1.0 Development Contribution Plan 1 – Bertram / Wellard / Parmelia (North East) / Orelia (East)

The development contribution area is shown on the Local Planning Scheme No. 2 (LPS2) scheme map as Development Contribution Area 1 (DCA1). The area is replicated in Appendix 1 for this document however, should there be any discrepancies between Appendix 1 and the area of DCA1 shown on the scheme map, the scheme map shall prevail.

1.1 History of Development Contribution Area 1

Council introduced DCA1 into LPS2 in 2004 via Scheme Amendment No. 87 (as shown on Figure 1 below) to ensure the coordinated provision of funding of infrastructure in future development areas in the Bertram locality. DCA1 was the first contribution scheme initiated by Council and focused on the new developments at Bertram and Belgravia Waters. It included contributions towards:

1. Construction of Sulphur Road Bridge;
2. Johnson Road upgrade;
3. Johnson Road Dual Use Paths;
4. Road linkage across the Parks and Recreation Reserve in Bertram;
5. Bertram Road/Mortimer Road upgrade; and
6. Nutrient Stripping Basin north of Bertram Road and associated water feature.

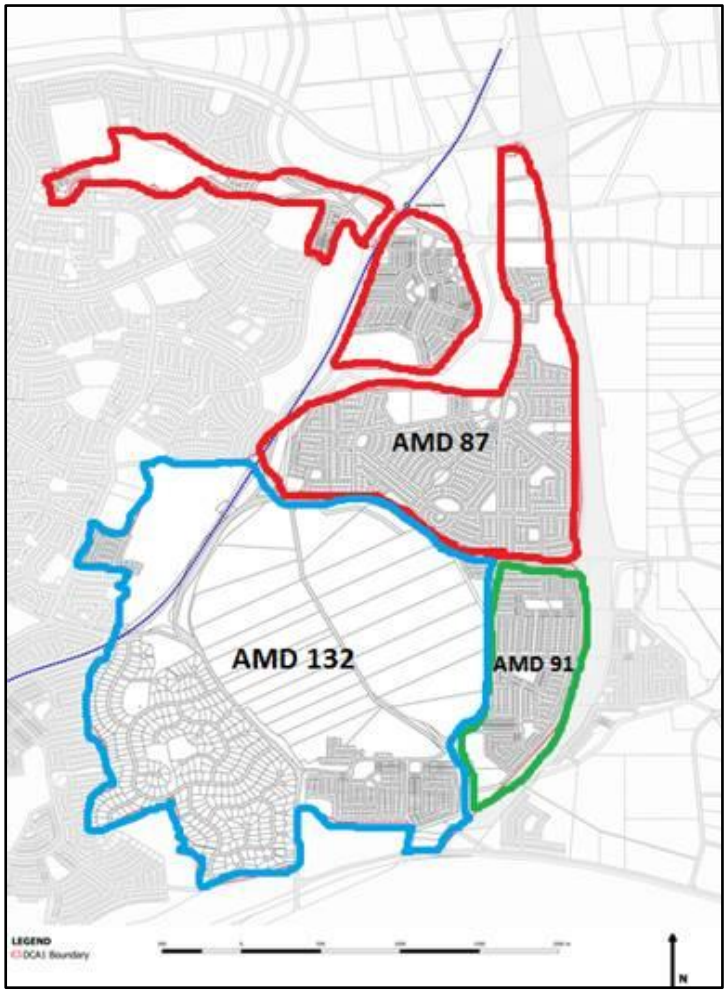


Figure 1: Historical Plan of Amendments to Development Contribution Area 1

It must be noted that contributing landowners within DCA1 in the context of Amendment 87 were not required to contribute to administration costs.

LPS2 was amended further in 2007 (via Scheme Amendment No. 91) to include additional landholdings within DCA1. This included the Emerald Park Estate and adjoining landholdings and expanded contributions for certain landholdings towards the southern extensions of Johnson Road and Bertram Road, respectively. Additional infrastructure items introduced via Amendment 91 included the upgrade of Johnson Road south of Bertram Road and north of Millar Road (including the undergrounding of power lines along Johnson Road, south of Bertram Road and north of Millar Road, and along the southern side of Mortimer Road between Johnson Road and the Freeway, and dual use paths along the eastern side of Johnson Road).

Similar to Amendment 87, contributing landowners within DCA1 in the context of Amendment 91 were not required to contribute to administration costs.

The scheme was to operate for 5 years from the date of gazettal of that Amendment. There were a number of operational timeframe extensions since June 2012 to allow time for Amendment 132 to be gazetted.

State Planning Policy 3.6 – Development Contributions Infrastructure (SPP 3.6), was gazetted in November 2009 and provided the strategic basis for the Developer Contribution Plan (DCP) over DCA1. The Western Australian Planning Commission (WAPC) Planning Bulletin 18 covered the earlier DCPs. The WAPC has since gazetted a revised SPP 3.6, dated April 2021.

The Minister for Planning, as advised by the WAPC in a letter dated 18 September 2016, directed the Council to re-advertise the amendment due to there being significant modifications required following public advertising and review by the WAPC.

The City originally initiated the advertising of Amendment 132 on 27 June 2012 (this is the date taken to be the effective date by City Officers (or when the Amendment was taken to be a seriously entertained document). Estimated contributions relating to land developed between 27 June 2012 and the gazettal of Amendment 132 (19 March 2019) were secured through legal agreements as provisional amounts and were finalised upon the cost apportionment schedule being approved. As the gazettal of Amendment 132 has occurred (19 March 2019), this DCP Report resets all costs and areas to this gazettal date considering all interim development that has occurred from 27 June 2012 until the gazettal date.

Development that occurred prior to 27 June 2012 is deemed to have had its contribution liability extinguished under the then prevailing DCA1 and Schedule V. Where there is no remaining developable land in the catchment for an infrastructure item, it will be taken that there is no cost outstanding for that item of infrastructure.

2.0 Purpose

The purpose of this development contribution plan report is to:

a) Enable the application of development contributions for the development of new, and the upgrade of existing, infrastructure which is required as a result of increased demand generated in the development contribution area;
b) Provide for the equitable sharing of the costs of infrastructure and administrative items between owners;
c) Ensure that cost contributions are reasonably required as a result of the subdivision and development of land in the development contribution area; and
d) Coordinate the timely provision of infrastructure.

Development within DCA1 and the identification of infrastructure items within the corresponding DCP are guided by the following plans and documents:

- WAPC Jandakot Structure Plan 2007
- Casuarina Structure Plan (adopted by Council in 1997)
- Bertram Structure Plan 2008
- Wellard West (Emerald Park Estate) Local Structure Plan 2014
- Lots 83, 85, 92, 67-170 and 1278 Wellard Road & Lots 1, 2 and 10 Johnson Road, Wellard (Providence Estate) Local Structure Plan 2012
- Lot 661 Bertram Road Local Structure Plan 2014
- Lots 670 and 1338 Bertram Road Local Structure Plan 2017
- Lots 503 and 504 Tamblyn Place & Lots 505, 507 and 900 Johnson Road, Wellard (Oakebella Estate) Local Structure Plan 2016
- Lots 500 and 501 Bertram Road, Wellard Local Structure Plan 2017
- Lot 502 Tamblyn Place, Wellard Local Structure Plan 2016
- State Planning Policy 3.6 - Infrastructure Contributions, WAPC
- Liveable Neighbourhoods 2009, WAPC
- Development Control Policy 1.7: General Road Planning, WAPC
- Development Control Policy 2.3: Public Open Space in Residential Areas, WAPC

3.0 Period of the Plan

This plan will operate for 15 years from 19 March 2019 to 19 March 2034, in accordance with the City of Kwinana's LPS2.

4.0 Operation of Development Contribution Plan

This plan has been prepared in accordance with State Planning Policy 3.6 - Infrastructure Contributions and operates in accordance with the provisions of section 5.15.5 Development Contribution Areas of LPS2.

5.0 Application Requirements

Where an application for subdivision, strata subdivision, development or an extension of land use is lodged, which relates to land to which this plan applies, the local government shall take the provisions of the plan into account in making a recommendation on or determining that application.

6.0 Items included in the plan

This section of the DCP report identifies the infrastructure items to be funded by development contributions collected from landowners and the City (as applicable) within DCA1.

Asset ID	Item
A	Sulphur Road Bridge
B	Stormwater Management Infrastructure
C	Bertram Road upgrade
D	Johnson Road upgrade – 1
E	Johnson Road upgrade – 2
F	Dual Use Path (eastern side Johnson Road)
G	Johnson Road upgrade – 3
H	Johnson Road construction
I	Price Parkway Road
J	Wellard Road upgrade
K	Bertram Road upgrade
L	New culvert and road crossing over Peel Main Drain – 1
M	New culvert and road crossing over Peel Main Drain – 2

6.1 Bridge

6.1.1 Item A – Sulphur Road Bridge

Sulphur Road Bridge shall extend over the railway line immediately south of the Thomas Road Train Station.

6.2 Roads and Drainage

6.2.1 Item B – Stormwater Management Infrastructure

Stormwater Management Infrastructure, formally known as the Nutrient Stripping Basin, shall be constructed on the Peel Main Drain in accordance with the requirements of the Water Corporation to service flows north of Bertram Road.

This development contribution is focussed on appropriate treatments of storm water entering the Peel Main Drain in accordance with the requirements of the Water Corporation to service the flows north of Bertram Road.

The storm water infrastructure is to be constructed in conjunction with the subdivision of Lot 670 Bertram Road.

6.2.2 Item C – Bertram Road upgrade

Includes upgrades to Bertram and Mortimer Roads between Challenger Avenue and the Kwinana Freeway and Johnson Road/Bertram Road Intersection treatments and includes all associated infrastructure.

6.2.3 Item D – Johnson Road upgrade 1

Consists of Johnston Road north of the Peel Lateral Drain to Holden Close from a rural standard to urban standard (being a Neighbourhood Connector A or equivalent) including all associated infrastructure works.

6.2.4 Item E – Johnson Road upgrade 2

Consists of upgrades to Johnston Road, south of the Peel Lateral Drain to Bertram Road, from rural standard to an urban standard (being a Neighbourhood Connector A or equivalent) including the provision of two roundabouts and all other associated infrastructure works.

6.2.5 Item F – Dual use path (eastern side of Johnson Road)

Consists of the construction of a dual use path on the eastern side of Johnson Road from Holden Close to Bertram Road.

6.2.6 Item G – Johnson Road upgrade 3

Consists of upgrades to Johnston Road, south of Bertram Road, to the eastern edge of the Peel Main Drain Reserve to a Neighbourhood Connector A standard (or equivalent) including all associated infrastructure works.

The rationale for the Neighbourhood Connector A standard is that this higher standard road is required for traffic movement generated beyond the immediate abutting subdivisions and that this is a cost that should be distributed across a wider catchment.

Works will include earthworks, drainage, resurfacing, resealing, dual use path (eastern side), side kerbing, lighting, undergrounding of overhead power lines to both sides of Johnson Road including reinstatement of the verge, landscaping and roundabout(s) where required by the City.

6.2.7 Item H – Johnson Road construction

Consists of the construction of a new road from the west side of the Peel Main Drain Reserve south to Millar Road. Contributions will be sought for the difference between a Neighbourhood Connector A standard road (or a comparable standard as constructed) and an Access Street B in terms of the costs of acquiring the additional land and the associated infrastructure works costs.

The rationale for the Neighbourhood Connector A standard is that this higher standard road is required for traffic movement generated beyond the immediate abutting subdivisions and that this is a cost that should be distributed across a wider catchment.

6.2.8 Item I – Price Parkway Road

Construction of a road linkage across the Parks and Recreation Reserves in the Bertram locality reflected on the approved Casuarina Structure Plan, known as Price Parkway.

6.2.9 Item J – Wellard Road upgrade

Wellard Road, from Bertram Road to Millar Road, to be upgraded to an Integrator A standard, or equivalent, including all associated infrastructure works, based on traffic apportionment in accordance with the traffic modelling report prepared by Cardno dated 31 August 2018, allocated against the actual lot yield and estimated future lot yield for each traffic generation locality.

It is noted that Homestead Ridge has been identified as a locality within the traffic modelling, see Tables 1 and 2, to recognise the traffic generated on Wellard Road from this locality. However, that locality is outside of DCA1, thus the City will be responsible for a proportionate contribution towards Item J that is equal to the traffic generated by Homestead Ridge. Additionally, given that Stages 1 - 4 (Phase 1) of the Emerald Park Estate were created prior to the 'seriously entertained' date for Amendment 132 (and given that this Item was not previously included in the DCP), the City will also cover the proportional contribution costs for the Item in this regard.

Landowners within the catchment shown on the Figure 12 'Item J', as contained within this report, are required to contribute towards this item.

Table 1 - Summary of Traffic on Wellard Road south of Bertram Road Associated with Contribution Catchment Area for combined 2031 AM and PM Peak Hour

Development	Vehicles Associated with Contribution Catchment Area	Proportional Traffic Associated w Contribution Catchment Area
Bollard Bulrush 1	144	4.75%
Bollard Bulrush 2	70	2.31%
Bollard Bulrush 3	153	5.04%
Providence	486	16.02%
Emerald Park	63	2.08%
Emerald Park North	11	0.36%
Emerald Park South	5	0.16%
Parmelia LSP	20	0.66%
Homestead Ridge	281	9.26%
Lot 1, 2 and 10	9	0.30%
Oakabella Estate	2	0.07%
Lot 506	16	0.53%
Total from Developments	1260	41.54%
External	1773	58.46%
Total Wellard Road North	3033	100.00%

Table 2 - Summary of Traffic on Wellard Road Associated with Contribution Catchment Area for combined 2031 AM and PM Peak Hour

Development	Vehicles Associated with Contribution Catchment Area	Proportional Traffic Associated w Contribution Catchment Area
Bollard Bulrush 1	61	2.52%
Bollard Bulrush 2	64	2.64%
Bollard Bulrush 3	145	5.98%
Providence	148	6.11%
Emerald Park	58	2.39%
Emerald Park North	11	0.45%
Emerald Park South	5	0.21%
Parmelia LSP	11	0.45%
Homestead Ridge	95	3.92%
Lot 1, 2 and 10	10	0.41%
Oakabella Estate	2	0.08%
Lot 506	15	0.62%
Total from Developments	625	25.79%
External	1798	74.21%
Total Wellard Road North	2423	100.00%

6.2.10 Item K – Bertram Road upgrade

Includes upgrading Bertram Road, from Challenger Avenue to Wellard Road, to an Integrator A standard, or equivalent, including all associated infrastructure works based on the traffic volumes in accordance with the traffic modelling report prepared by Cardno dated 31 August 2018, allocated against the actual lot yield and estimated future lot yield for each traffic generation locality, see Table 3.

The inclusion of this infrastructure item arises from the development of urban land that is immediately adjacent to or in close geographic proximity to Bertram Road that will generate a proportional traffic volume that has been shown via traffic modeling to utilise this road.

Table 3 - Summary of Traffic on Bertram Road West of Challenger Avenue Associated with Contribution Catchment Area for Combined 2031 AM and PM Peak Hour

Development	Vehicles Associated with Contribution Catchment Area	Proportional Traffic Associated w Contribution Catchment Area
Bollard Bulrush 1	43	2.11%
Bollard Bulrush 2	107	5.26%
Bollard Bulrush 3	312	15.34%
Providence	34	1.67%
Emerald Park	175	8.60%

Emerald Park North	46	2.26%
Emerald Park South	8	0.39%
Parmelia LSP	0	0.00%
Homestead Ridge	68	3.34%
Lot 1, 2 and 10	0	0.00%
Oakabella Estate	12	0.59%
Lot 506	10	0.49%
Total from Developments	815	40.07%
External	1219	59.93%
Total Wellard Road North	2034	100.00%

6.2.11 Item L – New culvert and road crossing over Peel Main Drain – 1

Includes the provision of a new culvert and road crossing over the Peel Main Drain Reserve connecting Items G and H, to a Neighbourhood Connector A standard, or equivalent, including all associated infrastructure works costs.

The construction of the culvert and road crossing will be to a suitable standard to accommodate, but not affect the flow of the drain and meet the traffic demands of a Neighbourhood Connector B standard road (or as constructed).

Unless otherwise constructed to support subdivision works, the provision of this infrastructure item will be in accordance with Priority and Timing of Infrastructure as noted below in this report.

The inclusion of this infrastructure item arises directly from the development of urban land that is immediately adjacent to or in close geographic proximity to the Johnson Road culvert that, by virtue of the number of landholdings surrounding the southern area of the Peel Main Drain and Johnson Road, would utilise the Peel Main Drain crossing.

6.2.12 Item M – New culvert and road crossing over Peel Main Drain – 2

New road culvert road crossing over the Peel Main Drain linking Lot 661 and Lot 670 Bertram Road (the northern side of Bollard Bulrush Wetland) constructed to an Access Street C Standard

Cost contributions towards the full cost of the new culvert and road crossing over the Peel Main Drain linking Lots 661 and 670 Bertram Road, based on actual lot yield and estimated future lot yield.

The design and construction of the culvert and road crossing will be to a suitable standard to address the flow of the drain and meet the traffic demands of an Access Street C standard.

The exact location of this culvert and road crossing is to be determined via local structure planning of these lots and is to cross the Peel Main Drain to provide a road connection to allow for traffic movement east-west within urban development south of Bertram Road and north of the Bollard Bulrush Wetland and buffer.

The need for this infrastructure item arises directly from the development of urban land that is immediately adjacent to or in close geographic proximity to the culvert that, by virtue of the number of landholdings surrounding the northern area of the Peel Main Drain adjacent to Bertram Road, would utilise this crossing.

This item may be constructed in the initial stages of subdivision for Lot 661 and/or Lot 670, or if this is not the case, construction will be in accordance with the Priority and Timing of Infrastructure as noted below in this report.

6.3 Administrative costs

Administrative costs included in the DCP area generally consist of:

- Land valuations and advice
- Engineering scope and estimates (preliminary)
- Administrative expenses
- Legal expenses
- Preparation of management tools

7.0 Estimated Costs

Details of the cost apportionment can be seen in the Cost Apportionment Schedule.

Refer to Appendix 15 – Schedule of Costs for a summary of costs for each infrastructure item.

7.1 Bridge

7.1.1 Item A – Sulphur Road Bridge

The cost contribution for DCA1 towards the Sulphur Road Bridge is **$1,914,745.27.**

Landowners within the catchment shown in Appendix 2 – Sulphur Road Bridge are required to contribute to 100% of the cost of construction of this item.

This infrastructure item has already been constructed and as such, the development contribution represents a cost recovery exercise.

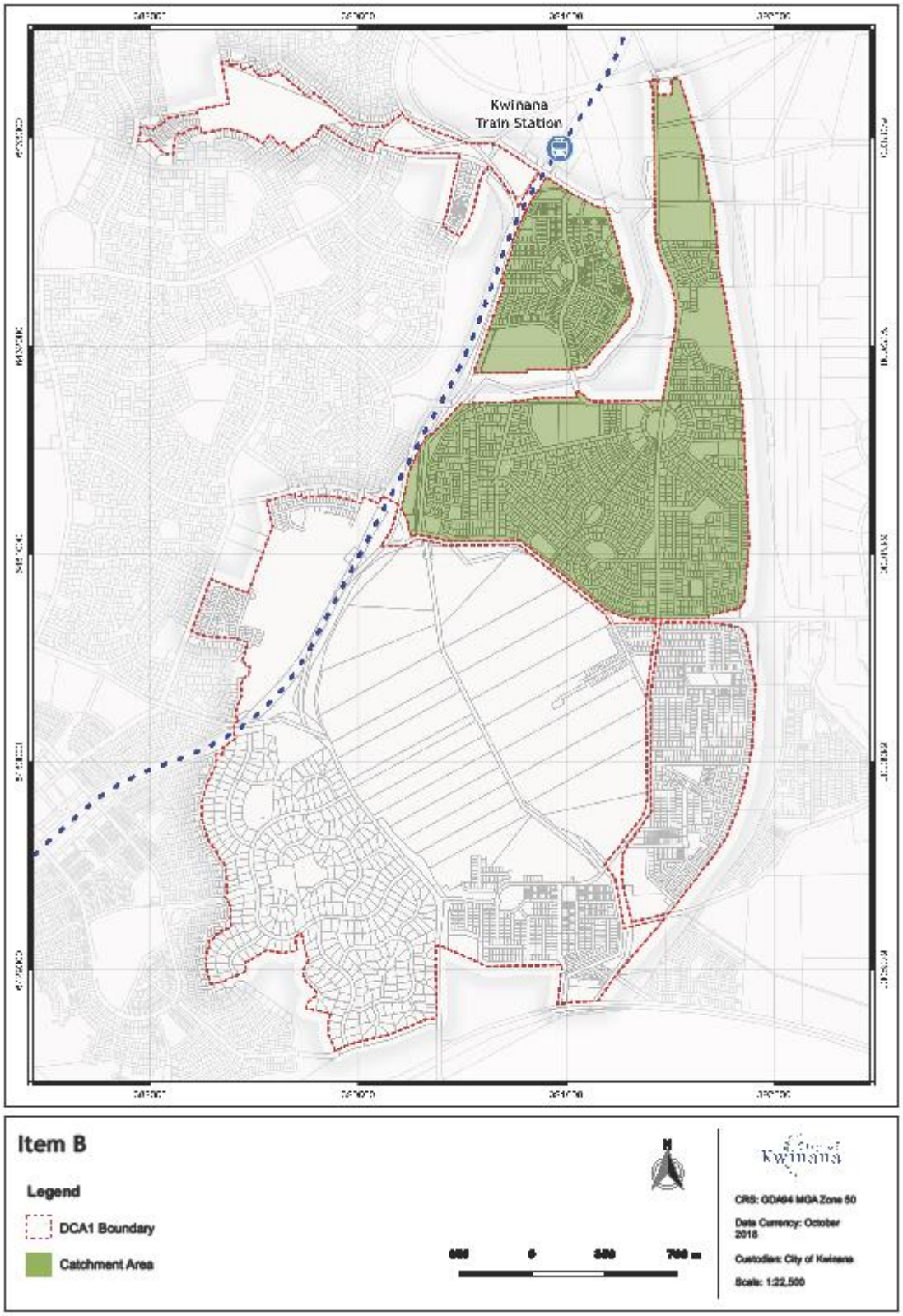
7.2 Roads and Drainage

7.2.1 Item B – Stormwater Management Infrastructure

The cost contribution for DCA1 towards Stormwater Management Infrastructure including land and infrastructure components is **$480,121.00.**

Cost contributions in relation to the development of stormwater management infrastructure on the Peel Main Drain are to be made by landowners within the catchment shown in Appendix 3 –

Stormwater Management Infrastructure collection area



7.2.2 Item C – Bertram Road upgrade

The cost contribution for DCA1 towards the Bertram Road and Johnson Road upgrades is **$2,338,945.00.**

Cost contributions in relation to the upgrade of Bertram/Mortimer Roads between Challenger Avenue and the Kwinana Freeway and Johnson/Bertram Intersection treatments are based on actual lot yield and estimated future lot yield. Landowners within the catchment shown in Appendix 4 – Bertram Road upgrade collection area, are required to contribute towards this item.

The Bertram Road upgrade (Johnson Road to Challenger Avenue) accounts for **$1,719,000.00** of the total figure and includes road construction and path construction/upgrades. The Mortimer Road upgrade (Johnson Road to the Freeway) accounts for **$619,945.00** of the total figure and includes landscaping/improvements, path construction/upgrades, underground power lines as well as road construction.

This infrastructure item has already been constructed and as such, the development contribution represents a cost recovery exercise.

