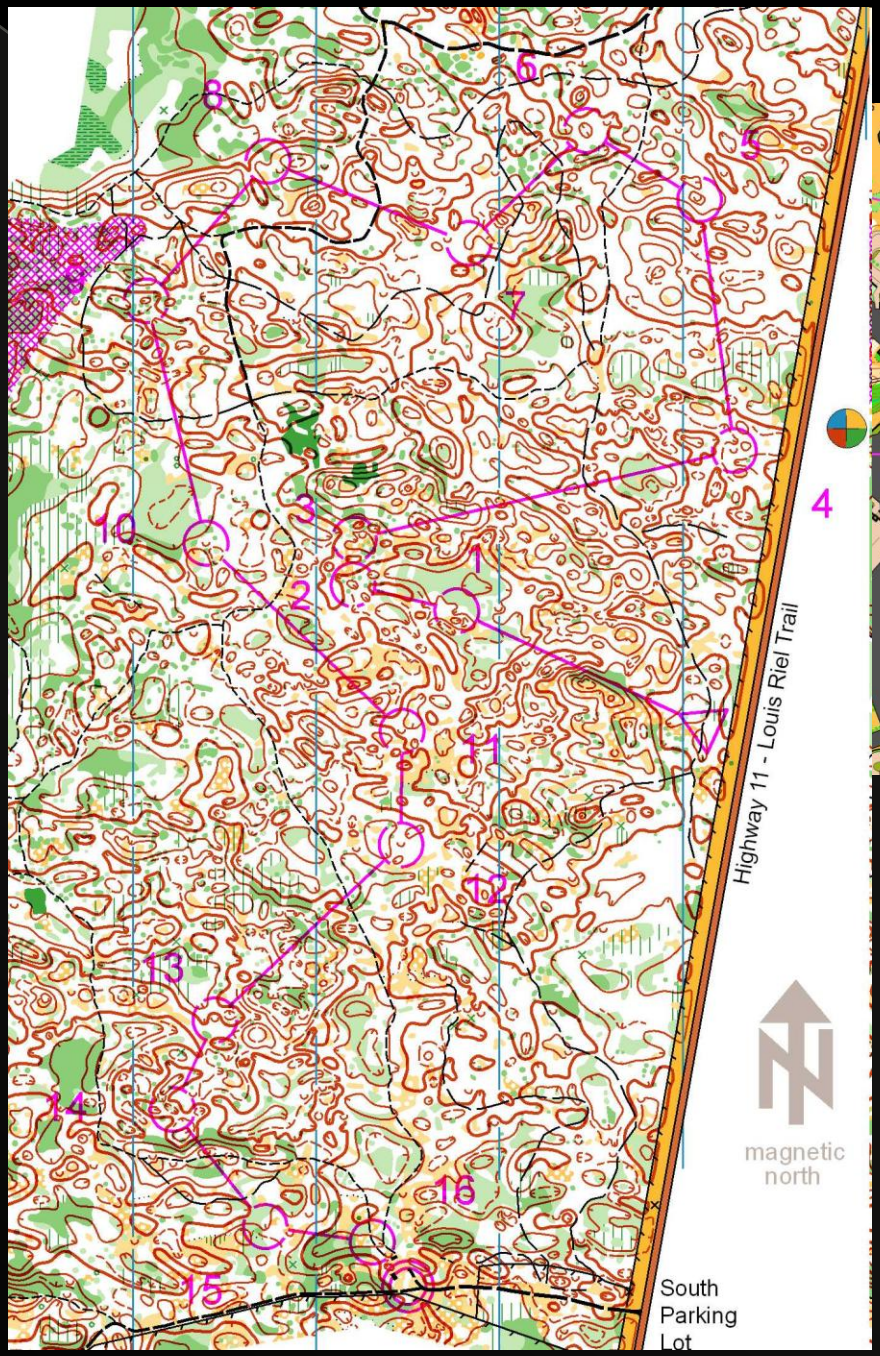

Course Planning

2008 COF Conference

The wrong approach #1

- Joining ‘cool’ control features

Wrong approach #2

- Leg 1, Leg 2, Leg 3…

Today's presentation

- Good courses
- Good legs
- Variety
- Route Choice / Navigational challenge
- Sprint / Middle / Long
- The Planning Process
- Common mistakes
- Psychology
- How to be loved

Different “levels” of event

- Training events – Championship events

What is orienteering?

