

Rally Routing 101 LAB – A Practical Exercise

“Yeah but I didn’t take into account that I suck at math” – Cartman

In this exercise you have to create a route for a leg of a rally that must be completed within four hours. The leg starts at Christmas Circle in Borrego Springs, 92004 (N33 15.395 W116 22.498), and finishes at San Diego BMW Motorcycles at 5673 Kearny Villa Road, San Diego, 92123 (N32 50.261 W117 08.085). In between are the following Bonii. Allow at least 5 minutes for each stop, 10 minutes if the directions are ambiguous or the waypoint is on a private driveway or parking area (Note that “EAG” is on a dirt road and can only be approached from the North):

RBC – 16935 W Bernardo Drive, San Diego, 92127 (N33 01.358 W117 04.845). 122 points.

EAG – Junction of Eagle Peak & Cedar Creek Road, Santa Ysabel, 92027 (N33 00.140 W116 42.909). 788 points.

JUL – CA-78/79 & B Street, Julian, 92036 (N33 04.678 W116 36.081). 214 points.

MAJ – 28856 76 Old Highway 80, Pine Valley, 91962 (N32 49.314 W116 31.771). 899 points.

MTW – 16422 N Woodson Drive, Ramona, 92065 (N33 00.820 W116 57.307). 178 points.

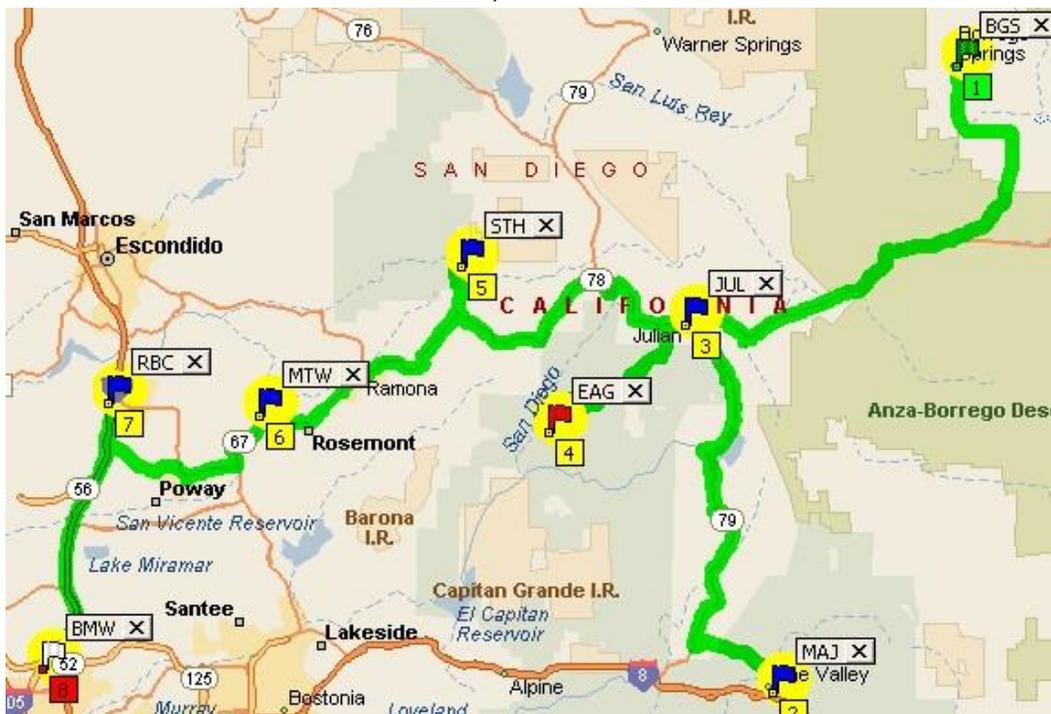
STH – 22866 Sutherland Dam Road, Ramona, 92065 (N33 07.119 W116 47.311). 423 points.

Work out a route and jot down your route notes in the space below. Record the time it took you to complete this exercise. Compare your results with mine on the following pages.