7.2.3 Item D – Johnson Road upgrade 1

Cost contributions towards the western side (100% share of costs for the road upgrade) are based on actual lot yield and estimated future lot yield and are payable by landowners west of Johnson Road within the catchment shown in Appendix 5 – Johnston Road upgrade 1 collection area.

This item (D1) has been provided through developer pre-funding and the associated catchment for net developable land has been developed.

Cost contributions towards the eastern side (100% share of costs) are based on frontage of landholding and are payable by landowners within the catchment shown in Appendix 5 – Johnston Road upgrade 1 collection area.

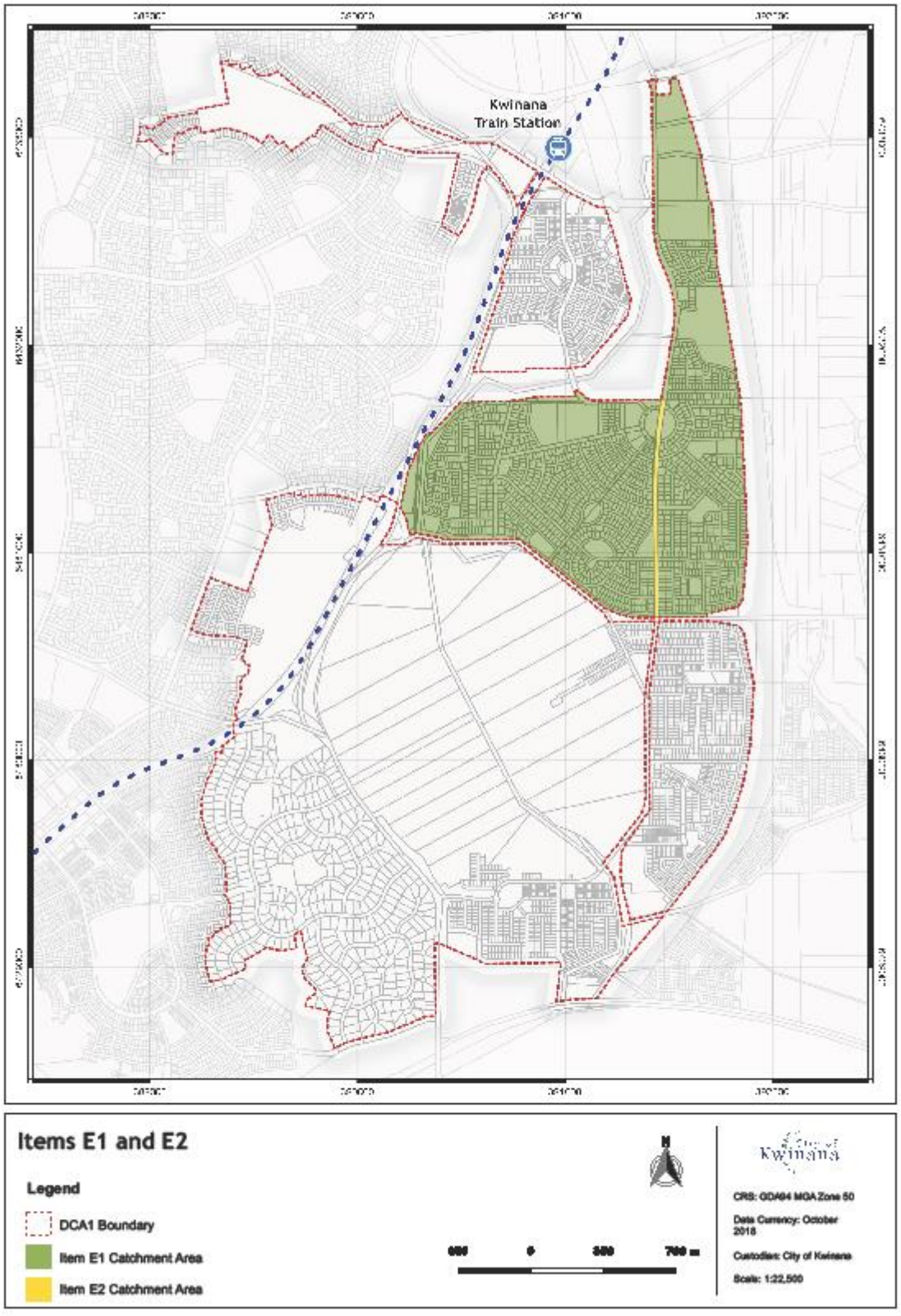
The cost contribution for DCA1 towards the Johnson Road upgrade (north of the Peel Lateral Drain to Holden Close) is **$28,562.00.**

This item (D2) has been provided through developer pre-funding and the associated catchment for net developable land has been developed.

7.2.4 Item E – Johnson Road upgrade 2

Cost contributions towards the upgrade of Johnson Road (100% share of costs) are based on frontage of landholding. A landowner may, with the agreement of the City, discharge liability for a cost contribution through the provision of physical infrastructure directly in accordance with clause 5.15.5.14.1.

Cost contributions towards the construction of two roundabouts are based on actual lot yield and estimated future lot yield. Landowners within the catchment shown on Appendix 6 – Johnston Road upgrade 2 collection area



are required to contribute 100% towards the cost of this item.

The cost contribution for DCA1 towards the Johnson Road upgrade (south of the Peel Lateral Drain to Holden Close) is **$181,536.** This figure includes **$16,518** for the road upgrade and **$165,018** for the two (2) roundabouts.

This item has been provided through developer pre-funding and the associated catchment for net developable land has been developed.

7.2.5 Item F – Dual Use Path (eastern side Johnson Road)

All landowners participating in the Casuarina Structure Plan, within the catchment as shown on Appendix 7 – Dual Use Path collection area are required to contribute 100% towards the cost of this item. Contributions are to be based on actual lot yield and estimated future lot yield.

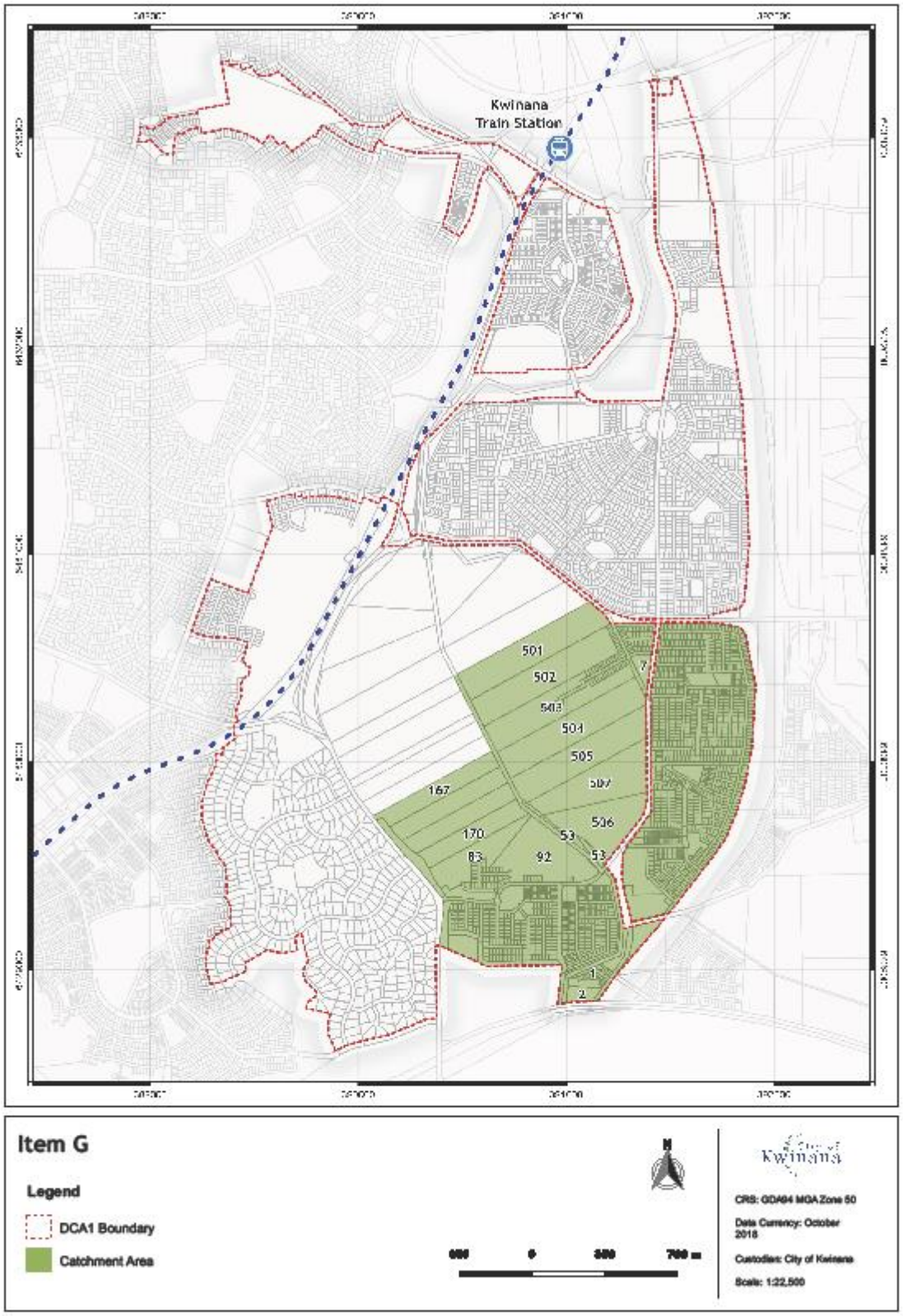
There is no specific figure attributed to the cost contribution for this time. The assumption is made that under the operation of Amendment 87, the works were undertaken by the adjoining landowners at the time of their respective works.

This item has been provided through developer pre-funding and the associated catchment for net developable land has been developed. No further contributions are required.

7.2.6 Item G – Johnson Road upgrade 3

Cost contributions towards the upgrading of Johnson Road south of Bertram Road to the east side of the Peel Main Drain Reserve are based on actual lot yield and estimated future lot yield.

Landowners within the catchment shown on Appendix 8 – Johnston Road upgrade 3 collection area



are required to contribute 100% towards this item.

The cost contribution for DCA1 towards the Johnson Road upgrade (south of Bertram Road) is **$2,817,123**. This figure includes landscaping/improvements as well as the road construction.

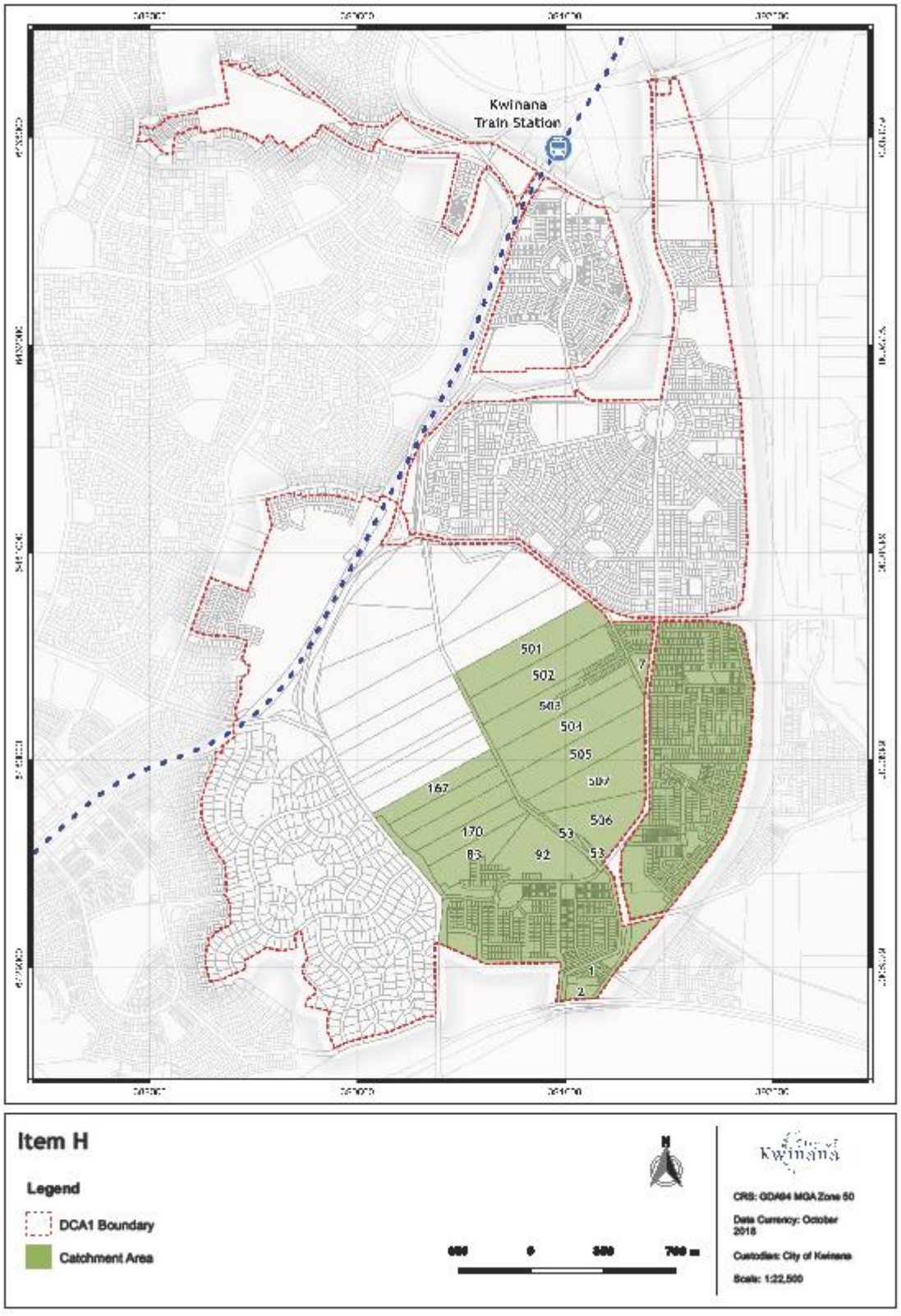
This infrastructure item has already been constructed by Cedar Woods Wellard Pty Ltd and Wellard Residential, as adjoining property owners, and as such, the development contribution represents a cost recovery exercise.

7.2.7 Item H – Johnson Road construction

Cost contributions towards the upgrading of the portion of realigned Johnson Road, extending from the west side of the Peel Main Drain Reserve into the Providence Estate along Irasburg Parade and then directly south along Fairhaven Boulevard to Millar Road, are based on actual lot yield and future lot yield.

Contributions will be sought for the difference between a Neighbourhood Connector A road (or a comparable standard as constructed) and an Access Street B in terms of the costs of acquiring the additional land and the associated infrastructure work costs.

Landowners within the catchment shown on Appendix 9 – Johnston Road construction collection area



are required to contribute 100% towards the cost of this item.

The cost contribution for DCA1 towards the Johnson Road upgrade (west side of the Peel Main Drain Reserve to Millar Road) including land and road construction components is **$233,835.**

This infrastructure item has already been constructed and as such, the development contribution represents a cost recovery exercise.

7.2.8 Item I – Price Parkway Road

Landowners within the catchment shown on Appendix 10 – Price Parkway collection area are required to contribute 100% towards the cost of this item.

The cost contribution for DCA1 towards the construction of a road linkage across the Parks and Recreation Reserves in Bertram is **$392,695.00.**

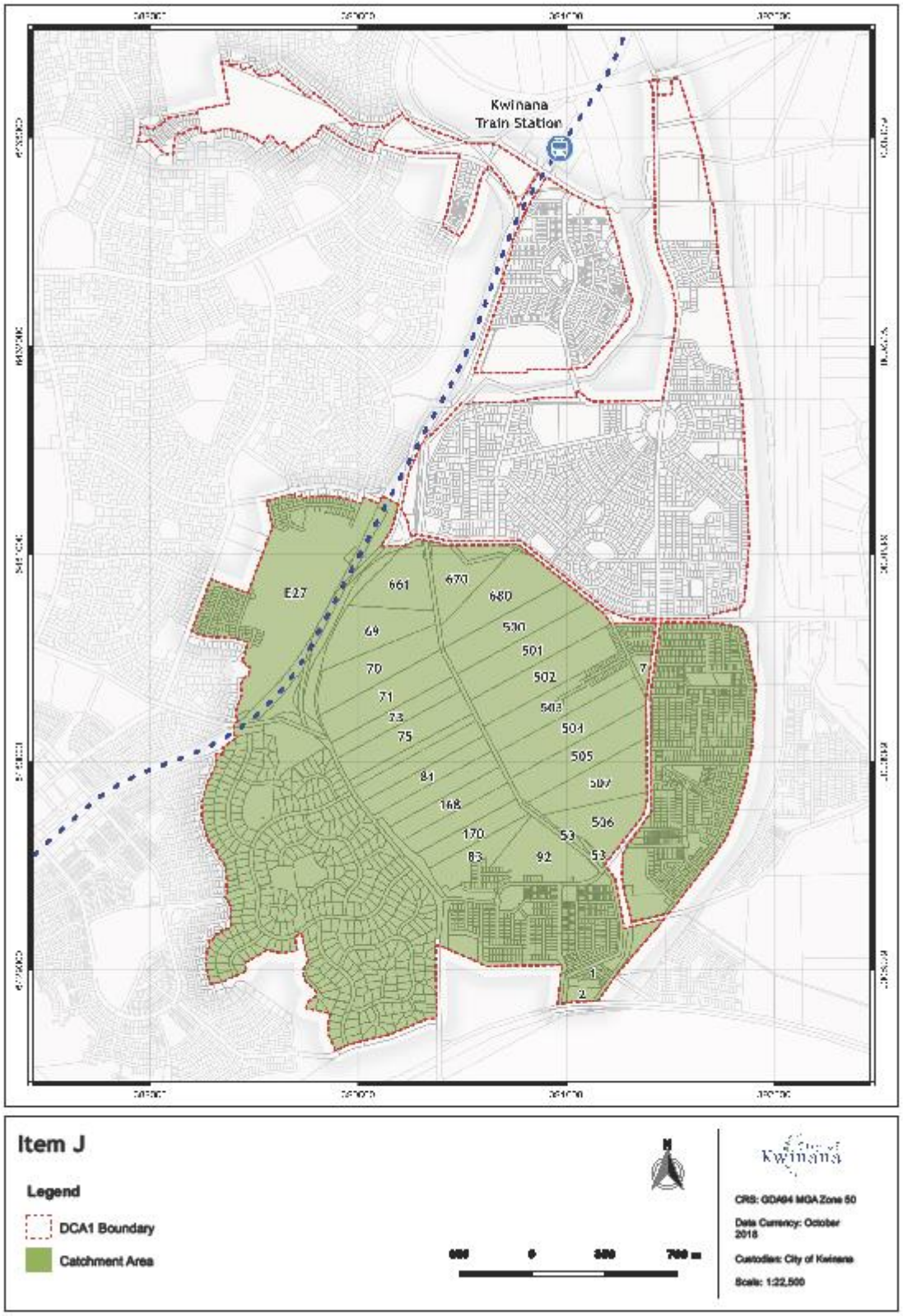
This item has been provided through developer pre-funding and the associated catchment for net developer land has been largely developed.

This infrastructure item has already been constructed and as such, the development contribution represents a cost recovery exercise.

7.2.9 Item J – Wellard Road upgrade

Contributions will be sought for an Integrator A standard road (or equivalent) and the associated infrastructure works costs. The full cost of this item will be proportionally reduced based on the percentage of traffic from elsewhere in DCA1 and external to DCA1 using this road as calculated from traffic modelling.

Landowners within the catchment shown on Appendix 11 – Wellard Road upgrade collection area



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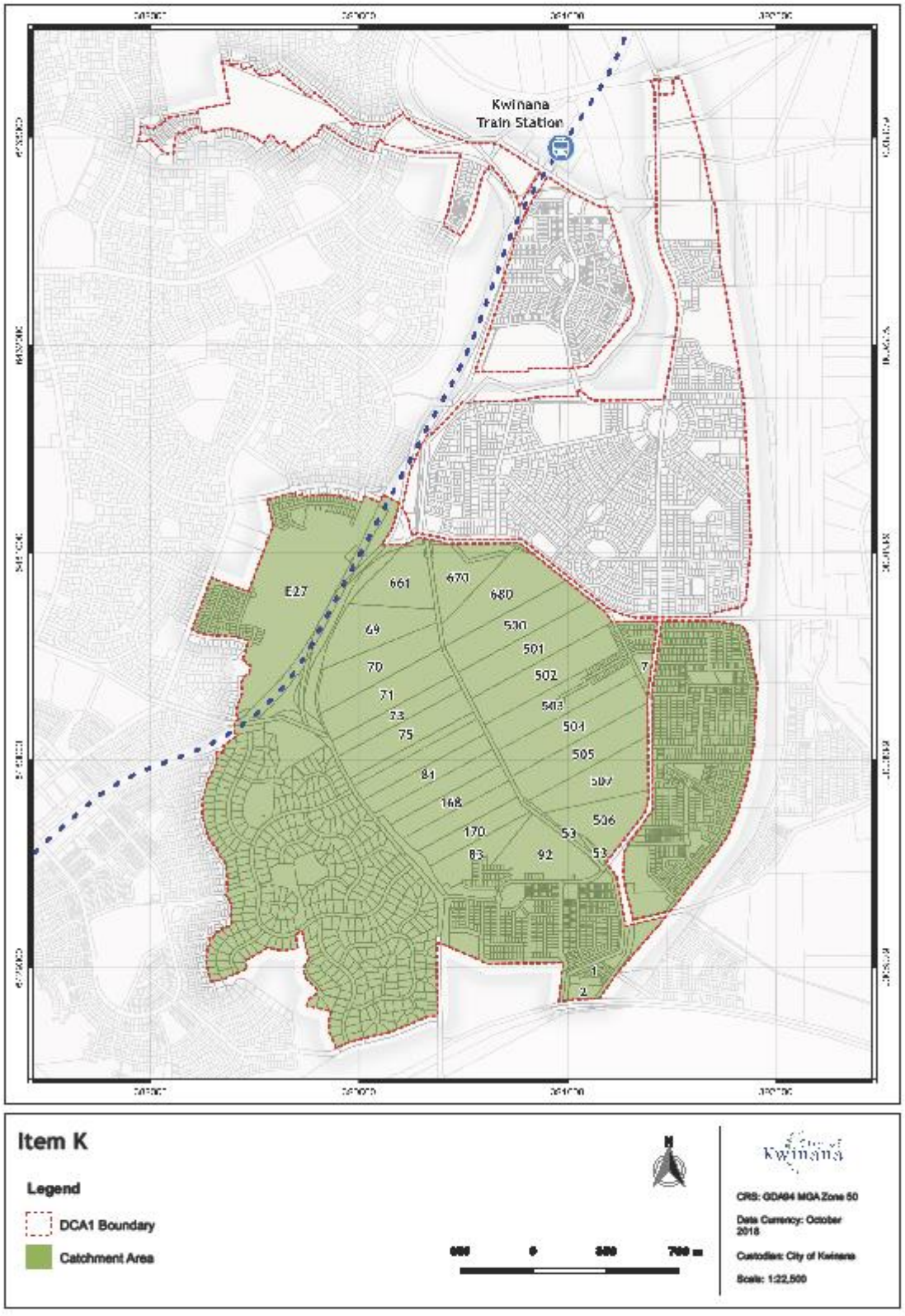
are required to contribute towards this item.

