Background information for Water Supply and Sewerage Networks for the Gympie Regional Council Local Government Infrastructure Plan

GYMPIE REGIONAL COUNCIL

Table of Contents

1.0 Preliminary

This report provides the background information for the Water Supply and Sewerage Networks to support the development of the Gympie Regional Council Local Government Infrastructure Plan (LGIP).

The report outlines:

1. The definition of trunk infrastructure (Section 2);
2. The service catchments (Section 3);
3. The demand assumptions and conversions (Section 4);
4. Catchment Demands (section 5)
5. The desired standards of service (Section 6);
6. Network planning and modelling (Section 7);
7. Network costings and valuation methodology (Section 8);
8. Schedules of work (Section 9);
9. Source and supporting documents (Section 10).

2.0 Definition of trunk infrastructure

Table 1 outlines the definition of trunk infrastructure for the Water Supply and Sewerage Networks. The trunk infrastructure is shown on the LGIP maps (Plans for Trunk Infrastructure – Water Supply, Plans for Trunk Infrastructure – Sewerage), but also included here in Appendix A for information. Additionally, not all elements of the network infrastructure are considered trunk; to provide a level of clarity, these elements have been listed in Table 1 below as part of the exclusions list.

Table 1 – Definition of Trunk Infrastructure

Network	*Definition of Trunk infrastructure*	*Exclusions* *(non-trunk infrastructure)*
Water Supply	Council owned: • Bulk water storage and collection systems (dams, intake pump station, bores, weirs etc); • Raw water mains; • Treatment facilities; • Chlorination facilities; • Reservoirs (ground level and towers); • Water mains greater than 150mm diameter; • Pump stations; • Monitoring and control systems (bulk water meters, SCADA and alarm systems); • Water allocation for Council purposes.	• all other infrastructure not listed in column 2; • pump stations and rising mains of a temporary nature; • development infrastructure internal to a development or to connect a development to the external infrastructure network; • onsite effluent systems; • privately owned systems.
Sewerage	• Sewage treatment facilities identified on Gympie Regional Council Plans for Trunk Infrastructure & Catchment Area Sewerage; • Sewage treatment plant effluent disposal and re-use systems; • Gravity sewers greater than 225mm diameter; • Pump stations with a capacity greater than 40kL/hr; • Rising mains greater than 80mm diameter; • Monitoring and control systems (meters, SCADA and alarm systems).	• all other infrastructure not listed in column 2; • pump stations and rising mains of a temporary nature; • development infrastructure internal to a development or to connect a development to the external infrastructure network; • onsite effluent systems; • privately owned systems.

3.0 Service catchments

Water Supply Service Catchments

There are nine service catchments for the water supply network:

- Amamoor;

- Cooloola Cove;
- Goomeri;
- Gympie;
- Imbil;
- Kandanga;
- Kilkivan;
- Rainbow Beach;
- Tin Can Bay.

Sewerage Service Catchments

There are seven service catchments for the water supply network:

- Cooloola Cove;
- Goomeri;
- Gympie;
- Imbil;
- Kilkivan;
- Rainbow Beach;
- Tin Can Bay.

4.0 Demand Generation Rates

The Water Supply and Sewerage Networks demand generation rates used in the development of the assumptions based demand model are provided in Tables 2 and 3.

Table 2 — Residential Demand Generation Rates by Locality

Locality	Network Demand (EP/dwelling)	
	Water Supply	Sewerage
Gympie	2.7	2.7
Cooloola Coast	2.7	2.7
Goomeri	2.7	2.7
Imbil	2.7	2.7
Kilkivan	2.7	2.7
Other	2.7	2.7

The water supply and sewerage demand generation rates have been determined based on the persons per household for each area as documented in the population model that supports the planning assumptions. Upon review of these values, and in consideration of the changing nature of household size a standardised value was adopted by Council as confirmed in an email dated 9 November 2016.

Table 3 — Non-residential Demand Generation Rates by use

Land Use	Network Demand (EP/hectare)		Network Demand (EP/100m^2 GFA)	
	Water Supply	Sewerage	Water Supply	Sewerage
Commercial	50	50	1.00	1.00
Office	50	50	1.00	1.00
Industry	25	25	0.50	0.50
Community	50	50	1.00	1.00

The Non-residential network demand generation rates (EP/hectare) were adopted based on a combination of the historical rates nominated in Gympie Regional Council Planning Scheme 2013, the benchmarking of these rates against other Local Governments in Queensland and specific analysis undertaken by Jacobs, as part of the Gympie Water and Sewerage Planning Scheme (July 2016), for industrial uses. These rates were confirmed in an email dated 9 November 2016 and then converted to GFA by assuming a plot ratio of 50%.

