All-Hazards Symbology Project

Responses to request for feedback on the Final Draft Report – March 2007

This report contains the full reports in response to a request for feedback on the Final Draft Report to the All-Hazards Symbology Project – March 2007.

This feedback was discussed by Emergency Management Spatial Information Network Australia (EMSINA) in a meeting in Hobart 16 May 2007. As a result of these discussions it was agreed that:

- A number of items would be included in the report – and the final version (May 2007) would be published on the ICSM WEB site.
- The remaining items would be 'carried over' for consideration in the next phase of the project. These items are summarised in Appendix G. This to will also be published on the ICSM WEB site

Responders:

1 NSW	**Elliott Simmons** Manager Geographic Information Systems NSW State Emergency Service
2 Aust	**Tony Callan** Emergency Preparedness Manager Dept of Agriculture, Fisheries and Forestry
3 SA	**Nicholas Cundell** Operations Planning Officer - Policy Country Fire Service
4 SA	**Nicholas Cundell** Operations Planning Officer - Policy Country Fire Service
5 SA	**Tim Groves** Mapping Support Team Department for Environment & Heritage
6 SA	**Charlotte Morgan** Fire Management Branch Department for Environment & Heritage.
7 WA	**Ron Vincent** Manager Geographic Services Landgate
8 NZ	**Dean Strachan**, GIS Analyst **Trevor Mitchell**, Senior Fire Control Officer **Department of Conservation**
9 Aust	**Bureau of Meteorology** (Kathleen Hirst)
10 WA	**Brendan Power** Manager GIS Fire & Emergency Services Authority of WA
11 NZ	**Malcolm Macfarlane** Engineering, Information, Research and Strategic Analysis New Zealand Fire Service
12 WA	**Brett Harrison** SLIP Emergency Management Program Fire & Emergency Services Authority of WA
13 NSW	**NSW Rural Fire Service** (Megan Stanley)
14 WA	**Department of Environment and Conservation** (Craig Carpenter)
15 Qld	**Mark Allen** Ingham Forest Management Area Department of Primary Industries
16 SA	**Anthony Griffith** Fire & Emergency Dept Sustainability and Environment

Elliott Simmons
Manager Geographic Information Systems
NSW State Emergency Service

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A couple of feedback points from NSW SES:

Page 31 Table 12:

Add 'Operations - General - Evacuation Route' as this is distinct from 'Escape Route'.

Add 'Operations - General - Animal Shelter'.

Page 26. 4.2.4 Definitions:

'Where possible, definitions should be developed with key representative bodies and agencies including EMA and AFAC.'

Change to:

Where possible, definitions should be developed with key representative bodies and agencies including EMA, AFAC and ACSES.'

Page 36:

'Flood and Weather' Change to 'Flood, Severe Weather and Tsunami'

Tony Callan
Emergency Preparedness Manager
Dept of Agriculture, Fisheries and Forestry

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I am responding on behalf of the Department of Agriculture, Fisheries and Forestry (DAFF) in relation to the Australasian All-Hazards Symbology Project Report (Project Report).

As you may be aware, the response to agricultural emergencies, or incidents, occurs frequently within Australia. These incidents are often characterised by wide spread impact which have no regard for state and territory borders. These responses require a coordinated response from field, local/regional, state/territory, national and international levels, which is modelled on Incident Management Systems implemented by other emergency management agencies. A key element of any response is the ability to represent information in a pictorial format that can be interpreted and applied at tactical, operational and strategic levels.

By way of example, the response to Newcastle disease by NSW Department of agriculture (1999) involved more than 5000 people, working over four months on approximately 60 designated rural properties, maintaining surveillance over many more rural properties, as well as conducting response activities in residential areas. A key element for the coordination of these activities was the reproduction of geographic and response information (maps) for use in the field (tactical), at the local control centre (operational) and at the state and national coordination centres (strategic).

In view of the nature of agricultural responses it is surprising to note that, to date, agricultural agencies do not appear to have been included in the rounds of consultation undertaken to develop the Project Report (see All-Hazards Symbology Project - Workshop summary document). Further the symbols depicted in Appendix D of the Project Report and referred to as 'Biological' in Table 11. purport to relate to agricultural incidents and reference agricultural response publications, however they do not accurately reflect the requirements for agricultural responses.

Further the Project Report indicates (Table 11.) that symbols are only required at the higher levels, where my previous comments clearly show that symbology for the coordination of response are definitely required at ALL levels.

Since being made aware of the Project Report, I have undertaken consultation with DAFF, state and territory agencies (and there personnel) that are actively involved in the development and application of GIS information for animal, plant, aquatic and marine responses. All responses to this consultation indicated, firstly, that they have not been included in consultation on the development of this Project Report and secondly that the agricultural symbols referred to in Appendix D are not suitable for use during agricultural responses.

In view of this, DAFF has initiated further consultation within agricultural agencies, in an endeavour to identify an appropriate set of symbols that are:

1. Consistent with the methodology described in the Project Report
2. Suitable for use by agricultural agencies during the response to incidents in the agricultural sectors, and
3. Appropriate for use at a tactical, operational and strategic level.

In view of this it would be appreciated if the Agricultural symbols currently referred to in the Project Report could be removed until further consultation is undertaken with agricultural agencies and a set of appropriate symbols is developed. I understand that this may mean that they may need to be included in subsequent versions of the symbology project, however it is believed that this is

preferred over the development of symbology that is either misleading and/or will not be used by agencies in the agricultural sector.

SA Country Fire Service

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Comments from various people/agencies in South Australia to the report. The comments below are from the Deputy Chief Fire Officer, SA Country Fire Service (black text) and the blue text is the Manger of Training, SA Country Fire Service.

- I note that the symbology has both an Assembly Area and a Refuge Area. I am quite ware that it is going to be very difficult to convince the project team otherwise (as the symbology is for all hazards - not just bushfire) - however I would be very keen to see no reference to Evacuation Centre, Evacuation Point or Refuge Area - either way, I would suggest that we not use them in the Fire Service. I am quite comfortable with Assembly Area as that is the direction that we are going with FamiliesSA regarding what they call places that people can gather during an emergency. Thus avoiding the use of the term evacuation.