The cost contribution for DCA1 towards the Wellard Road upgrade (from the Wellard Road roundabout in the north to Millar Road in the south) includes land valuation, landscaping & improvements and road construction and is estimated at **$20,635,655.**

7.2.10 Item K – Bertram Road upgrade

Contributions will be sought for an Integrator A standard road (or equivalent) and the associated infrastructure works costs. The full cost of this item will be proportionally reduced based on the percentage of traffic from elsewhere in DCA1 and external to DCA1 using this road as calculated from traffic modelling. The provision of this infrastructure item will be in accordance with the Priority and Timing of Infrastructure as listed below in this report.

Landowners within the catchment shown on Appendix 12 – Bertram Road collection area



as contained within this Report, are required to contribute towards this item.

The cost contribution for DCA1 towards the Bertram Road upgrade (Challenger Avenue to Wellard Road) is **$4,449,279.00.** The costs associated with this figure include land valuation, landscaping/improvements and road construction.

7.2.11 Item L – New culvert and road crossing over Peel Main Drain – 1

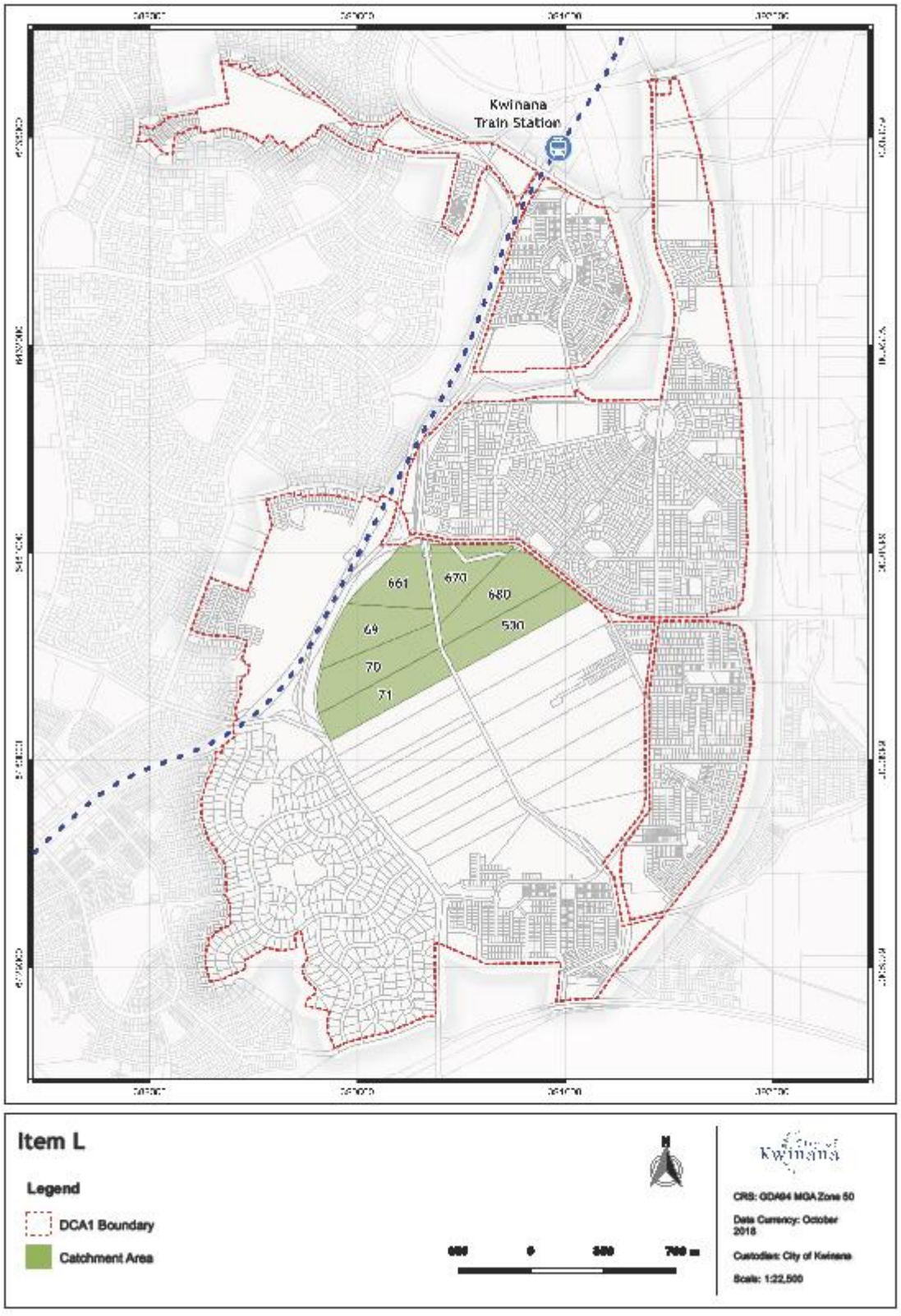
Cost contribution towards the full cost of the new Johnson Road culvert and road crossing is **$1,407,592**. The costs associated with this figure include landscaping/improvements and road construction.

Landowners within the catchment as shown on Appendix 13 – Culvert and road crossing over Peel Main Drain – 1 collection area are required to contribute towards this item.

7.2.12 Item M – New culvert and road crossing over Peel Main Drain – 2

Cost contribution towards the full cost of the new culvert and road crossing over the Peel Main Drain linking Lots 661 and 670 Bertram Road, based on actual lot yield and estimated future lot yield, is **$689,000.** The costs associated with this figure includes the culvert and road construction.

Landowners within the catchment as shown on Appendix 14 – Culvert and road crossing over Peel Main Drain – 2 collection area



are required to contribute towards this item.

7.3 Administrative costs

7.3.1 Administrative costs

Administrative costs will be charged at a flat rate of **2%** of the total infrastructure costs for the DCP.

8.0 Method of calculating contribution

The methodology for the calculation of cost contribution liability has been revised from the previous net developable land area to current and estimated future lot yield.

Prior to Amendment 132, cost contribution liability was based on net developable land area. In this regard, where cost contribution liability has been cleared, net developable land has been utilised as the base for determining cost contribution liability rather than lots created. Net developable land area included subdivision roads and local POS and did not account for lot sizes or density.

For the sake of consistency, future lot yields will be used as a base for both traffic modelling and calculation of cost contribution liability. In terms of how this will affect lots created under the previous (land area basis) methodology, all lots created post Amendment 132 'effective date' (being 27 June 2012) will be liable for DCA1 cost contributions on the revised lot yield basis. Liability is extinguished for all lots created pre-Amendment 132 effective date. In order to determine current liability for lots created post-Amendment 132 and for those yet to be developed, the City has been extensively reviewing and recording historical data, and confirming more recent lot data.

Given that each lot entails a different bundle of items, it is necessary to calculate the cost contribution for each lot where:

IC is the estimated or actual infrastructure cost for each DCA1 item including administration costs;
TY is the total actual lot yield/estimated lot yield contributing to each infrastructure item;
Y is the actual lot yield/estimated future lot yield for a particular lot; and
CCPL is the estimated cost contribution per lot for each item where **CCPL = Y/TY x IC.**
The amount of an owner's cost contribution is calculated at the time of liability arising under clause 5.15.5.13.2 as follows:

Owner's cost contribution = **Sum of all CCPL that the lot must pay contributions towards.**

Non-residential uses including commercial and light industrial; 1 hectare of Developable Area = 20 Equivalent Dwellings (ED) demand, i.e. 500m^2 equates to 1 lot.

9.0 Priority and timing of infrastructure delivery

Due to the fragmented land ownership of DCA1 it is difficult to accurately predict the delivery of infrastructure within the cell. Nonetheless, Table 4 below estimates the timing of development.

Priority	Infrastructure item	Anticipated timing	Comment
1	Item B - Stormwater Management Infrastructure	0-3 years	The stormwater infrastructure is to be constructed in conjunction with the subdivision of Lot 670 Bertram Road -

			will be constructed within POS area of Lot 670 Bertram Road subdivision.
2	Item J - Wellard Road upgrade	0-3 years	The exact timing of this development is dependent on Grant Funding
3	Item K - Bertram Road upgrade	0-4 years	The timing of this development is dependent on the construction of the Wellard Road upgrade and available funds within the DCP account.
4	Item M - New road culvert road crossing over the Peel Main Drain – 2	0-5 years	Staging of this item is largely dependent on the development/subdivision of the NE side of the Peel Drain (Lot 661 Bertram Road) and tie-in with development of adjacent Lot 670 Bertram Road.

Table 4: Estimated timing of infrastructure delivery

10.0 Payment of contributions

10.1 Payment of contributions

The landowners' liability for cost contributions will arise in accordance with clause 5.15.5.13 of LPS2 and the City's Local Planning Policy 4: Administration of Development Contributions.

The Cost Apportionment Schedule will determine the cost of each infrastructure item as follows:

Total estimate/actual cost of infrastructure item **less** any payments made from developers in the DCA area **less** any interest earned for the DCA area where there are surplus funds and interest has been earned **=** total liability of undeveloped lots payable

The **total liability of undeveloped lots payable for each infrastructure item** will then be divided by the total estimated lot yield to calculate a per dwelling lot rate for the infrastructure item.

10.2 Pre-funded infrastructure works

LPS2 allows for development contributions to be paid for in the form of works in kind provided that the contribution is provided in accordance with the Priority of Works, at the standard set and the actual costs, as approved by the City of Kwinana. This provision allows the dedication of land, construction of capital works or other service in lieu of a monetary contribution for future urban development. Refer to the City's Local Planning Policy 4: Administration of Development Contributions for the procedures and required information.

It must be noted that all "works in kind" to be undertaken by the landowner/developer that relate to an infrastructure item within the DCP will only be accepted on the proviso that the City has approved the scope, cost estimate and detail of the works in accordance with Clause 5.15.5.14.1(c) of the Scheme prior to the works occurring and has entered into an Agreement with the relevant landowner/developer. Any reimbursement of DCP funds will occur in line with section 10.3.4 of this DCP Report.

10.3 Other Matters

10.3.1 Grant Funding

Generally, any DCP infrastructure item does not attract grant funding. It is generally when the City is requesting infrastructure over and above the DCP required infrastructure that grants will be given. As part of the formulation of the liability of road infrastructure, developers are liable for costs based on the traffic they generate and only to an urban standard. All other liability falls with the City and the City is responsible for this share of the infrastructure works. Therefore, where the grant funds relate to works carried out over and above the developer contribution requirements, the developer will not benefit from this. The developer will not receive a reduction in liability. The City's contribution for constructing the road infrastructure over and above the urban standard will be reduced based on any grants received.

Such circumstances would be demonstrated via traffic modelling and the like, whereby existing and external users of a particular road may necessitate the need for a higher order road, but the need and nexus of proposed users within the respective DCA would justify the need for an urban standard, lower order road.

Where the City receives a grant for DCP infrastructure where the developer is liable to contribute to the works, the developer will receive a reduced liability for that DCP infrastructure item when the grant has been formally approved and the CAS has been adjusted accordingly.

10.3.2 CPI for Infrastructure Constructed within DCA

As a result of the CAS being reviewed annually, there is no requirement to include CPI in any infrastructure items that have not been constructed. The cost of the infrastructure works is reviewed annually which would factor in any price increases of all future works and the amount required to be collected will be applied across the remaining lots to be developed.

For works already constructed, no CPI will be applied to any infrastructure works that a developer has carried out as an in-kind contribution, as the development company generally ceases to operate once development has occurred.

10.3.3 Interest

Interest applied across the DCA infrastructure items

Interest earned as part of funds in the DCA area is to be applied across all of the infrastructure items based on a pro rata amount paid towards each infrastructure item. The interest applied will be the actual interest earned for that period for the DCA area.

Interest applied to an infrastructure item where there are insufficient funds in the DCP fund to refund the developer who has carried out the works in kind

If there are insufficient funds in the DCP fund to refund the developer as a result of being approved credits for any works carried out, interest will only commence being calculated once the next Cost Apportionment Schedule review has been undertaken and approved by Council.

A Cost Apportionment Schedule is reviewed annually and therefore once both the City of Kwinana and the Developer agree on the credit provided and determine whether there are sufficient funds to refund the developer, will interest commence calculating. Interest will be calculated and credited to

the developer using the Reserve Bank of Australia Cash Rate Target monthly average rate, which is the volume-weighted average interbank overnight interest rate on a per annum basis, and commence after Council has reviewed the Cost Apportionment Schedule for credits claimed after the previous Cost Apportionment Schedule approved by Council and the latest Cost Apportionment Schedule approved by Council.

Interest will be calculated monthly using the previous months released monthly average rate divided by 12 months and multiplied by the amount outstanding to the developer (the amount due to be refunded to the developer). The interest calculated will be included in the cost of the relevant infrastructure item and updated in the CAS annually for the remaining developers in the DCA area to contribute to. The developer that is due the refund will not receive the interest calculated until such time as there are sufficient funds in the DCA account.

10.3.4 Reimbursement of DCP funds

Any reimbursement of DCP funds to the relevant landowner – in respect of agreements entered into between the City and the landowner for payment of cost contributions and the adjustment of final cost contributions thereof, or reimbursement to the landowner for approved DCP works undertaken – will only occur if sufficient funds are available within the relevant DCP account.

Once a DCP has been gazetted, the accompanying cost apportionment schedule adopted and all legal agreements for the particular DCP reconciled, then no further reimbursement(s) of DCP funds shall occur until all stages of the development are completed in instances where a particular development comprises several stages.

In addition, no interest earned on funds to be reimbursed shall apply to individual claims for reimbursement once the DCP has been finalised, the accompanying cost apportionment schedule adopted and all legal agreements for the particular DCP reconciled. Instead, all interest earned within the individual DCP account will serve to reduce the total cost contribution liability for the respective DCA as a whole.

10.3.5 Claims on Actuals

The costing attributable to a particular DCP item is comprised of either an estimate (where works for the item have not commenced or claims on actuals have not been received, and are reviewed and updated annually by independent, professional technical experts) and/or an actual amount for the approved works that have been undertaken.

Prior to works proposed to be undertaken on any approved infrastructure item as per this DCP, all plans and cost estimates are firstly to be approved by the relevant City Officer(s). A Deed of Agreement or Exchange Letter may firstly be required to be entered into between the City and the landowner(s) for this purpose.

To assist in the timely preparation of the annual cost apportionment schedule review by the City, all claims on actuals for approved works undertaken for DCP items must be received by the City by end of December in any calendar year for inclusion as actuals against costings of the relevant DCP item.

Claims on actuals are required to be presented with the following information:

- A coversheet summary of the approved works undertaken for the relevant item;

- An itemised spreadsheet of claims relevant to the works undertaken detailing specific costs (GST exclusive) vis a vis works undertaken and the dates on which the works were undertaken; and
- Copies of the invoices relevant to the works undertaken.

It must be noted that the costing of actuals, if greater than the City's estimate for the particular item of infrastructure, will only be credited or reimbursed to the extent of the City's estimate as included in the CAS.

10.3.6 Two Year Establishment Cost

A two-year establishment period is applicable to all landscaping works for DCP items, including landscaping to roads, POS areas and Living Streams in the context of Sub-drains.

Similar to claims on actuals, actuals attributable to the two-year establishment period are to be provided to the City annually by the end of December in any calendar year, in order to be included in the ensuing annual update of the CAS.

Further, and similarly to claims on actuals, actuals attributable to two-year establishment costs are to be presented with the following information:

- A coversheet summary of the two years' establishment costs incurred to date;
- An itemised spreadsheet of claims relevant to the two years' establishment detailing specific costs (GST exclusive), establishment works undertaken and the date on which the specific establishment work was undertaken; and
- Copies of the invoices relevant to the works undertaken.

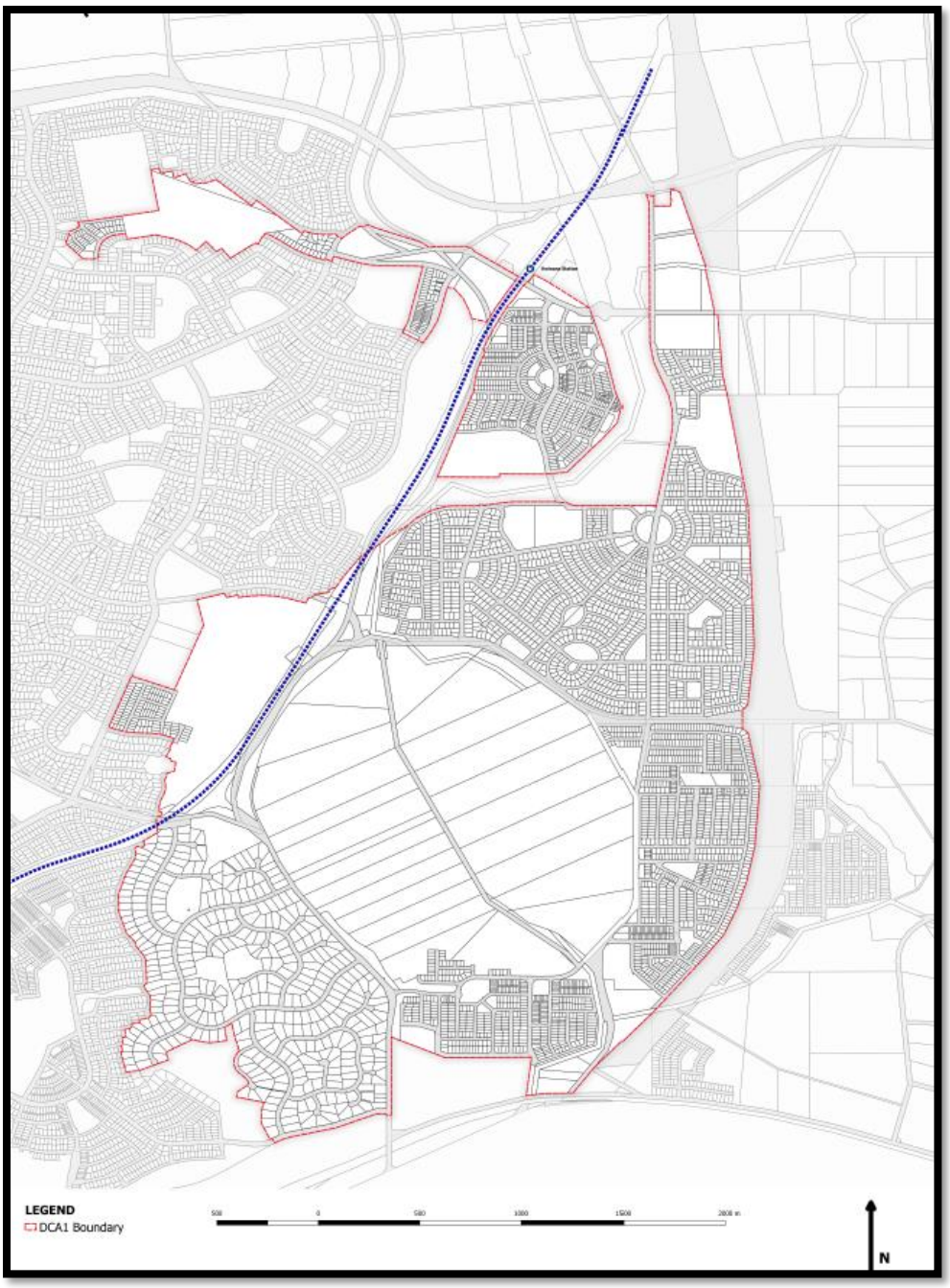
11.0 Review

The plan will be reviewed when considered appropriate, though not exceeding a period of five years duration, having regard to the rate of subsequent development in the catchment areas since the last review and the degree of development potential still existing.

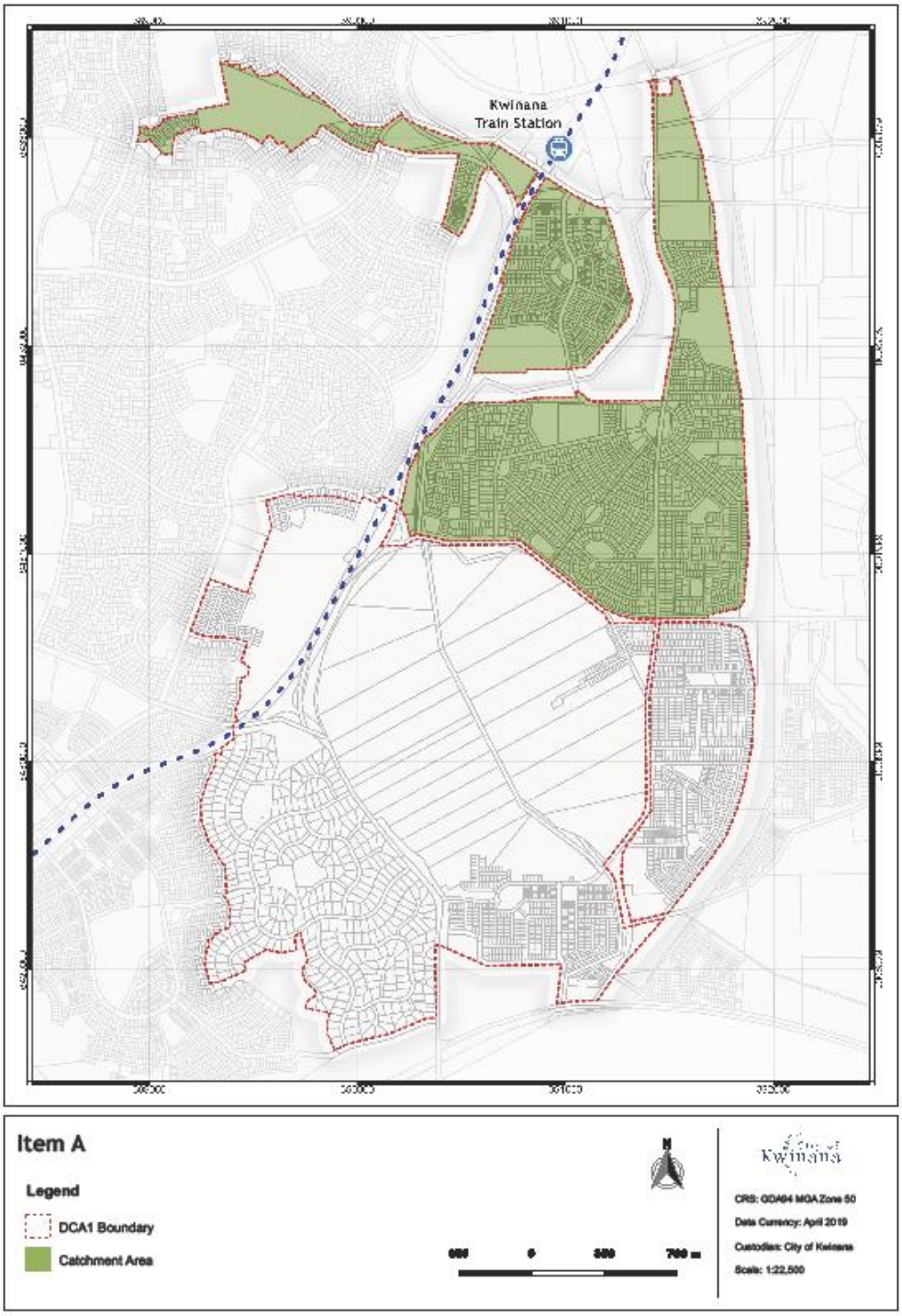
The estimated infrastructure costs contained in the Cost Apportionment Schedule will be reviewed at least annually to reflect changes in funding and revenue sources and indexed based on the Building Cost Index or other appropriate index as approved by an appropriately qualified independent person.

