Design & Evaluate Intersection Concepts

Safety-oriented intersection layouts done efficiently

TRANSOFT SOLUTIONS

NEXUS

Connecting Engineering Performance & Productivity

Design intersections with optimal safety and operational standards in much less time compared to traditional drafting methods.

NEXUS® modernizes the way engineers plan and design roadway intersections. With each design component being linked and interdependent, NEXUS allows you to evaluate and monitor the performance of the entire design as changes are made—speeding up the development of intersection geometry and surface draining in one single, efficient solution.
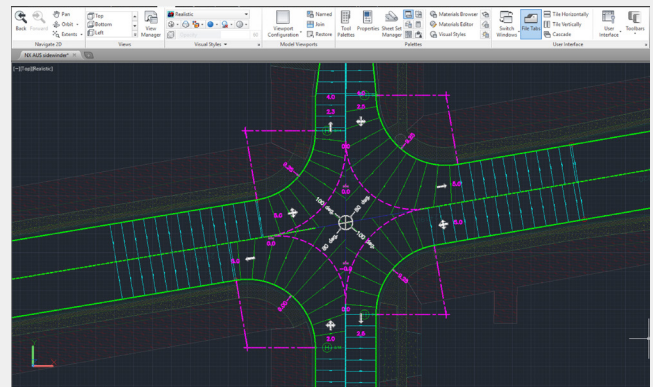
Greenfield, infill or retrofit intersection

Generate intersections using any or a combination of the different methods such as lane configuration, capacity conditions, leg templates and even intersection templates. Further refine by defining your corner island envelope including slip lane width, entry and exit offset choosing from three corner geometry types (arc, biarc, triarc), or define bay taper ratio and auxiliary taper type (including straight line taper, symmetrical, reverse curve, asymmetrical reverse curve, partial tangent taper) with an easy mouse click.

Unique to NEXUS, design your corner geometry with our patented Vehicle Envelope Method where the edge of the slip lane is created with a chosen vehicle turning movement that governs the corner island envelope. Easily generate vehicle movements for the intersection and adjust the geometric design accordingly.

Powerful intersection editing capability

Edit virtually every element of an intersection to quickly refine your design by modifying the parameters for lane configurations, auxiliary lanes, road legs, bike lanes, median and corner islands, and even crosswalks. As each component is interrelated, NEXUS will automatically update the entire design to fit with the changes.

What used to take hours or days can be done in a fraction of the time with NEXUS, such as adding and removing legs from the intersection, or replacing, rotating, and shifting geometry or alignments of a selected leg.

Perform design vehicle checks

Evaluate vehicle movements through an intersection using AutoTURN's compatible design and check vehicle simulations. By setting the turning radius, speed, entry and exit lanes, and selecting the design vehicle, movements are easily performed to check the geometry of an intersection.

Keeping safety in mind

Make safety a priority in your intersection design with NEXUS by designing roads for users other than cars and trucks.

Add bike lines with Bicycle Lane Symbol schematic pavement markings and insert crosswalks with the ability to define the start position and rotation and set crosswalk parameters for line width, width, and start position.

Assess the safety issues of an intersection for vehicle turning maneuvers, left turns on major streets, and at the critical points by using sight line analysis on right-of-way traffic and landscaping features. Set up an intersection conflict point diagram with different sections where vehicle paths cross, merge, and diverge to see where accidents can potentially occur.

Check how different design geometry affect the safety operations of an intersection, by evaluating any critical points, such as pedestrians waiting to cross for the stopping distance and sight distance.

Road grading functionality

Quickly develop intersection road surface grading and display drainage patterns in 3D, even within CAD applications. Work with easy-to-use tools to refine cross slopes and curb profiles like the ability to add slopes at stations within a cross slope region, and add a cross slope region to a corner region. You can check maximum cross slope or minimum alignment slope in the design easily, or just add, edit, and move the Vertical Points of Interest (VPI) to a specific station and elevation.

In addition, the developed intersection alignments can be exported to a LandXML format to work with other vertical CAD products. With grading applied, the intersection design's high and low points can be analyzed in 3D. NEXUS can create a 3D grading model of an intersection with vertical profiles designed for each of the alignments.

Create intersection reports

Create, compare, and share your data from a previously generated intersection design with an Intersection Summary Report and a Capacity Conditions Report detailing key design elements, with information on the intersections that can be exported to a .txt format file.