- The navigational skill, concentration and running ability of the competitors shall be tested.
- All courses shall call upon a range of different orienteering techniques.
- The aim of course planning is to offer competitors courses correctly designed for their expected abilities.

“Expected abilities”

- Understand the skill progression
  - What can M12 do?
  - What is too easy for W21?
- Understand physical abilities
  - What about those teenagers?
  - How tough are the M21?
  - What about the ‘Venerable’ classes?
- Sweden’s green to Black

Good courses are…

- Fun (appropriate difficulty & terrain)
- Fair (minimize ‘luck’)
- Challenging (map reading, route choice, concentration, decision making, running in natural terrain, …)
- Respect the environment
- Media & spectator friendly

Good control sites

- Mark the start & end of good legs
- Specific “indisputable” spot (point feature)
- Not hidden – the goal is a good leg, not a tricky control site.
- Avoid ‘dog legs’
- Don’t give away if someone is there

Good legs

- Every leg must have a purpose
  - Navigational challenge
  - Route choice
  - Better point to start a good leg
  - Change of direction
  - Connect good areas / legs
  - Adding variety (3Ts)

Good courses

Good courses have Variety…

The 3 T's:

- Vary Terrain
- Vary Technique
- Vary Tempo

1st T – vary Terrain

- Challenge orienteer to move and navigate effectively in all types of terrain
  - Flat / hilly
  - Many / few details
  - Good / bad visibility
  - Good / bad runnability
  - Rocky / marshy / open
  - Open forest / thick forest
  - Wilderness / dense trails

2nd T – vary Technique

- Challenge orienteer to use a variety of navigation techniques
  - Line / point / area features
  - Along / across contours and line features
  - Map reading / compass
  - Different leg lengths
  - Changes of direction

3rd T – vary Tempo

- Challenge the orienteer to run at appropriate tempo
  - Fast terrain / slow
  - Long / Short legs
  - Easy / difficult map reading
  - Downhill / flat / up

Good legs

- Navigational challenge
- Route choice

Navigational Challenge

- What is challenging?
- Progression of orienteering skills

Navigational Challenge

- Examples
- * detail
- * ‘flow’ of the terrain

Route Choice

- It is the essential nature of orienteering
- Not all good legs have route choice
- Why have route choice?

Route Choice

- How to make route choice
  - Need obstacles
    - Vegetation: green
    - Terrain: hills, valleys, cliffs, lakes…
    - Detailed terrain / navigational complexity
  - Need alternatives
    - Faster running / slower running
    - Longer / shorter
    - Safe / tricky navigation
- <Example: FWOC Club Champs 2004>

Route Choice

- Should route choice alternatives be equal?
  - No!
  - Test map reading / decision making skills.
  - Reward the best ability to “see” good routes.
  - Easy-to-see route should be not the best
  - Good routes should be less obvious

Route Choice

- How does course planner compare alternative route choices?
  - You must understand how quickly people move in terrain…
  - You can guess…
  - You can test-run…
  - Or you can calculate…

Speed in Terrain (elite male)

Dark Green	10:00 min/km
Light Green	7:00 min/km
Marsh	5:30 min/km
Open Forest	5.00 min/km
Small Path	4:00 min/km
Field	4:00 min/km
Big Path	3:40 min/km
Road	3:20 min/km
Uphill	Add 1:30 min/km per 10%
Downhill	Less 0:40 for up to 20% Add 2:00 for 30% or more

Course Length

- Our goal: *target winning times*

BUT…

- How do you know how long people will take to run your courses?
  - You might not care ;-)
  - Depends on your specific terrain
  - Depends on who will be there
  - Get one class/category right, then use Excel…

Relative Speeds (winning TPKs)

M21	1.00	W21	0.80
M35	0.93	W35	0.71
M40	0.89	W40	0.67
M45	0.84	W45	0.62
M50	0.79	W50	0.57
M55	0.74	W55	0.53
M60	0.68	W60	0.48
M65	0.60	W65	0.44
M70	0.53	W70	0.39
M75	0.46	W75	0.35