Appendices

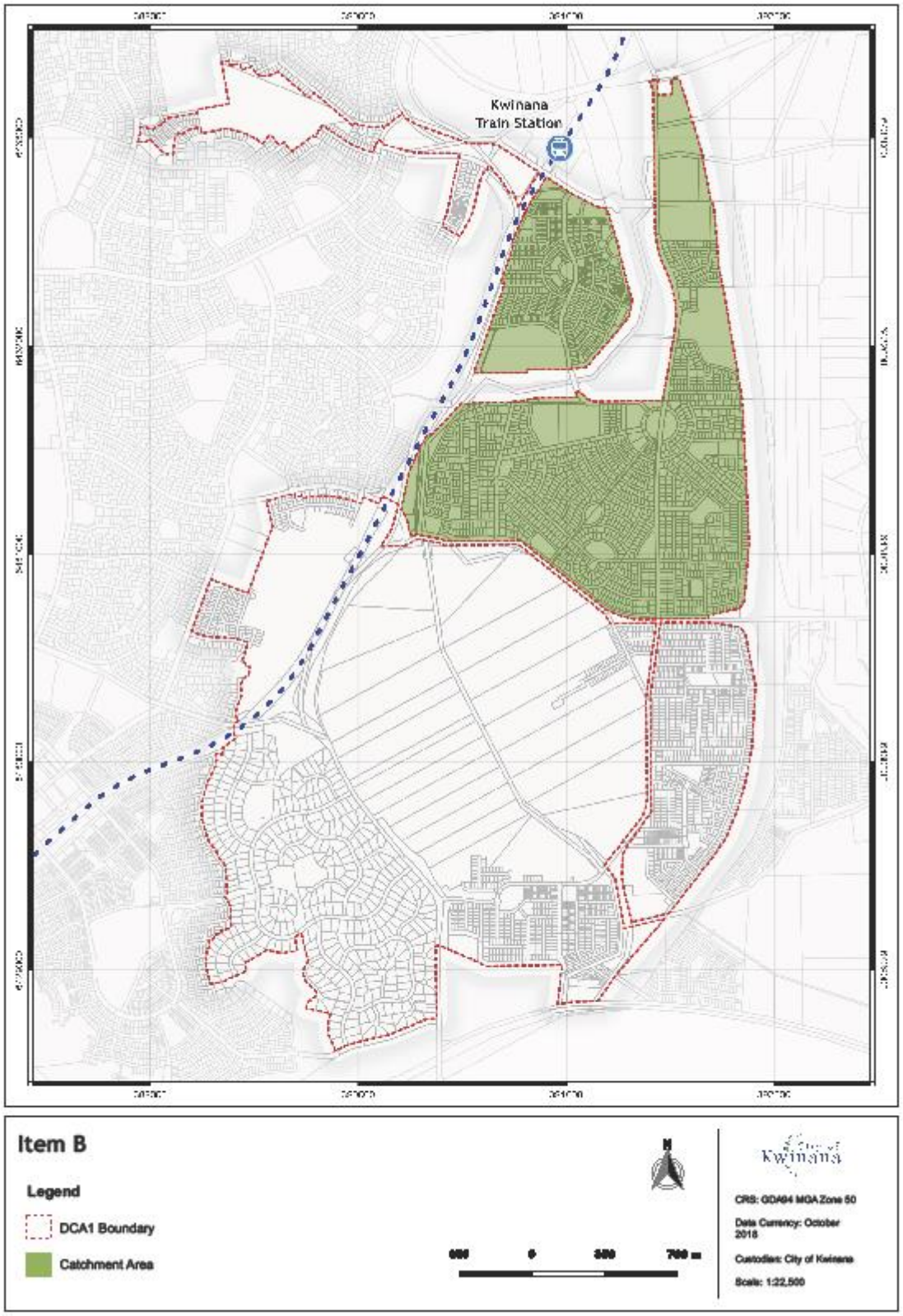
Appendix 1 – Development Contribution Area 1 – Wellard West, Bertram, Orelia and Parmelia



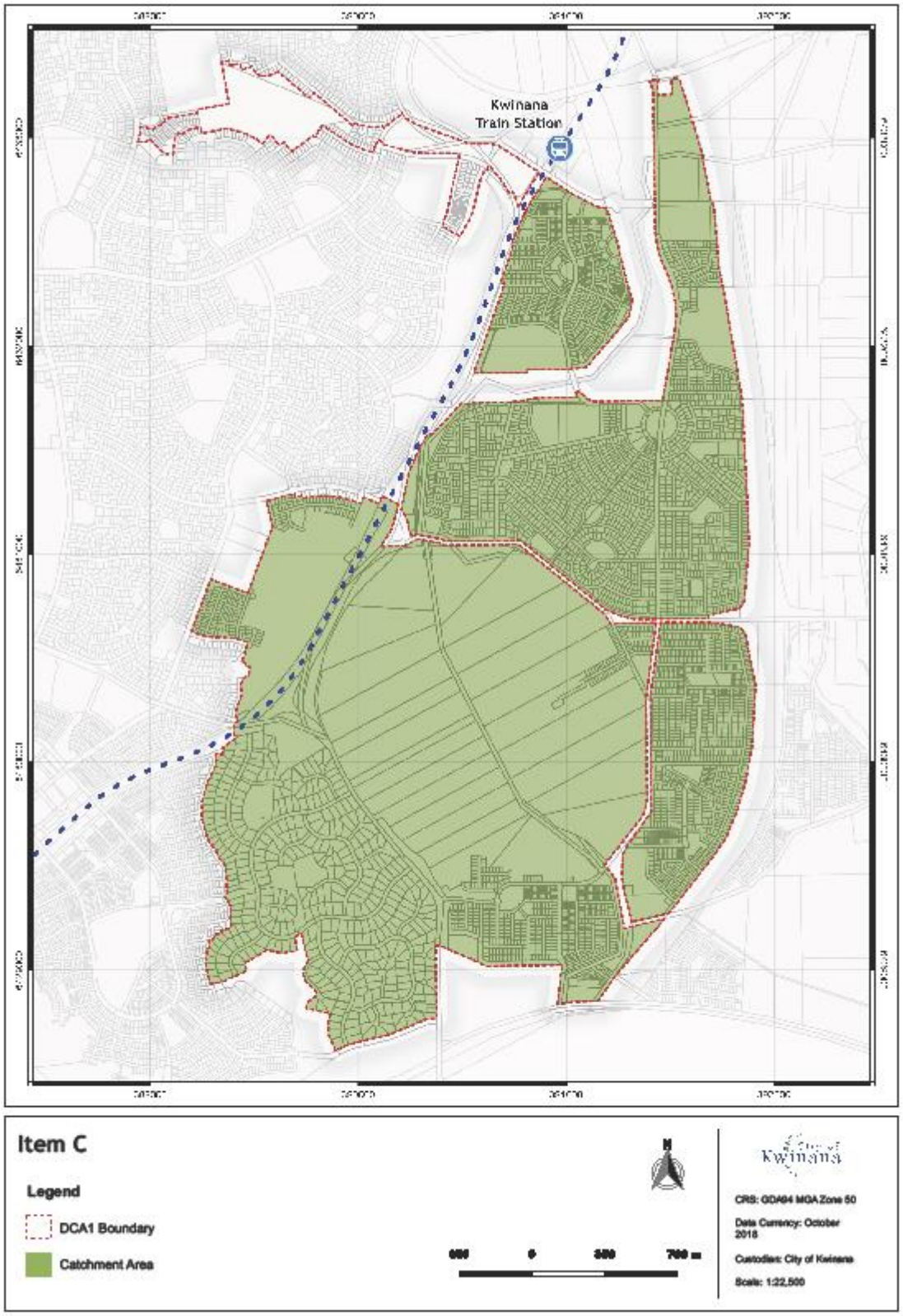
Appendix 2 – Sulphur Road Bridge collection area



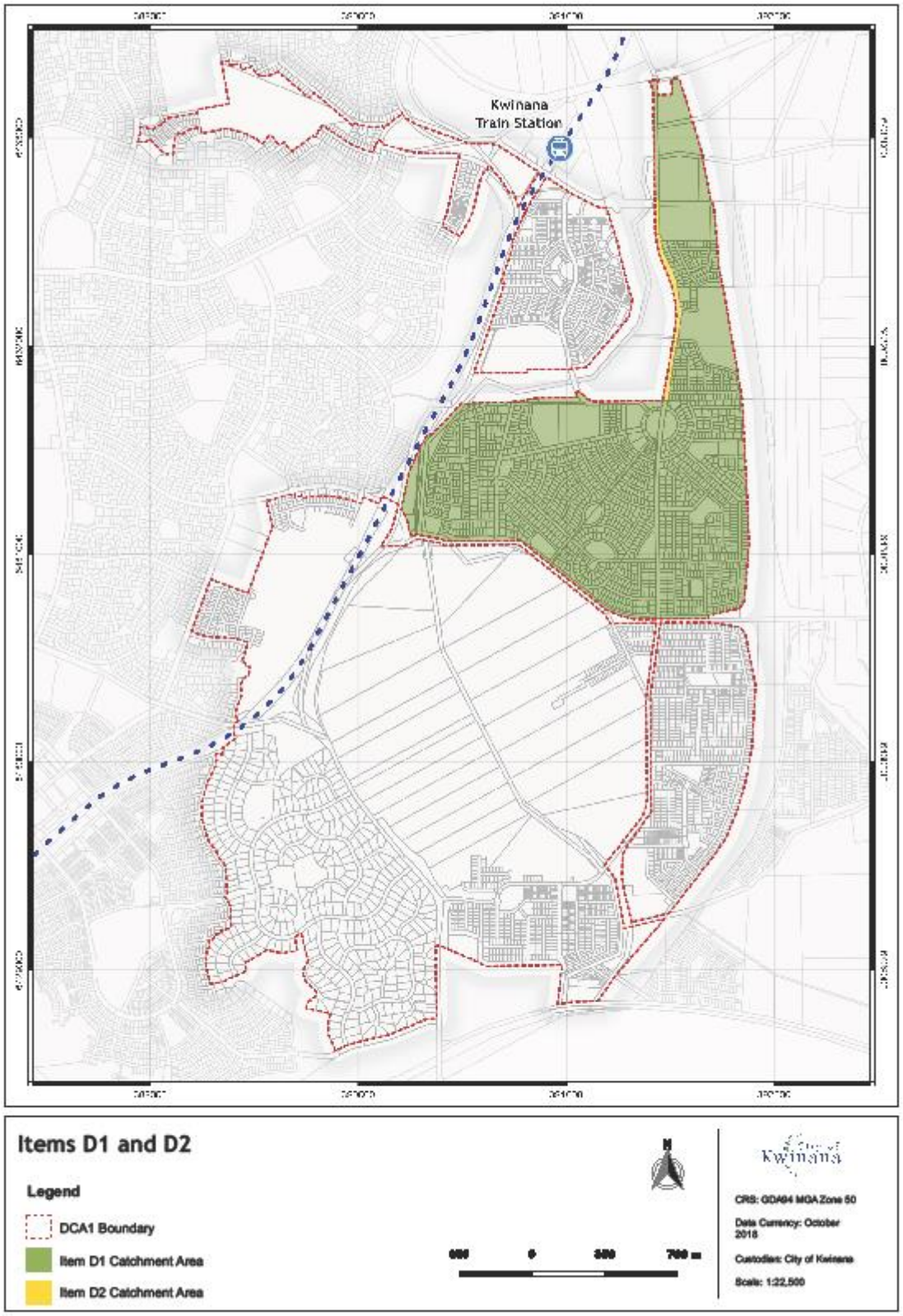
Appendix 3 – Stormwater Management Infrastructure collection area



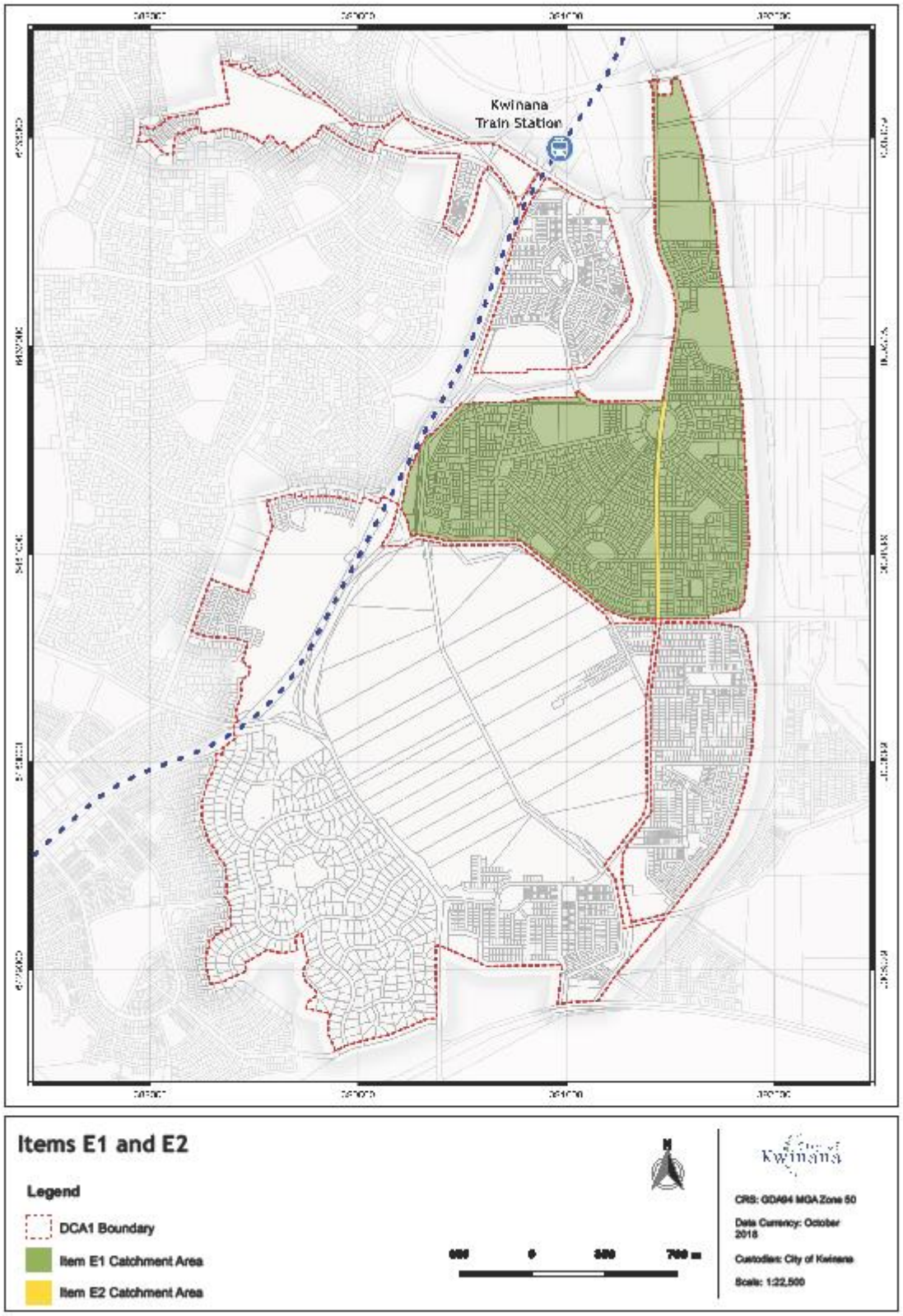
Appendix 4 – Bertram Road upgrade collection area



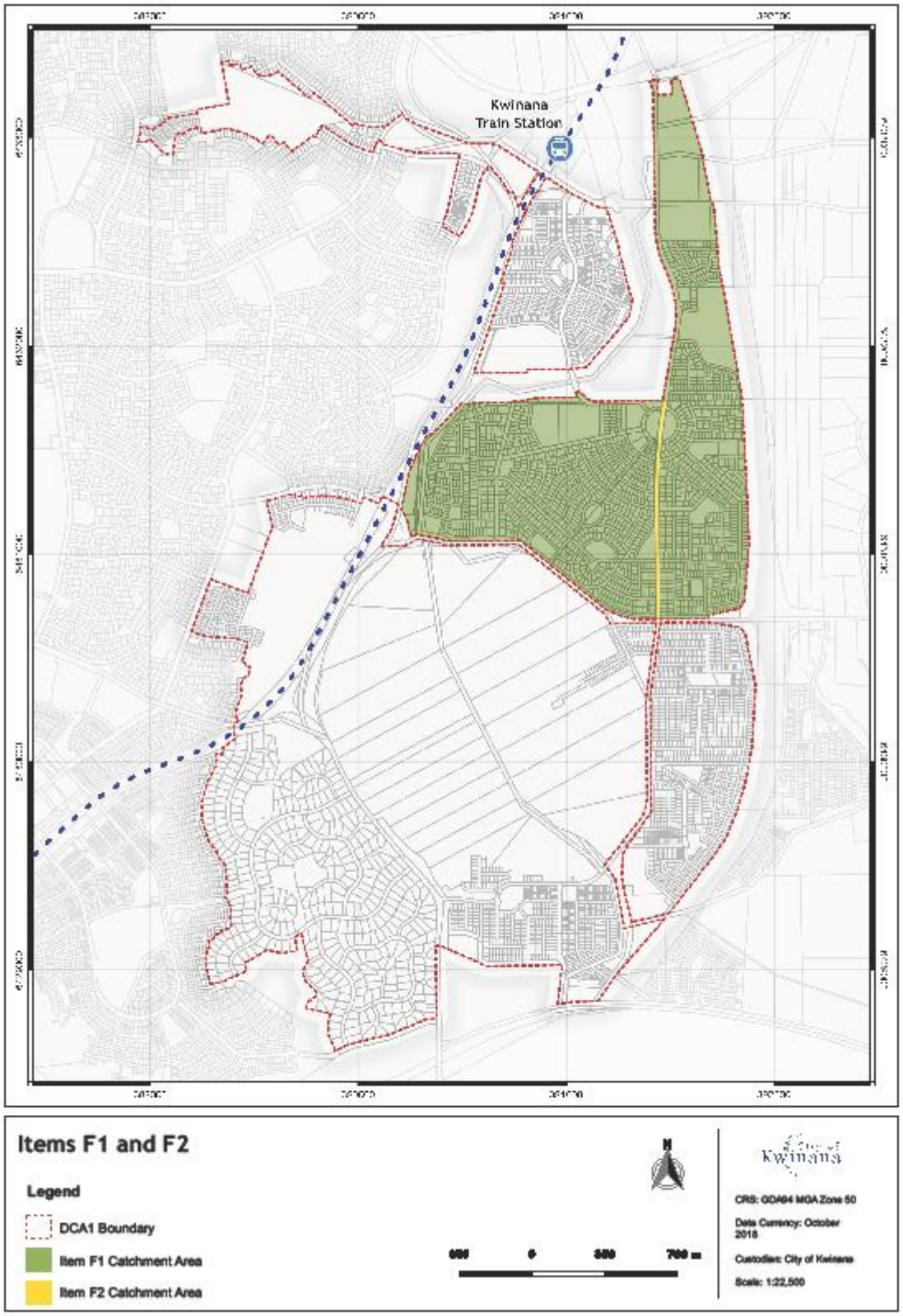
Appendix 5 – Johnston Road upgrade 1 collection area



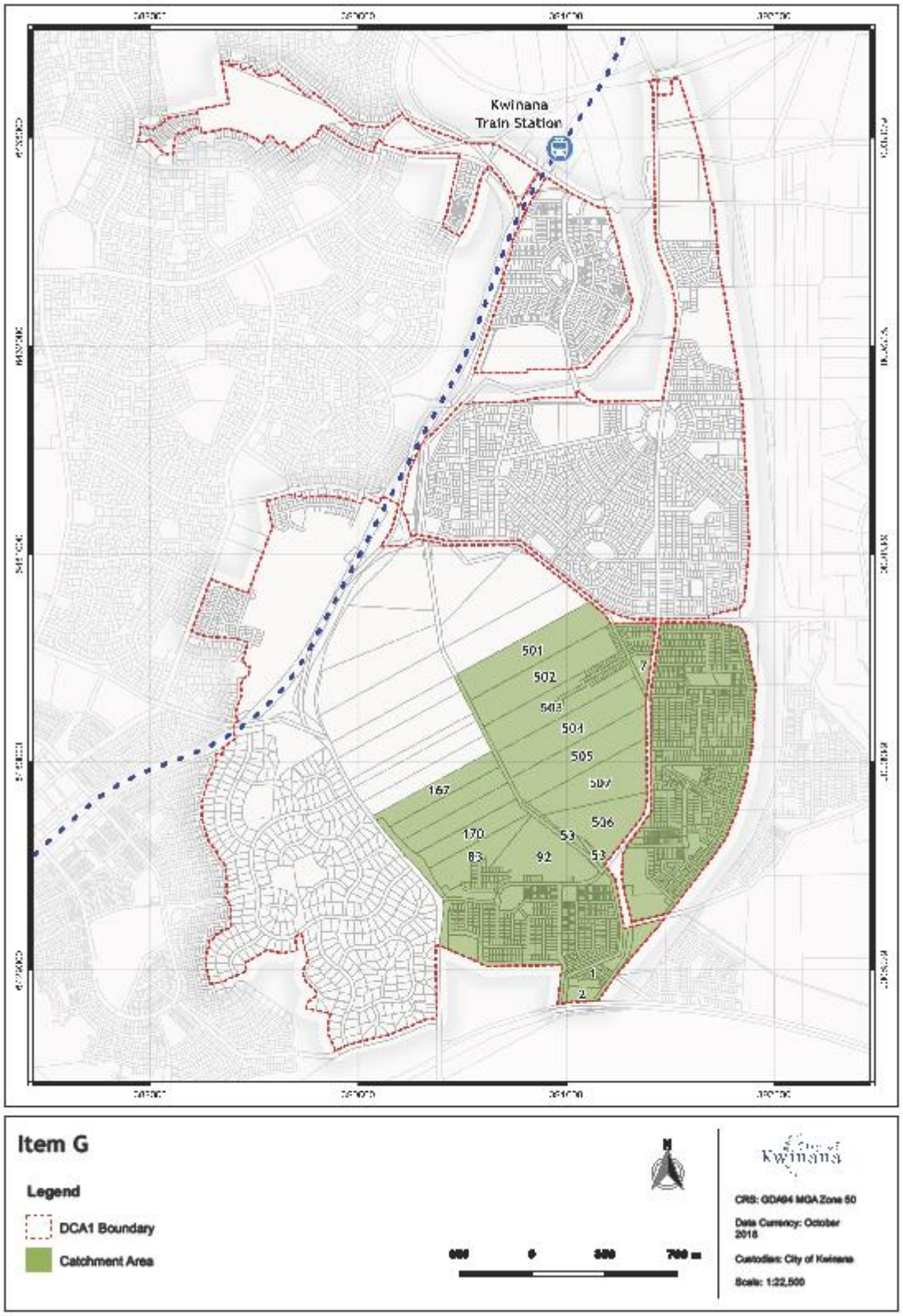
Appendix 6 – Johnston Road upgrade 2 collection area



