



# Surf Coast Shire Urban Stormwater Management Plan

## Volume 1

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**Document No. SCS SWMP Volume 1.doc**

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Approved \_\_\_\_\_  
  
Date \_\_\_\_\_

**November 2004**



*Natural Resource Managers • Environmental Scientists & Engineers*  
**OPERATING THROUGHOUT AUSTRALIA & ASIA PACIFIC**  
*(Part of the Fisher Stewart Group)*



AS 9001 LIC 1856  
Standards Australia

Surf Coast Shire

# Surf Coast Shire Stormwater Management Plan

Job 3201031

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# 1 Introduction

## 1.1 Purpose of the Stormwater Management Plan

The purpose of the Stormwater Management Plan is to protect and enhance the Surf Coast Shire's receiving water environments by improving the quality and management of stormwater draining from the urban areas in Surf Coast Shire.

Improvements in urban stormwater quality will have beneficial effects on the Surf Coast Shire's significant receiving water environments, in particular:

- Bass Strait
- Anglesea, Barwon, Erskine and St George Rivers,
- Jan Juc, Spring, Deep, Thompson, Stoney, Paikalac, and Moggs Creeks
- Noble Reserve wetland

To achieve this purpose the Plan:

- identifies the priority issues for management of stormwater quality in Surf Coast Shire ;
- presents strategies for reducing the main threats to stormwater quality; and
- presents strategies for integrating best practice environmental management of stormwater into Council's management and planning activities.

Volume 1 of the Stormwater Management Plan provides a summary of how the plan was developed and details the recommended strategies. Volume 2 provides further details of the processes followed and the background information used to arrive at the strategies.

## 1.2 The Need to Manage Stormwater Quality

Stormwater is produced on a catchment wide basis. Urban areas centres, within the Surf Coast Shire, increase the area of impervious (or sealed) surfaces within catchments. Because of the sealed surfaces of Urban areas water is transported more quickly to receiving waters.

Human activities in the catchment (particularly in urban areas) provide many materials that can pollute the environment. Again, the large extent of sealed surfaces increases the amount and transportability of materials that are washed off into the drainage system and into the receiving waters (eg. Bass Strait). There are many forms of pollutants which can cause adverse impacts on the environment and the receiving waters. Water from Urban areas is also more likely to contain a greater range of these pollutants, with a greater potential to effect water quality than runoff from non-urban areas. It is for this reason that urban areas have been the primary focus of this plan.

It has been recognised that there are significant areas of non-urban land, (primarily Agricultural) within the Surf Coast Shire. These areas also have the potential to adversely impact the water quality of receiving environments. However these areas require a separate and more specific management approach, to deal with the particular stormwater issues that arise from non-urban areas.

Management of stormwater quality aims to reduce any adverse impacts on the environmental and other values of the receiving waters. Strategies can include changes to the management of activities within the urban area to improve stormwater quality, through policies and procedures. Structural treatment measures can also be implemented to minimise pollutants being carried to the environment.

## **2 How the Plan was Developed**

### **2.1 The Overall Process**

The approach used in developing the Stormwater Management Plan follows the process detailed in Chapter 3 (revised September 2000) of the Best Practice Environmental Management Guidelines (CSIRO, 1999). This process has been developed and is coordinated through the Victorian Stormwater Action Program by the Environmental Protection Agency (EPA).

There are a number of key elements within the process for developing a stormwater management plan. A series of four workshops are included that allow the issues to be debated and the knowledge from a range of stakeholders to be incorporated into the plan. A review of current Council practices in relation to stormwater quality was also undertaken. The process also involves a risk assessment method for determining the priority risks to be managed. The main outcomes from the process are two types of strategies; reactive strategies and management framework strategies.

These elements are described further in the following sections.

### **2.2 Stakeholder Involvement**

Development of the stormwater management plan was overseen by a Steering Committee comprising representatives from the Surf Coast Shire, Corangamite Catchment Management Authority, EPA and Barwon Water.

The Project Working Group was involved at four workshops throughout the study. In addition to the above members, this group consisted of further Council officers (engineers, planners and technical staff).

## 2.3 Risk Assessment Method

In the context of the stormwater management plan, risks are defined as activities within the catchment that can have an adverse impact on waterways or water bodies and their associated values. Potential impacts are usually as a result of pollutants transported by stormwater.

The method for determining risk priorities can be summarised by the following relationship:

$$\text{Risk} = \text{Threat} \times \text{Value} \times \text{Sensitivity}$$

Where:

- A threat (shown in red below) is an activity in the catchment that can pollute stormwater quality;
- A value (shown in green below) includes the waterway or water body that receives stormwater flows (the receiving waters) and its associated values for a range of factors including environmental, aesthetic, cultural and economic factors;
- Sensitivity (shown in blue) is a measure of how much of an impact would occur to the waterway values if the pollutants were transported there by the stormwater.

This method was used through the workshop process to determine the highest risks for management. The highest risks are those activities within the urban catchment that have the most potential to cause adverse impacts on the values of the receiving waters.

### 3 Outcomes from the Plan

The main outcomes from the process are two types of strategies; Reactive strategies and Management Framework strategies.

The top or key reactive and management framework strategies have been summarised in Tables 2.4.1 and 2.4.2.

These strategies can then be used by the Surf Coast Shire in setting work programs and seeking funding on projects that can be implemented within a short timeframe, to improve the condition and management of urban stormwater quality.

#### 3.1 Reactive management strategies

These strategies are recommended for responding to the priority risks to the receiving waters that have been identified through the workshop process. A full listing is given in section five of this plan.

<b>Table 4.2.1 Top Reactive Management Strategies</b>		
<b>Strategy Code</b>	<b>Description</b>	<b>Priority</b>
EA133, EA137, Ea138, EA 139 & EA 1311	Guideline development and distribution	<b>1</b>
SC133 & SCM134	Street Sweeping	<b>2</b>
RE134, RE235, Re138, RE139 & RE1310	Audit and Inspection	<b>3</b>
EA433 & EA538	Drain stencilling / signage	<b>4</b>
EA5310	Promotion of EPA litter hotline and taskforce	<b>5</b>
IDC134, IDC2310 & IDC3311	Site database or GIS layer	<b>6</b>
IDC135, IDC136, IDC137 & IDC1312	Monitoring of receiving waters	<b>7</b>
STM438	Inline GPT , Torquay – The Esplanade	<b>8</b>
STM338	GPT, Aireys Inlet – River Reserve Road	<b>9</b>
STM233, STM538 & STM 1310	Drainage entrance treatments	<b>10</b>
STM336	Stabilisation works	<b>11</b>
EA333	Media release	<b>12</b>

### 3.2 Management Framework Strategies

These strategies are recommended for improving the management and planning activities of the Council in stormwater quality. These strategies will reduce stormwater pollution effects across all parts of the urban area.

<b>Table 4.2.1 Top Ten Management Framework Strategies</b>		
<b>Strategy Code</b>	<b>Description</b>	<b>Priority</b>
P10, E4, I10 & O9	Staff training	<b>1</b>
P3 & EA4	Encourage water sensitive urban design	<b>2</b>
P1	Additions to the Municipal Strategic Statement	<b>3</b>
P9, EA9, E2, O8 & RC8	Extra staff and resources	<b>4</b>
EA10 & RC9	Educative material	<b>5</b>
E8	Create a local laws information sheet	<b>6</b>
	Feasibility investigations	<b>7</b>
P7, E9 & I7	Develop and Maintain a database, GIS layer and registration listing relative to stormwater.	<b>8</b>
O1	Develop and introduce operating procedures	<b>9</b>
O10	Implement operating procedures	<b>10</b>



## **4 Surf Coast Shire Locality, Characteristics and Subcatchments**

### **4.1 Surf Coast Shire Location**

The Surf Coast Shire is situated on one of the nation's most prominent coastlines at the gateway to the Great Ocean Road in Southwestern Victoria. The Surf Coast Shire covers an area of over 1500 square kilometres with its boundaries extending from the Barwon River in the north to along Victoria's southwest coast from Thompson's Creek at Breamlea, down the Great Ocean Road through Torquay, Anglesea, Aireys Inlet to the Cumberland River, west of Lorne (see Figure below). The Shire contains many waterways; the most renowned of these include the Barwon River, Thompson Creek, Spring Creek, Anglesea River, Painkalac Creek, Erskine River and the Cumberland River.

### **4.2 Surf Coast Shire Characteristics**

The Surf Coast area is characterised by the unique coastal townships of Torquay, Anglesea, Aireys Inlet, Fairhaven and Lorne situated along the Great Ocean Road; prime agriculture land at the Otway foothills; the Barwon River and open broad-acre farmlands to the north of Princes Highway centred around the township of Winchelsea.

The Shire is a significant destination for international and domestic visitors and accommodates a regional influx of weekend visitors. The Shire also boasts a diverse range of attractions, from popular surf and protected beaches to diverse hinterland features in scenic rural and forested environments.

The Surf Coast Shires natural landscape diversity and its many recreational opportunities has attracted many people to the region. Over the past 12 years the Shire's population has grown by an average of 3.2% p.a. When this figure is compared to Victoria's state average of only 0.62%, the Shire's growth rate is over 450% higher. Currently permanent population of the Surf Coast Shire is estimated at 19,200, which doubles at holiday times. This growing population creates a range of catchment and land management problems and issues, which require a range of solutions. One of the most significant problems identified in the region includes degradation of waterways, wetlands and estuaries, and in some cases the eutrophication of these water bodies. Poor urban stormwater runoff quality is expected to be contributing to the evident degradation of the regions receiving water environments.

### 4.3 Surf Coast Shire Subcatchments

For the purposes of the Stormwater Management Plan, the Surf Coast Shire has been divided into 6 townships to form the basis of identifying threats and values and formulating management strategies. Sixteen (16) sub-catchments within these 6 townships have been identified on the basis of Landuse patterns, receiving environments and hydrological boundaries where possible. The townships are:

1. Torquay – Jan Juc
2. Anglesea
3. Lorne
4. Winchelsea
5. Aireys Inlet-Fairhaven
6. Moriac

The locations of these townships are shown on Figure 1 below.

