



Illawarra Local Emergency Management Plan

January 2017 (Version 1.0)



Part 1 – Administration

Authority

The Illawarra Local Emergency Management Plan (EMPLAN) has been prepared by the Illawarra Local Emergency Management Committee in compliance with the State Emergency & Rescue Management Act 1989.

APPROVED



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Chair – Principal Council
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Dated: 3/3/17

ENDORSED



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Dated: 20/3/17

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Purpose

This Plan details arrangements for the prevention of, preparation for, response to and recovery from emergencies within the Local Government Areas of Wollongong, Shellharbour and Kiama.

It encompasses arrangements for:

- emergencies controlled by combat agencies;
- emergencies controlled by combat agencies and supported by the Local Emergency Operations Controller (LEOCON);
- emergency operations for which there is no combat agency; and
- circumstances where a combat agency has passed control to the LEOCON.

Objectives

The objectives of this Plan are to:

- define participating organisation and functional area roles and responsibilities in preparation for, response to and recovery from emergencies at a Local level;
- set out the control, co-ordination and liaison arrangements at the Local level;
- detail activation and alerting arrangements for involved agencies; and
- detail arrangements for the acquisition and co-ordination of resources.

Scope

The Plan describes the arrangements at the local level to prevent, prepare for, respond to and recover from emergencies and provides policy direction for the preparation of Sub Plans and Supporting Plans:

- arrangements detailed in this Plan are based on the assumption that the resources upon which the Plan relies are available when required; and
- the effectiveness of arrangements detailed in this Plan are dependent upon all involved agencies preparing, testing and maintaining appropriate internal instructions, and/or standard operating procedures.

Principles

The following principles are applied in this Plan:

- a) The Emergency Risk Management (ERM) process is to be used as the basis for emergency planning in New South Wales. This methodical approach to the planning process is to be applied by Emergency Management Committees at all levels.

- b) Responsibility for preparation, response and recovery rests initially at Local level. If Local agencies and available resources are not sufficient, they are augmented by those at Regional level.
- c) Control of emergency response and recovery operations is conducted at the lowest effective level.
- d) Agencies may deploy their own resources from their own service from outside the affected Local area or Region if they are needed.
- e) The Local Emergency Operations Controller (LEOCON) is responsible, when requested by a combat agency, to coordinate the provision of resources support. EOCOns would not normally assume control from a combat agency unless the situation can no longer be contained. Where necessary, this should only be done after consultation with the Regional Emergency Operations Controller (REOCON) and agreement of the combat agency and the appropriate level of control.
- f) Emergency preparation, response and recovery operations should be conducted with all agencies carrying out their normal functions wherever possible.
- g) Prevention measures remain the responsibility of authorities/agencies charged by statute with the responsibility.

Test and Review Process

The Illawarra Local Emergency Management Committee (LEMC) will review this Plan every three (3) years, or following any:

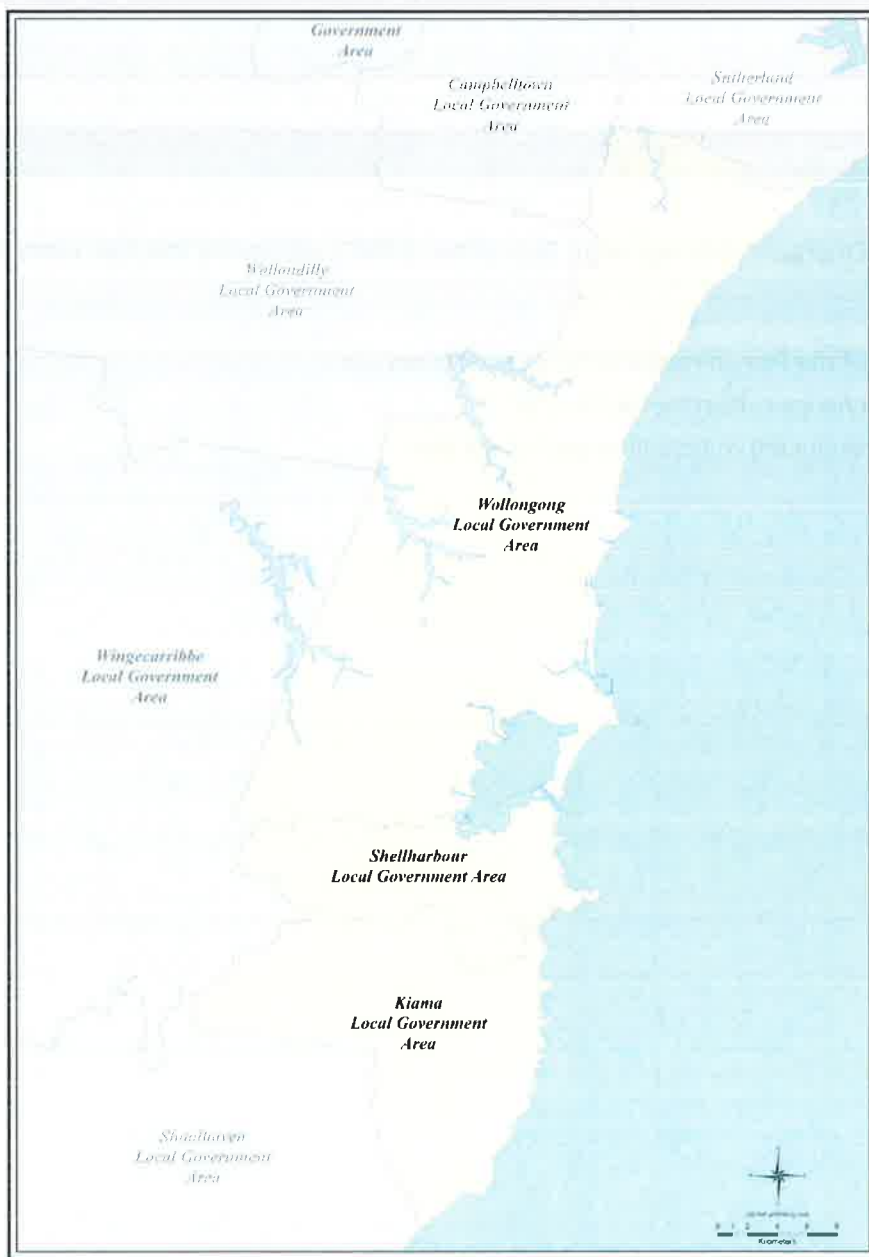
- activation of the Plan in response to an emergency; or
- legislative changes affecting the Plan; or
- exercises conducted to test all or part of the Plan.

Part 2 – Community Context

Annexure A – Community Profile

General

The area covered by this Emergency Management Plan is referred to as the Illawarra Emergency Management Area and covers the Wollongong, Shellharbour and Kiama Local Government Areas (LGAs) — shown in Map 1 below. It is located 45 kilometres south of Sydney, stretching from Helensburgh in the north to Gerringong and Gerroa in the south; and covering an area of 1,127 square kilometres with a population of just over 299,000 residents.



Map 1 – Illawarra Emergency Management Area

Wollongong LGA:

The Wollongong LGA covers an area of 714 square kilometres. The area extends from south of Waterfall in the north to a line from Windang Bridge to Yallah in the south. The area includes residential, industrial, commercial, rural and coastal areas and has within its boundaries the following suburbs and rural localities:

Austinmer	Koonawarra
Avon (part)	Lake Heights
Avondale	Lilyvale
Balgownie	Maddens Plains
Bellambi	Mangerton
Berkeley	Marshall Mount
Brownsville	Mount Keira
Bulli	Mount Kembla
Cataract (part)	Mount Ousley
Cleveland	Mount Pleasant
Clifton	Mount Saint Thomas
Coalcliff	North Wollongong
Coledale	Otford
Coniston	Penrose
Cordeaux	Port Kembla
Cordeaux Heights	Primbee
Corrimal	Russell Vale
Cringila	Scarborough
Dapto	Spring Hill
Darkes Forest (part)	Stanwell Park
Dombarton	Stanwell Tops
East Corrimal	Tarrawanna
Fairy Meadow	Thirroul
Farmborough Heights	Towradgi
Fernhill	Unanderra
Figtree	Warrawong
Gwynneville	West Wollongong
Haywards Bay	Windang
Helensburgh	Wollongong
Horsley	Wombarra
Huntley	Wongawilli
Kanahooka	Woonona
Keiraville	Woronora Dam (part)
Kembla Grange	Yallah (part)
Kembla Heights	

Shellharbour LGA:

The Shellharbour LGA covers an area of approximately 154 square kilometres. The area includes all that area bounded by Lake Illawarra to the north, the escarpment to the west, the Pacific Ocean to the east and the Minnamurra River to the south. The following communities are contained within the LGA:

Albion Park	Oak Flats
Albion Park Rail	Shell Cove
Barrack Heights	Shellharbour
Barrack Point	Shellharbour City Centre
Dunmore	Tongarra
Flinders	Tullimbar
Lake Illawarra	Warilla
Mount Warrigal	Yallah (part)

Kiama LGA:

The Kiama LGA is a semi-rural municipality comprising 259 square kilometres and stretches from Seven Mile Beach in the south to the tidal portion of the Minnamurra River, in the north-west via Yellow Rock to the Kangaroo River, then back east to Seven Mile Beach through Broughton Vale. The following communities are contained within the LGA:

Bombo	Kiama Downs
Broughton Vale	Kiama Heights
Carrington Falls	Knights Hill
Curramore	Minnamurra
Foxground	Rose Valley
Gerringong	Saddleback Mountain
Gerroa	Toolijooa
Jamberoo	Werri Beach
Jerrara	Willow Vale
Kiama	

Landform and Topography

The region consists of a coastal plain, narrow in the north and wider in the south, bounded by the Tasman Sea on the east and a steep sandstone precipice known as the Illawarra Escarpment to the west. In the middle of the region is Lake Illawarra, a shallow lake formed when sediment built up at the entrance to a bay. The region extends from the southern hills of the Royal National Park in the north to the Shoalhaven River in the south, and contains the city of Wollongong, the third-largest urban area in New South Wales.

