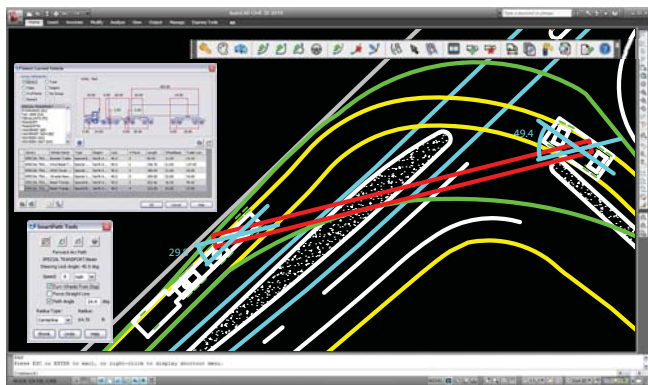


ADVANCED VEHICLE SIMULATIONS

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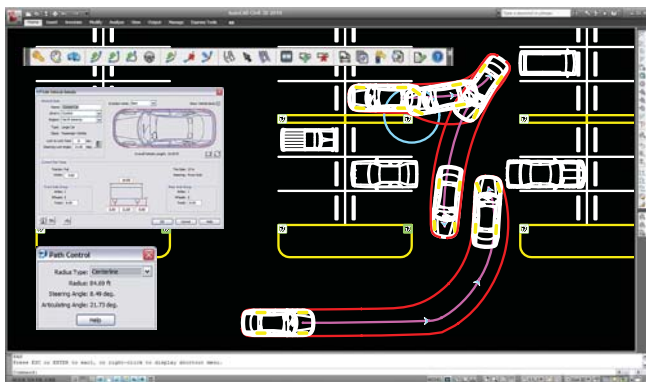
AutoTURN, a comprehensive CAD-based vehicle turn and swept path analysis software, is used by AEC professionals to help evaluate standard design or specialized vehicle maneuvers for all types of roadway, highway, and site design projects. Together with intelligent design features, practical interface, and guidelines from standards such as AASHTO for turn radii, transition curves, super-elevation, and lateral friction, makes AutoTURN **the world's most widely used program of its kind.**



» Check the drive path of large, complex vehicles carrying cargo to prevent damage to the load or surrounding structures.

» **COMMUNICATE VISUALLY**

Modify vehicle box shapes with your own dimensions for filleted or chamfered corners when generating swept path envelopes to check vehicle access in designs with limited spatial areas. Apply realistic vehicle plan views for simulation creation and animations and use Transoft Solutions', **InVision**, to sequence and save simulations to video files for client presentations and review.



» Add a better perspective of visualization to your simulations. Use realistic plan views of vehicles and modify colors, line types, and hatching of vehicle bodies and travel paths.

» **SPECIALIZED TRANSPORTATION SYSTEMS**

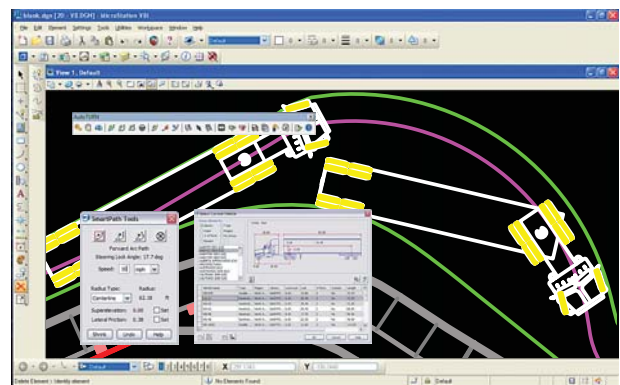
Large scaled construction and sustainability (e.g. wind farms) projects are increasing meaning a growing number of oversized and more complex vehicles navigating roadways. AutoTURN now supports these specialized transportation systems with new vehicle types including wind tower trailer, wind blade trailer, beam transporters, booster trailer, and 19-axle heavy haul.

» **INDEPENDENT REAR STEERING AND CARGO**

Simulate moving heavy loads using independent rear steering for specialized vehicle types. Normal front steering plus manual rear steering allows dual control of the vehicle. As well, cargo size can be defined and set to represent oversized/wide load scenarios.

» **ADVANCED VEHICLE SIMULATIONS**

Use **SmartPath** tools technology for performing vehicle maneuvers and swept paths to simulate vehicle movements in tight turning conditions. Supply basic parameters and the intuitive **hunting** concept prevents your vehicle (and any trailing unit) from encroaching on curbs, medians, sidewalks, and other vehicles.



» Eliminate the need for judgmental oversteering. Speed-based oversteer options gives realistic representations of how vehicles maneuver in tight conditions.