  [Eden, Brenton (CFS)] Agreed

- I can live with the suggested symbol for Hot Spot and Spot Fire, however I think they are a bit big, at time we will have lost of these around a fire and they may tend to obscure other data on the map?

  [Eden, Brenton (CFS)] I assume they are scaleable when produced by a GIS operator?

- Same thing with the symbol for Burnt Area - I am comfortable with this as long as it does not tend to obscure other data underneath the symbol.

- I not the symbol for Air Incident - I can live with this, however we probably need to introduce the symbol for CFS approved airstrip as this symbol is now in all CFS Map Books.

- We also have an accepted symbol for Fire Station, Police Station and Ambulance Station - ie: from the CFS Map Books

- I don't agree with the symbol for Control / Operations Point - a large B - to me it is not intuitive and seem to be a complete move away from the obvious.

  [Eden, Brenton (CFS)] Agreed

- I not and agree with the symbol for Mobile Weather Station - however think we also need a symbol for Automatic Weather Stations (AWS) and Portable Automatic Weather Stations (PAWS). To me a Mobile Weather Station tend to denote a hand held instrument where as an AWS is a fixed BOM (ie: high standard) instrument and a PAWS tends to denote a portable BOM (ie: high standard) instrument. The latter of which we have 4 of that can be deployed around the State as required.

- Water Point Helicopter, the use of the capital H may be confused with house or hotel, or is the intention that it be overlayed onto extensive dams and reservoirs, if so, would that not be stating the obvious? If the H was to indicate where a brigade had set up a floating collar dam, should not the emphasis be on the water, not the helicopter, perhaps [Hw]

- The other one that I think would get lost on a map is water point vehicle. Would it be used for an over head delivery, an existing urban stand pipe or a source of draughting water? Either way, it doesn't seem obvious that it is a source of water.

Nicholas Cundell
Operations Planning Officer - Policy
Country Fire Service

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Section or page	Comment
Section 4.2.3	Table 9- Have 3 status levels. With point features there is possible, probable, and predicted all with similar meanings but spread between 2 status levels (Status 1 and Status 2). Simplify it to 3 levels; get rid of the term possible.
Section 4.4	Principle No. 8 – Date format should not be to fixed, it may depend on how the various GIS/mapping softwares require date formats. This should not be too onerous for programmers. The date formats also need to be read easily by people used to the normal DD-MM-YYYY format.
Section 5	Table 12 In view of the recent Victorian fires and the Canberra fire, it would be useful to include some of the fire features in the Jurisdictional column, such as Burnt area and Fire perimeter and Boundary.
	The comment that all point should have a halo should be reworded to say that point symbols should be haloed where they are hard to differentiate from the background. Line and Polygon symbols should also be 'haloed' where appropriate ie over imagery
	Figure 5 is a good example of why a vertical line hatch should not be used to represent burnt area it is confusion with the grid. A slightly broader spaced cross hatch would be better
	Figure 7 is a good example of how some of the symbols don't work when they are reduced ie the symbol north of Geraldton is hard to decipher is it Animal health or something else. The example map (Figure 7) needs cropping and enlarging, get rid of the portions of South Australia and Northern Territory and enlarge the land portion of Western Australia; the symbols will then be more readable.
	Table 11. Category 49 In South Australia we do not refer to Evacuation Centres when it comes to Wildfire incidents it is contra to the policy of Go Early or Stay and Defend. We do not ask the General Public to evacuate. We call these centres as Community coordination centres more in relation to their recovery role. In other types of incidents they may be called Evacuation Centres. (See also Appendix D Category 49)
Appendix D	All Hazard Features and Symbols
Incident 1.2	Status Possible, Probable and Confirmed. The terms possible and probable are very close together in meaning; better terminology would be likely and possible. The question mark in the bomb symbol needs to be better defined it could get missed if printed by a low-resolution printer, and if printed at too small a scale.

Section or page	Comment
Incident 1.3	Status Possible, Probable and Confirmed. The terms possible and probable are very close together in meaning; better terminology would be likely and possible.
Incident 1.11	Burnt area symbol is better shown by a widely spaced cross hatch as per Appendix B (Symbol Audit) SA DEH and SA CFS symbol Burnt Area (polygon symbol). The new symbol makes reading grid references confusing as the vertical lines make following grid lines hard. Where a cross hatch is les confusing and easily identifies the area. The same cross hatch symbol could be used for a proposed back burn area by using a dashed boundary around the cross hatch.
Incident 1.15	Symbol for oil spill does not need the white dot it is reasonably self-explanatory with out the dot.
Operations 3.6	Control/Operations Centre, in my version of the report this is shown as a bold letter 'B' this is a little confusing. Perhaps the Control/Operation Centre point could be a derivation or alteration of Incident Command/ Control Centre point symbol.
Operations 3.8	Escape Route- hand drawn symbol has incorrect letter should be ER
Operations 3.10	Evacuation area- The South Australian Country Fire Service does not refer to Evacuation Centres when it comes to Wildfire incidents it is contra to the policy of 'Go Early or Stay and Defend'. We do not ask the General Public to evacuate. We call these centres as Community Assistance centres more in relation to their recovery role. In other types of incidents, such as flood, they may be called Evacuation Centres. The symbol Evacuation centre should have a rider to say that the symbol should not be used in a wildfire related incident.
Operations 3.16	Can the Sector boundary include brackets or lines at the symbol to help define the start and finish of the sectors?
Operations 3.26	Fire Control Line- should be labelled in the case of constructed lines, with the method of construction ie bulldozer, rolling.
Operations 3.29	Water Point Helicopter- is this supposed to be a Bold letter 'H'
Operations 3.8	Water point Vehicle – is this supposed to be a Bold letter 'I'

