Wellington and East Gippsland Shires Municipal Domestic Wastewater Management Plan

Prepared for Wellington and East Gippsland Shires

By Ecos Environmental Consulting

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Created by Ecos Environmental Consulting Pty Ltd
ABN 11 086 102 383, ACN 086 102 383
17 Tuxen Street, North Balwyn VIC 3104

Mail PO Box 1064G North Balwyn Victoria 3104

Tel +61 3 9857 3990

Mob 0408 520 579 (Nick)

Email ecos@ecosec.com.au

Web www.ecosec.com.au

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Table of Contents

Executive Summary

Introduction

The environmental and public health risks posed by unsewered areas is recognised nationally and internationally as a significant public health and environmental issue. In Victoria, management of domestic wastewater is addressed under the *Environment Protection Act 1970* and State Environment Protection Policy (Waters of Victoria) (SEPP WoV). It is a requirement of this legislation for local Governments to develop a Domestic Wastewater Management Plan (DWMP) to address potential risks to community health and the environment resulting from the treatment and disposal of wastewater from homes and businesses in unsewered areas.

Wellington and East Gippsland Shires released their existing DWMP in 2006. In 2014, the Shires received funding assistance from the Gippsland Lakes Environment Fund to review the 2006 DWMP and to produce a new and revised version. The 2006 DWMP was developed with the support of regional water corporations and the corporations have retained a strong obligation in the on-going implementation of the 2016 DWMP.

Aims

The primary purpose of preparing this DWMP plan is to update the existing DWMP to meet the revised Ministerial Catchment Guidelines, "*Planning permit applications in open, potable water supply catchment areas*" (DEPI 2012) (the Ministerial Guidelines) as well satisfy the obligations of each Shire council as outlined by Clause 32 of the SEPP WoV. Specific sections of the DWMP that address the requirements of the Ministerial Guidelines are listed in Table 1.

Table 1. Domestic Wastewater Management Plan Requirements and relevant sections of this DWMP where the requirement is addressed.

Attribute	Requirements	Relevant section in DWMP
Consultation	The DWMP must be prepared or reviewed in consultation with all relevant stakeholders including: • other local governments with which catchment/s are shared; • EPA; and • local water corporation/s.	Section 6.1 and Appendix 5 (stakeholder consultation) Section 6.1 and Appendix 5 (stakeholder consultation) Section 6.1 and Appendix 5 (stakeholder consultation)
Protection of surface and groundwaters	The DWMP must comprise a strategy, including timelines and priorities, to: • prevent discharge of wastewater beyond property boundaries; and • prevent individual and cumulative impacts on groundwater and surface water beneficial uses.	Action plans - Section 9.1 Action plans - Section 9.1
Monitoring, compliance and enforcement	The DWMP must provide for: • the effective monitoring of the condition and management of onsite treatment systems, including but not limited to compliance by permit holders with permit conditions and the Code; • the results of monitoring being provided to stakeholders as agreed by the relevant stakeholders; • enforcement action where non-compliance is identified;	Action plans - Section 9.1, Table 9-4 Action plans - Section 9.1, Table 9-4 (Item ES.3) Action plans - Section 9.1, Table 9-4 (see items on Monitoring and Compliance [MC])

Attribute	Requirements	Relevant section in DWMP
	• a process of review and updating (if necessary) of the DWMP every 5 years; • independent audit by an accredited auditor (water corporation approved) of implementation of the DWMP, including of monitoring and enforcement, every 3 years; • the results of audit being provided to stakeholders as soon as possible after the relevant assessment; and • Councils are required to demonstrate that suitable resourcing for implementation, including monitoring, enforcement, review and audit, is in place.	Action plans - Section 9.1, Table 9-4 (Item ES.6) Action plans - Section 9.1, Table 9-4 (Item MC.10) Action plans - Section 9.1, Table 9-4 (Item ES.7) Action plans - Section 9.1, Table 9-4 (Item MC.11)

The development of this DWMP has provided an opportunity for the Shires to strategically assess the wastewater issues within their respective jurisdictions and develop appropriate strategies and actions to prevent wastewater problems, or at the very least minimise resultant impacts.

Region

The Wellington and East Gippsland Shires include water catchments that support the Gippsland Lakes as well as many other regional waterways of high social, economic and environmental importance. The management and protection of water catchments and regional streams, rivers and lakes is considered a high priority by the regional community. With respect to wastewater management, the larger towns and most of the smaller towns are sewered, however there remains a number of small, relatively remote unsewered settlements as well as areas of rural land use with relatively high densities of unsewered properties. These locations pose potential risks to catchment water quality and within this DWMP are a focus for risk management. Overall there are just under 13,000 onsite wastewater management systems across both Shires combined.

Detailed statistics related to onsite wastewater management are provided in the DWMP on townships in each Shire including classification by lot size and planning zone.

Declared Water Supply Catchment boundaries and planning zones are displayed in map form (Figures 1 to 3). For East Gippsland Shire 787,106 ha lies within Declared Water Supply Catchments (38 %) while in Wellington Shire the corresponding figure is 450,232 ha (41 %).

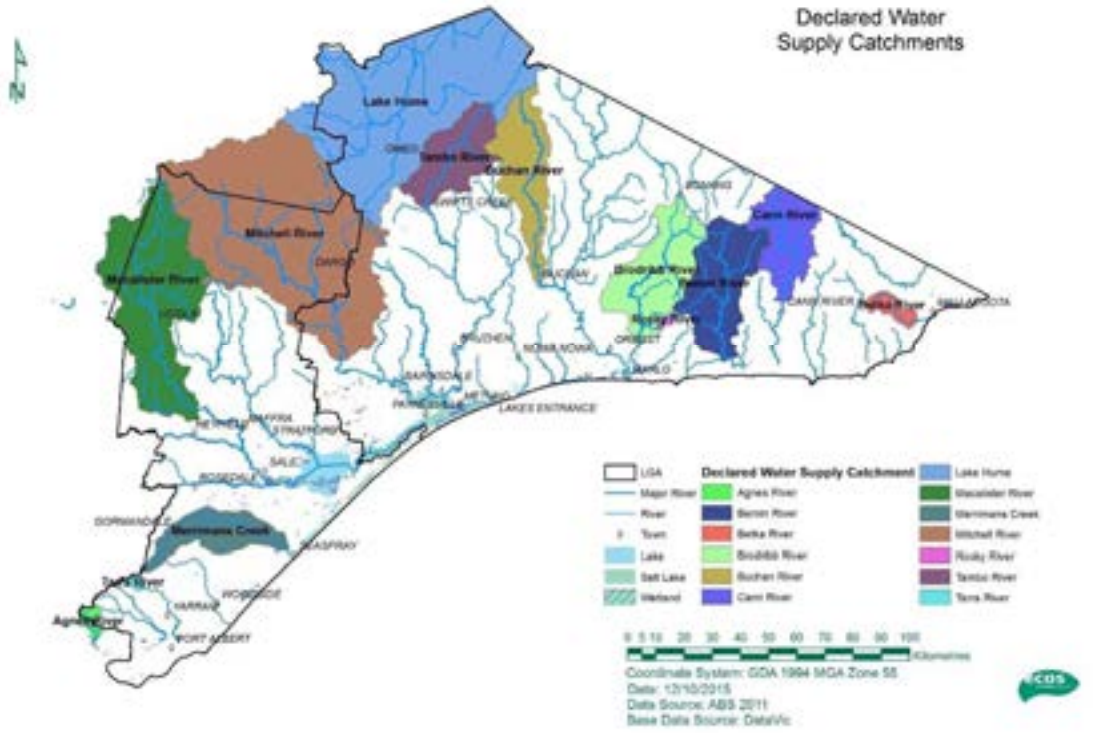

Figure 1. Declared Water Supply Catchments within the Shires of East Gippsland and Wellington.

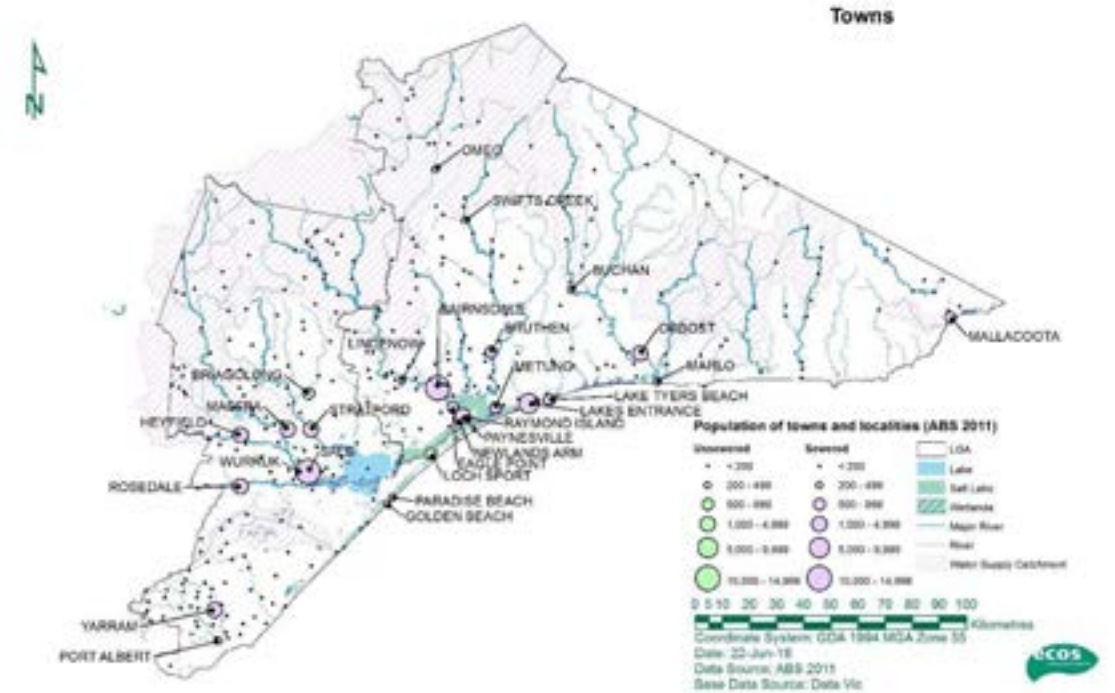

Figure 2. Township locations within the Shires of Wellington and East Gippsland

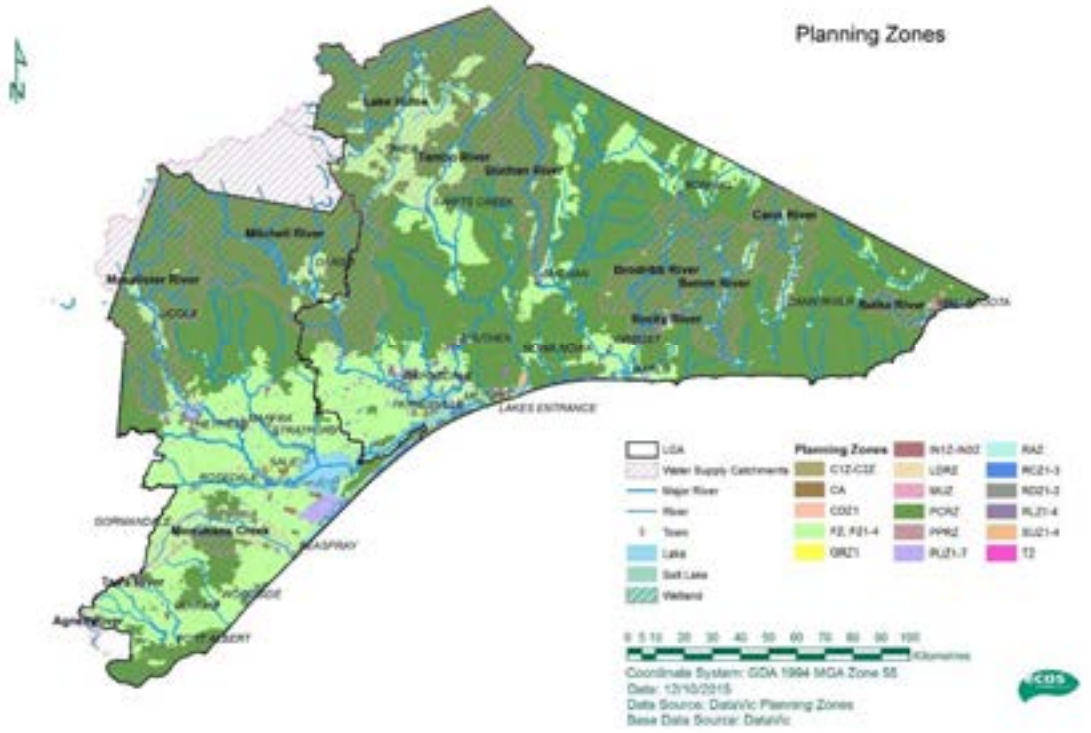

Figure 3. Planning Zones within the Shires of Wellington and East Gippsland. Water supply catchments are also shown in outline.

Legal and planning framework

The statutory framework behind the DWMP is described in detail including reference to relevant standards and guidelines, particularly the Victorian EPA “Code of Practice for Onsite Wastewater Management”.

Relevant council plans and policies are also reviewed and their relationship to the DWMP is described.

Current approvals process

The DWMP contains a detailed description of the current approvals process for onsite wastewater management systems including a flow chart of the septic tank and planning permit process for each Shire. Discussion and recommendations are also included on the following topics:

- Land Capability Assessment (LCA)
- Maintenance of Septic Tank Systems
- Monitoring and Compliance
- Data management for onsite systems

Water quality risks posed by domestic onsite wastewater management systems

The DWMP contains a brief review of the water quality risks posed by domestic onsite wastewater management systems including risks from microbial pathogens, nutrients, and trace organic compounds (e.g. household herbicides and insecticides, detergents, personal care products and pharmaceuticals). Common failure modes of on-site treatment systems are also described.

Onsite systems catchment water quality risk assessment

A key component of the DWMP is a detailed GIS-based risk assessment for onsite wastewater management systems. The risk mapping approach was developed for the DWMP and consists of a semi-quantitative risk scoring exercise. It is appropriate for the high level identification of areas of heightened risk to surface water and groundwater quality across each Shire and can be used by the council EHO's to assist in their decision making with respect to individual sites.

Risk mapping was based on the potential risk to surface and groundwater quality posed by an onsite wastewater management system for each property (whether an onsite wastewater management system was present or not). Risk factors were:

- soil suitability
- slope
- climate
- useable area subject to various regulatory and environmental constraints including - Distance to water - Depth to the water table - Distance from groundwater bore

The risk maps displayed in the DWMP are presented at the regional scale to provide an overview of risk for this report. However, each map is produced from *a GIS database that allows the user to zoom in for more detailed analysis. These databases, developed for the DWMP, have been supplied to Wellington and East Gippsland Shires to assist them in assessing the risks associated with new planning permit applications and existing unsewered dwellings*.

Each unsewered dwelling was allocated a risk score based on its risk factors. The score is used to rank and prioritise properties for follow up, so that resources can be more effectively devoted to the management of higher risk properties. Unsewered dwellings with higher risk scores pose a higher risk to groundwater or surface water or both (Figure 4).

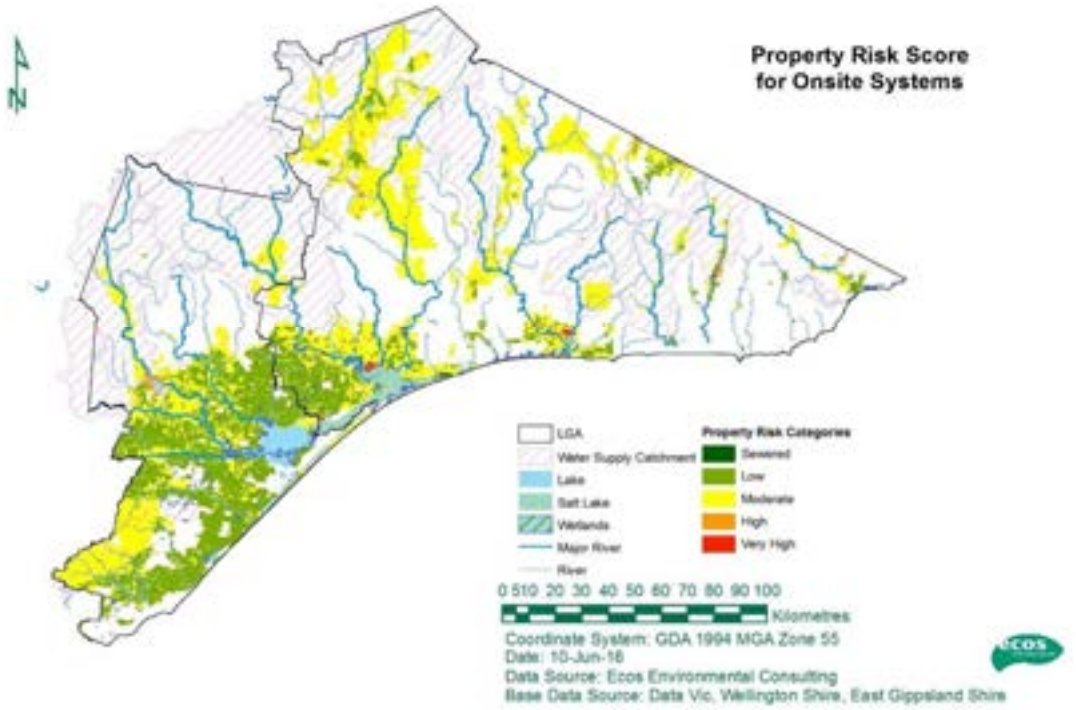

Figure 4. Property risk scores for unsewered houses in the Wellington and East Gippsland Shires.

Priority township assessments

Risk scores were allocated to each unsewered town in each Shire based on the township and residential planning zones. Towns were then sorted on their aggregate risk score to enable identification of high risk towns. These towns contributed disproportionally to the total risk for each Shire.

Towns in declared water supply catchments were also sorted on their aggregate risk scores to identify those towns that posed the highest risks of off-site movement of wastewater. These areas are a priority for compliance assessments. To assist in the identification of high risk unsewered houses in these towns, detailed GIS maps are presented in the DWMP.

Wellington Shire

The results of the township assessments showed that Golden Beach, The Honeysuckles, Longford and Paradise Beach accounted for approximately 50% of the total risk from onsite systems within the Wellington Shire. Other significant contributions to the total risk were Wurruk, Briagolong, Glenmaggie and Stratford.

Briagolong (north of Stratford), Stratford and Wurruk (west of Sale) are located on floodplain soils while all the other townships are located on or adjacent to the 90 Mile Beach where sandy soils prevail. These areas are a priority for compliance assessments. Glenmaggie is situated within 1km upstream of Lake Glenmaggie, and so all unsewered properties here have been classified as high risk.

East Gippsland Shire

The distribution of onsite system risk was more evenly distributed amongst East Gippsland Shire townships compared to Wellington Shire. Here approximately 50% of the total risk was accounted for by 9 towns: Nicholson, Metung, Buchan, Sarsfield, Nungurner, Wy Yung, Bruthen, Lucknow and Swan Reach.

These towns are all located in the catchments of the Gippsland Lakes or Lake Tyers and most lie lower down in the catchment close to the lakes where soils tend to be sandy and the water table is relatively close to the surface.

Declared water supply catchments

The acceptable housing density within a Declared Water Supply Catchment is 1:40 ha except for planning zones where a permit is not required to erect a dwelling. The main clusters of houses exceeding the density limit of 1:40 ha within the relevant planning zones is located at Gormandale (Table 2, Figure 5) while smaller clusters occur at Dargo and Benambra (see close up maps in Section 8). These areas are a priority for compliance assessments.

Table 2. Declared Water Supply Catchments (DWSC) within each Shire.

Density	Declared Water Supply Catchments	Number of unsewered houses not complying	Planning Zone exceeding the DWSC density Onsite systems in FZ, RCZ, RLZ and LDRZ were included in this assessment
East Gippsland DWSCs 1: 40 ha	Bemm River	0 of 20	--
	Brodribb River	0 of 10	--
	Buchan River	0 of 4	--
	Cann River	2 of 35	FZ1 near Cann River
	Lake Hume	40 of 160	18 in FZ1 near Omeo and Glen Valley, 22 in RLZ3 in Cobungra
	Mitchell River	0 of 3	--
	Tambo River	10 of 33	FZ1 near Swifts Creek
Wellington DWSCs 1: 40 ha	Agnes River	0 of 9	--
	Macalister River	136 of 169	11 in FZ, 12 in RCZ1 and 113 in RLZ2, mainly in Glenmaggie and Coongulla
	Merrimans Creek	97 of 193	15 in RLZ2 at Gormandale*, 82 in FZ near Stradbroke, Willung, Willung South, Gormandale and Calignee North
	Mitchell River	22 of 71	19 in FZ, 3 in RLZ2, all in and around Dargo
	Tarra River	0 of 11	--

* At the time of writing, 12 lots on north Calladale Court that were incorrectly zoned RLZ2 are under review and expected to be changed to TZ.

The data in Table 2 for each DWSC is for the entire catchment. To further prioritise onsite systems for compliance assessment, the township areas in each DWSC were selected from the risk assessment using GIS query tools (Table 3). Onsite systems in these towns can be considered to have the highest priority for compliance assessment.

Table 3. Towns in declared water supply catchments sorted by property risk score (sewer infilled).

Risk rank within Shire	Township	DWSC	# OWMS	Current Risk Score	Sewer Infilled Risk Scor	Number of properties with OWMS in each risk category					Proportion of Total
						Sewered Ar	Low	Moderate	High	Very High	
Wellington Shire											
7	Glenmaggie	Macalister R	96	437	553	1		7	61	27	4%
14	Dargo	Mitchell R	45	283	283			12	3	30	2%
20	Coongulla	Macalister R	34	164	196	1			24	9	1%
28	Gormandale	Merrimans Ck	39	101	101		2	36	1		1%
33	Licola	Macalister R	16	74	74			10	3	3	1%
East Gippsland Shire											
19	Benambra	L Hume	49	189	189		7	16	22	4	2%
35	Club Terrace	Bemm R	15	62	62		1	10	2	2	1%
45	Omeo	L Hume	3	14	14			1	1	1	0%

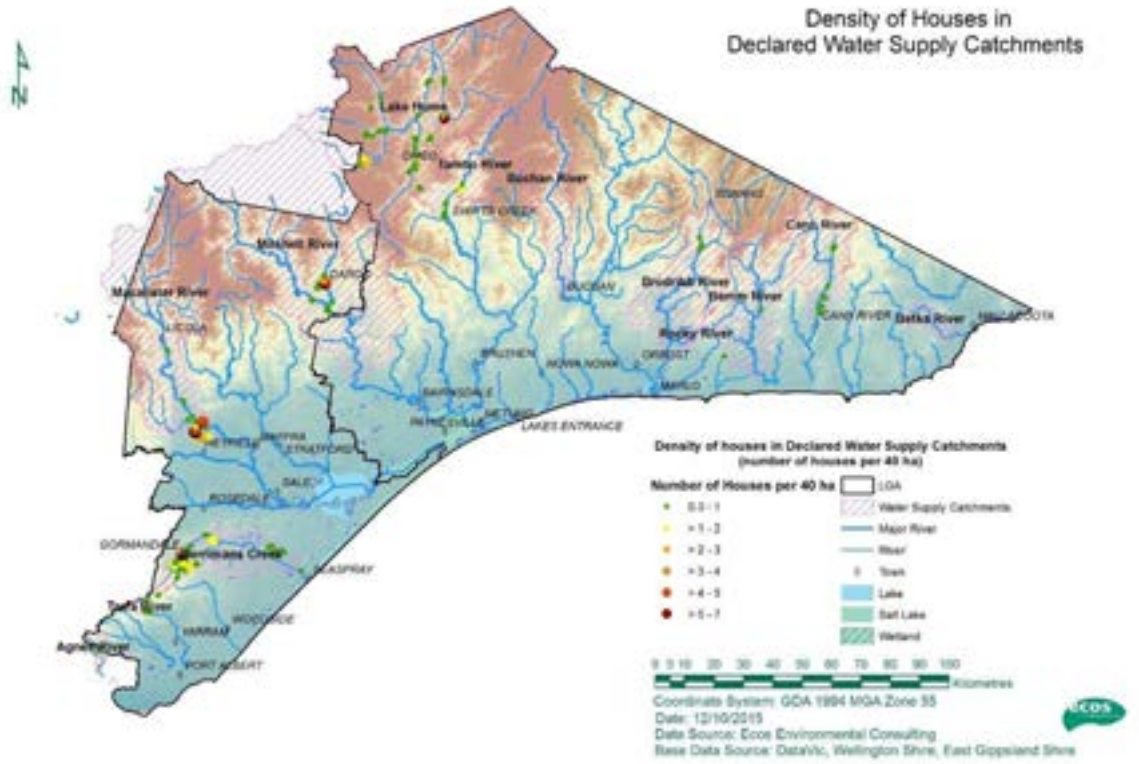

Figure 5. Density of houses in water supply catchments. Close up maps of priority areas are presented in the DWMP in Section 8.

Compliance with planning zone densities

A related risk assessment exercise examined the housing density compliance with planning zone requirements and identified clusters of houses around the major towns that exceed the target planning limits.

Growth Area assessments

Future settlement planning has indicated a number of growth areas across Wellington and East Gippsland Shires. As these developments proceed, many will involve increases in the number and density of unsewered dwellings and associated onsite wastewater management systems.

The current risk for each township was estimated as follows: the risk for each property was calculated, and the risks per property were added for each property which had been identified as containing an OWMS (onsite wastewater management system).

The future risk for each town was calculated by adding the risks for each property which could potentially have an OWMS. It was assumed that properties in sewered areas would be sewered when developed, and that properties which had been identified as being unsuitable for an OWMS (due to proximity to a waterway, bore, reservoir or shallow water table) would not have an OWMS installed.

Within Wellington Shire, planning has identified two towns of highest potential future risk,
Longford, south of Sale as an area with significant growth potential (Figure 6) and Golden Beach. Within East Gippsland Shire the potential future onsite wastewater risks are greatest at Metung, Swan Reach, Wy Yung and Bairnsdale, with a spread of similar risk across a number of towns (Figure 7).

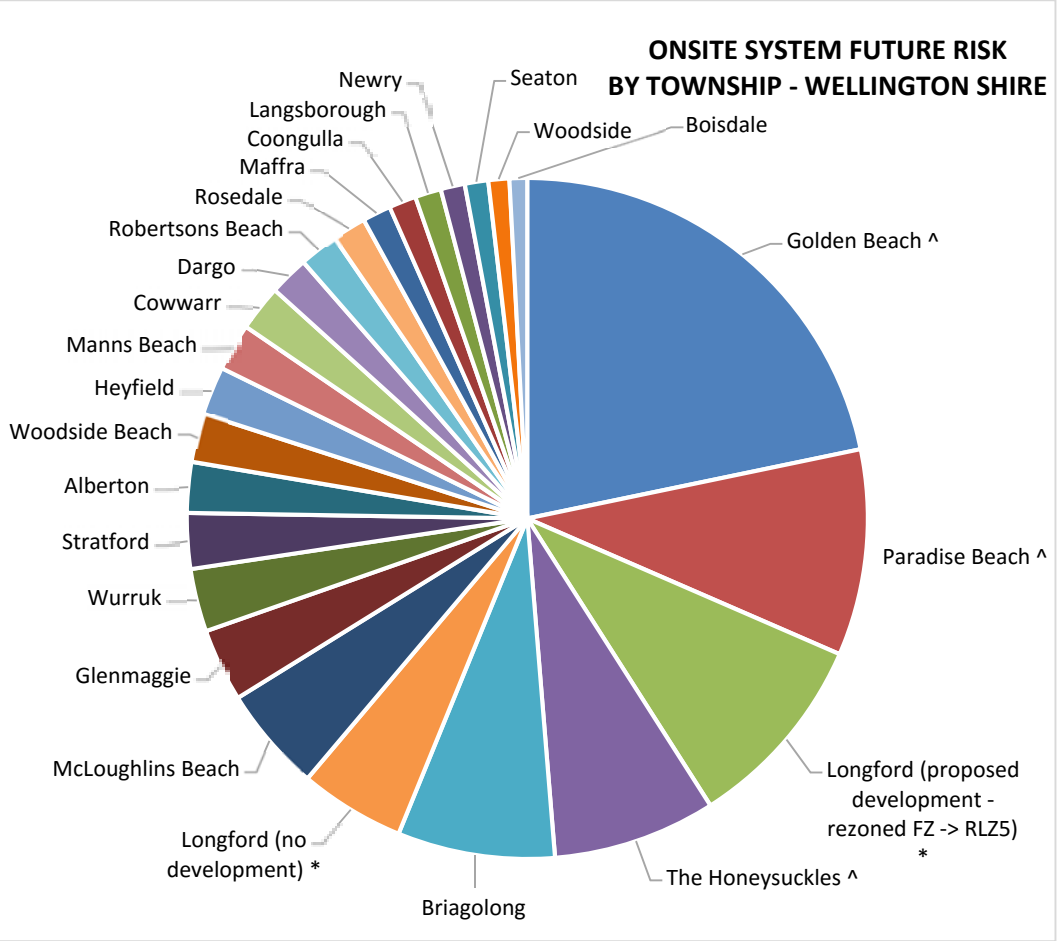

*Figure 6. Potential future risk from onsite wastewater management system development by township – Wellington Shire. The top 25 localities are shown. For further details, see Section 8.5 of the DWMP. * Longford is shown in the graph twice, once for if no development occurs and once for full proposed development. ^ Towns on the Ninety Mile Beach.*

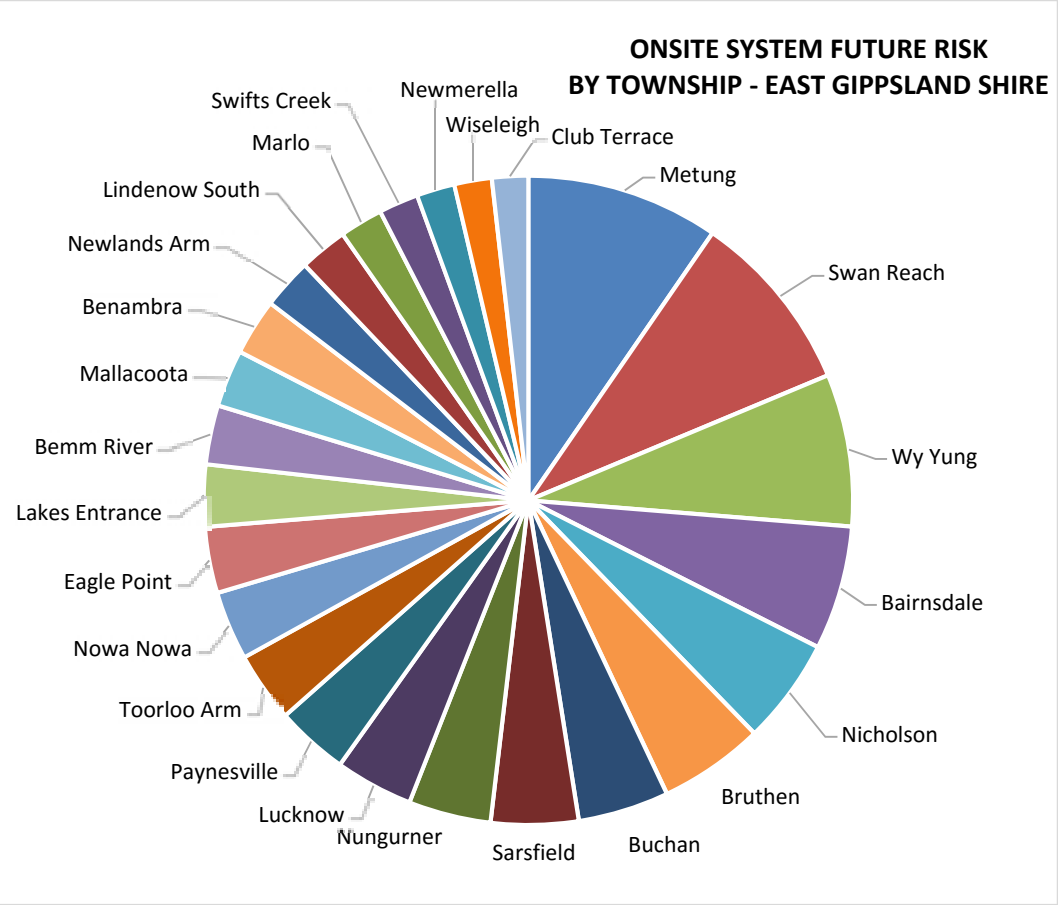

Figure 7. Potential future risk from onsite wastewater management system development by township – East Gippsland Shire. The top 25 localities are shown. For further details, see Section 8.6 of the DWMP.

