

Conceptualizing Roundabout Designs and Trying Out Multiple Solutions

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Class summary

- Sketching roundabouts
- Standards compliance
- Vehicle speeds
- Lines of sight
- Traffic capacity
- Swept path tracking
- AutoCAD Civil 3D corridor(s)
- Freeform modeling and experimentation

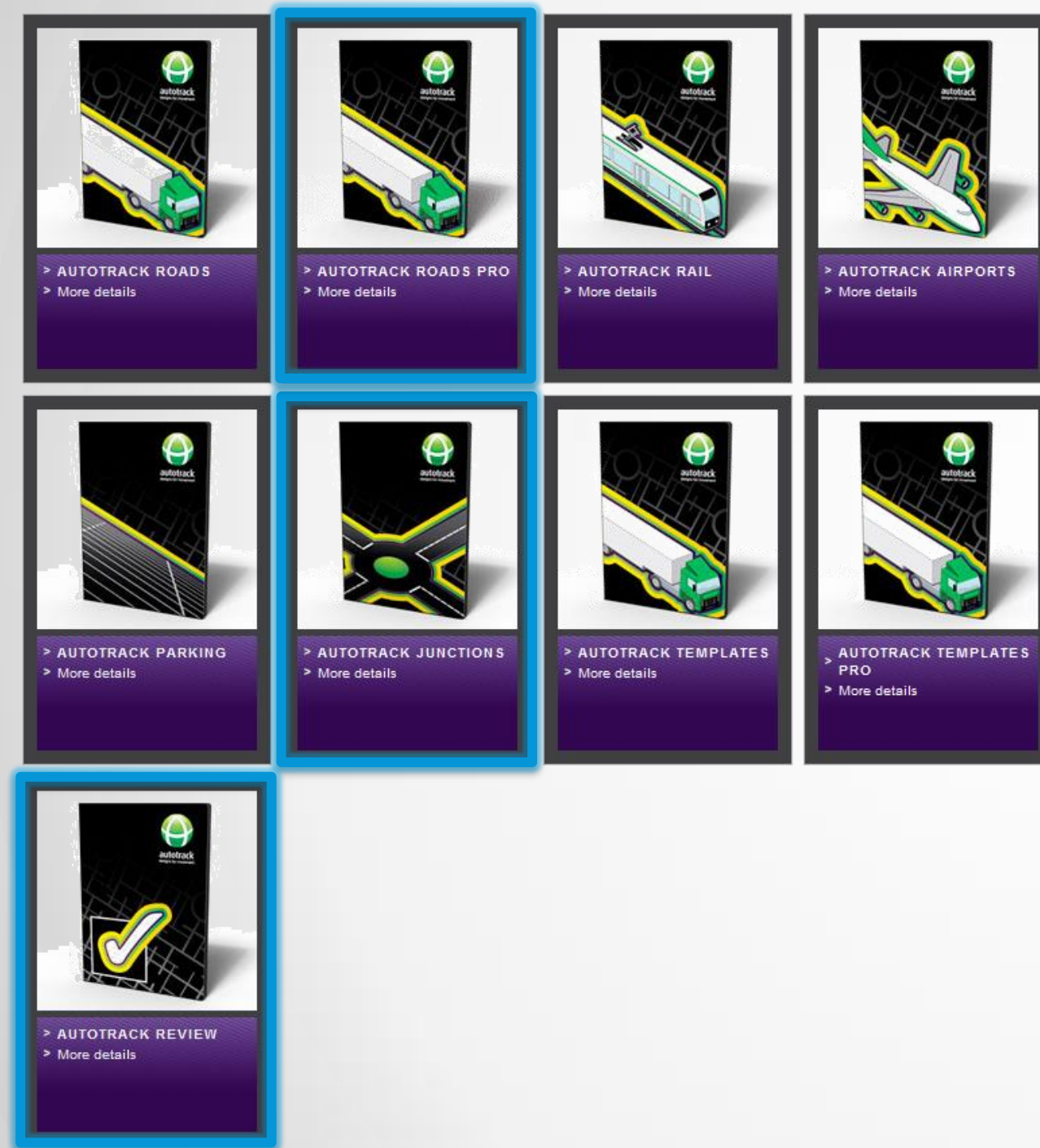
Key learning objectives

At the end of this class, you will be able to:

- Sketch roundabouts in Autodesk Vehicle Tracking 2014
- Analyze roundabouts through design
- Consider safety against capacity, alongside cost
- Apply BIM to roundabout design
- Consider adopting an accelerated editing workflow
- Budget for design changes late into detailed design
- Allow for
- Visualize roundabouts designs in 3D
- Rapidly conceptualize and brainstorm roundabout design concepts

Autodesk Vehicle Tracking 2014

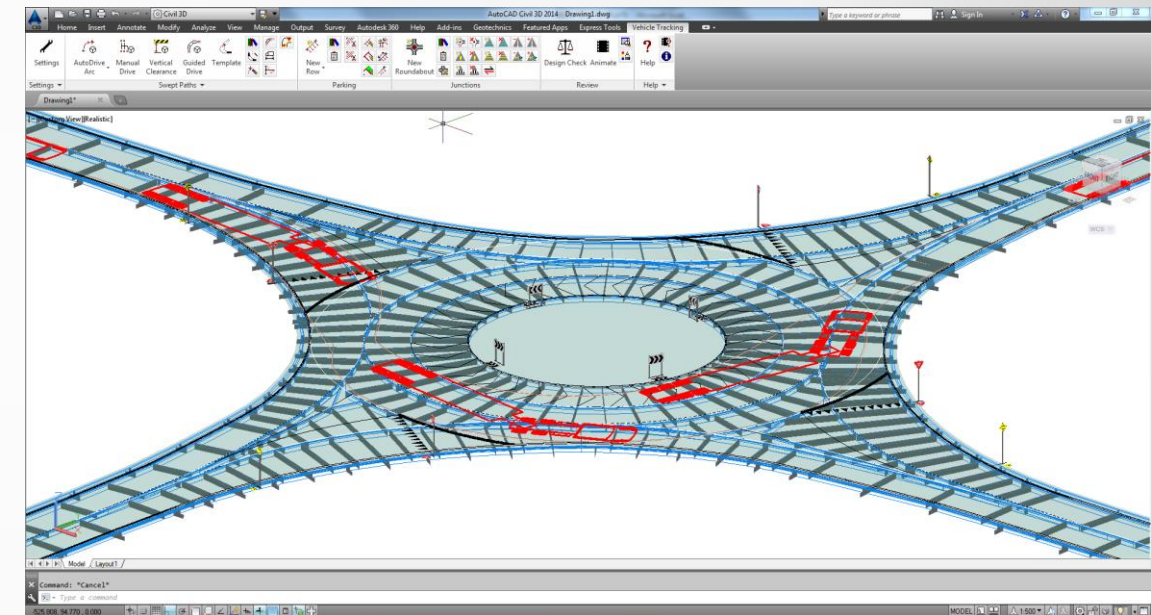
AutoTrack technology



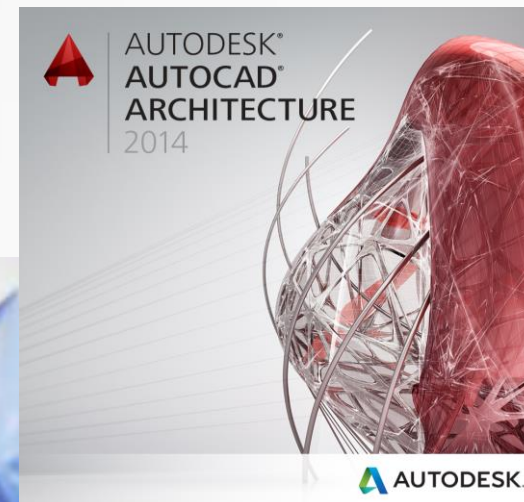
Field proven technology

- 3D Swept Path Analysis
- Interactive and 3D roundabout design
- Design checking, model auditing and review

Hello Autodesk Vehicle Tracking!