Section or page	Comment
Appendix C	Workshop Summaries Spatial Vision held workshops in all states except South Australia and Tasmania. I cannot comment on what happened in Tasmania, but in South Australia we ran, on behalf of Spatial Vision a workshop. Spatial Vision provided resources, and all information and comments were collected and forwarded on to Spatial Vision (Graeme Martin and Michael Black) along with a list of attendees. I think it would be an insult not to include these people in Appendix C. There inclusion would show that the project was truly national in its approach, while acknowledging South Australia's contribution to the project

Tim Groves
Mapping Support Team
Department for Environment & Heritage

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Symbol Set

- How will lines and polygons be categorised (Incident, Operations, Assets)?
  If they also require labelling with a point feature to indicate category, this will start to get messy and potentially confusing.
- How will sectors be drawn on the map to divide the fire ground?
  - Are they drawn at right angles to the fire edge or along the fire edge?
  - How do they relate to divisional boundaries?
  - CFS/DEH sector line symbol is a clear line with brackets to indicate the start and end of the sector

Ex… …r boundary symbol

- Are halos going … features (not just point features)? They can be particula… photos.

…ymbol with halo

- Proposed featur… possible to ensure there is no confusion between existing….
- Concerned with statement "organisations may modify the colour to meet their own needs" (4.4.6)
- Why has the letter "A" been decided for use when hand drawing locations of ICC?
- Should "Machine Cut Track" be divided further into a number of symbols depending on machinery used (Dozer, Grader, Chain)?
- "Water Point Helicopter" and "Helipad" symbol are too similar. Is a "Water Point Helicopter" operational? If so, the symbol should be contained within a circle frame and would look the same as a Helipad symbol.

Governance

- No specific issues with Governance
- Important that there are appropriate avenues for suggested additions / improvements to be made and considered
- A flow diagram showing the process by which additions / changes can be suggested and considered might be useful

Example Maps

- Example maps within the document do not accurately represent the symbol set developed:
    - Example maps do not show any date/time stamps for active/predicted incident features
    - Incident names not shown on Jurisdictional (State-wide) map example
- Example Maps shown on US Homeland Security Symbology site www.fgdc.gov/HSWG are poor and are not a good representation of the mapping in which these symbols would be used.
- Would be good if we could incorporate nationally standard symbols with a nationally standard Map Catalogue (maybe a few years down the track!)

Extra symbols required for Bushfire Response

- Back Burn polygon
- Point Fire Status symbols (Going, Contained, Controlled, Safe)
- Sentinel hotspots (duplicate those shown on website?)
- Retardant Drops (point and line)

Charlotte Morgan
Fire Management Branch
Department for Environment & Heritage.

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Charlotte Morgan

GIS Project Officer
Fire Management Branch
Regional Conservation Directorate
Department for Environment & Heritage.

I concur with Tim Groves' comments, especially the point that the maps in the report are not good examples. Below are a few additional points for your consideration.

Why is this called Australasian as it is clearly not considering mapping standards in Asia? Should the name be more in line with other 'standards'?

Date format – how does the YYYY-MM-DD fit with standards in Australia. I suggest this is NOT the way we would chose to present a date.

That the identified risk of symbol misinterpretation be managed through the inclusion of a relevant legend and / or annotation on all map products. For some maps key to the system of hierarchical symbols may be appropriate.

I propose that DEH be involved in the trial of these symbols (for both MST and Fire Management Branch operational products) because it will only be as we attempt to use them that we will be able to provide sensible feedback on what works, what is missing, and what map readers are having trouble understanding. If DEH were to be a trail organisation, we would also need a clear understanding of the timetable & feedback mechanisms so that engagement with this project can be scheduled in existing work programs.

With Governance issues, how is SA represented on the organisations at Steering committee and Custodian level?

Ron Vincent
Manager Geographic Services
Landgate

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WA supports uniformity on symbology and a common ICSM sponsored design set of symbols for import/use will ensure take-up.

Although not directly involved with the review, I have viewed the symbology and can not see any problems. The symbols address the needs of the emergency services agencies. We should have no problem adopting the symbology for output requirement (map publishing).

Dean Strachan, GIS Analyst
Trevor Mitchell, Senior Fire Control Officer
Department of Conservation

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The Department of Conservation Emergency Management Symbology Project Team members have considered the v0.9 ICSM symbology and make the following submission for the team's consideration.

We support the Australasian All hazards Symbology Project's basic philosophy of:

- Incidents and events are represented by a Diamond framed symbol.
- Fixed infrastructure is represented by a Square framed symbol.
- Operational components and improvised infrastructure are represented by a Circle framed symbol.
- Hazards are represented by a Diamond framed symbol.

We do not support having two symbols for the same feature. This will generate confusion. Make System and Hand-drawn symbols the same. Text can be added to hand-drawn maps to clarify any information.

1.11 Burnt Area Symbol = Transparent Shading

1.12 Fire Perimeter / Boundary This is already shown as Fire Edge. Is this meant to indicate the Incident Outer Cordon?

1.13 Fire Edge Add a Double Black Line symbol to represent Fire Edge that has been extinguished.

1.21 Flooded Area Symbol = Transparent Shading

1.xx Add HSWG symbols for Volcanic Eruption, Volcanic Threat and Avalanche.

2.6 Significant Fauna Suggest a change in symbol to represent generic significant fauna, perhaps a lizard.

2.7, 2.8 & 2.9
Unsure of the purpose of these symbols.

3.2 Area of Interest Symbol = Transparent Shading

3.5 Control Area Symbol = Transparent Shading

3.6 Control / Operations Point B symbol has no relevance, suggest CP or OP in a circle frame to be consistent with other symbology.

3.8 Escape Route A Point symbol is not a route so is of no value.

3.9 Escape Route Line symbol needs to be an arrow in the direction of travel along the escape route.

3.13 Incident Command / Control Centre Support the system symbol and do not support the hand-drawn symbol.

3.14 Division Break — Support this)(as a Sector Break Symbol — Suggest **][** as a Division Break symbol

3.16 Sector Boundary — Not required if you use Sector Break symbology (3.14)

3.19 Mobile Weather Station — Do not support the use of this symbol as it is the HSWG symbol for a school. Suggested symbol is attached or use WX in a circle frame, square frame for permanent weather station.

