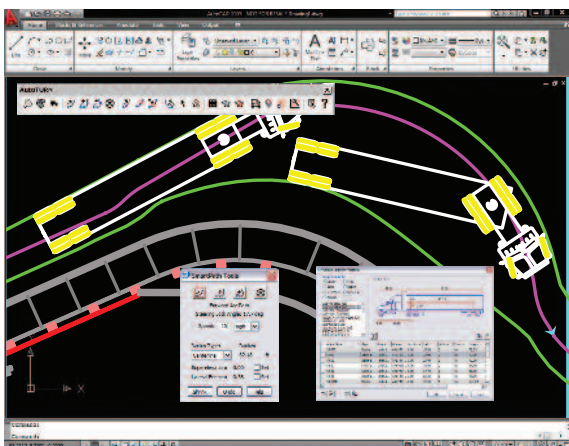## ADVANCED VEHICLE SIMULATIONS

6

AutoTURN, a comprehensive CAD-based vehicle turn and swept path analysis software, is used by engineers, architects, and drafters to help evaluate 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.**
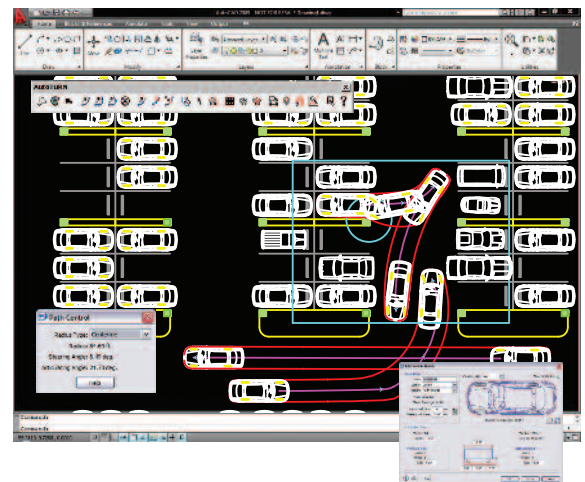
» DESIGN OUT OF THE BOX

Modify default vehicle box shapes with your own dimensions for filleted or chamfered corners when generating swept path envelopes. This means a more refined process for checking vehicle access in designs with limited spatial areas for movements such as parking garages, lots, or loading facilities.

» COMMUNICATE VISUALLY

Increase the level of realism in presentations to allow non-technical stakeholders to more widely relate to your design by applying realistic vehicle plan view details for simulation creation and animations. Then use these same design drawings with our new software, InVision, to sequence and save the vehicle simulations to video files for client presentations and review of designs.

›› 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.

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

» INTUITIVE VEHICLE ANALYSIS

Take the "Smarter" Approach - Use SmartPath Tools technology for performing and testing vehicle maneuvers and swept paths. The four interactive drive modes offer immediate visual results and make it easy to simulate realistic vehicle movements in tight turning conditions.

"Hunting" for the Right Solution - Supply basic parameters and AutoTURN does the work for you! The intuitive hunting concept means less trial and error than ever before. This process also prevents your vehicle (and any trailing unit) from encroaching on curbs, medians, sidewalks, and other vehicles.

THE WORLD'S MOST WIDELY USED VEHICLE TURN SIMULATION SOFTWARE

AutoTURN is the latest technology for vehicle swept path analysis and modeling through road designs. The software's SmartPath Tools four interactive drive modes easily simulate forward and reverse vehicle turn maneuvers while incorporating engineering algorithms that account for speed, super-elevation, lateral friction and turn radii.

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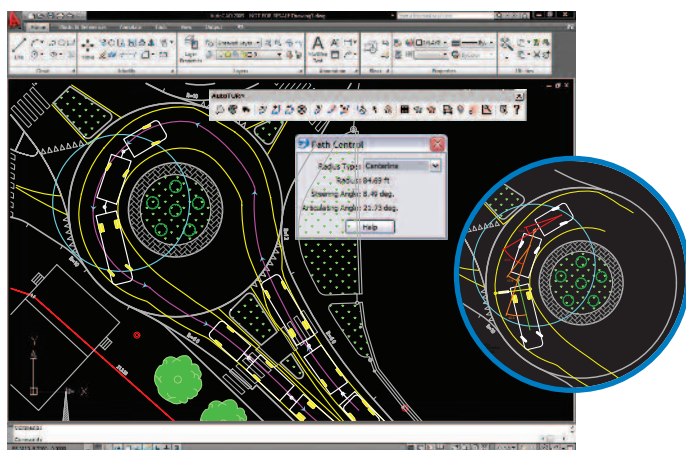
›› GENERATE OVERSTEER CORNER
Offers a realistic representation of how a vehicle negotiates tight turning conditions; particularly useful for multi-part, articulated vehicles.

›› 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.

