A Buyer's Guide to Swept Path Analysis Solution

Overview

Choosing the right swept path analysis solution is a critical decision for engineering teams, transportation agencies, and design professionals. With accuracy, efficiency, and reliability at stake, selecting the best software tool can determine the long-term success of your projects. This Buyer's Guide highlights 17 key questions grouped into three categories: Reputation & Vendor Experience, Accuracy, and 3D Analysis & Automation. These questions will help you evaluate solutions thoroughly and ensure you choose the one that best fits your team's needs.

Reputation

Built on decades of industry expertise and trust worldwide, AutoTURN offers reliable performance, strong support, and licensing flexibility teams can depend on.

Accuracy

Provides guideline-compliant, field-tested precision, so every simulation reflects true real-world vehicle behaviour with confidence.

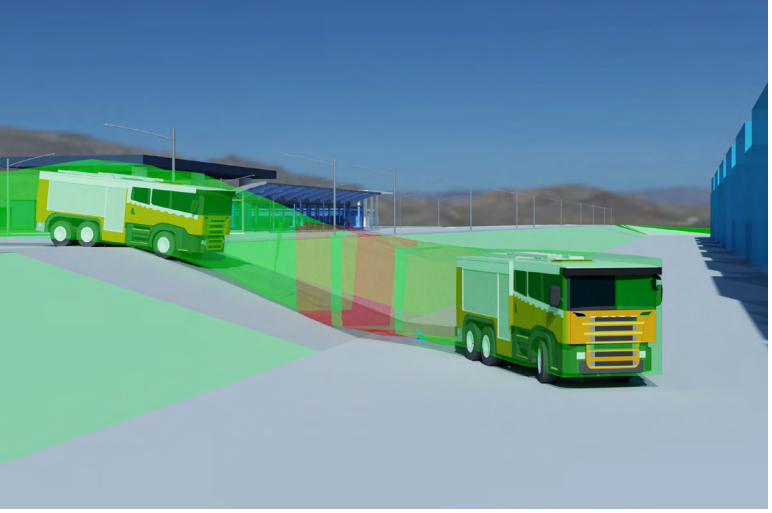
3D Analysis

Delivers true 3D analysis and automated simulation tools that streamline workflows and uncover design insights not visible in 2D.

Reputation & Vendor Experience

1. Does the vendor have industry expertise?

AutoTURN is built by civil engineers with deep knowledge in transportation design. Backed by ongoing research and industry involvement, Transoft Solutions develops tools tailored for transportation professionals, and is committed to building the world's most trusted, innovative and easy-to-use transportation design software.



2. Does the vendor work with industry associations and standard bodies?

Transoft Solutions, a transportation design solutions provider, works closely with leading industry associations, such as AASHTO (US) and CROW (The Netherlands), to help shape transportation design standards. In addition, AutoTURN was used to develop the turning templates for the AASHTO Green Book. Transoft Solutions also works directly with many transportation ministries and major cities around the world.

3. Is the software widely adopted?

With over 30 years of experience, AutoTURN is used in over 142 countries by over 36,000 users, including top AEC firms, transportation agencies, and government departments, making AutoTURN the most widely adopted vehicle turning simulation software. In the United States, 90% of State DOTs rely on AutoTURN for their swept path analysis needs.

4. Is the software easy to use?

AutoTURN's intuitive user interface helps new users get comfortable quickly, making it a user-friendly road safety design solution to use. AutoTURN's built-in tutorials make it easy to learn, while live and on-demand training options are also available to teams who require further support.

5. Does the software fit into existing workflows?

AutoTURN fits right into your existing engineering design process. There is no need to change workflows or learn new inputs. AutoTURN works consistently across major CAD platforms, including Autodesk® AutoCAD®, Autodesk Civil 3D®, Bentley® MicroStation® and MicroStation CONNECT, and Bricsys® BricsCAD®.

For teams that do not use CAD, AutoTURN Online offers a lightweight, web-based solution for creating accurate simulations using .dwgs and .dxfs. AutoTURN Online can also be integrated in Revit® and with Vectorworks®, allowing you to perform swept path analysis seamlessly in one environment.