3.23 Aerial Ignition — Needs to be a line symbol, arrowheads for planned and arrowheads with a line for completed.

Ground Ignition — Solid arrowhead line symbol for planned and with a line through it for completed.

3.25 Machine Cut Track — "Cut Track" any track and include symbology for planned and completed.

3.26 Fire Control Line — Needs to specify what type of control line and the status (Planned or Completed)

Dozer Line	lllllll
Retardant Line	ooooooo
Hand Line	^^^^^^^
Natural Break	~~>>>>>>~~

~~Line through symbols for completed~~

3.29 Water Point Helicopter — Confused with **H** for Hospital. Suggest the Helicopter Filling symbol attached.

3.30 Water Point Vehicle — Not required, just use **W**

3.40 Airbase — Use square border for permanent and circle border for improvised.

3.41 Helibase — Use square border for permanent and circle border for improvised.

3.42 Helipad — Use helicopter symbol with square border for permanent and circle border for improvised.

3.43 Road Closure / Traffic Control Point — Use barrier symbol attached.

3.xx Other symbols required with suggested symbology

Logistics	**L** in a square or circle frame
Catering Unit	Food symbol attached
Communications Unit	Telecom symbol attached
Ground Support Unit	**GS** in a square or circle frame
Situations Unit	**SU** in a square or circle frame
Crew (for use with real time GPS tracking)	Crew symbol attached
Dozer	Dozer symbol attached
Water Tanker	Tanker symbol attached
Fuel Dump	Fuel can symbol attached
Hazard (with description)	**!** in a diamond hazard frame
Locked (Key required)	Lock symbol attached
Triage	HSWG Triage symbol but with a **+**
Check Point	HSWG Check Point symbol attached
Boat Ramp	Boat ramp symbol attached
Safe Forward Point	**SF** in a circle frame
Safety Zone	**SZ** in a circle frame
Drop Point	Spot symbol attached with text **DP#**
Sling Spot	Spot in a circle symbol attached with text **SS#**
Lookout	Binocular symbol attached

Appendix I

Additional Symbology

Bureau of Meteorology

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P 16 Third paragraph under 3.1.3
World Meteorological Organization (WMO), not World Meteorology Organisation.

P 24 Third paragraph under 4.2.3, last sentence
Wherever, not where ever

P 25 Third paragraph under 4.3.4, second sentence
Practices, not practises

P 37, Third paragraph under 5. 4
“A three tier arrangement is recommended governance”, not “A three tier arrangement is recommended governance arrangements”

P 40, Third paragraph under 5.7, first sentence
“as this is the focus for the first set of symbols”, not “as this the focus..”

Appendix A

Bureau of Meteorology – Federal (not ACT/Federal), if relates to Head Office, the Bureau is in Melbourne.

Also there is no listing for Geoscience Australia, even though they had representatives at workshops.

Appendix B

Page 6
Earthquake, not Earth Quake

Appendix C

P 1, Point 1 under Discussion Points & Outcomes, 5th line – EMSINA, not EMCINA

Page 2, Point 1 under Discussion Points & Outcomes, 6th line
“Incident Management”, not “Incident management”

Page 2, Point 6 under Discussion Points & Outcomes, 2nd line
“The need to keep the Australian Computer”, not “The need to keep the Australian, Computer”

Page 2, Point 9 under Discussion Points & Outcomes, 1st, 3rd lines
“categorisation”, not “categorization”

Page 2, Point 9 under Discussion Points & Outcomes, 9th line
“various points”, not “various pints”

Page 3
“Bureau of Meteorology”, not “Bureau of Met”

Workshop 2, Page 2
“Bureau of Meteorology”, not “Bureau of Met”
Linda Anderson-Berry, not Linda Anderson
George Mifsud, not George MifSud

Page 7
b.wilson@bom.gov.au, not bwilson@bom.gov.au

Workshop 3, Page 1, Point 6 – “categorisation”, not “categorization”

Workshop 5, Page 1, Point 2 – “Experience with”, not “Experience wit h”

Removal of comments from the Report.

In relation to the workshop feedback, participants were not informed that their individual comments would be part of the report. We think that it is inappropriate to include them without knowledge or permission of the attendees. A general summary should be provided instead.

Appendix D

1.18 Cyclone (Tropical Cyclone)

- The feature should be changed from Cyclone to "Tropical Cyclone". A cyclone or anti cyclone can be associated with any low or high pressure systems.

- The symbol is fine but should be noted that:
    - The symbols is stylised from the WMO symbol.
    - There is no indication of severity (Category 1-5). The category of cyclone is often scribed in the eye of the cyclone symbol. Alternatively, WMO uses a hollow centre for Category 1 and 2 tropical cyclones, and a filled centre more severe tropical cyclones.

1.20 Flood

- The flood symbol is a bit abstract.
- Suggest making it blue or using FGDC symbol (environment 14).
- There is no indication of the type of flood (Major, Minor or Flash).It might be worth talking to the national flood risk advisory group for further input into this symbol (J.Elliott@bom.gov.au).

1.23. Storm (Thunderstorm)

- The symbol shown has the hail symbol (black triangle) over the thunderstorm symbol. The hail symbol should be removed.
- Feature name to be changed to thunderstorm.
- Definition does not reflect the current use of the symbol, thus the definition should be changed to either the FGDC definition in the short term or to the Bureau of Meteorology definition, although the latter might be a bit lengthy and not in context with EM. The Bureau’s definition is “Sudden electrical discharges manifested by a flash of light (lightning) and a sharp rumbling sound. Thunderstorms are associated with convective clouds (Cumulonimbus) and are more often accompanied by precipitation. They are usually short-lived and hit on only a small area.”