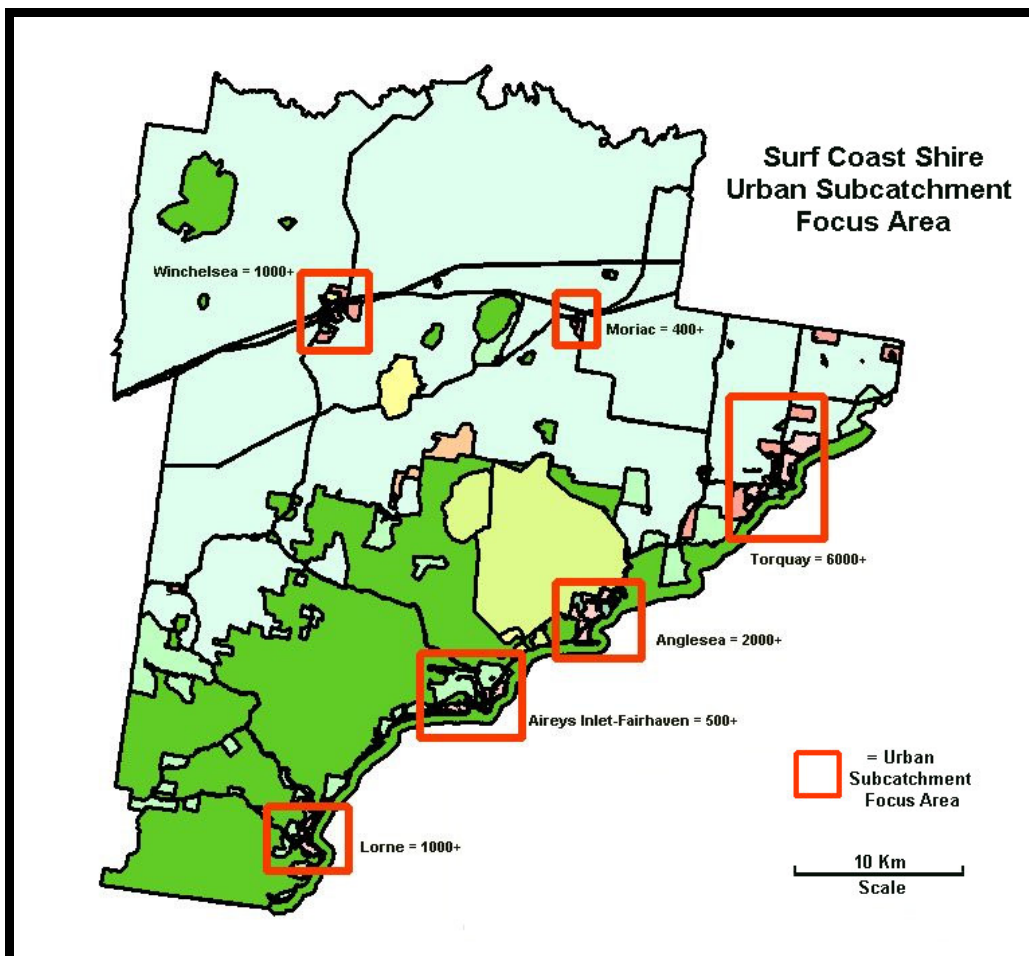


Figure 1: Focus Townships of the Surf Coast Shire Stormwater Management Plan

## 5 Stormwater Management Issues in the Surf Coast Shire

### 5.1 Values to be protected

The purpose of the Plan is to protect the values of the receiving waters from any impacts of polluted stormwater. The waterways have a range of values and beneficial uses for people as well as other environmental values. These values can be adversely affected by polluted stormwater.

The values were categorised under the following headings:

<b>Environment</b>	<ul style="list-style-type: none"> <li>○ In stream habitat</li> <li>○ Riparian flora and fauna</li> </ul>
<b>Heritage</b>	<ul style="list-style-type: none"> <li>○ European</li> <li>○ Indigenous</li> </ul>
<b>Amenity</b>	<ul style="list-style-type: none"> <li>○ Recreation</li> <li>○ Aesthetics and Landscape</li> </ul>
<b>Stormwater</b>	<ul style="list-style-type: none"> <li>○ Flood conveyance</li> <li>○ Water quality treatment</li> </ul>
<b>Economic</b>	<ul style="list-style-type: none"> <li>○ Property values</li> <li>○ Other values, - <i>eg</i>, tourism</li> </ul>

## 5.2 Receiving Waters And Values

The values of receiving waters are shown in Tables 5.2.1 and 5.2.2 for each of the respective towns and sub-catchments. Codes used to rank the **values** are: Very High (VH), High (H), Moderate (M) or Low (L).

**Table 5.2.1 Values of receiving waters in Lorne, Winchelsea, Anglesea and Moriac**

VALUES OF RECEIVING WATERS		LORNE				WINCH-ELSEA	ANGLESEA		MORIAC
		Bass Strait	Erskine River	Cherry	Stoney Creek	Barwon River	Bass Strait	Anglesea River	Thompson Creek
CATEGORY	VALUE TYPE								
ENVIRONMENTAL	In-stream Habitat	VH	M	M	VH	L	VH	L-M	L-M
	Coastal/Marine Riparian Vegetation	VH	M	M	VH	M	VH	L-M	L
AMENITY	Recreational	VH	VH	L	M	H	VH	VH	L
	Visual Landscape	VH	VH	L	M	H	VH	VH	L
CULTURAL	European Heritage	H	H	H	H	H	H	H	L
	Indigenous Heritage	H	H	H	H	H	H	H	L
STORM-WATER	Flood & Conveyance	L	L	L	L	L	L	L	L
	Water Quality	L	L	L	L	L	L	L	L-M
ECONOMIC	Property	VH	VH	H	H	H	VH	VH	L
	Tourism & Other	VH	VH	H	H	L	VH	VH	L

### 5.2.2 Values of receiving waters in Torquay and Aireys Inlet

VALUES OF RECEIVING WATERS		TORQUAY				AIREYS INLET		
		Bass Strait	Spring Creek	Deep Creek	Thompson Creek	Painkalac Creek	Noble Creek	Moggs Creek
CATEGORY	VALUE TYPE							
ENVIRONMENTAL	In-stream Habitat	H	M	M	H	H	H	H
	Coastal/Marine Riparian Vegetation	H	H	H	M-H	H	H	H
AMENITY	Recreational	VH	H	H	H	H	M	M
	Visual/Landscape	VH	H	H	H	VH	VH	M
CULTURAL	European Heritage	H	H	H	H	H	H	H
	Indigenous Heritage	H	H	H	VH	H	H	H
STORMWATER	Flood & Conveyance	L	M	L	M	L	L	L
	Water Quality	L	H	L	L	L	L	L
ECONOMIC	Property	VH	H	VH	M	VH	VH	VH
	Tourism & Others	VH	M	M	M	VH	H	H

### 5.3 Threats to Stormwater Quality

Activities undertaken in each of the subcatchments were reviewed to assess the potential threats to stormwater quality. The threats were generally categorised under the main types of land use, eg commercial area runoff.

A range of pollutants can be generated from the various catchment activities, and these are detailed in Volume 2. As with most towns, there is very little data or recorded information on the sources and extents of stormwater pollution within the urban area. Therefore, the assessment of threats relies on local knowledge and observations, combined with the general understanding from many urban areas of the typical pollutants carried by urban runoff.

The study team and the Project Working Group determined the levels of the threats, and decided on the more severe threats. Tables 5.3.1 and 5.3.2 summarize the main threats to stormwater quality for each of the subcatchments.

Codes used to rank the **threats** are Very High (VH), High (H), Moderate (M) or Low (L).

Table 5.3.1 –Threats to Stormwater Quality in Anglesea, Winchelsea, Aireys Inlet and Moriac

THREAT	ANGLESEA		WINCHELSEA	AIREYS INLET				MORIAC
	Bass Strait	Anglesea River	Barwon River	Painkalac Creek	Noble	Moggs Creek	U/S	Thompsons
Animal Waste	M	M	M	M	M	M	M	M
Building Site	H	H	L	H	H	H	H	H
Car Parks	VH	VH	M	H	H	H	H	L
Caravan Parks	VH	VH	L	L	L	L	H	-
Commercial Zone	L	VH	H	H	L	L	L	M
Council Maintenance	H	H	H	H	H	H	H	M
Litter	H	H	M-H	H	L	L	M	L
Major Road Run-off	VH	VH	H	H	H	L	L	M
Open Space Run-off	H	H	M	L-M	L	L	L	L
Residential Land Use	H	VH	H	H	H	H	H	VH
Sewer Leakage	L-M	VH	M	H	L	L	L	-
Industrial Zone	L-M	VH	M	L	L	L	L	-
Service Stations	L-M	VH	H	M	L	L	M	M
Power Stations	L	H	-	-	-	-	-	-
Residential Development	M	VH	L	VH	VH	VH	VH	VH
Railways			M		-			M
Rural Residential	L	L	H	M	L	L	L	H
Flooding	L	H	M	VH	VH	VH	VH	H
Contaminated Land	L	VH	L	-	-	-	-	-
Recreation				H	L	L	L	L
U/S Roads	VH	VH	H-M	VH	VH	VH	VH	L
Septics	-	-						
Swimming Pools	-	-	VH	H	L	H	L	VH

Table 5.3.2 –Threats to Stormwater Quality in Lorne and Torquay

THREAT	TORQUAY				LORNE			
	Bass Strait	Spring Creek	Deep	T/ Creek	Bass Strait	Erskine River	Stoney Creek	St George River / CT Creek
Animal Waste	M	M	M		H	H	M	M
Building Site Run-off	VH	VH	VH	VH	VH	VH	VH	H
Car Parks	H	M-H	M	M	VH	VH	M	
Caravan Parks & Camping Grounds	H	H	VH	H	M	VH	L	L
Commercial Zone	VH	H	H	L	VH	H	L	L
Council Maintenance	H	H	H	H	H	H	H	VH
Litter	H	H	H		H	H	L	L
Major Road Run-off	VH	VH	VH	VH	H	H	M	M
Open Space Run-off/Recreation	H	H	M	M	H	H	L	L
Residential Land Use Run-off	VH	VH	VH	VH	VH	VH	VH	H
Sewer Leakage	M	VH	L	VH	VH	VH	VH	VH
Industrial Zone	VH	VH	L	L	L	L	L	VH
Service Stations	VH	VH	L	L	H	H	L	L
Power Stations	-	-	-	-	-	-	-	-
Residential Development	VH	VH	VH	VH	VH	VH	VH	VH
Railways								
Unsealed Roads – U/S	H	H	H	H	VH	VH	L	VH
U/S Inflows	L	H	H	M	L	H	L	H
Rural Residential	L	H	H	H	L	M	M	M
Flooding	L	L	H	H	L	H	H	L
Contaminated Land	L	L	L	H	L	H	H	L

## 5.4 Priority Stormwater Risks

The priority risks were determined using the risk assessment method described previously. This involved allocating scores to the values of the receiving waters and to the threats from the urban catchment land uses. Scores were also allocated for the sensitivity of the receiving waters to each particular threat.