North of Wollongong the plain narrows to a small coastal strip of land between the coast and the escarpment containing many hills including the foothills of the escarpment's lower slopes, which gives much of the area an undulating character.

To the south it widens, and becomes increasingly hillier before reaching Stockyard Mountain, a long divide between the main plain and the Jamberoo Valley, which stretches until it reaches Kiama. South of Kiama is Saddleback Mountain and south of that the Shoalhaven plains and the outcrop of Coolangatta Mountain. Substantial outcrops of basalt are exposed in the Dunmore area and this form of geology exists on the coast at Bass Point and along the coastline and intruding inland in the Kiama LGA.

Waterways, Water Storage, Harbours and Lakes

The main river catchment areas in the Illawarra Emergency Management Area are listed in Table 1 below. Further information related to flood threat can be found in relevant Local Flood Plans.

Sydney Water has 31 storage reservoirs located between Helensburgh and Gerringong with a total storage capacity of 285 megalitres at 80 per cent. The reservoirs to the west of the Illawarra Emergency Management Area release flows to the west.

**Table 1 – Illawarra Emergency Management Area
Major River Systems and Water Storages**

Major River Catchments		Major Water Storages	Major Lakes and Harbours
LGA	River Name		
Wollongong	Hacking Loddon	Woronora Dam Cataract Dam Cordeaux Dam Upper Cordeaux No.1 Dam Upper Cordeaux No.2 Dam Avon Dam Coalcliff Dam	Port Kembla Inner Harbour Port Kembla Outer Harbour Lake Illawarra Wollongong Harbour
Shellharbour	Macquarie Horsley Creek	Blackbutt Reservoir	Lake Illawarra Shellharbour Harbour
Kiama	Minnamurra Kangaroo Crooked	Fountaindale Dam	Kiama Harbour

Dams, retarding basins and water storage facilities could pose a potential threat to communities downstream, and are therefore 'prescribed' by the NSW Dams Safety Committee (which maintains continuing oversight for their safety). Prescribed dams within the Illawarra Emergency Management Area are listed in Table 2 below.

**Table 2 – Illawarra Emergency Management Area
Current Prescribed Dams***

Dam	Owner	Built	Type	Height (m)	Storage (ML)
Avon*	WaterNSW	1927/71/95	PG/ER	72	214,400
Barina Park Detention Basin*[R]	Wollongong City Council	1982	TE	7	5.4
Blackbutt Reserve*	Shellharbour City Council	1957/95	TE	6	17
Brokers Road Retarding Basin*	Wollongong City Council	1999	TE	7.5	70
Bucklands Retarding Basin	Matt Crossingham	1992	TE	5	2
Cataract*	WaterNSW	1907/1987	PG	56	94,300
Coalcliff*	Illawarra Coke Company	1971/1998	TE	9	97
Cordeaux*	WaterNSW	1926/77/88	PG	57	94,000
Dapto Heights Retention Basin	Wollongong City Council	1991	TE	6	16
Edgewood Detention Basin	Wollongong City Council	2002	TE	4.8	19.2
Foothills Estate Retention Basin 1	Wollongong City Council	1995	TE	7	21
Foothills Estate Retention Basin 3	Wollongong City Council	1995	TE	7.8	21
Foothills Road Basin	Wollongong City Council	1979/95	TE	4	17
Fountaindale*	Kiama Municipal Council	1915	VA	15	18
Gannet Place Retarding Basin	Wollongong City Council	1993	TE	5	5
Green Meadows Retarding Basin	Shellharbour City Council	1981/93/03	TE	5.4	120
Gunyah Park Basin	Wollongong City Council	1993	TE	4	4.5
Kanahooka Retention Basin	Forest Grove Community Association	1993	TE	1.5	20
Nyrang Park Retarding Basin	Wollongong City Council	1992	TE	3.5	20
Oak Flats Reservoir*	Sydney Water Corporation	1978	TE	11	56
Shellcove Estate Detention Basin 1	Shellharbour City Council	2005	TE	5	24
Shellharbour City Centre Basin	Shellharbour City Council	2001	TE	5	41.5
South Bulli Basin 1	Allied Coal Pty Ltd	-	ER	6	50
South Bulli Stormwater	Wollongong Coal Pty Ltd	1992	TE	9	60
St Josephs School Retarding Basin	Shellharbour City Council	1990/2001	TE	5	16
Upper Cordeaux 2*	WaterNSW	1915	VA	21	1,200
Wollongong High School Retarding Basin	Wollongong City Council	1993/2001	TE	5	80
Woronora*	WaterNSW	1941/88	PG	66	71,800

Legend:

- * Dams with Notification Areas
- [R] Significant Risk Dam or requiring specific investigations for particular circumstances
- ER Rockfill dam
- VA Concrete arch
- TE Earthfill dam
- PG Concrete gravity

*Extract from *NSW Dams Safety Committee Annual Report 2014-2015*

National Parks, State Forests and Nature Reserves

The following parks, forests and reserves are located within the Illawarra Emergency Management Area:

Table 3 – Parks, Forests and Reserves

Illawarra Emergency Management Area (Wollongong, Shellharbour and Kiama LGAs)	Total Hectares
Royal National Park (Part)	15,091
Dharawal Nature Reserve	347
Garawarra State Conservation Area	949
Dharawal National Park	6,508
Illawarra Escarpment State Conservation Area	1,837
Five Islands Nature Reserve	27
Berkeley Nature Reserve	8
Macquarie Pass National Park	1,100
Killalea State Park	265
Budderoo National Park	7,219

Climate

The Illawarra has a temperate coastal climate with moderate to high rainfall. Winter temperatures average a high of 16°C and a low of 9°C, while summer temperatures average a high of 25°C and a low of 19°C.

Rainfall is relatively, evenly distributed throughout the year, with typically 94 days on which some rain falls for an annual average of 1200 mm of rain. Prevailing onshore winds from February to June are often associated with orographic lift due to the escarpment, from which the moist air gives higher average rainfall in these months. Correspondingly, offshore winds in July to September tend to be drier. Strong westerly gales gusting to over 100 kilometers per hour are common at this time of year.

The warmer summer months bring thunderstorms with lightning, heavy rain and occasional hail. Short duration, high intensity rainfall events, often associated with east coast lows, can happen at any time of the year and can lead to flash flooding. Variations in yearly rainfall totals are also affected by the El Niño-Southern Oscillation.

The *NSW Office of Environment & Heritage Illawarra Climate Change Snapshot (November 2014)* states that the expected climate change impacts within the area will be:

- *Temperature* – By 2030 maximum temperatures are projected to rise by 0.7°C and continue to rise by 1.9°C by 2070, with the greatest increase occurring during summer.
- *Rainfall* – By 2030, the Illawarra is projected to have little change in annual rainfall. There are projected increases during autumn and decreases during winter and spring.
- *Fire* – Severe fire weather is projected to increase slightly across the Illawarra during spring and summer by 2030. Overall it is projected that there will be minimal change to the severe fire risk by 2030 in the Illawarra, with declines during autumn likely due to projected increases in rainfall.
- *Heat* – By 2030, the Illawarra is projected to experience an average of two more days per year above 35°C and continue to rise to five more days per year by 2070. There is no projected change for the coastal areas.