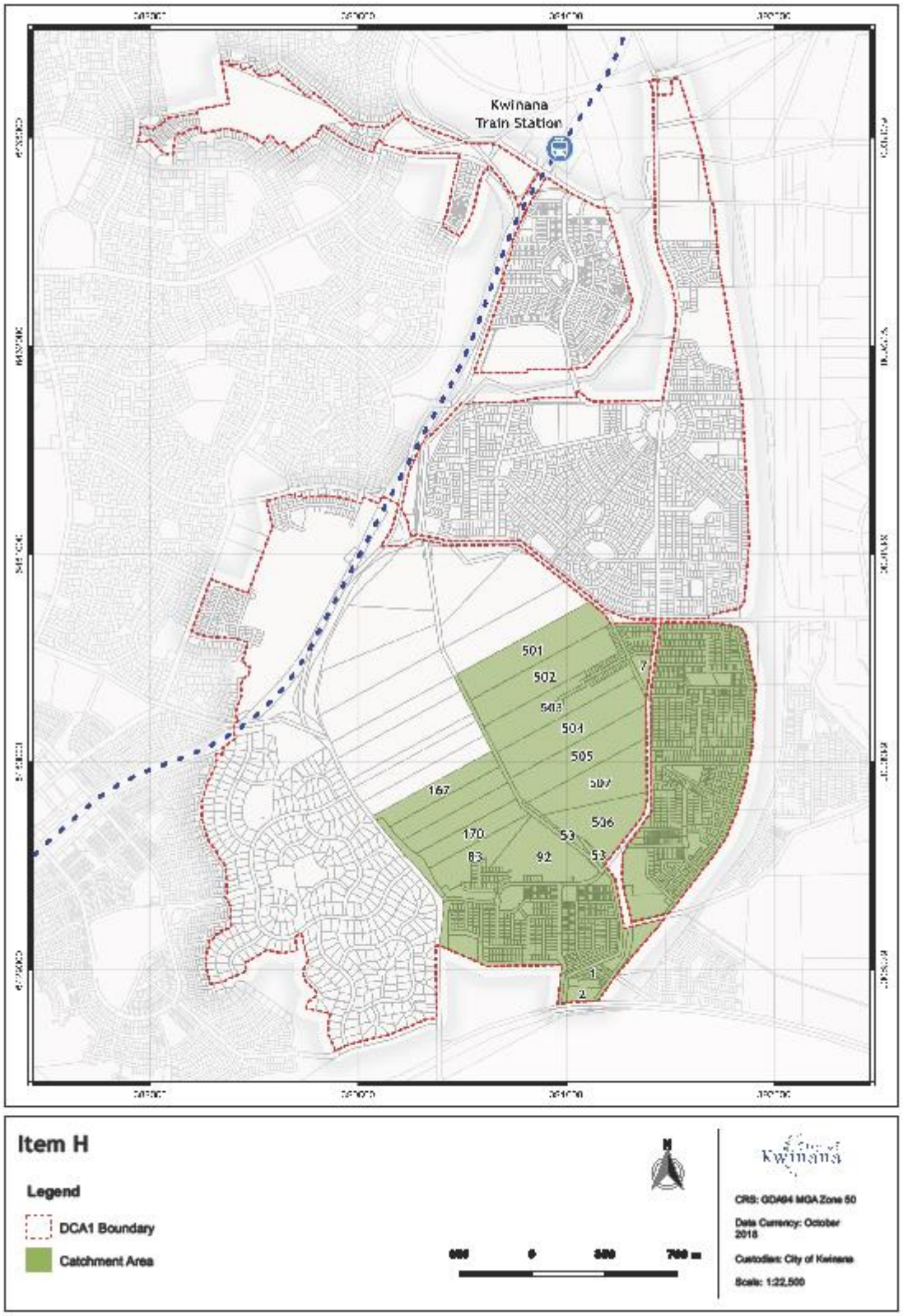
Appendix 7 – Dual Use Path collection area



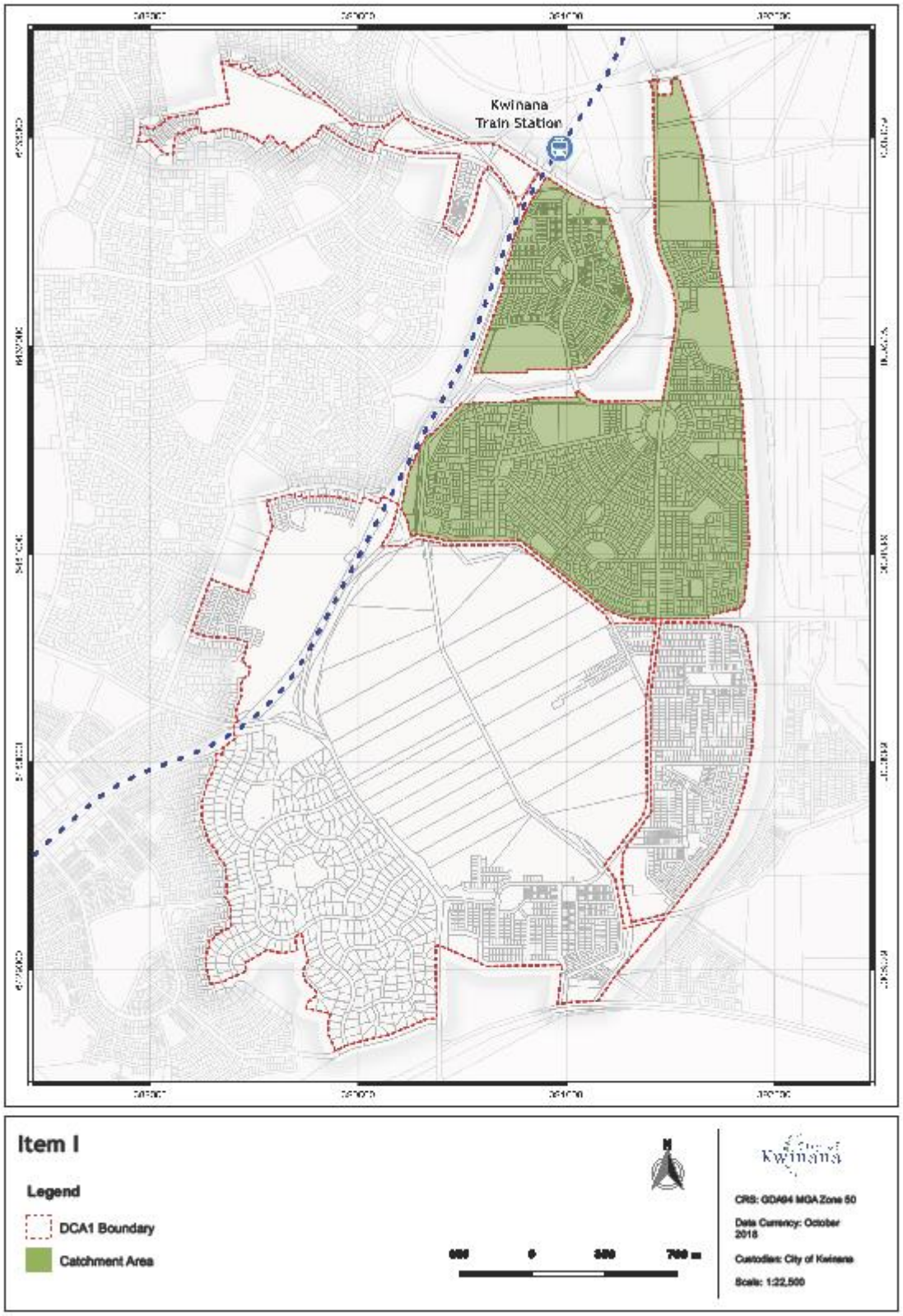
Appendix 8 – Johnston Road upgrade 3 collection area



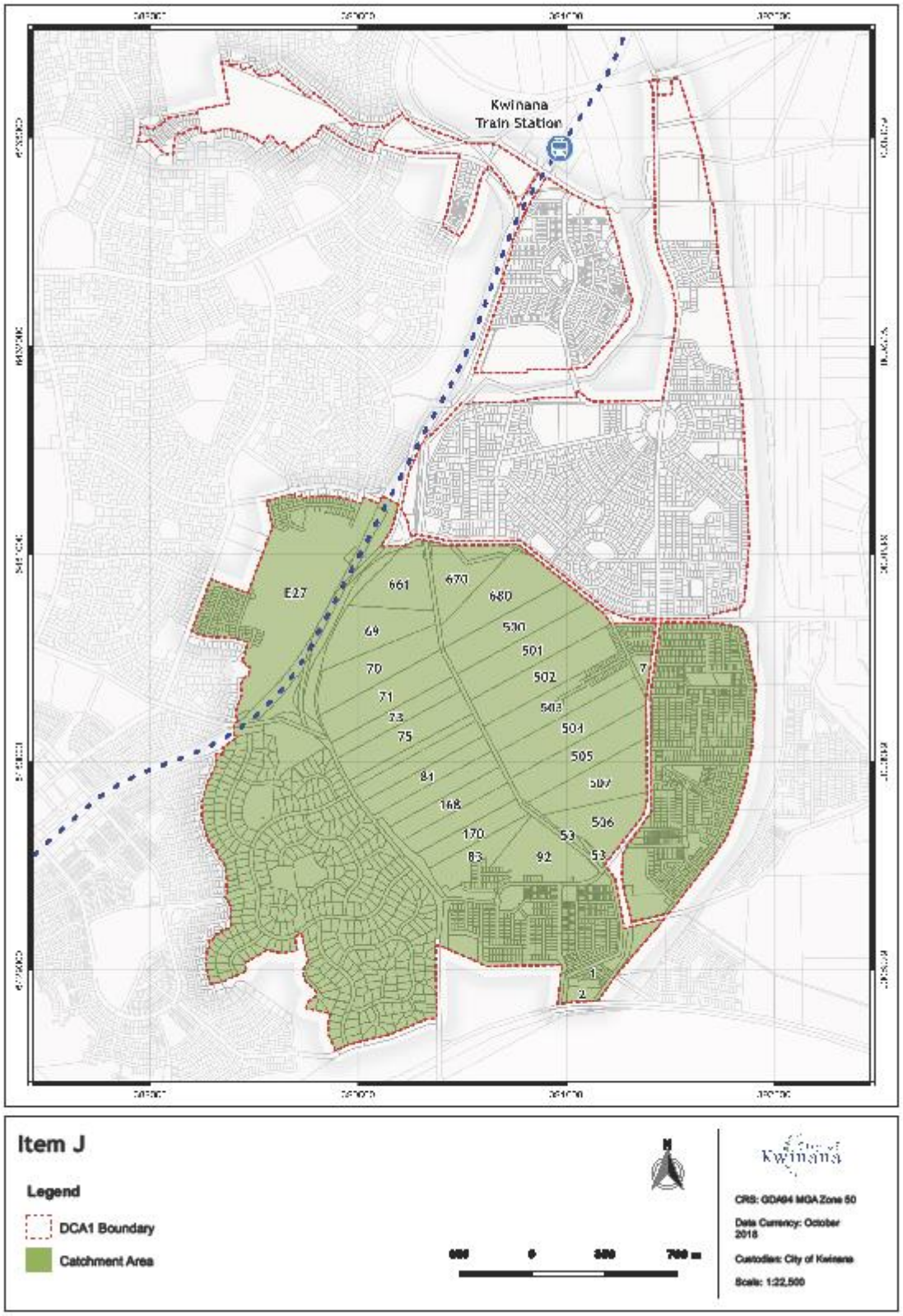
Appendix 9 – Johnston Road construction collection area



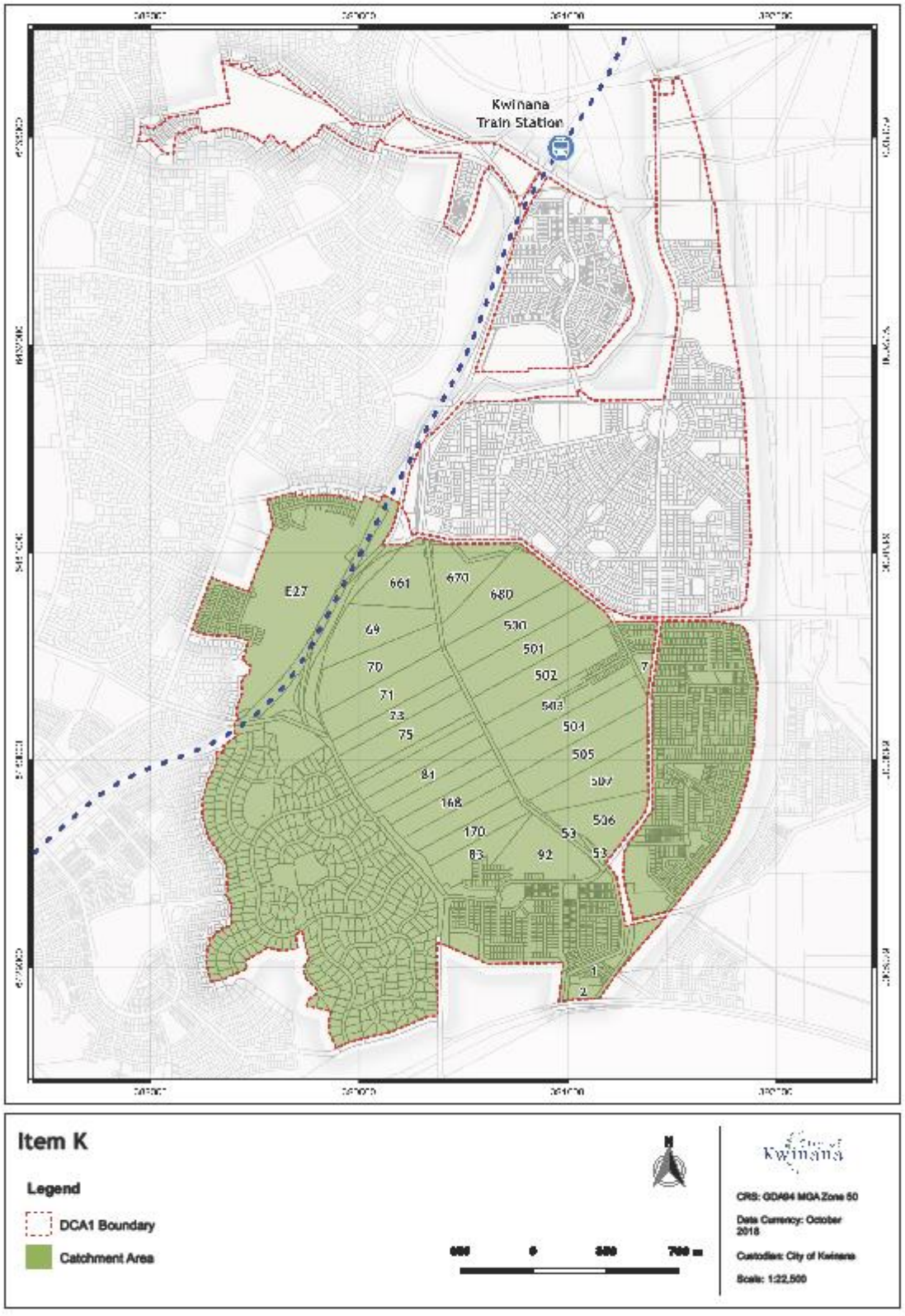
Appendix 10 – Price Parkway collection area



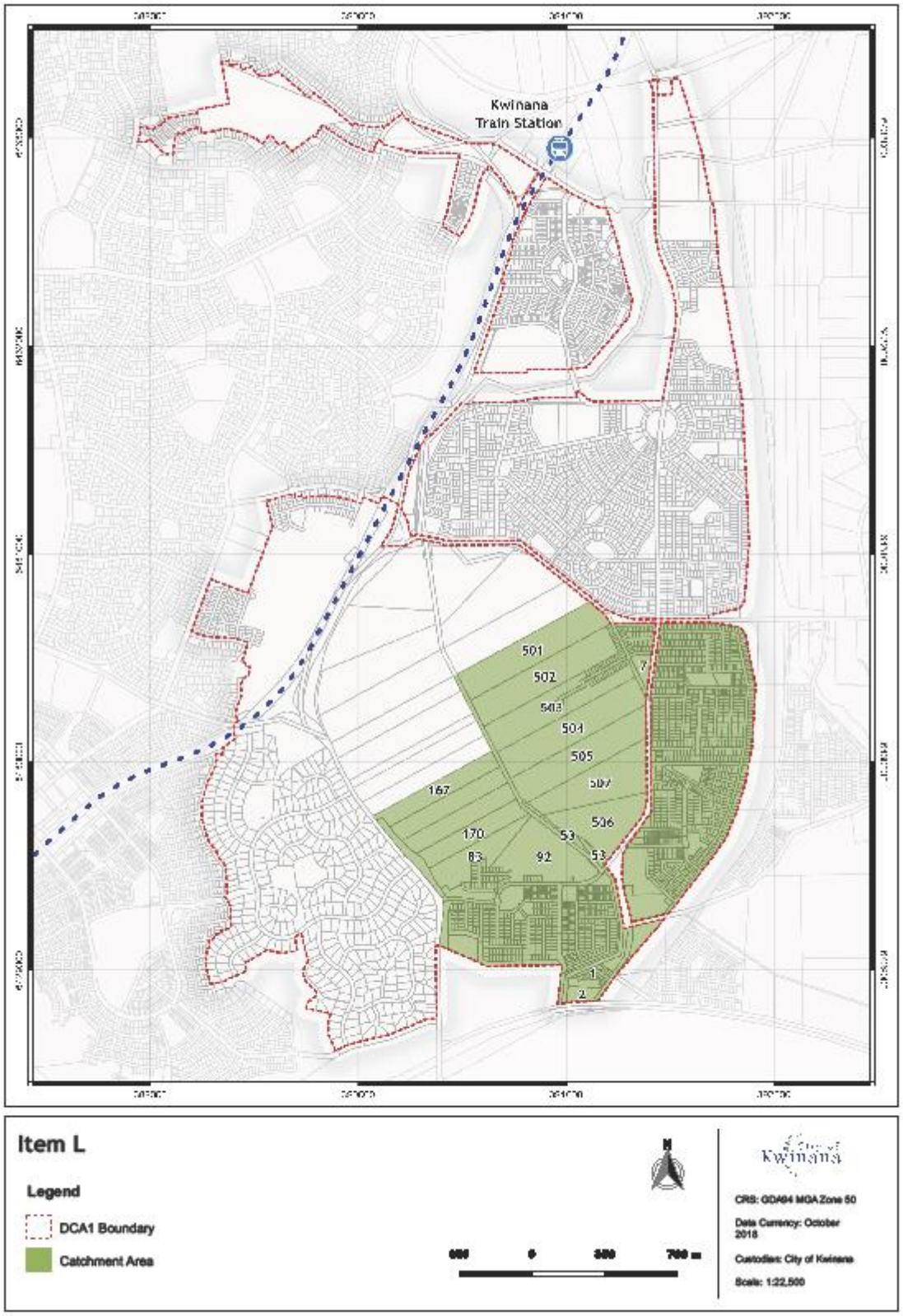
Appendix 11 – Wellard Road upgrade collection area



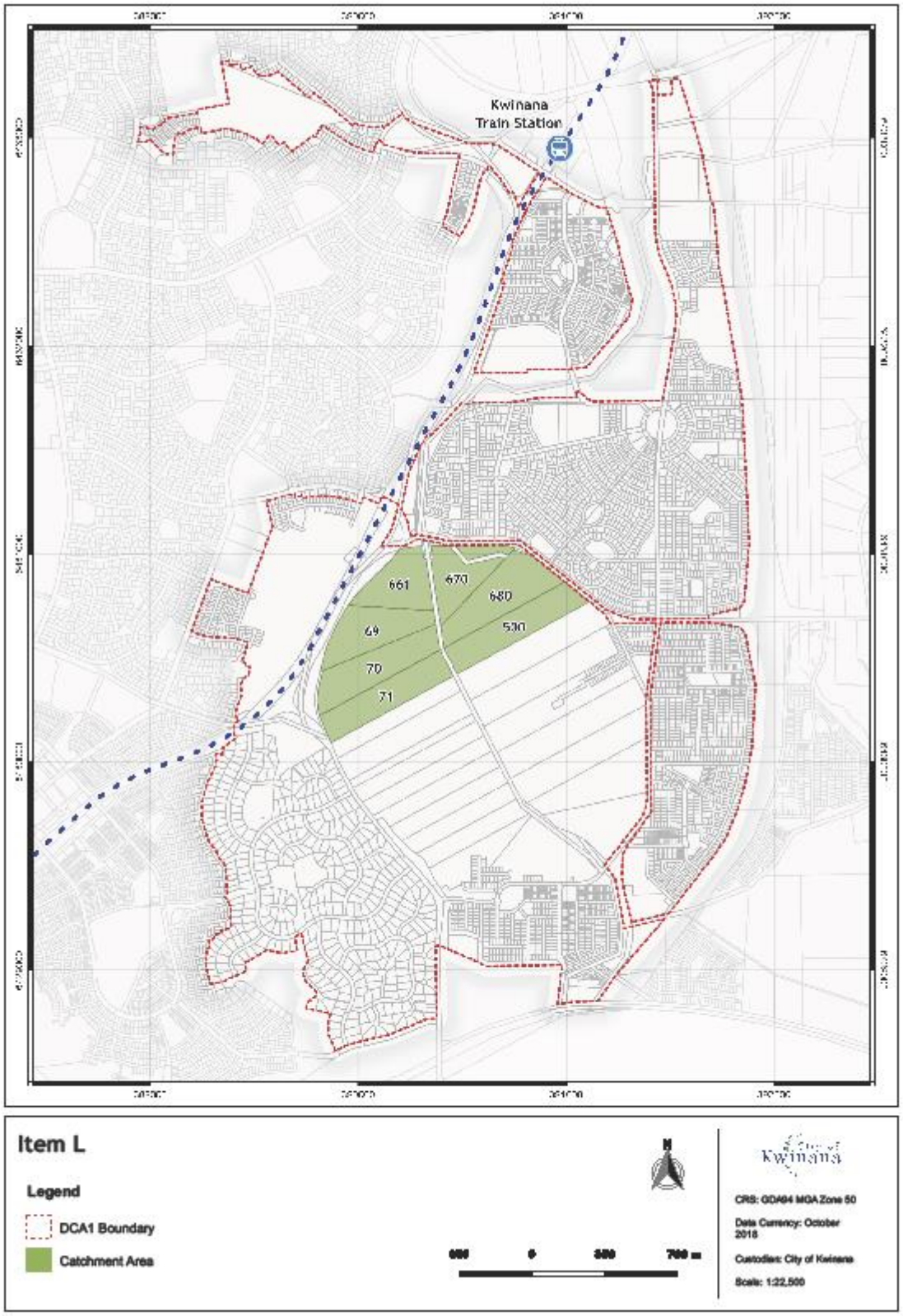
Appendix 12 – Bertram Road collection area



Appendix 13 – Culvert and road crossing over Peel Main Drain – 1 collection area



Appendix 14 – Culvert and road crossing over Peel Main Drain – 2 collection area



Appendix 15 – Schedule of Costs

Asset ID	Item	Cost
A	Sulphur Road Bridge	$1,914,745
B	Stormwater Management Infrastructure (formally Nutrient Stripping Basin)	$480,121
C	Bertram Road upgrade	$2,338,945
D	Johnson Road upgrade – 1	$28,562
E	Johnson Road upgrade – 2	$181,536
F	Dual Use Path (eastern side Johnson Road)	Nil
G	Johnson Road upgrade – 3	$2,817,123
H	Johnson Road construction	$233,835
I	Price Parkway Road	$392,695
J	Wellard Road upgrade	$20,635,655
K	Bertram Road upgrade	$4,449,279
L	New culvert and road crossing over Peel Main Drain – 1	$1,407,592
M	New culvert and road crossing over Peel Main Drain – 2	$689,000