All risk combinations were then compared and the highest scores indicated the priority stormwater risks to the receiving waters. The results for the top ten priorities are listed in order in the following table.

Threat Ranking	Stormwater Threat	No. Of Sub-Catchments in which Threat Occurs
1	Residential land use runoff	14
2	Land Development	14
3	Sewer leakage	8
4	Road runoff	6
5	Commercial zone management	5
6	Litter	5
7	Industrial zone	5
8	Septic leaks	5
9	Service Stations	4
10	Building Site Runoff	4

**Table 3: Priority Risk Issues**



## 6 Reactive Management Strategies

Reactive management strategies have been developed to respond to the priority risks determined through the risk assessment process (identified previously).

Several methods of selection and assessment were undertaken to arrive at the strategies, and this is explained in greater detail in Volume 2.

Initially, prescribed lists of potential actions were screened to remove those that were clearly not applicable to managing the risk. Then a more detailed assessment was made of potential actions, considering a number of factors including cost, effectiveness and feasibility. The most effective actions were then selected to form part of the strategies.

The reactive management strategies are presented below for each of the 10 priority risks. Each strategy has a balance of structural and non-structural actions. The list of strategies includes a description of each action, estimated cost allowances and the authority responsible for implementing the action. Finally, it is indicated whether the action applies to a specific location or whether it is effective across all the relevant subcatchments.

**Table 4.1 Reactive Management Strategy 1 – Residential Land Use Runoff**

- **Key Pollutants:** Increased flow, sediment, nutrients, litter, oxygen depleting material, hydrocarbons, pathogens, trace metals, pesticides surfactants
- **Key Threats:** Deposition from traffic, washing cars, fertiliser application, poor waste management (domestic refuse), lawn clippings and vegetation.
- **Key Values:** Environmental, Amenity and Economic
- **Key Subcatchments and Receiving Environments Affected Prioritised:**
  1. **Torquay** (Jan-Juc Creek), **Lorne** (Bass Strait, Stoney Creek) **Winchelsea** (Barwon River)
  2. **Torquay** (Bass Strait Deep and Spring Creek) **Lorne** (Erskine River), **Aireys Inlet** (Noble Creek), **Moriac** (Thompson's Creek) **Anglesea** (Anglesea River)
  3. **Lorne** (Saint George River), **Aireys Inlet** (Painkalac Creek) **Torquay** (Deep and Thompson's Creek)

This strategy has been developed to mitigate potential impacts of residential land use runoff on the receiving environments surrounding residential land use (listed above). The strategy includes the top five structural and non-structural measures as determined by the reactive strategy screening process. Non-structural measures were found to be ranked highest due to the lower costs associated with them.

Threats	Value	Action #	Action Code	Management Action	Management Action Description	Cost		Responsibility		
						Capital	Ongoing			
<b>Non Structural Treatment Measures</b>										
Residential Runoff	Environmental, Amenity and Economic	1	EA133	Guideline Development & Distribution	Encourage development of information brochures or use existing information for households regarding best practices for stormwater issues. Distribute in residential areas.	\$15,000	\$1,000	State Government, Shire		
		2	EA333	Media Release	Use local newspapers to run a number of articles on the SWMP and its outcomes, including best practices for householders. Involve BRW MG and the EPA	\$3,000	\$1,000	Shire (Education)		
		3	EA433	Drain Stencilling	Stencilling of drain pits surrounding residential areas.	\$5,000	\$1,000	Shire (Infrastructure/Education) / CCMA / Barwon Water		
		4	RE133	Litter Audits	Monitoring litter quantities and locations in the Surf Coast Shire, by Shire staff, litter taskforce or community volunteers. This could assist in prioritising areas for future management.	\$3,000	\$3,000	Shire / LPTF/ BRW MG		
		5	SC133	Street Sweeping	Regularly review existing street sweeping programs and increase frequencies at hotspot areas within the Shire.	\$5,000	\$10,000	Shire (Operations)		
		<b>Structural Treatment Measures</b>								
		1	STM233	Drainage Entrance Treatments	Investigate, Assess and install side entry pits, Litter baskets or other devices in high to moderate priority residential areas lacking such infrastructure and monitor, especially during peak/holiday times.	\$5,000	\$5,000	Shire (Infrastructure)		
		2	STM333	Sediment Traps	Investigate, and assess the potential to install sediment traps, or other devices in high priority residential area drainage outlets lacking such infrastructure	\$10,000	\$5,000	Shire (Infrastructure)		
		3	STM533	Inline GPT The Esplanade Torquay (Bass Strait)	Design and install a Gross pollutant trap, in this high priority residential area drainage outlet (Subcatchment 2, Drainage outlet number 4) which is lacking such infrastructure. Doing so would reduce the amount of gross pollutants and sediments entering Bass strait.	\$40,000	\$5,000	Shire (Infrastructure)		
		4	SC233	Rainwater Tanks	Encourage the installation of tanks for the use of roof water. Shire could offer a rebate for residents installing tanks. Shire should approach Barwon Water to discuss possible financial incentives.	\$5,000	\$20,000	Shire / Residents/ Barwon Water		
5	STM533	Inline GPT Hopkins Street Winchelsea (Barwon River)	Design and install Gross pollutant traps in a high priority residential area drainage outlet in Winchelsea (Subcatchment 1, Drainage outlet, Number 8) which lacks such infrastructure	\$30,000	\$5,000	Shire (Infrastructure)				

**Table 4.2 Reactive Management Strategy 2 – Land Development**

- Key Pollutants: Sediments, nutrients
  - Key Threats: Poor sediment and erosion control, uncontrolled wash down of equipment, deposition of sediments vehicles and spills from construction process (eg. concreting).
  - Key Values: Environmental, Amenity and Economic
  - Prioritised Key Subcatchments and Receiving Environments Affected:
- 1. Lorne (Bass Strait, Erskine River, Stoney Creek) Torquay (Bass Strait, Spring Creek, Deep Creek) Aireys Inlet (Painkalac, Moggs, Noble Thompson’s creek), Moriac (Thompson’s Creek)**

This strategy has been developed to mitigate potential impacts of land development on the Surf coast Shires receiving environments (listed above). The strategy includes the two structural measures and five non-structural measures as determined by the reactive strategy screening process. Non-structural measures were found to be ranked highest due to the lower costs associated with them.

Threats	Value	Action #	Action Code	Management Action	Management Action Description	Cost		Responsibility
						Capital	Ongoing	
Land development	Environmental, Amenity and Economic	<b>Non Structural Treatment Measures</b>						
		1	EA334	Demonstration Projects showing Best Practice	Develop and implement regional field demonstrations with groups of developers, consultants and contractors to promote best practice stormwater management and Water sensitive urban design methods.	\$5,000	\$1,000	Shire / EPA / CCMA / Barwon Water / State Government
		2	EA134	Guideline Development & Distribution	Encourage the development of statewide information brochures for new home builders/owners, developers, contractors and subcontractors associated with Building sites regarding best practices for stormwater issues.	\$5,000	\$1,000	Shire (Education, Planning, Infrastructure)
		3	RE134	Audit & Inspection	Increase audit and inspections of land development site locations in the Surf Coast Shire by Shire staff. A constantly updated list of land development sites would facilitate inspections.	\$3,000	\$3,000	Shire (Local Laws)
		4	SCM134	Street Sweeping	Target Street Sweeping activities to focus onland development sites as identified from the GIS or Land development inspector assessments.Sites with sediment spills should be targeted	\$5,000	\$10,000	Shire (Operations)
		5	IDC134	Site Database or GIS Layer	Develop a databse or GIS layer for Land development sites and update regularly to improve Shire auditing and management.	\$3,000	\$5,000	Shire (Tech Services, GIS)
		<b>Structural Treatment Measures</b>						
		1	STM134	Vegetative Filtration Devices	Encourage the use of temporary sediment filtration devices within land development sites and new subdivisions.	\$10,000	\$1,000	Shire (Infrastructure)
		2	STM234	Sediment Traps	Investigate, Assess and install sediment traps, or other devices in high to moderate priority Land development areas lacking such infrastructure and identified during planning proposal and Database/GIS Layer development.	\$10,000	\$8,000	Shire (Infrastructure)

**Table 4.3 Reactive Management Strategy 3 – Sewage Leaks**

- Key Pollutants:** Oxygen depleting material, pathogens and nutrients.
- Key Threats:** Infiltration and overflow from sewerage systems
- Key Values:** Environmental, Recreational, Amenity and Economic
- Key Subcatchments and Receiving Environments Affected Prioritised:**

1. **Aireys Inlet (Painkalac Creek) Lorne (Erskine River Stoney Creek Saint George River) Winchelsea (Barwon River)**

This strategy has been developed to mitigate potential impacts of Sewage Leaks on the Surf Coasts receiving environments. The strategy includes the top five non-structural measures as determined by the reactive strategy screening process. Only non-structural measures were found to be relevant for this particular priority risk issue.

Threats	Value	Action #	Action Code	Management Action	Management Action Description	Cost		Responsibility
						Capital	Ongoing	
Sewage leaks	Environmental, Amenity and Economic	<b>Non Structural Treatment Measures</b>						
		1	EA135	Individual / Organisation Consultation	Meet with Barwon Water to discuss management improvements, priorities, funding and implementation.	\$200	\$600	Shire / Barwon Water / EPA
		2	IDC135	Monitoring of Receiving Waters	Monitoring of water quality and biology of receiving environments. This could assist in prioritising areas for future management.	\$7,000	\$5,000	Shire / Barwon Water / EPA
		3	SCM135	Spill Prevention & Containment Plans	Assist in the development of an emergency response plan for sewer overflows. In conjunction with Barwon Water and the EPA.	\$7,000	\$7,000	Shire / Barwon Water / EPA
		4	RE235	Audit & Inspection	Inspection of stormwater drains to detect illegal connections and notify EPA of any pollution incidents. Advise properties owners of illegal connections.	\$20,000	\$10,000	Shire ( Environmental Health), Barwon Water
		5	RE135	Infringement Notification & Fines	Prepare schedule of inspection, and develop infringement notices and fine structures and cooperate with other stakeholders to address illegal stormwater connections	\$5,000	\$12,000	Shire (Local Laws)

**Table 4.4 Reactive Management Strategy 4 – Road Runoff**

- Key Pollutants:** Increased flow, sediment, litter, oils, toxicants, hydrocarbons, trace metals, surfactants
- Key Threats:** Unsealed roads, Road works, vehicle rashes and leaks, toxicants and oils
- Key Values:** Environmental, Amenity and Economic
- Prioritised Key Subcatchments and Receiving Environments Affected:**

1. **Anglesea** (Bass Strait, Anglesea River), **Lorne** (Bass strait, Erskine River) **Torquay** (Jan Juc, Spring and Deep Creek)

This strategy has been developed to mitigate potential impacts of road runoff on the Surf Coasts receiving environments. The strategy includes the top three structural and non-structural measures as determined by the reactive strategy screening process. Non-structural measures were found to be ranked highest due to the lower costs associated with them and the nature of road management.

