

Temporary Traffic Control for Building and Maintaining Single and Multi-Lane Roundabouts

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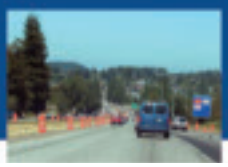



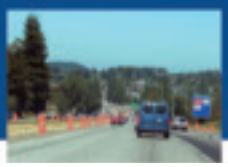


Construction With Some Traffic Diverted

In cases where it is not possible to detour all the traffic, certain intersection approaches may need to be strategically kept open to traffic during construction. For example, minor roadway approaches may be closed and major street traffic maintained on the existing roadway or a temporary roadway built as part of construction staging (5, pp. 10-5). Other considerations for this hybrid approach may include:

- the presence of emergency services near the vicinity of the roundabout which requires immediate access to the intersection;
- the need for accessibility of nearby roadway networks, whether for convenience or circulation;
- the existence of limited alternate routes for diverting traffic; or
- the diversion of traffic would result in significant increase in travel time.

A project in Winnebago County, Wisconsin involved shifting traffic on Route 45 to the east and west sides of the roundabout construction at Lake Buttes Des Morts Drive during successive phases. While the east approach of Lake Buttes Des Morts Drive was closed to traffic, the motorists on Route 45 were shifted to the west through the intersection. In the next phase of construction, the west supplementary approach was closed and Route 45 traffic was moved to the east. The intersection was open to Route 45 traffic at all times. Appendix A includes construction staging and traffic control plans.

In Gilbert's Corner, VA, four new roundabouts were to be constructed – one at Gilbert's Corner (intersection of Route 50 and Route 15), one at the intersection of Route 50 and Watson Road, one at the intersection of Route 50 and a new connector road, and one at the intersection of Route 15 and a new connector road. Roundabouts along Routes 15 and 50 were constructed first. During Phase 1 construction of the roundabout at the intersection of Routes 15/50, westbound traffic continued along Route 50 while construction of the southern half of the roundabout took place. In Phase 2, Route 50 traffic was diverted via a connector road to Route 15 while construction of the northern half of the roundabout took place. Construction staging and traffic control plans are included in Appendix B.

(Photo from Virginia DOT website)

Construction Under Full Traffic

Prior to commencing work that would change traffic patterns, installation of certain peripheral items could expedite the opening of the roundabout and provide additional safety during construction (5, pp. 10-9). This could include permanent signing, lighting, and pavement markings. Once work commences, it is desirable for it to be completed as soon as possible to minimize time when the public is faced with an unfinished layout, or where traffic patterns may not be obvious (5, pp 10-9).

The following list presents a possible sequence for staging construction under full traffic situations:

- install lighting.
- install and cover the permanent roundabout signing until construction of splitter islands and central island. *Traffic is expected to follow the new roundabout path upon commencement of central island installation, which requires proposed signing to be in place and uncovered.*
- construct outside widening, as needed.
- reconstruct or resurface approaches, if needed.
- construct splitter islands first, and delineate the central island. At this time, it is necessary to uncover permanent signing and operate the intersection as a roundabout.
- complete the central island.
- prepare final grade and apply paving course for the circulating roadway and entry/exit.

An example of construction under full traffic occurred at the Raymond Avenue and Collegeview Avenue roundabout in the Town of Poughkeepsie, Dutchess County, NY. During Phase I, a temporary right turn lane was constructed on the eastbound approach to Collegeview Avenue while the western portion of the roundabout underwent construction. In Phase II, temporary roadways were constructed on the northbound and westbound approaches to Raymond Avenue as crews constructed the eastern portion of the roundabout. Construction staging and traffic control plans are shown in Appendix C.

Temporary Traffic Control Guidance Applicable for Existing Single-lane and Multi-lane Roundabouts

Pavement repair, striping operations, maintenance of the truck apron, repairs to a splitter island, as well as other activities can require the establishment of a work zone within a roundabout. Appendix D contains four example temporary traffic control plan applications for roundabouts:

- Typical Application 1a, 1b, 1c – Single-Lane Roundabouts: Partial Closure;
- Typical Application 2 – Single-Lane Roundabouts: Partial Closure with Detour;
- Typical Application 3 – Multi-Lane Roundabouts: Inside Lane Closure;
- Typical Application 4 – Multi-Lane Roundabouts: Outside Lane Closure.

Typical Applications 1a, 1b, and 1c illustrate how traffic control may be established when one quadrant of the roundabout is closed to traffic. The examples show how reverse flow through the roundabout may occur with use of flagging operations. Typical Application 2 demonstrates the use of a detour in lieu of reversing the flow through the roundabout when one quadrant is closed to traffic. Typical Application 3 shows how to set up temporary traffic control when work is being performed on the inside lane of a multi-lane roundabout. On a multi-lane approach, a lane drop is used to divert traffic to the inside lane before entering the roundabout. Typical Application 4 illustrates the temporary traffic control needed to perform work within a quadrant of a multi-lane roundabout. In this case, the inside lane is closed throughout the entire roundabout and the outside lane is closed in one quadrant. Traffic is diverted to a single lane before entering the roundabout and reverse flow is used under flagging operations.

These applications can be modified for more than four approaches by replicating each additional approach to reflect similar signing and channelization device spacing, as well as by designing taper and buffer lengths and sight distance spacing to conform to the MUTCD (6) and State or local standards.