



DARPA Grand Challenge 2005

Site Visit Instructions Update

April 8, 2005

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This document provides additional information that clarifies and modifies the information contained in the February 2005 Site Visit instructions. The guidance in this document supersedes that given previously. For this document, “team” refers to the Grand Challenge entrant and not the visiting DARPA personnel

Proof of Citizenship At the onset of the DARPA site visit, team leaders are required to provide documentation of U.S. citizenship. Acceptable proof of citizenship includes a current or expired U.S. passport, or the combination of a valid Government-issued photo ID and a U.S. birth certificate. A photo ID such as a driver’s license must be valid on the day of the site visit.

Site Visit Photos DARPA recognizes the significant effort teams are expending at every level to participate in the Grand Challenge, including preparation for the site visit. As documentation of this contribution, DARPA is requesting each team to be photographed with its vehicle during the site visit. The photographs will be used for promotional purposes and will be released to the press upon request. In addition, they will be displayed on the Grand Challenge website and at DARPATech 2005 in August. For teams whose members will not all be present during the site visit, a high-resolution digital photo of the team with its vehicle should be sent to GrandChallenge@darpa.mil in advance of the site visit.

Site Visit Course The sample layout in the earlier guidance displays a course with five waypoints and two very sharp turns. The turns shown in the diagram are much sharper than called for by the instructions, which require the vehicle to change bearing by at least 30 degrees to the right and left (see the figure below).

The team should lay out a course with turns that fall within the guidelines, keeping in mind the elapsed time for the vehicle to complete each run will be recorded at the site visit and used as one measure of the vehicle’s performance.

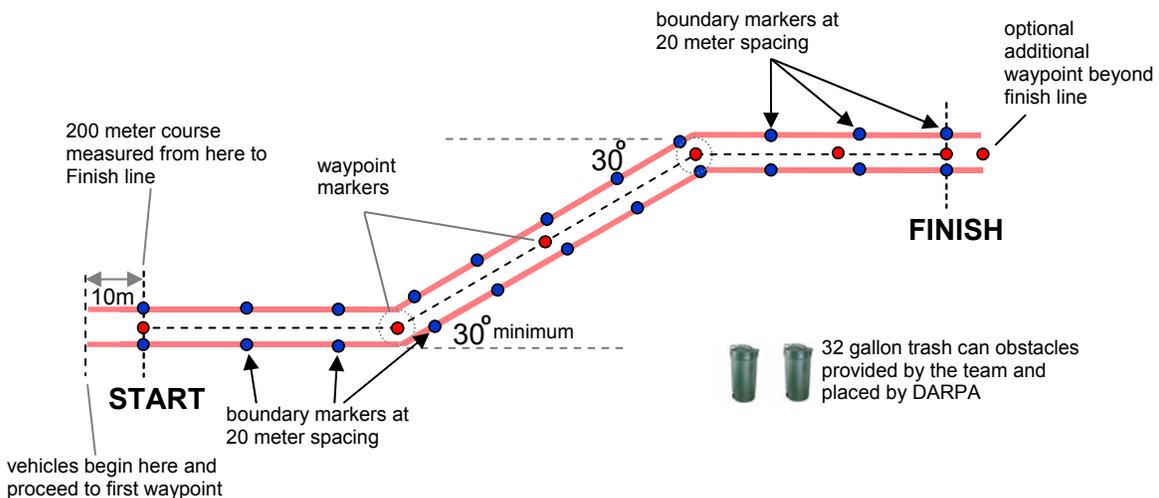
The course should be defined by at least 5 and no more than 10 waypoints, including the start and finish line points. The full transverse extent of the course should be 8 meters, corresponding to a 4-meter (13.3- foot) lateral boundary offset as defined in the Grand Challenge rules.

The course must provide precisely 200 meters of travel along the course center, measured from waypoint to waypoint. At the initiation of each run, the vehicle should start approximately 10 meters from the start line and proceed to the first waypoint, which must lie in the center of the course on the start line. See figure on following page.

The DARPA team will start the timing of the run once the vehicle reaches the first waypoint. The last waypoint should lie on the finish line, and timing ends when the vehicle reaches this point. If the team desires, an additional waypoint may be added to the route data definition file (RDDF) beyond the finish line, but vehicle evaluation ends when the vehicle reaches the waypoint at the finish line.

The team will provide and place 11 sets of boundary markers to mark the lateral course boundaries. The first set of markers should be placed at the lateral boundaries abeam the start (first) waypoint. This marks the start line of the 200-meter course. The next set of markers should be placed 20 meters down the lateral boundary lines on both sides of the course. The remaining sets of markers should be placed at 20-meter intervals, and the last set of markers should be placed abeam the waypoint at the finish line. This marks the finish line (see the figure below). If barriers are needed to protect personnel or property during the site visit, their placement should be established by the team safety representative. These instructions override the marker placement guidance issued in the original site visit instructions

Waypoints should be visibly marked so they are distinguishable from boundary markers. All markers must be visible to observers during the runs.



Example course layout with six waypoints

The optional fourth run is to be conducted free-style, on a course constructed and marked by the Grand Challenge team and designed to show the advanced capabilities of the vehicle. Since this run may be used as part of the selection process, all teams should consider taking advantage of this opportunity to show what their vehicle can do. A briefing should be supplied in advance by the team to explain the course and the vehicle's activities. The course for the optional run should be less than 1,000 meters in travel distance, should be defined by an RDDF, and must be clearly marked. The fourth run may demonstrate capabilities

such as operation on rough terrain, advanced obstacle avoidance, local terrain mapping and route finding, and vehicle self-extrication. From start to finish, the fourth run should take less than 20 minutes. Teams using JRP sites for their site visit should consult with the site manager for information on optional run courses.

The entire site visit, including the optional fourth run, must be completed within 2 ½ hours.

General Information www.darpa.mil/grandchallenge

Questions grandchallenge@darpa.mil