**Table 4 – Climate Statistics and Historical Weather Observations
(by Automation Weather Station)**

		Bellambi AWS (Wollongong)	Albion Park AWS (Shellharbour)	Kiama AWS (Kiama)
Temperature (°C)	Annual Mean Maximum	21.3	22.5	21.5
	Annual Mean Minimum	14.7	11.5	13.1
	Highest Temperature	43.7 (1 Jan 2006)	45.8 (18 Jan 2013)	45.0 (18 Jan 2013))
	Lowest Temperature	4.1 (17 Jul 2007)	-2.0 (9 Aug 2009)	2.3 (24 Jun 1985)
Rainfall (mm)	Annual Mean Total	1,113.9	922.7	1,248.2
	Highest Annual	1,657.0	1,245.0	2,714.8 (1950)
	Lowest Annual	770.0	659.6	601.6
	Highest Monthly	682.0 (1998)	422.2 (2011)	728.4 (1998)
	Highest Daily	240.0 (18 Aug 1998)	249.0 (22 Mar 2011)	304.4 (11 Mar 1975)
	Annual Mean Rainy Days	131.6	122.8	125.2
Wind (km/h)	Maximum Wind Gust Speed	141.0 (24 Aug 2003)	N/A	115 (18 Jan 2013)
	Annual Mean 9am Wind Speed	17.0	12.6	9.3
	Mean Highest 9am Wind Speed	18.7 (Nov)	15.3 (Sep)	10.3 (Jun/Jul)
	Mean Lowest 9am Wind Speed	15.0 (Mar)	8.1 (Mar)	8.1 (Feb)
	Annual Mean 3pm Wind Speed	23.3	19.9	N/A
	Mean Highest 3pm Wind Speed	25.4 (Dec)	22.6 (Sep)	N/A
	Mean Lowest 3pm Wind Speed	20.7 (Jul)	17.1 (May)	N/A

Table 5 – Land Use Zone Types within LGAs

Wollongong LGA

	Land Use Zone	Wollongong LEP 2009	Wollongong LEP 1990 (equivalent zones)	Wollongong LEP 38 (equivalent zones)	SEPPs	Total	% of LGA
		Land Area (km ²)	Land Area (km ²)	Land Area (km ²)	Land Area (km ²)		
Rural Zones	RU1 Primary Production	2.30				2.3	0.33
	RU2 Rural Landscape	18.08	7.05			25.13	3.57
	RU4 Primary Production Small Lots	0.36				0.36	0.05
Residential Zones	R1 General Residential	1.31			0.79	2.1	0.30
	R2 Low Density Residential	63.87			0.19	64.06	9.11
	R3 Medium Density Residential	2.45			0.01	2.46	0.35
	R5 Large Lot Residential	0.50			0.08	0.58	0.08
Business Zones	B1 Neighbourhood Centre	0.23				0.23	0.03
	B2 Local Centre	0.86				0.86	0.12
	B3 Commercial Core	0.87				0.87	0.12
	B4 Mixed Use	0.47				0.47	0.07
	B6 Enterprise Corridor	1.48				1.48	0.21
	B7 Business Park	0.25				0.25	0.04
Industrial Zones	IN1 General Industrial	0.97				0.97	0.14
	IN2 Light Industrial	5.72		1.20		6.92	0.98
	IN3 Heavy Industrial	3.11			10.01	13.12	1.87
	IN4 Working Waterfront	0.03				0.03	0.00
Special Purpose Zones	SP1 Special Activities	1.50			2.21	3.71	0.53
	SP2 Infrastructure	40.40				40.4	5.75
	SP3 Tourist	1.12				1.12	0.16
Recreation Zones	RE1 Public Recreation	15.25				15.25	2.17
	RE2 Private Recreation	6.64				6.64	0.94
Environment Protection Zones	E1 National Parks and Nature Reserves					0	0.00
	E2 Environmental Conservation	67.29	1.25		0.28	68.82	9.79
	E3 Environmental Management	380.64	0.43		0.13	381.2	54.21
	E4 Environmental Living	35.18	0.01			35.19	5.00
Waterway Zones	W1 Natural Waterways	9.29				9.29	1.32
	W2 Recreational Waterways	19.31				19.31	2.75
	W3 Working Waterways	0.02				0.02	0.00

LEP – Local Environment Plan

SEPP – State Environment Planning Policies

Shellharbour LGA:

		Shellharbour LEP 2013	LEP 2000 (equivalent)	Rural LEP 2004 (equivalent)	SEPP (Calderwood)		
	Land Use Zone	Land Area (km ²)	Land Area (km ²)	Land Area (km ²)	Land Area (km ²)	Area Total	% of LGA
Business Zones	B1 – Neighbourhood Centre	0.07				0.07	0.05
	B2 – Local Centre	0.43				0.43	0.28
	B3 – Commercial Core	0.31				0.31	0.20
	B4 – Mixed Use	0.07			0.75	0.82	0.53
	B5 – Business Development	0.17				0.17	0.11
	B7 – Business Park	0.12				0.12	0.08
	Environmental Zones	E1 – National Parks & Nature Reserves	10.65				10.65
	E2 – Environmental Conservation	6.89	3.04		1.15	11.08	7.15
	E3 – Environmental Management	38.33			0.67	39.00	25.16
	E4 – Environmental Living	0.81				0.81	0.52
Industrial Zones	IN1 – General Industrial	0.18				0.18	0.11
	IN2 – Light Industrial	1.03				1.03	0.67
Residential	R1 – General Residential				2.87	2.87	1.85
	R2 – Low Density Residential	19.97	2.01			21.98	14.18
	R3 – Medium Density Residential	2.50				2.50	1.61
	R5 – Large Lot Residential	0.18			0.17	0.35	0.22
	RE1 – Public Recreation	7.13			0.24	7.37	4.75
Recreation	RE2 – Private Recreation	2.23	0.02			2.25	1.45
Rural Zones	RU1 – Primary Production	21.63	0.81	0.36		22.80	14.71
	RU2 – Rural Landscape	16.34		0.47	0.17	16.98	10.96
	RU6 – Transition	0.29				0.29	0.19
Special Purposes	SP1 – Special Activities	1.33				1.33	0.86
	SP2 – Infrastructure	4.20				4.20	2.71
Waterway	W1 – Natural Waterways	3.19				3.19	2.06
	W2 – Recreational Waterways	4.23				4.23	2.73
	Totals:	142.27	5.88	0.83	6.02	155.0	100.00

LEP – Local Environment Plan

SEPP – State Environment Planning Policies

Kiama LGA:

Kiama Local Environmental Plan 2011	Land Use Zone Type	Land Area (km ²)	% of LGA
Rural Zone	RU1 Primary Production	23.82	9.2
	RU2 Rural Landscape	68.07	26.28
Residential Zones	R2 Low Density Residential	7.25	2.8
	R3 Medium Density Residential	0.72	0.28
	R5 Large Lot Residential	0.37	0.14
Business Zones	B1 Neighbourhood Centre	0.02	0.0077
	B2 Local Centre	0.33	0.13
	B7 Business Park	0.17	0.066
Industrial Zones	IN2 Light Industry	0.04	0.015
	IN4 Working Waterfront	0.01	0.0039
Special Purpose Zones	SP2 Infrastructure	4.47	1.73
Recreation Zones	RE1 Public Recreation	3.42	1.32
	RE2 Private Recreation	0.27	0.1
Environment Protection Zones	E1 National Parks and Natural Reserves	53.86	20.8
	E2 Environmental Conservation	54.61	21.08
	E3 Environmental Management	41.41	15.99

Population and People

The Illawarra Emergency Management Area's estimated resident population is 299,903 as shown in Table 5 below. Some residents and households are identified as being more vulnerable to emergency events, due to their circumstances. Some of the vulnerabilities could impact emergency operations, communications, evacuation management and response and recovery requirements.

Table 6 – Illawarra EM Area - Population and Vulnerable Groups

Illawarra Population and Vulnerable Groups by Locality														
Communities defined by 2011 Census	Land Area (h)	Total Pop.	Residents								Households			
			Under 19		Over 65		Need Assistance		Language – Little or No English		Sole Occupant		Without a Vehicle	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Wollongong LGA	71,544	208,875	48,487	25.3	31,468	16.3	11,199	5.8	5,907	3.1	18,586	25.0	8,349	11.2
Austinmer	340	2,478	682	27.6	302	10.2	76	3.1	173	9.2	174	18.9	40	4.4
Balgownie/Tarrawanna/Fernhill	652	8,194	2,037	24.8	1,620	19.9	441	5.4	173	2.1	798	25.0	293	9.2
Bellambi	236	4,048	1,126	27.9	575	14.1	316	7.8	54	1.3	530	31.2	315	18.5
Berkeley	721	7,235	1,869	25.8	1,200	16.5	556	7.7	244	3.4	708	25.7	374	13.5
Bulli	801	5,622	1,715	30.6	706	12.5	234	4.2	24	0.4	422	20.6	188	9.2
Coniston/Mt St Thomas	161	3,741	926	24.7	634	16.9	268	7.2	259	6.9	396	27.4	192	13.3
Cordeaux Heights/Mt Kembla/Kembla Heights	1,552	5,792	1,837	31.8	419	7.3	133	2.3	107	1.9	175	9.9	20	1.1
Corrimal	507	6,409	1,509	23.5	1,247	19.4	434	6.8	136	2.1	768	29.1	343	12.9
Cringila	181	2,074	610	29.4	341	16.3	216	10.4	321	15.5	138	20.7	106	15.2
Dapto/Penrose/Brownsville	1,351	12,725	3,349	26.3	2,240	17.6	735	5.8	104	0.8	1,129	23.3	441	9.1
East Corrimal	143	3,164	731	23.0	440	13.9	153	4.9	48	1.5	457	33.0	149	10.7
Fairy Meadow	347	6,777	1,554	22.9	1,157	17.1	437	6.4	350	5.2	839	29.4	469	16.5
Farmborough Heights	302	4,146	1,246	30.1	453	10.9	195	4.7	70	1.7	160	11.6	34	2.5
Figtree	840	10,625	2,912	27.5	1,793	16.9	535	5.0	259	2.4	744	19.7	208	5.5
Gwynneville	123	2,514	573	22.8	324	12.9	112	4.5	157	6.3	308	30.1	201	19.7
Helensburgh/Otford	2,539	6,260	1,974	31.5	503	7.9	123	2.0	11	0.2	299	14.3	69	3.3
Horsley	555	7,056	2,297	32.5	640	9.0	373	5.3	98	1.4	245	10.9	47	2.1
Kanahooka	358	5,255	1,188	22.6	1,335	25.4	365	6.9	59	1.1	444	22.1	107	5.3