Risk management

Action Plans

Action plan items from the 2006 DWMP were reviewed and either closed off due to completion or changes in priorities or carried over to the 2016 plan and combined with a number of new action items.

Action plans were separated into issues-based plans that addressed council procedures and relationships with stakeholders and plans for priority towns that addressed matters in relation to particular locations.

Discussion of general issues in relation to the planning action items is also included in the DWMP.

Appendices

Detailed appendices contain background information on the statutory framework supporting DWMP, surface water and groundwater water quality risk factors used in the risk assessment, a key to planning zones, and Action Plan items from the 2006 DWMP closed off due to completion or changing priorities.

1 Introduction

The environmental and public health risks posed by unsewered areas is recognised nationally and internationally as a significant environmental and public health issue. In Victoria, management of domestic wastewater is addressed under Clause 32 of the State Environment Protection Policy (Waters of Victoria) (SEPP WoV), where it is a requirement for local Governments to develop a Domestic Wastewater Management Plan (DWMP). The SEPP WoV is an instrument under the *Environment Protection Act 1970*.

Specifically local governments throughout Victoria are required to prepare DWMPs to address potential risks to community health and the environment resulting from the treatment and disposal of wastewater from homes and businesses in unsewered areas.

1.1. Aims

The primary purpose of preparing this DWMP plan is to update the existing DWMP to meet the revised Ministerial Catchment Guidelines, "*Planning permit applications in open, potable water supply catchment areas*" (DEPI 2012) as well satisfy the obligations of each Shire council as outlined by Clause 32 of the SEPP WoV.

- Currently the Ministerial Catchment Guidelines "Planning permit applications in open, potable water supply catchment areas" (DEPI 2012) (the Ministerial Guidelines) state that the development density should be no greater than one dwelling per 40 hectares in declared special water supply catchment areas. However, the Ministerial Guidelines allow for the relaxation of the 1:40 ha ruling for allotments when a DWMP has been prepared, adopted and implemented by Council and endorsed by the relevant water corporations to address the current requirements. Specifically, the Ministerial Guidelines require that a DWMP address that; Domestic wastewater systems retain wastewater within property boundaries; and
- Wastewater is managed to prevent impacts on groundwater and surface water. Additionally, the DWMP must include the following components:
- Demonstrate effective monitoring of the condition and management of domestic wastewater treatment systems;
- Results of monitoring and audits being provided to stakeholders; and
- A process of enforcement action where non-compliance is identified;
- A process of review of the DWMP every 5 years;
- Independent (accredited) audit of DWMP implementation every 3 years with audit results provided to stakeholders as soon as possible after assessment;
- Demonstration by councils that suitable resourcing for implementation, monitoring, enforcement, review and audit are in place.

1.2. Background

Wellington and East Gippsland Shires released their existing DWMP in 2006. In 2014, the Shires received funding assistance from the Gippsland Lakes Environment Fund to review the 2006 DWMP and to produce a new and revised version.

The Wellington and East Gippsland Shires account for around 15% of Victoria's land area and include water catchments that support the Gippsland Lakes as well as many other regional waterways of high social, economic and environmental importance. The management and protection of water catchments and regional streams, rivers and lakes from the deleterious effects of a wide range of real and potential impacts is considered a high priority by the regional community. With respect to wastewater management in the Shires, the larger towns and most smaller towns are sewered, nevertheless there are a large number of small, relatively remote unsewered settlements as well as areas of rural land use with relatively high densities of unsewered properties.

Some residential areas have been sewered or may be in the process of being sewered, but other areas still rely on onsite wastewater management systems (OWMS) of which there are just under 13,000 in both Shires combined.

The development of this DWMP has provided an opportunity for the Shires to strategically assess the wastewater issues within their respective jurisdictions and develop appropriate strategies and actions to prevent wastewater problems, or at the very least minimise resultant impacts. It clearly articulates each Shires' policy on domestic wastewater and its management.

2 East Gippsland and Wellington Shires Regional Attributes

Issues and potential threats from on-site domestic wastewater management include: high microbial (*E. coli*) and detergent (surfactant) levels in stormwater; discharge of grey water to open street drains and stormwater; inappropriate and outdated septic systems, including WC-only (also known as blackwater-only) types; direct off-site discharge of wastewater; small allotments and inadequate effluent disposal areas; high water tables; ageing and poorly-maintained septic systems and high household water use made possible by the availability of reticulated water in some areas.

Based on spatial and planning zone data supplied by Wellington and East Gippsland Shire Councils and by Victorian Government Data Directory (www.data.vic.gov.au), 33 townships were listed in Wellington Shire and 47 townships were listed in East Gippsland Shire. Of these townships 11 and 24 respectively are sewered, although there are still significant numbers of unsewered dwellings and vacant allotments present within the boundaries of these townships.

In total, approximately 5,078 properties in East Gippsland were estimated to have an onsite domestic wastewater management system while in Wellington Shire the number was estimated at 7,818 (Table 2-1). These estimates are based on data supplied by the councils and are based on individual address points.

Table 2-1. Numbers of domestic on-site wastewater management systems by Shire and planning zone.

Shire	Zones														
	Commercial	Comprehensive Development	Farming	General Residential	Industrial	Low Density Residential	Public Conservation	Public Park & Recreation	Public Use	Rural Conservation	Road	Rural Living	Special Use	Township	
	CZ1-2	CDZ	FZ, FZ1-4	GRZ1	IN1Z	LDRZ	PCRZ	PPRZ	PUZ1-4	RCZ1-3	RDZ1	RLZ1-4	SUZ1-4	TZ	Total
East Gippsland	14		2,093	67	13	978	108	15	29	71		1,246	1	443	**5,078**
Wellington	6	2	2,770	43	13	2,456	20	41	33	226	1	1,119	14	1,074	**7,818**
Total	**20**	**2**	**4,863**	**110**	**26**	**3,434**	**128**	**56**	**62**	**297**	**1**	**2,365**	**15**	**1,517**	**12,896**

Within the Declared Water Supply Catchments there are 6 towns in Wellington Shire and 5 towns in East Gippsland Shire (Table 2-2).

Table 2-2. Towns within Declared Water Supply Catchments (DWSC) (Towns identified as such if they lay within the following planning zones: GR1Z, TZ or LDRZ – see legend of Table 2-1 for zone descriptions).

Shire	DWSC	Sewered Towns	Unsewered Towns
East Gippsland	Lake Hume	Omeo	Benambra
East Gippsland	Bemm River		Club Terrace
East Gippsland	Buchan River (Buchan)		Buchan
East Gippsland	Tambo River		Swifts Creek
Wellington	Macalister River (Glenmaggie)	Coongulla, Glenmaggie, Glenmaggie Point (part sewered)	Licola
Wellington	Mitchell River		Dargo
Wellington	Merrimans Creek (Seaspray)		Gormandale

Townships size and characteristics

There are 2943 allotments less than 1 ha in Declared Water Supply Catchments in Wellington Shire while in East Gippsland Shire the number is 403.

For East Gippsland Shire, a breakdown of the number of unsewered residential properties by township showed that there are 2734 unsewered properties in and around townships including 152 in Declared Water Supply Catchments (Table 2-3).

Table 2-3. Number of unsewered properties (listed as having onsite systems in Shire database) by township in East Gippsland Shire. Data provided by East Gippsland Shire. (Townships within Water Supply Catchments are shown in bold type).

East Gippsland	Sewered	Number of Onsite Systems per Planning Zone							Total # Properties with Onsite Systems	Total # Properties
		GRZ1	LDRZ	TZ	RLZ1	RLZ2	RLZ3	RLZ4		
Bairnsdale	Yes	1			7	1			9	5521
Bemm River	Yes								0	102
Benambra (Lake Hume)				48					48	110
Bendoc				30					30	52
Boole Poole			33						33	46
Bruthen	Yes		53	14		56			123	276
Buchan				87					87	133
Bullumwaal			7						7	22
Bumberrah						26			26	31
Cabbage Tree Creek				9					9	11
Cann River	Yes								0	184
Cassilis (Omeo) (Tambo River)						2			2	9
Club Terrace (Bemm River)				15					15	52
Cobungra (Lake Hume)							22		22	31
Eagle Point	Yes		23		26		33		82	702
East Bairnsdale	Yes						15		15	652
Eastwood	Yes								0	1296
Ellaswood			2				64		66	88
Ensay				6					6	14
Ensay South				16					16	20
Fernbank			13						13	27
Genoa				6					6	11
Gipsy Point				32			1		33	41
Granite Rock					24		27		51	60
Hillside							4		4	12
Johnsonville	Yes			2					2	132
Kalimna	Yes	26	12						38	673
Lake Bunga	Yes	10	22						32	250
Lake Tyers Beach	Yes		27				2		29	590
Lakes Entrance	Yes	17	43		22	4	26	5	117	3758
Lindenow (includes Walpa)	Yes		55	1					56	227
Lindenow South			30	42					72	109
Lucknow	Yes				95		49		144	582
Mallacoota	Yes								0	1153
Marlo	Yes		13						13	477
Metung	Yes		118			5			123	1749
Mount Taylor			33						33	51
Newlands Arm	Yes		70						70	557
Newmerella			33			36			69	69
Nicholson	Yes		86		42	141			269	221
Nowa Nowa				70		6			76	119
Nungurner			97						97	132
Omeo (Lake Hume)	Yes				1				1	279
Orbost	Yes		9						9	1344
Paynesville	Yes								0	2647
Raymond Island	Yes	13				51			64	517
Sarsfield			66			78	15		159	95
Swan Reach	Yes					123			123	184
Swifts Creek				65					65	85
Tambo Upper						48			48	56
Toorloo Arm			32			54	31	4	121	146
Wiseleigh			31			32			63	89
Wy Yung	Yes		70		68				138	682

In Wellington Shire, there are 2831 unsewered residential properties in and around townships including 234 in Declared Water Supply Catchments (Table 2-4).

Table 2-4. Number of unsewered properties (listed as having onsite systems in Shire database) by zone and township in Wellington Shire. Data provided by Wellington Shire. (Townships within Water Supply Catchments are shown in bold type). ^ Note: Golden Beach and Paradise Beach have a much larger number of properties listed on the database than have dwellings on them (as determined from 2012 aerial photography). The number of dwellings is listed below.

Wellington	Sewered	Number of Onsite Systems per Planning Zone								Total # Properties with Onsite Systems	Total # Properties
		CDZ1	GRZ1	LDRZ	RLZ1	RLZ2	RLZ3	RLZ4	TZ		
Alberton	Yes									0	105
Boisdale									27	27	30
Briagolong						67	30		312	409	463
Carrajung						5			22	27	29
Coongulla (Glenmaggie)	Yes					33				33	280
Cowwarr									81	81	92
Dargo (Mitchell River)						3			39	42	63
Devon North						41				41	45
Glen Rose						3				3	4
Bassetts Lane, Glengarry					9					9	10
Glenmaggie (Macalister River)	Yes					106			5	111	146
Golden Beach				489^						489^	1373
Gormandale (Merrimans Creek)						15			24	39	39
Greenmount				9		19				28	29
Heyfield	Yes					64	8			72	878
Hollands Landing				16						16	28
Kilmany									10	10	14
Langsborough			41							41	45
Licola (Macalister River)									9	9	16
Loch Sport	Yes									0	2511
Longford		2			232				56	290	326
Maffra	Yes			7		58		24		89	2546
Manns Beach									80	80	81
McLoughlins Beach									171	171	179
Munro				12		2			16	30	30
Myrtlebank						10				10	10
Newry									46	46	50
Paradise Beach				285^						285^	572
Port Albert	Partly		2							2	360
Robertsons Beach									63	63	66
Rosedale	Yes			15	42		16			73	706
Sale	Yes			25		12				37	8057
Seaspray	Yes			21						21	366
Seaton						38				38	88
Stratford	Yes			13		164				177	910
Tarraville									18	18	20
The Honeysuckles				268						268	278
Tinamba									23	23	30
Won Wron						23				23	24
Woodside					12	38			22	72	22
Woodside Beach				59					50	109	114
Wurruk	Partly			148	45					193	498
Yarram	Yes									0	1195

2.1. Landuse and Declared Water Supply Catchments

A large proportion of both Wellington and East Gippsland Shires lie within Water Supply Catchments (both Declared and other). For East Gippsland Shire 787,106 ha lies within Water Supply Catchments (38 %) while in Wellington Shire the corresponding figure is 479,896 ha (43 %) (Figure 2-1, Table 2-5, Table 2-6). Each Shire has large areas of land devoted to forest reserves including the majority of the water supply catchment areas (Figure 2-3). However, there are significant areas of agricultural activity in some of the water supply catchment areas, particularly in the Tambo River catchment of East Gippsland Shire and the Merrimans Creek Catchment of Wellington Shire.

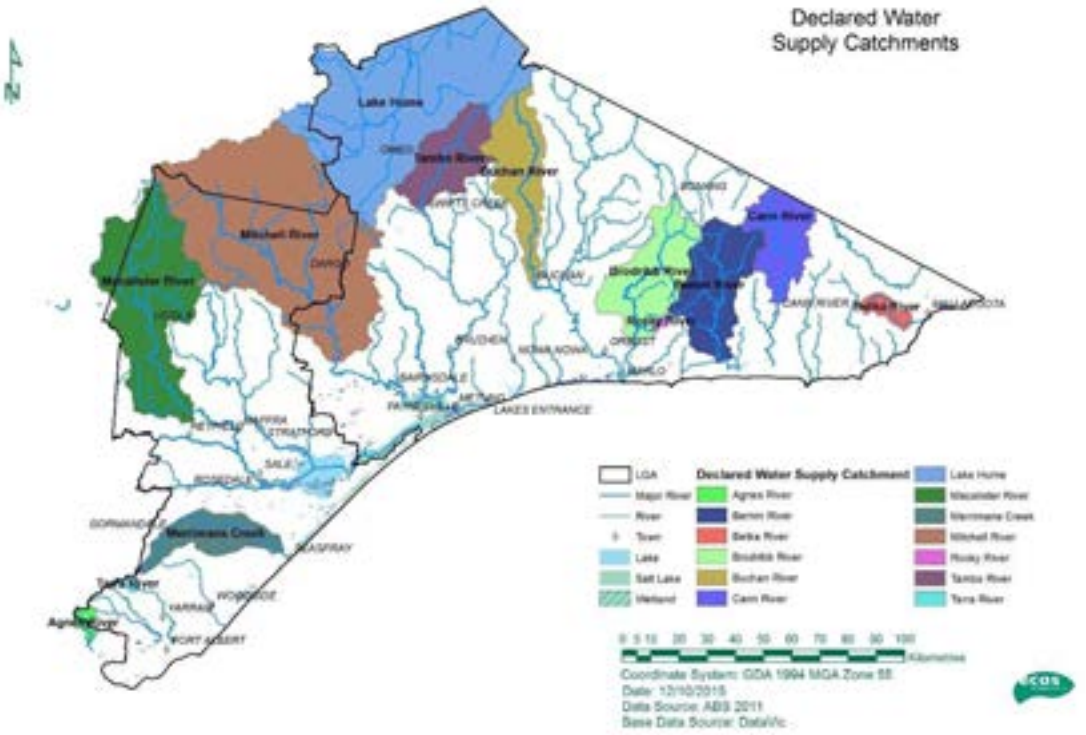

Figure 2-1. Water Supply Catchments within the Shires of Wellington and East Gippsland

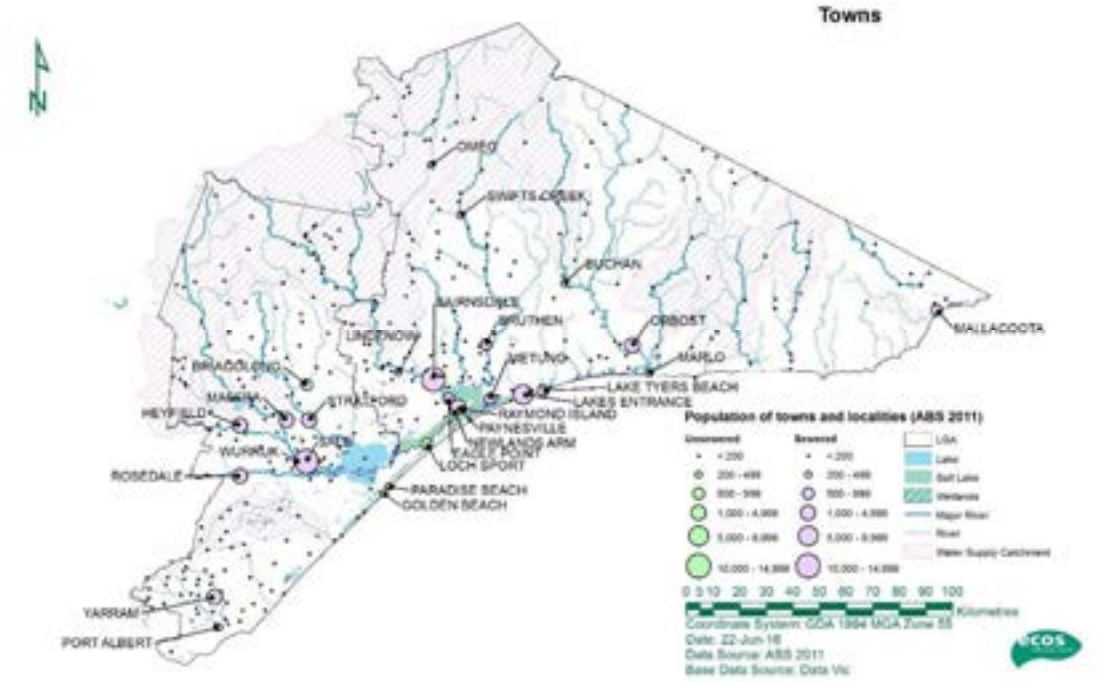

Figure 2-2. Township locations within the Shires of Wellington and East Gippsland.

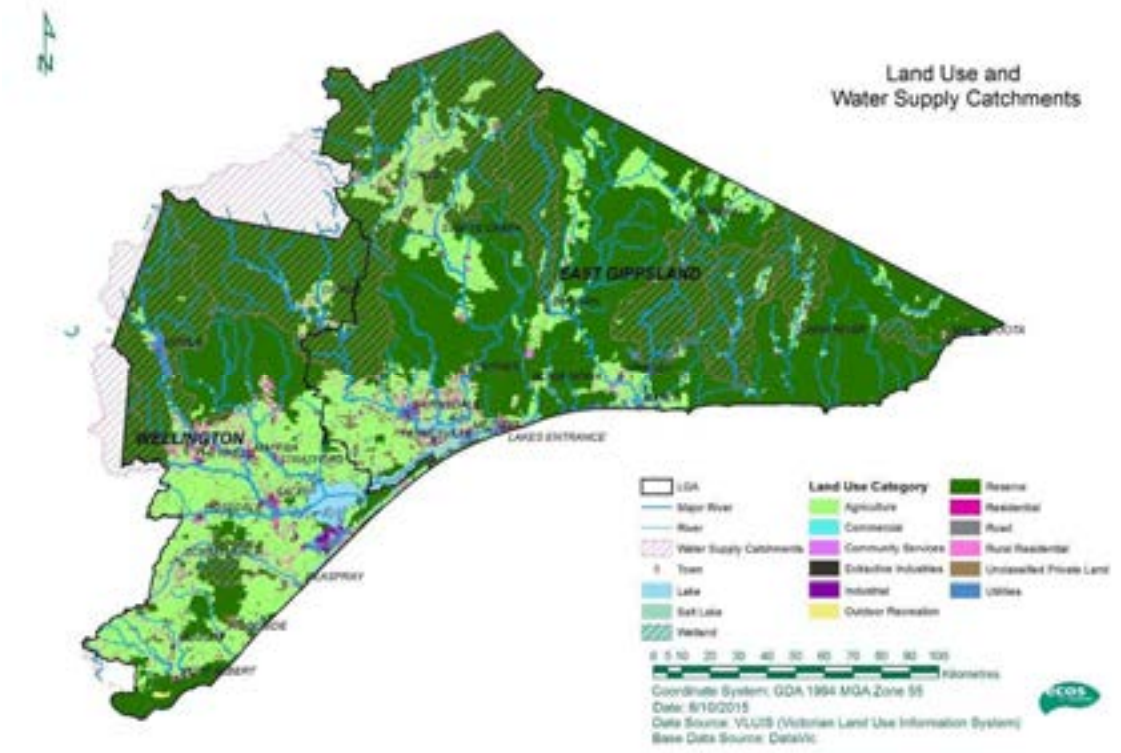

Figure 2-3. Land use within the Shires of Wellingtonand East Gippsland. Water supply catchments are shown in outline.

Table 2-5. Landuse (ha) by Declared Water Supply Catchments (DWSC) within the East Gippsland Shire

Landuse (ha) / Declared Water Supply Catchments (DWSC)	Agriculture	Commercial	Community Services	Extractive Industries	Industrial	Outdoor Recreation	Reserve	Residential	Road	Rural Residential	Unclassified Private Land	Utilities	Total
Bemm River	5,319	1	8		5		86,185	3	939	390	414	5	93,259
Betka River							11,508		39			17	11,563
Brodribb River	1,235		4				91,626		612	113	1	11	93,601
Buchan River	2,774	3	0	0			78,365	1	410	47	13	0	81,615
Cann River	5,940		5				55,482	23	478	362	4	4	62,298
Lake Hume	65,401	377	187	6	14		225,493	485	3,577	2,119	2,786	141	300,586
Mitchell River	4,278		6				68,627		564	31	150		73,656
Rocky River	586						1,575		92	20	0		2,273
Tambo River	17,976						48,650	13	612	248	746	9	68,254
Not in a DWSC	259,222	595	2,553	339	400	413	985,984	3,140	16,078	20,504	19,015	2,458	1,310,701
TOTAL	362,730	976	2,762	345	419	413	1,653,495	3,666	23,401	23,824	23,130	2,645	2,097,807
	17 %	<1 %	<1 %	<1 %	<1 %	<1 %	**79 %**	<1 %	1 %	1 %	1 %	<1 %	

Table 2-6. Landuse (ha) by Declared Water Supply Catchments (DWSC) within the Wellington Shire

Landuse (ha) / Declared Water Supply Catchments (DWSC)	Agriculture	Commercial	Community Services	Extractive Industries	Industrial	Outdoor Recreation	Public land, incl. State and National Parks	Residential	Road	Rural Residential	Unclassified Private Land	Utilities	Total
Agnes River	2,644		0				272	5	95	109	4	3	3,130
Lake Hume							59						59
Macalister River	10,489	95	1	73		10	144,514	263	1,043	1,404	1,690	3,942	163,524
Merrimans Creek	30,749	0	11	82			18,988	115	1,466	1,457	558	69	53,497
Mitchell River	12,847	155	71				189,629	68	675	1,826	946	74	206,281
Tarra River (WSC)	1,730	8					929	1	47	92	3	16	2,826
Not in DWSC	333,369	477	1,134	312	4,096	1,453	267,380	7,494	15,713	17,951	19,808	5,894	675,080
Total	391,828	735	1,217	466	4,096	1,463	621,760	7,947	19,038	22,838	23,010	9,999	1,104,398
	35 %	<1 %	<1 %	<1 %	<1 %	<1 %	**56 %**	1 %	2 %	2 %	2 %	1 %	

3 Statutory Framework

The requirement for local Governments in Victoria to develop a DWMP is described in Clause 32 of the State Environment Protection Policy (Waters of Victoria) (SEPP WoV) which is an instrument under the *Environment Protection Act 1970*. Further specifications for DWMPs are set out in the guidelines released by the Victorian Water Minister in 2012. These Ministerial Catchment Guidelines, "*Planning permit applications in open, potable water supply catchment areas*" (DEPI 2012) spell out in detail the requirements and necessary components of a DWMP (Table 3-1). The guidelines aim to assist water corporations and other referral and responsible authorities in their assessment of planning permit applications for use and development of land within all open, potable water supply catchments in Victoria.

Because of the risks to public health, all use and development should be sited and managed to protect the quality of water collected from a water supply catchment. While water corporations do not have direct control over land in open, potable water supply catchments, they can nevertheless influence development and land use through the strategic and statutory planning process. The Ministerial Guidelines provide guidance in this respect.

The statutory requirements behind the DWMP are complex as a significant amount of other environmental legislation impinges on water supply catchment protection (e.g. the *Planning and Environment Act 1987, etc.*). The Ministerial Guidelines attempt to tie these various components into a more cohesive framework. The material presented in **Appendix 1** summarises the key sections of the Ministerial Guidelines as well as the relevant components of other legislation that are relevant to this DWMP including the State Planning Policy Framework of the *Planning and Environment Act 1987.*

Table 3-1. Domestic Wastewater Management Plan Requirements

Attribute	Requirements	Relevant section in DWMP
Consultation	The DWMP must be prepared or reviewed in consultation with all relevant stakeholders including: • other local governments with which catchment/s are shared; • EPA; • and local water corporation/s.	Section 6.1 and Appendix 5 (stakeholder consultation) Section 6.1 and Appendix 5 (stakeholder consultation) Section 6.1 and Appendix 5 (stakeholder consultation)
Protection of surface and groundwaters	The DWMP must comprise a strategy, including timelines and priorities, to: • prevent discharge of wastewater beyond property boundaries; and • prevent individual and cumulative impacts on groundwater and surface water beneficial uses.	Action plans - Section 9.1 Action plans - Section 9.1
Monitoring, compliance and enforcement	The DWMP must provide for: • the effective monitoring of the condition and management of onsite treatment systems, including but not limited to compliance by permit holders with permit conditions and the Code; • the results of monitoring being provided to stakeholders as agreed by the relevant stakeholders; • enforcement action where non-compliance is identified; • a process of review and updating (if necessary) of the DWMP every 5 years; • independent audit by an accredited auditor (water corporation approved) of implementation of the DWMP, including of monitoring and enforcement, every 3 years; • the results of audit being provided to stakeholders as soon as possible after the relevant assessment; and • Councils are required to demonstrate that suitable resourcing for implementation, including monitoring, enforcement, review and audit, is in place.	Action plans - Section 9.1, Table 9.4 Action plans - Section 9.1, Table 9.4 (Item ES.3) Action plans - Section 9.1, Table 9.4 (see items on Monitoring and Compliance [MC]) Action plans - Section 9.1, Table 9.4 (Item ES.6) Action plans - Section 9.1, Table 9.4 (Item MC.10) Action plans - Section 9.1, Table 9.4 (Item ES.7) Action plans - Section 9.1, Table 9.4 (Item MC.11)

3.1 Standards and Guidelines

There are a range of published guidelines that are important for determining the conditions under which an onsite wastewater management system can be permitted, installed and maintained. The ministerial catchment guidelines have already been described in section 10.1.1 above;

3.1.1. EPA Code of Practice for Onsite Wastewater Management

The EPA “Code of Practice for Onsite Wastewater Management” (EPA Victoria Publication 891) ("the Code") is a comprehensive technical document that provides standards and guidance for best practice management of onsite wastewater in Victoria. The Code applies to wastewater (containing sewage) generated by a single domestic household or by multi-dwelling residential, commercial, industrial or institutional facilities. It provides guidance on:

1. The selection, approval, management and maintenance of onsite wastewater management systems which treat up to 5,000 litres (L) of wastewater per day.
2. systems which treat up to 5,000 L/day of greywater to a quality fit for toilet flushing and cold water supply to clothes washing machines and/or land application; and

3. land capability assessment procedures and wastewater flow calculations for designing effluent recycling and disposal systems

3.1.2. EPA Land Capability Assessment – Onsite Wastewater Management

The purpose of the EPA Publication *"Land Capability Assessment for Onsite Domestic Wastewater Management*" (EPA Victoria Publication 746) is to:

- assist in the assessment of the capability of the site to sustainably manage wastewater within allotment boundaries; and
- Identify a management program that should be put in place to minimise the health and environmental impacts of on-site wastewater management.

3.1.3. Australian Standards:

3.1.3.1. AS/NZS 1547:2012 Onsite Domestic Wastewater Management

The Australian Standard, AS/NZS 1547:2012 Onsite Domestic Wastewater Management (Standards Australia 2012) provides guidance for the design and construction of land application areas. If there is an inconsistency between an Australian Standard and the EPA Onsite Wastewater Management Systems Code (EPA Victoria Publication 891), the Code takes precedence. Where the Code does not cover a topic, the relevant Australian Standard should be followed.

3.1.3.2. AS/NZS 3500:2013 Plumbing and Drainage

All plumbing work conducted on site during the installation of an onsite wastewater management system must comply with the Plumbing and Drainage Standard AS/NZS 3500:2013 (Standards Australia 2013). All design solutions should be installed by a licensed plumbing contractor in compliance standard.

4 Council policies and plans

4.1. Council Plans

Wellington and East Gippsland Shires have a number of strategic plans outlining the vision and objectives for their municipalities and communities. Figure 4-1 shows the connection between the DWMP and other relevant strategies.

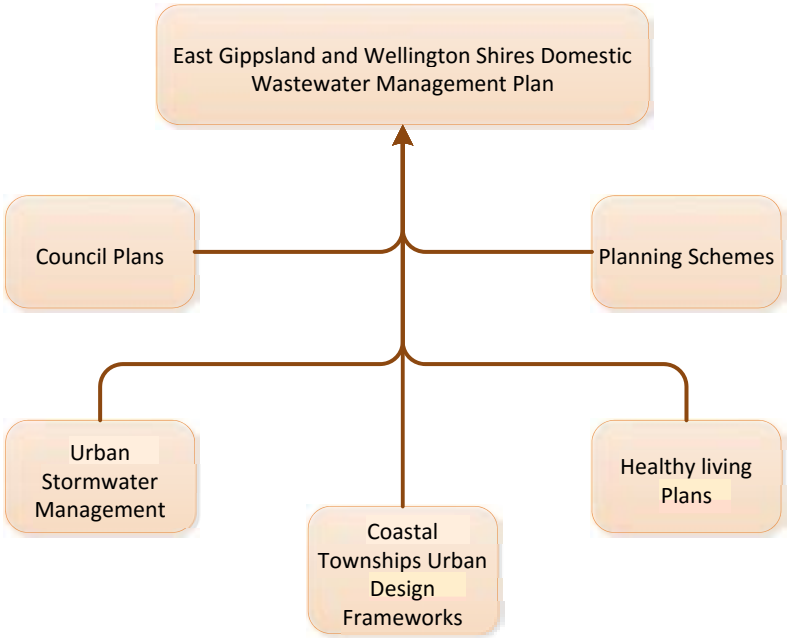

Figure 4-1. Link between DWMP and other Council Plans

4.1.1. Council Plans

Council Plans set out each municipality's Vision and Strategic Objectives to deliver services that meet the hopes and aspirations of the community, including residents, land owners and visitors to the Shire. The Plans serve to guide Council's corporate priorities and in certain cases deal with factors that influence the management of domestic wastewater.