The Basics: Preliminary Steps

- Choose a map
- Identify “best” areas of the map
- Choose suitable locations for
  - Assembly Area / Finish
  - Start
  - Parking
  - Beginner courses
- Obtain permissions
- Be aware of environmental issues
- <2007 COC’s – Eb’s Trail>

The Basics: Course shape

- Now you have your map & start/finish areas
- Identify “the best” parts of the map that you want to use
- Look for major features in the terrain that will affect route choice
- Make some excellent long legs
- Consider where water stations will be
- Add lots of changes in direction (figure 8 is good)

Common Mistakes: boring course

- Lack of variety
  - Always the same type of problem
  - Always the same length of leg
  - Never any change in direction
- Remember to vary the 3Ts:
  - Terrain
  - Technique
  - Tempo
- Use proper planning steps
  - Build your courses around a few excellent legs

Common Mistakes: too easy

- Inappropriate challenge
  - Too easy for advanced or too tough for beginners
  - Too easy is more common
    - Catching feature before the control
    - Simple navigation
    - Dog legs
- Study skill progressions for all levels
  - BONUS – you become a much better orienteer!

Common mistakes: boring shape

- Should have lots of changes in direction
- Consider “figure of eight” shape

Common mistakes: climb

- Avoid short uphill legs with no route choice
- Avoid unnecessary climb
- Make climbs interesting by setting long legs across the slope – this gives route choice and navigational challenge

Common Mistakes: on the edge

- Avoid control sites close to unbounded edges of the map
  - This invites people to run off the map
  - No way to relocate
  - Stay 100m away if possible, unless edge is bounded by road, stream, etc

Common Mistakes: no route choice

- Things that don't necessarily provide route choice
  - Navigationally difficult leg
  - Left / right alternative
- Route choice comes from real alternatives
  - Safe or risky
  - Straight or around
  - Short or easy

Common Mistakes: Control sites

- Control site must be specific
- When using older maps, or maps you don't know well, plan courses using "solid" features
  - Boulders, contours, other things that don't change
  - Don't use vegetation, one-line contour features, or anything else that you suspect is inaccurate

Common mistakes: too much work

- Too much work for planner & helpers
  - Water controls too difficult to get to
  - Remote start/finish locations
  - More controls than necessary

2001 Barebones Course Planning Contest

Three ‘O’ disciplines

- Sprint – fast, visible, easy-to-understand for spectators. High speed, intense concentration.
- Middle – fast, accurate orienteering for moderate amount of time. Small errors can be decisive.
- Long – all challenges, including route choice, endurance, navigation.

Technical difficulty

- Sprint: tends to easy
- Middle: consistently difficult
- Long: mixture of difficulties

- … as a rule … but remember “Variety”

Route Choice

- Sprint – complex, requiring high concentration (lots of turns)
- Middle – small & medium-scale route choice
- Long – significant, including large-scale route choice

Long Distance: Long Legs

- Build Long Distance courses around good long legs
- Look for obstructions (cliffs, lakes, valleys, etc)
- … and make a leg that crosses them

Type of Running

- Sprint – very high speed
- Middle – high speed, requiring adjustment of speed
- Long – physically demanding, requiring endurance

Terrain

- Sprint – very runnable (open forest or park)
- Middle – technically complex
- Long – physically tough, allowing good route choice

Map

- Sprint – ISSOM. 1:5,000
- Middle – ISOM, 1:10,000
- Long – ISOM, 1:15,000 (elite) and 1:10,000

2006 Team Trials

sprint draft course

sprint final course

Interesting!

- Mistakes are most often made on:
  - First control
  - Second control
  - Second-to-last control
- Hmmm….

Psychology of Course Planning

- Be aware of orienteering psychology and set appropriate challenges…
  - For beginners, help them out perhaps
  - For advanced courses, challenge them more
- But don't be "mean" or "devious"
- Fun, Fair, Challenging

Psychology: early controls

- At the Starting line, orienteers will be nervous, excited, adrenalin-charged.
  - They will **rush** decision making and navigation
  - Leading to mistakes on controls 1 & 2
- Will you take advantage of this?