5.0 Network Demands

The network demands have been determined to directly align with the planning assumptions developed for the 2016 LGIP.

The methodology for calculating the demands included:

- Identifying all properties within the applicable catchment
- Extracting from the planning assumptions model the assumed development on each lot at Ultimate and over time.
- Multiplying the assumed development by the appropriate demand generation rates according to the use designated in the planning assumptions model.
- Aggregating the demands by catchment and over time.

It is important to note that whilst the water supply and sewerage system demands are consistent with the planning assumptions, they are based on projected dwellings and assume full occupancy. Therefore, some larger infrastructure items such as treatment plants cannot be sized purely on the assumptions based demand model. More detailed assessments reflecting local conditions and observed flows would be required for such purposes.

The catchment based summary of water supply demand is provided in Table 4.

Table 4 — Existing and projected demand for the water supply network

Service catchment	Water supply network demand (EP)				
	2016	2021	2026	2031	Ultimate
Amamoor	267	267	267	267	273
Cooloola Cove	3,812	3,889	4,081	4,371	9,973
Goomeri	888	971	1,040	1,171	2,683
Gympie	28,195	30,076	31,708	33,999	69,091
Imbil	779	843	893	975	2,514
Kandanga	271	277	283	290	385
Kilkivan	776	851	939	1,296	3,589
Rainbow Beach	3,132	3,237	3,356	3,734	4,994
Tin Can Bay	4,254	4,391	4,512	4,748	6,718
Total	42,373	44,801	47,077	50,852	100,220

The catchment based summary of sewerage demand is provided in Table 5.

Table 5 — Existing and projected demand for the sewerage network

Service catchment	Sewerage network demand (EP)				
	2016	2021	2026	2031	Ultimate
Cooloola Cove	3,691	3,756	3,924	4,176	9,724
Goomeri	846	908	951	1,054	2,442
Gympie	26,815	28,428	29,851	31,481	61,805
Imbil	735	789	830	903	2,327
Kilkivan	664	729	792	1,047	3,124
Rainbow Beach	2,938	3,043	3,162	3,324	4,422
Tin Can Bay	4,285	4,422	4,542	4,779	6,748
Total	39,973	42,075	44,053	46,763	90,592

6.0 Desired standards of service

Table 6 outlines the desired standards of service for the Water Supply network.

Table 6— Desired Standards of Service for the Water Supply network

Column 1 **Measure**	**Column 2** **Planning criteria (qualitative standards)**	**Column 3** **Design criteria (quantitative standards)**
Water quality and public health	Provide water in accordance with recognised quality standards that safeguard community health.	• Australian Drinking Water Guidelines 2011 – National Health and Medical Research Council
Reliability, continuity and adequacy of supply	All development receives a reliable supply of potable water with minimal interruptions to their service.	• Gympie Regional Council Planning Scheme Policy Schedule 6.1.7 • Customer service standards • Water Supply Code of Australia – Water Services Association of Australia as modified by the Council addendum stated in SC6.1.10 WSA Addenda. • Planning Guidelines of Water Supply and Sewerage – Department of Energy and Water Supply (update March 2014)
Economic efficiency	Provide infrastructure that: • Minimises whole of life cycle costs; • Minimises power costs; • Minimises the extent of infrastructure assets required to deliver the service.	• Gympie Regional Council Planning Scheme Policy Schedule 6.1.7 • Water Supply Code of Australia – Water Services Association of Australia as modified by the Council addendum stated in SC6.1.10 WSA Addenda. • Planning Guidelines of Water Supply and Sewerage – Department of Energy and Water Supply (update March 2014)