Threats	Value	Action #	Action Code	Management Action	Management Action Description	Cost		Responsibility
						Capital	Ongoing	
Road Runoff	Environmental, Amenity and Economic	<b>Non Structural Treatment Measures</b>						
		1	EA336	Demonstration Projects showing Best Practice	Field demonstrations with plant operators to promote best practice road management, construction, temporary sediment and filtration devices and maintenance techniques to minimise impact upon stormwater	\$5,000	\$5,000	Shire / VicRoads / Contractors / Sub-
		2	EA136	Individual / Organisation Consultation	Liaise with Vic Roads to ensure Stormwater management practices are complimentary	\$200	\$500	Shire / VicRoads
		3	IDC136	Monitoring of Receiving Waters	Monitoring of water quality and biology of receiving environments surrounding roads. This could assist in prioritising areas for future management.	\$7,000	\$7,000	Shire
		4	EA137	Guideline Development & Distribution	Encourage state and regional cooperation in the development and evaluation of existing guidelines for plant operators, road crews, developers, and others involved with road management within the Surf Coast Shire.	\$8,000	\$1,000	Shire / EPA / VicRoads
		5	EA236	Stormwater Management Education Workshops	Hold an annual meeting involving Shire staff, Vic Roads staff, developers, contractors and sub-contractors associated with road development and maintenance within the Surf Coast Shire to promote best practices and discuss improvements	\$200	\$500	Shire / VicRoads / Developers /
		<b>Structural Treatment Measures</b>						
		1	STM136	Vegetative Filtration Devices	Temporary sediment filtration devices surrounding road construction and maintenance sites.	\$10,000	\$1,000	Shire (Infrastructure)
		2	STM236	Sediment Traps	Investigate and assess the potential to install sediment traps, or other devices along unsurfaced roads in particular Aireys Inlet, Point Roadknight, Fairhaven and Moggs Creek.	\$10,000	\$3,000	Shire (Infrastructure)
		3	STM336	Stabilisation Works	Investigate, design and install stabilisation works on table drains particularly those located at Aireys Inlet, Point Roadknight Fairhaven Moriac and Winchelsea	\$40,000	\$10,000	Shire (Infrastructure)

**Table 4.5 Reactive Management Strategy 5 – Industrial Runoff**

- ❑ **Key Pollutants:** Increased flow, sediment, litter, oils, toxicants, hydrocarbons, trace metals, surfactants
- ❑ **Key Threats:** Unsealed roads, Road works, vehicle rashes and leaks, toxicants and oils
- ❑ **Key Values:** Environmental, Amenity and Economic
- ❑ **Prioritised Key Subcatchments and Receiving Environments Affected:**
  1. **Anglesea** (Anglesea River), **Lorne** (Bass strait, Saint George River) **Torquay** (Bass Strait Spring Creek)
  2. **Winchelsea** (Barwon River)

This strategy has been developed to mitigate potential impacts of industrial runoff on the receiving environments. The strategy includes one structural and five non-structural measures as determined by the reactive strategy screening process. Non-structural measures were found to be ranked highest due to the lower costs associated with them and the nature of industrial runoff.

Threats	Value	Action #	Action Code	Management Action	Management Action Description	Cost		Responsibility
						Capital	Ongoing	
Industrial Runoff	Environmental, Amenity and Economic	<b>Non Structural Treatment Measures</b>						
		1	EA237	Individual & Organisation Consultation	Identify industries with the potential to contaminate stormwater and audit practices, providing advice on improvements	\$12,000	\$2,000	Shire / EPA / Individual Industries
		2	EA137	Guideline Development & Distribution	Encourage the development of statewide guidelines for industries regarding the storage and control of chemicals, wastes and other materials that could pollute storm water.	\$8,000	\$1,000	State Government/ Shire / EPA / Individual Industries
		3	SCM237	Waste Management Program Development	Encourage development of procedures for industries to manage wastes. Involves identification of and consultation with industries with the potential to contaminate stormwater.	\$15,000	\$5,000	BRWMG/ Barwon Water/ Shire / Individual Industries
		4	SCM337	Spill Prevention & Containment Plans	Encourage the development of spill prevention control plans by high risk industries and develop response plans.	\$7,000	\$7,000	Shire / EPA / Individual Industries
		5	IDC137	Monitoring of Receiving Waters	Monitoring of water quality and biology of the receiving environments surrounding industrial areas . This could assist in prioritising areas for future management.	\$7,000	\$7,000	Shire / EPA / Waterwatch
		<b>Structural Treatment Measures</b>						
		1	STM137	Sediment Traps	Investigate, Assess and install sediment traps, or other devices along unsurfaced roads in particular Baines Crescent(Sub2, DO12), Anglesea (Sub1 DO6), Lorne (Sub 2, DO14) and Winchelsea (Sub 1, DO7)	\$10,000	\$3,000	Shire (Infrastructure)
		2	STM238	Oil and Grease Baffles	Investigate, Assess and install Oil and grease Baffles, or other devices surrounding Industrial areas in particular Anglesea (Sub1 DO6) and Winchelsea (Sub 1, DO7)	\$10,000	\$3,000	Shire (Infrastructure)

**Table 4.6 Reactive Management Strategy 6 – Commercial Runoff**

- Key Pollutants:** Increased flow, sediment, nutrients, litter, oxygen depleting material, hydrocarbons, pathogens, trace metals, surfactants
- Key Threats:** Atmospheric deposition and build-up from traffic, litter, poor waste management practices.
- Key Values:** Environmental, Amenity and Economic
- Prioritised Key Subcatchments and Receiving Environments Affected:**

1. **Anglesea** (Anglesea River), **Lorne** (Bass strait) **Torquay** (Bass Strait, Spring Creek) **Aireys Inlet** (Painkalac Creek) **Winchelsea** (Barwon river)

This strategy has been developed to mitigate the potential impacts of Commercial land use runoff on the Surf Coasts receiving environments. The strategy includes the top five structural and non-structural measures as determined by the reactive strategy screening process. Non-structural measures were found to be ranked highest due to the lower costs associated with them.

						Capital	Ongoing	
Commercial Runoff	Environmental, Amenity and Economic	<b>Non Structural Treatment Measures</b>						
		1	RE138	Audit & Inspection	Inspection of shop sites to ensure correct containment of solid wastes.	\$15,000	\$5,000	Shire (Local Laws), LPTF
		2	EA438	Signage	No littering signs at commercial centres and hotspots	\$20,000	\$100	Shire / BRWGM
		3	EA138	Guideline Development & Distribution	Encourage the development of guidelines for shopkeepers regarding the storage and disposal of wastes that could pollute stormwater.	\$15,000	\$1,000	Shire / BRWGM
		4	EA538	Drain Stencilling	Stencilling of drain pits within the Commercial areas	\$10,000	\$5,000	Shire / BRWGM / EPA
		5	SC238	Solid Waste & Refuse Collection	Provision of additional bins and butt out bins for commercial centre litter	\$7,000	\$7,000	Shire (Operations) Contractors
		<b>Structural Treatment Measures</b>						
		1	STM538	Drainage Entrance Treatments	Investigate and assess the potential to install side entry pits, or other devices in the identified priority commercial areas (above) lacking such infrastructure	\$7,000	\$5,000	Shire (Infrastructure)
		2	STM238	GPT Main Street – Winchelsea	Investigate, design and install Gross pollutant traps in Winchelsea's Main Street commercial area lacking such infrastructure (Subcatchment 2, Drainage outlet 5)	\$25,000	\$5,000	Shire (Infrastructure)
		3	STM138	GPT Main Street (Grove Road)– Lorne	Investigate, design and install Gross pollutant trap in Lornes Grove Road commercial area drainage outlet which lacks such infrastructure (Subcatchment 2, Drainage outlet 10)	\$30,000	\$5,000	Shire (Infrastructure)
		4	STM338	GPT River Reserve Road – Airey's Inlet	Investigate, design and install Gross pollutant traps on Aireys Inlets priority commercial area drainage outlets lacking such infrastructure (Subcatchment 1, Drainage outlet number 8)	\$10,000	\$5,000	Shire (Infrastructure)
		5	STM 438	Inline GPT 900mm Torquay -The esplanade – Bass strait	Investigate design and install a Gross pollutant trap on Torquays priority commercial area drainage outlet lacking such infrastructure (Subcatchment 2, Drainage outlet number 4)	\$40,000	\$5,000	Shire (Infrastructure)

**Table 4.7 Reactive Management Strategy 7 – Septic Leaks**

- Key Pollutants:** Oxygen depleting material, pathogens and nutrients.
- Key Threats:** Infiltration and overflow from septic systems
- Key Values:** Environmental, Recreational, Amenity and Economic
- Prioritised Key Subcatchments and Receiving Environments Affected:**

1. *Torquay (Spring and Thompson’s Creek) Aireys Inlet (Noble and Moggs Creek) Mriac (Thompson’s Creek)*

This strategy has been developed to mitigate potential impacts of septic system leakages on the Surf coasts receiving environments. The strategy includes the top five non-structural measures as determined by the reactive strategy screening process. Only non-structural measures were found to be applicable to this priority risk.