Psychology: late controls

- At the 2nd-to-last control orienteers will relax and loose concentration
- This is a good time to provide a challenging leg

Psychology: mental fatigue

- When orienteers are more tired they are likely to make mental mistakes
  - After a climb
  - Late in the course
- So give mental challenges at these times

Psychology: tempo

- Orienteers have a hard time changing Tempo (red light / green light)
  - Generally they will not slow down enough for detail terrain or to make an important route choice
  - At times they will be overly cautious and not go fast enough
- So provide many tempo changes
  - Detail navigation at bottom of hill (force them to slow down)
  - Short fast legs followed by long route choice leg
- Eb's Trail – Middle course review

Psychology: sad but true

- If they make lots of mistakes in a race, orienteers will complain about the map and especially about the course planning.
- If they have a good race they will believe they are excellent orienteers and that you are a “not-bad” course planner

How to be a loved course planner

- Make people feel good about their orienteering, that they were given interesting challenges and that they solved them well.
  - Lots of variety (terrain, technique, tempo)
  - Minimize climb
  - Nicest parts of the terrain
  - Fair
  - Appropriate for your competitors

Course Planning: Rewards

- The most fun aspect of organizing an event
  - Lots of time in the field
  - Fun when people enjoy themselves on your course
  - Learn a lot about orienteering
- Bonus:
  - You become a better orienteer
- Good courses are good for the sport

The End

Course Planning: after the race

- Talk to the runners to see:
  - what skills they have
  - How they approached each leg
  - What they enjoyed most
- Especially talk to different age categories / different experience levels than you
- Especially talk to the kids

Rules

- COF rule book
  - Technical rules
  - Course standards (winning TPK, number of courses, and so on)
- IOF rules
  - www.orienteering.org/rules.htm
  - More of the technical rules
  - More course planning principles
  - Especially: 16.2, 19.3, 19.4, Appendix 2.3, 3.4.2, 3.5.1

Materials & Resources

- There aren’t many
- Experience
- Talk to people after races to understand their skills and what they enjoy
- Read articles, websites
- Use your Controller
- Ask someone to review your draft courses

Websites

- **Canadian Orienteering Federation**
- www.orienteering.ca/r&s.htm

- **International Orienteering Federation**
- www.orienteering.org/rules.htm
  - Course Planning Principles
- www.orienteering.org/footo/WMOC_handbook_2002.doc

- **British Orienteering Guidelines**
  - Environmental concerns, estimating course lengths, many other great references

Final Product

- Maps of each course (weather-protected)
- A few master maps
- Extra control descriptions
- Controls in the terrain in the proper place
- Water on the course
- Course planner notes in the meet information

Tools

- Mapping software: OCAD
- Course planning software: eg: CONDES

- Printer

- Special papers

Course Planning as training

- Prepare for competitions on existing map
  - Allows you to practice Route Choices
  - Helps you become comfortable with the map and general nature of the terrain
- Better route choice
  - Recognize alternatives better
  - Make better choices

O-Ringen


CRAFT
Idre Fjäll
TORK
SVEASKOG SVEASKOG SVEASKOG SVEASKOG SVEASKOG SVEASKOG

Bringing it together

- Make draft courses
- Test
- Finalize courses, specify water stations
- Flag all control sites
- Map layout for each course
- Print maps for each course, master maps, control descriptions

Testing the courses

- Run it yourself or have others run it to judge
  - Enjoyment
  - Winning time / length
  - Challenge – navigation / physical
  - Map accuracy – especially attacking controls

Types of Course Planning

- Different types of races
  - Sprint Distance
  - Middle Distance
  - Long Distance
  - Relay
  - Score-O
  - Night-O
  - Super-long
  - …and so on

Common mistakes: wrong process

- Beginning course planners often make a course by starting at the beginning and making the first leg, then the second, and so on. Tendency is to “sameness” of legs
- Beginners often look for good sites to put a control, then join these control locations.
- Instead you should find good long legs and then combine them with shorter legs. The course will not be created in order 1,2,3…