4.1.2. Planning Schemes

The Municipal Planning Scheme is a legal instrument under the *Planning and Environment Act 1987* that sets out both state-wide and local planning policy for land use, development, and the protection of natural and social values. The purpose of the Planning Scheme is to provide a clear and consistent framework within which decisions about the use and development of land can be made.

The Municipal Strategic Statement provides a vision and clear overarching strategic policy for land use and development in each municipality. These are further refined through issue-specific Local Policies. Zones and overlays applied over each municipality control the use of land.

The need for sustainable management of domestic wastewater is highlighted in both the Wellington and East Gippsland Planning Schemes.

East Gippsland Shire requires that all planning permit applications in unsewered areas (for subdivision and/or new dwellings) must be accompanied by information demonstrating that domestic wastewater can be treated and contained on-site in accordance with EPA requirements.

4.1.2. Wellington Shire Special Water Supply Catchment Areas Policy (Clause 22.01)

Clause 22.01 of the Wellington Shire Planning Scheme lists the Shire's Special Water Supply Catchment Areas Policy.

The policy states that when considering an application to use or develop land within a Special Water Supply Catchment Area, Council will have regard to the likely impacts of the proposed use or development on water quality and quantity in the catchment.

- New development proposals should not lead to an increase in the amount of nutrients reaching streams, surface water bodies and groundwater.

  Any application to use or develop land within a Special Water Supply Catchment Area will be referred to the relevant water corporations and/or catchment management authority. These include Southern Rural Water, Gippsland Water, East Gippsland Water, South Gippsland Water, East Gippsland Catchment Management Authority, and the West Gippsland Catchment Management Authority.
- Any application to construct a building within 100 metres of a waterway or wetland for a use which would generate effluent should include evidence that the building site is capable of containing an appropriate water treatment system by providing either a Soil Percolation Test in accordance with the EPA Code of Practice for Onsite Wastewater Management (EPA Victoria 2013) (the Code); or an approved land capability assessment including assessment of the effluent disposal system in accordance with the requirement's the Code.
- Subdivision and intensive farming activities in water supply catchments, especially in the lower areas of water supply catchments near take-off points will be discouraged.
- Subdivision and intensive farming activities in aquifer recharge areas will be discouraged.

The ESO8 Planning Overlay "Special Water Supply Catchment Areas" consists of 9 areas totalling 263 hectares, one in the Merrimans Creek DWSC (31 ha) and eight in the Mitchell River DWSC (232 ha) (Figure 4-2).

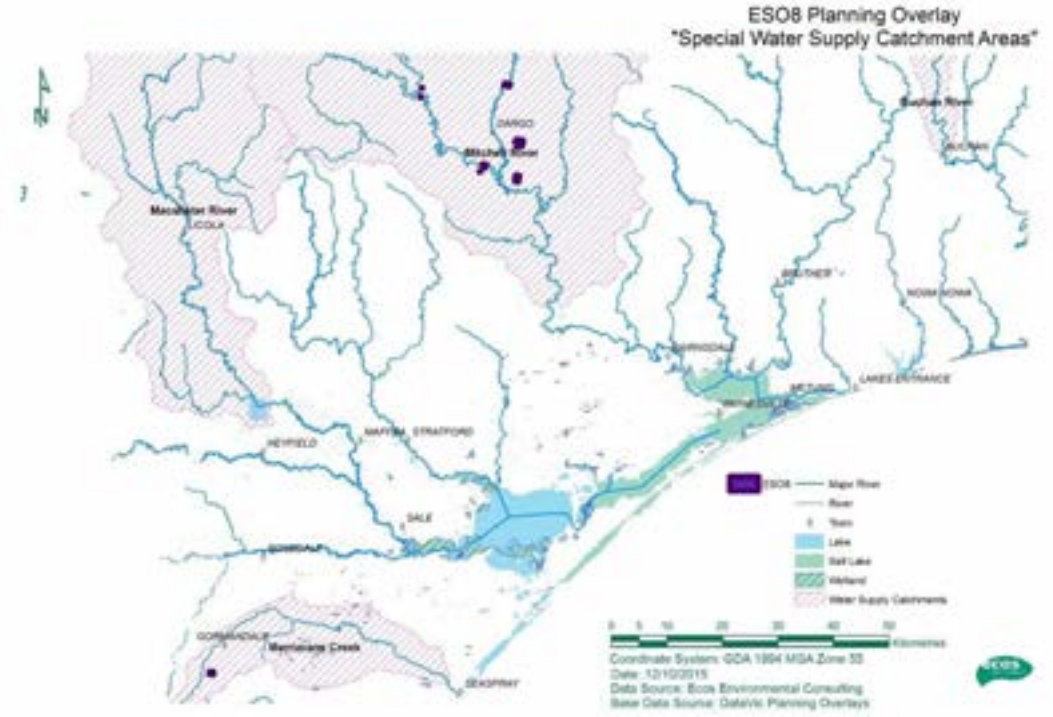

Figure 4-2. ESO8 "Special Water Supply Catchment Areas" in the Wellington Shire.

4.1.3. Planning Zones

Planning zones mainly align with landuse and the predominant zones within each Shire are Public Conservation and Resource Zone (PCRZ) and Farming Zone (FZ) (Figure 4-3). Water supply catchments lie mostly within PCRZ and FZ.

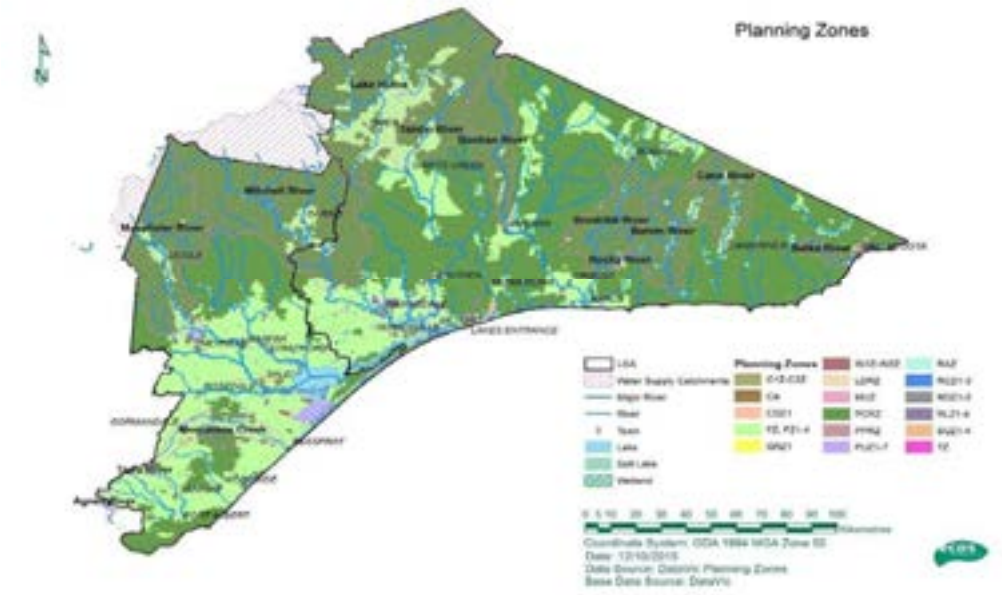

Figure 4-3. Planning Zones within the Shires of Wellington and East Gippsland. Water supply catchments are also shown in outline.

4.1.4. Health and Wellbeing Plans

The *East Gippsland Community Health and Wellbeing Plan (2013-2017)* (East Gippsland Shire Council 2013) and the *Healthy Wellington Municipal Public Health and Wellbeing Plan 2013-17* (Wellington Shire Council 2013) provide the framework for an integrated approach to public health planning for each Shire. The plans are major policy documents that seek to improve the health, safety and wellbeing of the people who live and work in the Shires. Neither plan specifically mentions water or wastewater, however the underpinning objectives of the plans is to provide regional communities with a healthy living environment and the DWMP assists in achieving that objective.

4.1.5. Urban Stormwater Management Plan

Wellington and East Gippsland Shires Urban management stormwater plans (Wellington Shire Council 2002; East Gippsland Shire Council 2003) provide detailed risk analysis and prioritised actions to address identified threats to environmental and amenity values from inadequately managed stormwater (including where domestic wastewater enters the stormwater system).

More recently the *East Gippsland Urban Water Management Strategy* and the companion *Urban Water Guidelines* (East Gippsland Shire Council 2013) seek to reduce sediments and nutrients entering the Gippsland Lakes from urban areas. This is to be achieved through:

- Establishment of vegetation corridors through the urban areas
- Reduction of weed species in urban waterways
- Improving community perception and value of urban waterways
- Identification of recreation opportunities in line with the East Gippsland Shire Council Trails Strategy.

The Urban Water Management Strategy and guidelines are focussed on protecting and improving urban waterways from sediment and related nutrient runoff and on weed and erosion control. While not specifically addressing on-site wastewater management, the strategy approaches are consistent with the aims of this DWMP, particularly where they intersect with the water supply catchments areas (e.g. stormwater in unsewered towns).

4.1.6. Coastal Townships Urban Design Framework

The Coastal Towns Design Framework was a joint initiative of Wellington Shire Council and East Gippsland Shire Council. The councils developed Urban Design Frameworks for 18 coastal settlements in eastern Victoria. In Wellington this involved the coastal towns of Loch Sport, Golden Beach/Paradise Beach, The Honeysuckles, Seaspray, Woodside Beach, McLoughlins Beach, Manns Beach and Robertsons Beach, while for East Gippsland Shire the relevant towns were Paynesville, Raymond Island, Eagle Point, Metung, Nungurner, Lakes Entrance, Lake Tyers Beach, Marlo, Bemm River, Mallacoota, and Gipsy Point.

The Urban Design Frameworks provide guidance for the future development of urban areas and involved the preparation of realistic design concepts and planning provisions based on community consultation, research and analysis. The Urban Design Frameworks are implemented in the planning scheme and have the same status as other Structure Plans (e.g. Rosedale, Heyfield, Sale, Wurruk and Longford).

When planning for growth the councils take into account if the land is suitable for that development. Part of this is the consideration whether sewer infrastructure needs to be provided or else if onsite systems are to be used, what the most appropriate minimum lot size should be.

5 Assessment of current wastewater management situation

5.1. Current situation

The most common onsite wastewater management systems distributed throughout the Shires are:

- Primary treatments systems
- Secondary Wastewater Treatment Systems
- Split systems which treat only the toilet wastewater (blackwater). The remaining portion of wastewater from showers, baths, basins, etc. (greywater), is discharged land with a portion of the discharge entering the storm water system which enters local creeks, rivers and ground waters. Split systems are distributed across both Shires however; these are no longer installed.

Discharge of greywater to the environment means that local stormwater can be expected to have a very high nutrient and pathogen loading. Research has shown greywater pathogen concentrations can be very high (Birks and Hills 2007).

5.2. Current approvals process

Installation of new wastewater systems in unsewered areas, and modifications to existing systems require Council approval in accordance with the *Environment Protection Act 1970* and the following key EPA documents:

- The EPA "*Code of Practice for Onsite Wastewater Management*" (EPA Victoria Publication 891) (the Code);
- The EPA Publication *"Land Capability Assessment for Onsite Domestic Wastewater Management*" (EPA Victoria Publication 746) and
-
- EPA Approvals, Australian Standards and JASANZ Certificates of Conformity for domestic wastewater systems.

Council approval is obtained by making an application for a Septic Tank Permit. Both Wellington and East Gippsland Shires provide application kits describing the necessary information to accompany a permit application.

New dwellings and subdivisions often also require planning approval, which is obtained through a Planning Permit in accordance with requirements of the Municipal Planning Scheme and the Ministerial Catchment Guidelines, "*Planning permit applications in open, potable water supply catchment areas*" (DEPI 2012) (see Section 3 above and Appendix 1). While all of the Ministerial Guidelines must be addressed where a planning permit is required to use land for a dwelling or to subdivide land, Guideline 1 "Density of dwellings", Guideline 2 "Effluent disposal and septic tank system maintenance" and
Guideline 4: "Buildings and works" are particularly relevant with respect to this DWMP.

A diagrammatic view of the septic tank and planning permit process for each Shire is illustrated in Figure 5-1 and summarised in stepwise form in Table 5-1 following the procedure developed for the Mitchell Shire DWMP (Mitchell Shire Council 2014).

Table 5-1. Steps in approvals process for Septic Tank Systems (after Mitchell Shire Council 2014 with modifications).

Step	***Details***
Application for Permit	1. Administration officers register receipt of a paid application which must include: • identification of the site, site and building plans, specifications and particulars of the proposed septic tank system, a full description of the proposed means for treating the effluent and forward the application onto the Council Environmental Health Officer (EHO).
Site Inspections	1. Staff will make arrangements for an initial on-site inspection which is conducted prior to approval of the application.
Site Assessment	1. An EHO will request a land capability assessment for all applications that fall within a Declared (Declared) Special Water Supply Catchment area if not previously submitted via the planning permit process. For all other areas EHOs will conduct a site inspection to determine whether the site is appropriate for wastewater disposal. The EHO may further request a land capability assessment if they require further clarification on the sites suitability.
Further information/ Non-Compliance	1. If the EHO requires further information the applicant will be notified and the application will not progress until the information is received.
Compliance and Approval	The EHO will conduct a series of progress inspection prior to backfilling of trenches/irrigation depending on the type of system. • The EHO will conduct a final inspection when Certificate of Compliance has been issued by the plumber and prior to Certificate of Use being issued by the Council. • Once the EHO is satisfied that all the aspects of the application, plans and specifications stated in the permit to install comply with the Act, a permit to use will be issued. • The EHO may issue a permit subject to modifications or conditions. • Septic permit shouldn't be issued in a DWSC area until the planning permit is issued and conditions of water corporations are considered/adhered to.
Refusal to Grant Permit	The EHO will refuse to issue a permit if they consider that: • The site of the proposed septic tank system is unsuitable; or • The area available for the treatment or disposal of the effluent is not sufficient. The EHO will refuse to issue a permit if the proposed domestic wastewater system: • Is not an EPA approved system for the proposed purpose; • Is contrary to any State environment protection policy or waste management policy; or Any refusal to grant a permit to install/alter a septic tank system must be ratified by Council.

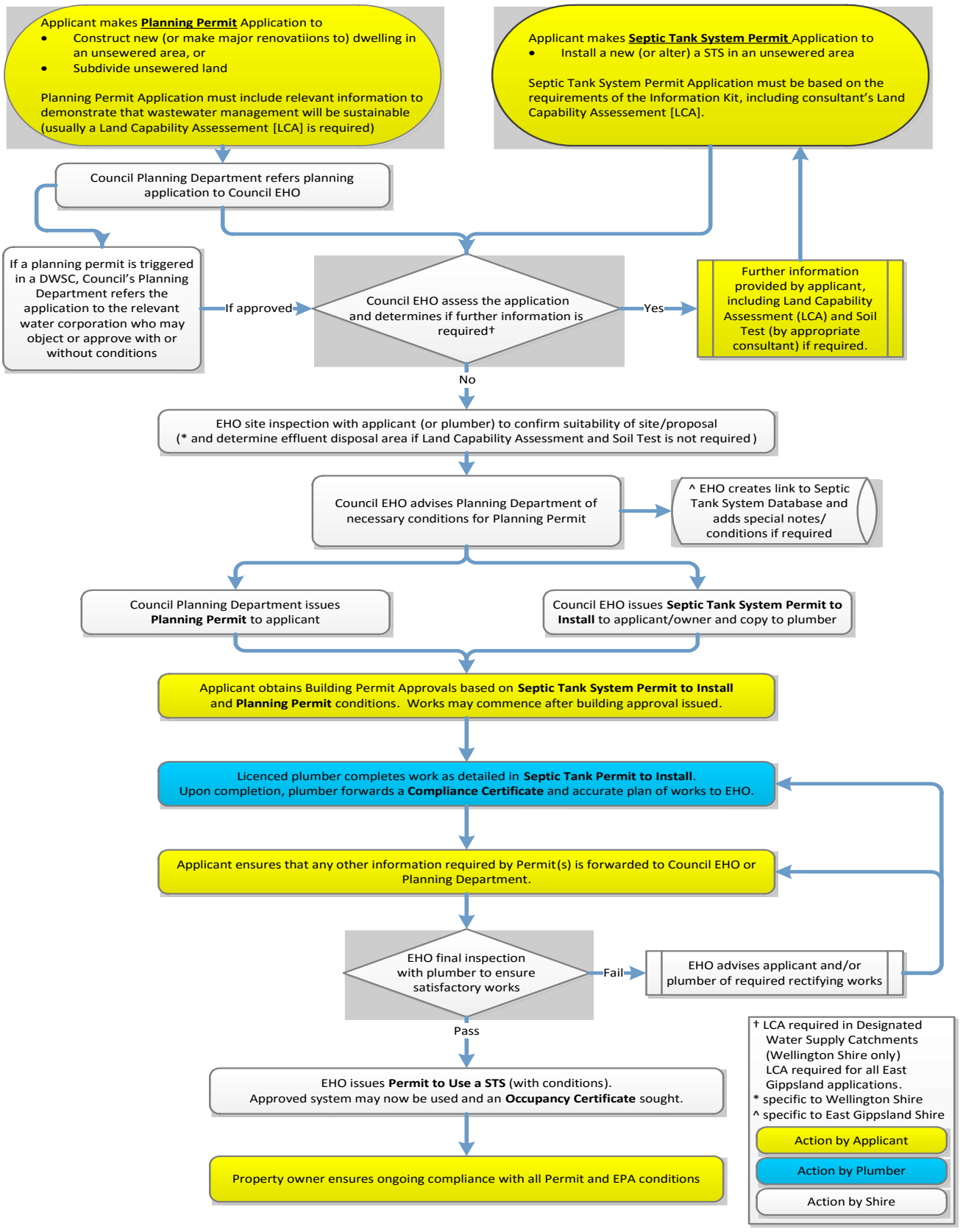

Figure 5-1. Approval Process for on-site wastewater management for East Gippsland and Wellington Shire Councils.

The planning departments also review all applications to determine if and when a referral authority is to be notified of the application. This includes applications in water supply catchments.

5.2.1. Land Capability Assessment (LCA)

The process for LCAs used by both Shires is that outlined in EPA Code (EPA Victoria 2013). The Code states that a Land Capability Assessment is required for all applications that fall within Declared Special Water Catchment Areas. In all other areas an LCA is not required unless requested by the EHO; this is the situation in Wellington Shire, however in East Gippsland Shire, an LCA is required for onsite wastewater management system applications regardless of whether they lie within a Declared Water Supply Catchment or not.

For Wellington Shire, the EHO will also consider the outcomes of the risk mapping analysis described in Section 8 of this DWMP in determining the requirement of an LCA.

Wellington Shire policy requires all new coastal developments, such as at Loch Sport, Golden/Paradise Beach, McLoughlins Beach, Manns Beach and Woodside Beach, to have a Secondary Treatment Systems with an EPA approved disposal method.

5.2.2. Maintenance of Septic Tank Systems

The occupants of premises on which a wastewater treatment system is located must maintain the system in accordance with the requirements specified on the permit (e.g. regular servicing, pumping out the septic tank every five years etc.). The EHO may conduct annual inspections of wastewater treatment systems to ensure compliance with the certificate for use. These will be focussed on priority areas as discussed in Section 8.4 later on in this report.

5.2.3. Monitoring and Compliance

Domestic onsite wastewater management systems are required to be operated and maintained in accordance with the conditions in the Council Permit to Use, the Certificate of Approval (CA), and the Code to ensure that human health and the environment are protected (EPA Victoria 2013). Furthermore, the Ministerial Guidelines require a process of monitoring the condition of septic systems and a process of enforcement when noncompliance is identified.

Council may fine a property owner under section 53N and Schedule A of the *Environment Protection Act 1970* for failing to have the treatment system regularly serviced on an ongoing basis in accordance with the conditions on the relevant CA and the Council Septic Tank Permit.

Wellington and East Gippsland Shire Councils have established inspection schedules for processing the applications to install or modify domestic onsite wastewater management systems. Although neither council has an active monitoring nor compliance procedure to follow up and monitor the condition of all types of domestic wastewater units after a permit to use has been issued and the installation process is complete, Wellington Shire Council does have such a monitoring and compliance procedure for Aerated Wastewater Treatment Systems (AWTS).

A recommendation of the action plan is to commence monitoring and enforce compliance of domestic wastewater treatment systems. Resourcing a monitoring and compliance program for every property in the Shires is currently not feasible and it is therefore a recommendation of this DWMP is that monitoring is to be prioritised by risk and to begin in localities that have been identified as high risk through the risk mapping component of this plan (see Section 8). This process will identify any non-compliant units and a process of enforcement will ensure action will be taken to ensure systems operate correctly. The initial focus will be on systems within the declared water supply catchments.

5.2.4. Data management

With respect to Aerated Wastewater Treatment Systems (AWTS) qualified maintenance operators certified by the system manufacturers undertake quality inspections and prepare reports for the councils as per the permit conditions and certificates of conformtity. The data are then entered into an electronic database.

It is recommended in the action plan that service maintenance records are checked and followed up to ensure units are operating correctly. While this is the case for AWTSs in Wellington Shire, the process should be extended to all onsite wastewater management systems in both Shires, focussing firstly on systems in high risk areas described in Section 8 of this DWMP, with an emphasis on systems within the declared water supply catchments

It is further recommended that both councils retrospectively record unrecorded domestic wastewater treatment systems through utilising the inspections recommended under the proposed compliance program. The initial focus should be on systems in high risk areas described in Section 8 of this DWMP, with an emphasis on systems within the declared water supply catchments. Identification and registration of such systems will assist in managing the risk that unregistered or incorrectly registered onsite wastewater management systems could be operating incorrectly without the council's knowledge.

6 Management of the DWMP

6.1. DWMP Development and stakeholder consultation

The DWMP was prepared by Ecos Environmental Consulting according to terms of reference supplied by Wellington Shire Council and East Gippsland Shire Council and in accordance with the requirements of the Ministerial Catchment Guidelines (DEPI 2012). Development of the DWMP involved internal workshops with Environmental Health and Planning Staff from each council as well as external workshops with the regional water authorities, regulatory agencies and environmental organisations. The DWMP also draws on the material and findings of the 2006 Wellington and East Gippsland Shires DWMP as well as the Municipal Association of Victoria Model DWMP.

The parties consulted in the development of the DWMP were:

- Department of Environment, Land, Water and Planning (DELWP)
- Department of Health and Human Services, Victoria
- East Gippsland Water
- EPA Victoria
- Gippsland Lakes Committee
- Gippsland Water
- South Gippsland Water
- Southern Rural Water

A list of stakeholder workshops and attendees is presented in **Appendix 5**.

6.1.1. Community Consultation

The Shire councils have undertaken a community consultation exercise (public comment) as part of the adoption process.

6.1.2. Implementation

Following Council approval and adoption of this DWMP, actions will be undertaken as outlined in Sections 8 and 9, assuming sufficient resources are available.

Progress made towards completion of the actions outlined in this DWMP will be reviewed on an annual basis. This will include consideration of whether tasks have been completed on time (or are on schedule)

and the outcomes achieved. The action plans include an outline of monitoring indicators to assist in determining the outcomes achieved.

The annual review will be a joint undertaking between Wellington and East Gippsland Shires. It will be managed by Wellington Shires Environmental Health Coordinator and East Gippsland Shires Environmental Health Manager.
. The review will be undertaken in September each year and will include a review of resources required for the following year for incorporation into the coming budget.

An annual report on progress will be distributed to both internal and external stakeholders as outlined in Section 8.7 and in the action plan tables (see Table 9-4).

7 Water quality risks posed by domestic onsite wastewater management systems

7.1. Microbial pathogens

There are around 150 known gastrointestinal pathogens that can be classified as waterborne. These pathogens may be broadly separated into viruses, bacteria, protozoa (single-celled parasites) and helminths (intestinal worms).

The most virulent organisms are typically associated with human sewage and animal faeces. Ingestion of these organisms typically results in gastrointestinal illness of varying degrees depending on the type of pathogen, the numbers of pathogens consumed by the host and the health and immunity of the host. While typical symptoms of gastrointestinal infection may include nausea, vomiting and diarrhoea, for certain pathogens an unfortunately high proportion of those infected develop serious and even life threatening complications (termed sequelae) including encephalitis, meningitis and kidney failure.

Since septic effluent poses a significant biohazard its management is a critical component of good public health practice. It is important that onsite wastewater management systems are designed, installed and managed appropriately to avoid the risk of septic effluent being allowed to contaminate surface waters and groundwaters and limit their beneficial uses.

7.2. Nutrients

Septic effluent is rich in the plant nutrients nitrogen and phosphorus. Areas where there are high densities of on-site wastewater management systems, surface waters and groundwater often have elevated nutrient concentrations. Surface water impacts are typically manifested as blooms of filamentous algae or phytoplankton (single-celled algae) in rivers, streams and lakes due to high phosphorous loadings. The Gippsland Lakes are a significant example of an important regional asset that has been affected by high phosphorus loads from its catchment – although onsite wastewater management systems are just one of a number of contributors.

With respect to groundwater, it is nitrogen that tends to be the nutrient parameter of most concern. Partly this is due to the retention of phosphorus in the soil and greater mobility of nitrogen in the subsurface and partly due to the capacity of groundwater to accumulate nitrogen to high concentrations. Where groundwater is used as a source of drinking water, the Australian Drinking Water Guidelines (NHMRC and NRMMC 2011) specify that the concentration of nitrate in the water must be less than 50 mg.NO_3/L (as nitrate) to protect bottle-fed infants under 3 months of age. High nitrate concentrations can cause infantile methaemoglobinaemia (also known as blue-baby syndrome) where the nitrate affects the function of haemoglobin in the blood limiting its ability to carry oxygen. Clusters of onsite wastewater systems in areas where potable water supplies are sourced from groundwater should be considered a risk factor for nitrate accumulation.

7.3. Trace Organic Compounds (TOrCs)

In the context of domestic sewage, TOrCs are organic chemicals such as household herbicides and insecticides, detergents, personal care products and pharmaceuticals. In most cases, such chemicals undergo biodegradation by bacterial enzymes in the effluent holding chambers of conventional septic tanks and domestic aerated wastewater systems and further biodegradation in the soil environment of the effluent disposal field. When chlorine is added to the effluent (e.g. such as in domestic effluent of aerated onsite wastewater systems to permit surface irrigation), its oxidising effect can also destroy TOrCs persisting through the earlier treatment stages.

Whilst there are literally thousands of chemicals in domestic use, the vast majority are used only in small quantities as part of routine household use and are readily degraded in the onsite wastewater treatment system. Since the principle aim of onsite wastewater management is to retain and treat effluent on site, the effects of persistent TOrCs is likely to only be a problem if effluent is permitted to move offsite. In such circumstances the health risks from microbial pathogens is expected to significantly outweigh the risks from TOrCs and thus management and monitoring for pathogens will also result in the management and control of persistent TOrCs. Until otherwise advised by the EPA, the focus of both councils will be on protecting public health from microbial pathogens through the appropriate management of onsite wastewater management systems.

7.4. Failure modes of on-site treatment systems

Although there are many variations in design, a typical onsite wastewater management system consists of an underground chamber that receives household wastewater. Solids settle to the bottom where they undergo digestion by microorganisms. A frothy scum forms at the surface and also plays a role in biological digestion of the wastewater. Microbiological respiration in this chamber rapidly consumes the available dissolved oxygen and so most of the activity is anaerobic. The semi-clarified liquid is distributed by gravity to the disposal field (also known as an absorption trench). In aerated wastewater treatment systems, an additional chamber is present which is mechanically aerated, providing a better quality of effluent that may comply with less stringent permit conditions (e.g. reduced setback distances from waterways).

7.4.1. Mechanisms of onsite system failure

Onsite wastewater management systems can have several modes of failure with the principal mode being disposal field surcharge (i.e. effluent pooling at the soil surface) due to trench clogging. Beal *et al.* (2005) documented the principal failure modes of domestic onsite wastewater management systems in South East Queensland. These were:

- Absorption trench surcharge (59%) due to:
    - Trench length under-design
    - Broken baffles / outlet filters, inadequate desludging (causing blockage and surcharge)
- Odour (10%)
- Risk of off-site runoff (10%)[1]
- Tank disrepair (21%)
- Beal *et al.* cited other Australian studies from the 1990's suggesting failure rates between 50% (Mt Lofty, Adelaide Hills, 12% surcharging) and 67% (Maroochy Shire, South East Queensland)
- Deliberate pipe disconnection by occupants allowing treated effluent to flow over the ground
- Other human interference (eg. turning off AWTS aerator).

Broken baffles/outlet filters and infrequent septic tank desludging both allow solids carryover into the trench, thereby reducing the ability of the trench to slowly "leak" effluent into the soil which is a desirable

[1] It was not explicit in the paper, but this is assumed to mean direct evidence of off-site runoff. In practice, any surcharging poses a risk of off-site runoff.

trait of properly-functioning absorption trench. If leaking is impeded the likelihood of surcharge of septic effluent to the surface increases.

8 Onsite systems catchment water quality risk assessment

In section 5.2.3 it was recommended that monitoring compliance of onsite systems be risk-based and focus on localities that have been identified as high risk through risk mapping. The risk mapping approach developed for the DWMP is described in this section and consists of a semi-quantitative risk scoring exercise. It is appropriate for the high level identification of areas of heightened risk to surface water and groundwater quality across each Shire and can be used by the council EHO's to assist in their decision making with respect to individual sites.

8.1. Data collation, GIS analysis, hazard source identification and mapping

Spatial data for use in the risk assessment of onsite wastewater management across Wellington and East Gippsland Shires was obtained from a range of sources including the Victorian online environmental databases DataVic, Water Measurement Information System, and the Bureau of Meteorology. Additional data sources were Gippsland Water, South Gippsland Water, East Gippsland Water, and Wellington and East Gippsland Shire Councils (Table 8-1).

Table 8-1. Data sources including spatial data used in the risk assessment

Data Source	Data layer	Description
DataVic	10 m Contours	Create DEM to determine aspect, slope and water table depth
	Rivers	Calculate setback from waterways and waterbodies
	Lakes	
	Properties	Property size
	Flood layers (1 in 100)	Used to calculate useable area
	LSYS250	Land system – contains soil risk information – MASS_MOV (erosion), WATER_LOG (soil drainage), LEACH (pH), WIND_ER (soil texture), WATER_ER (soil depth)
	Soil EC	
	Soil %Clay	Used to calculate soil texture
	Soil pH	
	SWL (groundwater contours)	Groundwater level used with DEM to calculate depth to water table
	Planning Overlays	
	Planning Zones	
	DWSC	Declared Water Supply Catchments
	LGA	
	Locality	Town locations
Water Measurement Information System (WMIS)	Groundwater Bores	Used to calculate useable area, setback from bores
ABS	Town Population	
BOM	Site rainfall data	Used to calculate climate risk
	Site evaporation data	
	Annual rainfall map	
	Annual pan evaporation map	
GW	Sewered towns	Website
	DWSC	Water Supply Catchment confirmation
SGW	Sewered towns	Website
EGW	Sewered towns	GIS Layer
Shire Councils	On-site system locations	Excel files with lat/long coordinates
	Aerial photographs	

8.2. Risk assessment and ranking

8.2.1. Risk model development

The LCA Risk table in the Code (EPA Victoria 2013) was used as a basis for a risk assessment of properties that are permitted to have a dwelling within rural (FZ, RCZ, RAZ, RLZ) and urban (TZ, LDRZ, GR1Z, MUZ) planning zones.