6. What support and services are offered?

Every AutoTURN client has access to friendly, knowledgeable technical support team by email or phone. For specialized vehicle needs, Transoft Solution's Vehicle Support Services can create custom vehicle models based on your specific vehicle requests, ensuring your designs match real-world requirements and unique project requirements.

7. What licensing options are offered?

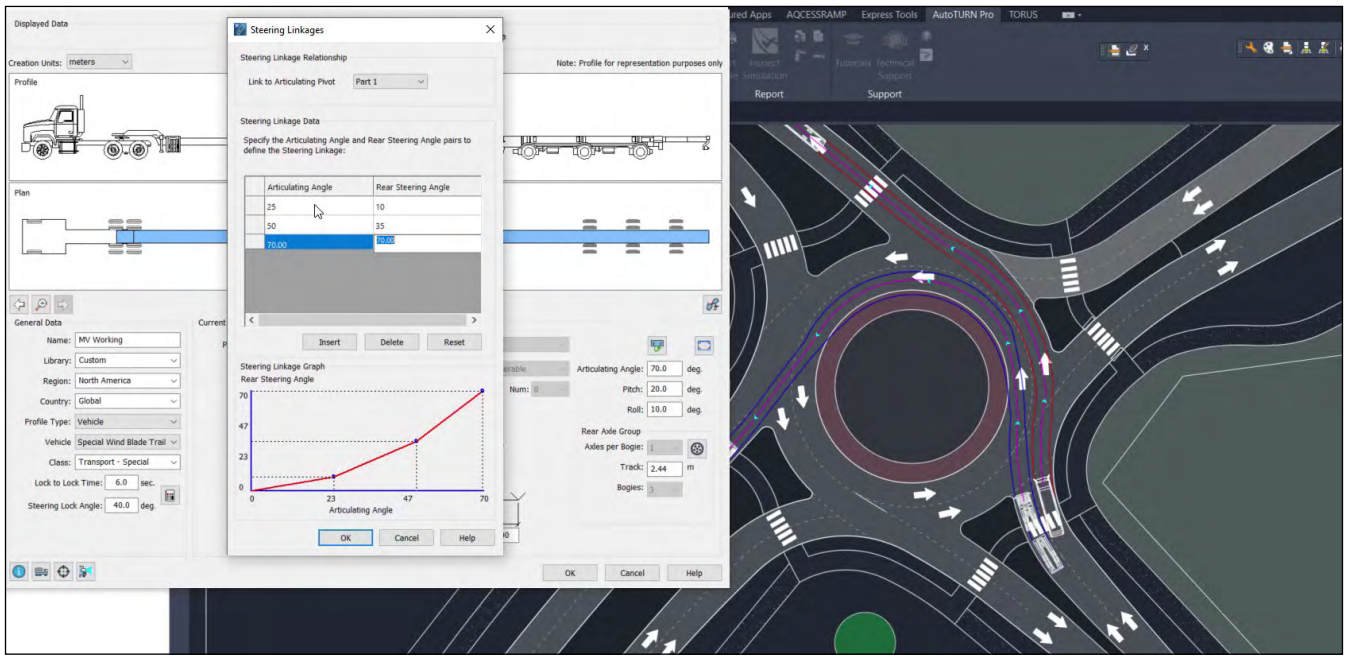
Transoft Solutions offers flexible licensing to fit different team sizes and budgets. The User Subscription License (USL) provides a single-user, annual cloud-based license, ideal for regular users. The Team Subscription License (TSL) gives teams a shared pool of licenses that can be accessed on a first-time, first-serve basis, making it perfect for occasional or overflow users. Both options are easy to manage through My Transoft Portal, and the Transoft team can help match the right licensing model to your project needs.

For teams looking for a web-based option for their vehicle simulation needs, AutoTURN Online offers flexible subscription plans, available monthly or yearly.