Works with AutoCAD platform 2013 & 2014 products



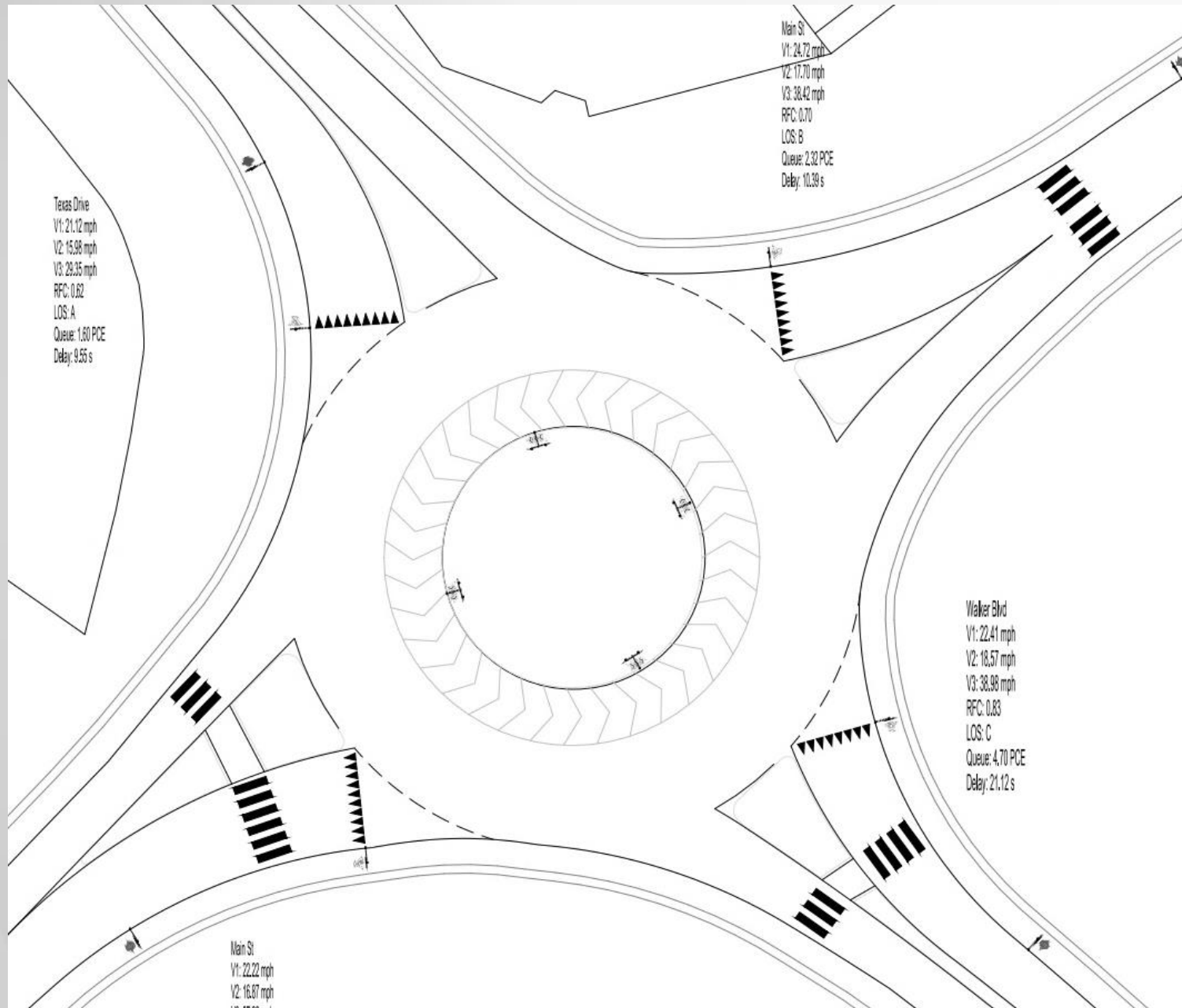
www.autodesk.com/vehicle-tracking for more

A segregated workflow

Current design practice

- Often restricted to a single design iteration
- A lack of available project time and budget
- The opportunity to alter designs is limited
- Though multiple obstacles can be encountered
- ...and the solutions are often geometric edits
- Edit can affect the entire intersection design
- Common for design data to disconnect
- Deliverables traditionally consist of:
 - documentation in the form of 2D plan and 2D profile

