urbis - Byford DCP	38,273							34,473	3,800
H-10.5	Digital Mapping Solutions	6,365								6,365
H-10.6	Sundries	4,923							2,083	2,840
H-10.0	**Total - Byford DCA Costs**	**198,481**	**-**	**-**	**-**	**-**	**-**	**-**	**72,456**	**126,025**
	Total Historic Costs - Administration	**1,447,866**	**173,629**	**104,505**	**79,462**	**179,747**	**228,495**	**223,336**	**221,947**	**236,743**