THE WORLD'S MOST WIDELY USED VEHICLE TURN SIMULATION SOFTWARE

AutoTURN is the latest technology for vehicle swept path analysis and modeling. Simulating forward and reverse vehicle turn maneuvers is now quick and easy due to the **four SmartPath Tools interactive drive modes** that incorporate speed, superelevation, lateral friction, and turn radius algorithms.



» GENERATE ARC PATH

Quickly and easily create turn simulations, such as through roundabouts, by dragging your mouse and clicking from point to point.



» GENERATE CORNER PATH

Produce simulations using an entrance and exit tangent with the option of setting a vehicle's speed and radius – ideal for designing intersections.



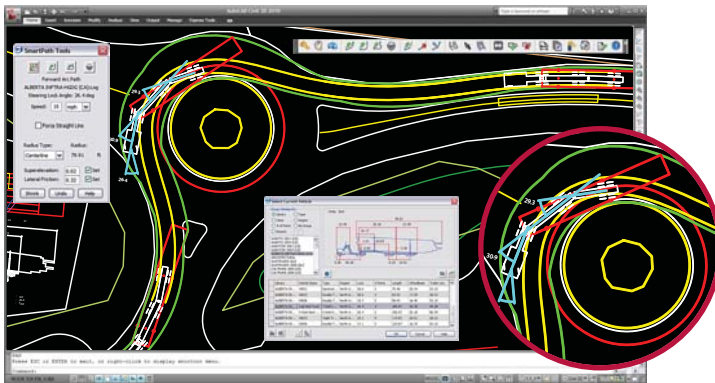
» GENERATE OVERSTEER CORNER

Offers a realistic representation of how a vehicle negotiates tight turning conditions; particularly useful for multi-part, articulated vehicles.



» STEER A PATH

For areas with limited maneuvering space, you can freely drive a vehicle at speed by moving the mouse in the desired direction.



ASSESS VEHICLE MANEUVERS EASILY

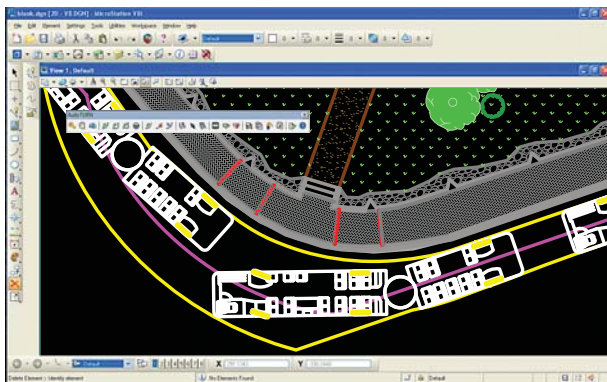
Carry out multiple turning simulations using different vehicles and configurations to see if they can be accommodated by your designs. Even complex turning situations (roundabouts) are quickly and easily evaluated using powerful features like the **Generate Oversteer Corner** tool.

Other advanced options, like the ability to set steering linkage ratios between the front and rear axle groups of multi-part vehicles, provide a more realistic representation of how a vehicle would handle tight turning situations - very useful when generating articulated bus and truck movements.

« Evaluate different vehicle turning scenarios for complex roadway geometry.

PERFORM FUNCTIONAL PLANNING

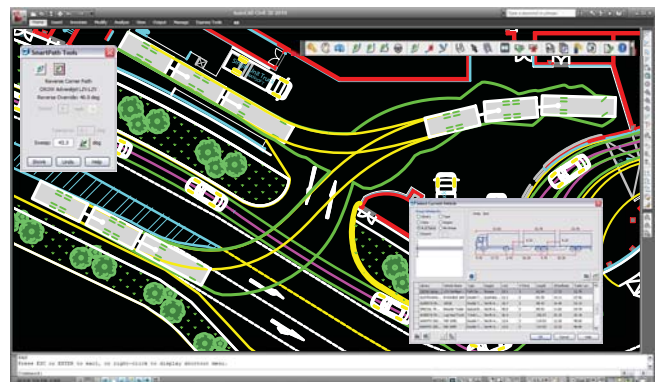
Ensure a vehicle can meet minimum required lateral clearance while turning at low speed with AutoTURN's **Place Offset Simulation** tool. Just select an offset distance and a roadway element, such as a curb or edge of pavement, and the software automatically draws the optimal path for you maintaining a constant clearance.



» Create a vehicle path that maintains a minimum clearance from a roadway element (e.g. curb, barrier, paint line, pavement edge, etc).