1.24. Storm Surge

- Symbol appears to indicate large waves. Large waves are also a hazard especially for fishermen. The symbol might need to be reviewed.

3.21. Wind Observation

- Symbol needs to be changed to the southern hemisphere symbol. Barbs are on the opposite side

Additions

The following symbols might be worth considering as addition to the basic symbol set.

- Volcano to cater for New Zealand (a simplified version of FGDC)
- Tornado (a simplified version of FGDC)
- Dust storm/Sand storm (same as FGDC)

Appendix E

Risk 5, Mitigation Actions, 3rd point – “licence”, not “license”

Risk 19, Risk Description – “Standard is considered”, not “Standard is too considered”

General consistency

All-Hazards vs All hazards vs all-hazards vs allhazards.

Manager GIS
Fire & Emergency Services Authority of WA

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Please find below FESA's response to the All Hazards Symbology Project Report.

Please find below FESA's response to the All Hazards Symbology Project Report.

FESA supports an integrated all agency, all hazard approach to symbology and recognises the value that this will have to the Australasian EM Sector.

However, FESA recommends;

1. Symbology should be broadened to encompass more event types, including CT, pests and diseases and natural hazards (flood, cyclone, etc).

2. Symbology should cross systems (dispatch through to response) and mapping applications (must work on all mapping systems currently in use in Australia / New Zealand).

3. Symbology should be tested to ensure that it is interpretable with greyscale (photocopiable and faxable) and not otherwise obscure mapping detail.

4. Should be supported by common training packages that are used in all jurisdictions.

FESA supports symbology and definitions being endorsed through AFAC (and other bodies) to ensure that it is used by all agencies and jurisdictions in Australia. As such symbology and definitions (ie control points, areas of operation, forecast incident levels vs actuals etc) should be common across hazards, suitable for use by any HMA/Combat agency and consistently interpreted by all agencies.

FESA supports an integrated all agency, all hazard approach to symbology and recognises the value that this will have to the Australasian EM Sector. However, FESA recommends;

1. Symbology should be broadened to encompass more event types, including CT, pests and diseases and natural hazards (flood, cyclone, etc).

2. Symbology should cross systems (dispatch through to response) and mapping applications (must work on all mapping systems currently in use in Australia / New Zealand).

3. Symbology should be tested to ensure that it is interpretable with greyscale (photocopiable and faxable) and not otherwise obscure mapping detail.

4. Should be supported by common training packages that are used in all jurisdictions.

Malcolm Macfarlane
Engineering, Information, Research and Strategic Analysis
New Zealand Fire Service

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The New Zealand Fire Service welcomes the planned move towards a standard symbology set for use in emergency response. This aligns with NZFS and the wider NZ emergency sectors views that this is required and can assist our activities.

Several New Zealand agencies (NZFS included) have since 2004 been moving towards the adoption of the Homeland Security Working Group output that is now ANSI Standard ICTS/ANSI 415.

Our policy on Standards in general is that if a Standard exists we will use it unless it does not materially assist in our operations.

The current project report fails to convince us that we should be doing something different to ANSI Standard ICTS/ANSI 415. The relationship between what is proposed and ICTS/ANSI 415 is not addressed and we feel that it must be. It is not clear from the report that the writers have entered into dialog with the developers and custodians of ANSI Standard ICTS/ANSI 415 as planned developments by Homeland Security extend into areas covered in the report.

There is an overwhelming focus on wildfire response in this document, and no clear vision of how to progress the symbology set forward to include other future needs.

What is being proposed here is actually the beginnings of a strategic journey for all emergency responders and we would like to see an endorsement by AFAC for fire related symbology and a similar endorsement from management of other emergency responders and projects such as the critical infrastructure projects on both sides of the Tasman that their future needs will be catered for by the direction set in this report. Currently there is no such endorsement.

We believe that key principles are missing around the development of this symbology set and for taking the set forward. These include:

- The role of symbology from ANSI Standard ICTS/ANSI 415 and other standards
- The role of symbology from other datasets
- What happens when an external symbol that has been adopted is deprecated by its custodian
- Are pictograms desired for all or certain symbology types
- When can alphabetic characters be used
- The integration of other symbology sets.

The role of symbology extends beyond that of mapping, it has found a very useful place in a wide range of reporting such as current status of appliance and incident reporting. If the symbology does not have a day to day use within an organisation its usefulness will be diminished. In the NZFS the symbology is often used very effectively in reports and screens that contain no spatial context.

We would welcome a process that sets overall standards including look and feel then delivers sequentially a range of symbology that meet user needs. Wildfire symbology could be the first delivery.

We have read through version 1 of the Australasian All-Hazards Symbology Project Report and note the following:

Executive Summary
Scope of symbology in this report - This is as stated in 5.7 an initial set of symbols for '*EM wildfire response'*. This needs to be stated right up front as it does not meet the needs of other emergency responders or even fire response in a non wildfire setting.

You report a high willingness to adopt consistent approach to mapping whereas it had been described in the reverse way to us as *' agencies indicated that unless the AIIS symbols were not kept that they would not adopt the standard symbology'.* If the later is the case and we believe it to be then there is a willingness for consistency based upon current practices and little willingness for consistency based upon a move away from current practices to new symbology. This can only be resolved by management intervention.

Way forward is alluded to but is missing.
- Standards for symbology development
- Pictograms vs letters
- Adoption of other standards in whole or in part

Required or we risk getting eclectic collections of symbols.

4.2.2 Categories
Terminology – Assets vs. Infrastructure. We do not support the use of 'Assets' as apposed to Infrastructure as this further reinforces an incident approach (possibly even a fire approach) to the set. Both NZ and Australia have critical infrastructure projects underway, the use of assets unnecessarily complicates the issue (see in 5.2)

Suggest that the Infrastructure category be defined as - Infrastructure that may be used to support an operational response or the public in general.

We support the use of frame shapes for:
- Incident
- Infrastructure
- Operations

4.2.3 Status
NZFS has adopted all infrastructure categories from ANSI Standard ICTS/ANSI 415 and find that these are required to support operations.