Threats	Value	Action #	Action Code	Management Action	Management Action Description	Cost		Responsibility	
						Capital	Ongoing		
Septic Leaks	Environmental, Amenity and Economic	<b>Non Structural Treatment Measures</b>							
		1	RIE139	Audit & Inspection	Inspection of septic systems to ensure correct disposal of sewage and system function.	\$10,000	\$7,000	Shire (Environmental Local Laws) Residents, Contractors	
		2	RIE239	Infringement Notification & Fines	Notify EPA and septic system owner of any pollution incidents or inappropriate systems and Advise property owner regarding appropriate action to rectify	\$10,000	\$5,000	Shire ( Local Laws)	
		3	IDC139	Septic System Database or GIS Layer	Develop a database or GIS layer for existing septic systems and update regularly to improve Shire auditing and management of septic tanks.	\$10,000	\$5,000	Shire (Tech services / GIS)	
		4	EA139	Guideline Development & Distribution	Encourage the development or use existing septic system material for Shire households regarding management of septic tanks.	\$5,000	\$1,000	Shire (Education and Awareness)	
5	EA239	Individual Organisation & Consultation	Meet with residents owning septic systems to discuss management improvements.	\$8,000	\$1,000	Shire			





**Table 4.8 Reactive Management Strategy 8 – Litter**

- Key Pollutants:** Plastic, paper, cigarette butts, fibres, organic
- Key Threats:** Deposition from traffic, washing cars, fertiliser application, poor waste management (domestic refuse), lawn clippings and vegetation.
- Key Values:** Environmental, Amenity and Economic
- Key Subcatchments and Receiving Environments Affected Prioritised:**
  1. **Anglesea** (Bass Strait, Anglesea River), **Lorne** (Bass strait) **Torquay** (Bass Strait)
  2. **Aireys Inlet** (Painkalac Creek) **Winchelsea** (Barwon River)

This strategy has been developed to mitigate potential impacts of litter on the receiving environments. The strategy includes the top five structural and non-structural measures as determined by the reactive strategy screening process. Non-structural measures were found to be ranked highest due to the lower costs associated with them.

Threats	Value	Action #	Action Code	Management Actions	Management Action Description	Cost		Responsibility
						Capital	Ongoing	
<b>Litter</b>	<b>Environmental, Amenity and Economic</b>	<b>Non Structural Treatment Measures</b>						
		1	EA5310	Promotion of EPA Litter Hotline & Taskforce	Promotion of litter hotline and litter prevention taskforce	\$300	\$300	Shire / EPA
		2	EA3310	Signage	No littering signs at Litter hotspots, fishing areas. High recreational use areas	\$10,000	\$100	Shire (Operations)
		3	SC1310	Waste Storage Strategy	Prepare a litter management strategy for high use recreational areas.	\$5,000	\$2,000	Shire
		4	IDC2310	Litter Hotspot Database or GIS Layer	Develop a database or GIS layer for litter hotspots and update regularly to improve Shire auditing and management of litter	\$3,000	\$3,000	Shire
		5	RE1310	Audit & Inspection	Review of hot spot sites and areas addressed by the strategy. review should be undertaken by the Shire by Litter Prevention Taskforce, Shire staff or GIS sites to ensure correct waste management practices.	\$15,000	\$5,000	Shire
		<b>Structural Treatment Measures</b>						
		1	STM2310	Release Nets – Painkalac Creek	Installation of drainage outlet release nets to catch large to moderate sized gross pollutants from Aireys Inlets commercial zone (Sub 1, DO 7 & 8)	\$6,000	\$3,000	Shire (Infrastructure)
		2	STM1310	Drainage Entrance Treatments	Investigate and assess the potential to install side entry pits, baskets or other devices in areas identified by the litter strategy.	\$7,000	\$7,000	Shire (Infrastructure)
		3	STM4310	Release Nets – Anglesea River	Installation of drainage outlet release nets to catch large to moderate sized gross pollutants from Angleseas Residential and Commercial zone drainage outlets.(Sub 1, DO 1 to 11, Sub 2 DO 1-11)	\$22,000	\$11,000	Shire (Infrastructure)
		4	STM5310	Release Nets – Barwon River	Installation of drainage outlet release nets Along the Barwon River at Winchelsea to catch large to moderate sized gross pollutants (Sub 1, DO 6,7,8 Sub 2 DO 1-5)	\$14,000	\$7,000	Shire (Infrastructure)
		5	STM3310	Release Nets: Bass Strait – Lorne	Installation release nets on outlets draining high use commercial and residential areas to catch large to moderate sized gross pollutants (Sub 1, DO 1-18 Sub 2 DO 8-11, Sub 3 DO 1-4)	\$27,000	\$15,000	Shire (Infrastructure)

**Table 4.9 Reactive Management Strategy 9 – Building Site Runoff**

- ❑ **Key Pollutants:** Sediments, nutrients, litter, pathogens
- ❑ **Key Threats:** Poor sediment and erosion control, uncontrolled wash down of equipment, deposition of sediments vehicles, spills from construction process (eg. concreting), onsite toilets, litter from builders, plastics and building materials blown off site.
- ❑ **Key Values:** Environmental, Amenity and Economic
- ❑ **Prioritised Key Subcatchments and Receiving Environments Affected:**
  1. **Lorne** (Bass Strait, Stoney Creek)
  2. **Torquay** (Bass Strait, Spring Creek, Deep Creek)
  3. **Aireys Inlet** (Noble Creek), **Moriac** (Thompson's Creek)

This strategy has been developed to mitigate potential impacts of building site runoff on the Surf Coasts receiving environments. The strategy includes two structural and five non-structural measures as determined by the reactive strategy screening process. Non-structural measures were found to be ranked highest due to the lower costs associated with them.

Threats	Value	Action #	Action Code	Management Action	Management Action Description	Cost		Responsibility
						Capital	Ongoing	
Building Site Runoff	Environmental, Amenity and Economic	<b>Non Structural Treatment Measures</b>						
		1	EA3311	Demonstration Projects showing Best Practice	Field demonstrations to promote best practice site management for builders and subcontractors.	\$5,000	\$1,000	Shire / EPA / CCMA / Barwon Water
		2	SC1311	Streetsweeping	Development and implementation of a scheduling process for street sweeping programs to focus on building site hotspot areas as determined by onground maintenance staff and Building site Database/GIS layer.	\$5,000	\$2,500	Shire (Operations)
		3	EA1311	Guideline Development & Distribution	Encourage the development of statewide information brochures for new home builders/owners, developers, contractors and subcontractors associated with Building sites regarding best practices for storm water issues. Distribution should occur at planning stage prior to development.	\$15,000	\$1,000	Shire (Education and Awareness)
		4	EA4311	Individual organisation consultation	Advise builders and subcontractors of onsite consultations with builders to advise of best practice building site management	\$2,500	\$1,000	Shire (Education and Awareness)
		5	IDC3311	Building Site Database or GIS Layer	Develop a database or GIS layer for existing building Sites and update regularly to improve Shire auditing and management	\$3,000	\$3,000	Shire (Tech Services/ GIS)
		<b>Structural Treatment Measures</b>						
		1	STM2311	Sediment Traps	Investigate and assess the potential to install temporary sediment traps, or other devices in identified priority land development areas lacking such infrastructure as determined by on site inspections and the Building Site database / GIS layer.	\$25,000	\$5,000	Shire (Infrastructure)
		2	STM1311	Vegetative Filtration Devices	Investigate and assess the potential for Temporary vegetative filtration devices surrounding building site / land development areas	\$5,000	\$2,500	Shire, Developer

**Table 4.10 Reactive Management Strategy 10 – Service Stations**

- Key Pollutants:** Sediments, Fuel, hydrocarbons, oils and greases, trace metals, surfactants and toxic substances
- Key Threats:** Deposition from traffic, washing cars, poor waste management, fuel spills,
- Key Values:** Environmental, Amenity and Economic
- Key Subcatchments and Receiving Environments Affected:**
  1. **Anglesea** (Anglesea River), **Lorne** (Bass Strait, Erskine River)
  2. **Torquay** (Spring Creek) **Winchelsea** (Barwon River)

This strategy has been developed to mitigate potential impacts of Service station runoff on the Surf coasts receiving environments. The strategy includes the top five non-structural measures as determined by the reactive strategy screening process. Only Non-structural measures were found to be applicable to this priority risk issue

Threats	Value	Action #	Action Code	Management Action	Management Action Description	Cost		Responsibility	
						Capital	Ongoing		
Service Stations	Environmental, Amenity and Economic	<b>Non Structural Treatment Measures</b>							
		1	EA2312	Individual Organisation Consultation	Encourage Service station operators to review practices and make improvements to onsite stormwater	\$3,000	\$2,000	EPA/ Shire / Service Station Operators	
		2	EA1312	Guideline Development & Distribution	Encourage the development of statewide guidelines or send existing EPA guidelines to service station operators regarding the storage and control of chemicals, wastes and other materials that could pollute stormwater to ensure best practice and consistency.	\$5,000	\$1,000	State government/ Shire / EPA	
		3	EA3312	Business Stakeholder Groups & Committees	Arrange meeting of Service station operators to discuss stormwater management.	\$500	\$3,000	Shire (Education and Awareness)	
		4	IDC1312	Monitoring of Receiving Waters	Monitoring of water quality and biology of receiving environments. This could assist in prioritising areas for future management.	\$7,000	\$5,000	Shire / Barwon Water(Environme nt)	
5	SC1312	Waste Management Program Development	Encourage the development of procedures for Service station operators to manage solid and liquid wastes. Involves consultation with Service station operators, EPA Shire staff and inspections of sites.	\$30,000	\$2,000	Shire / Service Station Operators			



## 7 Management Framework Review

This section reviews the Shire's management framework and management practices currently undertaken by the Surf Coast Shire that impact upon stormwater quality. Management practices are seen to be those activities, which are governed, by the documents and procedures existing within the Shire's management framework.

The Management framework review has been categorised into six main areas: A summary of the review is provided in this paper for each of the following areas of Shire activities.

**Planning** – Activities involved in the planning of land use and development within the Surf Coast Shire of Surf Coast Shire.

**Education** – Informing, empowering, training and co-opting residents, staff and contractors about stormwater and stormwater management.

**Enforcement** – Ensuring correct practices, local laws and regulations are followed by residents and visitors to the Surf Coast Shire of Surf Coast Shire.

**Infrastructure** – The provision of physical assets built to perform a function in relation to stormwater.

**Operations** – The servicing and maintenance procedures performed by Shire staff and contractors.

**Resourcing and coordination** – The ability, expertise, coordination and communication of staff and how they are resourced and managed within the Surf Coast Shire of Surf Coast Shire

In this section of the paper, current council practices in stormwater management are reviewed and compared with best management practices. The latter are described in the Urban Stormwater Best Practice Environmental Management Guidelines (CSIRO 1999).