Column 1 Measure	Column 2 Planning criteria (qualitative standards)	Column 3 Design criteria (quantitative standards)
Environmental impacts	Provide infrastructure that: • Minimises energy usage; • Minimises greenhouse gas emissions; • Complies with Environmental Management Strategies and Plans; • Provides for system operation and monitoring in accordance with recognised standards.	• Gympie Regional Council Planning Scheme Policy Schedule 6.1.7 • Water Supply Code of Australia – Water Services Association of Australia as modified by the Council addendum stated in SC6.1.10 WSA Addenda. • Planning Guidelines of Water Supply and Sewerage – Department of Energy and Water Supply (update March 2014)
Infrastructure design/ planning standards	Design of the water supply network will comply with established codes and standards.	• Gympie Regional Council Planning Scheme Policy Schedule 6.1.7 • Water Supply Code of Australia – Water Services Association of Australia as modified by the Council addendum stated in SC6.1.10 WSA Addenda. • Planning Guidelines of Water Supply and Sewerage – Department of Energy and Water Supply (update March 2014) • IPWEAQ standards

Table 8 outlines the desired standards of service for the Sewerage network.

Table 8— Desired Standards of Service for the Sewerage network

Column 1 Measure	Column 2 Planning criteria (qualitative standards)	Column 3 Design criteria (quantitative standards)
Wastewater quality and public health	Provide a wastewater network that maintains and improves public health	• Gympie Regional Council Planning Scheme Policy Schedule 6.1.7
Reliability and adequacy of service	Development has access to a reliable wastewater collection, conveyance, treatment and disposal system.	• Gympie Regional Council Planning Scheme Policy Schedule 6.1.7 • Customer service standards • Sewerage Code of Australia – Water Services Association of Australia as modified by the Council addendum stated in SC6.1.10 WSA Addenda. • Sewerage Pumping Station Code of Australia – Water Services Association of Australia • Planning Guidelines of Water Supply and Sewerage – Department of Energy and Water Supply (update March 2014)
Economic efficiency	Provide infrastructure that: • Minimises whole of life cycle costs; • Minimises power costs; • Minimises the extent of infrastructure assets required to deliver the service.	• Gympie Regional Council Planning Scheme Policy Schedule 6.1.7 • Customer service standards • Sewerage Code of Australia – Water Services Association of Australia as modified by the Council addendum stated in SC6.1.10 WSA Addenda. • Sewerage Pumping Station Code of Australia – Water Services Association of Australia • Planning Guidelines of Water Supply and Sewerage – Department of Energy and Water Supply (update March 2014)

Column 1 Measure	Column 2 Planning criteria (qualitative standards)	Column 3 Design criteria (quantitative standards)
Environmental impacts	Provide infrastructure that: • Minimises energy usage • Minimises greenhouse gas emissions; • Complies with Environmental Management Strategies and Plans; • Provides for system operation and monitoring in accordance with recognised standards; • Enables opportunities for beneficial re-use of treated effluent.	• Gympie Regional Council Planning Scheme Policy Schedule 6.1.7 • Customer service standards • Sewerage Code of Australia – Water Services Association of Australia as modified by the Council addendum stated in SC6.1.10 WSA Addenda. • Sewerage Pumping Station Code of Australia – Water Services Association of Australia as modified by the Council addendum stated in SC6.1.10 WSA Addenda. • Planning Guidelines of Water Supply and Sewerage – Department of Energy and Water Supply (update March 2014)
Infrastructure design / planning standards	Design of the wastewater network will comply with established codes and standards.	• Gympie Regional Council Planning Scheme Policy Schedule 6.1.7 • Customer service standards • Sewerage Code of Australia – Water Services Association of Australia as modified by the Council addendum stated in SC6.1.10 WSA Addenda. • Sewerage Pumping Station Code of Australia – Water Services Association of Australia as modified by the Council addendum stated in SC6.1.10 WSA Addenda. • Planning Guidelines of Water Supply and Sewerage – Department of Energy and Water Supply (update March 2014)

7.0 Network planning and modelling

The Gympie Regional Council water supply and sewerage systems service a number of individual catchments. Each catchment varies significantly in size and complexity. Therefore, planning has been undertaken on a fit for purpose basis. The larger more complex systems have been fully

analysed with industry standard modelling packages and techniques whilst planning in the smaller catchment has focused on local issues. This has resulted in a number of planning reports being produced over time. These reports are listed in Section 10.

The Gympie systems are well documented in the "Gympie Water and Sewerage Planning Scheme Report" (Jacobs 2016) a summary of the other key future items is provided in Table 10 together with project justification and source.