Data for each of the characteristics used to assess the properties in the LCA were obtained where possible and the classifications of risk (or "level of constraint") were identified and whether they related to surface water or groundwater risk.

Although not all LCA site attributes are able to be assessed on a catchment scale, many can be used to provide a general assessment of the land capability for each property. A detailed list of potential risk factors that could be used in risk scoring is presented in **Appendix 2**.

In developing the risk scores for the classes: the risk factors which were considered to be representative of the highest risk were soil suitability, usable area, slope and climate. These were chosen to represent the likely risks posed by the on-site systems prior to detailed LCA site assessments if these are considered necessary by the EHO, or required due the site being within a declared water supply catchment.

Risk factors were based on a combination of the guidance given in the Victorian Land Capability Assessment Framework 2nd Edition (MAV, DEPI and EPA 2014) and the EPA LCA guidelines (EPA Victoria 2003).

The intention of the risk assessment is to prioritise areas and systems for possible follow up site inspections. A high risk score does not necessarily mean that a particular system actually poses a higher risk, rather it simply means that the Shire council EHO should evaluate the risk at the site more closely.

8.2.2. Property Risk

A number of risk factors were chosen to calculate the risk of having an onsite wastewater management system (OWMS) on each property permitted by the planning zone to have a dwelling.

The risk per property of an OWMS was categorised using the following formula:

Property Risk Score = [((soil suitability constraint + slope constraint) x ((2 x useable area constraint) + climate constraint)) / 10]

The final risk ratings were categorised and mapped in the following way:

- Very High >5.5
- High >4 to <=5.5
- Mod >=1.8 to <=4.0
- Low <1.8

The constraints used in the risk calculations were:

(1) Usable Area Constraint

The usable area for an OWMS was determined by the total lot size minus the areas of land deemed to be unusable according to the limitations listed below. Therefore, the useable area constraints were categorised as follows:

i. *Compliant:* *≥ 40 ha*
ii. *Low:* *0.4 - < 40 ha*
iii. *Moderate:* *0.2 - < 0.4 ha*
iv. *High:* *0.1 - < 0.2 ha*
v. *Very High:* *< 0.1 ha*
vi. *Unusable:* *0 ha*

Limitations reducing the area of land on which an OWMS could be located were based on setbacks required by the Code of Practice for Onsite Wastewater Management (EPA Victoria 2013) (Table 8-2). A conservative approach was taken, using the highest setback requirements for each feature:

a. *Distance to water* - shorter distances means that rainfall runoff is more likely to reach the waterway and less rainfall is required to contribution to a connection between surcharged effluent at the location of an onsite system and the nearest waterway.
   Within a DWSC, an OWMS cannot be located less than 100 m from a waterway or 300 m from a reservoir, whereas outside a DWSC, the required setback is 60 m from any waterway or waterbody;

b. *Depth to the water table* – a shallower soil depth to the saturated zone (groundwater) increases the potential of pathogen movement in to the groundwater.
   The requirements for onsite systems is that the vertical depth from the base of the disposal field trench to the highest seasonal water table is 1.5 m. The trench can be up to 0.6 m deep, therefore, a watertable depth of less than 2.1 m results in that part of the property being unusable for an onsite system;

c. *Distance from groundwater bore* – required setback is 50 m for category 1 and 2a soils and 20 m for category 2b – 6 soils for secondary treatment (see EPA Victoria 2013, Appendix A, Table 9 for soil categories). A 50 m setback was used in the risk calculation.

Table 8-2. Setback distances for classes of onsite wastewater management system. Source: EPA Publication 891. 3 Code of Practice Onsite Wastewater Management (EPA Victoria 2013)

Item	Setback Distances (m		
	Primary Treated Effluent	Secondary Sewage and greywater effluent	Advanced secondary greywater effluent
Dam, lake or reservoir (potable water supply)	300	150	150
Waterways (potable water supply)	100	100	50
Waterways, wetlands, estuaries, ocean at high-tide, dams, lakes, reservoirs (stock and domestic, non-potable)	60	30	30
Groundwater Bore (category 1 and 2a soils)	NA	50	20
Groundwater Bore (category 2b to 6 soils)	20	20	20
Vertical depth from base of trench to the highest seasonal watertable	1.5	1.5	1.5

(2) Soil Suitability Constraint

Soil suitability for an OWMS was determined from the hydraulic hazard of the soil (texture, permeability and structure), the depth to rock or other impermeable layer, and other likely limitations due to soil condition. The significance of each characteristic was weighted to account for the likely impact of each on the OWMS risk. Thus the soil suitability was categorised using the following formula:

$$\text{Soil suitability} = [(\text{hydraulic hazard} \times 3.2) + (\text{depth hazard} \times 1.2) + (\text{limitation hazard} \times 0.6)) / 5]$$

a. Hydraulic hazard constraints

The soil characteristics used to categorise the hydraulic hazard constraints were based on soil texture, then adjusted according to likely structure and permeability for each soil texture category (Table 8-3). Therefore, the hydraulic hazard constraint was categorised using the following formula:

Hydraulic hazard constraint = [(soil texture x 1.4) + (soil structure x 0.8) + (permeability x 1)]

Table 8-3. Hydraulic hazard constraints (Data sources EPA Victoria 2013; MAV, DEPI and EPA 2014)

Level of Constraint	Soil Texture	Soil Structure (pedality)	Indicative permeability Ksat (m/d)	Hydraulic Hazard Rating
Nil or Low	3. Loams 2. Sandy loams	***Highly or moderately structured*** 6a, 6b, 5a, 5b, 4a, 3a	***0.5 – 3.0 m/d:*** 3a, 3b, 2b, 4a	3 Loams
Moderately low	4. Clay loams	***Weakly structured*** 2a, 3b, 4b, 5c, 6c	***0.06 – 0.5 m/d:*** 4b, 4c, 5a, 5b	2 Sandy loams 4 Clay loams
Moderately high	5. Light clays			5 Light clays
High	6. Heavy clays 1. Sands	***Structureless, massive or hardpan*** 1, 2b, 4c, 5c, 6c	***< 0.5 m/d:*** 5c, 6a, 6b, 6c ***Or > 3.0 m/d:*** 1, 2a	6 Heavy clays 1 Sands No soil data

The elements of the hydraulic hazard constraint equation are further explained in the following sections.

Soil texture

Very sandy soils could allow rapid subsurface movement and subsequent discharge to nearby waterways, while dense clay soils could support perched water tables and subsequent surface surcharging in wet weather. The soil texture constraint was categorised as follows:

i. *Low:* *3. Loams, 2. Sandy Loams*
ii. *Moderate low:* *4. Clay Loams*
iii. *Moderate high:* *5. Light Clays*
iv. *High:* *1. Sands, 6. Heavy Clays*

Victoria Clay% GIS data was used to calculate the soil texture, which was supplemented with Victorian Land Systems 1:250 000 GIS layer (LSYS250) where there was no Clay% data. Due to the nature of the data, which provided a % clay content for varying depths (to 2m), the most restrictive soil layer is the one that will likely affect soil suitability for onsite system use. Therefore, the clay content at the most restrictive depth was used to calculate the soil texture. This was generally lower in the profile as there tends to be a gradation of increasing clay content with depth.

Soil categories were calculated using the Hazelton and Murphy (2007) field texture and estimated clay content interpretations as follows:

1: Sands: < 10 % clay
2: Sandy loams: 10 – 20 % clay
3: Loams: 20 – 30 % clay
4: Clay loams: 30 – 35 % clay
5: Light clays: 35 – 45 % clay
6: Heavy clays: > 45 % clay

Soil structure

Soil texture data was the only GIS data available for soil structure, therefore the soil structure constraints were based on an average of the soil structure categories for each texture type [listed in square brackets]

i. *Low:* *6: Heavy clays, 5: Light clays [6a,6b,5a,5b,4a,3a]*
ii. *Moderate Low:* *3: Loams*
iii. *Moderate:* *4: Clay loams [2a,3b,4b,5c,6c]* iv. *Moderate High: 2: Sandy loams*
v. *High:* *1: Sands, [1, 2b, 4c, 5c, 6c]*

Soil Indicative permeability

Soil permeability constraints were based on an average of the soil permeability categories for each soil texture type [listed in square brackets]

i. *Low:* *3: Loams [3a, 3b, 2b, 4a]*
ii. *Moderate Low:* *4: Clay loams*
iii. *Moderate:* *2: Sandy loams [4b, 4c, 5a, 5b]* iv. *Moderate High: 5: Light clays*
v. *High:* *1: Sands, 6: Heavy Clays [5c, 6a, 6b, 6c, 1, 2a]*

b. Depth hazard

Depth hazard was identified using the LSYS250 GIS layer, which identified the depth hazard as a water erosion hazard (WATER_ER). The depth hazard constraint was categorised as follows:

i. *Low (WATER_ER 1 or 2): soil depth > 2 m*
ii. *Moderate (WATER_ER 3): soil depth 1 – 2 m*
iii. *High (WATER_ER 4): soil depth < 1 m (or no depth data available)*

These categories are very similar to those listed in the Victorian Land Capability Assessment Framework (MAV, DEPI and EPA 2014) (Table 8-4).

Table 8-4. Victorian Land Capability Assessment Framework soil depth constraints

Level of Constraint	Soil depth to rock or other impermeable layer
Nil or Minor	> 1.5 m
Moderate	1.5 – 1.0 m
Major	< 1.0 m

c. Limitation hazard

Limitation hazards are listed in the LSYS250 GIS layer as PERF_AGG, which consists of description of limitations and penalty points used to rank land systems for inherent production potential after Rowan et al. (2000). The best land for agriculture or horticulture is allocated 10 and the score declines as limitations become more severe, with the least productive land having a score of 0. The limitation constraint was categorised as follows:

i. *Low:* *0 points*
ii. *Moderate:* *2 points*
iii. *High:* *4 points*

The soil condition was calculated from Total limitation potential 10 – (PERF_AGG + Rainfall Score + Steepness Score + Drainage Score). Rainfall, steepness and drainage scores were determined from the Land system and vegetation codes.

The remaining limitations were soil physical condition and soil chemical condition (Table 8-5):

Table 8-5. Soil physical condition and soil chemical condition limitations

Characteristic	Description	Penalty Points
Soil physical condition	Hard consistence in the A horizon; or low permeability of profile; or shallow stony loam profile (less than 0.2 m thick).	**2**
Soil chemical condition	Low nutrient status (sum of exchangeable calcium, magnesium and potassium less than 8 milliequivalents per 100 g within 1 m; or High salinity (more than 0.2% total soluble salts within 1 m of the soil).	**2**

(3) Slope Constraint

Increasing slope promotes water shedding. The slope constraint was categorised to be consistent with the Victorian Land Capability Assessment Framework (MAV, DEPI and EPA 2014) (Table 8-6) and is as follows:

i. *Low: lots with an average slope < 6%*
ii. *Moderate Low: lots with an average slope 6 – 10%*
iii. *Moderate High: lots with an average slope 10 – 15 %*
iv. *High: lots with an average slope > 15 %*

Table 8-6. Victorian Land Capability Assessment Framework slope constraints

Level of Constraint	Slope gradient % (a) for absorption trenches & beds	Slope gradient % (b) for surface irrigation	Slope gradient % (c) for subsurface irrigation
Nil or Minor	<6%	<6%	<10%
Moderate	6-15%	6-10%	10-30%
Major	>15%	>10%	>30%

(4) Climate Constraint

The climate risk is the soil moisture surplus where rainfall is greater than evaporation, which can result in surface runoff, saturation and an increase of infiltration to the groundwater. The climate constraint was categorised as follows:

i. *Zone 1: Rainfall exceeds evaporation < 1 month in a year*
ii. *Zone 2: Rainfall exceeds evaporation 1 – 4 months in a year*
iii. *Zone 3: Rainfall exceeds evaporation > 4 months in a year*

There are seven sites with evaporation data within the two Shires (Table 8-7).
Two of these had available data on the Bureau of Meteorology (BOM) website. The available broad rainfall and evaporation maps on the BOM site were used in conjunction with this data to determine that the majority of the study area was likely to be in Zone 2.

Table 8-7. Bureau of Meteorology sites with rainfall & evaporation data

Site	Name	Dates	Zone
84100	Bairnsdale Waterworks	1970-2016	
85072	East Sale Airport	1971-2015	2
85034	Glenmaggie Weir	1969-2016	
84121	Orbost SRWSC	1972-1995	
84030	Orbost (comparison)	1994-2011	2
84087	Tabberabbera (The Pines)	1974-1980	
84107	Wulgulmerang (Pleasant View)	1972-1982	

Risk scores for unsewered properties in the Wellington and East Gippsland Shires are shown in Fig 8-1.

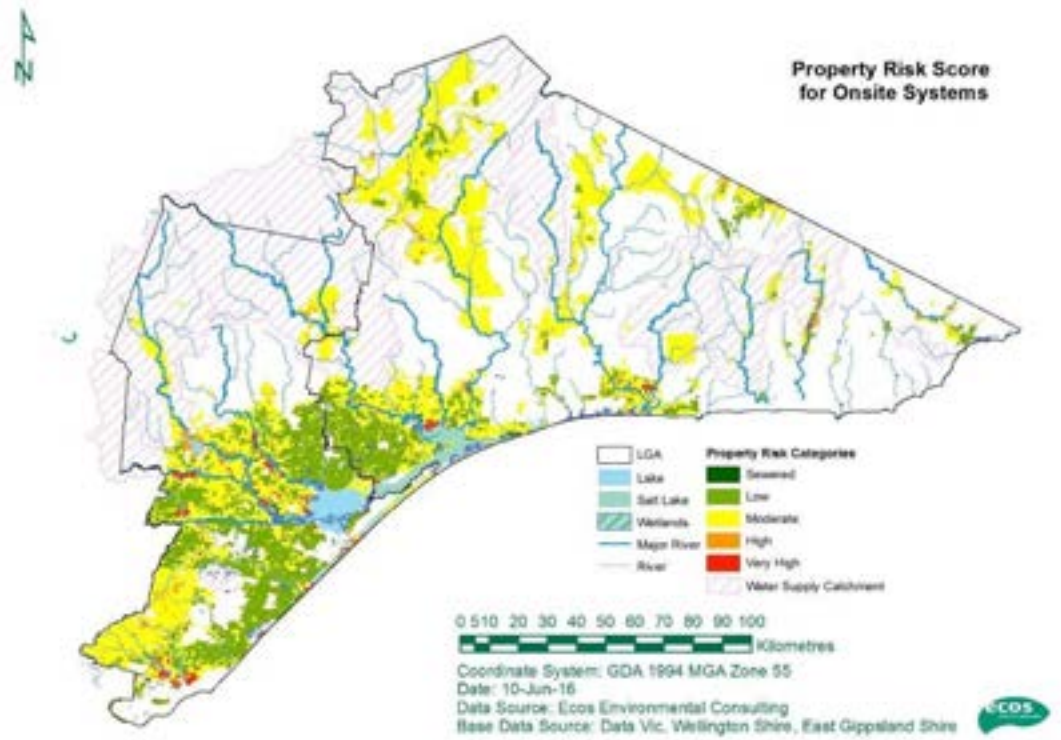

Figure 8-1. Risk scores for unsewered properties in the Wellington and East Gippsland Shires.

8.2.2.1. Unsewered dwellings less than 1km upstream of a drinking water supply reservoir

Southern Rural Water have requested that unsewered dwellings less than 1km upstream of a drinking water supply reservoir should always be classed as high risk properties. This is to be regardless of any other elements of the risk classification described above. This is to ensure consistency with the water corporations risk management practices and recognises the risk posed by properties that lie close to the reservoirs.

Properties with a Low or Medium risk classification in this area were reclassified to High. Properties with a High or Very High risk classification remained as classified.

8.2.2.2. Mapping and data availability for Wellington and East Gippsland Shires

The risk maps displayed in the following sections are presented at the regional scale to provide an overview of risk for this report. However, each map is produced from a GIS database that allows the user to zoom in for more detailed analysis. *These databases, developed for the DWMP, have been supplied to the councils to assist them in assessing the risks associated with new planning permit applications and existing unsewered dwellings*.

8.2.3. Risks from future development – housing density

8.2.3.1. Planning zones

Acceptable housing densities vary with the planning zone and whether or not the area is within a Declared Water Supply Catchment. The data on planning zones and housing density limits was obtained from the Planning Schemes Online website (DELWP 2015) (Table 8-8, Table 8-9, Figure 8-2). The housing density for each planning zone was calculated separately.

Areas in the Farming Zone (FZ) and in Rural Conservation Zones 1 and 2 (RCZ1 and RCZ2) are the main sources of non-compliance with the maximum permitted housing densities across both Shires.

Table 8-8. Acceptable housing densities for the various planning zones within the Wellington Shire (see Appendix 3 for list of all zones). Note: in a Declared Water Supply Catchment a planning permit application may require referral to a Water Corporation.

Zone	Minimum Subdivision area (lot size when planning permit for subdivision)	Minimum area (lot size) for which no planning permit is required to use land for a dwelling	Clusters of houses exceeding required limit of planning zone
Farming Zone (FZ)	40 Hectares, unless in MID then 25 Hectares	40 Hectares, unless in MID then 25 Hectares	992 houses, mostly near towns
Rural Living Zone 1 (RLZ1)	0.8 Hectares	0.4 Hectares	
Rural Living Zone 2 + 3 (RLZ2, RLZ3)	2 Hectares	0.4 Hectares	
Rural Living Zone 4 (RLZ4)	4 Hectares	0.4 Hectares	
Rural Living Zone 5 (RLZ5)	0.6 Hectares	0.4 Hectares	
Low Density Residential Zone (RDLZ)	0.4 Hectares	Not determined	
Township Zone (TZ)	Not determined	300 square metres	
General Residential Zone (GRZ)	Not determined	300 square metres	
Mixed Use Zone (MUZ)	Not determined	300 square metres	
Rural Conservation Zone (RCZ)	40 Hectares, unless in ESO1 then 100 Hectares	Dwelling requires a planning permit	156 houses (40 ha minimum) Golden Beach, Flamingo Beach, Glomar Beach, south of Glomar Beach, near Lake Glenmaggie 27 houses (100 ha minimum) Flamingo Beach, Glomar Beach
Rural Activity Zone (RAZ)	40 Hectares	Dwelling requires a planning permit	

Table 8-9. Acceptable housing densities for the various planning zones within the East Gippsland Shire (see Appendix 3 for list of all zones). Note: in a Declared Water Supply Catchment a planning permit application may require referral to a Water Corporation.

Zone	Minimum Subdivision area (lot size when planning permit for subdivision)	Minimum area (lot size) for which no planning permit is required to use land for a dwelling	Clusters of houses exceeding required limit of planning zone
Farming Zone 1 (FZ1)	40 Hectares	40 Hectares	701 houses, mostly near towns
Farming Zone 2 (FZ2)	30 Hectares	30 Hectares	59 houses, FZ2 is near Bairnsdale
Farming Zone 3 (FZ3)	15 Hectares	15 Hectares	
Farming Zone 4 (FZ4)	1 Hectare	10 Hectares	
Rural Living Zone 1 (RLZ1)	2 Hectares	1 Hectare	
Rural Living Zone 2 (RLZ2)	4 Hectares	1 Hectare	
Rural Living Zone 3 (RLZ3)	8 Hectares	8 Hectares	
Rural Living Zone 5 (RLZ4)	15 Hectares	15 Hectares	
Low Density Residential Zone (LDRZ)	0.4 Hectares	Not determined	
Township Zone (TZ)	Not determined	300 square metres	
General Residential Zone (GRZ)	Not determined	300 square metres	
Mixed Use Zone (MUZ)	Not determined	300 square metres	
Rural Conservation Zone 1 (RCZ1)	10 Hectares	Dwelling requires a planning permit	
Rural Conservation Zone 2 (RCZ2)	50 Hectares	Dwelling requires a planning permit	
Rural Conservation Zone 3 (RCZ3)	100 Hectares	Dwelling requires a planning permit	58 houses Nyerimilang, Ocean Grange, Eagle Point, Boole Poole Peninsula

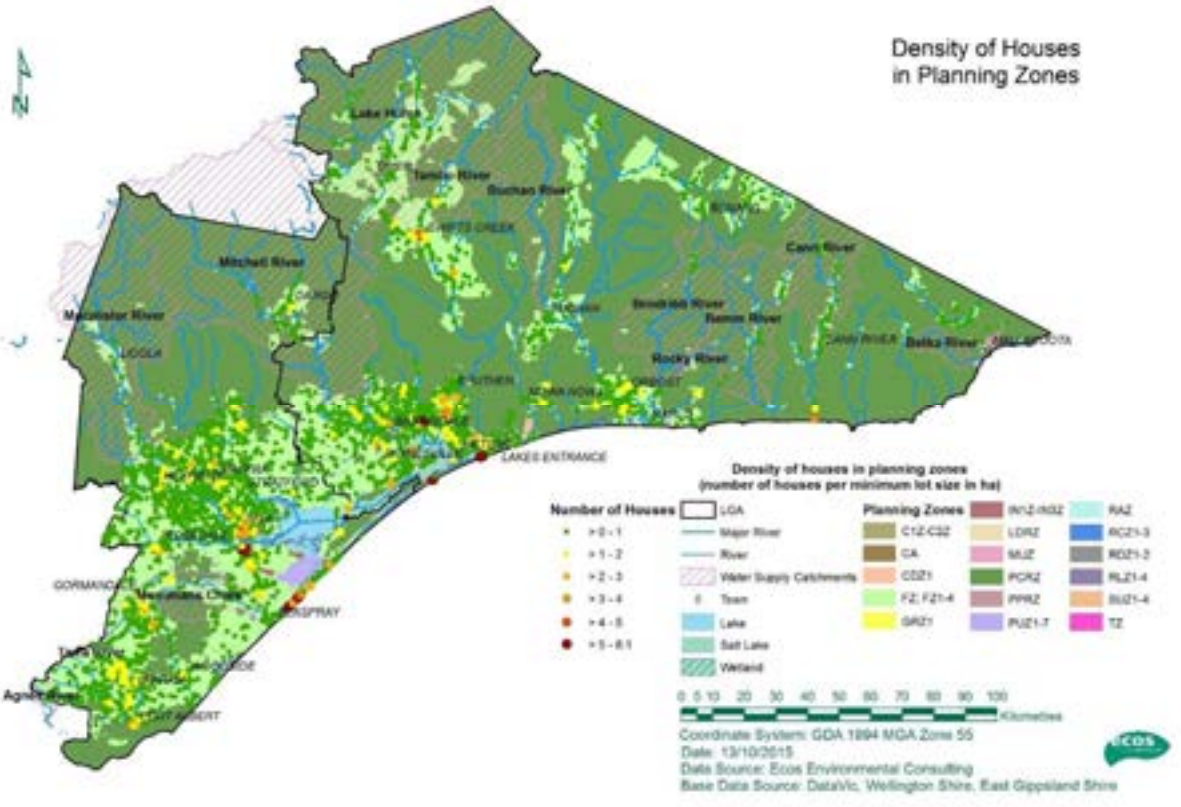

Figure 8-2. Density of houses in planning zones. Dwelling locations are colour coded according to level of compliance with the planning zone requirements. For example, where there is one house or less in the minimum acceptable area given the planning zone, the house is coloured with a green dot.

The map of housing density compliance with planning zone requirements shows clusters of houses around the major towns that exceed the target planning limits. The housing density calculations were carried out by determining the number of houses in a 1 km radius around each house (including the house) and then dividing by the acceptable number in the same area given the planning zone. This is the method recommended for housing density calculations in the *Victorian Water Industry Guidance Note for Determining Dwelling Density when Assessing Planning Permit Applications* (VicWater 2012). Note, however, that this is not how the minimum lot size in the planning scheme is determined. If the lot is too small, then the house is not an "as of right" and a planning permit is needed (depending on the zone). If lots comply with the minimum subdivision size target, planning limits are not exceeded. However, the map provides an effective overview of where higher densities are found and allowed under the planning scheme without the need for a planning permit and where "problem" areas may occur.

Note also that although Figure 8-2 is presented at the regional scale, the related GIS layers have been provided to the Shires and allow for finer scale close ups as required.

8.3. Township assessments

For each town in each Shire, the individual risk scores for each property with an onsite wastewater management system were summed to give a risk score for each town (Table 8-10, Table 8-11). The town boundaries for assessment were based on the residential (GRZ1), township (TZ), low density residential (LDRZ) and rural living (RLZ) planning zones.

8.3.1. Priority townships/locations

8.3.1.1. Wellington Shire

The results of the township assessments showed that Golden Beach, The Honeysuckles, Briagolong, Paradise Beach and McLoughlins Beach accounted for approximately 50% of the total risk from on-site systems within the Wellington Shire (Table 8-10, Figure 8-3, Figure 8-4). Other significant contributions to the total risk were Longford, Glenmaggie, Wurruk and Stratford.

Briagolong (north of Stratford), Stratford and Wurruk (east of Sale) are located on floodplain soils while all the other townships are located on or adjacent to the 90 Mile Beach where sandy soils prevail. These areas are a priority for compliance assessments. Glenmaggie is situated within 1km upstream of Lake Glenmaggie, and so all unsewered properties here have been classified as high risk.

Table 8-10. Wellington Shire townships sorted by sum of groundwater and surface water risk. Towns located in declared water supply catchments are listed. Township risk = number of dwellings in each risk category multiplied by its property risk rating in GRZ1, MUZ, TZ, LDRZ and RLZ. Dwellings with onsite systems in sewered areas were categorised according to their risk rating for Current Score, and assumed to have a risk of 0 for the Sewer Infilled Score. Township risk was ranked was according to the sewer infilled score.

Risk rank within Shire	Township	DWSC	# OWMS	Current Risk Score	Sewer Infilled Risk Score	Number of properties with OWMS in each risk category					Proportion of Total	Running total
						Sewered Area	Low	Moderate	High	Very High		
1	Golden Beach		493	2276	2276			160	200	133	15%	15%
2	The Honeysuckles		268	1495	1495			1	4	263	10%	26%
3	Briagolong		414	1368	1368			387	23	4	9%	35%
4	Paradise Beach		286	1281	1281			96	173	17	9%	44%
5	Mcloughlins Beach		172	963	963					172	7%	50%
6	Longford		295	849	849			259	26	10	6%	56%
7	Glenmaggie	Macalister	96	437	553	1		7	61	27	4%	60%
8	Wurruk		181	494	488	1		174	5	1	3%	63%
9	Stratford		183	470	463	2		176	4	1	3%	66%
10	Manns Beach		79	442	442					79	3%	69%
11	Woodside Beach		109	441	441			55	36	18	3%	72%
12	Cowwarr		81	397	397			30	31	20	3%	75%
13	Robertsons Beach		65	364	364					65	2%	77%
14	Dargo	Mitchell	45	283	283			12	3	30	2%	79%
15	Rosedale		75	267	267		1	48	2	24	2%	81%
16	Heyfield		90	225	231			85	4	1	2%	83%
17	Langsborough		41	230	230					41	2%	84%
18	Newry		47	221	221			2	36	9	1%	86%
19	Maffra		88	219	219			88			1%	87%
20	Coongulla	Macalister	34	164	196	1			24	9	1%	88%
21	Woodside		69	182	182			65	4		1%	90%
22	Boisdale		28	157	157					28	1%	91%
23	Tinamba		26	139	139			2		24	1%	92%
24	Sale		39	128	128			34	2	3	1%	93%
25	Devon North		47	122	122			47			1%	93%
26	Carrajung		28	113	113			19	6	3	1%	94%
27	Seaton		39	108	108			37		2	1%	95%
28	Gormandale	Merrimans	39	101	101		2	36	1		1%	96%
29	Tarraville		17	95	95					17	1%	96%
30	Munro		28	88	88			24	3	1	1%	97%
31	Yarram		28	80	77	1		25	1	1	1%	97%
32	Won Wron		25	75	75			22	3		1%	98%
33	Licola	Macalister	16	74	74			10	3	3	1%	98%
34	Hollands Landing		16	70	70				14	2	0%	99%
35	Seaspray		22	54	54			22			0%	99%
36	Kilmany		12	35	35			12			0%	99%
37	Glengarry		10	28	28			9		1	0%	100%
38	Myrtlebank		11	28	28			11			0%	100%
39	Pearsondale		7	18	18			7			0%	100%
40	Alberton		4	16	16			2		2	0%	100%
41	Port Albert		1	5.6	0	1					0%	100%

Figure 8-3. Property risk for unsewered properties in Golden Beach, and The Honeysuckles.

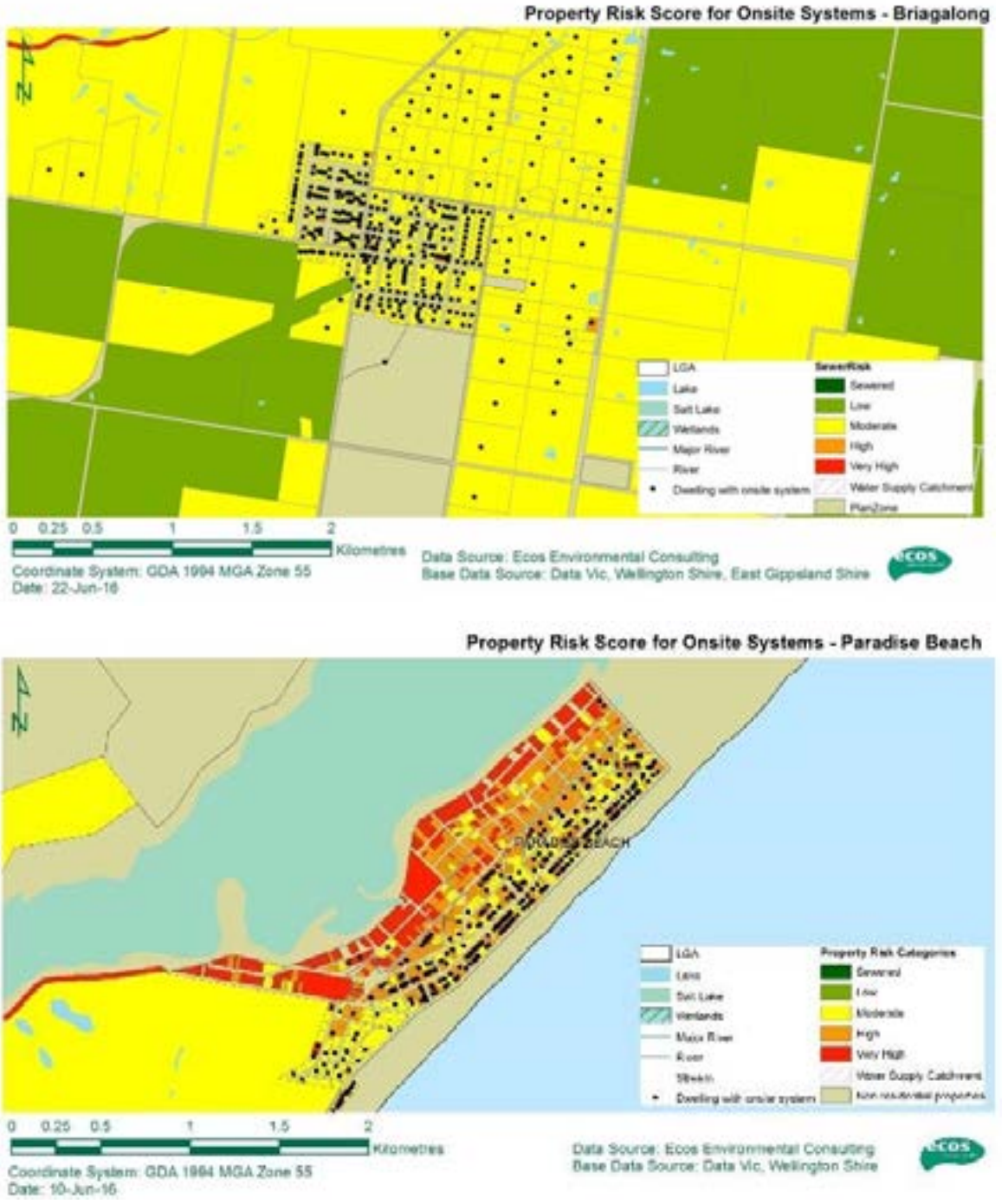

Figure 8-4. Property risk for unsewered properties in Briagalong and Paradise Beach

8.3.1.2. East Gippsland Shire

The distribution of onsite system risk was more evenly distributed amongst East Gippsland Shire townships compared to Wellington Shire (Table 8-11). Here approximately 50% of the total risk was accounted for by 9 towns: Nicholson, Metung, Buchan, Sarsfield, Nungurner, Wy Yung, Bruthen, Lucknow and Swan Reach.