Point features - We have seen no need to use possible, planned or active. Most of NZFS incidents are treated as 'confirmed' at time or response.

Line features - We support the line styles suggested
- Planned
- Completed/Confirmed/Contained

These mirror our current usage.

Polygons – we support the adoption of the same line styles into relevant polygons and suggest that contained area could be created using the double line plus fill.

4.4 Principles
Agree with these principles generally however see also our opening comments.

Point 3. The suggested symbology set does not follow this principle for the following symbols see Appendix D symbol ids 2.7-2.9, 3.21, 3.22, 3.35-3.39, 3.43.

Point 10. Fill should be allowed. Our users asked for this.

Point 11. Used Refuge and Evacuation Areas from GISSOP even though ANSI Standard ICTS/ANSI 415 may federally mandate a change to this usage. GISSOP indicate that safety features should be diamonds and filled orange (though all examples in the GISSOP are filled yellow).

We support the concept of a style to signify safety but this needs more thought and a diamond significantly reduces the space available for a pictogram and leads toward the use of letters.

Yellow is used to denote hazards in several Standards and sets already (eg MILSPEC-2525)

5.2 Gaps & Priorities
Point 2. Should cater for more than just vulnerable assets

5.7 Further Descriptions
We note that there is a very strong adherence to the current AIIMS symbology set and that there seems to be a heavy bush fire focus in the results of this report.

We are concerned that this appears to be an extension of the AIIMS bushfire set rather than an attempt to setting the way forward to wards an all hazards approach.

We note that in New Zealand there is already a high uptake of ANSI Standard ICTS/ANSI 415

Appendix C - Symbol Audit
This does not fairly represent the current NZ situation in two ways

- There are more agencies using symbology than are represented (NZFS, MCDEM, NRFA all made submissions but only some of NZFS symbology appears in the catalogue.
- Overall are many more symbols in use within NZ than have been catalogued, this seems to be due to
    - The current focus on wildfire
    - Little focus on infrastructure

Currently:

- NRFA has 48 symbols in its library – yet none are attributed to NRFA some appear in NZFS list
- MCDEM has 81 symbols in its library – yet none appear
- NZFS has 117 symbols in its library – only 34 are listed

Appendix D - Proposed symbology

Suggest remove all non wildfire symbols. This will enable a clean approach to future developments.

1.2	delete confirmed bomb threat – is this then not a bomb 1.3
1.4	revert to ANSI Standard ICTS/ANSI 415.
1.5	good
1.6	good
1.8	revert to ANSI Standard ICTS/ANSI 415.
1.9	revert to ANSI Standard ICTS/ANSI 415.
1.11	this appears inconsistent with Table 9.
1.15-1.16	remove form initial set
1.20	revert to ANSI Standard ICTS/ANSI 415. Possibly add this symbol where people are not involved
1.27-1.29	include incident symbology from ANSI Standard ICTS/ANSI 415 not just the thematic symbol
2.1	use tick for defendable and O for potentially defendable
2.2	OK for Australia will not convey anything in NZ more generic symbol required
2.4	This would convey homestead (a category we use but do not yet have a symbol for) – to NZ something else required
2.6	OK for Australia will not convey anything in NZ more generic symbol required
2.7	Would prefer-, if required, a status box frame surrounding the asset symbol rather than a symbol in its own right. Is yellow appropriate - it does not imply safety.
2.8	see above
3.3	use ANSI Standard ICTS/ANSI 415
3.4	required? Adapt from ANSI Standard ICTS/ANSI 415
3.19	use NZFS/NRFA symbol this is an ESRI School symbol
3.21	revert to ANSI Standard ICTS/ANSI 415.
3.28	use pictogram
3.29	use pictogram not H (Hotel, hospital, helicopter, hydrant….)
3.30	use pictogram
3.34	revert to ANSI Standard ICTS/ANSI 415.
3.35-3.39	We are surprised that the project proposes to use an adapted range of symbols for USAR related emergencies. Both Australia and NZ are signatories to the UN General Assembly's unanimous adoption of Resolution 57/150 on "Strengthening the Effectiveness and Coordination of International Urban Search and Rescue Assistance" (16 December 2002). In support of the resolution, both Australia and NZ have referenced the adoption of the International Search & Rescue Advisory Group (INSARAG) guidelines/methodologies as the basis for their USAR capabilities, including the management and coordination of international teams who may respond in support of a request for international assistance.

This adaptation significantly changes or has the potential to confuse the INSARAG symbology

Australia has further supported the adoption of the INSARAG methodology in the current Emergency Management Australia - USAR Capability Guidelines for Structural Collapse Response Guideline (this has been carried over in to the draft updated version of the Guideline).

The symbols used by USAR teams across Australia and NZ are understood and recognised by teams around the world. The use of proposed adapted symbols will only serve to confuse international teams both during exercise and in actual deployments.

Any move to adapt or abstract symbols will also (we believe) signify a move away from the UN Resolution (noting EMAs and indeed AFACs position on following the INSARAG methodology).

Exercise Capital Quake 2006 and Exercise Pegasus 2004 confirmed the strong operational and strategic benefits associated with NZ staying true to the international convention. NZ will not change from this position unless the United Nations through INSARAG signal a collective move to new markings and symbology.

3.42 use pictogram avoid H confusion as stated before.

3.43 use pictogram noting this is the only MILSPEC 2525 symbol suggested.