Accuracy

8. Has the software been tested in the field?

Accuracy is critical in swept path analysis to ensure results mirror real-life vehicle movements. Transoft Solutions has invested heavily in research to ensure AutoTURN delivers reliable results. More than 10 separate field tests with vehicles, ranging from passenger cars and buses to semi-trailers and wind turbines, have confirmed its accuracy. AutoTURN consistently proves to be within 4.3% of actual swept widths, giving engineers confidence in every vehicle turning simulation.



9. Does the software adhere to design guideline compliance?

AutoTURN includes the industry's most comprehensive and up-to-date vehicle libraries, including specialty vehicles, all developed to align with established guidelines and standards. Transoft Solutions collaborates directly with leading associations to create turning templates, ensuring simulations match guideline specifications with the highest accuracy possible. For other libraries, vehicles are carefully modeled using official dimensions and steering characteristics, so every simulation reflects real-world performance.

10. Are there safeguards against user error?

AutoTURN helps prevent unrealistic simulations by accounting for vehicle speed and turning characteristics. For example, tight turns cannot be performed at high speeds, and the software provides warnings when engineering judgement is needed. These safeguards ensure designs remain accurate and compliant, even for complex, multi-part vehicles.

11. Are reverse maneuvers simulated accurately?

AutoTURN's reverse simulations use the same core algorithm to deliver consistent, reliable results. Users can choose between two methods: the 'pull back' method which moves the vehicle from the trailer's rear, or the 'push back' method which generates the maneuver from the tractor or prime mover. Both reflect real-world vehicle behaviour with precision.

12. Does the software allow the creation of detailed custom vehicles?

AutoTURN offers easy vehicle customization. The software supports a variety of configurable parameters that enable robust and meaningful swept path analysis. This helps you create a realistic simulation based on specific vehicles that meet your project needs. Linkage-based steering and independent rear steering capabilities are unique features based on Transoft Solution's field tests and transportation industry standards.

Our Vehicle Support Services can create custom vehicles for you as well, saving valuable time by eliminating the need to model them yourself.

13. Does the software accurately model the underside of vehicles?

AutoTURN provides detailed definitions of ground clearance at the front overhang, wheelbase, and rear overhang to ensure the accurate analysis of terrain conflicts. The Vertical Simulation Tool evaluates ground clearances and overhead conflicts once a vertical profile is defined, providing advanced oversize vehicle simulation capabilities.

14. Does the software perform sight line analysis?

AutoTURN goes beyond swept path design with sight line analysis. It calculates visibility based on driver eye level, stopping sight distances, interval distances, and object heights, to determine terrain obstructions. Both 2D and 3D simulations can be performed, including horizontal alignment, vertical path geometry, and terrain conditions.

15. Will the software generate a speed profile analysis?

AutoTURN includes a Speed Profile Analysis tool that graphically shows vehicle speed along a selected simulation path. It analyzes path geometry and calculates speeds based on acceleration, deceleration and driver comfort, giving engineers a clear view of performance and safety.

3D Analysis & Automation

16. Does the software offer 3D swept path analysis?

AutoTURN Pro offers the industry's only true 3D swept path analysis, giving engineers a deeper view of potential conflicts that 2D alone cannot detect. With patented 3D vehicle envelopes, the software highlights interactions between vehicles, terrain, and overhead structures, while accounting for limits such as yaw, pitch, and roll. This makes it easy to spot vertical curve or clearance issues, as well as conflicts for oversize and overweight vehicles, ensuring safer and accurate designs.

You can also bring your designs to life by rendering a conceptual 3D simulation of your design, making it easier than ever to illustrate how vehicles will use the road or site design to non-technical stakeholders and clients. The 3D simulation feature is currently only available in AutoTURN Pro running on Autodesk or Bentley CAD platforms.

17. Can simulations be automated?

AutoTURN Pro's IntelliPath® feature enables automated vehicle path generations and swept path analysis, making complex simulations faster and more efficient. Multiple maneuvers for different vehicles can be created in seconds, and paths automatically update when design changes are made. This not only saves time and reduces errors but also makes it easy to evaluate site circulation, traffic calming measures, and other complex scenarios with confidence.

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