These towns are all located in the catchments of the Gippsland Lakes or Lake Tyers and most lie lower down in the catchment close to the lakes where soils tend to be sandy and the water table is relatively close to the surface.

Table 8-11. East Gippsland Shire townships sorted by sum of groundwater and surface water risk. Towns located in declared water supply catchments are listed. Township risk = number of dwellings in each risk category multiplied by its property risk rating in GRZ1, MUZ, TZ, LDRZ and RLZ. Dwellings with onsite systems in sewered areas were categorised according to their risk rating for Current Score, and assumed to have a risk of 0 for the Sewer Infilled Score. Township risk was ranked was according to the sewer infilled score.

Risk rank within Shire	Township	DWSC	# OWMS	Current Risk Score	Sewer Infilled Risk Score	Number of properties with OWMS in each risk category					Proportion of Total	Running Total
						Sewered Area	Low	Moderate	High	Very High		
1	Nicholson		290	678	678		42	244	4		8%	8%
2	Metung		136	542	542		1	81	30	24	6%	14%
3	Buchan		99	515	515		11	16	18	54	6%	19%
4	Sarsfield		169	485	485		2	154	10	3	5%	25%
5	Nungurner		101	474	474		4	41	23	33	5%	30%
6	Wy Yung		156	467	467			140	10	6	5%	35%
7	Bruthen		124	414	414		3	99	11	11	5%	40%
8	Lucknow		149	404	404			142	7		4%	44%
9	Swan Reach		128	401	401			99	27	2	4%	49%
10	Toorloo Arm		124	360	360		2	114		8	4%	53%
11	Nowa Nowa		86	343	343		2	43	30	11	4%	57%
12	Lakes Entrance		121	349	301	19		91	10	1	3%	60%
13	Swifts Creek		76	258	258		13	45	11	7	3%	63%
14	Lindenow South		75	246	246			69	6		3%	66%
15	Newlands Arm		75	230	230			65	4	6	3%	68%
16	Newmerella		72	229	229			61	10	1	3%	71%
17	Wiseleigh		66	229	229		1	50	11	4	3%	73%
18	Eagle Point		84	230	224	2	9	64	7	2	2%	76%
19	Benambra	L Hume	49	189	189		7	16	22	4	2%	78%
20	Raymond Island		66	221	174	13		41	2	10	2%	80%
21	Granite Rock		55	137	137			55			2%	81%
22	Ellaswood		53	135	135		3	49	1		1%	83%
23	Mount Taylor		42	123	123			38	3	1	1%	84%
24	Bendoc		33	120	120			21	12		1%	85%
25	Ensay		22	111	111		1	5	5	11	1%	87%
26	Gipsy Point		34	110	110		5	25	2	2	1%	88%
27	Tambo Upper		48	109	109		15	32	1		1%	89%
28	Walpa		26	96	96		3	14	9		1%	90%
29	Lake Tyers Beach		39	100	95	2		36	1		1%	91%
30	Lindenow		31	87	87			30	1		1%	92%
31	Cobungra		22	79	79		1	15	2	4	1%	93%
32	Bumberrah		28	76	76			26	2		1%	94%
33	East Bairnsdale		15	65	65			8	2	5	1%	95%
34	Lake Bunga		32	93	65	8		24			1%	95%
35	Club Terrace	Bemm R	15	62	62		1	10	2	2	1%	96%
36	Kalimna		39	124	54	27		6	2	4	1%	97%

Risk rank within Shire	Township	DWSC	# OWMS	Current Risk Score	Sewer Infilled Risk Score	Number of properties with OWMS in each risk category					Proportion of Total	Running Total
						Sewered Area	Low	Moderate	High	Very High		
37	Boole Poole		33	44	44		25	8			0%	97%
38	Cabbage Tree Creek		9	41	41			3	5	1	0%	98%
39	Fernbank		13	40	40			11	2		0%	98%
40	Genoa		6	35	35			1		5	0%	98%
41	Marlo		13	32	32			13			0%	99%
42	Orbost		8	28	28			6		2	0%	99%
43	Bullumwaal		7	28	28		1	3		3	0%	99%
44	Bairnsdale		11	29	22	2		9			0%	100%
45	Omeo	L Hume	3	14	14			1	1	1	0%	100%
46	Hillside		5	12	12			5			0%	100%
47	Kalimna West		2	6	6			2			0%	100%
48	Johnsonville		1	2	2			1			0%	100%

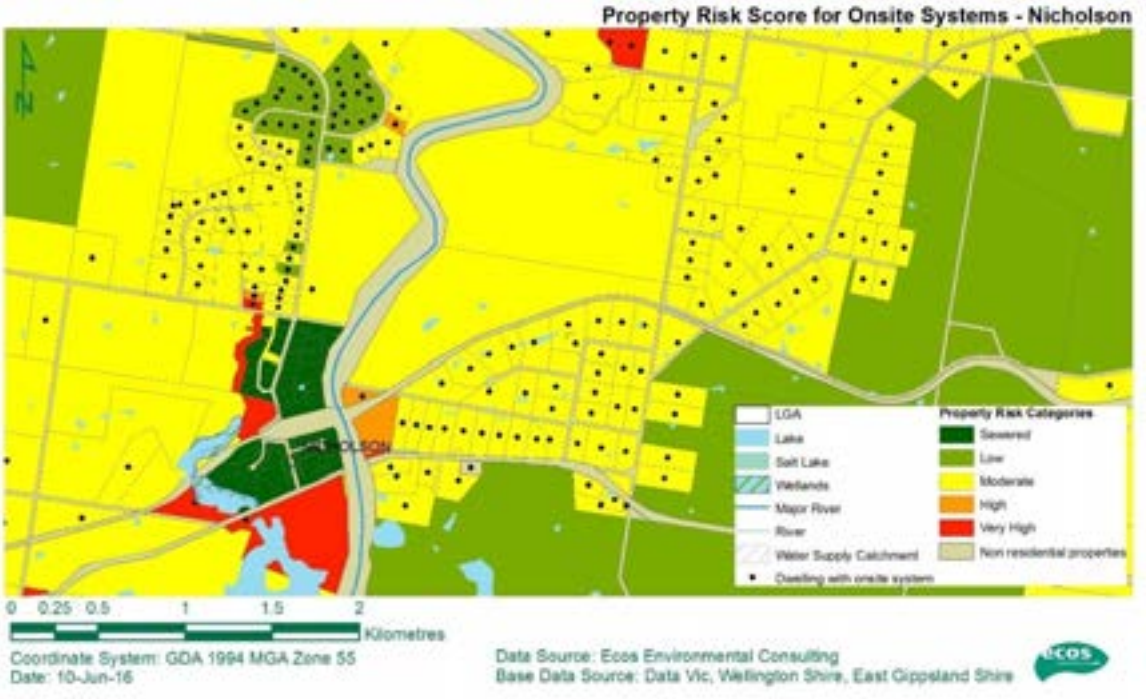

Figure 8-5. Property risk for unsewered properties in Nicholson and Metung

Figure 8-6. Property risk for unsewered properties in Buchan and Sarsfield

8.3.1.3. Declared water supply catchments

The acceptable housing density within a Declared Water Supply Catchment (DWSC) is 1:40 ha except for planning zones where a permit is not required to erect a dwelling. The main clusters of houses exceeding the density limit of 1:40 ha within the relevant planning zones are located at Gormandale and Glenmaggie/Coongulla (Table 8-12, Figure 8-7) while smaller clusters occur at Dargo and Benambra (Figure 8-8 to Figure 8-15). These areas are a priority for compliance assessments.

Table 8-12. Water supply catchments (WSC) within each Shire. With the exception of Maffra and Heyfield, all the catchments are Declared Water Supply Catchments (DWSC).

Density	Declared Water Supply Catchments	Number of unsewered houses not complying with maximum allowed density (1 house in 40 ha)	Planning Zone exceeding the DWSC density Onsite systems in non-residential and township planning zones were not included in this assessment
East Gippsland DWSCs 1: 40 ha	Bemm River	0 (of 20)	--
	Brodribb River	0 (of 10)	--
	Buchan River	0 (of 4)	--
	Cann River	2 (of 35)	FZ1 near Cann River
	Lake Hume	40 (of 160)	18 in FZ1 near Omeo and Glen Valley, 22 in RLZ3 in Cobungra
	Mitchell River	0 (of 3)	--
	Tambo River	10 (of 33)	FZ1 near Swifts Creek
Wellington DWSCs 1: 40 ha	Agnes River	0 (of 9)	--
	Macalister River	136 (of 169)	11 in FZ, 12 in RCZ1 and 113 in RLZ2, mainly in Glenmaggie and Coongulla
	Merrimans Creek	97 (of 193)	15 in RLZ2 at Gormandale*, 82 in FZ near Stradbroke, Willung, Willung South, Gormandale and Calignee North
	Mitchell River	22 (of 71)	19 in FZ, 3 in RLZ2, all in and around Dargo
	Tarra River	0 (of 11)	--

* At the time of writing, 12 lots on north Calladale Court that were incorrectly zoned RLZ2 are under review and expected to be changed to TZ.

The data in Table 8-12 for each DWSC is for the entire catchment. To further prioritise onsite systems for compliance assessment, the township areas in each DWSC were selected from the risk assessment using GIS query tools (Table 8-13). Onsite systems in these towns can be considered to have the highest priority for compliance assessment.

Table 8-13. Towns in declared water supply catchments sorted by onsite system risk.

Risk rank within Shire	Township	DWSC	# OWMS	Current Risk Score	Sewer Infilled Risk Score	Number of properties with OWMS in each risk category					Proportion of Total
						Sewered Area	Low	Moderate	High	Very High	
Wellington Shire											
7	Glenmaggie	Macalister R	96	437	553	1		7	61	27	4%
14	Dargo	Mitchell R	45	283	283			12	3	30	2%
20	Coongulla	Macalister R	34	164	196	1			24	9	1%
28	Gormandale	Merrimans Ck	39	101	101		2	36	1		1%
33	Licola	Macalister R	16	74	74			10	3	3	1%
East Gippsland Shire											
19	Benambra	L Hume	49	189	189		7	16	22	4	2%
35	Club Terrace	Bemm R	15	62	62		1	10	2	2	1%
45	Omeo	L Hume	3	14	14			1	1	1	0%

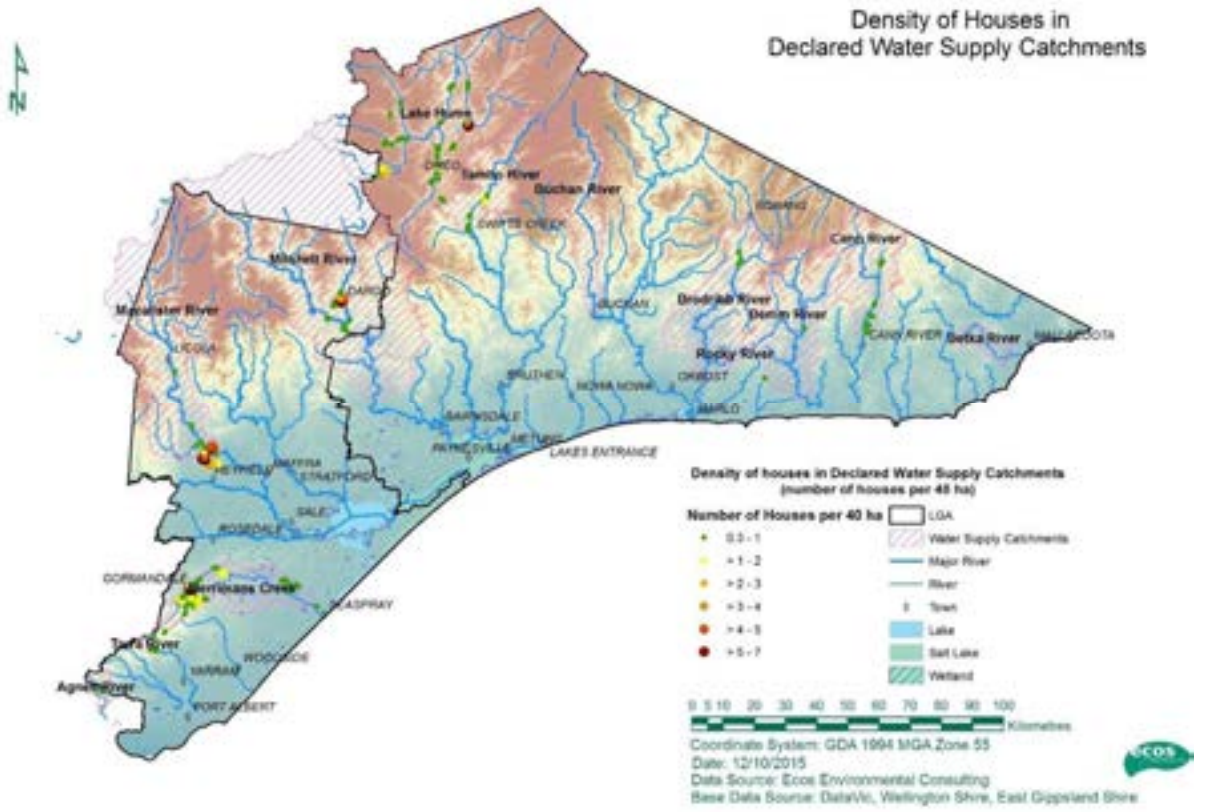

Figure 8-7. Density of houses in water supply catchments.

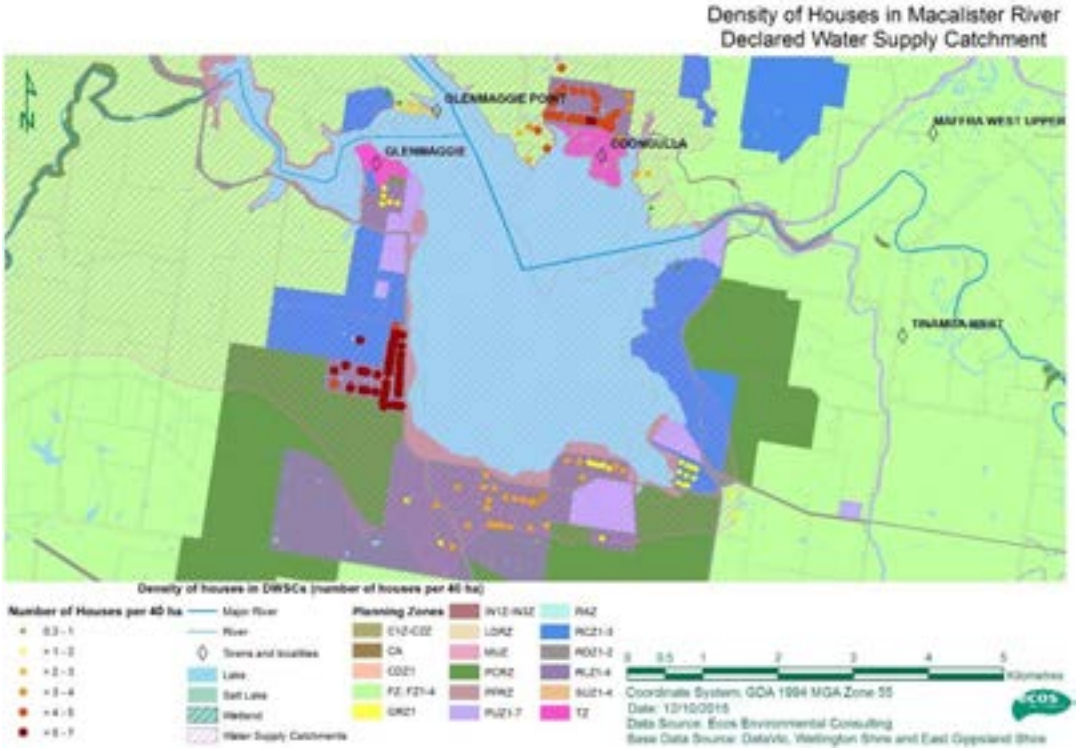

Figure 8-8. Density of unsewered houses (excluding TZ) in the Macalister River Declared Water Supply Catchment around Lake Glenmaggie.

Figure 8-9. Risk for unsewered properties in the Macalister River Declared Water Supply Catchment around Lake Glenmaggie.

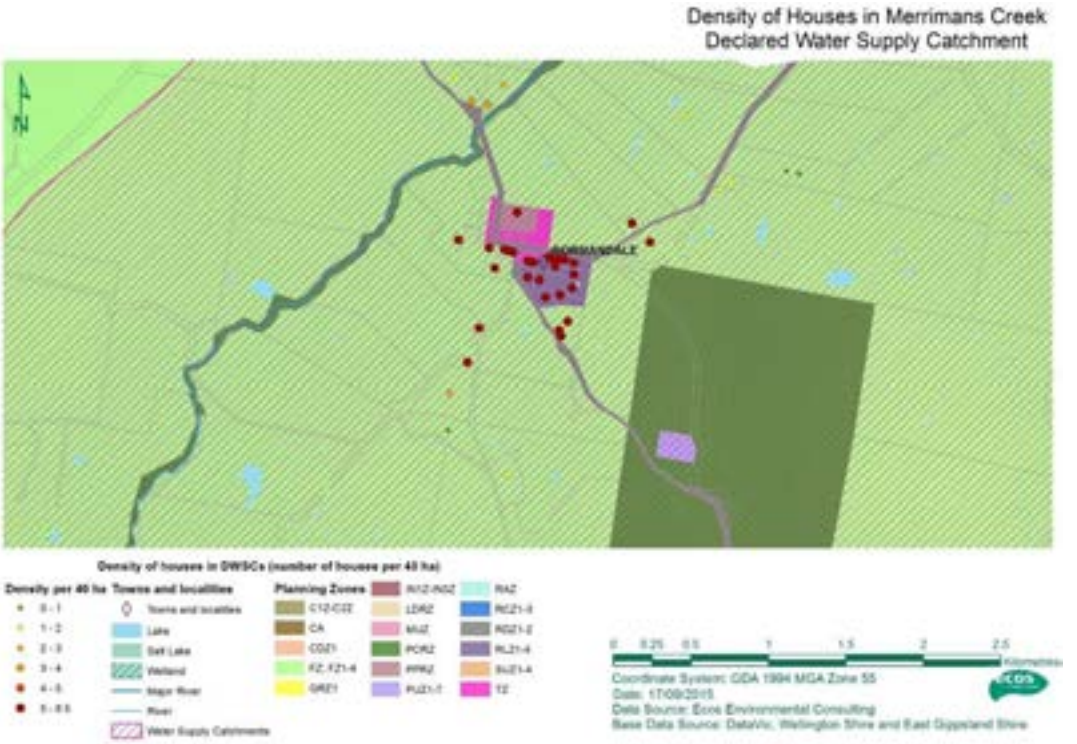

Figure 8-10. Density of unsewered houses (excluding TZ) in the Merrimans Creek Declared Water Supply Catchment at Gormandale.

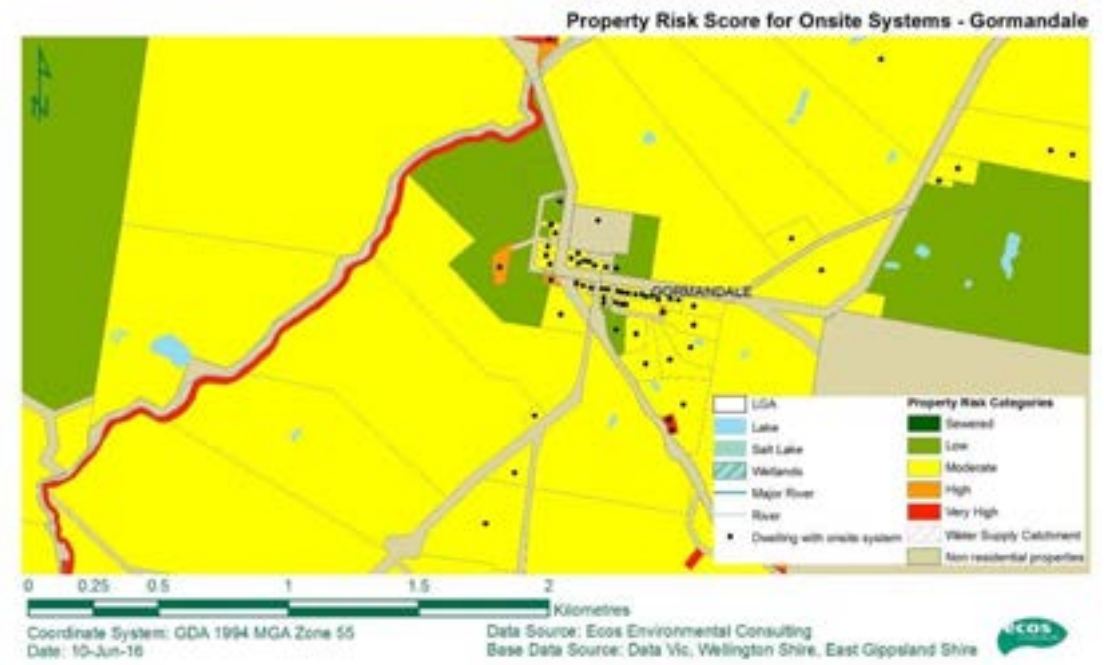

Figure 8-11. Risk for unsewered properties in the Merrimans Creek Declared Water Supply Catchment at Gormandale.

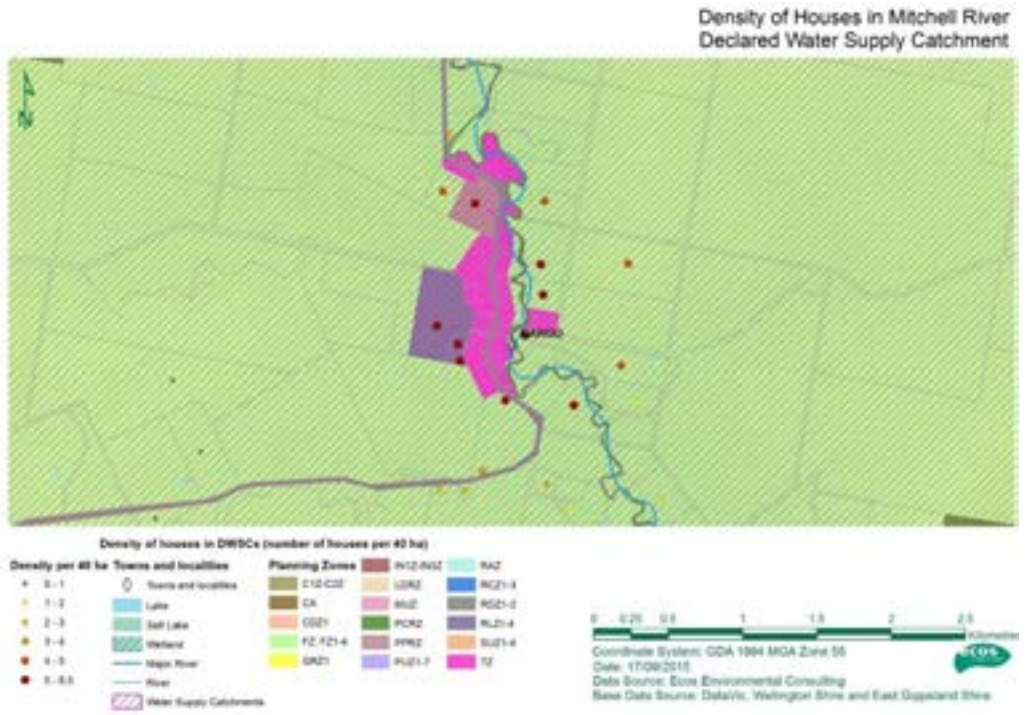

Figure 8-12. Density of unsewered houses (excluding TZ) in the Mitchell River Declared Water Supply Catchment at Dargo.

Figure 8-13. Risk for unsewered properties in the Mitchell River Declared Water Supply Catchment at Dargo.

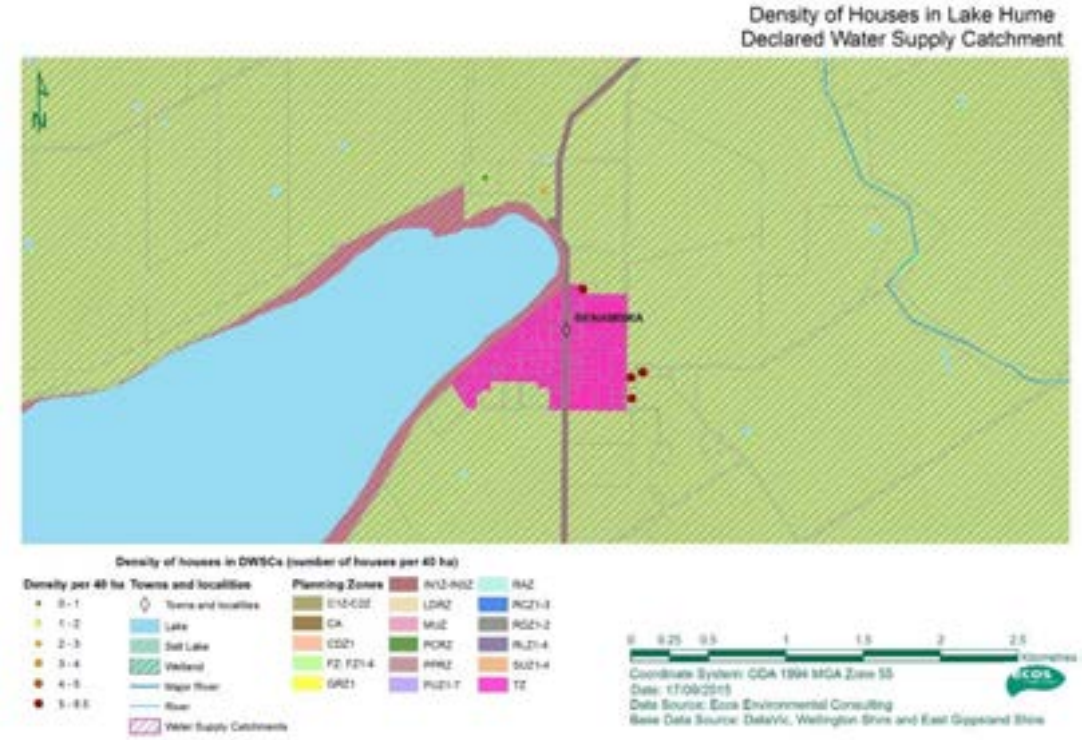

Figure 8-14. Density of unsewered houses (excluding TZ) in the Lake Hume Declared Water Supply Catchment at Benambra.

Figure 8-15. Risk for unsewered properties in the Lake Hume Declared Water Supply Catchment at Benambra.

8.4. Summary - high, medium and low priority areas

The risk mapping exercise described in the previous sections can be used to set broad priorities for the protection of catchment water quality including declared water supply catchments. The Ministerial Guidelines were designed to assist in the protection of open, potable water supply catchment areas and set out the requirements for DWMPs. Thus high risk houses in the declared water supply catchments should be rated as having the highest priority for compliance monitoring and require the highest degree of oversight. High risk houses outside of the declared water supply catchments should be rated a medium priority along with medium risk houses inside the water supply catchments. All other properties can be considered low priority unless site specific matters not addressed in the risk assessments dictate that they should be treated as a higher priority.

Table 8-14. Priorities for compliance monitoring

Priority for compliance monitoring	Description
High	• High risk houses in the declared water supply catchments • Properties less than 1km upstream from a drinking water supply reservoir
Medium	• High risk houses outside of declared water supply catchments • Medium risk houses inside of declared water supply catchments
Low	• All other properties (unless site specific matters not addressed in the risk assessments dictate that they should be treated as a higher priority)

8.5. Wellington Shire Growth Areas

8.5.1. Longford

Longford is highly valued by its community for the rural residential lifestyle it offers, within close proximity to the services and facilities of Sale. The settlement has been identified in the Sale Wurruk and Longford Structure Plan (Wellington Shire Council 2010) as its main growth area for rural lifestyle living. Sale Common, part of the Gippsland Lakes Ramsar listed wetlands, is located directly north of Longford. The

Longford Development Plan (Wellington Shire Council 2015) sets out the framework for approximately 500 to 700 rural living lots with an average lot size of 8,000 m^2 (Table 8-15).

The Development Plan was adopted by Council in 2015. Prior to development further detailed background work will be required to be completed on the 11 precincts described in the plan.

Longford has two areas where intensification of residential densities might be optional subject to the appropriate sewerage provisions. The first area is the golf course; 300 lots can be developed on this site subject to appropriate sewerage. The town core, roughly between the Longford Hall and the Primary School has also been identified as having the potential for a more intensified residential use subject to reticulated sewerage provisions over the longer term.

8.5.1.1. Estimating increase in risk from future development

The current average risk per dwelling, calculated using the OWMS risk scores, was used to estimate the likely risk per future dwelling (Table 8-15). With increased density if rezoning occurs, the total risk for the town will greatly increase due to the extra dwellings. The predicted future total risk in the absence of reticulated sewerage or other risk management measures is 1,689 which would place it ahead of Golden Beach within Wellington Shire in terms of onsite wastewater system risk.

Note that although the flow distance to the nearest waterway is a key risk factor, it does not take into account the fact that the nearby wetland, Sale Common, is a high conservation value wetland of international significance (listed under the International Ramsar Convention). This fact should also be considered when planning for future wastewater management at Longford.

Table 8-15. Estimated future development for Longford and associated risk estimates if unsewered.