Brett Harrison
SLIP Emergency Management Program
Fire & Emergency Services Authority of WA

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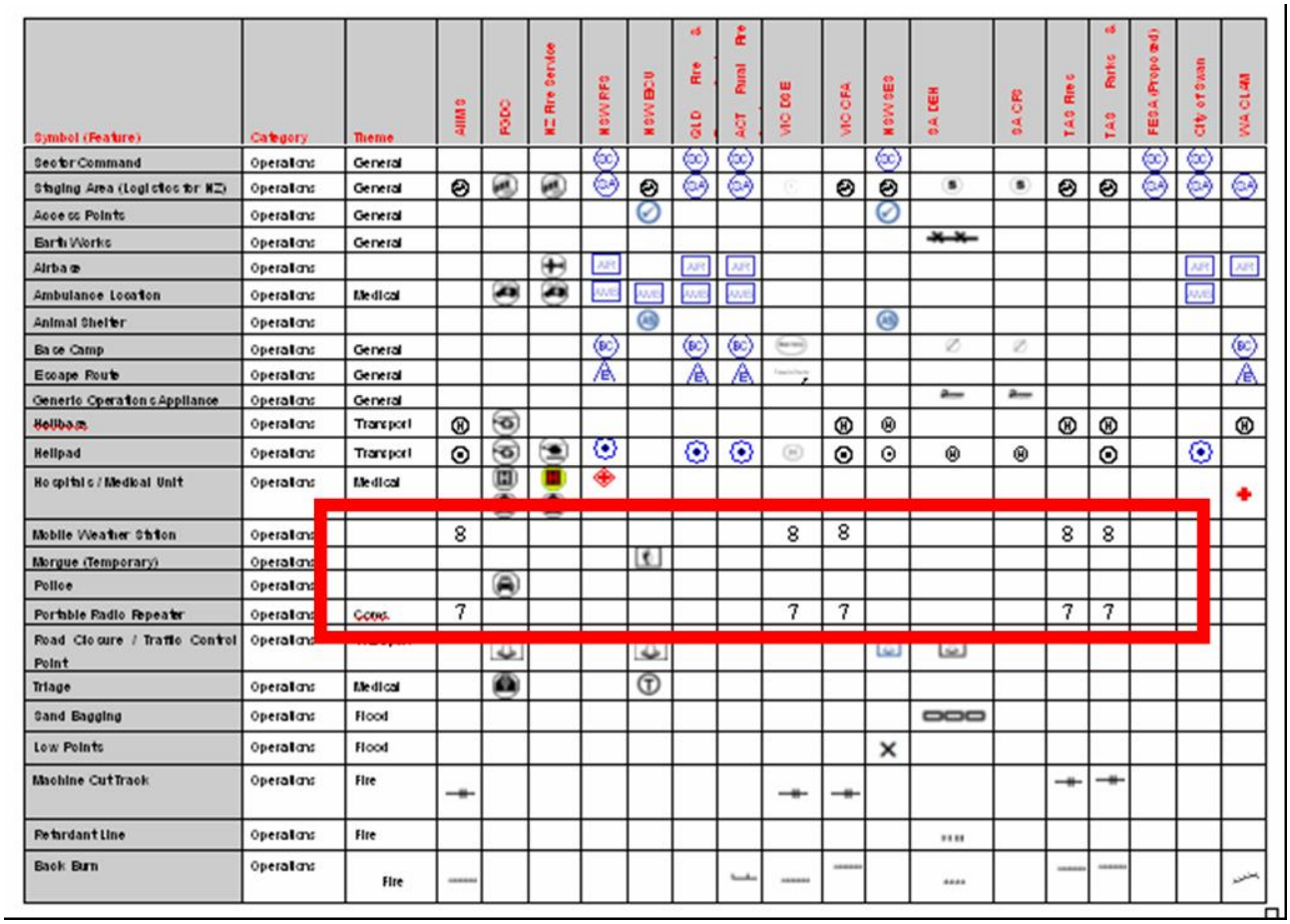
A lot of the symbols don't appear to be correct because we are missing some of the font libraries that the document requires. Are you able to send a PDF version of Appendix B to hopefully get around that problem?



Symbol (Feature)	Category	Theme	AIIMS	FODO	NZ Fire Service	NSW RFS	NSW BCU	QLD Fire &	ACT Rural Fire	VIC DSE	VIC CFA	NSW SES	SA CEH	SA CFS	TAS Fire S	TAS Parks &	FESA (Proposed)	City of Swan	WA CLAN
Sector Command	Operations	General																	
Staging Area (Logistics for NZ)	Operations	General																	
Access Points	Operations	General																	
Earth Works	Operations	General																	
Airbase	Operations																		
Ambulance Location	Operations	Medical																	
Animal Shelter	Operations																		
Base Camp	Operations	General																	
Escape Route	Operations	General																	
Generic Operations Appliance	Operations	General																	
Helibase	Operations	Transport																	
Helipad	Operations	Transport																	
Hospital / Medical Unit	Operations	Medical																	
Mobile Weather Station	Operations																		
Morgue (Temporary)	Operations																		
Police	Operations																		
Portable Radio Repeater	Operations	Comms																	
Road Closure / Traffic Control Point	Operations																		
Triage	Operations	Medical																	
Sand Bagging	Operations	Flood																	
Low Points	Operations	Flood																	
Machine Cut Track	Operations	Fire																	
Retardant Line	Operations	Fire																	
Back Burn	Operations	Fire																	

NSW Rural Fire Service
(Megan Stanley)

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Page Number	Error or Issue	Possible correction
5	Within Australia, there is currently **no defined** standard for map symbols used to represent features relevant to responders to emergencies, law enforcement or counter terrorism.	Change to 1st Paragraph on page 8,(1.1.1). Change *no defined* to **"common national"**
14	Extra full stop end of paragraph 3, section 3.1.1	Delete.
20	Section 3.3 (New Zealand Situation)Inconsistent word "on line" and "online" End of first and start of last paragraphs.	Change to a consistent form.
23	Inside Table 6. Role of Map Products to support control hierarchy – Under Role of Mapping in **Event/ Incident level** ▪ Easy to understand information for non – technical people	This point should be moved to the **Jurisdictional level**?
23	Title: Table 6. Role of Map Products to Support Control Hierarchy	Text format needs to be **bold** (All other table titles are bold)
25	Section 4.2.3 – Figure 4 shows a diagram of symbols representing status.	Add to diagram – text or key showing what symbol means a higher status and what symbol represents a lower status.
26	Section 4.2.4 – Second Paragraph "A critical component of the framework must be an agreed definition for each feature so that it applied……"	Change to: "A critical component of the framework must be an agreed definition for each feature so that it **can be** applied……"
27	Title: Table 10. Technical Criteria	Text format needs to be **bold**
30	Title: Table 12. Australasian Standard Symbols Version 0.9 (draft) - Summary	Text format needs to be **bold**
37	Second last sentence on page states – "Mechanisms to address these implementation issues are further explored in Section 6.2"	**Section 6.2** Does not exist in this report
38	Section 5.4 – Third paragraph "A three tier arrangement is recommended governance arrangements for…."	Change to – "A three tier arrangement is recommended governance for…." **(remove the second governance)**
Appendix D – All Hazards Features and symbols (v0.9): Category ID# **3.9**	This may be considered at a later date however: **Escape Route Symbol**	Need to add an arrow at end of proposed symbol to show safe exit direction.

