

Roundabout Design & Analysis

Plan and design roundabouts



The Most Comprehensive Solution for Roundabout Design & Analysis

Design roundabouts more efficiently with smart geometric and analytic features. Reduce time spent developing roundabout designs during the conceptual, feasibility, preliminary, and detailed design stages.

Focus on engineering designs and gain productivity by reducing manual calculations, repetitions, and iterations. Make informed design decisions with integrated analysis feedback such as fastest path and sight line checking.



Deliver the best geometric design

TORUS® uses an innovative approach by generating roundabout geometries based on vehicle swept path movements. This method minimizes complicated iteration cycles in the design process, allowing you to focus on engineering designs by eliminating taxing calculations, repetitions, and iterations.

With an automated initial geometry setup, it provides a solid foundation for the upcoming design phases by providing immediate dimensional and analytical guidance, helping achieve project goals faster.



Comprehensive design and dynamic editing functions

With its complete set of design and editing tools, you can easily drag and place elements while dynamically updating the design. Add and adjust leg parameters, including entries, exits, alignments, bypass lanes, and high speed entries. Modify splitter islands and introduce pedestrian refuge spaces to enhance safety for vulnerable road users.

Customize sidewalk and buffer widths to prioritize pedestrian safety and create walkable, inclusive environments. Enhance presentation quality with the roundabout footprint hatch tool, applying distinct hatching to improve design visibility and clearly communicate the intended layout.

With the Refined Edge tool, fine-tune lines and arcs to represent the final linework. Use the Adaptive Roundabouts tool to perform vehicle path and fastest path checks on manually drawn roundabouts.

For users with an active GuideSIGN Plus or SIGMA subscription, seamlessly integrate pavement markings and traffic signage plans directly into your roundabout designs. Add essential markings like arrows, yield lines, and lane-use indicators, elevating your projects with tools that ensure clarity and compliance.



Instant conformity notifications

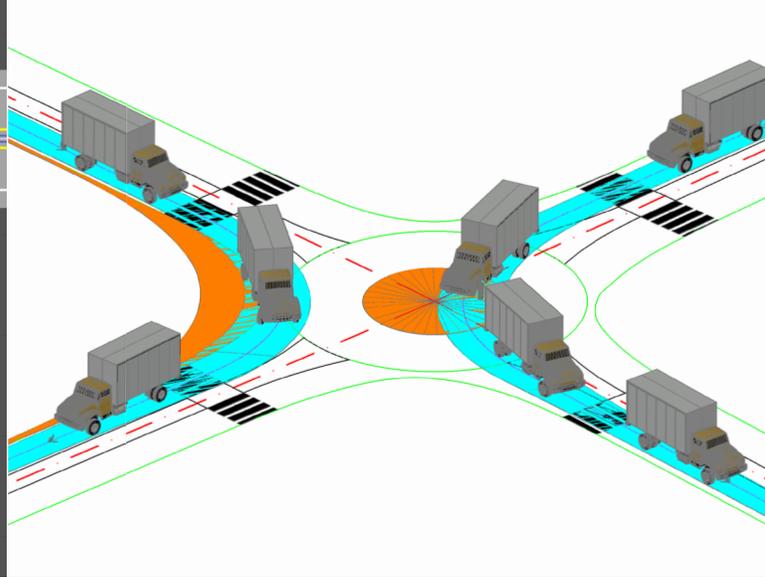
Adjust designs effortlessly with real-time feedback when conforming to guidelines. TORUS provides instant alerts for potential errors or inconsistencies, enabling you to refine designs on the fly while balancing safety, compliance, and operational efficiency.



Built-in design guidelines

The Design Guidelines tool controls the design vehicles, clearance offsets, and parameters for the fastest path and sight lines at the start of the roundabout design process.

TORUS supports a multitude of design guidelines and standards that are defined and preferred by government organizations in the US, Canada and Australia, including NCHRP Report 1043, FHWA 2010, TAC 2017 and Austroads 2018. You can also create new customized roundabout design guidelines by editing and renaming existing ones to suit your project needs.



Design a variety of roundabouts

TORUS' patented Vehicle Envelope Method is used to generate roundabouts in various shapes and forms based on the design vehicle movement.

Efficiently design circular and non-circular roundabouts, single-lane or multi-lane configurations, and turbo roundabouts, addressing special constraints such as right of way, utilities and other infrastructure.



Design for safer infrastructure

With TORUS it is easy to simulate vehicle movements within the roundabout by analyzing and displaying the vehicle path overlap.

Easily add, view, edit, and delete vehicle movements specified in the current design guidelines, or switch out to a special transport vehicle and check if it can access the roundabout safely.

Ensure your design allows for speed consistency by using the Fastest Path tool to calculate the fastest paths and speeds.

Generate various sight lines like approaches to crosswalks, yield lines, circulatory lanes, and more to ensure your design allows enough time and distance for drivers to react to potential hazards.