Appendix 16 – DCP 1 Cost Apportionment Schedule

Description	# Ref in Amd 87 & 91	Item Ref A132	A132 Calculation	Land Valuation	Landscaping/ Improvements	Drains	Paths	Underground Power Lines was item 2.3.2	Road Construction	Actual Interest Cost	Street Trees	Total	Actual Costs incurred by the City	Actual Costs incurred by the Developer	Grant Funded	Estimate Cost of future works by the City	Estimate Cost of future works by the Developer	Total	Status	Funding	Year Commence and amount for each financial year works will be carried out
Sulphur Road Bridge over railway	2.1	A	Estimated lot yield within catchment A	-	-	-	-	-	1,914,745.00	-	-	**1,914,745.00**	1,914,745.00	-	-	-	-	1,914,745.00	Completed	100% but amount shown is	2010
Stormwater Management Infrastructure (formally Nutrient Stripping Basin) on the Peel Main Drain north of Bertram Road	2.2.1.1	B	Estimated lot yield within catchment B, D1, E, F, I - (ref 1 - 23 DCA87)	78,400.00	-	401,721.00	-	-	-	-	-	**480,121.00**	129,351.00	78,400.00	-	272,370.00	-	480,121.00	Partial works completed	50% Developer	$73,190.10 Completed on 8/4/2013 Remaining $457,833.19 is estimated to be undertaken in 2020/21
Stormwater Management Infrastructure (formally Nutrient Stripping Basin Feature)	2.2.1.2	B	Estimated lot yield within catchment B, D1, E, F, I - (ref 1 - 23 DCA87)	-	-	-	-	-	-	-	-	**-**	-	-	-	-	-	-	Completed	Not applicable	2020/21
Upgrades to Bertram Road - Johnson Rd to Challenger Rd	2.2.2a	C	actual/estimate lot yield catchment C -All DCA 1 (A87,91,132) except 32,33	-	-	-	47,867.00	-	1,671,133.00	-	-	**1,719,000.00**	1,719,000.00	-	-	-	-	1,719,000.00	Completed	Developer (rural standard t	Completed on 8/4/2013
Upgrades to Mortimer Road - Johnson Rd to Freeway	2.2.2b	C	actual/estimate lot yield catchment C -All DCA 1 (A87,91,132) except 32,33	-	17,989.00	-	33,072.00	60,050.00	508,834.00	-	-	**619,945.00**	619,945.00	-	-	-	-	619,945.00	Completed	Developer (rural standard t	Completed on 9/1/2013
Johnson Road Upgrade - North of Peel Lateral Drain to Holden Close - western side	2.2.3.1	D	100% costs of lots on western side of Johnson north of Peel Lateral Drain based on lot yields within catchment B, D1, E, F, I (ref 1 -23 DCA87)	-	-	-	-	-	-	-	-	**-**	-	-	-	-	-	-	Completed	100% Developer	Completed
Johnson Road Upgrade - North of Peel Lateral Drain to Holden Close - eastern side	2.2.3.2	D	100% costs landowners based on frontage on catchment D2	-	-	-	-	-	28,562.00	-	-	**28,562.00**	28,562.00	-	-	-	-	28,562.00	Completed	100% Developer	Completed on 1/1/2009
Johnson Road Upgrade - South of Peel Lateral Drain to Bertram Road - both sides	2.2.4.1	E	100% costs based on frontage within catchment B, D1, E, F, I (ref 1 -23 DCA87)	-	-	-	-	-	16,518.00	-	-	**16,518.00**	16,518.00	-	-	-	-	16,518.00	Completed	100% Developer	Completed before 26 May 2008. All lots have been cleared and no CPI applied
Johnson Road Upgrade - South of Peel Lateral Drain to Bertram Road - roundabouts (2)	2.2.4.2	E	100% costs based on lot yield within catchment B, D1, E, F, I (ref 1 -23 DCA87)	-	-	-	-	-	165,018.00	-	-	**165,018.00**	165,018.00	-	-	-	-	165,018.00	Completed	100% Developer	Completed before 26 May 2008
Dual Use Path on eastern side Johnson Road - North of Peel Lateral Drain to Holden Close	2.2.5	F	100% costs based on lot yield within catchment B, D1, E, F, I (ref 1 -23 DCA87)	-	-	-	-	-	-	-	-	**-**	-	-	-	-	-	-	Completed	100% Developer	Completed
Dual Use Path on eastern side Johnson Road - South of Peel Lateral Drain to Bertram Road	2.2.6	F	100% costs based on lot yield within catchment B, D1, E, F, I (ref 1 -23 DCA87)	-	-	-	-	-	-	-	-	**-**	-	-	-	-	-	-	Completed	100% Developer	Completed
Construction of a Road linkage across the Parks and Recreation Reserves in Bertram - Price Parkway Road	2.2.7	I	100% costs based on lot yield within catchment B, D1, E, F, I (ref 1 -23 DCA87)	-	-	-	-	-	392,695.00	-	-	**392,695.00**		392,695.00	-	-	-	392,695.00	Completed	100% Developer	Completed before 12 January 2008
Upgrade of Johnson Road south of Bertram Road and North of Millar Road	2.3.1	Separated into G,H & L	refer to G,H&L	-	-	-	-	-	-	-	-	**-**	-	0	-	-	-	-			
Undergrounding existing overhead power lines on both sides of Johnson Road south of Bertram Road and north of Millar Road and south side of Mortimer Road between Johnson Road and Freeway	2.3.2	Included in G and H	refer to G&H	-	-	-	-	-	-	-	-	**-**	-	0	-	-	-	-			
Johnson Road construction - South of Johnson Rd culvert crossing over west side Peel Main Drain to Millar Road - The DCP item is the difference between a Neighbourhood Connector A and an Access Street B (WAPC Liveable Neighbourhoods)	n/a	H	100% costs - actual/estimate lot yield within catchment G,H &L - 24-31 + new area up to lot 501 & 167	103,194.00	15,068.00	-	-	-	115,573.00	-	-	**233,835.00**	-	233,835.00	-	-	-	233,835.00	Completed	100% Developer	Completed on 23 Jan 2016
Johnson Road, Upgrade - South Bertram Road to western edge Johnson Road culvert crossing over eastern side of Peel Main Drain	n/a	G	100% costs - actual/estimate lot yield within catchment G,H &L - 24-31 + new area up to lot 501 & 167	0	904,513.00	-	-	-	1,912,610.00	-	-	**2,817,123.00**	-	2,817,123.00	-	-	-	2,817,123.00	Completed	100% Developer	Completed on ???
Johnson Road new culvert and road crossing over Peel Main Drain	2.3.1	L	100% costs - actual/estimate lot yield within catchment G,H &L - 24-31 + new area up to lot 501 & 167	-	24,361.00	-	-	-	1,383,231.00	-	-	**1,407,592.00**	-	1,405,408.00	-		2,184.00	1,407,592.00	Completed	100% Developer	Completed on 22 Nov 2016
Bertram Road - Challenger Ave to Wellard Road	n/a	K	40.0690%	$44,688.00	202,591.00	-	-	-	4,202,000.00	-	-	**4,449,279.00**	-	-	-	2,666,497.00	1,782,782.00	4,449,279.00	Not commenced		2022/23
Wellard Road - Bertram Road to Cavandish Boulevard	n/a	J	41.4882%	$1,954,512.00	1,321,290.00	-	-	-	9,959,680.00	-	-	**13,235,482.00**	-	-	-	7,744,319.00	5,491,163.00	13,235,482.00	Not commenced		2021/22
Wellard Road - Cavandish Boulevard to Millar Road	n/a	J	25.7945%	$1,054,627.00	743,226.00	-	-	-	5,602,320.00	-	-	**7,400,173.00**	-	-	-	5,491,335.00	1,908,838.00	7,400,173.00	Not commenced		2021/22
New road culvert and road crossing over the Peel Main Drain linking L661 and L670 Bertram Rd	n/a	M	actual/estimate lot yield catchment M -Lots 500,670,680,661,69-71	-	-	689,000.00	-	-	-	-	-	**689,000.00**	-	-	-	-	689,000.00	689,000.00	Not commenced	100% Developer	2023/24
				3,235,421.00	**3,229,038.00**	**1,090,721.00**	**80,939.00**	**60,050.00**	**27,872,919.00**	**-**	**-**	**35,569,088.00**	**4,593,139.00**	**4,927,461.00**	**-**	**16,174,521.00**	**9,873,967.00**	**35,569,088.00**	-		

Amendment 87 & 91 Costing											PAYMENTS		Total Liability before Admin Fee	Plus Administration Fee A132	Total Liability
Ref	Location	Property Owner	Lot Details	Original Lot size (hectares)	Area developed before 22 October 2003	Total land size (hectares) developed between 22/10/03 and	Area to be developed from 27 June	Difference (should be nil)	% ORIGINAL LOT DEVELOPED	A132 Lot Liability	Date Paid	Amount			
												Amendment 87 Costing	$ 7,357,426.89		
			Total	271.73	37.40	166.77	67.56					$ 2,604,828.96	2,658,468.97		
					Less 32 and 33	156.60	58.60	215.1941	Difference between GL & payments in CAS			55,456.01			
					1-23 land	134.8754	23.0369	157.9123			SUM OF BALANCE	55,456.01	$ 19,666,937.00	Total Liability of Developers for Infrastru	
					9-23 land	97.7075	4.6888	102.3963			Check	0.00	$ 2,658,468.97	Total Payments and Credits from A87&A	
					24-31 land	21.721	35.5608	57.2818			INTEREST FOR DCA1 PRE A132	32,107.44	$ 32,107.40	Total Interest	
					check	0.0000	-				Less City Contributions for A87	362,695.81	$ 362,695.81	Total City Cash Contribution	
													16,613,664.82	Amount to apply to A132	
AMENDMENT 132							% remaining lot to be developed	LOT YIELD IN TRAFFIC REPORT	LOT YIELD	Lot Liability	Date Paid	Amount	Total Liability	Administration Costs 2.00%	Total Liability
														332,270.64	
32 - A87	EAST ORELIA (VACANT)	DEPT OF HOUSING & WORKS - WINDSOR HILL	1.ORELIA - VACANT A132						57	$ 1,772.50		101,032.30	$ 99,051.30	$ 1,981.00	$ 101,032.30
		Lot E6 Durrant	(57 lots created already - 2 ye	4.5109					57	101,032.30	31/08/2019	$ 101,032.30	$ 99,051.30	1,981.00	$ 101,032.30
24 - A91		ARDP PTY LTD	Lot 1 Mortimer Road A132						53	$ 3,178.11		168,439.97	$ 165,137.23	3,302.74	168,439.97
25-A91		ARDP PTY LTD	Lot 21 Mortimer Road A132	4.1270			100.00%	67	66	$ 3,174.62		209,524.77	$ 205,416.45	$ 4,108.33	$ 209,524.78
		Lot 500 Mortimer Rd, Wellard		4.1270					66	$ 209,524.78	21/10/2011	128,492.02			
		Lot 901 Mortimer Rd, Wellard									27/04/2012	228,604.37	$ 228,604.37		
		Lot 21 Mortimer									30/08/2012	214,189.95	$ 214,189.95		
											31/08/2019	- 373,867.49	-$ 373,867.49		
											31/08/2019	2,556.97	$ 2,556.97		
											INTEREST	9,548.95	$ 9,548.95		
													$ -		
													-$ 4,108.33	$ 4,108.33	$ 0.00
26 - A91		ARDP PTY LTD	Part Lot 22 Mortimer Road A1	2.5500			100.00%	50	50	$ 3,160.76		158,037.76	$ 154,938.98	$ 3,098.78	$ 158,037.76
		Gross contribution paid													
		L22		2.5500					50	$ 158,037.76	31/08/2019	156,100.66	$ 156,100.66		
		Insert Invoice number and developer and stage									31/08/2019	1,937.10	$ 1,937.10		
		Insert Invoice number and developer and stage											$ -		
		Credits for constructed or provided items											$ -		
		Net contribution payable	Part Lot 22 Mortimer Road A132										-$ 3,098.78	$ 3,098.78	-$ 0.00
27 - A91		CEDAR WOODS	Part Lot 8 Johnson Road A132	11.2580			64.16%	223	223	$ 3,295.79		- 1,636,553.87	$ 720,550.56	$ 14,411.01	$ 734,961.57
		Gross contribution paid													
		Stage 4 Phase 2							17	$ 56,028.46	08/11/2013	566,754.24	$ 566,754.24		
		Stage 4F Phase 1							18	$ 59,324.25	30/05/2014	174,385.92	$ 174,385.92		
		Stage 4F Phase 2							4	$ 13,183.17	23/06/2015	283,377.12	$ 283,377.12		
		Stage 4F Phase 3							7	$ 23,070.54	INTEREST	-	$ -		
		Stage 4F Phase 4							18	$ 59,324.25	20/05/2019	- 542,217.70	-$ 542,217.70		
		Stage 5A& 5B							46	$ 151,606.42	31/08/2019	- 2,127,492.91	-$ 2,127,492.91		
		Stage 5C& 5D							40	$ 131,831.67	31/08/2019	8,639.46	$ 8,639.46		
		Stage 5E							18	$ 59,324.25			$ -		
	EMERALD PARK NORTH	Stage 3D							3	$ 9,887.38			$ -		
		Stage 7							52	$ 171,381.17			$ -		
		Credits for constructed or provided items											$ 2,371,515.44		
		Net contribution payable	Part Lot 8 Johnson Road A132										-$ 14,411.01	$ 14,411.01	-$ 0.00
29 - A91		CEDAR WOODS	Part Lot 65 Jacobs Place A132	0.9032			11.72%	17	17	$ 3,295.76		56,027.86	$ 54,929.27	$ 1,098.59	$ 56,027.86
		Gross contribution paid													
		Stage 2B							17	$ -	31/08/2019	55,369.24	$ 55,369.24		
		Stage 2B							17	$ 56,027.86	31/08/2019	658.62	$ 658.62		
		Credits for constructed or provided items											$ -		
		Net contribution payable	Part Lot 65 Jacobs Place A132										-$ 1,098.59	$ 1,098.59	-$ 0.00
30 - A91		WELLARD FAMILY PTY LTD	Lot 800 Ivory Way - Lot 155 Jo	0.1827			10.15%	5	4	$ 4,125.25		16,500.99	$ 16,177.44	$ 323.55	$ 16,500.99
		Gross contribution paid													
		Invoice 58265						5	4	$ 16,500.99	13/12/2019	16,500.99	$ 16,500.99		
		Credits for constructed or provided items											$ -		
		Net contribution payable	Lot 800 Ivory Way - Lot 155 Johnson Road										-$ 323.55	$ 323.55	$ 0.00
30 - A91		GRADEWEST	Lot 155 Johnson Road A132	1.6173			89.85%	37	37	$ 3,229.89		119,506.05	$ 117,162.79	$ 2,343.26	$ 119,506.05
		Gross contribution paid		1.8000			100.00%								
		Lot 155 DP 143820 -						22	22	$ 71,057.65	16/06/2014	42,808.72	$ 42,808.72		
		Lot 9508 DP 402050- 0.8015ha						15	15	$ 48,448.40	03/07/2014	90,552.28	$ 90,552.28		
											31/08/2019	- 15,288.41	-$ 15,288.41		
											31/08/2019	1,433.46	$ 1,433.46		
		INTEREST UP UNTIL 30/6/2018									INTEREST	-	$ -		
		Credits for constructed or provided items											$ -		
		Net contribution payable	Lot 155 Johnson Road A132										-$ 2,343.26	$ 2,343.26	-$ 0.00
31 - A91		CEDAR WOODS	Part Lot 87 Johnson A132	10.8886			79.03%	144	144	$ 3,295.76		474,589.78	$ 465,284.10	$ 9,305.68	$ 474,589.78
		Gross contribution paid													
		stage 3C							15	$ 49,436.44	31/08/2019	469,010.94	$ 469,010.94		
		stage 6							129	$ 425,153.35	31/08/2019	5,578.84	$ 5,578.84		
		Credits for constructed or provided items											$ -		
		Net contribution payable	Part Lot 87 Johnson A132										-$ 9,305.68	$ 9,305.68	$ 0.00
		DEPT OF HOUSING	LOT 9237 Parmelia Ave CASSIA RISE					438	161	$ 530.48		88,978.24	$ 87,233.62	$ 1,744.62	$ 88,978.24
		Stage 9B						277	8	$ 4,243.84	17/07/2019	4,243.84	$ 4,160.63	$ 83.21	4,243.84
	PARMELIA	L9237							153	$ 84,734.40	31/08/2019	81,164.01	$ 83,072.99	$ 1,661.41	84,734.40
										$ -	31/08/2019	3,570.39			
		Net contribution paid													
		CITY OF KWINANA	Homestead Ridge & Emerald Park					615	615	$ 2,702.77		1,662,205.99	$ 1,629,613.72	$ 32,592.27	$ 1,662,205.99
		Gross contribution paid													
		Homestead Ridge						336	336	908,132			$ -		
		City of Kwinana Contribution For Emerald Park Stage 1-4 (Phase 1) for only the new A132 infrastructure items						279	279	754,074	21/10/2011	16,340.64	$ 16,340.64		
	HOMESTEAD RIDGE										27/04/2012	18,723.65	$ 18,723.65		
											30/08/2012	5,787.31	$ 5,787.31		
											07/11/2012	25,434.05	$ 25,434.05		
											15/08/2019	- 84,012.48	-$ 84,012.48		
											15/08/2019	1,679,932.82	$ 1,679,932.82		
		Credits for constructed or provided items											$ -		
		Net contribution payable											-$ 32,592.27	$ 32,592.27	-$ 0.00
93		WELLARD RESIDENTIAL	Lot 83 Wellard Rd (now Lot 90	7.7347				104	67	$ 5,883.70		394,207.73	$ 386,479.74	$ 7,727.99	$ 394,207.73
		Gross contribution paid													
		Stage 9A							19	$ 90,166.82	05/02/2014	1.00	$ 1.00		
		Insert Invoice number and developer and stage								$ -	25/06/2015	1.00	$ 1.00		
		Insert Invoice number and developer and stage								$ -	31/08/2019	89,428.73	$ 89,428.73		
		Insert Invoice number and developer and stage								$ -	31/08/2019	736.09	$ 736.09		
		Insert Invoice number and developer and stage								$ -	INTEREST	-	$ -		
		Invoice 57519 Stage 10 (Lot 9025)							6	$ 28,473.73	24/10/2019	28,473.73			
		Providence Estate Stage 11	Invoice 62458						19	$ 124,661.34	9/10/2020	124,661.34			
		Providence Estate Stage 12	Invoice 62457						23	$ 150,905.83	9/10/2020	150,905.83	$ 28,473.73		
87		WELLARD RESIDENTIAL	Lot 85 Wellard Rd (now Lot 90	15.1096				218	87	$ 4,722.88		- 1,316,450.51	$ 402,839.48	$ 8,051.01	$ 410,890.49
		Gross contribution paid													
		Stage 5							38	$ 179,469.41	23/09/2016	165,468.22	$ 165,468.22		
		Stage 6A							6	$ 28,337.28	31/08/2019	- 1,409,847.23	-$ 1,409,847.23		
		Stage 9A							19	$ 89,734.71	31/08/2019	- 185,420.60	-$ 185,420.60		
		Invoice 57520 Stage 10 (lot 9026)							24	$ 113,349.10	24/10/2019	113,349.10	$ 113,349.10		
		Credits for constructed or provided items											$ 1,727,341.00		
92	PROVIDENCE	WELLARD RESIDENTIAL	Lot 1278 Wellard Rd	14.9276				177	179	$ 4,717.72		394,191.92	$ 827,913.65	$ 16,558.27	$ 844,471.92
		Gross contribution paid											$ 394,191.92		
		Stage 1							53	$ 250,039.17	31/08/2019	398,158.99	$ 398,158.99		
		Stage 2							29	$ 136,813.89	31/08/2019	- 3,967.07	-$ 3,967.07		
		Stage 3							34	$ 160,402.49			$ -		
		Stage 4							34	$ 160,402.49			$ -		
		Stage 6B							26	$ 122,660.73			$ -		
		Stage 7B							3	$ 14,153.16			$ -		
		Credits for constructed or provided items											$ 450,280.00		
		Net contribution payable											-$ 16,558.27	$ 16,558.27	$ 0.00
88		WELLARD RESIDENTIAL	Lot 92 Wellard Rd	11.9531				195	197	$ 4,720.26		929,891.68	$ 911,658.51	$ 18,233.17	$ 929,891.68
		Gross contribution paid						780	786				$ 929,891.68		
		Stage 2							8	37,762	31/08/2019	922,259.51	$ 922,259.51		
		Stage 4							10	47,203	31/08/2019	7,632.17	$ 7,632.17		
		Stage 5							13	61,363			$ -		
		Stage 6A							56	264,335			$ -		
		Stage 6B							15	70,804			$ -		
		Stage 7A							51	240,733			$ -		
		Stage 7B							44	207,692			$ -		
		Credits for constructed or provided items									453 lots as at 19 June 2019		$ -		
		Net contribution payable											-$ 18,233.17	$ 18,233.17	$ 0.00
90		Amanda Rogers	Lot 10 Johnson Rd	0.6939				14	4	$ 4,075.02		16,300.06	$ 15,980.06	$ 319.60	$ 16,299.66
		Stage 1							4	-	7/02/2019	15,334.86			
		Finalisation of CAS - not paid yet									31/08/2019	810.23			
		Finalisation of CAS - not paid yet									31/08/2019	154.97			
89		Anthony R Eddleston	Lot 1 Johnson Rd	0.8872				21	17	$ 4,549.66		77,344.18	$ 75,829.18	$ 1,516.58	$ 77,345.76
		Stage 1							17	64,521	7/02/2019	100,138.46			
		Finalisation of CAS - not paid yet									31/08/2019	- 23,198.96			
		Finalisation of CAS - not paid yet									31/08/2019	404.68			
76		Byblos Holdings Pty Ltd	Lot 670, 150 Bertram Rd					106	49	$ 5,196.45		254,626.01	$ 249,633.34	$ 4,992.67	$ 254,626.01
		Wellard Management The Wedge Stage 1							17	$ 88,339.65	24/07/2019	79,369.11	$ 0.06		79,369.11
		Wellard Management The Wedge Stage 2							32	$ 175,256.90	5/11/2020	175,256.90			
		Credits for constructed or provided items													
		Net contribution paid											$ 249,633.28	$ 4,992.67	$ 175,256.90
75, 81-84		Oakebella - LWP Wellard Pty Ltd	Lots 503-505, 507 and 900 (was L7)					415	160	$ 2,321.35		371,416.53	$ 364,131.50	$ 7,285.03	$ 371,416.53
		Stage 3 Phase 2							7	$ 16,249.47	17/07/2019	16,067.10			
		Stage 1							33	$ 77,023.07	07/10/2016	89,790.69			
		Stage 2							39	$ 91,027.27	11/10/2017	127,889.81			
	BOLLARD BULRUSH EAST OF PEEL MAIN DRAIN	Stage 3							23	$ 53,682.75	15/03/2019	53,055.10			
		Balance paid								$ -	31/08/2019	- 49,002.51			
		Invoice 58977 Stage 4							16	$ 37,344.52	11/02/2020	37,344.52			
		Stage 3							11	$ 25,674.36	1/09/2020	25,674.36			
		Stage 4B							12	$ 28,008.39	23/09/2020	28,008.39			
		LWP Wellard Oakebella Stage 5							19	$ 42,589.07	1/12/2020	42,589.07			
		Net contribution paid													
80		Ascari Developments Pty Ltd	Lot 502, 14 Tamblyn Pl					68	24	$ 6,616.99		158,807.80	$ 155,693.92	$ 3,113.88	$ 158,807.80
		Stage 1							8	$ 45,367.06	26/06/2018	41,489.50			
		Reconciliation of Amendment 132 August 2019									16/09/2019	2,521.38	$ -	$ -	-
		Reconciliation of Amendment 132 August 2019									16/09/2019	1,356.18			
		Tamblyn Estate 2A	Invoice 63163						16	$ 113,440.74	14/01/2021	113,440.74			
		Credits for constructed or provided items													
		Net contribution paid													
									Total Cash Payments Made			$ 2,604,980.99	$ 7,013,845.59	$ 140,271.85	$ 7,154,117.44
									Credits given				$ 4,549,136.44		$ 4,549,136.44
									Interest Earned up to 30 June 2019			$ 13,379.42	$ 13,117.09	$ 262.33	$ 13,379.42
									Interest Earned up to 30 June 2020			$ 11,786.08	$ 11,554.99	$ 231.09	$ 11,786.08
									Interest Earned up to 31 March 2021			$ 2,466.56	$ 2,418.20	$ 48.36	$ 2,466.56
									Total Amount Paid - Actuals			$ 2,632,613.05	$ 7,040,935.87	$ 140,813.64	$ 7,181,749.50