Emphasis on the management of stormwater quality has only become an issue in recent years. Prior to this, the emphasis has been on conveying stormwater rapidly away from houses and streets to the local waterways often through gutters, pipes and other hard surface infrastructure. Therefore, it is to be expected that current council practices will, in many cases, be below best practice standards. The comparison aims to identify opportunities for improvements towards best practice.

## 7.1 Planning

Activities involved in planning the land uses and development in Surf Coast Shire have been placed under the planning category.

The Surf Coast Planning Scheme provides the statutory basis for improving stormwater quality arising from land use and land development. There is room for improvement in the implementation process by ensuring that stormwater quality issues are assessed consistently in planning applications. The provisions of the Surf coast's Planning Scheme provide the Shire with an instrument to control many aspects of the use and development of land in the Surf Coast Shire. Key parts of the Surf Coast Planning Scheme are the State Planning Policy Framework, which is common across all Victorian municipalities, and the Local Planning Policy Framework, which contains local policies, zones and overlays specific to the Surf Coast Shire. The planning scheme represents a means of improving stormwater management processes and outcomes for the Surf Coast Shire.

- **State Planning Policy Framework (SPPF)**

The goal of the *State Planning Policy Framework (SPPF)* is to foster the objectives of planning in Victoria as set out in Section 4 of the *Planning and Environment Act 1987*. These objectives incorporate environmental, social and economic considerations and provide support for principles of ecologically sustainable development; protection of biodiversity; and intergenerational equity.

The *SPPF* sets out principles of land use and development planning under seven headings – Settlement, Environment, Management of Resources, Infrastructure, Economic Well-being, Social Needs and Regional Co-operation.

Stormwater management is considered by the SPPF in the context of wider water quality and catchment issues, with specific objectives and strategies for improving water quality and management of water resources being found within the 'Environment' and 'Infrastructure' clauses.

- **Local Planning Policy Framework (LPPF)**

Each municipality has its own unique *Local Planning Policy Framework (LPPF)*, which affects all of the land within the municipality. The *LPPF* consists of two parts:

### **Municipal Strategic Statement (MSS);**

The Surf Coast Shire's Municipal Strategic Statement sets out a framework of strategic planning policies and objectives to guide land use, development over the next 15-20 years and resource management. It sets clear directions and priorities for land use having recognized the opportunities and constraints that exist.

The Municipal Strategic Statement provides a context and rationale for the land use and development provisions in the Surf Coast Planning Scheme. Furthermore, it details complementary actions, which Shire and other parties such as the State and Commonwealth Governments can undertake to achieve the Surf Coast Shire's objectives. Council, Shire officers, the community and developers, must take the policies and objectives contained in the Municipal Strategic Statement into account when planning applications and planning scheme amendments are being prepared and considered. Currently the MSS makes moderate reference to stormwater and stormwater management within the Surf Coast Shire.

## **Local planning policies**

Local planning policies are intended to provide guidance for decision-making where a zone or overlay provision requires the exercise of discretion by the planning or responsible authority. A policy must have its origins in the *MSS* and be linked to the application of a zone or overlay.

The Surf Coast Planning Scheme contains several local planning policies relating to stormwater. Currently, however fairly general reference is made to stormwater management and its impact on wider catchment issues within the Municipal Strategic Statement and Local planning policies. There are a number of specific local policies, zones and overlays which make reference to stormwater, however these focus more on broader water quality and catchment objectives and strategies, tending to be fragmented across various clauses and therefore are difficult to implement in a holistic manner.

## **Planning Process**

The following section lists other facets of the planning scheme and process relevant to the management of stormwater.

## **Zones and Overlays**

The Victorian Planning Provisions include a variety of standard zones and overlays, which may be applied in order to implement the responsible authority's strategic objectives. Local issues and priorities are addressed through the selection of appropriate zones or overlays and, where applicable, the adoption of schedules which may modify the operation of the standard control in order to suit local conditions.

Zones provide the underlying control over land use, development and subdivision; overlays provide more specific controls with respect to development and, in some cases, subdivision. Both forms of control include decision-making guidelines, which require reference to the *SPPF*, the *MSS* and any relevant local policies.

## **Permit Applications**

Several clauses within the Surf coast Shire's Local Planning Policy framework require planning permit applications to include details relating to stormwater run-off and treatment and require the responsible authority to take into account water quality issues when assessing permit applications. However the Surf Coast Shire should develop further conditions to include in all permit applications.

## **Internal referrals process**

The Internal referrals process relates to the way in which Shire staff refers specific issues relating to general enquiries, complaints or planning permit applications by the public, to other staff within the Surf Coast Shire. Currently there is no formal referrals process, adopted by the Surf Coast Shire. The Shire Engineering department usually informally addresses Stormwater issues. Developing and implementing an appropriate referrals process would improve coordination and management of stormwater.

### **External referrals**

External referrals process relates to the way in which Shire staff refer specific issues relating to general enquiries, complaints or planning permit applications by the public, to other statutory or management bodies. The process is regulated formally by requirements in the scheme generally found in the various provisions. Reviewing existing controls and referral processes, to ensure stormwater issues are being appropriately addressed would improve coordination and management of stormwater.

### **Permit conditions**

Planning permit conditions within the Surf Coast Shire are dependant on the type of landuse or development, the location of the proposed development, the relevant planning controls and the surrounding land use. Permits are assessed on a case basis with appropriate conditions being applied. Currently there are minimal permit conditions and requirements relating to stormwater and stormwater management.

### **Integrated Approach**

The Surf Coast Shire has many management associations with both government and non-government organisations. Many of these associations are well managed and coordination and communication are sufficient to achieve and maintain day-to-day management of the Surf Coast Shire. Workings to improve integration in both inter and intra organisational coordination and communication will be beneficial in achieving an integrated approach to management of Stormwater. Achieving a totally integrated approach between land use planning and other operational activities is also essential in improving best practice management of stormwater.

## **7.2 Education**

Surf Coast Shire has several staff with responsibilities for improving knowledge and community responses and cooperation in relation to Stormwater, litter, waste and other issues.

Several management committees also exist that are committed to protecting the environmental values of the Surf Coast Shire

Stormwater education activities occurring within the Surf Coast Shire of Surf Coast Shire are listed below;

Provision of funding for “drains to the bay” stencilling for schools

Waste & Environmental Education Officer available to visit schools, community groups to discuss waste and litter reduction initiatives

Literature and Guidelines existing within the Surf Coast Shires management framework;

- Shire information booklet – “Building in Surf Coast Shire”
- Shire pamphlet on car washing in residential areas
- Promotion of green waste collection service
- Shire pamphlet on education of dog owners

The Surf Coast Shire has an extensive community based Environment Education Program. It is considered that this level of education, including stormwater quality issues, should at least be maintained and the effectiveness of the program assessed on a regular basis.

### **7.3 Enforcement**

Enforcement activities in the Surf Coast Shire relating to Stormwater are undertaken in relation to several local laws to varying degrees. A local laws Officer is also employed to ensure these local laws are abided by. Enforcement of local laws is at an appropriate level however there is scope to increase and improve these measures.

Enforcement also relates the conditions and specifications nominated under the planning approvals process. Currently there is minimal enforcement or monitoring of these specific conditions.

Surf Coast Shire Surf Coast Shire has powers to enforce the control of littering and other potentially polluting activities. Relevant laws include the State Litter Act and many different Local Laws. These local laws are included in Appendix A. Enforcement of State and local laws, and inspections of building and construction sites is limited by the available resources. Increasing enforcement and amending local laws to include stormwater management controls could avoid a great deal of stormwater threats in the future.

### **7.4 Infrastructure**

The Surf Coast Shire of Surf Coast Shire provides a range of infrastructure that improves stormwater quality. There are over 273 public litter and recycle bins in Surf Coast Shire from which approximately 1145m<sup>3</sup> of material is collected per year. There are also 20 dog dropping bins at “dog off- leash” areas and surrounding reserves.

The Surf Coast Shire Surf Coast Shire maintains approximately 53 square kilometres of piped drainage system, which possesses many drainage entry pits of differing types (eg. side entry pits). The Surf Coast Shire owns and maintains all of these drains. The remaining sewerage and water drains are owned and managed by Barwon Water.



Drainage entry pits provide opportunities for the entry of stormwater pollutants across the Surf Coast Shire and should be targeted in reducing the impacts of stormwater pollutants to Surf Coast Shire's receiving environments. Over 100 drain outlets exist within the drainage system and release stormwater into Surf Coast Shire's main stormwater receiving environments. Currently there are hundreds of side entry pit traps and eight Gross Pollutant Traps designed to improve stormwater quality within the Surf Coast Shire. Some parts of the Surf Coast Shire have open channel drains, rather than pipe drains, and by default these may provide some stormwater quality treatment.

## 7.5 Operations

The Surf Coast Shire manages several cleaning contractors to control litter and waste in commercial, residential and foreshore areas.

Street sweeping of the Surf Coast Shires commercial and residential zones occurs in varying degrees ranging from 1 to 3 times per week to four times per year. Approximately 200 tonnes of litter is collected each year, during regular street sweeping activities. Over 100 kilometres of kerb and channel are cleaned in contracts controlled by the Surf Coast Shire.

Manual cleaning of Footpaths, roadside kerbs and drains is also conducted regularly, with the majority of litter per year is collected from the footpaths, gutters and car parks surrounding commercial centres and car parks. Cleaning contractors also control and collect litter and waste in foreshore and adjacent reserve areas.

## Waste Collection

Several waste management contractors manage kerbside waste and recyclable collection services in the Surf Coast Shire. Domestic waste is collected weekly in 120 litre bins. Recyclable materials (55 litre crate and Paper) are also collected weekly whilst paper and cardboard are collected on a monthly basis. Shire also provides collections of hard and green waste on specified collection dates. Services for the collection and disposal of domestic toxicants are also provided. These services reduce the potential for stockpiling of waste on properties that could lead to pollution.

The Surf Coast Shire has a continuous program of cleaning operations that greatly reduce the litter and other pollutants that could otherwise enter the drainage system. Shire maintains parks and open spaces in the Surf Coast Shire and staff are trained in the correct use of fertilisers, chemicals and other potential environmental pollutants.