Zone	Current number of properties with onsite systems have per risk category	Current number of properties that could potentially an onsite system per risk category	Proposed Redevelopment Change	Current Risk	Likely Risk – FZ rezoned to RLZ5, TZ unsewered	Likely Risk - FZ rezoned to RLZ5, TZ & CDZ1 sewered
TZ	Mod - 25 High - 24 Very High - 9	Mod - 2 High - 4 Very High - 1	Sewer and upgrade to GR1Z	Current town risk = 849 (TZ+CD1Z+RLZ1) Current town risk = 1,068 (above plus FZ area marked for rezoning to RLZ5)	Likely town risk if FZ is rezoned to RLZ5 and TZ remains unsewered = 2,187	Likely town risk if all proposed development occurs and TZ is sewered within CDZ1 = 1,893 If half of RLZ also sewered in addition to TZ and CD1Z = 980 If all of RLZ also sewered in addition to TZ and CD1Z = 0
CD1Z		0	Sale Golf Course Plan is for 300 sewered dwellings			
RLZ1	Mod - 234 High – 2 Very High - 1	Mod - 33 High - 2 Very High - 4				
FZ in area marked for rezoning to RLZ5	Mod - 81 High - 1	Low - 2 Mod - 15 Very High - 13	Rezone FZ to RLZ5, taking property count to approx. 600			

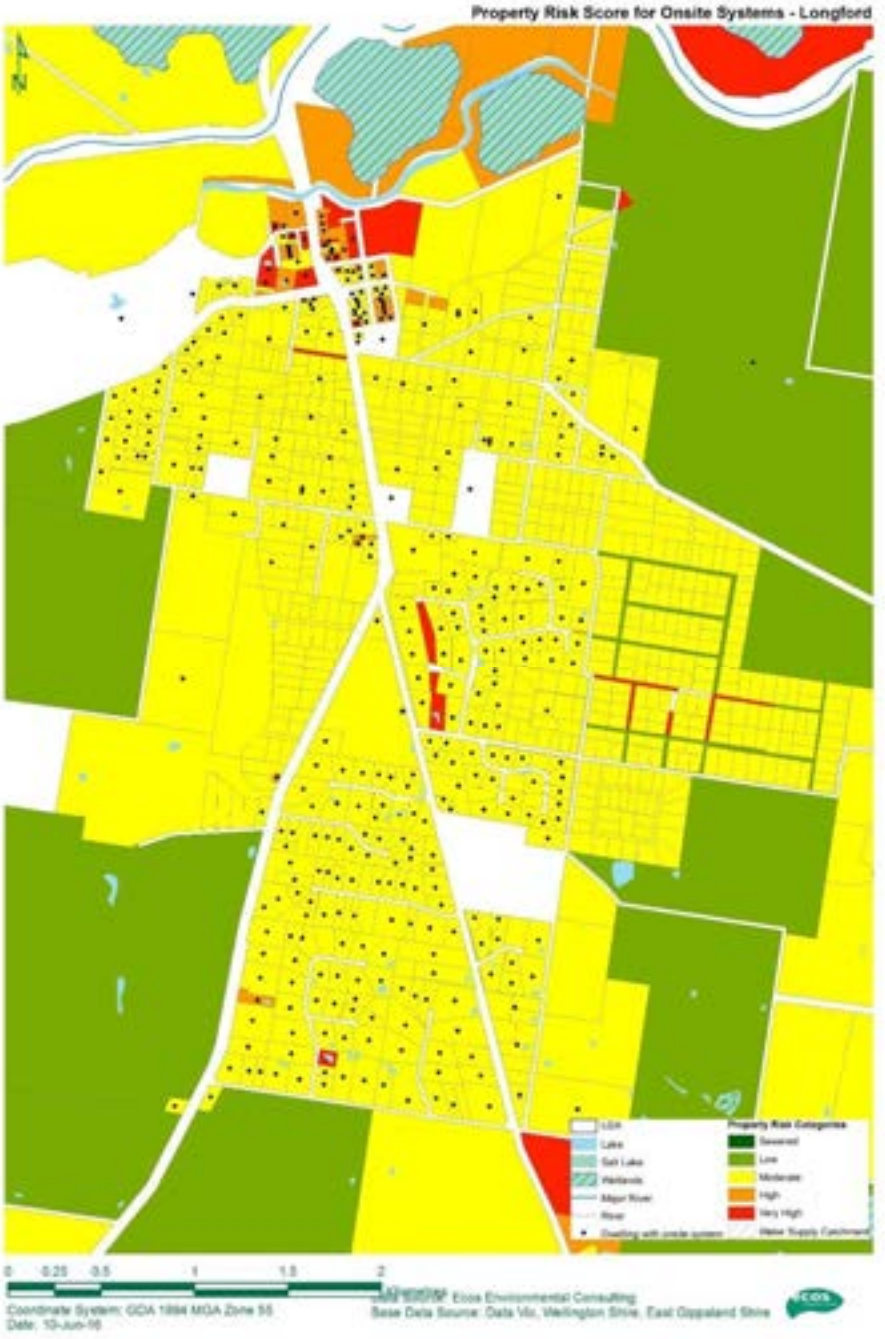

Figure 8-16. Property risks for unsewered properties in Longford, assuming FZ rezoned to RLZ5 and TZ not sewered. Dots show approximate locations of currently unsewered dwellings. Please note that the proposed properties and subdivisions identified in this map as a part of the Longford Development Plan have not been approved. They are potential opportunities only. Contact with Council should be made to gain the most up to date information on specific properties.

8.5.2. The Rural Living Areas

Wellington Shire has 58 areas with a Rural Living Zone applied. Within the 58 areas there are 1780 parcels. The Rural Living Zones have minimum subdivisions sizes identified ranging from 0.6 Ha to 4 Ha. The minimum lot size for a house to be built on a lot is 0.4 Ha.

Most Rural Living Zone areas are in close proximity of a township. Significant rural lifestyle areas can be found in Longford, Briagolong, Stratford, Maffra, Rosedale and north of Heyfield (including Seaton and around Lake Glenmaggie).

Not all Rural Living areas are fully developed. Of those, land within Rosedale and Heyfield has recently been rezoned for rural living purposes in response to anticipated pressure for growth.

8.5.3. Coastal towns

All coastal settlements in the Wellington Shire are subject to a Settlement Boundary Plan, which is reflected in the local policy within the Planning Scheme and the zones applied. Outside the settlement boundary development is restricted due to the vulnerability of the coastal area and environmental constraints. The township's main function is for tourism and to provide for holiday houses. There will be limited growth in these settlements - all within the existing town boundaries (although in Golden Beach around 50% of the blocks are vacant).

8.5.4. Growth area risk assessment

Based on the approach used for Longford in Section 8.5.1.1, the risk assessment scores were estimated for potential future dwellings for all Wellington Shire unsewered localities. The change in total risk was then calculated and is presented for each township in Table 8-16, and displayed graphically for the 25 top ranked townships (ranked by amount of change in risk) in Figure 8-17.

For Wellington Shire the growth in future onsite wastewater risk is dominated by Golden Beach and followed by Longford due to the reasons described in Section 8.5.1. The figure was constructed assuming full development consistent with existing growth plans. Under this scenario, Longford accounts for around 11% of the future risk growth for the Shire.

Table 8-16. Estimated change in risk from onsite wastewater management systems due to potential future development for Wellington Shire townships. Towns show in grey font are sewered to various degrees. OWMS = Onsite Wastewater Management Systems.

Township	Current Risk	Sewer Infill risk	Potential Risk ~	Current # OWMS	Potential # OWMS	Potential new # OWMS ~	Total Risk Change
Alberton (sewered)	16	16	482	4	100	96	466
Boisdale	157	157	168	28	30	2	11
Briagolong	1368	1368	1498	414	459	45	130
Carrajung	113	113	124	28	31	3	11
Coongulla (sewered)	164	196	259	34	42	8	64
Cowwarr	397	397	437	81	92	11	40
Dargo	283	283	376	45	61	16	93
Devon North	122	122	135	47	52	5	13
Glengarry	28	28	34	10	11	1	6
Glenmaggie (sewered)	437	553	695	96	117	21	142
Gormandale	101	101	101	39	39		
Heyfield (sewered)	225	231	462	90	168	78	231
Hollands Landing	70	70	120	16	28	12	50
Kilmany	35	35	40	12	14	2	5
Langsborough	230	230	249	41	45	4	19
Licola	74	74	74	16	16	0	0
Loch Sport(sewered)							
** Longford (no development)*	849	849	1003	295	341	46	153
** Longford (including area of FZ to be rezoned in proposed development) with rezoned FZ-> RLZ5*	1068	1068	1893	377	979	602	825
Maffra (sewered)	219	219	271	88	107	19	52
Manns Beach	442	442	450	79	81	2	8
McLoughlins Beach	963	963	1002	172	179	7	39
Moornapa			5		2	2	5
Munro	88	88	90	28	29	1	2
Myrtlebank	28	28	33	11	12	1	5
Newry	221	221	229	47	49	2	8
Ninety Mile Beach: Golden Beach ^	2276	2276	4359	493	931	436	2082
Ninety Mile Beach: Paradise Beach ^	1281	1281	1963	286	429	143	682
Ninety Mile Beach: The Honeysuckles	1495	1495	1551	268	278	10	56
Pearsondale	18	18	18	7	7		
Port Albert (sewered)	6	0	0	1	1		
Robertsons Beach	364	364	370	65	66	1	6
Rosedale (sewered)	267	267	322	75	87	12	55
Sale (sewered)	128	128	166	39	48	9	38
Seaspray (sewered)	54	54	88	22	33	11	34
Seaton	108	108	224	39	80	41	117
Stratford (sewered)	470	463	529	183	210	27	65
Tarraville	95	95	101	17	18	1	6
Tinamba	139	139	162	26	30	4	22
Won Wron	75	75	82	25	27	2	7
Woodside	182	182	199	69	76	7	17
Woodside Beach	441	441	463	109	114	5	22
Wurruk (sewered)	494	488	600	181	215	34	112
Yarram (sewered)	80	77	84	28	31	3	7

* Longford has been listed here twice - once without proposed redevelopment and one with full redevelopment (Longford Redevelopment).
^ For Golden Beach and Paradise Beach, in some cases a dwelling can be built on 1 lot, in other cases; 4 lots should be in the same ownership before land can be developed (WSC Ninety Mile Plan 2015). Therefore, the vacant lots have been calculated on the assumption that an average of half could have a new OWMS.
~The number of potential new OWMS has assumed that none are installed where the land has been identified as being within a sewered area

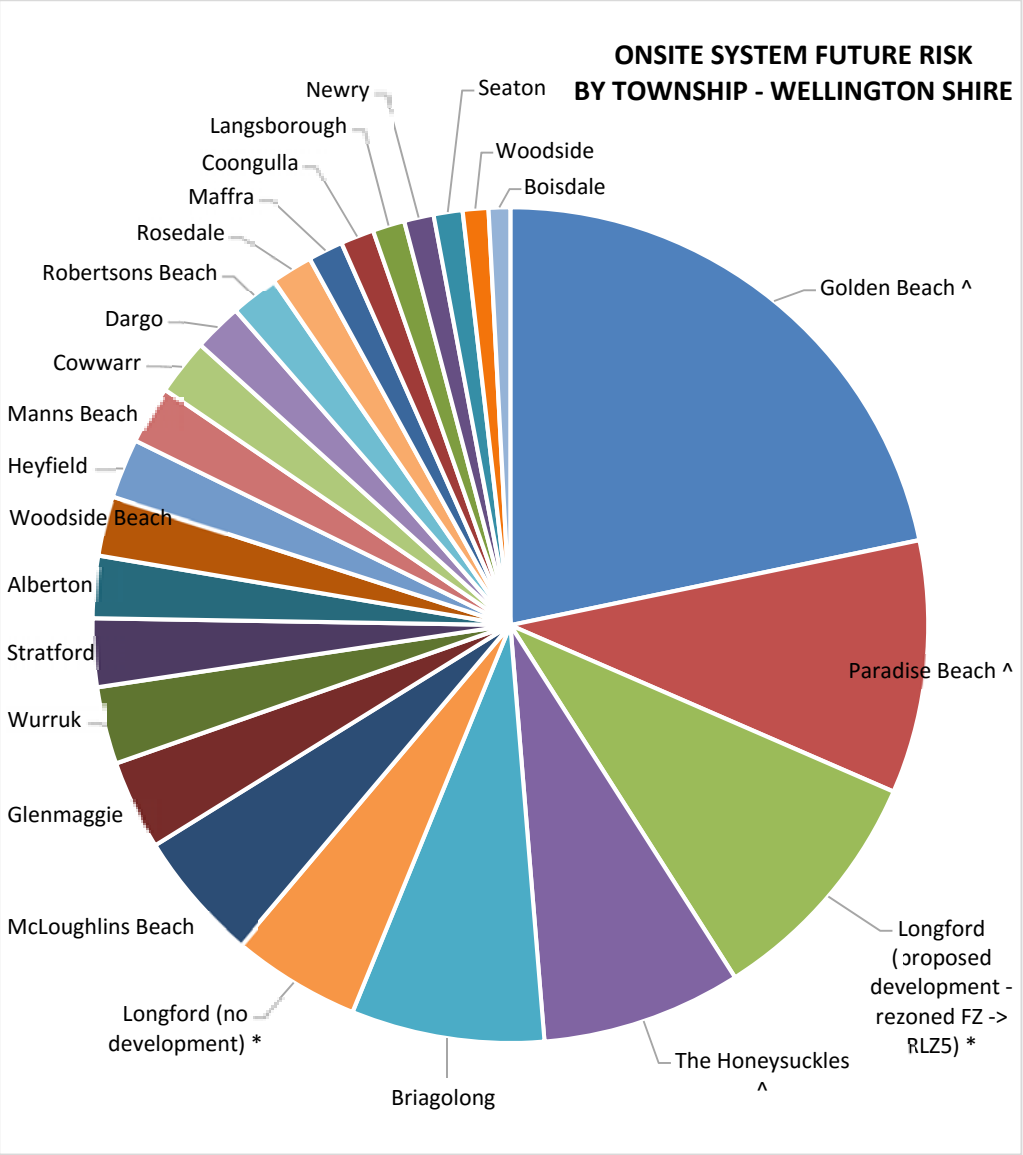

*Figure 8-17. Potential future risk from onsite wastewater management system development by township – Wellington Shire. The top 25 localities are shown. * Longford is shown in the graph twice, once for if no development occurs and once for full proposed development. ^ Towns on the Ninety Mile Beach.*

8.6. East Gippsland Shire Growth Areas

Using the method described in sections 8.5.1.1 and 8.5.4, a growth area risk assessment was conducted for East Gippsland Shire. The calculated change in total risk is presented for each township in Table 8-17, and displayed graphically for the 25 top ranked townships (ranked by amount of change in risk) in Figure 8-18.

The data in Table 8-17 was constructed assuming:

- that GRZ is sewered;
- that TZ where no onsite wastewater management systems locations were provided are also sewered; and
- that all LDRZ and RLZ are unsewered, with the exception of the LDRZ to the west of Metung which is known to be sewered.

For East Gippsland Shire the growth in future onsite wastewater risk is to the north of Bairnsdale at Wy Yung, with a spread of similar risk across a number of towns (Figure 8-18).

Table 8-17. Estimated change in risk from onsite wastewater management systems due to potential future development for East Gippsland Shire townships. Towns shown in grey font are sewered to various degrees. OWMS = Onsite Wastewater Management Systems.

Township	Current Risk	Sewer Infill Risk	Potential Risk ~	Current # OWMS	Potential # OWMS	Potential new # OWMS ~	Total Risk Change
Bairnsdale Area							
Bairnsdale (sewered)	29	22	902	11	238	227	880
East Bairnsdale (sewered)	65	65	113	15	34	19	48
Ellaswood	135	135	185	53	70	17	50
Granite Rock	137	137	162	55	65	10	25
Lucknow (sewered)	404	404	567	149	209	60	163
Mount Taylor	123	123	179	42	64	22	56
Wy Yung (sewered)	467	467	1106	156	354	198	639
Other East Gippsland townships							
Bemm River (sewered)	0	0	430	0	102	102	430
Benambra	189	189	410	49	104	55	221
Bendoc	120	120	186	33	52	19	67
Boole Poole	44	44	58	33	46	13	14
Bruthen (sewered)	414	414	764	124	209	85	350
Buchan	515	515	661	99	133	34	146
Bullumwaal	28	28	94	7	22	15	65
Bumberrah	76	76	95	28	34	6	19
Cabbage Tree Creek	41	41	53	9	11	2	12
Cann River (sewered)	0	0	12	0	4	4	12
Club Terrace	62	62	263	15	52	37	201
Cobungra	79	79	113	22	32	10	34
Eagle Point (sewered)	230	224	482	84	176	92	258
Ensay	111	111	141	22	30	8	30
Fernbank	40	40	78	13	24	11	38
Genoa	35	35	54	6	10	4	19
Gipsy Point	110	110	134	34	41	7	23
Hillside	12	12	24	5	10	5	12
Johnsonville (sewered)	2	2	72	1	20	19	70
Kalimna (sewered)	124	54	80	39	47	8	26
Kalimna West	6	6	6	2	2	0	0
Lake Bunga (sewered)	93	65	69	32	33	1	4
Lake Tyers Beach (sewered)	100	95	108	39	43	4	13

Township	Current Risk	Sewer Infill Risk	Potential Risk ~	Current # OWMS	Potential # OWMS	Potential new # OWMS ~	Total Risk Change
Lakes Entrance (sewered)	349	301	450	121	176	55	149
Lindenow (sewered)	87	87	119	31	43	12	33
Lindenow South	246	246	350	75	109	34	104
Mallacoota (sewered)	0	0	417	0	141	141	417
Marlo (sewered)	32	32	314	13	128	115	282
Metung (sewered)	542	542	1401	136	362	226	858
Newlands Arm (sewered)	230	230	368	75	118	43	138
Newmerella	229	229	276	72	88	16	47
Nicholson (sewered)	678	678	770	290	324	34	91
Nowa Nowa	343	343	500	86	127	41	157
Nungurner	474	474	599	101	132	31	125
Omeo (sewered)	14	14	225	3	64	61	211
Orbost (sewered)	28	28	188	8	59	51	160
Paynesville (sewered)	0	0	527	0	77	77	527
Raymond Island (sewered)	221	174	253	66	96	30	80
Sarsfield	485	485	635	169	220	51	149
Swan Reach (sewered)	401	401	1329	128	343	215	928
Swifts Creek	258	258	288	76	85	9	30
Tambo Upper	109	109	128	48	56	8	19
Toorloo Arm	360	360	510	124	178	54	150
Walpa	96	96	118	26	33	7	22
Wiseleigh	229	229	273	66	80	14	44

~The number of potential new OWMS has been determined assuming that none are installed where the land has been identified as within a sewered area.

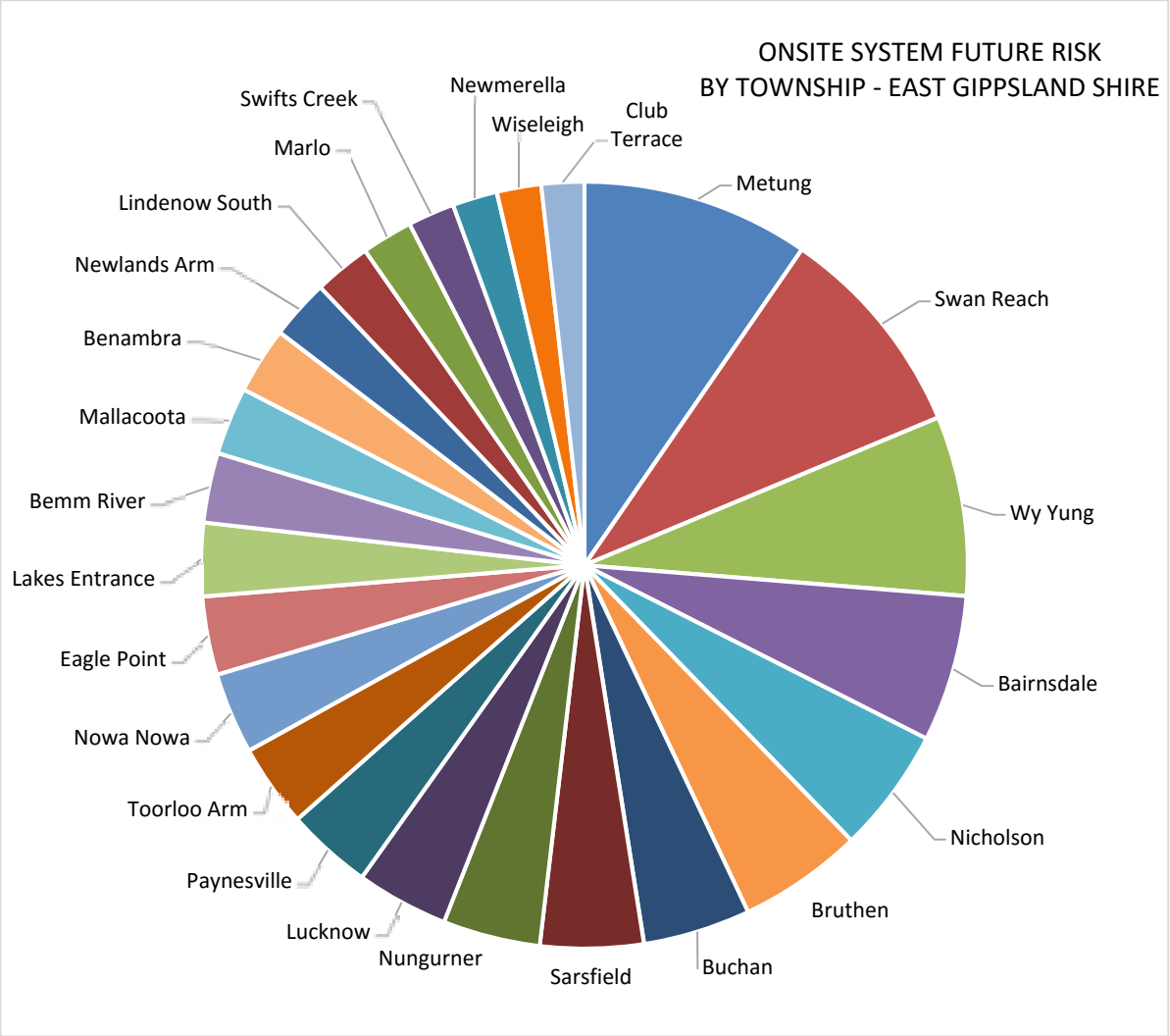

Figure 8-18. Potential future risk from onsite wastewater management system development by township – East Gippsland Shire. The top 25 localities are shown.

8.7. Reporting and periodic review

Key requirements of this DWMP are listed in the Ministerial Guidelines (see also Appendix 1). The Ministerial Guidelines specify that onsite wastewater treatment systems be effectively monitored for their condition and management and that the results of monitoring be provided to stakeholders as agreed by the relevant stakeholders. Stakeholders for this DWMP are listed in Section 6.

It is a recommendation of this DWMP that an annual report be sent to stakeholders describing:

- the results of onsite wastewater management system compliance monitoring;
- enforcement action where non-compliance is identified; and
- annual meetings may be held with stakeholders on an as needs basis.

Monitoring of onsite wastewater treatment systems for their condition and management should include compliance by permit holders with relevant permit conditions and the EPA *Code of Practice – Onsite Wastewater Management* (EPA Victoria 2013).

Implementation of the DWMP is to be subject to an independent audit by an accredited auditor (water corporation approved), including of monitoring and enforcement, every 3 years. The results of audit should be provided to stakeholders as soon as possible after the relevant assessment.

According to the Ministerial Guidelines, Councils are required to demonstrate that suitable resourcing for implementation, including monitoring, enforcement, review and audit, is in place. It is understood that

resourcing is unlikely to be available for assessments of all onsite wastewater treatment systems, however the risk assessment conducted for this DWMP has identified a short-list of systems that are a high priority for assessment. These systems should form the focus of compliance monitoring in the first instance.

The DWMP is to be reviewed and updated (if necessary) every 5 years, therefore the next review should be 2021. Steps involved in the review include:

- Convening of a project management team;
- Gathering necessary information, including onsite wastewater management system data for each town. Refer to Action Plans for relevant monitoring indicators;
- Revision of risk assessments for each town/area and create a new list of priorities for improved domestic wastewater management;
- Revision of action plans for the next five years of implementation; Seeking Council approval and adoption of plan in each Shire.

9 Risk management

9.1. Actions Plans

The 2006 DWMP included an ambitious list of actions which was based on a comprehensive review and stakeholder consultation process. Although many of the major items listed were successfully closed off during the operational lifetime of the plan, there remained a number that could not completed and have been carried over to the 2016 plan.

Furthermore, based on a review of actions conducted for the current plan, some actions have been identified as no longer being relevant or a priority due to changing circumstances and improved risk analysis information, and some new action items have been identified. Action items for the next five years are listed in this chapter. A list of closed-off action items from the 2006 DWMP is contained in **Appendix 4**.

9.1.1. Summary of Strategic Objectives

Each action plan is based on one or more strategic objectives. These are summarised in Table 9-1 and Table 9-2.

Table 9-1. Municipality Wide Strategic Objectives from the 2006 DWMP (all continued on 2016 plan)

No.	Description	Continued for 2016 DWMP
1.	The WSC and EGSC commit to entering into a Memorandum of Understanding (MoU) with the relevant water corporations that will clearly articulate the following: 1. The level of resources to be allocated to the plan implementation. The allocation of resources to support approval, compliance and maintenance auditing will take into consideration: - the level of support relevant water corporations can provide – the risk profile of the property 2. The associated process that support outcome (1) 3. Communication strategies between Councils and water corporations to brief on plan implementation and completed actions Process. The intention is to have the MoU completed and signed off by 20 December 2016. Once the MoU is finalised, all parties recognise this process has the potential to relax the Ministerial Catchment Guideline – Planning permit applications in open, potable water supply catchment areas (DEPI 2012).	New item for 2016 DWMP Plan

No.	Description	Continued for 2016 DWMP
2.	To increase the resources available for management of domestic wastewater to ensure actions identified in this plan can be implemented.	✓
3.	To improve regulation and enforcement mechanisms for outdated and non-compliant systems.	✓
4.	To improve the database of septic tank permit information to underpin implementation of a compliance program and future education programs.	✓
5.	Development of a community education program for unsewered properties to improve understanding of how on-site effluent systems work, how to achieve best practice management and how to reduce the risks to public health and the environment from poorly managed systems. High-risk areas are to be targeted by the program initially. These include all priority towns and unsewered subdivisions of <1ha.	✓
6.	To ensure that when new septic tank permits are issued and when properties change hands, owners are informed that a septic tank permit applies to the property and understand the conditions of that permit.	✓
7.	To ensure town planning policy adequately considers wastewater management issues with respect to minimum allotment size and the implications of establishing reticulated sewer on development density.	✓
8.	To clarify circumstances in which Land Capability Assessments (LCAs) need to be undertaken and to improve the quality of LCAs received.	✓
9.	To monitor the performance of high risk septic tank systems (e.g. AWTSs) to ensure compliance with permit conditions.	✓
10.	To investigate the approach to compliance for other septic tank systems.	✓
11.	To ensure there is a high level of understanding amongst Council staff of the importance of domestic wastewater management and how it can impact on other Council functions, such as planning and stormwater management.	✓
12.	To maintain and develop working relationships with relevant external stakeholders.	✓
13.	To ensure ongoing development of Environmental Health staff skills and expertise, and efficient induction and training of new staff.	✓

Table 9-2. Individual Towns Strategic Objectives from the 2006 DWMP. Objectives carried through onto 2016 plan are shown with a tick. Revised and new objectives are noted.

No.	Description	Continued for 2016 DWMP
1.	All high and medium priority towns - determine and set minimum lot size required for sustainable onsite management and determine approach to undeveloped lots that are smaller than this minimum.	✓
2.	All high and medium priority towns - undertake community education to achieve improved domestic wastewater management and to encourage installation of improved systems where required.	✓
3.	All high and medium priority towns - develop a targeted monitoring and compliance program.	✓
4.	Dargo, Cowwarr, Swifts Creek, Buchan, Ensay, Nowa Nowa, Bendoc, Newmerella, Lindenow South - Investigate improved stormwater management, building on existing actions in the Stormwater Management Plans, to reduce public health risk (e.g. covers over drains) and to reduce environmental impact (e.g. wetlands, reed beds). *(Note: Alberton removed from 2015 list due to being sewered)*	✓
5.	Metung East/Nungurner - work with council planning department to ensure Municipal Planning Scheme reflects development potential from a wastewater management perspective.). (Note: Metung East has been partially sewered since 2006)	✓
6.	West Wy Yung - work with East Gippsland Water to consider options for connecting to the nearby sewer system.	✓

No.	Description	Continued for 2016 DWMP
7.	Briagolong - investigate risk to groundwater in further detail and determine capacity for further unsewered development.	✓
8.	For the southern Ninety Mile Beach region (Golden/Paradise Beach, Woodside Beach, The Honeysuckles, and McLoughlins Beach) and for Manns Beach and Robertsons Beach to the south west - determine approach to onsite management based on land capability.	✓ (revised for 2016 plan)
9.	Hollands Landing - determine sustainable approach to onsite management of domestic wastewater.	✓
10.	Sewer Infill - determine strategic approach to sewer infill, e.g. restrict subdivision or ensure subdivided areas are sewered.	✓
11.	Wellington Shire - develop closer relationship with Gippsland Water and investigate options for expansion of sewer system in larger townships based on development plans and risk assessments contained within the DWMP.	✓ (revised for 2016 plan)
12.	Based on the risk assessment conducted for this DWMP, the onsite wastewater management systems in the following Declared Water Supply Catchment townships; Dargo, Gormandale, Licola, Glenmaggie, Seaton, Benambra, Club Terrace, and Omeo, should be subjected to a further risk assessment (including a site inspection). The results of the risk assessment should be used to guide an appropriate monitoring and inspection program to the satisfaction of the relevant water corporation stakeholders. The Gippsland water corporations may contribute resources to assist in the detailed risk assessment of properties in the declared special water supply catchment areas. Refer to Table 9.1 – Item 1 in relation to a commitment for a MoU.	New for 2016 plan
13.	In East Gippsland Shire, the distribution of risk from onsite wastewater systems is more evenly spread over a range of townships across the Shire and is mainly due to risk to groundwater. The top 10 townships (Nicholson, Sarsfield, Wy Yung, Lucknow, Toorloo Arm, Bruthen, Lakes Entrance, Swan Reach, Buchan and Metung) account for just over 50% of the total Shire risk and should be the subject of a further risk assessment. The results of the risk assessment should be used to guide an appropriate monitoring and inspection program to the satisfaction of the regional environment agency stakeholders.	New for 2016 plan
14.	Lindenow South - undertake community consultation to determine whether area should be sewered or rezoned to restrict further subdivision *(No longer a strategic objective, done*).	X
15.	Alberton - work with South Gippsland Water to investigate potential for sewering town to nearby Tarraville treatment plant (which services Yarram). *(No longer a strategic objective, town now sewered*)	X
16.	Bemm River - apply for external funding to assist in investigation of sustainable wastewater management approach. *(No longer a strategic objective, town now sewered*)	X
17.	Banksia Peninsula - liaise with East Gippsland Water regarding current sewer investigation and, if sewering is not implemented, determine approach to sustainable onsite disposal. *(No longer a strategic objective, area now sewered)*	X
18.	Coongulla/Glenmaggie and Loch Sport - continue role as partner in investigation into innovative solutions to domestic wastewater management *(No longer a strategic objective, towns now sewered*)	X
19.	Coastal towns - ensure domestic wastewater management issues are incorporated appropriately into Coastal Townships Urban Design Framework. *(No longer a strategic objective, domestic wastewater management issues now incorporated into UDF)*	X

9.1.2. Issues-based Action Plans

Issues-based action plans were developed in 2006 and reviewed and updated in 2016 and address the following areas:

- Capacity building;
- Information management and data collection;
- Community education;
- Strategic planning;
- Land capability assessments;
- Monitoring and compliance;
- Building better partnerships with internal and external stakeholders;

- Training for environmental health officers.