Current design practice



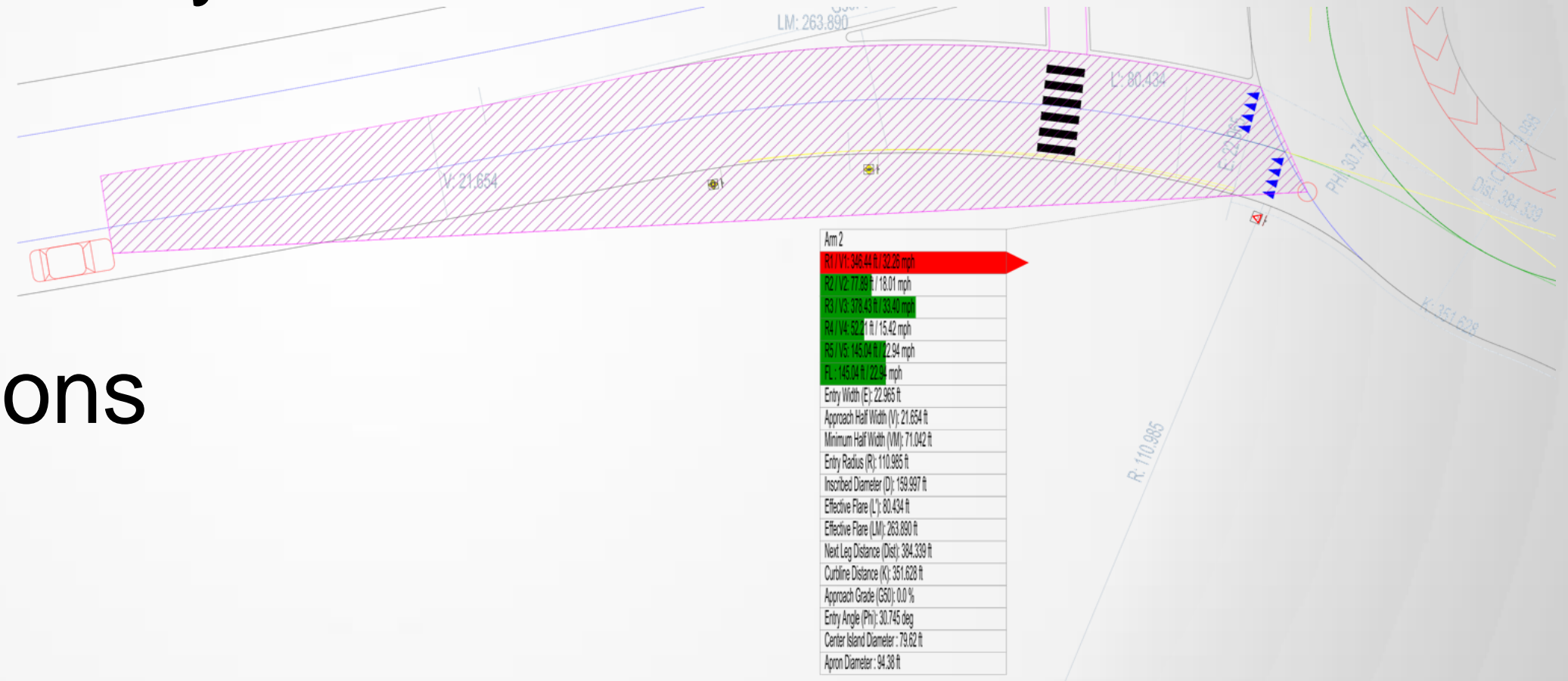
- Design documents
- Vehicle speeds
- Visibility
- Capacity
- Turning paths
- Vertical clearance
- Ped crossings
- Row
- Signing

Smarter designs

Plan

Plan layouts represent horizontal geometry, so why not maintain horizontal analysis *within* the model?