MODEL REAL WORLD SITUATIONS

Take the driver's seat when managing design challenges. Use the functionality of the **SmartPath** tools in a single simulation to model vehicle movements for site planning. Negotiate turns for tight entrances and aisle ways and use the **Select Sweep** tool to set vehicle alignment to existing CAD geometry for carrying reverse maneuvers for vehicles to a **maximum of 3 parts**.



» Powerful features make vehicle reverse maneuvers easier than ever. Hatch vehicle body envelopes and swept paths to check for clearances.

» TURN SIMULATIONS AND SWEEPED PATH ANALYSIS

- **SmartPath** tools for forward and reverse vehicle turn simulations in one continuous motion
- Perform 3-part vehicle reverse maneuvers to any vector
- Generate arc, oversteer, offset, and reverse corner simulations
- Place vehicle simulations on arcs, polylines, complex chains, or splines
- Force a straight line simulation for a vehicle traveling along an arc path
- Generate vehicle swept path envelopes from user-defined vehicle shapes with chamfered corners or filleted radii
- Define and hatch either the vehicle body or the vehicle's outer swept path envelope during a turn simulation
- Track vehicle body clearances with user-defined parameters

» SPECIALIZED TRANSPORTATION SYSTEMS

- Create and simulate vehicles with independent rear steering systems (including crab steering for supported types)
- Ability to numerically input or use the mouse wheel to dynamically control the independent rear steering angle for specialized vehicles
- Create and simulate vehicles with telescoping trailers
- Draw cargo for a vehicle simulation and combine the cargo envelope with the vehicle body envelope
- Define cargo size and set limiting factors for vehicle configuration

» PRESENTATION CAPABILITIES

- Use realistic vehicles plan profiles for simulations and animations
- Manage vehicle animations with Transoft Solutions' presentation software, **InVision**, to create timed and sequenced events. Export files to video formats for PC viewing
- Animations can be looped continuously for demonstrations

» POWERFUL DESIGN ABILITIES

- Set steering linkage ratios for ranges of steering angles between front and back wheels for multi-axle semi-trailers, trucks and articulated buses
- Specify tire sizing (width and diameter) and space between the tires on the same axle for a vehicle
- Choose track width for axle groups independently within a given part
- Place, remove, or recall vehicles, active simulations, and active pathways
- Modify and edit drawn simulations using **Path Control**
- Add conical lines of sight to check mirror views, blind spots and headlight paths
- Template generator for creating standard or user-defined turning templates

» DESIGN AND LIBRARY DISPLAY

- Real-time display for vehicle turn radius at the current speed during design or editing
- Vehicle library in database format with syncing of shared custom content
- View and sort library to show by region, type, number of parts, class, and vehicle characteristics

» VEHICLE LIBRARIES

- Includes national design vehicle libraries for: US (AASHTO, Caltrans), Canada (TAC), Australia (Austroads), UK, France, Germany, Italy, Netherlands, Austria, Norway, Sweden, Switzerland, Czech, Denmark, South Africa, and New Zealand
- Updated vehicle libraries: Florida, Alberta, Netherlands, Sweden
- Use specialized vehicle types including: Wind Tower Trailer; Wind Blade Trailer; Beam Transporter I and II; Booster Trailer; 19-axel Heavy Hauler
- Other vehicle libraries: Architectural and Transoft Solutions' Realistic Type

» VEHICLE CUSTOMIZATION

- Apply user-defined vehicle dimensions and profiles
- Create vehicles or types for specialized transportation (e.g. rear steering)
- Commonly-used types include: fire trucks, fire engine pumpers, ambulances, garbage collection, semi-trailers, buses (articulated and double articulated), sport utility, pickup, and forklifts
- Add user-defined vehicles and types to the library database
- Work with **AutoTURN Extended Vehicle Libraries** add-on content

» REPORTING FEATURES

- Generate turn simulation reports showing vehicle speed, path lengths, and start conditions at each section of the simulation
- View graph report of a vehicle's steering angle and multi-part vehicle's articulation angles when generating or placing a simulation
- View override/path angle for independent rear steering vehicles
- Data can be exported to spreadsheets and standard document formats

» TECHNOLOGY ADVANTAGES

- 'Heads Up' display and controls during design
- Comprehensive help files and interactive software tutorials
- Checkout AutoTURN network seats to laptops for field work or client presentations
- Security permissions allow administrators to apply limits to the level of vehicle customization

» COMPATIBILITY

- AutoCAD® 2004 – 2010 series of products (except AutoCAD LT)
- MicroStation® V8.1, V8.5, V8 XM, V8i
- Full support for 64-bit operating systems
- System requirements:
Workstation: Windows® XP, Vista, Windows® 7
Network: Windows® Server 2000, 2003, 2008

For more information on AutoTURN
visit our website at

www.transoftsolutions.com