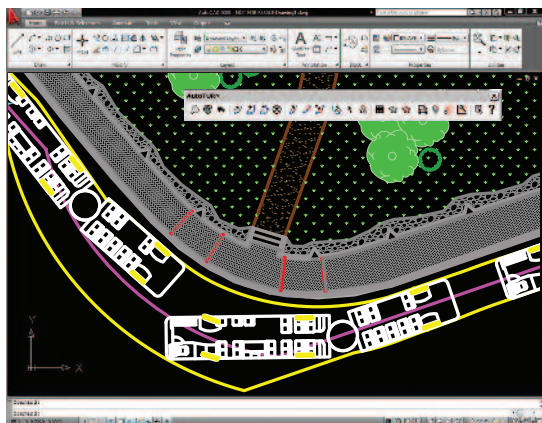## ASSESS VEHICLE MANEUVERS EASILY

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.
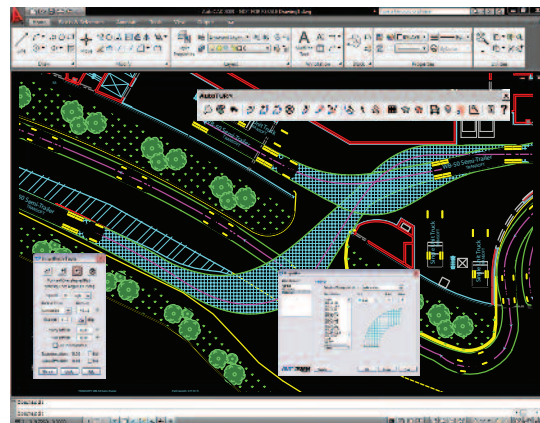
PERFORM FUNCTIONAL PLANNING

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 (i.e. curb, barrier, paint line, pavement edge, etc.).

MODEL REAL WORLD SITUATIONS

Take the driver's seat when managing design challenges. Use the combined 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 out multi-part reverse maneuvers.

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

DESIGNS AHEAD OF THE CURVE

AutoTURN®
Version 6.0

» TURN SIMULATIONS AND SWEPT PATH ANALYSIS

- SmartPath tools for performing forward and reverse vehicle turn simulations in one continuous motion
- Generate arc, oversteer, offset, and reverse corner simulations
- Place vehicle simulations on arcs, polylines, complex chains, or splines
- 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
- Define the maximum sweep area a vehicle can negotiate
- Sweep angle tool simplifies the selection of turn angles for forward and reverse maneuvers

» PRESENTATION CAPABILITIES

- Use realistic vehicles plan profiles during simulation creation and animations
- Manage vehicle animations with Transoft Solutions' presentation software, **InVision**, to create timed and sequenced events
- Saved files can be exported into selected video formats for viewing on any PC with popular video players
- Animations can be looped continuously for demonstrations
- Animation options include full-motion and frame-by-frame output

» 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
- 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
- Place simulations on a specified layer within the drawing file
- Add conical lines of sight to check mirror views, blind spots or headlight paths
- Input lateral clearances to check on vehicles and loads
- Calculate steering lock angles for user-defined vehicles
- Template generator for creating standard or user-defined turning templates
- Place simulations on a chosen layer (current, specified, or new)
- Automatically save a new simulation layer within the CAD environment

» 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 when generating or placing a simulation
- View graph report of a multi-part vehicle's articulation angles when generating or placing a simulation
- Data can be exported to spreadsheets and standard document formats

» VEHICLE LIBRARIES

- Expanded vehicle libraries for: US (AASHTO, Caltrans 2008), Canada (TAC), Australia (Austroads), UK, France, Germany, Austria, Netherlands, Czech, Denmark, South Africa, New Zealand
- Updated vehicle libraries for: Italy, Norway, Sweden, Switzerland
- Other vehicle libraries: Architectural and Transoft Solutions' Realistic Types

» VEHICLE CUSTOMIZATION

- Apply user-defined vehicle dimensions and profiles
- Create vehicles or types for specialized transportation (i.e. rear steering)
- 8 new types for custom vehicle creation (81 total)
- 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
- Import and export legacy VCL files

» 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

» TECHNOLOGY ADVANTAGES

- 'Heads Up' display and controls during design
- Comprehensive on-line help system 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
- Navigation panes and category breaks make it easier to find and set properties

» COMPATIBLILITY

- AutoCAD® 2004 - 2009 series of products (except AutoCAD LT)
- MicroStation® V8.1, V8 2004 (V8.5), XM
- System requirements:
  Workstation: Windows 2000, XP, Vista (32-bit)
  Network: Windows® Server 2000, 2003

For more information on AutoTURN
visit our website at

www.transoftsolutions.com

Transoft
solutions

AutoTURN® Version 6.0

"Every time that I design a road and when it requires having the best design possible, AutoTURN is always one of my tools."
John Kocan, SNC-Lavalin, Canada

"I was impressed with the new features and asked several people to watch me demonstrate some commands on their sites. Everyone was impressed."
Kimley Horn, USA

"AutoTURN is the best model we are aware of to determine the off tracking characteristics of vehicles on turns of various radii and central angles."
CALTRANS, California, USA

"The ability to construct paths by moving the vehicle (SmartPath "Generate Path" Tool) was most useful to me and it worked well. This tool is intuitive in use and I believe will allow me to do the same work faster."
Louisiana DOT, USA

"We have successfully demonstrated design validity using AutoTURN on more than a dozen recent projects. Clients have consistently commented that they can understand our design solutions quickly and they have approved designs in shorter time frames."
Gary Finley, UTI Inc, USA

WHY USE AUTOTURN?

SAVE TIME. SAVE MONEY
AutoTURN lets you evaluate vehicle accessibility options in minutes. And less time spent = lower project costs.

MORE TIME FOR DESIGN
AutoTURN's 'heads up' design method together with its intuitive features means you're working much more efficiently.

KEEP PRODUCTIVITY SPINNING
One-click vehicle placement and path editing capabilities make updating changes to a simulation much faster

GET YOUR POINT ACROSS
Demonstrate visually how your designs will meet project requirements for quicker client approvals.

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Please note that some products are only available in specific regions and languages.

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