

ONZ Mapping Bulletin

Orienteering New Zealand Mapping Committee, 8 November 2021

New emphasis on Sprints, Limits of the Sprint Specification, Scales for Older Eyes, Beware Multiple Levels

This issue is largely about Mapping Application rather than Detail. There are a few items directed at mappers, but most are relevant to club managers, controllers and planners.

Summary: A new emphasis on sprints is a reminder to update maps to the current specifications. We talk about the limits of the sprint specification and suggest an “In-Between” specification for New Zealand. We enlist your help in providing adequate enlargements for older orienteers. And present some thoughts about difficulties with drawing multiple levels.

Emphasis on Sprints



High Performance Leader Malcolm Ingham is calling for an emphasis on sprint orienteering. See his September report, which targets the World Sprint Champs in Scotland in 2024, and the creation of a sprint league within the National O League. Read about it at

<https://www.orienteering.org.nz/news/hp-news-81-september-2021/>

So it's a good time for clubs to review progress with updating to the new mapping specifications. We think that good management starts with a list of active maps (defined as map files) with inactive and historical ones banished to an inactive list. Record the conversion status.

We trust that farm/forest maps have now all been converted to ISOM2017 symbols (which took effect on 1 Jan 2018). If not, make a plan to update, there are now tools in OCAD which make it much easier than before, and a number of bulletins we have written are in the mapping section of the ONZ website.

We hope that most urban sprint maps have also been converted to ISSprOM which took effect on 1 Jan 2020. Our Oct 2020 bulletin gives advice on this too. Sure it's a hassle updating, but even worse is having maps in various states lying around for mappers in the future to grapple with. Get them done. No skills in the club? There's a list of “mappers for hire” on the website, and it doesn't need site visits.

There are maps that don't fit neatly into “forest” or “sprint”, mainly local, and we talk about this category below. Make a list of those too. Perhaps there aren't many. We know a club where they are maybe half the map files, so it can be an issue.

Now a few words for mappers. Club presidents you can skip this bit 😊

- Things we keep finding months after converting: Wrong slope ticks (they differ now between contours and formlines and auto conversion can't tell what you want). Formline gaps may appear in different places resulting in slope ticks sitting on a gap. In fact any dashed line can have its gaps moved by symbol conversion – the answer is more use of the dash-point.

- Passable walls are changed from grey to black with half-dots – but the half-dots have a 50% chance of facing the wrong way 😊
- Overlaps between paving/open land/buildings that are now revealed due to differences in the colour order. Streams that used to be covered by paths may now appear on top.
- NZ's special symbols need you to over-ride the auto-conversion. For example the troughs and tanks
- The normal conversion table (crt) in OCAD is for going from ISSOM (old) to ISSprOM (new). At our urging they have also provided an "ISSprOM 2019 to ISSprOM 2019" which converts "early-bird" ISSprOM files into the latest. (The IOF changed the colour order.)

Limits of the Sprint Specification

A number of clubs use the sprint specification, or something like it, for events that are NOT sprints. For example town belt maps, or bush reserves that aren't big enough for long distance orienteering. Nice close-to-home areas for club events, and often due to steepness or green-ness, we want to map the obstacles in greater detail than we would in ISOM. Examples: Dunedin Town Belt, Wellington and Hutt Valley hills. Mt Maunganui, Auckland Domain.



But the sprint specification is aimed squarely at the high-speed urban environment, and with the shades of brown paving in the latest version, even more so. The light brown tracks are almost invisible in some situations – the very features that are most prominent on the ground.

The IOF only has TWO specifications for Foot-O: ISOM designed for forests with events around an hour or so; and ISSprOM designed for urban areas and 10-15 minutes. The colours and scale of 1:15,000 are chosen for rural terrain and (mostly passable) vegetation. And the colours and scale of 1:4000 are optimised for paved areas, buildings and street furniture. Does the whole world fit into one of these two?

We need a specification with a scale and level of detail in between. There would seem to be three options

- Use the ISOM (forest) spec at a larger scale (perhaps in the range 1:5000 to 7500) ***while leaving the symbol sizes unchanged.*** We could fit more detail in. We could perhaps borrow some of the sprint symbols.
- Use the ISSprOM (sprint) spec at a smaller scale than it was designed for (somewhere 1:5000 to 7500) ***while leaving THOSE symbol sizes unchanged.*** We would map less detail than for a sprint. We could adopt some of the forest symbols such as the larger black dashed tracks, which stand out far better than the pale brown ones.
- We could leave it up to individual clubs, and individual mappers, to do what they like. There is certainly an effort in debating a standard, and the best answer isn't necessarily the same everywhere. These are not used for championships after all.

Note: it is easy to do a simple enlargement, where the symbols grow in proportion. This is what the IOF allows, but you don't get any more detail in. However you ***cannot*** do a simple reduction. This week we saw a sprint-symbols map printed at 1:7500. Symbols (and gaps) about half of specification size!

One thing is certain - all terrains don't neatly fit into the ISOM or the ISSprOM boxes. Club and mapper views are invited. Address them to mapping (dot) committee (at) orienteering.org.nz by the end of 2021.