Illawarra Population and Vulnerable Groups by Locality														
Communities defined by 2011 Census	Land Area (h)	Total Pop.	Residents								Households			
			Under 19		Over 65		Need Assistance		Language – Little or No English		Sole Occupant		Without a Vehicle	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Keiraville/Mt Keira	955	4,862	1,164	24.0	731	15.1	153	3.1	149	3.1	397	21.8	159	8.7
Koonawarra	220	3,490	1,104	31.7	408	11.7	212	6.1	45	1.3	244	19.4	123	9.8
Lake Heights	165	3,404	808	23.7	727	21.3	253	7.4	277	8.1	318	23.9	147	11.1
Mangerton	101	2,717	725	26.7	355	13.1	104	3.8	67	2.5	312	28.5	144	13.2
Mt Ousley/Mt Pleasant	173	2,743	699	25.6	491	18.0	102	3.7	46	1.7	152	15.5	36	3.7
North Wollongong	246	2,411	293	13.8	231	10.9	107	5.0	66	3.1	339	35.6	152	16.1
Port Kembla/Springhill	1,931	4,893	1,101	22.6	1,018	20.7	436	8.9	470	9.6	547	27.6	344	17.4
Rural Balance [#]	46,461	1,545	414	26.8	266	17.1	168	10.9	29	1.9	62	13.0	9	2.0
Stanwell Park/Stanwell Tops/Coalcliff	948	2,129	635	29.9	217	10.3	65	3.1	2	0.1	98	14.0	23	3.2
Thirroul	489	5,589	1,450	25.9	782	14.0	246	4.4	22	0.4	455	21.9	165	7.9
Towradgi	145	3,087	735	23.8	670	21.6	276	8.9	67	2.2	372	30.3	152	12.4
Unanderra/Kembla Grange	2,104	5,924	1,434	24.2	1,314	22.1	642	10.8	201	3.4	673	29.0	363	15.6
Warrawong	261	4,770	1,149	24.2	1,064	22.3	539	11.3	577	12.1	615	31.3	475	24.2
West Wollongong	207	4,706	1,205	25.6	716	15.2	188	4.0	176	3.7	458	24.1	216	11.3
Windang/Primbee	581	4,177	879	21.0	1,174	28.1	318	7.6	77	1.8	595	32.1	204	11.0
Wollongong	592	16,388	2,381	14.6	3,443	21.0	827	5.0	1,017	6.2	2,666	34.0	1,491	19.0
Wombarra/Coledale/Scarborough/Clifton	593	2,308	703	30.4	236	10.2	61	2.6	6	0.3	163	19.2	50	5.8
Woonona/Russell Vale	988	12,983	3,450	26.6	2,312	17.8	838	6.5	100	0.8	1,273	25.5	476	9.5
Shellharbour LGA	14,739	69,714	18,372	28.9	9,073	14.2	3,727	5.9	1,034	1.6	4,632	20.1	1,601	7.0
Albion Park – Rural West	7,519	13,616	4,536	33.3	1,320	9.7	608	4.5	66	0.5	595	13.4	132	3.0
Albion Park Rail – Croom	2,288	7,055	1,957	27.8	1,081	15.3	527	7.5	62	0.9	545	21.5	163	6.4

Illawarra Population and Vulnerable Groups by Locality														
Communities defined by 2011 Census	Land Area (h)	Total Pop.	Residents								Households			
			Under 19		Over 65		Need Assistance		Language – Little or No English		Sole Occupant		Without a Vehicle	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Barrack Heights	239	6,010	1,587	26.4	993	16.4	380	6.3	186	3.1	450	20.2	206	9.3
Blackbutt – Shellharbour City Centre	328	3,177	805	25.3	376	11.9	154	4.9	103	3.2	249	21.1	83	7.0
Flinders	232	5,198	1,754	33.6	468	9.0	189	3.6	102	2.0	275	15.7	74	4.2
Lake Illawarra	167	3,137	724	23.1	652	20.7	243	7.8	72	2.3	519	36.1	230	15.9
Mount Warrigal	186	4,680	1,226	26.2	855	18.2	326	7.0	99	2.1	289	16.8	87	5.1
Oak Flats	375	6,301	1,599	25.3	1,066	16.9	368	5.8	93	1.5	514	21.7	154	6.5
Shell Cove – Dunmore	2,860	4,233	1,499	35.4	423	10	110	2.6	50	1.2	108	8.3	14	1.1
Shellharbour – Barrack Point	289	3,945	976	24.7	596	15.2	161	4.1	53	1.3	334	22.1	91	6.0
Warilla	256	6,222	1,616	26.1	1,345	21.7	584	9.4	155	2.5	772	30.5	371	14.6
Kiama LGA	20,886	21,314	5,028	23.6	4,655	21.8	1,021	4.8	788	3.7	1,646	7.7	343	1.6
Bombo	181	30	9	30	4	13.3	0	0	0	0	4	13.3	0	0
Curramore	1,056	228	51	22.4	41	18	10	4.4	6	2.6	14	17.3	0	0
Foxground (inc. Broughton Village)	1,984	232	40	17.2	58	25	0	0	9	3.9	12	14.8	0	0
Gerringong	1,100	3,456	962	27.8	725	21	338	9.8	90	2.6	286	8.3	59	1.7
Gerroa (inc. Toolijooa and Willow Vale)	937	757	165	21.8	212	28	33	4.3	36	4.8	69	9.1	7	0.9
Jamberoo	5,909	1,526	372	24.3	309	20.2	39	2.6	17	1.1	101	6.6	8	0.5
Jerrara (inc. Saddleback Mountain)	934	284	75	26.4	44	15.5	9	3.2	15	5.3	20	7	0	0
Kiama	1,004	6,272	1,350	21.5	1,622	25.9	354	5.6	289	4.6	730	11.6	199	3.17
Kiama Downs	386	4,848	1,314	27.1	682	14.1	149	3.1	169	3.5	239	14.3	48	2.9
Kiama Heights	424	893	223	25	161	18	33	3.7	43	4.8	55	17.2	6	1.9
Minnamurra	187	855	182	21.3	169	19.8	33	3.9	27	3.2	68	20.8	13	4

Illawarra Population and Vulnerable Groups by Locality														
Communities defined by 2011 Census	Land Area (h)	Total Pop.	Residents								Households			
			Under 19		Over 65		Need Assistance		Language – Little or No English		Sole Occupant		Without a Vehicle	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Rose Valley	1,132	284	75	26.4	44	15.4	9	3.2	15	5.3	20	20.6	0	0
Werri Beach	48	541	151	27.9	71	13.1	14	2.6	20	3.7	41	7.6	3	0.6

≠Wollongong Rural Balance includes the localities of Avon (part), Avondale, Cataract (part), Cleveland, Cordeaux, Darkes Forest (part), Dombarton, Haywards Bay, Huntley, Lilyvale, Maddens Plains, Marshall Mount, Wongawilli, Woronora Dam (part) and Yallah.