																		Costings for Amendment 132	$	35,569,088.00		
																		Amount Applied to Remaining Lots to be developed for Amendment 132	$	9,572,727.00	$ 191,455.00	$ 9,764,182.00
32 - A87	EAST ORELIA (VACANT)	DEPT OF HOUSING & WORKS - WINDSOR HILL	1.ORELIA - VACANT A132	6.7513	-		52.68%		32	$ 1,771.69		-			$ 55,582.00	$ 1,112.00	$ 56,694.00
		Gross contribution paid													$ -		
		Credits for constructed or provided items													$ -		
		Net contribution payable	1.ORELIA - VACANT A132												$ 55,582.00	$ 1,112.00	$ 56,694.00
33 - A87		DEPT OF HOUSING & WORKS	2.ORELIA - VACANT A132	2.2096	-		34.98%		38	$ 1,771.68		-			$ 66,004.00	$ 1,320.00	$ 67,324.00
		Gross contribution paid													$ -		
		Credits for constructed or provided items													$ -		
		Net contribution payable	2.ORELIA - VACANT A132												$ 66,004.00	$ 1,320.00	$ 67,324.00
1 - A87	NORTH BERTRAM	DEPT OF HOUSING & WORKS - Belgravia Cent	1202 A132	4.8887	-		47.52%		121	$ 3,662.71		131,088.12			$ 434,498.00	$ 8,690.00	$ 443,188.00
		Gross contribution paid													$ 131,088.12		
		Credits for constructed or provided items													$ 339,055.00		
		Net contribution payable	1202 A132												$ 35,645.12	$ 8,690.00	$ 26,955.12
2 - A87		DEPT OF HOUSING & WORKS - Belgravia Cent	1216 A132	3.7596	-		61.82%		127	$ 3,662.72		83,033.10			$ 456,045.00	$ 9,121.00	$ 465,166.00
		Gross contribution paid													$ 83,033.10		
		Credits for constructed or provided items													$ -		
		Net contribution payable	1216 A132												$ 373,011.90	$ 9,121.00	$ 382,132.90
5 - A87	MIXED BUSINESS	BOMBARA	Lot 67 Johnson A132	2.2413	-		100.00%		10	$ 3,662.70		-			$ 35,909.00	$ 718.00	$ 36,627.00
		Gross contribution paid													$ -		
		Credits for constructed or provided items													$ -		
		Net contribution payable	Lot 67 Johnson A132												$ 35,909.00	$ 718.00	$ 36,627.00
6 - A87		BOMBARA	Lot 4 Johnson A132	2.6018	-		100.00%		14	$ 3,662.64		-			$ 50,272.00	$ 1,005.00	$ 51,277.00
		Gross contribution paid													$ -		
		Credits for constructed or provided items													$ -		
		Net contribution payable	Lot 4 Johnson A132												$ 50,272.00	$ 1,005.00	$ 51,277.00
7 - A87		RIDLEY	PT Lot 20 Holden A132	4.0899	-		100.00%		24	$ 3,662.79		-			$ 86,183.00	$ 1,724.00	$ 87,907.00
		Gross contribution paid													$ -		
		Credits for constructed or provided items													$ -		
		Net contribution payable	PT Lot 20 Holden A132												$ 86,183.00	$ 1,724.00	$ 87,907.00
8 - A87		MINISTRY FOR PLANNING	PT200 Holden A132	0.7668	-		100.00%		0			-			$ -	$ -	$ -
		Gross contribution paid													$ -		
		Credits for constructed or provided items													$ -		
		Net contribution payable	PT200 Holden A132												$ -	$ -	$ -
9 - A87	CASUARINA STRUCTURE PLAN	ROMANOS INVEST. HOLDINGS	Lot 54 Johnson A132	4.1645	-		100.00%		99	$ 3,736.76		-			$ 362,685.00	$ 7,254.00	$ 369,939.00
		Gross contribution paid													$ -		
		Credits for constructed or provided items													$ -		
		Net contribution payable	Lot 54 Johnson A132												$ 362,685.00	$ 7,254.00	$ 369,939.00
12 - A87		YARRA SEED & GRAZING CO P/L	Lot 1 Johnson A132	0.4069			5.28%		12	$ 4,104.17		-			$ 48,284.00	$ 966.00	$ 49,250.00
		Gross contribution paid													$ -		
		Credits for constructed or provided items													$ -		
		Net contribution payable	Lot 1 Johnson A132												$ 48,284.00	$ 966.00	$ 49,250.00
20 - A87		KNICROSS	Ex Lot 9 Bertram A132	0.1174			1.06%		2	$ 3,714.50		-			$ 7,283.00	$ 146.00	$ 7,429.00
		Gross contribution paid													$ -		
		Credits for constructed or provided items													$ -		
		Net contribution payable	Ex Lot 9 Bertram A132												$ 7,283.00	$ 146.00	$ 7,429.00
	PARMELIA	DEPT OF HOUSING	LOT 9237 Parmelia Ave CASSIA RISE						277	277 $ 723.19		-			$ 196,396.00	$ 3,928.00	$ 200,324.00
		Gross contribution paid													$ -		
		Credits for constructed or provided items													$ -		
		Net contribution payable													$ 196,396.00	$ 3,928.00	$ 200,324.00
97	PROVIDENCE	WELLARD RESIDENTIAL	Lot 167 Wellard Rd (now Lot 9	1.8784					8	8 $ 6,710.88		-			$ 52,634.00	$ 1,053.00	$ 53,687.00
		Gross contribution paid													$ -		
		Credits for constructed or provided items													$ -		
		Net contribution payable													$ 52,634.00	$ 1,053.00	$ 53,687.00
96		WELLARD RESIDENTIAL	Lot 168 Wellard Rd (now Lot 9	2.2270					21	21 $ 6,711.76		-			$ 138,183.00	$ 2,764.00	$ 140,947.00
		Gross contribution paid													$ -		
		Credits for constructed or provided items													$ -		
		Net contribution payable													$ 138,183.00	$ 2,764.00	$ 140,947.00
95		WELLARD RESIDENTIAL	Lot 169 Wellard Rd (now Lot 9	2.7604					25	25 $ 6,712.40		-			$ 164,520.00	$ 3,290.00	$ 167,810.00
		Gross contribution paid													$ -		
		Credits for constructed or provided items													$ -		
		Net contribution payable													$ 164,520.00	$ 3,290.00	$ 167,810.00
94		WELLARD RESIDENTIAL	Lot 170 Wellard Rd (now Lot 9	4.2696					32	32 $ 6,712.28		-			$ 210,581.00	$ 4,212.00	$ 214,793.00
		Gross contribution paid													$ -		
		Credits for constructed or provided items													$ -		
		Net contribution payable													$ 210,581.00	$ 4,212.00	$ 214,793.00
93		WELLARD RESIDENTIAL	Lot 83 Wellard Rd (now Lot 9	7.7347					104	37 $ 6,712.27		-			$ 243,484.00	$ 4,870.00	$ 248,354.00
		Gross contribution paid													$ -		
		Credits for constructed or provided items													$ -		
		Net contribution payable													$ 243,484.00	$ 4,870.00	$ 248,354.00
87		WELLARD RESIDENTIAL	Lot 85 Wellard Rd (now Lot 9	15.1096					218	133 $ 6,644.35		-			$ 866,371.00	$ 17,327.00	$ 883,698.00
		Gross contribution paid													$ -		
		Credits for constructed or provided items													$ -		
		Net contribution payable													$ 866,371.00	$ 17,327.00	$ 883,698.00
91		Seth Anthony Bombara	Lot 2 Johnson Rd	1.0321					19	19 $ 3,890.16		-			$ 72,464.00	$ 1,449.00	$ 73,913.00
		Gross contribution paid													$ -		
		Credits for constructed or provided items													$ -		
		Net contribution payable													$ 72,464.00	$ 1,449.00	$ 73,913.00
90		Amanda Rogers	Lot 10 Johnson Rd	0.6939					14	10 $ 4,567.30		-			$ 44,777.00	$ 896.00	$ 45,673.00
		Gross contribution paid													$ -		
		Credits for constructed or provided items													$ -		
		Net contribution payable													$ 44,777.00	$ 896.00	$ 45,673.00
89		Anthony R Eddleston	Lot 1 Johnson Rd	0.8872					21	4 $ 11,089.50		-			$ 43,488.00	$ 870.00	$ 44,358.00
		Gross contribution paid													$ -		
		Credits for constructed or provided items													$ -		
		Net contribution payable													$ 43,488.00	$ 870.00	$ 44,358.00
75, 81-84	BOLLARD BULRUSH EAST OF PEEL MAIN DRAIN	Oakebella - LWP Wellard Pty Ltd	Lots 503-505, 507 and 900 (su	18.3405					258	258 $ 2,308.79		82,830.41			$ 583,987.00	$ 11,680.00	$ 595,667.00
		Gross contribution paid													$ 82,830.41		
		Credits for constructed or provided items													$ -		
		Net contribution payable													$ 501,156.59	$ 11,680.00	$ 512,836.59
85		Wellard Residential Pty Ltd	Lot 506 Johnson Rd	7.8464					120	120 $ 3,657.65		-			$ 430,312.00	$ 8,606.00	$ 438,918.00
		Gross contribution paid													$ -		
		Credits for constructed or provided items													$ -		
		Net contribution payable													$ 430,312.00	$ 8,606.00	$ 438,918.00
80		Ascari Developments Pty Ltd	Lot 502, 14 Tamblyn Pl	2.8469					60	36 $ 8,212.08		-			$ 289,838.00	$ 5,797.00	$ 295,635.00
		Gross contribution paid													$ -		
		Credits for constructed or provided items													$ -		
		Net contribution payable													$ 289,838.00	$ 5,797.00	$ 295,635.00
70		Bollard (WA) Pty Ltd	Lot 501, 214 Bertram Rd	3.9166					63	63 $ 7,117.94		-			$ 439,637.00	$ 8,793.00	$ 448,430.00
		Gross contribution paid													$ -		
		Credits for constructed or provided items													$ -		
		Net contribution payable													$ 439,637.00	$ 8,793.00	$ 448,430.00
78			Lot 500, 202 Bertram Rd	3.6101					63	63 $ 6,391.02		-			$ 394,739.00	$ 7,895.00	$ 402,634.00
		Gross contribution paid													$ -		
		Credits for constructed or provided items													$ -		
		Net contribution payable													$ 394,739.00	$ 7,895.00	$ 402,634.00
77		El Shaddai	Lot 680, 170 Bertram Rd	7.7000					145	145 $ 6,391.19		-			$ 908,551.00	$ 18,171.00	$ 926,722.00
		Gross contribution paid													$ -		
		Credits for constructed or provided items													$ -		
		Net contribution payable													$ 908,551.00	$ 18,171.00	$ 926,722.00
76		Wellard Management	Lot 670, 150 Bertram Rd	6.3028					57	57 $ 6,391.60		-			$ 357,177.00	$ 7,144.00	$ 364,321.00
		Gross contribution paid							417						$ -		
		Credits for constructed or provided items													$ 78,400.00		
		Net contribution payable													$ 278,777.00	$ 7,144.00	$ 285,921.00
106	BOLLARD BULRUSH WEST	Accounting Management Services Pty Ltd	Lot 661 Bertram Rd - Oct 2015	7.4589					198	198 $ 6,062.40		-			$ 1,176,819.00	$ 23,536.00	$ 1,200,355.00
		Gross contribution paid													$ -		
		Credits for constructed or provided items													$ -		
		Net contribution payable													$ 1,176,819.00	$ 23,536.00	$ 1,200,355.00
98-105		Guantai Investments Pty Ltd	Lot 81, 79, 77, 75,73,71,70 &6	9.7710					171	171 $ 8,088.57		-			$ 1,356,025.00	$ 27,120.00	$ 1,383,145.00
		Gross contribution paid													$ -		
		Credits for constructed or provided items													$ -		
		Net contribution payable													$ 1,356,025.00	$ 27,120.00	$ 1,383,145.00

Appendix 17 – Kwinana DCP Modelling Traffic Modelling Apportionment

Kwinana DCP Modelling

Traffic Modelling Apportionment

Prepared for
City of Kwinana

31 August 2018

Cardno
Shaping the Future

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Document Information

Prepared for	City of Kwinana
Project Name	Traffic Modelling Apportionment
Site Name	Kwinana
Client Reference	-
Project No.	CW997700
Document Title	Kwinana DCP Modelling
Discipline Code	Traffic & Transport
Document Type	Report
Document Sequence	001
Date	31 August 2018
Revision Number	Rev G

Author(s): Arun Mohan
Transport Planner / Modeller

Approved By: Andreas Wang
Senior Transport Planner

Document History

Revision	Date	Description of Revision	Prepared by:	Reviewed by:
A	18/6/2017	Draft for review	AM	AW
B	30/8/2017	Final	AM	AW / RC
C	14/9/2017	Final	AM	AW / RC
D	28/9/2017	Correction of lot yields and tables'	AM	AW
E	16/10/2017	Inclusion of peer review comments	AM	AW
F	7/11/2017	Minor changes to graphics	AM	AW
G	31/8/2018	Additional decimals in tables	AM	AW

Summary

Cardno has been engaged by the City of Kwinana to prepare a report detailing the 2031 forecast traffic volumes for the following 3 transport infrastructure items included in the Bollard Bulrush Development Contribution Area (DCA):

- Wellard Road;
- Bertram Road; and
- Sulphur Road Bridge;

The forecast demand for 2031 has been extracted from Cardno's SATURN model that covers the entire municipality of Kwinana. The model was developed utilising agreed and approved data from the City of Kwinana, Department of Planning and Main Roads WA (MRWA). The model has been calibrated and validated to industry standard and is considered to be a reasonable source of future traffic demand for the City.

Following the consultation with all stakeholders Revision B of this report, the development yield, access points, internal connectivity between BB1 and BB2 have been changed to reflect the feedback, which in turn impacts noticeably on the traffic assignment in the models. In addition, external traffic volumes have also been included in the apportionment tables.

The approximate proportion of development-generated traffic for each of the road analysed are summarised below:

- Wellard Road (south of Bertram Road): 41.54%
- Wellard Road (south of Cavendish Boulevard): 25.79%
- Bertram Road (west of Challenger Avenue): 40.25%
- Sulphur Road Bridge: 2.30%

Table of Contents

Tables

Figures

1 Introduction

Cardno has been engaged by the City of Kwinana to prepare a report detailing the 2031 forecast traffic demand volumes for the following 3 transport infrastructure items included in the Development Contribution Area (DCA):

- Sulphur Road Bridge;
- Wellard Road; and
- Bertram Road.

Included in this report are the forecast proportional traffic demand volumes that have been determined for each of the infrastructure items for developments within the respective contribution catchment areas, as well as a summary of all data inputs and basis on which the traffic modelling has been undertaken.

The forecast demand for 2031 has been extracted from Cardno's SATURN model that covers the entire municipality of Kwinana. The model was developed utilising agreed and approved data from the City of Kwinana, Department of Planning and Main Roads WA (MRWA). The model has been calibrated and validated to industry standard and is considered to be a reasonable source of future traffic demand for the City.

The trip generation and distribution to/from utilised for this study for the development zones have been based on regression equations generated and included in the MRWA Regional Operations Model (ROM), which have been developed from Census and travel survey data.

The traffic volumes used as a basis for the apportionments for the road infrastructure items consist of a summation of AM peak and PM peak hour traffic volumes extracted from the model.

Technical information relating to model settings, free-flow speeds and road hierarchy can be found in Appendices A to D.

1.1 Purpose of Report

The purpose of this report is to document the results from Select Link Analysis (SLA) undertaken for the 3 transport infrastructure items based on updated development yields provided by the City for the development areas within the DCA.

2 Modelling Inputs and Basis

The modelling allows for a total of 3,497 residential dwellings by 2031 as a result of the developments summarised in **Table 2-1**.

Table 2-1 2031 Dwelling Yields

Development Area	Development Yields
Bollard Bulrush Area 1	171
Bollard Bulrush Area 2	198
Bollard Bulrush Area 3	445
Emerald Park Central	663
Emerald Park North	171
Emerald Park Garden Nursery Site	42
Providence	780
Parmelia LSP	438
Lots 1, 2 and 10	54
Oakabella Estate	415
Lot 506	120
TOTAL	**3,497**

Additionally, the Homestead Ridge includes 336 dwellings within the study area.

The locations of the above developments are shown in **Figure 2-1** while the SATURN model network is shown in **Figure 2-2**.

Figure 2-1 Location of Developments Included within DCP

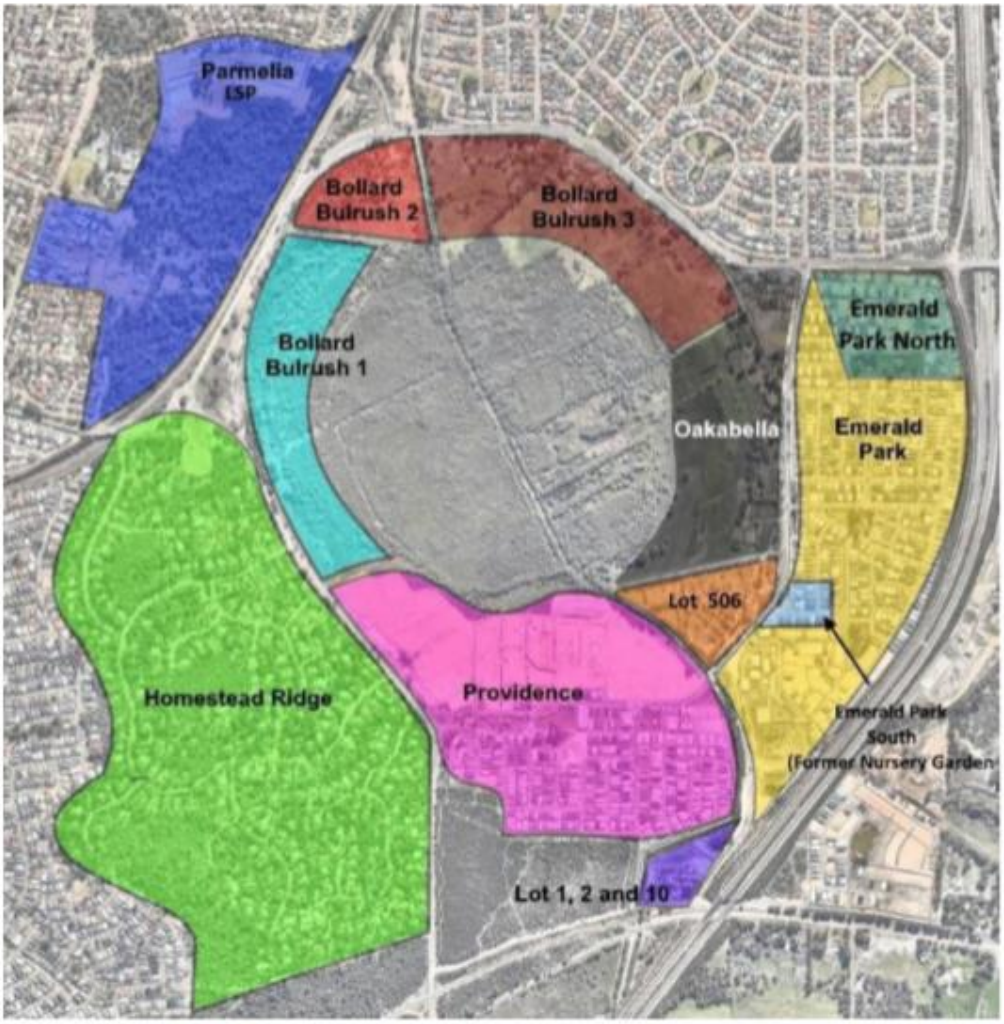
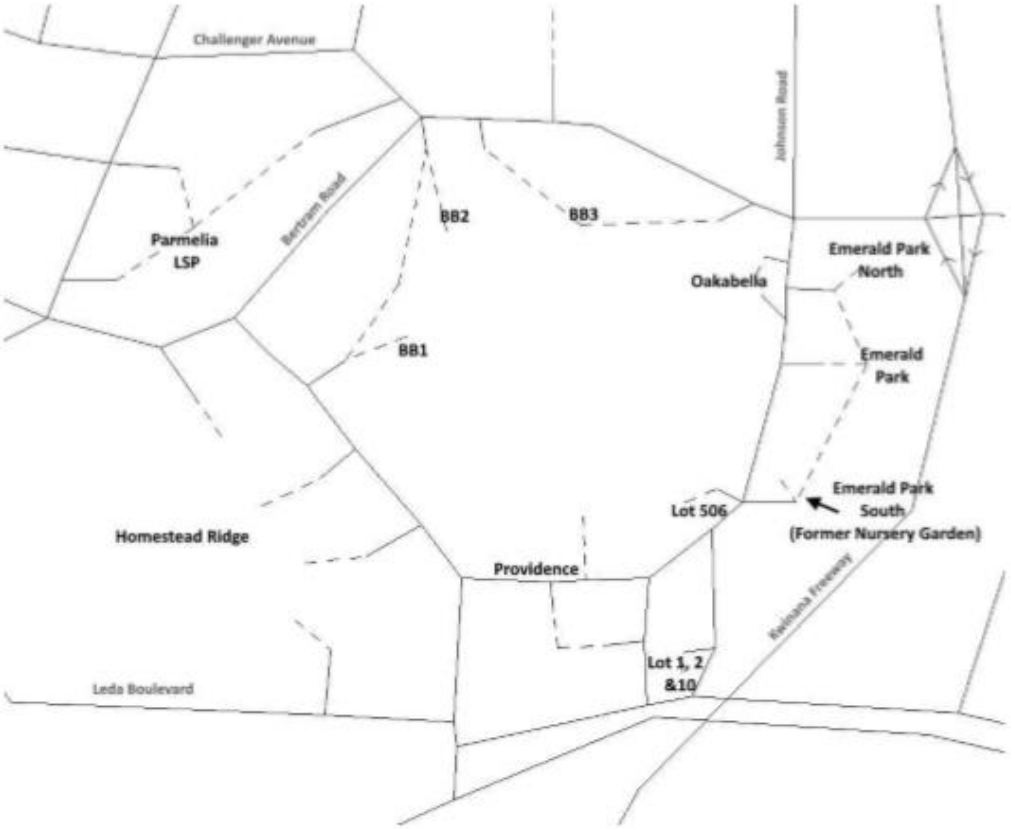


Figure 2-2 2031 SATURN Model Network



3 Select Link Analysis

Select Link Analysis (SLA) is a function within the SATURN software which allows a traffic flow to be broken into proportions from each development/location, making it ideal for reasonably assessing developer contributions.

In order to determine the proportional use of each of the road infrastructure items, SLA's were undertaken for the SATURN 2031 AM and PM peak hour scenarios for each of the road infrastructure items.

3.1 Wellard Road

3.1.1 Wellard Road, south of Bertram Road

The Wellard Road contribution catchment area and Select Link Analysis (SLA) location is outlined in red in **Figure 3-1** and includes the following developments:

- Bollard Bulrush 1;
- Bollard Bulrush 2;
- Bollard Bulrush 3;
- Providence;
- Emerald Park North;
- Emerald Park;
- Emerald Park South (Former Nursery Garden);
- Parmelia LSP;
- Lot 1, 2 and 10 Johnson Road;
- Oakabella Estate;
- Lot 506

In addition, the existing Homestead Ridge is also included within the contribution catchment for this item.