Graphical and text displays in the drawing make keeping track of all your changes simple and easy.

Design manager

With NEXUS, you can save, manage, recall, and compare multiple intersection design iterations within a single CAD drawing without the need for CAD layer management. This creates a much simpler design process by helping the preliminary design move more quickly to the approval and final design stage.

State-of-the-art software for roadway intersection planning and design

Design vehicle check
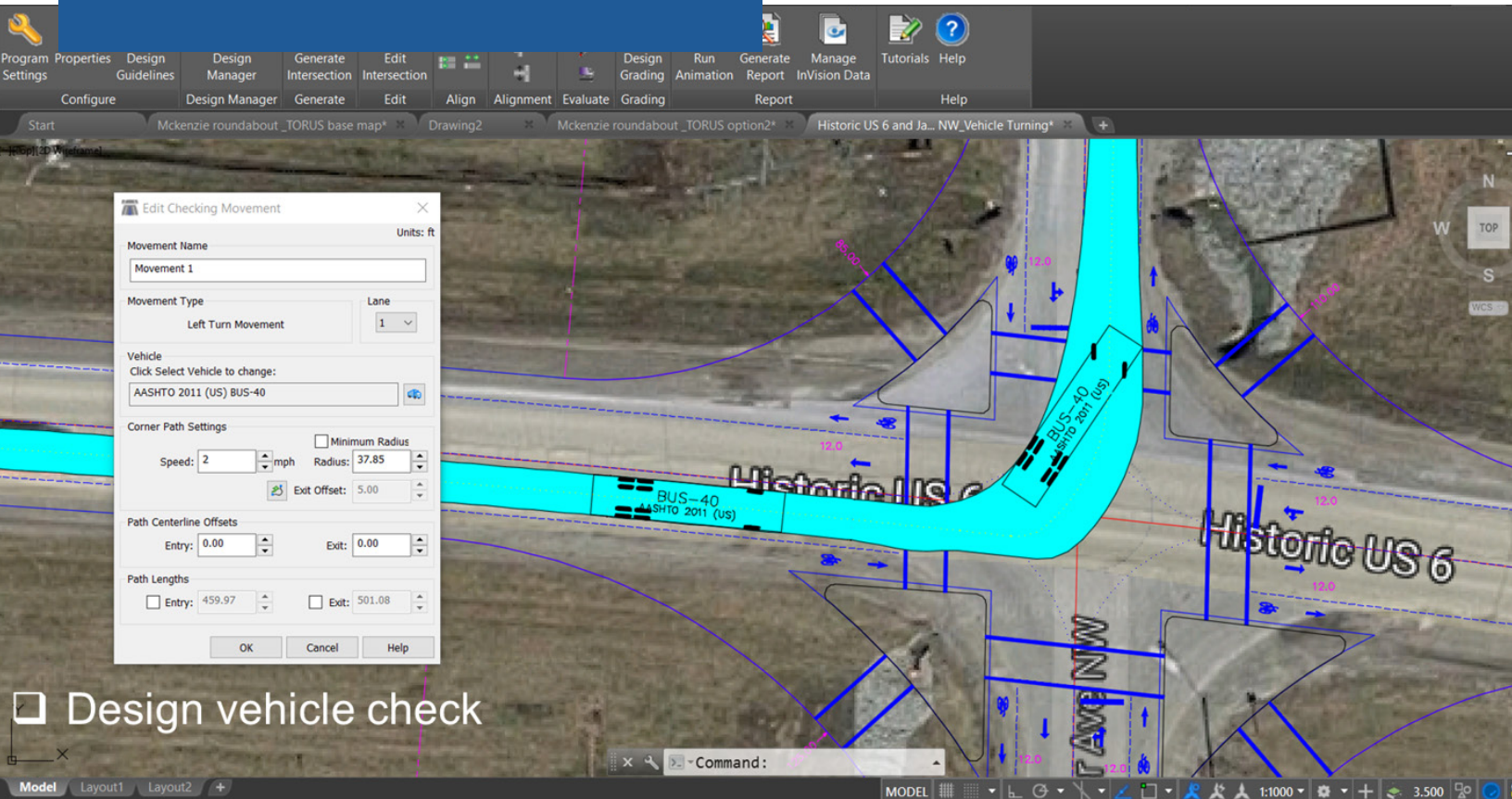
Platform & System Requirements

CAD Platform Compatibility:

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

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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