**Table 7 – Illawarra Emergency Management Area
Languages Spoken at Home (other than English)**

Local Government Area	Language	Persons	Percentage
Wollongong	Macedonian	5,243	2.7%
	Italian	4,170	2.2%
	Arabic	2,169	1.1%
	Mandarin	2,063	1.1%
	Greek	1,818	0.9%
	Spanish	1,645	0.9%
	Serbian	1,511	0.8%
	Portuguese	1,050	0.5%
	Turkish	991	0.5%
	Croatian	866	0.5%
	Shellharbour	Macedonian	1,650
Spanish		830	1.3%
Italian		581	0.9%
German		378	0.6%
Greek		336	0.5%
Turkish		312	0.5%
Serbian		301	0.5%
Kiama	Italian	123	0.6%
	German	69	0.3%
	Greek	68	0.3%

**Table 8 – Illawarra Emergency Management Area
Dwelling Structure
(Count of Occupied and Unoccupied Private Dwellings and Persons in Occupied Private Dwellings)**

Dwelling Type	Dwellings	Persons
Wollongong		
Occupied private dwellings		
Separate house	51,102	141,824
Semi-detached, row or terrace house, townhouse, etc. with:		
One storey	3,806	7,153
Two or more storeys	4,449	9,795
<i>Total</i>	8,255	16,948
Flat, Unit or Apartment:		
In a one or two storey block	5,621	9,513
In a three storey block	2,899	5,006
In a four or more storey block	2,926	5,503
Attached to a house	165	298
<i>Total</i>	11,611	20,320
Other dwelling		
Caravan, cabin, houseboat	513	767
Improvised home, tent, sleepers out	5	4
House or flat attached to a shop, office, etc.	227	472
<i>Total</i>	745	1,243
Dwelling structure not stated	51	91
Total occupied private dwellings	71,764	180,426
Unoccupied private dwellings	5,874	-
Wollongong total private dwellings	77,638	180,426
Shellharbour		
Occupied private dwellings		
Separate house	18,460	53,428
Semi-detached, row or terrace house, townhouse, etc. with:		
One storey	1,527	2,806
Two or more storeys	967	2,012
<i>Total</i>	2,494	4,818
Flat, Unit or Apartment:		
In a one or two storey block	1,044	1,770
In a three storey block	88	139
In a four or more storey block	0	0
Attached to a house	13	29
<i>Total</i>	1,145	1,938
Other dwelling		
Caravan, cabin, houseboat	287	432
Improvised home, tent, sleepers out	3	0
House or flat attached to a shop, office, etc	44	128
<i>Total</i>	334	560

Dwelling Type	Dwellings	Persons
Dwelling structure not stated	4	0
Total occupied private dwellings	22,437	60,744
Unoccupied private dwellings	1,467	-
Shellharbour total private dwellings	23,904	60,744
Kiama		
Occupied private dwellings		
Separate house	6,029	16,189
Semi-detached, row or terrace house, townhouse, etc, with:	253	468
One storey	411	811
Two or more storeys	664	1,279
<i>Total</i>		
Flat, Unit or Apartment:	313	486
In a one or two storey block	150	245
In a three storey block	166	225
In a four or more storey block	25	35
Attached to a house	654	991
<i>Total</i>		
Other dwelling		
Caravan, cabin, houseboat	21	47
Improvised home, tent, sleepers out	0	4
House or flat attached to a shop, office, etc	43	76
<i>Total</i>	64	126
Dwelling structure not stated	3	9
Total occupied private dwellings	7,414	18,594
Unoccupied private dwellings	1,723	-
Kiama total private dwellings	9,137	18,594
ILLAWARRA TOTAL PRIVATE DWELLINGS	110,679	259,764

**Table 9 – Illawarra Emergency Management Area
Tenure and Landlord Type**

	Dwelling Structure					Total
	Separate House	Semi-detached, Row or Terrace House, Townhouse etc.	Flat, Unit Or Apartment	Other Dwelling	Not Stated	
Wollongong						
Owned outright	21,424	1,896	1,677	405	12	25,414
Owned with a mortgage	18,986	1,738	1,583	32	8	22,347
Rented:						
Real estate agent	4,048	1,906	4,498	101	20	10,573
State or territory housing authority	2,425	1,602	1,765	0	4	5,796
Person not in same household	2,194	537	1,086	58	5	3,880
Housing co-operative/community/church group	115	118	129	0	0	362
Other landlord type (eg residential park, employer)	256	47	148	71	0	522
Landlord type not stated	199	37	104	6	0	346
<i>Total</i>	<i>9,237</i>	<i>4,247</i>	<i>7,730</i>	<i>236</i>	<i>29</i>	<i>21,479</i>
Other tenure type	263	109	204	13	0	589
Tenure not stated	1,193	266	417	58	0	1,934
Total	51,103	8,256	11,611	744	49	71,763
Shellharbour						
Owned outright	6,559	595	162	232	0	7,548
Owned with a mortgage	7,685	490	140	3	0	8,318
Rented:						
Real estate agent	1,607	754	416	21	0	2,798
State or territory housing authority	1,153	292	230	0	0	1,675
Person not in same household	809	192	96	15	0	1,112
Housing co-operative/community/church group	45	20	20	0	0	85
Other landlord type (eg residential park, employer)	70	22	7	37	0	136
Landlord type not stated	62	13	13	3	0	91
<i>Total</i>	<i>3,746</i>	<i>1,293</i>	<i>782</i>	<i>76</i>	<i>0</i>	<i>5,897</i>
Other tenure type	79	36	25	6	0	146
Tenure not stated	393	79	37	18	0	527
Total	18,462	2,493	1,146	335	0	22,436

	Dwelling Structure					
	Separate House	Semi-detached, Row or Terrace House, Townhouse etc.	Flat, Unit Or Apartment	Other Dwelling	Not Stated	Total
Kiama						
Owned outright	2,858	245	194	20	0	3,317
Owned with a mortgage	2,083	147	41	3	0	2,274
Rented:						
Real estate agent	570	169	154	23	3	919
State or territory housing authority	31	16	16	0	0	63
Person not in same household	298	57	56	8	0	419
Housing co-operative/community/church group	10	6	41	0	0	57
Other landlord type (eg residential park, employer)	27	0	10	5	0	42
Landlord type not stated	26	3	9	0	0	38
<i>Total</i>	962	251	286	36	3	1,538
Other tenure type	27	0	96	0	0	123
Tenure not stated	100	21	36	4	0	161
Total	6,030	664	653	63	3	7,413
ILLAWARRA TOTAL DWELLING STRUCTURES	75,595	11,413	13,410	1,142	52	101,612

Social Aspects of the Community

The Socio-Economic Indexes for Areas (SEIFA) - Index of Disadvantage measures the relative level of socio-economic disadvantage based on a range of Census characteristics. It is a good place to start to get a general view of the relative level of disadvantage in one area compared to others and is used to advocate for an area based on its level of disadvantage. The index is derived from attributes that reflect disadvantage such as low income, low educational attainment, high unemployment and jobs in relatively unskilled occupations. When targeting services to disadvantaged communities, it is also important to look at these underlying characteristics as they can differ markedly between areas with similar SEIFA scores and shed light on the type of disadvantage being experienced.

A higher score on the index means a lower level of disadvantage. A lower score on the index means a higher level of disadvantage.

The percentile column indicates the approximate position of a small area in a ranked list of Australia's suburbs and localities. It is meant to give an indication of where the area sits within the whole nation. A higher number indicates a higher socio-economic status. For instance, a percentile of 72 indicates that approximately 72 per cent of Australia's suburbs have a SEIFA index lower than this area (more disadvantaged), while 28 per cent are higher.

Table 10 – Illawarra Emergency Management Area – SEIFA Index of Disadvantage

LGA	Index of Relative Socio-economic Disadvantage	Suburb with Lowest Socio-economic Status	Percentile	Suburb with Highest Socio-economic Status	Percentile
Wollongong Warrawong Stanwell Park/Stanwell Tops/Coalcliff	979.6	751.8 -	3 -	- 1,097.9	- 95
Shellharbour Lake Illawarra Shell Cove - Dunmore	968.6	850.6 -	6 -	1079.9	89
Kiama Kiama/Kiama Heights Rural Communities	1,055	1,037		1,085	

Transport Routes and Facilities

Road Network

The Illawarra region has a well-developed system of transportation links. Its extensive road network includes the M1 Princes Motorway and the Princes Highway, which form part of the State’s main road network. Cars are the primary mode of transport for residents across the Illawarra region. Limited public transport options are provided outside of higher density settlements, impacting on access to health services, education and employment and presents challenges for the young, families on low incomes, the elderly and those with disabilities.

The major transport routes through the Illawarra Emergency Management Area are listed in Table 11 below.

Table 11– Major Road Transport Routes and Key Bridges

Road Name	RMS No.	Classification	Direction	Linking
M1 Princes Motorway	M1	Freeway	North/South	Illawarra with Sydney and to the Victorian border
Princes Highway	HW1	State	North/South	Entire EM Area
Old Princes Highway	MR678	Regional	North/South	Waterfall to Bulli Tops
Appin Road	MR177	State	East/West	Mt Ousley Road to Hume Highway
Picton Road	MR95	State	East/West	Mt Ousley Road to Hume Highway
Bulli Pass	HW1	State	East/West	Northern Suburbs of Wollongong LGA to F6
Mt Ousley Road	MR513	State	North/South	Central Suburbs of Wollongong LGA to M1
Lawrence Hargrave Drive	MR185	State	North/South	Northern Suburbs of Wollongong LGA to Princes Highway
Memorial Drive	B65	State	North/South	Northern suburbs of Wollongong between North Wollongong and Bulli
Five Islands Road	MR295	State	North/South	Wollongong LGA to southern suburbs
Springhill Road	MR581	State	East/West	M1 to port of Port Kembla
Illawarra Highway	A48	State	East/West	Shellharbour LGA to Wingecarribee LGA
Macquarie Pass	A48	State	East/West	Shellharbour LGA to Wingecarribee LGA
Jamberoo Road	MR	Regional	North/South	Jamberoo to Albion Park
Jamberoo Road - Jamberoo Mountain Road	MR	Regional	East/West	Kiama to Robertson
Seacliff Bridge	-	-	North/South	Connecting Lawrence Hargrave Drive between Coalcliff and Clifton.
Windang Bridge	-	-	North/South	Linking Wollongong LGA with Shellharbour LGA

NSW Roads and Maritime Services (RMS) has produced Incident Response Plans for the major transport routes for which they have responsibility and which are within the Illawarra Emergency Management Area. Reference to these plans in consultation with the RMS Liaison Officer is to be made when major traffic management strategies are being implemented in response to an emergency.