Table 10— Summary of other key future items

Item ID	Item	Project justification summary	Year	Cost
WGY1	Gympie water - bulk water supply - cost for future water allocation 522 ML	"Gympie regional water supply security assessment" (Department of Energy and Water Supply, 2016). Year is driven by the time the expenditure will be required based on availability.	2017	$870,000
WA1	Amamoor water - treatment plant upgrade	"Upgrade of Water Treatment Facilities Amamoor, Kanganga and Goomeri Process and Option Assessment" (Hunter H2O, Feb 2016), cost from budget	2016	$375,000
WA2	Amamoor water - new pipeline	Pipeline to reservoir is required to improve reliability of service, minimise operational costs and minimise operational risks associated with pressure variance to customers. Contract price.	2016	$125,000
WK1	Kandanga water - treatment plant upgrade	"Upgrade of Water Treatment Facilities Amamoor, Kanganga and Goomeri Process and Option Assessment" (Hunter H2O, Feb 2016), cost from budget	2016	$375,000
WGO1	Goomeri water - treatment plant upgrade	"Upgrade of Water Treatment Facilities Amamoor, Kanganga and Goomeri Process and Option Assessment" (Hunter H2O, Feb 2016), cost from budget	2016	$500,000
WTC1	Tin Can Bay Water - 300mm main to Cooloola Cove Reservoir	"Tin Can Bay Cooloola Cove Water Supply Planning Report" (SKM, Sep 2004)	2016	$610,000
WRB1	Rainbow Beach - additional bores for capacity upgrade	"Report on Rainbow Beach Bores Investigation and Construction & Review	2016	$500,000

Item ID	Item	Project justification summary	Year	Cost
		of Groundwater Monitoring Programs" (Douglas Partners, Nov 2015)		
SGY1	Gympie Sewerage - effluent management scheme upgrade	"Gympie Sewerage Network Planning Assessment" (Jacobs, 2016) justifies the need. Further detail in "Gympie Sewage Treatment Plant Effluent Disposal" (Worley Parsons, Feb 2011). Add	2021	$500,000
SGO1	Goomeri STP - minor upgrades to meet licence requirements	"Kilkivan and Goomeri Sewage Treatment Plants Treatment upgrade Options" (Wide Bay Water Corporation, Dec 2015)	2016	$235,000
SK1	Kilkivan STP - minor upgrade to meet licence requirements	"Kilkivan and Goomeri Sewage Treatment Plants Treatment upgrade Options" (Wide Bay Water Corporation, Dec 2015)	2016	$275,000

8.0 Network costings and valuation methodology

The valuation of the existing water supply and sewerage network was derived from Council's asset management system, based on a GIS layer of items which meet the definition of trunk infrastructure. In additional water allocation costs have been included for Gympie and Imbil. The values have been calculated by multiplying the water allocation entitlement by $1,660/ML (derived from Item WGY1 in Table 10). The entitlement for Gympie is 3455 ML/year and entitlement for Imbil is 60 ML/year

The cost estimates for future infrastructure projects have been derived from the relevant planning report, project budget allocation or tender prices. Where contingencies have been known to be applied to the cost estimates from planning reports, these have been discounted to allow a pre-contingency price to be used in the SoW model and the time based contingency applied in accordance with the guidelines. The estimates in the Jacobs reports are based on 2014 reference rate values. However the SOW model escalates these to 2016 values. Further, in the Jacobs report the project owner's costs have been limited to only 10%. Typically project owner's costs for water and sewer infrastructure are in the order of 20%.

9.0 Schedules of work

The following tables are the schedules of future work as a result of network planning. The schedule of works contains the projects identified in Table 10 and a selection of projects from:

- Gympie Water and Sewerage, Gympie Sewerage Network Planning Assessment (Jacobs, February 2017)
- Gympie Water and Sewerage, Gympie Water Network Planning Assessment (Jacobs, February 2017)

. The items from the Jacobs' reports were selected if they:

- Complied with the definition of trunk;
- were required within the LGIP planning horizon (2031); and
- were facilitating growth generally located in the future water or future sewer catchment identified for the LGIP.

The Jacobs' report does not identify particular phasing of projects and often sizes the infrastructure for Ultimate. Where future infrastructure items are considered significant, provided in 2031 but have reasonable amounts of residual capacity available (for Ultimate) an adjusted value approach was taken (refer Table 13).

The resultant schedule of works is provided in Table 11 (Water Supply) and Table 12 (Sewerage).

