Radar detection solves traffic headache at a major roundabout

Marsh Mills is Plymouth's most heavily trafficked roundabout, handling approximately 35,000 vehicle movements per day. Serving as a gateway from the A38 and connecting key urban corridors, it supports city-wide traffic distribution and accommodates pedestrian and cyclist flows. The site's complexity and strategic importance have long made intelligent traffic control a necessity.

The initial solution—proposed by JSTSM Ltd in 2017—relied on inductive loop detection for MOVA (Microprocessor Optimised Vehicle Actuation) integration. However, extensive ducting and civil engineering requirements made this approach cost prohibitive. A later alternative solution employing magnetic detection reduced infrastructure demands but raised concerns regarding reliability and long-term performance. This solution was not progressed.

In consultation with Plymouth City Council, JSTSM Ltd advanced a new design utilising smartmicro multi-lane radar detection. This approach eliminated the need for below-ground installation while delivering robust above-ground vehicle tracking. The implementation also included refurbishment of the roundabout's traffic signal system, introducing Yunex Stratos controllers and a hardwired configuration.

Due to the size and multi-arm geometry of Marsh Mills, ten radar units were deployed—the highest count for a single site locally. Installation was completed efficiently over two overnight closures and one daytime session. Radar commissioning was supported by SWARCO (maintenance contractor) and JSTSM Ltd, who also handled layout design, factory acceptance testing (FAT), and MOVA validation.

smartmicro detection—already proven across several sites in Plymouth—enabled accurate real-time traffic data acquisition across multiple lanes. The roundabout now operates under MOVA control with improved responsiveness and throughput. Over 18 months of live operation have demonstrated consistent performance, reduced congestion,

and measurable cost savings compared to traditional detection methods. This cost saving was approximately £150,000 pounds.

This deployment highlights the scalability and efficacy of above-ground radar technologies in large urban traffic environments, offering a cost-effective and viable alternative to loop-based detection in constrained or high-traffic scenarios.

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