About 88 per cent of journeys to work are made by car, either as a driver or passenger. This is consistent with other NSW regional areas, but much higher than the Sydney region. Approximately 85 per cent of the workforce who live in the region also work in the region. Most of the 15 percent travelling outside the region for work are travelling to Sydney, with people also travelling into the Illawarra region for work from Sydney.

Within the region, most people live and work in the Wollongong LGA, with many also travelling into Wollongong from the Shellharbour LGA. Shellharbour is also an important commuting destination for people living in Wollongong and elsewhere in the Illawarra region.

Rail Network

The major rail link into the Illawarra Emergency Management Area is the Sydney to Bomaderry line, which is primarily a commuter line with some freight to and from Sydney. The rail line travels through National Parks and identified landslip areas between Sydney and Wollongong then onto Shellharbour and Kiama. The track is dual electrified to Dapto then single electrified to Kiama. From Kiama to Bomaderry is non-electrified.

A minor line (single, non-electrified track) connects Wollongong to Moss Vale in the Southern Highlands but is mainly a freight and tourist line. There are other lines within the Wollongong LGA that service the coal and manufacturing industries.

Airports and Heliports

There is one airport in the Illawarra Emergency Management Area located at Albion Park (Illawarra Regional Airport) which caters for light aircraft only. It is a Civil Aviation Safety Authority certified facility (Code 2) and has two sealed runways (30 metres wide).

There is also one heliport located in the Illawarra Emergency Management Area located at the corner of Springhill Road and Port Kembla Road, Wollongong. (*Note: fuel is unavailable at this facility at the present time*).

Ports and Harbours

The port of Port Kembla is the deepest harbour on the eastern seaboard of Australia and is one of three major ports in the State. The port was established in the late 1890's to facilitate the export of coal from the mines of the Illawarra region. Since that time, it has rapidly grown to accommodate both the expansion of traditional industries along with the development of new ones.

Major inter-regional freight paths flow through the Illawarra region, particularly between the Central West region and Port Kembla. The diverse commodity base of the port today reflects the growth of the region and its capability to service the growing South West Sydney market. Historically the port has serviced the needs of regional industries, predominantly coal (export) and steel (import of raw materials and export of steel products).

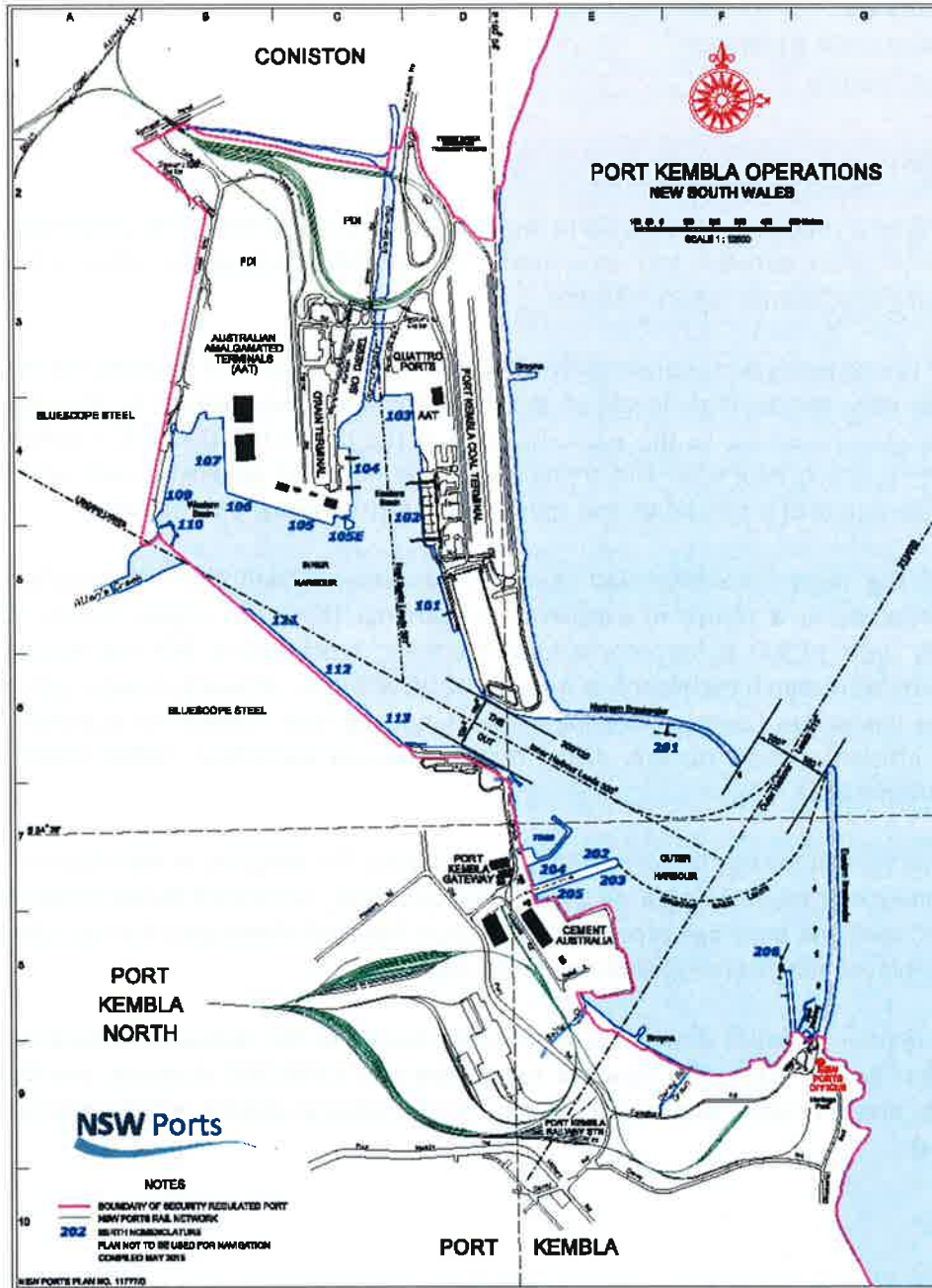
Having recently undergone a major expansion, the port has seen a diversification of its trade base to include general and break bulk cargoes, containers and is the primary port in NSW for motor vehicle imports. This development, which included the construction of three new berths and the development of 53 hectares of land, has allowed the port to become the largest vehicle importing hub in Australia. It is also the principal grain export port for producers in southern and south-west NSW.

The port of Port Kembla operates across two precincts, the Inner Harbour and the Outer Harbour (see diagram below). Key features include 12 berths in the Inner Harbour (including a 290 metre RoRo berth) and six berths in the Outer Harbour. It has a main shipping channel depth of 15.25 metres.

Table 12 – Port Kembla Port Berths

Location	Berths	Details
Inner Harbour Terminals:		
Car Import, General Cargo and Container Facility	Berths 103, 105, 106 and 107	<p>Australian Amalgamated Terminals manages four berths within two terminals in the Inner Harbour. The main terminal is designed as a multi-purpose facility catering for motor vehicles, general cargo and containers.</p> <p>This includes a purpose built facility, to accommodate RoRo vessels of up to 270 metres length over all (LOA). A high capacity fully land backed ramp pad will accept most heavy and oversize project cargo. A continuous berth length of 510 metres will allow the berthing of two car carriers simultaneously. All three berths are suitable for container handling.</p> <p>The single berth container and break bulk facility can accommodate vessels up to 200 metres LOA.</p>
Grain Facility	Berth 104	<p>The Grain Terminal facilities are owned and operated by GrainCorp Ltd. The facility provides all storage and handling requirements for bulk grain. The terminal has the capability to receive/dispatch products by ship, rail and road. It exports a variety of grains from south and south-western NSW.</p> <p>The wharf structure is available to other users on a needs basis and can accommodate Capesize vessels to a maximum 315 metres LOA. Two grain gantry shiploaders have a combined nominal capacity of 5,000 tonnes per hour.</p>
Coal Facility	Berths 101 and 102	<p>The Coal Terminal is operated under lease by Port Kembla Coal Terminal Ltd, a consortium of coal producers. It is a key coal exporting facility on Australia's east coast, servicing the southern and western coalfields of NSW.</p> <p>The Coal Terminal has road and rail receivable facilities with stockpile capacity of 900,000 tonnes. Capesize vessels of 315 metres LOA load by two gantry ship loaders providing a nominal capacity of 6,600 tonnes per hour. Road receivable capability for coke and other bulk materials load at the secondary berth.</p>

<p>Private Facilities BlueScope Steel</p>	<p>Berths 109, 110, 111, 112 and 113</p>	<p>These berths are privately owned by BlueScope Steel and primarily handle steel exports.</p>
<p>Outer Harbour Terminals:</p>		
<p>Common User Facility</p>	<p>Berths 203, 204, 205 and 206</p>	<p>The common user facility is under private lease to the Port Kembla Gateway Pty Ltd who operate four berths in the Outer Harbour. The facility primarily handles bulk and break bulk cargo including copper concentrate, fertiliser, clinker, pulp/saw logs and steel products. The berths are of timber construction and can accommodate handy size vessels.</p>
<p>Bulk Liquids Facility</p>	<p>Berths 201 and 206</p>	<p>There are two bulk liquids facilities in the port. Berth 201 is primarily used for fuels discharge and loading.</p> <p>Berth 206 is primarily used for a range of bulk liquid products including sulphuric acid.</p>



Map 2 – Port of Port Kembla

The coastal harbours of the Illawarra region, which include Wollongong and Kiama, cater for the commercial fishing industry, local tourism and recreational boating and provide a departure point for charter boats.