Table 11—Water Supply network schedule of works

Column 1 Catchment	Column 2 Map reference	Column 3 Estimated timing	Column 4 Trunk infrastructure	Column 5 Cost from reference report	Column 6 Establishment Cost
Gympie / Ferguson Hill	GY-1	2031	Gympie North Distribution Main Leg 1	$767,220	$ 856,814
Gympie / Ferguson Hill	GY-2	2026 (2021 – 2031)	Gympie North Distribution Main Leg 2	$948,930	$1,015,588
Gympie / Ferguson Hill	GY-3	2017	Pengelly's Bridge - Deep Creek Crossing	$121,200	$121,254
Penny Road	NR-1	2017	Noosa Road WPS by-pass	$19,968	$19,977
Southside PIA	SS-8	2021	Remove Dalee St WPS	$12,000	$12,005
Southside PIA	SS-1	2021	Jones Hill Surface to CWT Jones Hill High Res Duplication CWT to High Level Transfer	$2,028,000	$2,028,906

Column 1 Catchment	Column 2 Map reference	Column 3 Estimated timing	Column 4 Trunk infrastructure	Column 5 Cost from reference report	Column 6 Establishment Cost
			pumps		
Southside PIA	SS-2	2021	Southside PIA Distribution Main Leg 1	$2,164,368	$2,165,335
Southside PIA	SS-3	2021	Southside PIA Distribution Main Leg 1 to Groundwater Road via Pedersen Ave	$133,032	$133,091
Gympie	WGY1	2017	Gympie water - bulk water supply - cost for future water allocation 522 ML	$870,000	$935,250
Amamoor	WA1	2016	Amamoor water - treatment plant upgrade	$375,000	$403,125
Amamoor	WA2	2016	Amamoor water - new pipeline	$125,000	$134,375
Kandanga	WK1	2016	Kandanga water - treatment plant upgrade	$375,000	$403,125
Goomeri	WGO1	2016	Goomeri water - treatment plant upgrade	$500,000	$537,500
Tin Can Bay	WTC1	2016	Tin Can Bay Water - 300mm main to Cooloola Cove Reservoir	$610,000	$655,750
Rainbow Beach	WRB1	2016	Rainbow Beach - additional bores for capacity upgrade	$500,000	$537,500
Total				$9,549,718	$9,959,595

Table 12—Sewerage network schedule of works

Column 1 Catchment	Column 2 Map reference	Column 3 Estimated timing	Column 4 Trunk infrastructure	Column 5 Cost from reference report	Column 6 Establishment Cost
Gympie South Sewerage	GSS-02	2031	G40 pump station upgrade	$60,000	$67,007
Gympie	GSS-03	2031	G12 pumping station	$120,000	$134,013

Column 1 Catchment	Column 2 Map reference	Column 3 Estimated timing	Column 4 Trunk infrastructure	Column 5 Cost from reference report	Column 6 Establishment Cost
South Sewerage			upgrade		
Gympie Sewerage	GYS-02	2017	G7B pumping station	$1,134,000	$1,134,507
Gympie Sewerage	GYS-20	2031	G31 duplication / upgrade	$960,000	$1,072,107*
Gympie Sewerage	GYS-21	2031	G31 to Gympie STP rising main	$386,901	$432,082*
Gympie Sewerage	GYS-22	2031	G31 to Gympie STP falling main	$1,031,248	$1,151,675*
Southside Sewerage	SSS-09	2021	Southern VGS Leg 1 (SS002A / B to junction of SS002C	$649,815	$650,105
Gympie Sewerage	SGY1	2021	Gympie Sewerage - effluent management scheme upgrade - land	$500,000	$500,000
Goomeri	SGO1	2016	Goomeri STP - minor upgrades to meet licence requirements	$235,000	$252,625
Kilkivan	SK1	2016	Kilkivan STP - minor upgrade to meet licence requirements	$275,000	$295,625
Total				$5,351,964	$5,689,746

*Note: * means refer to adjusted values (Table 13)*

Where future infrastructure items are considered significant, provided in 2031 but have reasonable amounts of residual capacity available (for Ultimate) the cost of the item was adjusted. The methodology to calculate the adjusted value was:

$$\text{Adjusted Value} = \text{the cost of the item in Table 12} \times \frac{\text{the capacity required at 2031}}{\text{capacity require at Ultimate}}$$

These inputs are available in the Jacobs' report. Where the inputs were not available for the calculation the full value was included.