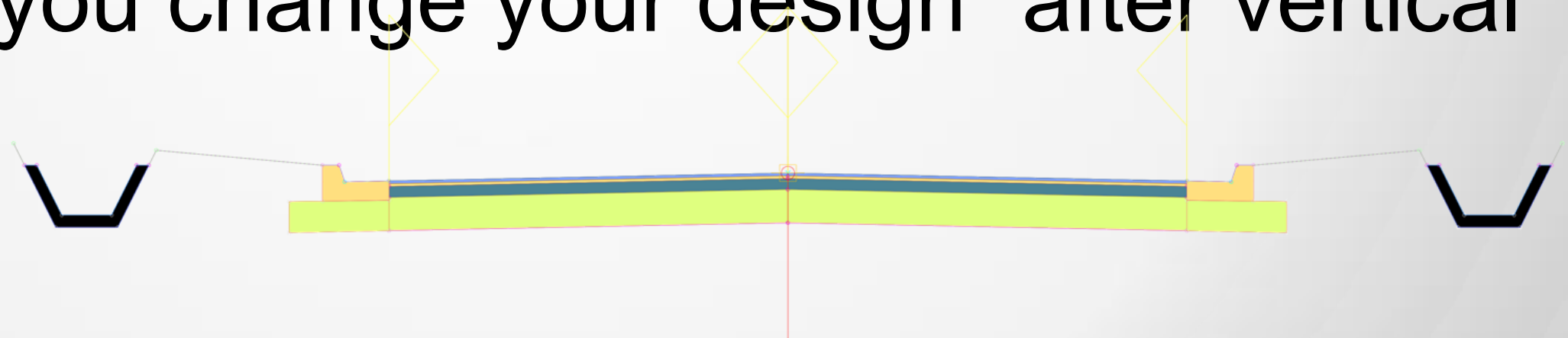
- Speed
- Visibility
- Swept Paths
- Capacity dimensions
- Signage



Documentation is a fixed design snapshot.

Profile

- How long do you spend tying in vertical profiles?
- How do you communicate this to construction?
- Sections vary greatly into & around the circle due to:
 - Tapers
 - Asymmetry
 - Existing site elevations
- How often do you change your design “after vertical”?