Economy and Industry

The Illawarra is a key region of Australia, contributing considerable resources to the national economy. The region possesses: extensive manufacturing, agriculture (mainly dairy farming and cattle grazing) and maritime enterprises; an internationally recognised university; substantial tourism capacity; a population of more than 299,000 and a labour force in excess of 119,000 people.

Key industry sectors are:

- Health Care and Social Assistance
- Education and Training
- Retail Trade
- Manufacturing

Education has played a vital role in the Illawarra region's recent development. The University of Wollongong (UOW) and the TAFE NSW network add considerably to the skills base of the region's labour force and represent a growing educational export industry.

Major workforce restructuring and economic diversification over the past few decades has resulted in strong growth in the tertiary sector. High levels of growth have been experienced in the retailing, tourism, education and finance industries. As the economic base of the region has changed, a concerted effort has been maintained to match education and training with the needs of employers and new industries. The result is an increasing pool of professional and specialist expertise throughout the region.

UOW is one of the most innovative and dynamic educational institutions in Australia, enjoying an international reputation as a centre of excellence in learning. There are approximately 32,000 students enrolled at UOW with 13,500 being international students, representing 143 nationalities. UOW is an international centre of research excellence. A number of UOW's internationally recognised research centres are based at the Innovation Campus, working in fields ranging from innovative materials to sustainable building design, efficient energy storage, digital media, business leadership, public health initiatives and international maritime law.

Manufacturing will remain the key industry within the Illawarra. The majority of manufacturers in the region produce heavy industrial products such as basic metal products, fabricated metal products, non-metallic mineral products, food and beverage products. BlueScope Steel still dominates the manufacturing industry and is a major employer and income generator for the region.

Tourism and recreation activities draw large number of visitors to the Illawarra. According to Destination NSW, for the year ending 2015, the Illawarra region drew in 1,044,000 domestic overnight visitors (up 7.5 per cent from previous year), and 62,000 overnight international visitors, which generated \$898 million (up 26.8 per cent).

Table 13 – Illawarra EM Area –Industry of Employment by Occupation
(Count of employed persons aged 15 years and over)

	Occupation									Total
	Managers	Professionals	Technicians and Trades	Community and Personal Service	Clerical and Administrative	Sales	Machinery Operators and Drivers	Labourers	Inadequately described / Not stated	
Wollongong										
Agriculture, forestry and fishing	56	4	17	6	20	5	0	119	0	227
Mining	147	271	635	8	101	0	991	40	22	2,215
Manufacturing	1,063	1,046	2,450	45	714	333	1,343	835	171	8,000
Electricity, gas, water and waste services	89	109	317	3	147	13	145	85	16	924
Construction	552	195	3,204	15	539	66	381	971	42	5,965
Wholesale trade	423	229	215	10	334	422	307	130	28	2,098
Retail trade	1,343	256	521	94	483	4,558	242	580	57	8,134
Accommodation and food services	839	38	687	1,971	237	669	146	1,353	48	5,988
Transport, postal and warehousing	347	224	374	171	711	160	1,666	384	57	4,094
Information, media and telecommunications	139	451	202	7	180	125	21	25	13	1,163
Financial and insurance services	412	913	54	15	1,659	75	8	13	45	3,194
Rental, hiring and real estate services	134	85	46	32	263	568	56	36	14	1,234
Professional, scientific and technical services	457	2,332	595	21	1,054	70	34	79	50	4,692
Administrative and support services	215	261	186	257	452	62	70	1,100	23	2,626
Public administration and safety	453	1,120	450	1,503	1,615	38	186	320	101	5,786
Education and training	610	6,163	316	857	1,037	30	41	106	53	9,213
Health care and social assistance	523	4,252	407	3,534	1,600	59	110	545	83	11,113
Arts and recreation services	136	228	127	417	111	42	14	109	3	1,187
Other services	172	269	1,636	396	359	48	67	303	29	3,279
Inadequately described/not stated	117	153	226	133	188	80	109	210	503	1,719
Total	8,227	18,599	12,665	9,495	11,804	7,423	5,937	7,343	1,358	82,851
Shellharbour										
Agriculture, forestry and fishing	51	0	9	0	6	0	0	30	0	96
Mining	29	60	165	3	41	0	328	32	6	664
Manufacturing	336	256	1,082	9	250	121	750	352	62	3,218
Electricity, gas, water and waste services	29	21	108	0	44	6	78	32	5	323

Occupation										
	Managers	Professionals	Technicians and Trades	Community and Personal Service	Clerical and Administrative	Sales	Machinery Operators and Drivers	Labourers	Inadequately described / Not stated	Total
Construction	170	47	1,349	8	219	28	235	454	27	2,537
Wholesale trade	116	67	70	8	133	182	138	54	7	775
Retail trade	502	49	227	35	232	2,059	130	272	21	3,527
Accommodation and food services	273	14	230	464	74	272	44	464	8	1,843
Transport, postal and warehousing	102	55	93	32	287	45	789	189	21	1,613
Information, media and telecommunications	23	46	40	3	49	31	3	10	3	208
Financial and insurance services	90	184	5	3	512	23	5	5	9	836
Rental, hiring and real estate services	42	14	35	6	102	171	35	22	6	433
Professional, scientific and technical services	101	405	175	7	297	36	15	20	7	1,063
Administrative and support services	54	79	69	64	142	21	21	421	3	874
Public administration and safety	132	208	149	509	566	7	73	148	42	1,834
Education and training	118	1,042	69	64	142	21	21	421	3	874
Health care and social assistance	144	1,077	148	1,403	510	12	30	225	28	3,577
Arts and recreation services	42	33	52	106	35	20	3	45	3	339
Other services	57	53	676	134	144	24	26	116	12	1,242
Inadequately described/not stated	22	31	70	30	48	23	44	82	150	500
Total	2,433	3,741	4,821	3,167	3,943	3,090	2,762	3,017	435	27,409
Kiama										
Agriculture, forestry and fishing	116	1	4	0	4	0	0	36	0	162
Mining	0	1	0	0	0	0	0	0	2	3
Manufacturing	10	18	30	4	3	28	2	13	0	109
Electricity, gas, water and waste services	0	4	0	6	0	0	9	0	0	19
Construction	58	5	220	0	47	2	13	35	0	380
Wholesale trade	13	7	5	0	12	40	5	0	0	82
Retail trade	92	13	42	18	14	371	7	54	0	610
Accommodation and food services	129	0	122	273	56	40	26	180	0	828
Transport, postal and warehousing	28	4	8	1	32	8	88	14	10	193
Information, media and telecommunications	9	22	0	0	9	6	0	0	0	46
Financial and insurance services	7	33	0	0	56	0	0	0	8	104
Rental, hiring and real estate services	15	4	1	0	28	58	0	5	0	110

Occupation										
	Managers	Professionals	Technicians and Trades	Community and Personal Service	Clerical and Administrative	Sales	Machinery Operators and Drivers	Labourers	Inadequately described / Not stated	Total
Professional, scientific and technical services	20	135	13	0	94	3	0	0	0	265
Administrative and support services	7	26	22	34	12	0	0	55	4	160
Public administration and safety	29	44	34	50	62	0	23	25	13	280
Education and training	22	301	6	74	51	0	0	5	0	459
Health care and social assistance	13	189	20	229	77	0	0	38	0	566
Arts and recreation services	28	18	20	59	13	0	5	4	0	146
Other services	10	20	97	42	24	0	0	11	0	204
Inadequately described/not stated	-	-	-	-	-	-	-	-	-	-
Total	1,234	2,332	1,380	1,068	1,122	752	425	599	110	9,021
TOTAL – ILLAWARRA AREA	11,894	24,672	18,866	13,730	16,869	11,265	9,124	10,959	1,903	119,281

Annexure B – Hazards and Risks Summary

A Local Emergency Risk Management (ERM) Study has been undertaken by the Illawarra Local Emergency Management Committee identifying the following hazards as having risk of causing loss of life, property, utilities, services and/or the community's ability to function within its normal capacity. These hazards have been identified as having the potential to create an emergency. The Illawarra Emergency Risk Management Study should be referenced to identify the complete list of consequences and risk descriptions.