Table 13—Adjusted values

Item	Capacity required at 2031	Capacity required at Ultimate	Adjusted value factor	Adjusted Cost (excluding contingency) for SoW Model
GYS-20	64.3 L/s	106 L/s	60.6%	$484,800
GYS-21	Refer GYS-20	Refer GYS-20	60.6%	$195,385
GYS-22	Refer GYS-20	Refer GYS-20	60.6%	$520,780

10.0 Source and supporting documents

The following documents have been used to form the basis and background of this information material:

- Gympie Water and Sewerage, Gympie Sewerage Network Planning Assessment (Jacobs, January 2017)
- Gympie Water and Sewerage, Gympie Water Network Planning Assessment (Jacobs, February 2017)
- Upgrade of Water Treatment Facilities Amamoor, Kanganga and Goomeri Process and Option Assessment" (Hunter H2O, Feb 2016),
- Tin Can Bay Cooloola Cove Water Supply Planning Report (SKM, Sep 2004)
- Gympie Sewage Treatment Plant Effluent Disposal (Worley Parsons, Feb 2011)
- Kilkivan and Goomeri Sewage Treatment Plants Treatment upgrade Options (Wide Bay Water Corporation, Dec 2015)
- Gympie regional water supply security assessment (Department of Energy and Water Supply, 2016)
- GRC Planning Scheme Policy SC6

Appendix A –Network maps

Appendix B–Detailed Demand Summaries

Table B1— Water Demand

Catchment	Residential Demand (EP)					Non-Residential Demand (EP)					Total Demand (EP)				
	2016	2021	2026	2031	Ultimate	2016	2021	2026	2031	Ultimate	2016	2021	2026	2031	Ultimate
Amamor	262	262	262	262	262	5	5	5	5	11	267	267	267	267	273
Cooloola Cove	3,742	3,810	3,991	4,271	9,355	70	80	90	100	618	3,812	3,889	4,081	4,371	9,973
Goomeri	694	756	805	915	1,512	194	215	235	256	1,171	888	971	1,040	1,171	2,683
Gympie	22,108	23,606	24,856	26,765	49,280	6,088	6,470	6,852	7,234	19,811	28,195	30,076	31,708	33,999	69,091
Imbil	621	675	716	788	1,264	158	168	177	187	1,251	779	843	893	975	2,514
Kandanga	243	243	243	243	281	28	34	40	47	105	271	277	283	290	385
Kilkivan	605	651	710	1,040	2,295	171	200	228	257	1,294	776	851	939	1,296	3,589
Rainbow Beach	2,943	3,024	3,118	3,472	4,452	189	213	237	262	542	3,132	3,237	3,356	3,734	4,994
Tin Can Bay	3,918	3,996	4,058	4,236	6,070	337	395	453	512	648	4,254	4,391	4,512	4,748	6,718
Total	35,135	37,022	38,759	41,993	74,771	7,238	7,778	8,319	8,859	25,449	42,373	44,801	47,077	50,852	100,220

Table B2— Sewer Demand

Catchment	Residential Demand (EP)					Non-Residential Demand (EP)					Total Demand (EP)				
	2016	2021	2026	2031	Ultimate	2016	2021	2026	2031	Ultimate	2016	2021	2026	2031	Ultimate
Cooloola Cove	3,626	3,685	3,847	4,093	9,166	65	71	77	83	558	3,691	3,756	3,924	4,176	9,724
Goomeri	656	713	751	848	1,420	190	195	201	206	1,022	846	908	951	1,054	2,442
Gympie	21,020	22,297	23,385	24,678	44,939	5,795	6,131	6,467	6,803	16,866	26,815	28,428	29,851	31,481	61,805
Imbil	618	672	713	786	1,269	117	117	117	117	1,058	735	789	830	903	2,327
Kilkivan	497	537	575	805	1,887	167	192	217	242	1,237	664	729	792	1,047	3,124
Rainbow Beach	2,754	2,835	2,929	3,067	3,885	184	208	232	257	537	2,938	3,043	3,162	3,324	4,422
Tin Can Bay	3,918	3,996	4,058	4,236	6,070	367	426	484	542	679	4,285	4,422	4,542	4,779	6,748
Total	**33,089**	**34,736**	**36,258**	**38,513**	**68,637**	**6,885**	**7,340**	**7,795**	**8,250**	**21,956**	**39,973**	**42,075**	**44,053**	**46,763**	**90,592**