Priority area for implementation and related strategic objectives for each issue are detailed in Table 9-3.

Table 9-3. Issues-based action plans. Responsible person is the Environmental health manager/co-ordinator

Issue	Priority area for implementation	Strategic objectives
Capacity Building (CB)	All of municipality	To secure resources to ensure actions identified can be implemented. To improve regulation and enforcement mechanisms for outdated and noncompliant systems
Information Management and Data Collection (IM)		
Update septic tank permit database	Identified high risk properties	Enhance existing database of septic tank permit information to underpin implementation of a compliance program and future education programs
Establish Septic Tank Details at Change of Ownership	All of municipality	Ensure new property owners are informed of the existence of a septic tank and any recorded problems. Where a septic tank permit cannot be located establish the details of the septic system.
Community Education (CE)		
	High-risk areas are to be targeted by the program initially. These include all priority towns and unsewered subdivisions in TZ, LDRZ and RLZ	Raise awareness of septic tank management; Change the behaviour of home owners and achieve a higher level of compliance with permit conditions and best practice management;
Strategic Planning (SP)		
	All of municipality	To ensure land use planning policy adequately considers wastewater management issues with respect to minimum allotment size and the implications of establishing reticulated sewer on development density in the Planning Scheme.
Monitoring and Compliance (MC)		
Compliance	Initially priority towns/areas, expanding to whole of municipality dependent on experience in priority towns	To monitor the performance of high risk septic tank systems (e.g. AWTSs) to ensure compliance with permit conditions. To investigate the approach to compliance for other septic tank systems
Building Better Partnerships with Internal and External Stakeholders		
Internal stakeholder communication (IS)	Initially priority towns/areas, expanding to whole of municipality	To ensure there is a high level of understanding of the importance of domestic wastewater management and how it can impact on planning and stormwater management.
External stakeholder communication (ES)	Initially priority towns/areas, expanding to whole of municipality	To maintain and develop working relationships with relevant stakeholders.
Training for Environmental Health Officers (TR)		
	Within EH Department	To ensure ongoing development of environmental health staff skills and expertise, and efficient induction and training of new staff.

Table 9-4. 2016 DWMP Action plan for Wellington and East Gippsland Shire Councils

Action No.	Action steps	Team	Constraints and risks	Monitoring Indicators	Completion Date	Comments and action taken (since 2006 plan)
CB.3	Investigate external funding opportunities, e.g. Community Water Grants, Victorian Water Smart Fund.	EH, MAV, DELWP	Funding availability.	Amount of funding obtained.	Ongoing	Bemm River, Cann River, Tambo Bluff, Metung East & Banksia Penn, Loch Sport, Coongulla, Alberton & Glenmaggie sewered (funding gained from CTW&SS)
IM.2	Refine existing database to ensure sufficient information is included. Assess need for software enhancement.	EH	Resources required	Database updated.	2016	Ongoing
IM.3	Develop a list of unsewered properties that do not have septic tank permit details included in the database.	EH, Rates Office	Security of information.	List available to be printed.	2018	Ongoing
IM.4	Compile existing hard copy files and determine value of transferring information to electronic database. If worthwhile determine process for undertaking transfer.	EH	Resources required. Condition of hard copy files.	No. of hard copy files found. Transfer process documented.	2017	Ongoing 1000+ file details added
IM.7	Develop an audit program for properties without septic tank permit details in the electronic database. (Could include seeking records from plumbers who install systems in the area.)	EH	Resources required.	Audit program documented.	2018	Not done, however both Shires are looking at this as a Long Term Program. Further investigation in high risk areas.
IM.11	Determine process for establishing the type and location of the system when there is no record of a septic tank permit.	EH	Resources required.	Process documented.	2018	Ongoing as part of 1. Planning referral process 2. Complaints process 3. Transfer of property process
IM.14	Add septic tank details to property database.	EH		No. of records added due to change of ownership.	2016	Ongoing
CE.4	Identify ownership details in priority areas.	EH, Rates office	Security of information	List available to be printed.	2017	In progress
CE.5	Distribute fact sheets to residents in priority areas. Where type of septic system is known, target fact sheets sent.	EH	Resources required.	No. queries from residents who received fact sheets.	2017	Required in high risk areas – will implement target areas
SP.1	Facilitate internal workshop between Environmental Health, Planning and Engineering departments of Council to increase understanding of domestic wastewater issues. (In conjunction with actions IS.1 and TR.1)	EH, Planning Dept., Engineering Dept.	Staff availability	No. of meetings/ workshops held.	2016	Ongoing
SP.7	Investigate and resolve the extent to which existing planning scheme provisions reflect the land use constraints associated with the inability to dispose of wastewater on-site.	Planning Dept., EH.	Restriction on development potential. Staff and resources required.	Land use constraints in relation to onsite waste water disposal identified.	Ongoing	Revised item Standard setbacks in compliance with the EPA Code of Practice.
SP.8	Determine the need to develop a Special Water Catchment Policy or similar tool to have an agreed strategic approach between Council and all Water Corporations.	Planning Dept, EH, External Stakeholders	Restriction on development potential. Staff and resources required.	Agreement on the need for a Special Water Catchment Policy or similar tool.	Ongoing	Revised item Strategic Planning matter in conjunction with Ministerial guidelines and GIS risk analysis.
SP.9	Review the case for expansion of sewer system for Longford in conjunction with Gippsland Water	Planning Dept., EH.	Restriction on development potential.	Agreement on extension of sewer network	Ongoing	New to 2016 DWMP

Action No.	Action steps	Team	Constraints and risks	Monitoring Indicators	Completion Date	Comments and action taken (since 2006 plan)
MC.1	For high risk systems develop system that requests landholders or their service agents to submit evidence of maintenance on a quarterly basis and sampling results annually.	EH	Landholder reaction to increased expectations. Availability of service agents.	Percentage of properties with treatment plants that send maintenance report.	2016	Ongoing maintenance however sampling results not undertaken by either Shire.
MC.2	Establish a system on the information database to remind EH Dept when next submission due.	EH		System established.	2016	Ongoing development
MC.3	Prepare a standard letter to be sent to landholders if maintenance details are not submitted.	EH, MAV		Letter completed.	2016	Ongoing development
MC.4	Send letter to landholders if maintenance details are not submitted within one month of the due date.	EH	Resources required.	No. of reminder letters sent.	2016	Ongoing development
MC.5	Develop policy and procedures for dealing with non-compliance.	EH	Legislative power to act on noncompliance. Resources required.	Policy and procedures documented. Process for implementation developed.	2016	Ongoing development
MC.6	Develop system for inspection of properties with high risk systems (e.g. AWTSs).	EH	Resources required.	Inspection process documented.	2017	Quarterly reports received and necessary action taken (WSC) East Gippsland do not undertake consistently however will be fully implemented during tenure of plan
MC.9	Investigate approach to improving compliance for other (non AWTS) septic tank systems.	EH	Resources required.	Investigation outcomes documented. Compliance program revised.	2017	Ongoing development
MC.10	Independent audit by an accredited auditor (water corporation approved) of implementation of the DWMP, including of monitoring and enforcement, every 3 years;	EH	Resources required.	Audit outcomes documented. Compliance program revised.	2019	Ongoing development
MC.11	Councils are required to demonstrate that suitable resourcing for implementation, including monitoring, enforcement, review and audit, is in place.	EH	Resources required.	Work plan for EH Department wastewater management activities developed. Evidence supplied to external stakeholders	Dec 2016	Annual review for the following 12 months
IS.1	Brief Council Teams regarding impact of DWMP outcomes on planning, stormwater and so on (potentially in conjunction with action TR.1)	EH, Planning, Infrastructure	Availability of staff.	No. meetings/ workshops held.	2016	Ongoing
IS.3	Provide annual report to internal stakeholders (Council, Planning Dept, Infrastructure Dept, etc.) on progress of DWMP.	EH, internal stakeholders	Resources required.	Annual reports distributed.	Ongoing	Refer ES3
ES.3	Provide annual report to external stakeholders on DWMP progress.	EH, external stakeholders	Resources required.	Annual reports distributed to stakeholders.	Ongoing	Not done

Action No.	Action steps	Team	Constraints and risks	Monitoring Indicators	Completion Date	Comments and action taken (since 2006 plan)
ES.6	Involve external stakeholders in the review of the DWMP. Undertake review in 2021.	EH, external stakeholders	Time taken for external stakeholders.	No. meetings/ workshops held.	Ongoing	Revised action item. Previous review should have been completed in 2010 but was undertaken in 2015
ES.7	The results of the three-yearly audit to be provided to stakeholders as soon as possible after the relevant assessment.	EH, external stakeholders	Time taken for external stakeholders.	Audit completed and report forwarded to external stakeholders	2018	New action item
TR.5	Maintain awareness of MAV and industry seminars/workshops relevant to domestic wastewater management and attend sessions as training budget allows.	EH, MAV, Industry Groups	Training budget limits ability of staff to attend seminars.	No seminars/ workshops attended by staff.	Ongoing	Ongoing

9.1.3. Action Plans for Priority Towns/Areas in East Gippsland Shire

Table 9-5. East Gippsland Shire Priority Towns/Areas and Strategic Objectives.

Priority area for implementation	Strategic objectives
Buchan, Swifts Creek, Nowa Nowa, Ensay, Bendoc, Newmerella (River)	1. Determine and set minimum lot size required for sustainable onsite management and determine approach to undeveloped lots that are smaller than this minimum. 2. Undertake community education to achieve improved domestic wastewater management and to encourage installation of improved systems where required. 3. Develop a targeted monitoring and compliance program. 4. Investigate improved stormwater management to reduce public health risk and environmental impact.
Lindenow South (Lind)	1. Determine and set minimum lot size required for sustainable onsite management and determine approach to undeveloped lots that are smaller than this minimum. 2. Undertake community education to achieve improved domestic wastewater management and to encourage installation of improved systems where required. 3. Develop a targeted monitoring and compliance program.
Nungurner and Metung (Nun)	1. Determine and set minimum lot size required for sustainable onsite management and determine approach to undeveloped lots that are smaller than this minimum. 2. Work with council planning area to ensure Municipal Planning Scheme reflects development potential from a wastewater management perspective. 3. Undertake community education to achieve improved domestic wastewater management and to encourage installation of improved systems where required. 4. Develop a targeted monitoring and compliance program.
Gipsy Point (Gipsy)	1. Undertake community education to achieve improved domestic wastewater management and to encourage installation of improved systems where required. 2. Develop a targeted monitoring and compliance program.
West Wy Yung and other Sewerage Infill (Wy)	1. Work with East Gippsland Water to consider options for connecting to the nearby sewer system. 2. Undertake community education to achieve improved domestic wastewater management and to encourage installation of improved systems where required. 3. Determine strategic approach to sewer infill, e.g. restrict subdivision or ensure subdivided areas are sewered.

Table 9-6. East Gippsland Shire Action Plans for Priority Towns/Areas

Action No.	Action steps	Team	Constraints and Risks	Monitoring Indicators	Completion Date	Comments and action taken (since 2006 DWMP)
River.3	Ensure new houses and upgraded systems implement full onsite disposal.	EH	Land capability.	No. of septic tank permits issued.	2016	Completed – ongoing
River.4	Investigate improved stormwater management to reduce public health risk, e.g. covers over drains.	EH, Stormwater	Resources required.	Investigation outcomes documented and action plan revised.	On Going	Not done
River.5	Investigate improved stormwater management to reduce environmental impact, e.g. wetland, reed bed.	EH, Stormwater, EGCMA, EPA	Resources required.	Investigation outcomes documented and action plan revised.	On Going	Not done
River.6	Develop a monitoring and compliance program (linked to actions MC.1-9)	EH	Resources required.	Program implemented.	2019	Not done
Lind.4	Community education to achieve improved management and encourage installation of improved systems (part of actions CE.4 & CE.5).	EH	Ability to identify landholders requiring information.	Factsheets sent.	2018	Councils and EGA strategic policy to encourage development in Lindenow sewer district
Lind.5	Ensure new houses and upgraded systems implement full onsite disposal.	EH	Land capability.	No. of septic tank permits issued.	Completed	Completed
Lind.6	Investigate improved stormwater management to reduce public health risk, e.g. covers over drains.	EH, Stormwater	Resources required.	Investigation outcomes documented and action plan revised.	On Going	Not done
Lind.7	Investigate improved stormwater management to reduce environmental impact, e.g. wetland, reed bed.	EH, Stormwater EGCMA, EPA	Resources required.	Investigation outcomes documented and action plan revised.	On Going	Not done
Lind.8	Develop a monitoring and compliance program (linked to actions MC.1-9).	EH	Resources required.	Program implemented.	2018	Not done
Nun.3	Undertake community education to ensure improved management of septic systems (part of actions CE.4 & CE.5).	EH	Ability to identify landholders requiring information.	Factsheets distributed	2017	See CE 4 and 5
Nun.4	Develop a monitoring and compliance program (linked to actions MC.1-9).	EH	Resources required.	Program implemented.	2017	See MC 1-9
Gipsy.1	Community education to achieve improved management if sewering not implemented (part of actions CE.4 & CE.5).	EH	Ability to identify landholders requiring information.	Factsheets distributed	2017	Not done
Gipsy.2	Develop compliance and monitoring program if sewering not implemented. (Linked to actions MC.1-9)	EH	Resources required.	Program implemented.	2017	Not done
Wy.4	Where sewering will not occur undertake community education to ensure improved management of septic systems (part of actions CE.4 & CE.5).	EH	Ability to identify landholders requiring information.	Factsheets distributed	On Going	Not done
Wy.5	Develop a monitoring and compliance program for unsewered areas2 (linked to actions MC.1-9)	EH	Resources required.	Program implemented.	2017	See MC 1-9

9.2. Comment on planning action items

9.2.1. Stormwater management in unsewered townships

It is acknowledged that implementation of wetlands or reed beds would require ongoing management and maintenance to ensure their effectiveness. Where this approach is taken a supporting monitoring and evaluation program would be developed.

9.2.2. Monitoring and Compliance

On construction of a new home or renovation of an existing home that incorporates a septic tank system, a septic tank permit is issued that details:

- The type of system and the conditions relating to installation and maintenance of the system;
- The approved installation plan incorporating positioning of the proposed effluent disposal area.

A compliance program seeks to ensure that property owners are complying with the conditions of the septic tank permit. This can be achieved by:

- AWTS monitoring certificates of maintenance and sampling requirements submitted regularly by property owners to councils;
- Conducting a rolling program of regular site inspections in high risk areas and for high risk systems.

Note that the maintenance and monitoring required is dependent on the type of septic system in place. Regular compliance monitoring is particularly relevant to Aerated Wastewater Treatment Systems (AWTSs).

Compliance is a legislative responsibility for Local Government. Appropriate enforcement activity will be undertaken on the systems that are bought to the attention of Shire Council.

9.2.3. Community education program for unsewered properties

Further to the community education action items listed in Table 9-3 and Table 9-6 it is recommended that a community education program be developed for unsewered properties with the following aims:

- to improve understanding of how onsite wastewater management systems work,
- provide guidance on how to achieve best practice management; and
- provide guidance on how to reduce the risks to public health and the environment from poorly managed systems.

Areas will be addressed in order of priority.

9.2.4. Consideration of planning instruments

The use of planning instruments to control the risk of effluent moving offsite from domestic wastewater systems is a complex area and could involve a number of potential measures (e.g. development of new ESOs, use of S173 agreements, etc.). Council planning departments have extensive experience in this area and it is recommended that the Council Environmental Health Departments work with their Planning Departments to develop appropriate approaches for each municipality.

9.2.5. Changes to legislation for a levy to support compliance monitoring

An ongoing issue for Councils in Victoria is that they do not have a revenue source to cover the cost of ongoing compliance monitoring. This is a statewide issue and requires legislative changes to allow councils to levy charges for compliance monitoring. Wellington Shire and East Gippsland Shire Councils will continue to explore opportunities to progress this issue at the state level.

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Appendix 1 - Statutory Framework

10.1. Relevant legislation specifying DWMP statutory requirements

As stated in Section 3, the requirement for local Governments in Victoria to develop a DWMP is described in Clause 32 of the State Environment Protection Policy (Waters of Victoria) (SEPP WoV) which is an instrument under the *Environment Protection Act 1970*. Further specifications for DWMPs are set out in the Ministerial Catchment Guidelines, "*Planning permit applications in open, potable water supply catchment areas*" (DEPI 2012). The Ministerial Guidelines aim to assist water corporations and other referral and responsible authorities in their assessment of planning permit applications for use and development of land within all open, potable water supply catchments in Victoria.

'Open' water supply catchments are where part or all of the catchment area is in private ownership and access to the catchment is unrestricted[2].

The following sections summarise the key sections of the Ministerial Guidelines as well as the relevant components of other legislation that are relevant to this DWMP including the State Planning Policy Framework of the *Planning and Environment Act 1987.*

10.1.1. Ministerial Guidelines (2012)

Each of the following guidelines must be addressed where a planning permit is required to use land for a dwelling or to subdivide land.

10.1.1.1. Guideline 1: Density of dwellings

Where a planning permit is required to use land for a dwelling or to subdivide land or where a planning permit to develop land is required pursuant to a schedule to the Environmental Significance Overlay that has catchment or water quality protection as an objective:

- the density of dwellings should be no greater than one dwelling per 40 hectares (1:40 ha); and
- each lot created in the subdivision should be at least 40 hectares in area.

This does not apply where:

Category 1: A planning permit is not required to use land for a dwelling, to subdivide land or to develop the land.

Category 2: A permit is required but the proposed development will be connected to reticulated sewerage.

Category 3: A Catchment Policy has been prepared for the catchment and endorsed by the relevant water corporation following consultation with relevant local governments, government agencies and affected persons. The proposed development must be consistent with the Catchment Policy. Or,

Category 4: All of the conditions listed below are met, in which case the water corporation will consider allowing a higher density of development than would otherwise be permitted by Guideline 1:

- the minimum lot size area specified in the zone for subdivision is met in respect of each lot;
- the water corporation is satisfied that the relevant Council has prepared, adopted and is implementing a Domestic Wastewater Management Plan (**DWMP**) in accordance with the DWMP Requirements (described in Table 10-1) and
- the proposal does not present an unacceptable risk to the catchment having regard to: o the proximity and connectivity of the proposal site to a waterway or a potable water supply source (including reservoir);

[2] By comparison, in 'closed' catchments, the whole of the catchment area is publicly owned and public access is prohibited.

- the existing condition of the catchment and evidence of unacceptable water quality impacts;
- the quality of the soil; the slope of the land;
- the link between the proposal and the use of the land for a productive agricultural purpose;
- the existing lot and dwelling pattern in the vicinity of site; any site remediation and/or improvement works that form part of the application; and
- the intensity or size of the development or use proposed and the amount of run-off that is likely to be generated.

Note: this requires analysis in addition to a land capability assessment required pursuant to Guideline 2.

Domestic Wastewater Management Plan Requirements

A DWMP will be considered an acceptable basis for a relaxation of Guideline 1 (as set out above) where the requirements in relation to the DWMP (described in Table 10-1) are satisfied.

Table 10-1. Domestic Wastewater Management Plan Requirements

Attribute	Requirements
Consultation	The DWMP must be prepared or reviewed in consultation with all relevant stakeholders including: • other local governments with which catchment/s are shared; • EPA; and • local water corporation/s.
Protection of surface and groundwaters	The DWMP must comprise a strategy, including timelines and priorities, to: • prevent discharge of wastewater beyond property boundaries; and • prevent individual and cumulative impacts on groundwater and surface water beneficial uses.
Monitoring, compliance and enforcement	The DWMP must provide for: • the effective monitoring of the condition and management of onsite treatment systems, including but not limited to compliance by permit holders with permit conditions and the Code; • the results of monitoring being provided to stakeholders as agreed by the relevant stakeholders; • enforcement action where non-compliance is identified; • a process of review and updating (if necessary) of the DWMP every 5 years; • independent audit by an accredited auditor (water corporation approved) of implementation of the DWMP, including of monitoring and enforcement, every 3 years; • the results of audit being provided to stakeholders as soon as possible after the relevant assessment; and • Councils are required to demonstrate that suitable resourcing for implementation, including monitoring, enforcement, review and audit, is in place.

These requirements incorporate and build upon (but do not displace) Council responsibilities for developing DWMPs as set out in clause 32(2)(e) of the SEPP.

10.1.1.2. Guideline 2: Effluent disposal and septic tank system maintenance

Any application for a planning permit must demonstrate that a proposed use, development or subdivision of land to which these Guidelines apply will comply with all applicable laws and guidelines (described in sections 10.1.2 to 10.1.8 of this document), including the need to obtain a Council permit under the *Environment Protection Act 1970* for the installation of an onsite wastewater management system and associated systems.

10.1.1.3. Guideline 3: Vegetated corridors and buffer zones along waterways

Planning and responsible authorities should encourage the retention of natural drainage corridors with vegetated buffer zones at least 30 metres wide along waterways. This will maintain the natural drainage function, minimise erosion of stream banks and verges and reduce polluted surface run-off from adjacent land uses.

10.1.1.4. Guideline 4: Buildings and works

Buildings and works (including such things as land forming and levee bank construction) should not be permitted to be located on effluent disposal areas, to retain full soil absorption and evaporation capabilities, and should be setback at least 30 metres from waterways to minimise erosion and sediment, nutrient and salinity-related impacts.

Appropriate measures should be used to restrict sediment discharges from construction sites in accordance with *Construction Techniques for Sediment Pollution Control, Environment Protection Authority* (EPA Victoria 1991) *and Environmental Guidelines for Major Construction Sites, Environment Protection Authority* (EPA Victoria 1996).

10.1.1.5. Guideline 5: Agricultural activities

To prevent the pollution of waterways and damage to streamside vegetation (which contributes to bed and bank stability and filters overland flows entering the stream), stock access to waterways should be minimised.

10.1.2. Environment Protection Act 1970

Section 53M of the *Environment Protection Act 1970* provides that a municipal council must refuse a permit if a proposed onsite waste water/septic tank system is contrary to any State environment protection policy (SEPP) or waste management policy.

The State Environment Protection Policy (Waters of Victoria) (SEPP WoV) adopts the precautionary principle as a principle that should guide decisions about the protection and management of Victoria's surface waters when considering a permit for a septic tank system. The proper application of the principle requires consideration of the cumulative risk of the adverse impact of onsite waste water/ septic tank systems on water quality, in open potable water supply catchments, resulting from increased dwelling density.

Clause 32 of the SEPP WoV specifies EPA's expectations in relation to on-site domestic wastewater management (see Section 10.1.3 below), and the EPA provides further guidance in relation to onsite treatment systems, e.g. the Code of Practice for Onsite Waste Water Management (EPA Victoria 2013) (Section 3.1.1).

10.1.3. State Environment Protection Policy Waters of Victoria (SEPP WoV)

The DWMP must incorporate, and build upon Council's responsibilities for developing DWMPs set out in clause 32(2)(e) of the SEPP. This clause states that local councils need to:

- Where relevant, develop and implement a domestic wastewater management plan in conjunction with water corporations and communities that:

  (i) Reviews land capability assessments and available domestic wastewater management options to prevent the discharge of wastewater beyond allotment boundaries and prevent impacts on groundwater beneficial uses;

  (ii) Identifies the preferred options, together with costs, funding needs, timelines and priorities; and

  (iii) Provides for the assessment of compliance of on-site domestic wastewater systems with permit conditions

Clause 32 further states that on-site domestic wastewater needs to be managed to prevent the transport of nutrients, pathogens and other pollutants to surface waters and to prevent any impacts on beneficial uses[3]. Cumulative effects of onsite wastewater treatment systems should also be considered.

In addition to the requirements for a Council DWMP, clause 32 also requires that:

- Occupiers of premises with an on-site domestic wastewater system need to manage that system in accordance with permit conditions and the *EPA Code of Practice for Onsite Wastewater Management* (EPA Victoria 2013), as amended.

  Occupiers also need to regularly assess the performance of their system against permit conditions.

- Municipal councils need to:
  - assess the suitability of land for on-site domestic wastewater systems prior to approving a development. To assist in this regard, the EPA provides guidance in *Land Capability Assessment for Onsite Domestic Wastewater Management* (EPA Victoria 2003) as amended (see also Section 3.1.2 in this document);
  - ensure that permits are consistent with guidance provided by the EPA, including that provided in the *EPA Code of Practice for Onsite Wastewater Management* (EPA Victoria 2013), as amended; and o work with the EPA to identify existing unsewered allotments which are not capable of preventing the discharge of wastewater beyond allotment boundaries, or preventing impacts on groundwater beneficial uses.

10.1.4. Groundwater SEPP

Depending on local conditions, under some circumstances on-site system disposal fields can drain to groundwater, particularly in areas where the water table is shallow and hydraulic loadings are high. The Groundwaters of Victoria SEPP (Government of Victoria 1997) provides a regulatory framework for the protection and management of groundwater environments in Victoria.

The groundwater SEPP identifies a range of beneficial uses dependent on different categories of groundwater and seeks to preserve the categorisation of local groundwater so the beneficial uses are not significantly impacted. Consequently, councils need to consider the cumulative effect of onsite wastewater treatment systems when assessing permit and planning applications and planning amendments to ensure that groundwater quality is protected.

[3] A beneficial use is defined in the Environment Protection Act 1970 and includes a current or future environmental value or use of surface waters or groundwaters that communities want to protect.

10.1.5. Planning and Environment Act 1987

10.1.5.1. State planning and environmental policies that apply to open, potable water supply catchment areas

The *Planning and Environment (General) Act* (2013) describes procedures for preparing and amending planning provisions, planning schemes, obtaining permits under schemes, settling disputes, enforcing compliance with planning schemes, and other administrative procedures (DTPLI 2015).

Planning schemes set out policies and provisions for use, development and protection of land. Each local government area in Victoria is covered by a planning scheme (DTPLI 2015).

The importance of water quality and water catchments is specifically addressed in Clause 14.02 in the State Planning Policy Framework in all planning schemes.In this clause it is State planning policy to:

- Protect reservoirs, water mains and local storage facilities from potential contamination.
- Ensure that land use activities potentially discharging contaminated runoff or wastes to waterways are sited and managed to minimise such discharges and to protect the quality of surface water and groundwater resources, rivers, streams, wetlands, estuaries and marine environments.
- Discourage incompatible land use activities in areas subject to flooding, severe soil degradation, groundwater salinity or geotechnical hazards where the land cannot be sustainably managed to ensure minimum impact on downstream water quality or flow volumes.

Clause 19.03 of the State Planning Policy Framework adopts the strategy:

- Ensure water quality in water supply catchments is protected from possible contamination by urban, industrial and agricultural land uses.

It is State Planning Policy (Clause 14.02-1) that planning authorities must have regard to relevant aspects of:

- any regional catchment strategies approved under the *Catchment and Land Protection Act 1994* and any associated implementation plan or strategy, including any regional river health and wetland strategies (see Section 10.1.8 of this document);
- any special area plans prepared under the *Heritage Rivers Act 1992* and approved under the *Catchment and Land Protection Act 1994*; and
- Guidelines for planning permit applications in open, potable water supply catchment areas (DEPI 2012).

10.1.5.2. Section 173 of the Act

Section 173 of the Planning and Environment Act (General) (2013) allows Councils to negotiate an agreement with an owner of land to set out conditions or restrictions on the use or development of the land, or to achieve other planning objectives in relation to the land (DPCD 2015). Such agreements are commonly known as Section 173 agreements.
Once completed, the agreement is lodged against the title of the property. Section 173 Agreements are frequently used by Water Corporations or Councils when planning applications are located in special water supply catchments. In such cases, the agreement usually specifies maintenance requirements for onsite wastewater systems. 10.1.6. Public Health & Wellbeing Act 2008

The *Public Health & Wellbeing Act 2008* replaced the *Health Act 1958* and lists types of nuisances which are offensive or could pose a health risk. Under this Act, Councils have a duty to remedy such nuisances. This includes investigating complaints relating to the illegal management of domestic wastewater and taking action to rectify the nuisance where this is necessary.

10.1.7. Water Act 1989

Section 183 of the *Water Act 1989*, empowers urban Water Corporations to inspect and measure existing septic tank systems. Furthermore, under Section 147 of the *Act, s*ystems that do not comply with the *Public Health and Wellbeing Act 2008* and the *Environment Protection Act 1970*, can be required by the Water Corporation to connect to the sewer where this is available

10.1.8. Catchment and Land Protection Act 1994

The importance of water catchments is also reflected in the special area plans prepared by Catchment Management Authorities, under Division 2 of Part 4 of the *Catchment and Land Protection Act 1994*. These plans assess the land and water resources of catchments in a region and identify objectives and strategies for improving the quality of those resources; they are also able to direct land use activities in a catchment..

10.1.9. Local Government Act 1989

The Local Government Act set outs the provisions under which the Councils operate and empowers Councils to have local laws and regulations, including those for management of onsite wastewater treatment systems.

10.1.10 Safe Drinking Water Act, 2003

All water corporations have obligations under the Safe Drinking Water Act, 2013.

10.2. Regulatory Authorities

A range of regulatory authorities have responsibilities that involve onsite wastewater management systems. These are summarised in Table 10-2.

Table 10-2. Regulatory authorities and their responsibilities relevant to the DWMP

Authority	Role
Wellington and East Gippsland Shire Councils	Wellington and East Gippsland Shire Councils are responsible for issuing permits for new onsite systems under the *Environment Protection Act 1970*. The Councils are also responsible for the management of all onsite systems within their respective boundaries and this includes the inspection of existing systems and ensuring compliance with Council and EPA requirements. The legal requirements of the Councils (EPA Victoria 2013) include: • issuing planning permits with a requirement that reticulated sewerage is provided at the time of sub-division where wastewater cannot be contained within the boundaries of every allotment; • assessing land development applications to determine the suitability of a site for an onsite wastewater management system; • assessing onsite wastewater management permit applications; • issuing Permits to Install/Alter and Certificates to Use onsite wastewater management systems; • refusing to issue a Planning Permit or Septic Tank Permit for a proposed development where Council considers wastewater cannot be contained within the boundaries of the site and reticulated sewerage is not available or will not be provided at the time of subdivision; • ensuring systems are installed in accordance with the relevant Certificate of Approval (see EPA website), the conditions on any Planning or Septic Tank Permit issued for a site and the relevant Australian Standard; • ensuring systems are managed in accordance with the Septic Tank Permit, the relevant Certificate of Approval, this Code and, where applicable, the most recent version of AS/NZS1547 through relevant compliance and enforcement programs; and • developing Domestic Wastewater Management Plans. Council assesses applications for Permits to Install or Alter and operate onsite wastewater management systems under the Act (Section 53J-O). Permits are issued with conditions. Council must refuse to issue a permit if: • the proposed onsite wastewater treatment system and associated disposal/recycling system is contrary to any State Environment Protection Policy • the application and/or land capability assessment report does not satisfy Council that wastewater cannot be sustainably managed on that site; or • the proposed onsite wastewater treatment system does not hold a current Compliance with the Australian Standards and approval from the EPA..
Department of Health and Human Services	The department administers the *Safe Drinking Water Act 2003* and has responsibilities under the *Public Health and Wellbeing Act 2008*.