### **7.5.1 Best Practice for Operations**

As well as street sweeping and rubbish collection, there are other maintenance areas where Council could implement procedures in line with best practices for stormwater management. These include procedures that minimise sediment generation and pollution during maintenance of:

- Drains
- Roads
- Parks and reserves
- Plant and equipment

Improvements in these operations could occur with additional staff training.

## **7.6 Resourcing and Co-ordination**

The Surf Coast Shire employs over 150 full time and part time, temporary staff or contractual staff. The roles and responsibilities of each Shire employee are determined by the Surf Coast Shires Planning Scheme and must be responsive to community needs and the Shires assets.

Due to the comparatively small size many of the Shires staff are resourced from contractors external to the Shire. Due to the comparatively small size of the Surf Coast Shire staff must be multi skilled and be able to preform a range of tasks. Training and education of the Surf Coast Shires staff in Stormwater management may prove to be useful in improving knowledge, expertise and the management of stormwater management.

The management structure of the Surf Coast Shire of Surf Coast Shire can be broken up into the following activity categories:

- Building
- Business development
- Cleaning
- Community Services
- Contract Administration
- Engineering
- Environmental Health
- Financial
- Heritage
- Local Laws
- Office administration
- Planning
- Surveying

Each activity category above possesses its own staff, tasks, objectives and guidelines based on the various protocols, documents and planning tools existing for the Surf Coast Shire.

## 8 Management Framework Strategies

Following on from the review of current Council practices, a number of recommendations have been made for improvements in relation to stormwater quality management. Management framework strategies are outlined in this section.

The order of implementation is proposed across the strategies, with each individual action listed as a very high, high or medium priority. The following Management strategies propose changes to the operational arrangements procedures and management practices within the Surf Coast Shire in relation to priority risk issues and stormwater management.

The following process was used in the formulation of management framework strategies:

1. **Management Framework Review: (As part of the Priority Management Issues Paper)**
2. **Identified Management Deficiencies: (As part of the Priority Management Issues Paper)**
3. **Shire Staff Consultation**
4. **Management Framework Strategy development**

Management Strategies can be implemented by the modification or amendment of existing Council management practices and frameworks.

The proposed strategies address six different aspects of Council's management, including

**Planning** – Activities involved in the planning of land use and development within the Surf Coast Shire of Surf Coast Shire.

**Education And Awareness** – Informing, empowering, training and co-opting residents, staff and contractors about stormwater and stormwater management.

**Enforcement** – Ensuring correct practices, local laws and regulations are followed by residents and visitors of the Surf Coast Shire.

**Infrastructure** – The provision of physical assets built to perform a function in relation to stormwater.

**Operations** – The servicing and maintenance procedures performed by Shire staff and contractors.

**Resourcing and coordination** – The ability, expertise, coordination and communication of staff and how they are resourced and managed within the Surf Coast Shire of Surf Coast Shire

The order of implementation is proposed across the strategies, with each individual action listed as a very high, high or medium priority. Responsibility, Related Actions and Comments are also made.

## Planning

Activities involved in planning the land uses and development in Surf Coast Shire have been placed under the planning category.

The Surf Coast Planning Scheme provides the statutory basis for improving stormwater quality arising from land use and land development. There is room for improvement in the implementation process by ensuring that stormwater quality issues are assessed consistently in planning applications. The provisions of the Surf coast's Planning Scheme provide the Shire with an instrument to control many aspects of the use and development of land in the Surf Coast Shire. Key parts of the Surf Coast Planning Scheme are the State Planning Policy Framework, which is common across all Victorian municipalities, and the Local Planning Policy Framework, which contains local policies, zones and overlays specific to the Surf Coast Shire. The planning scheme represents a means of improving stormwater management processes and outcomes for the Surf Coast Shire

Code	Management Framework Action	Priority	Responsibility	Budget Years
P1	Additions to the <b>Municipal Strategic Statement (MSS)</b> to specifically address stormwater quality issues. The MSS could include a profile of Surf Coast's urban stormwater system and reference to the Stormwater Management Plan. This change would best occur during an overall review of the planning scheme.	<b>Very High</b>	Planning Department, Council	1-2
P2	Local <b>policies and overlays</b> to support the management of <b>stormwater quality</b> The policy would be included or integrated in the Local Planning Policy Framework, with reference to the Stormwater Management Plan.	<b>High</b>	Planning Department, Council	2-3
P3	A <b>policy</b> to encourage the adoption of <b>water sensitive urban design</b> in the Shire. This policy would be included in the Local Planning Policy Framework.	<b>Medium</b>	Planning Department	3-5
P4	Modify <b>approvals process</b> to include specific stormwater considerations and develop a checklist of stormwater management conditions for planning staff	<b>High</b>	Planning Department	2-3
P5	<b>Prepare guidelines</b> concerning storm water considerations, sediment control options and waste management practices for developments to assist planning officers in assessing applying conditions and referring planning applications.	<b>Very High</b>	Planning Department, EPA	1-2
P6	<b>Develop standard</b> conditions for planners to instruct developers to address sediment erosion and stormwater issues.	<b>Very High</b>	Planning Department	1-2
P7	Develop and <b>maintain a Database, GIS layer and registration listing</b> of all land development and building sites within the Surf Coast shire to facilitate inspection and relation to stormwater infrastructure and receiving environments.	<b>High</b>	Planning Department, Tech services, GIS	2-3
P8	Review and modify the <b>planning referrals process and develop guidelines for planners</b> that clearly outline the referrals process. This will provide all Council Departments with a responsibility for making decisions, to continue to process the applications efficiently. The policy/guideline should clearly define triggers for referral, responsibility for different types of referral decisions, requirements for documentation of referral decisions and time lines for making decisions.	<b>High</b>	Planning Department, Council	2-3
P9	Appointment of <b>additional planning Permit Enforcement Officers</b> to improve Council's capacity for checking compliance with planning permits. The role of these officers would obviously not be restricted to stormwater management, however it would enable Council to give greater attention to the range of compliance issues that are relevant to stormwater management. The current limited resources do not allow compliance checks to be done, with compliance generally restricted to responding to complaints	<b>High</b>	Planning Department, Council	2-3
P10	<b>Provide training of staff regarding storm water management issues</b> and how an effective referral system can enable improved stormwater management. Training could be undertaken via internal workshops with all planning staff	<b>High</b>	Planning Department, Council, Education	2-3

## Education and Awareness

Education and awareness management framework strategies are concerned with – Informing, empowering, training and co-opting residents, staff and contractors about stormwater and stormwater management.

The Surf Coast Shire has several staff with responsibilities for improving knowledge and community responses and cooperation in relation to Stormwater, litter, waste and other issues. Several committees also exist that are committed to protecting the environmental values of the Surf Coast Shire, including the Barwon Regional Waste management group and the Surf Coast shire Litter Prevention taskforce. It is considered that this level of education, including stormwater quality issues, should be maintained and developed further, with the effectiveness of programs being assessed on a regular basis.

Stormwater education activities occurring within the Surf Coast Shire of Surf Coast Shire are listed below;

Code	Management Framework Action	Priority	Responsibility	Budget Years
EA1	Improve <b>coordination and communication with other stakeholders</b> involved in stormwater education	<b>Very High</b>	Council, BRWMG, CCMA, EPA,	1-2
EA2	Coordinate the <b>development of stormwater training programs</b> for staff and contractors	<b>High</b>	Council	2-3
EA3	Coordinate the development of <b>Stormwater Management education workshops</b> for local residents, commercial and industrial zone operators, developers, contractors and subcontractors	<b>High</b>	Council, residents, BRWMG.	2-3
EA4	<b>Coordinate and provide input into the development of demonstration sites for best practice stormwater Management</b> for local residents, commercial and industrial zone operators, developers, contractors and subcontractors in unison with other stakeholders.	<b>High</b>	Council, Consultant	2-3
EA5	<b>Promote and increase council involvement into existing programs</b> that deal with stormwater management issues eg. Drain stencilling, Waterwatch	<b>Medium</b>	Council, Barwon Water, CCMA , EPA, BRWMG	3-5
EA6	Coordinate and provide input into the <b>preparation of guidelines</b> concerning storm water considerations, sediment control options and waste management practices	<b>High</b>	Council	2-3
EA7	<b>Review existing programs</b> , committees and roles to identify opportunities for improvement, sources of funding, and Resourcing.	<b>Very High</b>	Council, BRWMG	1-2
EA8	<b>Increase awareness, communication and coordination</b> between council and local education centres IE. Primary and secondary schools, Tafe and Universities	<b>High</b>	Council, Local Schools, Deakin university, Gordon Tafe, BRWMG	2-3
EA9	<b>Provide extra staff and resources</b> or expand existing staff roles to implement education strategies	<b>Very High</b>	Council	1-2
EA10	<b>Develop a range of educative material</b> on local stormwater and stormwater management issues for the public and education centres, and encourage use of the BRWMG material and centre	<b>Very High</b>	Council	1-2

## Enforcement

Enforcement activities in the Surf Coast Shire relating to Stormwater are undertaken in relation to several local laws to varying degrees. Local laws Officers are also employed to ensure these local laws are abided by. Enforcement of local laws is at an appropriate level however there is scope to increase and improve these measures.

Enforcement also relates the conditions and specifications nominated under the planning approvals process. Currently there is minimal enforcement or monitoring of these specific conditions. Surf Coast Shire Surf Coast Shire has powers to enforce the control of littering and other potentially polluting activities. Relevant laws include the State Litter Act and many different Local Laws.

Enforcement of State and local laws, and inspections of building and construction sites is limited by the available resources. Increasing enforcement and amending local laws to include stormwater management controls could avoid a great deal of stormwater threats in the future.