Hazard	Risk Description	Likelihood Ration	Consequence Rating	Risk Priority	Combat / Responsible Agency
Biosecurity (Animal/Aquatic/Plants)	An agriculture/horticulture/animal disease incident that results, or has the potential to result, in the spread of a communicable disease or infestation.	Possible	Moderation	High	NSW Department of Primary Industries
Bridge Collapse	Failure of a major bridge structure with or without warning owing to structural failure or as a result of external/internal events or other hazards/incidents.	Unlikely	Moderate	Medium	LEOCON
Building Collapse	Collapse of building owing to structural failure or impact from external/internal event of other hazards /incidents.	Unlikely	Moderate	Medium	LEOCON/FRNSW (USAR)
Communicable Disease Affecting Humans	Pandemic illness that affects, or has potential to affect, large portions of the human population.	Possible	Major	Extreme	NSW Health

Dam Failure	A dam is compromised that results in localised or widespread flooding.	Possible	Moderate	High	Dam Owners NSW SES
Earthquake	Earthquake of significant strength (> Magnitude 7) that results in localised or widespread damage.	Rare	Major	High	LEOCON
Fire (Bush/Grass)	Major fires in areas of bush or grasslands.	Likely	Major	Extreme	NSW RFS FRNSW
Fire (Industrial and Commercial)	Serious industrial fire in office complexes or warehouses within industrial estates or serious commercial fire in shopping centres, aged persons units, nursing homes and hospitals.	Possible	Minor	Medium	FRNSW NSW RFS
Fire (Residential)	Serious residential fire in medium/high rise apartments.	Possible	Minor	Medium	FRNSW NSW RFS
Flood (Flash)	Heavy rainfall causes excessive localised flooding with minimal warning time.	Likely	Major	Extreme	NSW SES
Hazardous Release	Hazardous material released as a result of an incident or accident.	Unlikely	Moderate	Medium	FRNSW
Heatwave	A sequence of abnormally hot conditions having the potential to affect a community adversely.	Unlikely	Moderate	Medium	SEOCON

Landslip/Mudflow/Rockfall	Landslip/mudflow/rockfall resulting in localised or widespread damage.	Likely	Moderate	High	LEOCON
Severe Storm/Storm Surge	Severe storm with accompanying lightning, hail, damaging winds, and/or rain that causes severe damage and/or localised flooding (includes tornado and water spout) and coastal erosion.	Likely	Major	Extreme	NSW SES
Transport Emergency (Air)	Aircraft crashes in LGA resulting in large number of fatalities, injuries and/or damage to property.	Rare	Major	High	LEOCON
Transport Emergency (Road)	A major vehicle accident that disrupts one or more major transport routes that can result in risk to people trapped in traffic jams, restrict supply routes and/or protracted loss of access to or from the area.	Possible	Moderate	High	LEOCON
Transport Emergency (Sea)	A major accident that results in environmental damage and major recovery operation	Possible	Moderate	High	Relevant Port / Maritime
Transport Emergency (Rail)	A major rail accident on the Illawarra line, particularly on the steep descent through the Illawarra Escarpment down to Wollongong (including the viaduct/tunnels), resulting in a number of fatalities, injuries and/or damage to properties along the rail corridor, restriction to supply routes and/or protracted loss of access to or from the area; possible environmental damage.	Likely	Moderate	High	LEOCON

Tsunami	A tsunami wave of magnitude that presents a risk to land and marine elements.	Rare	Major	High	NSW SES
Utilities Failure	Major failure of essential utility for unreasonable periods of time as a result of a natural or man-made occurrence (>24 hours).	Possible	Moderate	High	LEOCON

Qualitative Measures of Likelihood		
Descriptor	Description	Indicative Frequency
Almost Certain	Is expected to occur in most circumstances; and/or high level of recorded incidents; and/or strong anecdotal evidence; and/or a strong likelihood the event will reoccur; and/or great opportunity, reason or meant to occur.	May occur once a year or more frequently
Likely	Will occur in most circumstances; and/or regular recorded incidents and strong anecdotal evidence; and/or considerable opportunity, reason or means to occur.	May occur once every five years
Possible	Might occur at some time; and/or few, infrequent, random recorded incident or little anecdotal evidence; and/or very few incidents in associated or comparable organisations, facilities or communities; and/or some opportunity, reason or means to occur.	May occur once every 20 years
Unlikely	Is not expected to occur; and/or no recorded incidents or anecdotal evidence; and/or no recent incidents in associated organisations, facilities or communities; and/or little opportunity, reason or means to occur.	May occur once every 100 years
Rare	May occur only in exceptional circumstances.	May occur once every 500 plus years

Qualitative Measures of Consequence or Impact		
Descriptor	Description	
Insignificant	No injuries or fatalities. No displacement of people or displacement of only a small number of people for a short duration. Little or no personal support required (support not monetary or material). Inconsequential or no damage. Little or no disruption to community. No measurable impact on environment. Little or no financial loss.	
Minor	Small number of injuries but no fatalities. First aid treatment required. Some displacement of people (less than 24 hours). Some personal support required. Some damage . Some disruption (less than 24 hours) . Small impact on environment with no lasting effects . Some financial loss.	
Moderate	Medical treatment required but no fatalities. Some hospitalisation. Localised displacement of people who return within 24 hours. Personal support satisfied through local arrangements. Localised damage that is rectified by routine arrangements. Normal community functioning with some inconvenience. Some impact on the environment with no long-term effect . Significant financial loss.	
Major	Extensive injuries. Significant hospitalisation. Large number displaced (more than 24 hours). Fatalities. External resources required for personal support. Significant damage that requires external resources. Community only partially functioning. Some services unavailable. Some impact on environment with long-term effects. Significant financial loss – some financial assistance required.	
Catastrophic	Large number of severe injuries. Extended and large numbers requiring hospitalisation. General and widespread displacement for extended duration. Significant fatalities. Extensive personal support. Extensive damage. Community unable to function without significant support. Significant impact on environment and/or permanent damage.	

Risk Level Matrix	Consequence				
	Insignificant	Minor	Moderate	Major	Catastrophic
Likelihood					
Almost Certain	High	High	Extreme	Extreme	Extreme
Likely	Medium	High	High	Extreme	Extreme
Possible	Low	Medium	High	Extreme	Extreme
Unlikely	Low	Low	Medium	High	Extreme
Rare	Low	Low	Medium	High	High

Annexure C – Local Sub Plans, Supporting Plans and Policies

Responsibility for the preparation and maintenance of appropriate Sub Plans and Supporting Plans rest with the relevant Combat Agency Controller or the relevant Functional Area Coordinator.

The Sub Plans and Supporting Plans are developed in consultation with the Illawarra Local Emergency Management Committee (LEMC) and the community.

The plans listed below are supplementary to this EMPLAN. The Sub Plans and Supporting Plans have been endorsed by the LEMC and are determined as compliant and complementary to the arrangements listed in this Plan.

These plans are retained by the Local Emergency Management Officer (LEMO) on behalf of the Illawarra LEMC and public release versions are available on the Council websites.

Plan/Policy	Purpose	Combat/Responsible Agency
<p>Illawarra Region Bushfire Operations Coordination Plan (21 October 2010)</p>	<p>Details the plans for operational response to bush fire emergencies and provides a range of supporting resources to assist BFMCs and agencies in achieving the goal of efficient and coordinated firefighting.</p>	<p>Illawarra Region Bush Fire Management Committee</p>
<p>Illawarra Region Bush Fire Risk Management Plan (8 January 2016)</p>	<p>To minimise the risk of adverse impact of bush fires on life, property and the environment.</p>	<p>Illawarra Region Bush Fire Management Committee</p>
<p>Wollongong City Local Flood Plan (June 2010)</p>	<p>Preparedness measures, the conduct of response operations and the coordination of immediate recovery measures from flooding. Covers operations for all levels of flooding and arrangements for the management of coastal erosion in the Wollongong Local Government Area.</p>	<p>NSW State Emergency Service</p>
<p>Kiama Municipal Council and Shellharbour City Council Flood Plan</p>	<p>Preparedness measures, the conduct of response operations and the coordination of immediate recovery measures from flooding. Covers operations for all levels of flooding and arrangements for the management of coastal erosion in the Shellharbour and Kiama Local Government Areas.</p>	<p>NSW State Emergency Service</p>

<p>Port Kembla Marine Oil and Chemical Spill Contingency Plan (21 August 2015)</p>	<p>The aim of this plan is to outline the arrangements to deal with marine oil and chemical spills or potential spills within the Port Kembla harbour boundaries.</p>	<p>Port Authority of NSW – Port Kembla</p>
<p>Illawarra Aerodrome Emergency Plan (16 November 2016)</p>	<p>Details the special arrangements for control and co-ordination of the response to and initial recovery from an emergency (as defined in the NSW State Emergency and Rescue Management Act, 1989) on Wollongong Aerodrome involving aircraft and /or aerodrome facilities.</p>	<p>Shellharbour City Council</p>