Authority	Role
Catchment Management Authorities	Wellington and East Gippsland Shire Councils lie within or intersect the East and West Gippsland Catchment Management Authorities (CMAs). The role of the CMAs relevant to the DWMP is listed in their statement of obligations under the *Water Act 1989* (DELWP 2006) and is as follows: a) Facilitate and coordinate the management of catchments in an integrated and sustainable manner; b) Take a sustainable approach by balancing environmental, social and economic considerations; c) Plan and make decisions within an integrated catchment management context: • recognising the integral relationship between rivers, their catchments and coastal systems; • using the best available scientific information; • targeting resources to address priorities and deliver maximum improvement in resource condition; d) Provide opportunities for community engagement in the integrated management of catchments including rivers and related water and land ecosystems; e) Develop strategic partnerships with other relevant authorities and government agencies; f) Promote and apply a risk management approach for natural assets which seeks to preserve the quality of the natural assets; g) Promote and adopt an adaptive approach to integrated catchment management, including continuous review, innovation and improvement; h) Manage business operations in a prudent, efficient and responsible manner; i) Act as the caretaker of river health and provide regional leadership on issues relating to river health; and j) Undertake the operational management of the Environmental Water Reserve as a key component of an integrated program of river, wetland, floodplain and aquifer restoration.
Department of Environment, Land, Water and Planning	The Department of Environment, Land, Water and Planning (DELWP) is responsible for the management of environment, water resources, land management and planning in Victoria. DELWP may advise Councils on specialist matters where an on-site system may influence land, water and planning issues.
Environment Protection Authority Victoria (EPA)	EPA administers the *Environment Protection Act 1970*, and Waters of Victoria and Groundwaters of Victoria SEPPs and is responsible for: • producing guidance documents for: o wastewater treatment system, installation, testing and accreditation o the approval process for onsite wastewater management systems • providing advice on and interpretation of the guidance; • Monitoring systems for compliance with conformity standards • keeping the website-based list of currently approved systems and their accreditations up-to date (see www.epa.vic.gov.au/your-environment/water/onsite-wastewater); • rescinding approvals and removing them from the list of approved systems on the EPA website. EPA Guidance includes: • EPA 891 Code of Practice – Onsite Wastewater Management (EPA Victoria); • EPA 746 Land Capability Assessment - Onsite Wastewater Management (EPA Victoria); and • EPA 760 Guidelines for Aerated Onsite Wastewater Treatment Systems (EPA Victoria).

Authority	Role
Municipal Association of Victoria (MAV)	MAV has prepared guidance documents for domestic wastewater management include a template for a DWMP and a model LCA report and procedures. The documentation is consistent with EPA Guidance documents.
Victorian Building Authority (VBA)	The VBA incorporates the roles and responsibilities of the former Plumbing Industry Commission (PIC and licenses all plumbers and onsite wastewater management system installers in Victoria. The VBA regulates the installation of onsite wastewater management systems including internal plumbing works.
Water Corporations	Water Corporations proving services within Wellington and East Gippsland Shires are Gippsland Water, East Gippsland Water, South Gippsland Water, Goulbourn Murray Water (water storage manager) and Southern Rural Water. All water corporations have responsibilities under the Safe Drinking Water Act, 2003. It is the role of the water corporations to supply water fit for purpose and where this involves drinking water, the water corporations have a strong interest in the protection of drinking water catchments. In particular, they have a legislative obligation in protecting such catchments from the impacts of onsite wastewater management systems. Where a proposed onsite system is located within a drinking water catchment, in a declared sewer district or requires a planning permit, the proposal must be referred to relevant water corporation (determining referral authority) for assessment and approval prior to Council issuing approval for the development.
Victorian Civil and Administrative Tribunal (VCAT)	VCAT was established under the Victorian Civil and Administrative Tribunal Act 1998. It is a tribunal where civil disputes, administrative decisions and appeals can be heard before Judge or member. The purpose of VCAT is to provide an economical, effective and independent tribunal for dispute resolution. VCAT has made a number of important decisions on disputes with respect to onsite wastewater management systems.

Appendix 2 – Water quality risk factors

Table 10-3. Attributes which were investigated for potential use in risk model development (characteristics in bold were chosen for the risk assessment)

Characteristic	Data Source	Explanation	Assessment Process
Land area available for LAA	Property layer from DataVic	Available land calculated as total property area minus areas classed as unusable (within setbacks, near bores, high watertable. (one hundred years flood area)	Compliant ≥ 40 ha Low Risk 0.4 - < 40 ha Moderate Risk 0.2 - < 0.4 ha High Risk 0.1 - < 0.2 ha Very High Risk < 0.1 ha Extreme Risk 0 ha
Surface waters - setback distance (m)	Calculated from DEM, rivers and lakes layers.	Area of property within the setback is classified as unusable for land application area(s) (LAA).	Distance of potential disposal fields from ephemeral and permanent drainage lines, creeks, rivers, lakes, dams and all other surface waters. In DWSC waterway setback is 100 m, reservoir setback is 300 m, outside DWSC waterway and waterbody setback is 60 m
Flood Likelihood	Flood layers (1 in 100) from DataVic	Requirements for siting onsite wastewater infrastructure (including LAAs) away from areas subject to flooding can vary between Councils.	Access official records where available. Note proximity of LAAs to waterways and areas subject to flooding. Area under 1:100 flood layer is classed as unsuitable for LAA
Watertable Depth (m) below the base of the LAA	Watertable depth created from SWL and Elevation DEMs	The required soil depth to protect groundwater depends on soil type; high permeability soils generally require a greater separation distance (soil depth).	Distinguish between temporary (seasonal) perched watertables (mottling indicates wetting and drying) and permanent watertables.
Groundwater bores	Groundwater bores layer from WMIS - EPA 891.3 Setbacks Minor >50m, Mod 20-50m, Major <=20m … Setback for soil categories 2b-6 is 20m, for soils 1-2a is either 50 or 20m (50 may become 20 if certain requirements met)	Adequate depth of soil to protect groundwater resources largely depends on soil type and climate.	Note the presence of bores on the site or in the locality, and depth of any standing water in pits or bores. Area within 50 m of bore is considered unsuitable for LAA
Slope gradient (%) Slope Form (affects water shedding ability) (a) for absorption trenches and beds (b) for surface irrigation (c) for subsurface irrigation	Slope created from DEM	Land application of effluent becomes increasingly constrained with increasing slope gradient, increasing the chances of effluent runoff or subsurface seepage.	Slope can be measured in the field using a clinometer. Topographic contour lines on a site plan can also be used.
Soil Texture, Indicative Permeability	Soil%Clay from DataVic Texture Group from Hazelton & Murphy 2010: Indicative percolation rate from fao.org Soil Categorisation EPA 891.3 LSYS250: WIND_ER (used where other data not available)	Soil textures are categorised as 1. Gravels and Sands 2. Sandy Loams 3. Loams 4. Clay Loams 5. Light Clays, or 6. Medium to Heavy Clays (AS/NZS1547: 2012). The rate at which water moves through the soil reflects the soil's permeability and determines the rate at which effluent is applied to land in litres per square metre per day (mm per day). The application rate for each type of land dispersal and recycling system is listed in Table 9 in the Code. Whilst the loading rate for LAA design is based on the permeability, it is less than the true permeability.	Use the Code and AS/NZS1547:2012 to analyse and identify the texture of each soil horizon. Refer also to McDonald et al. (1990). Generally, assessment of soil texture is adequate to determine soil permeability from AS/NZS1547:2012. The constant-head parameter (AS/NSZ1547:2012) can also be used, but not if soils are waterlogged or shrink-swell cracks are present. NOTE that the falling-head percolation test is no longer considered acceptable by the EPA.

Characteristic	Data Source	Explanation	Assessment Process
Rainfall (climate - difference between rainfall and evaporation)	BOM contour map of annual rainfall categories	Seasonal rainfall, evaporation and temperature patterns influence potential evapotranspiration in land application areas.	Gather Bureau of Meteorology (BoM) data and determine average and maximum monthly rainfall, and average monthly evaporation. Risk levels Low: Rainfall > evaporation < 1 month Mod: Rainfall > evaporation 1 – 4 months High: Rainfall > evaporation > 4 months
Pan Evaporation (climate - difference between rainfall and evaporation)	BOM contour map of annual evaporation categories		
Soil Depth to Rock or other impermeable layer (m)	LSYS250: WATER_ER	Deeper soils generally have a greater assimilative capacity for effluent (depending on soil type).	Comment on the total soil depth, using field investigation or other sources of information such as bore logs, as well as the thickness of each soil horizon, to adequately characterise the soil beneath the LAA. The Code requires description of soil characteristic details 1.5m below the base of the LAA.
Aspect (affects solar radiation received)	Aspect created from DEM	The aspect or the direction that a slope is facing influences solar exposure.	Estimate the general direction of the slope of the land application area(s) (LAA). If there are multiple aspects, focus on the area's most suitable for LAA.
Landslip potential (Erosion, or potential for erosion)	LSYS250: MASS_MOV	Unstable areas (steep, unvegetated, dispersive soils etc.) are usually unsuitable for LAAs without mitigation.	Note any existing or potential erosion sites, as well as any past landslips or slope failures.
Soil Drainage	LSYS250: WATER_LOG	LAAs should be located in areas of good surface and subsurface (soil) drainage.	Determine whether rainfall will be shed (run off) or soak in, and note any waterlogged areas, which may be indicated by hydrophilic vegetation.
Electrical Conductivity (ECe) (dS/m) as a measure of soil salinity	Soil EC from DataVic	EC test result infers the salinity of the soil and its potential impact on plant growth on the LAA. Refer to Hazelton & Murphy (2007) for interpretation of EC test results. Application of effluent increases salt content of soils over time.	This cheap and simple test measures the amount of dissolved salts and can be undertaken using a hand-held meter using 1:5 soilwater suspension, or in a suitable soil testing laboratory.
pH (favoured range for plants)	Soil pH from DataVic LSYS250: LEACH (used where Soil pH data not available)	Acid soils (pH <5) or alkaline soils (pH >8) may constrain plant growth and should be ameliorated by use of chemical additives (e.g. lime for acidity).	This test can be undertaken using a soil pH test kit, a calibrated hand-held meter using 1:5 soilwater suspension, or in a suitable soil testing laboratory.
No Data Available			
Landform	(slope can be assessed)	Landform shape and the position of LAAs on slopes influence drainage and runoff characteristics both onto any potential LAAs as well as downslope of them (i.e. will runoff be evenly shed, or concentrated or dispersed flows?).	Topographic maps can be used to assess broad landform (geomorphology), and specifics such as position on slope and shape of slope should be assessed in the field, especially for any LAAs.

Characteristic	Data Source	Explanation	Assessment Process
Gleying or Mottling (see Munsell Soil Colour Chart)	indicators of soil drainage (soil texture is another indicator of indicative permeability and is available)	Gleyed soils indicate permanent saturation (permanent watertable), while orange, yellow and red mottles indicate seasonal saturation with intermittent periods of drying (perched or seasonal watertable).	Describe the soil, including the dominant soil colour (using Munsell soil colour chart) and the proportion and colour of any mottling or gleying (soil that is greyish, bluish or greenish) in each soil horizon. Include a photograph to illustrate.
Stormwater run-on		LAAs should not be located in areas with high run-on, without mitigation such as upslope diversion structures. Downslope runoff diversion may be useful.	Note evidence of run-on to potential LAAs (such as sediment dams and wet ground) and determine likely flow path(s) of runoff from LAAs.
Setback Distances (nonwaterway)		Determining the most appropriate position for LAAs should be prioritised over placement of building areas.	Note any constraints to required setback distances being met, e.g. lot size and shape.
Vegetation coverage over the site		Good vegetation cover is important to prevent erosion as well as for uptake of water and nutrients from effluent.	Vegetation cover (%) and type (e.g. turf or woodland) should be determined or estimated.
Cation Exchange Capacity		Influences the ability of the soil to hold and exchange cations; a major controlling agent for soil structural stability, nutrient availability for plants and the soil's reaction to fertilisers and other ameliorants (refer to Hazelton & Murphy, 2007).	Recommended for soils suspected to have low fertility. This test is undertaken in a suitable soil testing laboratory and is a precursor for measuring sodicity.
Sodium Absorption Ratio (SAR)		The ratio of sodium to calcium and magnesium (beneficial elements) in the soil solution, with higher ratios potentially damaging to plants and soils.	Recommended for soils or effluent suspected to have elevated sodium levels, especially soils that disperse in water, producing turbidity. This test is undertaken in a suitable soil testing laboratory.
Emerson Aggregate Class (consider in context of sodicity)		EAC results infer dispersibility (as ped slaking, soil dispersion or both). LAAs should not be installed in soils with moderate or high dispersibility, without adequate mitigation (e.g. addition of gypsum, use of irrigation).	The Emerson Aggregate Test (EAT) is used to assess soil dispersibility and susceptibility to erosion and degradation. Refer to Hazelton & Murphy (2007) for test methodology. The EAT should be the first test of soil structure stability; if the soil is dispersive measuring its sodicity is highly desirable and can lead to a correct gypsum dosing recommendation.
Rock Fragments (size & volume %)		Coarse rock fragments displace soil volume and therefore can limit assimilative capacity of soils.	Visually estimate the size and proportion of coarse rock fragments (pebbles etc.) in each horizon. Judge to see if rocks indicate shallow bedrock.
Sodicity [4] (ESP %)		The percentage of sodium compounds on cation exchange sites on soil particles. ESP >6% may cause damage to the soil structure. Refer to Hazelton & Murphy (2007). Effluent and greywater contain sodium.	Recommended for soils or effluent suspected to have elevated sodium levels, especially soils that disperse in water, producing turbidity. This test is undertaken in a suitable soil testing laboratory, in conjunction with testing cation exchange capacity and exchangeable cations.

Characteristic	Data Source	Explanation	Assessment Process
Rock outcrops (% of surface)		Rock outcrops displace soil horizons and therefore can limit assimilative capacity of LAAs for effluent. Outcrops can indicate shallow bedrock. Some rocks are strongly fissured and permeable and others are not.	Estimate the amount (% cover) and type of any rock protruding from the ground on the site.
Fill [2] (imported)		Capacity to assimilate effluent depends on the physical and chemical characteristics of the imported fill material(s).	Observe the extent and characteristics of any imported fill, particularly on potential LAAs.
Land Suitability		An LCA is used to determine which land is suitable and unsuitable for LAAs.	Areas that are unsuitable for LAAs should be excluded to determine available LAA on the site. A number of small and separate areas are often not suitable for LAAs.

Appendix 3 – Key to planning zones

Table 10-4. Key to planning zones

Category	Code	Planning Zones Name
Industrial	IN1Z-IN3Z	Industrial Zone
Commercial	CZ1-2	Commercial Zone
	MUZ	Mixed Use Zone – not public land is a commercial zone
Public Land	PCRZ	Public Conservation and Resource Zone
	PPRZ	Public Park and Recreation Zone
	PUZ1-7	Public Use Zone
	PCRZ	Public Conservation and Resource Zone
	RDZ1-2	Road Zones
Residential	LDRZ	Low Density Residential Zone
	GRZ1	General Residential Zone
	MUZ	Mixed Use Zone
	CDZ1	Comprehensive Development Zone –is a residential zone in this case
	TZ	Township Zone
Rural	FZ	Farming Zone
	RAZ	Rural Activity Zone
	RLZ1-5	Rural Living Zones
	RCZ1-3	Rural Conservation Zones
Special Purpose	SUZ1	Special Use Zone: Earth and Energy Resources Industry
	CA	Commonwealth Land

Appendix 4 – Action Plan items from 2006 DWMP not carried forward to 2016 plan

Action plan items in this appendix were either completed, or due to changing circumstances are no longer considered a priority in the 2016 plan.

Issues Relevant to Municipalities as a Whole

Action	Action steps	Comments and action taken
Capacity Building		
CB.1	Investigate potential to obtain additional funds from Council budget. (take out)	Investigated No success, no funding
CB.2	Investigate potential for a domestic wastewater management levy for all unsewered homes.	Not done. No appetite from Council. Legality is unresolved
CB.4	Work with EPA and DSE to improve regulation and enforcement mechanisms to remedy septic tank systems that are operating in accordance with their permits but do not satisfy current standards.	No EPA Regulation Review process never completed despite discussion paper. (See Hard Copy)
CB.5	Investigate strategies for addressing the issue of landowner's ability to pay for upgrades required.	Funding not available
Information Management and Data Collection Update septic tank permit database		
IM.1	Liaise with MAV pilot program regarding potential database module components.	Ongoing
IM.5	Submit data transfer program for incorporation into budget	No funding available as is not separately funded
IM.6	On budget approval implement data transfer program	N/A
IM.8	Submit audit program for incorporation into budget	Submit for Budget item during the tenure of the plan
IM.9	On budget approval implement audit program	Not done (see comments above)
Establish Septic Tank Details at Change of Ownership		
IM.10	Establish/enhance link between the property system and the EH team to ensure that Section 32 notices inform potential property buyers of the existence of a septic system, the conditions of the permit and any recorded problems. (Links with education action CE.8)	To be implemented
IM.12	Submit program to access missing information for incorporation into budget	N/R
IM.13	On budget approval implement program to access missing information.	N/R
Community Education Community education for property owners and residents in priority towns and high risk areas		
CE.1	Develop fact sheets addressing issues such as: • How septic tank systems work. • Owner obligations. • How to achieve best system performance (maintenance & household practices). • How to detect a failing system. • Impacts of failing systems. • Septic tank permits. • Water conservation. • Reuse of greywater.	Ongoing improvement to website and continued education program
CE.2	Develop media release to publicise availability of fact sheets.	Not Required
CE.3	Display fact sheets on Council website and make available at Shire Offices.	Ongoing update on website
CE.6	Design a community evaluation survey and process for completion.	Not Required
CE.7	Submit survey process for budget approval.	Not Required
CE.8	Undertake a community evaluation survey.	Not Required
Community education for new septic tank permit holders and new property owners with septic tank systems		
CE.9	Prepare a standard covering letter to be circulated to new septic tank permit holders and new property owners with a set of fact sheets.	Ongoing updates
CE.10	Establish a system (or refine existing system) whereby Rates Office notify EH Dept. when a change of home ownership occurs for an unsewered property. (Linked to Action IM.10)	To be established (WSC) Completed (EG)

Action	Action steps	Comments and action taken
CE.11	EH Dept. to distribute fact sheets as permits are issued and when a change of home ownership occurs. Where type of septic system is known, target fact sheets sent.	To be established (WSC) Completed (EG)
Strategic Planning		
SP.2	Determine minimum lot size required for sustainable onsite wastewater management for all high and medium risk townships/locations.	LCA dependent. Requires site specific information
		dependent upon the specific development
SP.3	Develop planning strategy for lots that are smaller than the minimum size required for sustainable onsite wastewater management.	Ongoing in consultation with Planning
SP.4	Ensure Coastal Townships Urban Design Framework includes appropriate consideration of domestic wastewater issues.	In Consultation with Strategic Planning
SP.5	Ensure outcomes of Coastal Townships Urban Design Frameworks and wastewater management policies are included into Planning Schemes as amendments.	In Consultation with Relevant Water Corporations
SP.6	Develop strategic approach to sewerage infill and extension in sewered towns.	Gippsland, East Gippsland and South Gippsland Water Strategies
Land Capability Assessments		
LCA.1	Review and document circumstances in which LCAs need to be undertaken.	LCA required as part of all EGS septic tank applications. WSC have triggers that will require an LCA
LCA.2	Determine and set minimum requirements for preparation of LCAs in accordance with existing guidelines.	Ongoing compliance with the relevant codes and standards
LCA.3	Develop information package and template for LCA providers in consultation with providers.	LCA provider responsibility
LCA.4	Provide information package and template to key LCA providers and other relevant stakeholders (e.g. developers).	LCA provider responsibility
LCA.5	Make information package and template available on council website.	LCA provider responsibility
LCA.6	Develop LCA training process for field assessors, e.g. biennial workshop.	Not a Council role
LCA.7	Submit LCA training program for incorporation into budget	Not a Council role
LCA.8	On budget approval implement LCA training program	Not a Council role
LCA.9	Investigate possibility of building knowledge of land capability in the region through a database incorporating information from LCAs or EHO assessments.	Ongoing development
LCA.10	Work with EPA to investigate an accreditation process for LCA providers.	EPA Matter
Monitoring and Compliance		
MC.7	Submit inspection program for incorporation into budget	Under Current Budget
MC.8	On budget approval implement inspection program	As above
Building Better Partnerships with Internal and External Stakeholders Internal stakeholder communication		
IS.2	In East Gippsland Shire, consult with other teams regarding implementation of a weekly meeting to discuss planning permit applications.	Undertaken on an “as needs basis” Formal referral process for relevant planning applications
IS.4	Provide annual update to customer service staff regarding EH issues. Including staff in branch offices.	Ongoing
IS.5	Involve non-EH staff in domestic wastewater training, where relevant. (Linked to TR.1-6)	Not Required
External stakeholder communication		
ES.1	Maintain contacts database developed in DWMP project.	Ongoing
ES.2	Review referrals checklist for planning and septic tank permit applications to ensure there is a process established to contact external stakeholders when relevant issues arise.	Ongoing
ES.4	Hold annual meeting with external stakeholders to discuss domestic wastewater issues.	Not done
ES.5	Consult with external stakeholders regarding GIS data sets that are applicable in assessing land capability for domestic wastewater management (eg. water supply offtake points).	Ongoing/incomplete
Training for Environmental Health Officers		
TR.1	Convene a workshop on outcomes of the DWMP (potentially in conjunction with IS.1).	Not done
TR.2	Implement regular (e.g. annual) meetings/ workshops between Wellington and East Gippsland EH staff to discuss issues. Potentially involve an external expert on some occasions.	Not done

Action	Action steps	Comments and action taken
TR.3	Undertake annual review (in Jan/Feb) of the DWMP action plans jointly between Wellington and East Gippsland Shires.	Not done
TR.4	Develop an EH specific induction program that includes training on land capability assessment and planning tools.	Completed
TR.6	Encourage MAV to provide additional courses relevant to domestic wastewater management.	Ongoing

Strategic objectives completed since 2006

Table 10-5. Individual Towns Strategic Objectives from the 2006 DWMP that were completed.

No.	Shire	Description
1.	Wellington	Alberton - work with South Gippsland Water to investigate potential for sewering town to nearby Tarraville treatment plant (which services Yarram). *(No longer a strategic objective, town now sewered*)
2.	East Gippsland	Bemm River - apply for external funding to assist in investigation of sustainable wastewater management approach. *(No longer a strategic objective, town now sewered*)
3.	East Gippsland	Banksia Peninsula - liaise with East Gippsland Water regarding current sewer investigation and, if sewering is not implemented, determine approach to sustainable onsite disposal. *(No longer a strategic objective, area now sewered)*
4.	Wellington	Coongulla/Glenmaggie and Loch Sport - continue role as partner in investigation into innovative solutions to domestic wastewater management *(No longer a strategic objective, towns now sewered*)
5.	Wellington and East Gippsland	Coastal towns - ensure domestic wastewater management issues are incorporated appropriately into Coastal Townships Urban Design Framework. *(No longer a strategic objective, domestic wastewater management issues now incorporated into UDF)*

East Gippsland Shire

Action	Action steps	Comments and action taken
Buchan, Swifts Creek, Nowa Nowa, Ensay, Bendoc, Newmerella		
River.1	Community education to achieve improved management and encourage installation of improved systems (part of actions CE.4 & CE.5)	Not done
River.2	Determine minimum lot size required and preferred approach to sustainable onsite management (part of action SP.2).	Refer SP 2 and 3
Bemm River		
Bem.1	Apply for external funding to investigate sustainable wastewater approach.	Done
Bem.2	Investigate options for reticulated sewerage or common effluent drainage scheme.	Done Reticulated sewer provided
Bem.3	Undertake community consultation regarding preferred approach.	Done Reticulated sewer provided
Bem.4	Community education to achieve improved management and encourage installation of improved systems (part of actions CE.4 & CE.5).	Done Reticulated sewer provided
Bem.5	Develop a monitoring and compliance program (linked to actions MC.1-9).	Done Reticulated sewer provided
Banksia Peninsula		
Banks.1	Liaise with EGW regarding sewer investigation.	Done Reticulated sewer provided
Banks.2	Determine approach to sustainable onsite disposal if sewering not implemented.	Done Reticulated sewer provided
Banks.3	Community education to achieve improved management if sewering not implemented (part of actions CE.4 & CE.5).	Done Reticulated sewer provided
Banks.4	Develop compliance and monitoring program if sewering not implemented. (Linked to actions MC.1-9)	Done Reticulated sewer provided
Lindenow South		
Lind.1	Determine minimum lot sizes for redgum plains vs sandy rises (part of action SP.2).	See SP2
Lind.2	Determine strategy for matching planning zones to land systems.	Councils and EGW strategic policy to encourage development in Lindenow sewer district
Lind.3	Community consultation to determine whether area should be rezoned or sewered.	Councils and EGW strategic policy to encourage development in Lindenow sewer district
Nungurner/Metung East		
Nun.1	Determine minimum lot size appropriate for onsite wastewater management (part of action SP.2).	See SP 2
Nun.2	Work with council planning area to incorporate domestic wastewater strategy into Coastal Towns Urban Design Framework so as to ensure further subdivision of land is restricted (part of action SP.4).	Done NB East Metung now partially sewered
West Wy Yung and other Sewerage Infill		
Wy.1	Determine minimum lot size appropriate for wastewater management (part of action SP.2).	See SP 2
Wy.2	Work with council planning area to determine strategic approach, e.g. restrict subdivision or ensure subdivided areas are sewered or have a common effluent drainage scheme.[1] (Part of action SP.6.)	Done – in progress
Wy.3	Consider options for connecting to nearby sewer system, e.g. low pressure sewer.	Done

Wellington Shire

Action	Action steps	Comments and action taken
Coongulla/Glenmaggie		
C/G.1	Continue role as partner in Country Towns Water Supply and Sewerage Program investigation into innovative domestic wastewater solutions.	Done
C/G.2	Determine minimum lot size and approach to sustainable onsite disposal in interim (part of action SP.2).	Done
C/G.3	Develop strategy for new houses, or upgrades that occur before sewer investigation complete.	Done
C/G.4	Community education to achieve improved management and encourage installation of improved systems (part of actions CE.4 & CE.5).	Done
C/G.5	Develop compliance and monitoring program[1] (linked to actions MC.1-9).	Not done
Loch Sport		
Loch.1	Continue role as partner in Country Towns Water Supply and Sewerage Program investigation into innovative domestic wastewater solutions.	Done
Loch.2	Review approach to sustainable onsite disposal.	Done
Loch.3	Develop strategy for new houses, or upgrades that occur before sewer investigation complete.	Done
Loch.4	Community education to achieve improved management and encourage installation of improved systems (part of actions CE.4 & CE.5).	Done
Loch.5	Develop compliance and monitoring program (linked to actions MC.1-9).	Done
Alberton		
Alb.1	Community education to achieve improved management and encourage installation of improved systems (part of actions CE.4 & CE.5).	Done
Alb.2	Investigate potential to sewer town to Tarraville WWTP in consultation with South Gippsland Water.	Done
Alb.3	Determine minimum lot size required for sustainable onsite management (part of action SP.2).	Done
Alb.4	Develop strategy for undeveloped lots that are smaller than minimum lot size (part of action SP.3).	Done
Alb.5	Ensure new houses and upgraded systems implement full onsite disposal.	Done
Alb.6	Investigate improved stormwater management to reduce public health risk, e.g. covers over drains.	Done
Alb.7	Investigate improved stormwater management to reduce environmental impact, e.g. wetland, reed bed.	Done
Alb.8	Develop a monitoring and compliance program (linked to actions MC.1-9)	Done
Cowwarr and Dargo		
C&D.1	Community education to achieve improved management and encourage installation of improved systems (part of actions CE.4 & CE.5).	Ongoing
C&D.2	Determine minimum lot size required for sustainable onsite management (part of action SP.2).	Ongoing
C&D.3	Develop strategy for undeveloped lots that are smaller than minimum lot size (part of action SP.3).	Ongoing
C&D.4	Ensure new houses and upgraded systems implement full onsite disposal.	Done
C&D.5	Investigate improved stormwater management to reduce public health risk, e.g. covers over drains.	Ongoing
C&D.6	Investigate improved stormwater management to reduce environmental impact, e.g. wetland, reed bed.	Done
C&D.7	Develop a monitoring and compliance program (linked to actions MC.1-9)	Ongoing
Coastal Areas: In particular, Golden Beach, Paradise Beach, McLoughlins Beach and Woodside.		
Coast.1	Take active role in development of Coastal Townships Urban Design Framework and Wellington Coastal Strategy to ensure domestic wastewater issues are incorporated appropriately (part of action SP.4).	Ongoing
Coast.2	Determine impact of land capability on approach to onsite management (part of action SP.2).	Ongoing

Action	Action Steps	Comments and action taken
Coast.4	Community education to achieve improved management and encourage installation of improved systems (part of actions CE.4 & CE.5).	Not done
Coast.5	Develop a monitoring and compliance program (linked to actions MC.1-9)	Not done
Briagolong		
Briag.1	Investigate risk to groundwater in further detail and determine capacity for further unsewered development in the town.	Not done
Briag.2	Determine minimum lot size required for sustainable wastewater management (part of action SP.2).	Not done
Briag.3	Develop strategy for undeveloped lots that are smaller than minimum lot size (part of action SP.3).	Done
Briag.4	Ensure new houses and upgraded systems implement full onsite disposal.	Done
Briag.5	Community education to achieve improved management and encourage installation of improved systems (part of actions CE.4 & CE.5).	Not done
Briag.6	Develop a monitoring and compliance program (linked to actions MC.1-9)	Not done
Hollands Landing		
HL.1	Determine sustainable approach to onsite management.	Not done
HL.2	Community education to achieve improved management and encourage installation of improved systems (part of actions CE.4 & CE.5).	Not done
HL.3	Develop a monitoring and compliance program (linked to actions MC.1-9)	Not done
Sewerage Infill: Developments around Sale, Maffra, Heyfield, Rosedale, Yarram, and Stratford.		
Infill.1	Determine minimum lot size appropriate for onsite wastewater management (part of action SP.2).	Done
Infill.2	Work with council planning department to determine strategic approach, e.g. restrict subdivision or ensure subdivided areas are sewered[1]. (Part of action SP.6)	Ongoing
Infill.3	Develop a closer relationship with relevant water corporations and investigate options for expansion of the sewer system[2].	Ongoing
Infill.4	Where sewering will not occur undertake community education to ensure improved management of septic systems (part of actions CE.4 & CE.5).	Ongoing
Infill.5	Develop a monitoring and compliance program (linked to actions MC.1-9).	Ongoing

Appendix 5 – Stakeholder Workshops

Wellington and East Gippsland Shires Domestic Wastewater Management Plan – Workshop 1 – Review of DWMP Scope

May 1 2015, Wellington Shire Offices, 70 Foster St, Sale Attendees:

- Martin Richardson (Gippsland Lakes Committee – resigned)
- Fiona Pfeil (Catchment Officer, Gippsland Water)
- Vince Lopardi (Water Resources & Catchment Planning, Southern Rural Water)
- Kerry Matthews (Catchment Management & Water Quality, South Gippsland Water)
- Paul Young (Senior Planning Engineer, Gippsland Water)
- John Roche (Acting Senior Environmental Health Officer (EHO), East Gippsland Shire Council)
- Vanessa Ebsworth (Manager, Municipal Services, Wellington Shire Council)
- Barry Nicholl (Municipal Building Surveyor and Environmental Health Coordinator, Wellington Shire Council)
- Dean Graham (EHO, Wellington Shire Council)
- Andrew Fairhall (EHO, Wellington Shire Council)
- Elliot Robertson (Department of Health and Human Services)
- Nick O'Connor (Ecos Environmental Consulting)
- Tracy Clark (Ecos Environmental Consulting)

Apologies:

- Simon Robertson (East Gippsland Water)
- EPA Victoria