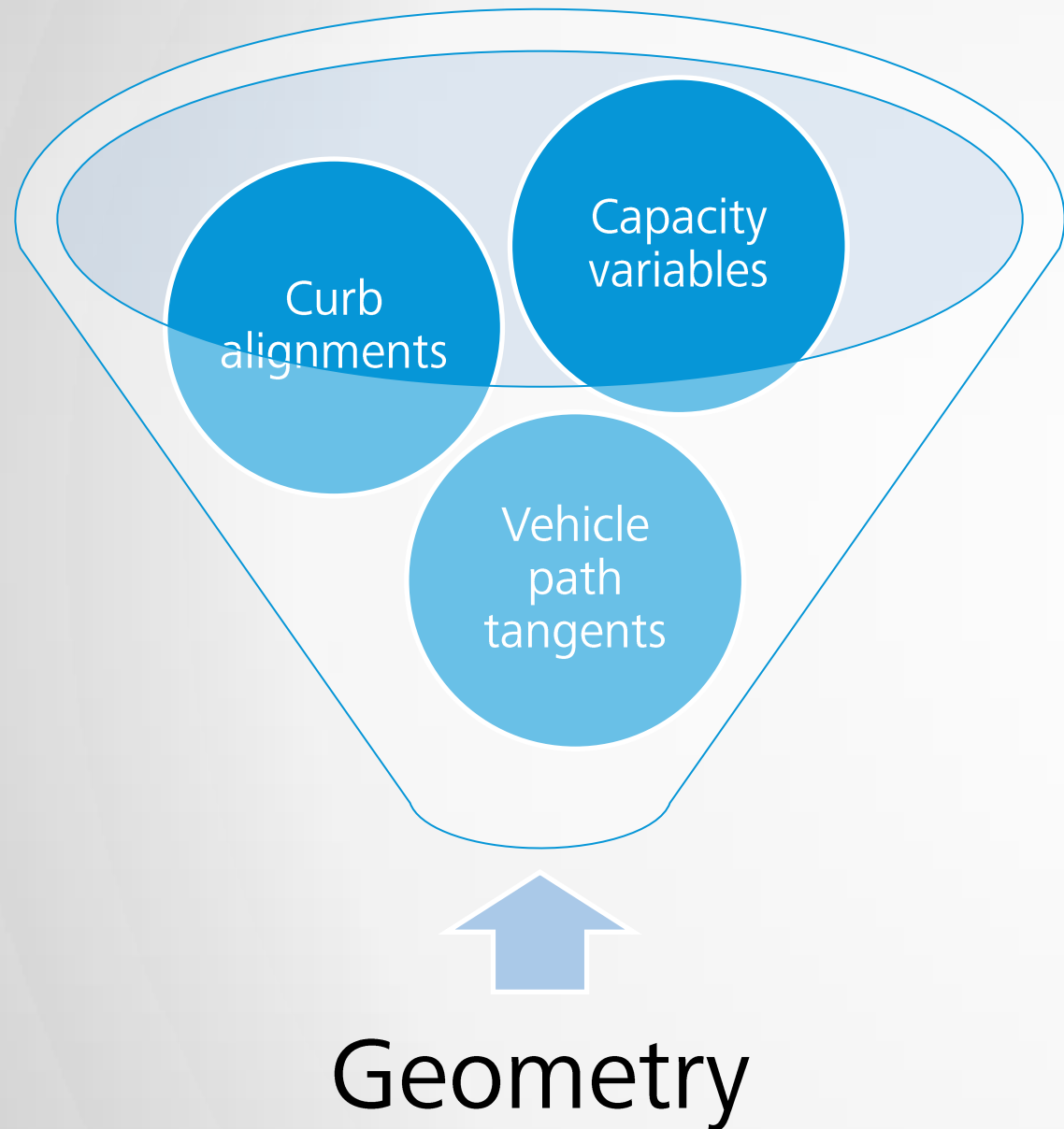
True 3D

Imagine one single AutoCAD® Civil 3D corridor for the entire intersection...

...automatically updated by edits made to the horizontal geometry.

Allowing the designer to utilise familiar two dimensional workflows to produce highly detailed 3D models.

Data continuity



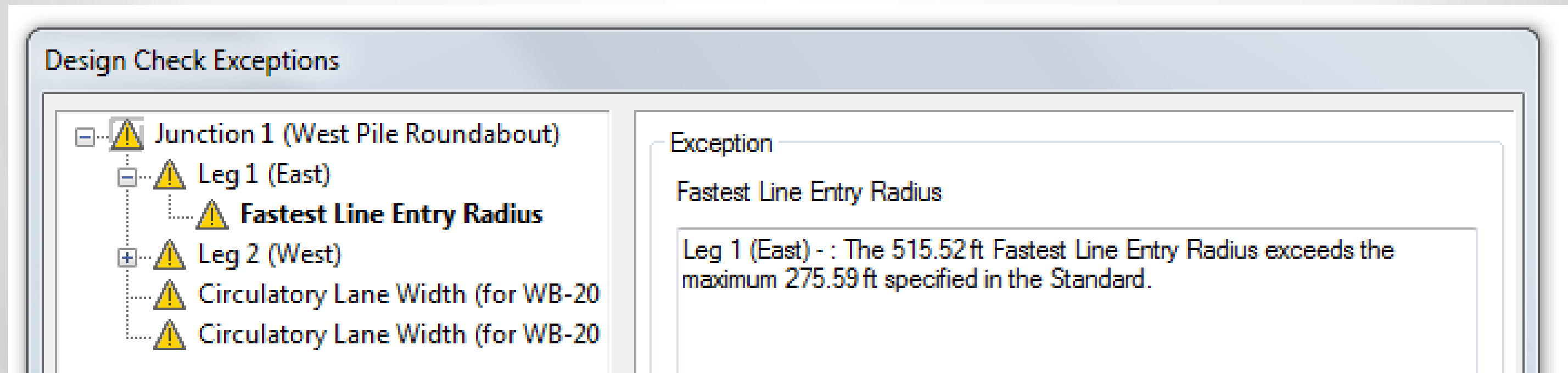
By maintaining analysis within the model, data disconnect is greatly reduced and a great deal more data is made available to the designer (BIM).

Less do-overs, happier budgets!

Less drawing, more designing

Freedom to imagine

Vehicle Tracking removes repetitive drafting routines and accelerates engineers into detailed design stage where they can explore and utilize their own experience.



Results

- Multiple design proposals become viable
- Existing budgets are maximised
- Better collaboration between professionals
- More data is made available
- Detailed visualizations can be produced quickly
- Issues communicated to stakeholders more easily
- Quicker responses to tenders
- Closer adherence to guidelines & standards
- More considered, better designs

