Capacity analysis of a bypass of roundabouts

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Abstract: The capacity of the roads network mainly depends on the capacity of its nodal points - intersections. A connecting branch or a bypass is a lane or lanes inserted between two adjacent branches of a roundabout, providing redirection of vehicles, that would otherwise burden a circular lane. A bypass effect to the capacity of roundabouts, but also other types of level intersections, is undeniable. A connecting branch increases the total capacity of an intersection that takes a part of vehicles performing a manoeuver of the first right turn completely out of an intersection area. Redirecting vehicles reduces delay times at intersections and reduces queues at the entrance to an intersection. Bypasses improve the quality of transport. Limiting for the capacity of bypasses is the point of disconnection from the entrance into the roundabout and the connection point into the exit from the roundabout. Central parts of the bypasses have minimal effects on the capacity. The length of a bypass has to match with the maximum length of a queue of waiting vehicles at a given intensity level. The article deals with analysis of the bypass capacity at the roundabouts.