Department of Environment and Conservation (Craig Carpenter)

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Frame Shapes
The general concept of using a frame shape to symbolise a type of symbology is supported by DEC.

Status
DEC does not support the concept of using symbology to symbolize status e.g. using different coloured frames to show status.

Specific Symbols
Overall impressions of the draft symbols:

- symbols need to be as simple as possible, far too many complex symbols e.g. fire origin, fire hotspot, fire spot fire, gas leak, police vehicle
- symbology must be colour independent to allow for black and white photocopying and faxing.
- system symbols and hand symbols need to be the same symbol to reduce confusion.
- need additional polygon symbology e.g. aerial ignition, indigenous sites

A lot of the symbology presented in the draft paper is not relevant for DEC and wasn't examined during the review.

Category ID	Symbol (Feature)	Theme	Geometry	Preferred System Symbol	Preferred Hand Symbol	Comments
1.8	Fire Origin	Fire	Point			Symbol needs to be simplified
1.9	Fire Hot Spot	Fire	Point			Symbol needs to be simplified
1.10	Spot Fire	Fire	Point			Symbol needs to be simplified
1.11	Burnt Area	Fire	Polygon			Line Thickness
1.12	Fire Perimeter / Boundary	Fire	Line			Solid Black Line
1.13	Fire Edge (Predicted)	Fire	Line			Black Colour
1.13	Fire Edge (Active)	Fire	Line			Black Colour
1.13	Fire Edge (Contained)	Fire	Line			Black Colour
2.1	Asset (Generic)	General	Point			Not sure how well the potential defendable, defendable and not defendable cateogries will work
2.2	Indigenous Site	General	Polygon			Need a polygon theme
2.7	Fire Sensitive Asset	Fire	Point			SA is used for Staging Area, potential mis-interpretation
2.9	Threatened Asset	Fire	Point			Definition needs to clearly state the use of this symbol, typically any asset that's plotted on a map is deemed to be at threat e.g. houses, rare flora
3.5	Control Area	General	Polygon			Symbol Conflict, same as DEC's Area of High Intensity Fire
3.6	Control / Operations Point	General	Point	OP CP	OP CP	Need to have two separate symbols as Control point is very different to operations point
3.8	Escape Route	General	Point			To fall in line with AFAC Standards
3.10	Evacuation Area	General	Point			Use the same symbol for all evacuation types
3.11	Evacuation Centre	General	Point			Use the same symbol for all evacuation types
3.13	Incident Command / Control Centre	General	Point			Simplify Symbol
3.15	Divison Point	General	Point			Division Point is the reference to the position where the division commander operates
3.16	Sector Boundary	General	Line			Single line to indicate sector boundary, a lot easier to draw than a chain of circles
3.17	Sector Point	General	Point	SP	SP	SP in a circle to indicate Sector Point, location where sector commander operates
3.23	Aerial Ignition	Fire	Polygon			Need a polygon theme
3.25	Machine Cut Track	Fire	Line			Remove symbol and simply add annotation to Fire Control line to indicate method e.g. MT (Machine tracked), HT (Hand Tracked)
3.26	Fire Control Line	Fire	Line			Prefer the AFAC standard shown in NSW RFS, QLD Fire, ACT Fire, FESA
3.27	Fire Engine / Vehicle	Fire	Point	F	F	F in a circle to simplify
3.32	Police Vehicle	Law Enforcement	Point	P	P	P in a circle to simplify
3.33	Ambulance Location	Medical	Point	AMB	AMB	AMB in a circle to simplify
3.40	Airbase	Transport	Point	AIR	AIR	AIR in a square to simplify
3.41	Helibase	Transport	Point	H	H	H in a circle to simplify, potential clash with hydrant symbol
3.42	Helipad	Transport	Point	H	H	H in a circle to simplify, potential clash with hydrant symbol

Additional Symbology Required:

Limited Polygon symbology reflected, need polygon symbols for the following:

- indigenous areas
- aerial ignitions

Extra point symbology required:

- direction / flow of traffic
- point / area of high concentration of people
- hazardous ground e.g. unexploded ordinance, mine sites, caves
- dwelling
- building

Other symbology is also used in the fire business to show stakeholder assets e.g water corporation pumping stations, western power powerlines, Telstra powerlines e.t.c

Mark Allen
Ingham Forest Management Area
Department of Primary Industries

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I attended SSC 2007 in Hobart where Spatial Vision gave a presentation on the hazard symbology. I was amazed at what I saw as almost reinventing the wheel. I suggested a fresh look at looking at NATO and American, British Canadian and Australian military symbology. Diamonds are the threat and are red, Own forces are rectangles and are blue while logistics bases are circles and can be red, blue or green (neutral). This system has been around for ages. Hope this has been some help and lessen the cost burden on your research.
Regards

Anthony Griffith
SA Fire & Emergency
Dept Sustainability and Environment

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At Emsina we discussed that the operational map and Jurisdiction map were not the best examples to have in the All Hazards Symbology report. I have attached an operational map for you to consider for inclusion in the report. It is a standard template from our FireMap Map Service. The second is a standard View of Prescribed Burn Status.