Figure 3-1 Wellard Road Contribution Catchment Area

A summary of traffic on Wellard Road from the 2031 AM/PM peak hour models is provided in **Table 3-1** below.

Table 3-1 Summary of 2031 Modelled Traffic on Wellard Road South of Bertram Road

	2031 AM Peak Hour		2031 PM Peak Hour		2031 AM + PM Peak Hour	
	Vehicles	Proportion	Vehicles	Proportion	**Vehicles**	**Proportion**
Traffic generated by developments within catchment area	662	41.79%	598	41.27%	**1260**	**41.54%**
Traffic not generated by developments within catchment area	922	58.21%	851	58.73%	**1773**	**58.46%**
Total	1584	100.00%	1449	100.00%	**3033**	**100.00%**

Table 3-2 and **Table 3-3** summarise the SLA results for the traffic on Wellard Road North of Bollard Bulrush – 1 Access associated with the developments included in the contribution catchment area for the 2031 AM peak hour and 2031 PM peak hour respectively. **Table 3-4** summarises the combined 2031 AM and PM peak hour traffic volumes for the Wellard Road SLA.

Table 3-2 Summary of Traffic on Wellard Road south of Bertram Road Associated with Contribution Catchment Area for 2031 AM Peak Hour

Development	# Vehicles Associated with Contribution Catchment Area	Proportional Traffic Associated with Contribution Catchment Area
Bollard Bulrush 1	58	3.66%
Bollard Bulrush 2	40	2.53%
Bollard Bulrush 3	92	5.81%
Providence	223	14.08%
Emerald Park	61	3.85%
Emerald Park North	11	0.69%
Emerald Park South	5	0.32%
Parmelia LSP	13	0.82%
Homestead Ridge	134	8.46%
Lot 1, 2 and 10	7	0.44%
Oakabella Estate	2	0.13%
Lot 506	16	1.01%
Total Traffic from Developments	**662**	41.79%
External	**922**	58.21%
Total Wellard Road North	**1584**	**100.00%**

Table 3-3 Summary of Traffic on Wellard Road south of Bertram Road Associated with Contribution Catchment Area for 2031 PM Peak Hour

Development	# Vehicles Associated with Contribution Catchment Area	Proportional Traffic Associated with Contribution Catchment Area
Bollard Bulrush 1	86	5.94%
Bollard Bulrush 2	30	2.07%
Bollard Bulrush 3	61	4.21%
Providence	263	18.20%
Emerald Park	2	0.14%
Emerald Park North	0	0.00%
Emerald Park South	0	0.00%
Parmelia LSP	7	0.48%
Homestead Ridge	147	10.14%
Lot 1, 2 and 10	2	0.14%
Oakabella Estate	0	0.0%
Lot 506	0	0.0%
Total Traffic from Developments	**598**	**41.27%**
External	**851**	**58.73%**
Total Wellard Road North	**1449**	**100.00%**

Table 3-4 Summary of Traffic on Wellard Road south of Bertram Road Associated with Contribution Catchment Area for combined 2031 AM and PM Peak Hour

Development	# Vehicles Associated with Contribution Catchment Area	Proportional Traffic Associated with Contribution Catchment Area
Bollard Bulrush 1	144	4.75%
Bollard Bulrush 2	70	2.31%
Bollard Bulrush 3	153	5.04%
Providence	486	16.02%
Emerald Park	63	2.08%
Emerald Park North	11	0.36%
Emerald Park South	5	0.16%
Parmelia LSP	20	0.66%
Homestead Ridge	281	9.26%
Lot 1, 2 and 10	9	0.30%
Oakabella Estate	2	0.07%
Lot 506	16	0.53%
Total Traffic from Developments	**1260**	**41.54%**
External	**1773**	**58.46%**
Total Wellard Road North	**3033**	**100.00%**

3.1.2 Wellard Road South of Cavendish Boulevard

Figure 3-2 shows the SLA location in red of Wellard south of Cavendish Boulevard.

Figure 3-2 Wellard Road South of Cavendish Boulevard

A summary of traffic on Wellard Road from the 2031 AM/PM peak hour models is provided in **Table 3-5** below.

Table 3-6 and **Table 3-7** summarise the SLA results for the traffic on Wellard Road South of Cavendish associated with the developments included in the contribution catchment area for the 2031 AM peak hour and 2031 PM peak hour respectively. **Table 3-8** summarises the combined 2031 AM and PM peak hour traffic volumes for the Wellard Road SLA.

Table 3-5 Summary of 2031 Modelled Traffic on Wellard Road South of Cavendish Boulevard

	2031 AM Peak Hour		2031 PM Peak Hour		2031 AM + PM Peak Hour	
	Vehicles	Proportion	Vehicles	Proportion	Vehicles	Proportion
Traffic generated by developments within catchment area	408	30.31%	217	20.15%	**625**	**25.79%**
Traffic not generated by developments within catchment area	938	69.69%	860	79.85%	**1798**	**74.21%**
Total	1346	100.00%	1077	100.00%	**2423**	**100.00%**

Table 3-6 Summary of Traffic on Wellard Road Associated with Contribution Catchment Area for 2031 AM Peak Hour

Development	# Vehicles Associated with Contribution Catchment Area	Proportional Traffic Associated with Contribution Catchment Area
Bollard Bulrush 1	30	2.23%
Bollard Bulrush 2	37	2.75%
Bollard Bulrush 3	86	6.39%
Providence	61	4.53%
Emerald Park	58	4.31%
Emerald Park North	11	0.82%
Emerald Park South	5	0.37%
Parmelia LSP	7	0.52%
Homestead Ridge	88	6.54%
Lot 1, 2 and 10	8	0.59%
Oakabella Estate	2	0.15%
Lot 506	15	1.11%
Total Traffic from Developments	**408**	**30.31%**
External	**938**	**69.69%**
Total Wellard Road North	**1346**	**100.00%**

Table 3-7 Summary of Traffic on Wellard Road Associated with Contribution Catchment Area for 2031 PM Peak Hour

Development	# Vehicles Associated with Contribution Catchment Area	Proportional Traffic Associated with Contribution Catchment Area
Bollard Bulrush 1	31	2.88%
Bollard Bulrush 2	27	2.51%
Bollard Bulrush 3	59	5.48%
Providence	87	8.08%
Emerald Park	0	0.00%
Emerald Park North	0	0.00%
Emerald Park South	0	0.00%
Parmelia LSP	4	0.37%
Homestead Ridge	7	0.65%
Lot 1, 2 and 10	2	0.19%
Oakabella Estate	0	0.00%
Lot 506	0	0.00%
Total Traffic from Developments	**217**	**20.15%**
External	**860**	**79.85%**
Total Wellard Road North	**1077**	**100.00%**

Table 3-8 Summary of Traffic on Wellard Road Associated with Contribution Catchment Area for combined 2031 AM and PM Peak Hour

Development	# Vehicles Associated with Contribution Catchment Area	Proportional Traffic Associated with Contribution Catchment Area
Bollard Bulrush 1	61	2.52%
Bollard Bulrush 2	64	2.64%
Bollard Bulrush 3	145	5.98%
Providence	148	6.11%
Emerald Park	58	2.39%
Emerald Park North	11	0.45%
Emerald Park South	5	0.21%
Parmelia LSP	11	0.45%
Homestead Ridge	95	3.92%
Lot 1, 2 and 10	10	0.41%
Oakabella Estate	2	0.08%
Lot 506	15	0.62%
Total Traffic from Developments	**625**	**25.79%**
External	**1798**	**74.21%**
Total Wellard Road North	**2423**	**100.00%**

3.2 Bertram Road

3.2.1 Bertram Road – West of Challenger Avenue

The Bertram Road contribution catchment area and SLA location are outlined in red in **Figure 3-3** and includes the following developments:

- Bollard Bulrush 1;
- Bollard Bulrush 2;
- Bollard Bulrush 3;
- Providence;
- Emerald Park North;
- Emerald Park;
- Emerald Park South (Former Nursery Garden);
- Parmelia LSP;
- Lot 1, 2 and 10 Johnson Road;
- Oakabella Estate;
- Lot 506

In addition, the existing Homestead Ridge is also included within the contribution catchment for this item.

Figure 3-3 Bertram Road (West of Challenger Avenue) Contribution Catchment Area and SLA location

A summary of traffic on Bertram Road West of Challenger Avenue from the 2031 AM/PM peak hour models is provided in **Table 3-9** below.

Table 3-9 Summary of 2031 Modelled Traffic on Bertram Road West of Challenger Avenue

	2031 AM Peak Hour		2031 PM Peak Hour		2031 AM + PM Peak Hour	
	Vehicles	Proportion	Vehicles	Proportion	**Vehicles**	**Proportion**
Traffic generated by developments within catchment area	392	39.88%	423	40.25%	**815**	**40.07%**
Traffic not generated by developments within catchment area	591	60.12%	628	59.75%	**1219**	**59.93%**
Total	983	100.00%	1051	100.00%	**2034**	**100.00%**

Table 3-10 and **Table 3-11** summarise the SLA results for the traffic on Bertram Road west of Challenger Avenue associated with the developments included in the contribution catchment area for the 2031 AM peak hour and 2031 PM peak hour respectively. **Table 3-12** summarises the combined 2031 AM and PM peak hour traffic volumes for the Bertram Road SLA.

Table 3-10 Summary of Traffic on Bertram Road West of Challenger Avenue Associated with Contribution Catchment Area for 2031 AM Peak Hour

Development	# Vehicles Associated with Contribution Catchment Area	Proportional Traffic Associated with Contribution Catchment Area
Bollard Bulrush 1	22	2.24%
Bollard Bulrush 2	65	6.61%
Bollard Bulrush 3	149	15.16%
Providence	32	3.26%
Emerald Park	59	6.00%
Emerald Park North	14	1.42%
Emerald Park South	0	0.00%
Parmelia LSP	0	0.00%
Homestead Ridge	50	5.09%
Lot 1, 2 and 10	0	0.00%
Oakabella Estate	1	0.10%
Lot 506	0	0.00%
Total Traffic from Developments	**392**	**39.88%**
External	**591**	**60.12%**
Total Wellard Road North	**983**	**100.00%**

Table 3-11 Summary of Traffic on Bertram Road West of Challenger Avenue Access Associated with Contribution Catchment Area for 2031 PM Peak Hour

Development	# Vehicles Associated with Contribution Catchment Area	Proportional Traffic Associated with Contribution Catchment Area
Bollard Bulrush 1	21	2.00%
Bollard Bulrush 2	42	4.00%
Bollard Bulrush 3	163	15.51%
Providence	2	0.19%
Emerald Park	116	11.04%
Emerald Park North	32	3.04%
Emerald Park South	8	0.76%
Parmelia LSP	0	0.00%
Homestead Ridge	18	1.71%
Lot 1, 2 and 10	0	0.00%
Oakabella Estate	11	1.05%
Lot 506	10	0.95%
Total Traffic from Developments	**423**	**40.25%**
External	**628**	**59.75%**
Total Wellard Road North	**1051**	**100.00%**

Table 3-12 Summary of Traffic on Bertram Road West of Challenger Avenue Associated with Contribution Catchment Area for Combined 2031 AM and PM Peak Hour

Development	# Vehicles Associated with Contribution Catchment Area	Proportional Traffic Associated with Contribution Catchment Area
Bollard Bulrush 1	43	2.11%
Bollard Bulrush 2	107	5.26%
Bollard Bulrush 3	312	15.34%
Providence	34	1.67%
Emerald Park	175	8.60%
Emerald Park North	46	2.26%
Emerald Park South	8	0.39%
Parmelia LSP	0	0.00%
Homestead Ridge	68	3.34%
Lot 1, 2 and 10	0	0.00%
Oakabella Estate	12	0.59%
Lot 506	10	0.49%
Total Traffic from Developments	**815**	**40.07%**
External	**1219**	**59.93%**
Total Wellard Road North	**2034**	**100.00%**

3.3 Sulphur Road Bridge

The Sulphur Road Bridge SLA location is shown as a red circle in **Figure 3-4** while the Sulphur Road Bridge related to the contribution catchment area is outlined below:

- Bollard Bulrush 1;
- Bollard Bulrush 2;
- Bollard Bulrush 3;
- Providence;
- Emerald Park North;
- Emerald Park;
- Emerald Park South (Former Nursery Garden);
- Parmelia LSP;
- Lot 1, 2 and 10 Johnson Road;
- Oakabella Estate;
- Lot 506;
- Homestead Ridge

Figure 3-4 Sulphur Road Bridge – SLA Location

A summary of traffic on Sulphur Road Bridge from the 2031 AM/PM peak hour models is provided in **Table 3-13** below. It can be seen that only a small proportion of trips from the developments within the DCP area are likely to utilise this route as more convenient east-west links exist for these developments.

Table 3-13 Summary of 2031 Modelled Traffic on Sulphur Road Bridge

	2031 AM Peak Hour		2031 PM Peak Hour		2031 AM + PM Peak Hour	
	Vehicles	Proportion	Vehicles	Proportion	Vehicles	Proportion
Traffic generated by developments within catchment area	8	2.56%	13	2.16%	21	2.30%
Traffic not generated by developments within catchment area	305	97.44%	589	97.84%	894	97.70%
Total	313	100.00%	602	100.00%	915	100.00%

Table 3-14 and **Table 3-15** summarise the SLA results for the traffic on Sulphur Road Bridge associated with the developments included in the contribution catchment area for the 2031 AM peak hour and 2031 PM peak hour respectively. **Table 3-16** summarises the combined 2031 AM and PM peak hour traffic volumes for the Sulphur Road Bridge SLA. It is noted that the modelled traffic volumes on the Sulphur Road Bridge associated with the contribution catchment is considered negligible when compared to the overall traffic volumes.

Table 3-14 Summary of Traffic on Sulphur Road Bridge Associated with Contribution Catchment Area for 2031 AM Peak Hour

Development	# Vehicles Associated with Contribution Catchment Area	Proportional Traffic Associated with Contribution Catchment Area
Bollard Bulrush 1	0	0.00%
Bollard Bulrush 2	1	0.32%
Bollard Bulrush 3	1	0.32%
Providence	0	0.00%
Emerald Park	4	1.28%
Emerald Park North	1	0.32%
Emerald Park South	0	0.00%
Parmelia LSP	1	0.32%
Homestead Ridge	0	0.00%
Lot 1, 2 and 10	0	0.00%
Oakabella Estate	0	0.00%
Lot 506	0	0.00%
Total Traffic from Developments	**8**	**2.56%**
External	**305**	**97.44%**
Total Wellard Road North	**313**	**100.00%**

Table 3-15 Summary of Traffic on Sulphur Road Bridge Associated with Contribution Catchment Area for 2031 PM Peak Hour

Development	# Vehicles Associated with Contribution Catchment Area	Proportional Traffic Associated with Contribution Catchment Area
Bollard Bulrush 1	9	1.50%
Bollard Bulrush 2	0	0.00%
Bollard Bulrush 3	0	0.00%
Providence	0	0.00%
Emerald Park	3	0.50%
Emerald Park North	0	0.00%
Emerald Park South	0	0.00%
Parmelia LSP	1	0.17%
Homestead Ridge	0	0.00%
Lot 1, 2 and 10	0	0.00%
Oakabella Estate	0	0.00%
Lot 506	0	0.00%
Total Traffic from Developments	**13**	**2.16%**
External	**589**	**97.84%**
Total Wellard Road North	**602**	**100.00%**

Table 3-16 Summary of Traffic on Sulphur Road Bridge Associated with Contribution Catchment Area for Combined 2031 AM and PM Peak Hours

Development	# Vehicles Associated with Contribution Catchment Area	Proportional Traffic Associated with Contribution Catchment Area
Bollard Bulrush 1	9	0.98%
Bollard Bulrush 2	1	0.11%
Bollard Bulrush 3	1	0.11%
Providence	0	0.00%
Emerald Park	7	0.77%
Emerald Park North	1	0.11%
Emerald Park South	0	0.00%
Parmelia LSP	2	0.22%
Homestead Ridge	0	0.00%
Lot 1, 2 and 10	0	0.00%
Oakabella Estate	0	0.00%
Lot 506	0	0.00%
Total Traffic from Developments	**21**	**2.30%**
External	**894**	**97.70%**
Total Wellard Road North	**915**	**100.00%**

4 References

Akcelik, R, 2000. *On the Validity of Some Traffic Engineering* Folklore, *December 6-8, 2000: 22nd Conference of Australian Institutes of Transport Research (CAITR 2000),* Canberra, ACT

Kwinana DCP Modelling

APPENDIX A

NON-DEFAULT SATURN MODEL PARAMETERS

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Kwinana DCP Modelling

APPENDIX B

MODEL FREEFLOW SPEEDS

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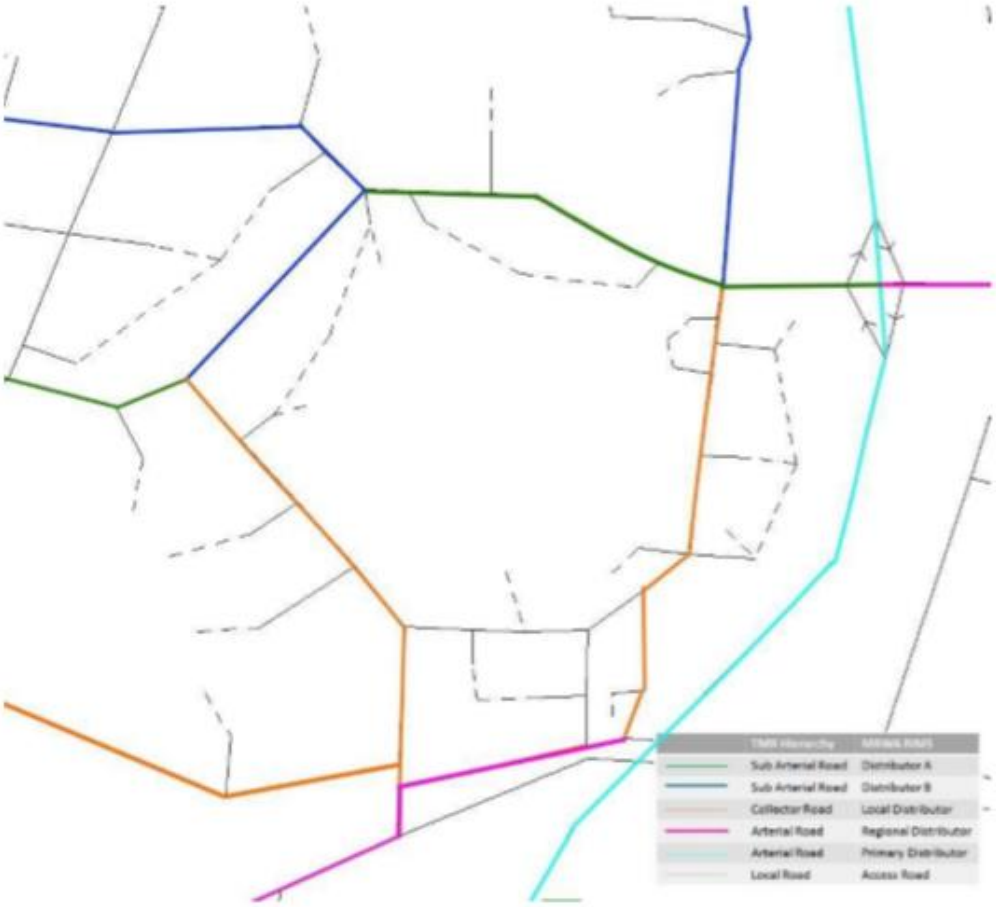
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Distributor A
Sub Arterial Road
Distributor B
Collector Road
Local Distributor
Arterial Road
Regional Distributor
Arterial Road
Primary Distributor
Local Road
Access Road

Kwinana DCP Modelling

APPENDIX D

2031 VOLUME PLOTS (2-WAY)

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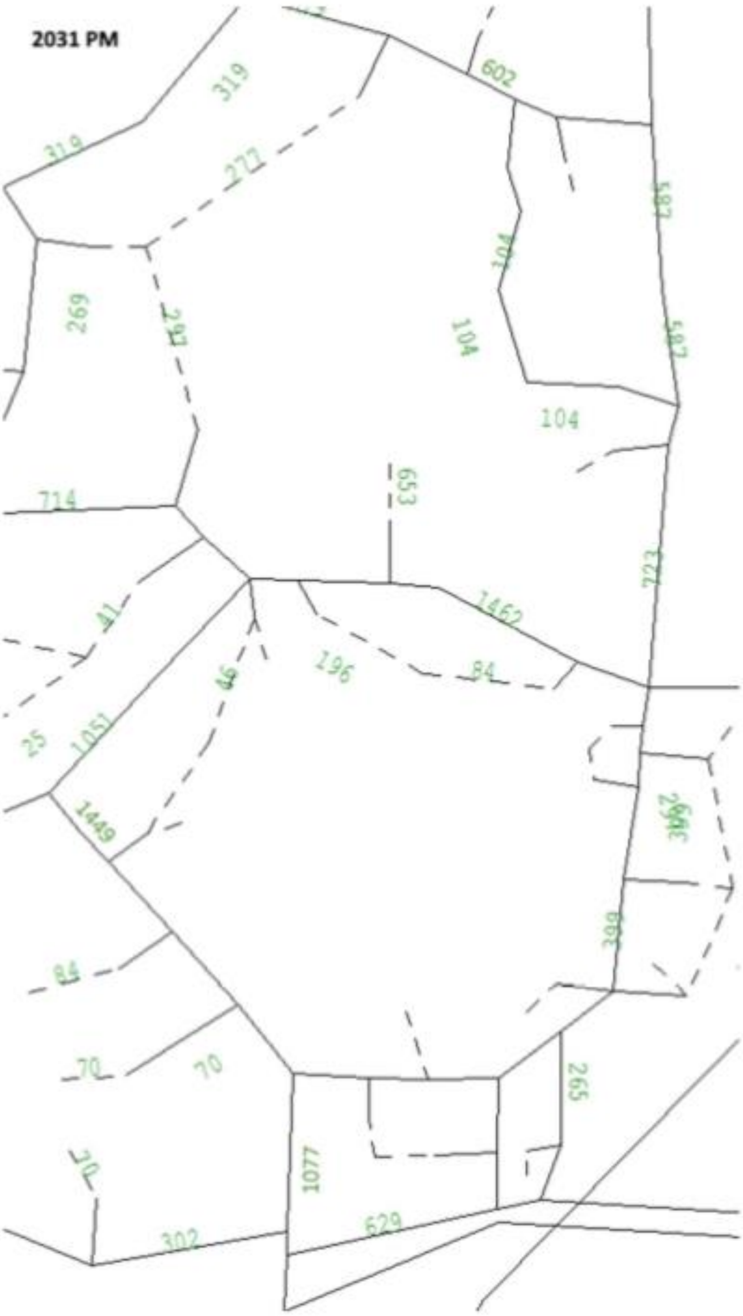
Cardno

Kwinana DCP Modelling
Traffic Modelling Apportionment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319
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587
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104
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1051
1449
399
84
70
70
265
70
1077
629
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About Cardno

Cardno is a professional infrastructure and environmental services company, with expertise in the development and improvement of physical and social infrastructure for communities around the world. Cardno's team includes leading professionals who plan, design, manage and deliver sustainable projects and community programs. Cardno is an international company listed on the Australian Securities Exchange [ASX:CDD].

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Cardno
Shaping the Future