Code	Management Framework Action	Priority	Responsibility	Budget Years
E1	<b>Review Existing Local laws</b> in relation to Stormwater management and identify areas for amendment or creation of new local laws.	<b>Very High</b>	Local Laws	2-3
E2	<b>Provide extra staff and resources</b> or expand existing staff roles to increase inspection and infringement notification.	<b>Very High</b>	Council	2-3
E3	<b>Develop a specific local law</b> to deal with sediment and erosion at land development and building sites.	<b>Very High</b>	Council	2-3
E4	<b>Local Laws Staff Training program</b> in relation to stormwater and best practice stormwater management	<b>High</b>	Local Laws	3-5
E5	<b>Review of penalties and fines</b> for local laws before 2005	<b>Very High</b>	Local Laws, Council	2-3
E6	<b>Create awareness</b> for land developers, contractors, subcontractors and residents <b>in regards to local laws</b> eg. Pamphlets, Signage	<b>High</b>	Local Laws, council	1-2
E7	<b>Promote and develop proactive Inspections</b> and audits as opposed to complaints based inspections	<b>High</b>	Local Laws	2-3
E8	<b>Create a local laws information sheet</b> to be attached to permit conditions and approval letters.	<b>Very High</b>	Local Laws	1-2
E9	<b>Develop a database or GIS layer</b> of threats relevant to the application of local laws (eg. building sites, litter areas) for Local law enforcement officers and update regularly to improve inspections and council auditing	<b>High</b>	Local Laws, Council	1-2
E10	<b>Encourage local laws officers to work out of hours</b> to improve detection of local law infringements	<b>Very High</b>	Local Laws	1-2

## Infrastructure

The Surf Coast Shire Surf Coast Shire maintains a range of structural stormwater treatment infrastructure, including

- Seven Gross Pollutant Traps
- Two Artificial Wetlands
- Four Sediment Detention Basins

These measures are designed to improve stormwater quality within the Surf Coast Shire.

Code	Management Framework Action	Priority	Responsibility	Budget Years
I1	<b>Review existing Treatment and Drainage infrastructure</b>	<b>Very High</b>	Infrastructure	1-2
I2	<b>Undertake feasibility investigation and installation for Sediment traps</b> at locations developed in reactive strategies	<b>High</b>	Infrastructure	2-3
I3	<b>Undertake feasibility investigation and installation for vegetative filtration devices</b> at locations developed in reactive strategies	<b>High</b>	Infrastructure	2-3
I4	<b>Undertake feasibility investigation and installation for gross pollutant traps</b> at locations developed in reactive strategies	<b>High</b>	Infrastructure	2-3
I5	<b>Undertake feasibility investigation and installation for release nets at drainage outlet locations</b> developed in reactive strategies	<b>High</b>	Infrastructure	2-3
I6	<b>Undertake feasibility investigation and installation for Drainage entrance treatments</b> at several locations	<b>High</b>	Infrastructure	2-3
I7	<b>Develop a database or GIS layer</b> of all stormwater infrastructure and update regularly to improve inspections and council auditing	<b>Very High</b>	Infrastructure	1-2
I8	<b>Investigate all sources of funding</b> for the provision of stormwater infrastructure within the Surf Coast shire	<b>High</b>	Infrastructure	2-3
I9	<b>Develop and improve partnership approaches</b>	<b>High</b>	Infrastructure	2-3
I10	<b>Develop staff training</b> in relation to stormwater and stormwater management	<b>High</b>	Infrastructure	2-3

## Operations

The Surf Coast Shire manages several cleaning contractors to control litter and waste in commercial, residential and foreshore areas.

Street sweeping of the Surf Coast Shires commercial and residential zones occurs in varying degrees ranging from 1 to 3 times per week to four times per year. Approximately 200 tonnes of litter is collected each year, during regular street sweeping activities. Over 100 kilometres of kerb and channel are cleaned in contracts controlled by the Surf Coast Shire.

Manual cleaning of Footpaths, roadside kerbs and drains is also conducted regularly, with the majority of litter per year is collected from the footpaths, gutters and car parks surrounding commercial centres and car parks. Cleaning contractors also control and collect litter and waste in foreshore and adjacent reserve areas.

Code	Management Framework Action	Priority	Responsibility	Budget Years
O1	<b>Develop and introduce operating procedures</b> eg. Street sweeping practices	High	Operations	1-2
O2	<b>Develop staff training</b> in relation to stormwater and stormwater management	High	Operations	2-3
O3	<b>Develop Auditing System</b> in relation to stormwater and stormwater management within the Surf Coast Shire	Medium	Operations	2-3
O4	<b>Develop Guidelines</b> in relation to stormwater and stormwater management	High	Operations	2-3
O5	<b>Improve coordination</b> between council and other stakeholders involved in operations.	High	Operations	2-3
O6	<b>Investigate</b> alternative operation procedures	High	Operations	2-3
O7	Implement measures to reduce wastes associated with operations procedures	High	Operations	1-2
O8	<b>Provide extra staff and resources</b> or expand existing staff roles to increase operations relating to stormwater.	Very High	Operations	2-3
O9	<b>Training of Contractors and Subcontractors</b>	Very High	Operations	2-3
O10	<b>Implement procedures</b> in line with best practices for stormwater management. These include procedures that minimise sediment generation and pollution during maintenance of: <ul style="list-style-type: none"> <li>• Drains</li> <li>• Roads</li> <li>• Parks and reserves</li> <li>• Plant and equipment</li> </ul>	High	Operations	2-3



## Resourcing and Coordination

The Surf Coast Shire employs over 150 full time and part time, temporary staff or contractual staff. The roles and responsibilities of each Shire employee are determined by the Surf Coast Shires Planning Scheme and must be responsive to community needs and the Shires assets.

Training and education of the Surf Coast Shires staff in Stormwater management may prove to be useful in improving knowledge, expertise and the management of stormwater management.

Code	Management Framework Action	Priority	Responsibility	Budget Years
RC1	Improve <b>coordination and communication between council department in relation to stormwater</b>	High	Council	1-2
RC2	<b>Coordinate the development of stormwater training programs for staff and contractors</b>	High	Council	2-3
RC3	<b>Review both inter and intra shire/ Stakeholder referrals process</b>	Medium	Council	2-3
RC4	<b>Promote and increase council involvement into existing programs</b> that deal with stormwater management issues eg. Drain stencilling, Waterwatch	High	Council	2-3
RC5	Coordinate and provide input into the <b>preparation of guidelines</b> and information for all shire staff	High	Council	2-3
RC6	<b>Review existing programs, committees and roles</b> to identify opportunities for improvement, sources of funding, and Resourcing.	High	Council	1-2
RC7	<b>Increase awareness, communication and coordination</b>	Very High	Council	2-3
RC8	<b>Provide extra staff and resources</b> or expand existing staff roles to implement education strategies	Very High	Council	2-3
RC9	<b>Develop a range of educative material</b> on local stormwater and stormwater management issues for the public and education centres	High	Council	2-3

## 9 Implementation of the Plan

The stormwater management plan contains a significant number of strategies and recommended management changes for Surf Coast Shire. There needs to be a strong commitment by the Shire to ensure that these strategies are implemented and those improvements to the valued waterways in Surf Coast Shire are achieved.

The Surf Coast Shires newly developed sustainability management framework will facilitate the implementation of these developed strategies. The framework will provide a process for ongoing implementation of strategies and opportunities to review and evaluate activities associated with the Stormwater management plan.

### 9.1 Responsibilities

It is anticipated that the involvement of the various organisations involved in the development of the Plan will continue into the implementation phase. The main responsibility for implementation lies with Surf Coast Shire, but support is also required from the Corangamite Catchment Management Authority, Barwon Water, the Barwon regional waste management Group, the Environment Protection Authority and many other stakeholders. Ongoing support from the community as demonstrated through the Project Working Group will also be very beneficial.

The following roles are recommended for the implementation of the Stormwater Management Plan:

- A **coordinator** with the responsibility for maintaining commitment to the implementation of the stormwater management plan.
- A **committee** to oversee and review the progress of the strategy implementation. The committee should include key Shire staff, and preferably external members such as representatives from the CMA, EPA and others from the current steering committee.
- A **Stormwater Action Team** as part of the Shires newly developed sustainability management framework a stormwater action team should be created and integrated into the framework. Members of this team should be taken from a range of shire departments that deal with stormwater management to ensure that strategies are being implemented to address priority stormwater issues and that stormwater management is integrated into the Shires management framework.

### 9.2 Timelines and Priorities

Implementation of the reactive and management framework strategies is expected to require a period of five to ten years. This is dependent on the level of commitment allocated to the plan in terms of funds and resources.

Priorities have been proposed for the reactive strategies and they respond to the priority risks that were identified for the receiving waters. Similarly, levels of priority have been proposed for the management framework strategies. The priorities provide Council with guidance for the order of implementation.

It is, however, recognised that there needs to be some flexibility to reflect the availability of funds and coordination with other activities. A number of the framework strategies would be best implemented at times when internal reviews of policies and procedures or training programs are being conducted.

Therefore, it is recommended that an initial task of the implementation committee should be to develop a more detailed schedule for implementation of the strategies. This schedule could then be reviewed and updated annually in line with the Council's other planning activities.

A more complete review of the priorities should not be required for a number of years, given the processes involved in preparing the current plan. However, a review in three to five years time is suggested to consider improvements to the receiving waters and any significant changes in the extent and type of threats to stormwater quality.

### **9.3 Funding**

Council will need to allocate a significant level of funds if the strategies are to be implemented successfully. If this is done, it will demonstrate Council's commitment to the process and will subsequently assist in obtaining additional funds from other sources.

Surf Coast Shire is able to apply for funding through various government programs.

The Victorian Government has allocated \$22.5 million over a three year period for improved management of stormwater quality across the State through the Victorian Stormwater Action Program. With the completion of the Surf Coast Shire Stormwater Management Plan, Council is in a position to apply for funds to assist in the implementation of the priority strategies identified in the plan.

Another potential source of funds is through the Natural Heritage Trust. Commonwealth government funds have been extended for the program that contributes to many environmental projects around the nation.

In relation to litter issues, some funds may be available through EcoRecycle Victoria.

Several of the strategies involve actions with overlapping responsibilities, such as the water quality monitoring. Cost sharing with the Catchment Management Authority or other authorities should be pursued in these cases.

## 10 Conclusions

The Surf Coast Shire 's Stormwater Management Plan provides a framework for protecting and enhancing the areas significant marine and freshwater receiving environments that are affected by urban stormwater runoff.

Priorities for management have been determined through a workshop process involving key staff from the Council as well as representatives from other authorities and local interest groups. Therefore, the outcomes from the Plan have been determined from a broad range of inputs and the implementation of the strategies should be successful if the commitment is maintained.

The values of the significant marine and freshwater receiving environments that are most important to the community have been determined. Strategies have been developed for responding to the priority risks to stormwater quality that could impact on these receiving waters.

Recommendations have also been developed for integrating best practice environmental management of stormwater into Council's management and planning activities.

The Stormwater Management Plan provides Council with the basis for obtaining external funds to support its commitment to the strategies. Primarily, the Plan sets out a framework for implementing changes that will improve the environmental conditions and protect the values of the waterways in Surf Coast Shire .

## 11 References

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## SUB-CATCHMENT MAPS