1. Entered the start, BGS, and the finish, BMW, into routing software. MS Streets and Trips with default speeds comes up with the following route that covers 81 miles in 100 minutes:



2. I eye-balled that JUL and MTW are right along or very near the route. It makes sense to add those. Depending on your preference, you can add locations to your route one by one, or just add them all at once and see what the impact on time is. In this case I added them all:



3. STH and EAG appeared nearly equidistant off the initial course, but it now appears the point disparity was not only justified by the fact that EAG is on a dirt road, but also because there is

only one way in and out (and requires some back-tracking, regardless of what your mapping software indicates). This route with all points covers 166 miles in 274 minutes (4-hours and 34 minutes when accounting for stops). Total points would be **2624**, for an efficiency of 9.24pts/min (but it would clearly go over the time limit in most cases).

- I checked the effect on time of dropping each location and its individual theoretical efficiency. I drop one at a time to get a comparative result. As time permits you can drop locations in sets:

Drop	Saved	Implied Efficiency of Location
JUL	6 minutes	35.67
MAJ	67 minutes	13.42
EAG	56 minutes	14.07
STH	20 minutes	21.15
MTW	11 minutes	11.13
RBC	16 minutes	5.81

- As suspected, JUL pays good points for the time involved. STH appears a better use of time than MTW. RBC is the least valuable and can save 16 minutes if we need to drop it.
- If under a time-constraint to get this route designed, I would first answer whether I am comfortable traveling on a dirt road. If not, then I can eliminate EAG and immediately see the modified route can now be completed in the time limit: 218 minutes for **1836** points. Thus my first rough route is ready to go: MAJ, JUL... then complete all others as possible; dropping them as needed for time, in this order: RBC, MTW, STH.
- Dropping MAJ or EAG has a similar impact. If I need to make one drop to get my planned route under 4-hours I can drop either. EAG is worth more points and can be done faster *if* I believe my routing software has properly classed that dirt road. Otherwise it is a higher risk.
- Now I can double check the impact of dropping several of the locations together as a set:

Drop	Saved	Implied Efficiency of Set
MTW, RBC	27 minutes	11.11
STH, MTW, RBC	47 minutes	15.38
MAJ, RBC	83 minutes	12.30
MAJ, EAG	123 minutes	13.72
MAJ, EAG, RBC	138 minutes	13.11
MAJ, EAG, MTW, RBC	149 minutes	12.14
EAG, STH, MTW, RBC	151 minutes	10.01

- I now have enough data to write up a more thorough route plan: I will attempt MAJ, JUL, and EAG. If I am more than 30 minutes behind my final destination ETA by the time I arrive at JUL, I will not attempt EAG, as I will only have 47 minutes to recover if EAG delays me further (by dropping STH, MTW, and RBC). If I am ahead of my ETA I will continue to STH, MTW and RBC. If I am behind on my ETA I can gain 20 minutes by dropping RBC, and another 11 minutes by

dropping MTW. This route plans to earn at least **1901** and the upside is still 2624. The downside is if EAG is not bagged the maximum score that can be achieved is 1836.

- Note that once you settle on a good route plan and you have more time, you can try to then 'best' your route. One method is the route optimization tool in MS Streets and Trips. By running the optimizer on my top three targets: MAJ, JUL and EAG... the program comes up with an alternate for those three locations (1901 points) that saves 47 minutes by re-ordering them and using a faster Interstate to get to the finish. Note however that this option would have to be committed to at JUL, and effectively eliminates further bonus hunting even if good time is made on EAG. However in some cases this maybe a more prudent bet to get this kind of score for riders who think the wildcard is EAG as far as time is concerned. You trade extra potential points early on, in exchange for an extra 47 minutes to use on an unknown road:



- After examining the above route, I can see that if I am drastically delayed coming out of Borrego Springs, I can gain 2-hours and 31 minutes by going to JUL, then MAJ, and then directly back to BMW via Interstate: 101 miles in 123 minutes and still get 1113 points. Not a likely contingency, but it's always good to continue examining your route to see ways you can hobble back and still maximize your points. In some rallies there may be minimum points required. This is one that picks up 2 locations, but only takes 23 minutes longer than scoring zero locations.



Summary: Going through an exercise this short, you may have discovered you really didn't need to formally examine the efficiency of each stop. You may have been able to figure out the best route more quickly just by testing a lot of different route iterations. Under time pressure that is exactly what you may have to do. However the concept here is to build a route that has contingencies, and getting a good feel for what part of the route should be dropped first.

Conclusion: Going through the numbers of exactly how valuable a location is can eliminate some of the bias we get from our initial perceptions about the bonii, and help us recognize when we have been lured into hunting bonii that may not be as lucrative as they first appear.

“Still round the corner there may wait, a new road or a secret gate.” – J.R.R. Tolkien