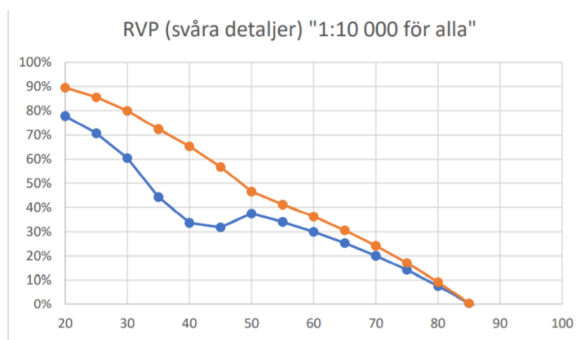
You can read about an example of the middle option at www.mapsport.co.nz/mapresources.html and look down to "MAPsport's Combination ISOM/ISSprOM symbols)".

Bottom line: If a map is not used mostly for high-speed events under 15 minutes, then it's not a sprint area 😊 We suggest you delay any conversion of these until we arrive at a consensus about a "NZIBSOM" (NZ In-Between Specification for Orienteering Maps).

The Needs of Older Orienteers

The scales and symbols in the IOF mapping specifications are designed for the eyesight of elite competitors. We need to ensure our maps are suitable for **all ages**, and we've done a fair bit of work to get this recognised in the ONZ rules. We don't think the recent rules revision goes far enough, and seek mappers' help in providing legible maps for everyone.

First, the science. The Swedish Orienteering Federation has quantified the relative visual ability (RVP) for orienteering map detail at various ages. A typical graph shows a couple of lines enclosing 95% of the population (ie excluding extremes).



They found that relative eyesight falls to about 50% around age 50, and 30% at age 70. OK you can still read a book but we are talking about small dots here, and in sprints small gaps are important. We have translated the study and it's at www.mapsport.co.nz/mapresources.html. Look for SOFT 2018 study on Eyesight vs Age.

While the study says that seniors would need enlargements of 3 or 4 times to see what a 20yo can, we took into account slower running speeds - but we still have some pretty fast 70year-old ex-elites. We submitted to the Technical Committee that from 40yrs, maps should be enlarged to 133% of what is given to elites, and from 60yrs, 150%. Simple numbers, and ones that we think must be laid down.

Because how can a fully sighted planner assess what a partly sighted orienteer can see?

Unfortunately the TC didn't fully accept our submissions, and neither has the ONZ council. Rule 15 implements the 133% level "normally", but also allows an alternative of no enlargement at all. And the 150% is also discretionary "where complexity justifies them". We all know the motivation for complexity – event advertising makes a "thing" out of detailed terrain.

These 133 and 150% enlargements must not be discretionary. They are needed for reading the map. An insufficient enlargement puts our seniors onto the scrapheap. Please use your influence with planners and controllers.

One more thing: major events have generally been good in the forest (where 1:5000 is provided this is actually greater than 150%). It is sprints which have often failed our seniors. If elites get 1:4000, 133% is 1:3000 and 150% is 1:2666 (in practical terms 1:2500). And in sprints the detail is crucial. The map must be legible and logical before your route is planned and the features come into view.

Ambiguity in our Maps

It doesn't exist, right? The map gives the complete picture enabling the orienteer to make route choice decisions in advance, and to picture the terrain before they get there?

Let's have a reality check. Those who choose areas are top orienteers. Simple areas have little appeal. We seek out sand dunes, mining, and rocks, and are delighted when we find low-visibility trees. Mappers are part of this, we put in as much as will fit. We break the minimum gaps. We've even been known to use under-size dots and U-depressions.

Sprints are the same - we look for complex urban mazes. If they aren't complex enough we put in artificial barriers. We map every recess, the porch is the equivalent of the reentrant. We love it when there are level changes with steps and stairs, but hang on – what's the the lay of the land? Contours flow into walls and disappear. Stairs have no up/down indication, and the impassable wall has no down-tags like a cliff does. It could even have two sides or be a one-sided retaining wall.

It gets worse when there are overs and unders. The new Sprint Specification has a symbol for a two-level passage – the candy-stripe 501.200. We think this is dodgy – it does not guarantee a clear picture of the terrain. This quite simple situation in the 2021 World Cup sprint in Italy produced a chain of debate on the International Mappers Facebook group

<https://www.facebook.com/groups/485564718218028/permalink/4323563101084818>



I'd like to run next to the building but there's a wall – two walls – in the way. And is the paving next to the building higher or lower than the yellow? This group is full of such debates. The IOF Mapping Committee is reviewing the multi-level provisions.

The problem has always been with us, where a combination of lines, colours, fence ticks, sweat in the eyes and tiredness prevents us from seeing what the mapper intended – perhaps a completely different interpretation enters our brain.



Misinterpretations are hard to avoid. For example, is the picture on the left a musician or a woman's face? Is the rider on the right bunny-hopping from block to block? (No, the bars are painted on the road.)

A trap that it's easy for mapper, planner and controller to fall into, is to judge the map **knowing what the answer is**. The competitor **sees only the map** and has to build a mental picture before getting there – and



while running at high speed. It shouldn't be necessary to nut out a puzzle. We don't think one should rely on the control descriptions to come to your aid either.

The message: recognise the limits of what we can unambiguously portray. Unders and overs and complexity are not necessary for exciting orienteering. Do you see any in this race?

<https://www.youtube.com/watch?v=u66QcSem428>

Conclusion We hope that travel is freed up and that we see many of you over the summer.

Distribution This bulletin goes to regular mappers known to the Mapping Committee, and ONZ clubs.