Visualize the impact with 3D modeling and assemblies

Design your complex projects with easy 3D modeling and visualizations, and add assemblies to your roundabout (shoulder, boulevard, sidewalk, bike lanes, shared-use paths, curb and gutters).

By incorporating terrain elevation into the project drawing, issues not anticipated when designing in a 2D plane are now detected and can be resolved using a 3D space, therefore preventing costly damage to vehicles and the roundabout.



Reporting tools

Reduce your iteration cycle and use the Design Manager to track and explore more design options. TORUS allows you to save, recall, and display multiple roundabout iterations for review and comparison. Different sections of a roundabout can be reported on such as the footprint, inscribed circle, central island circulatory roadway, truck apron, and splitter island envelope.

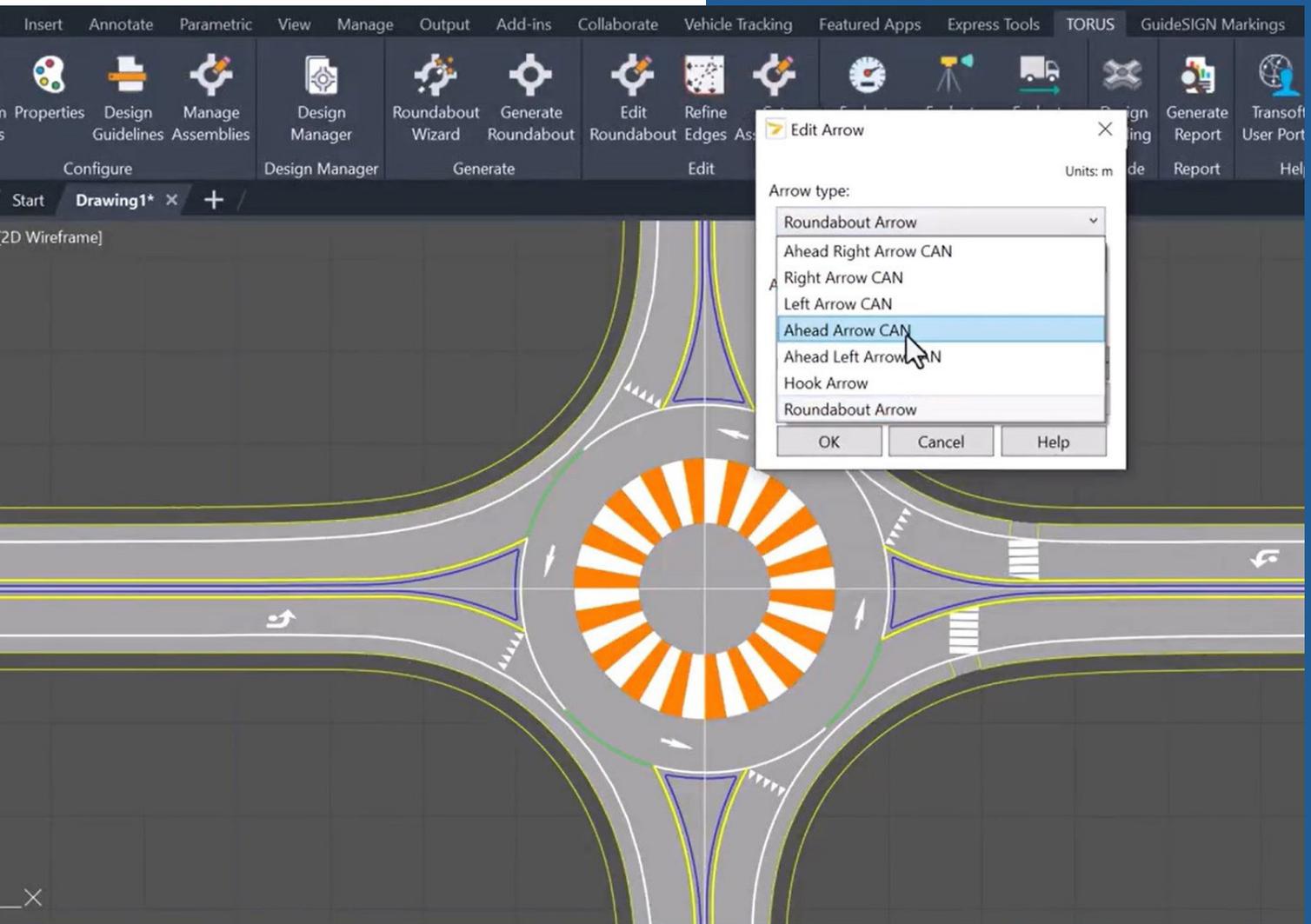
Finally, create and insert the Fastest Path Analysis, Curve Tables, and Summary Reports with all design information to finish your design.

Platform & System Requirements

CAD Platform Compatibility
(64 bit, except Bentley V8i series):

This software is compatible with major CAD platforms, including Autodesk® AutoCAD®, Autodesk® Civil 3D®, Bentley® MicroStation® and Bentley® OpenRoads Designer.

For details on platform and system requirements, including the list of all supported versions, please visit the product compatibility section using the QR code below.



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