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Sustaining Infrastructure

What does *Design Intent* mean to you?

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Automatic Updates

Everyone wants software that will automatically update the design whenever a change is made in order to eliminate errors. However, if not done correctly, what most people don't realize is that automatic updates can generate just as many errors and omissions as it eliminates.

The reason for this is simple – if you are going to update a design correctly, then the software *must* remember the engineering decisions (i.e. the *design intent*) that originally went into the creation of those elements and components. If you don't, then any updates you do will involve assumptions and guessing which will obviously lead to additional errors and omissions.

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Automatic Updates

This is what sets Bentley Civil SELECTseries 3 apart.

Our updates are not based on assumptions – they are based on the fact that we remember the ***design intent***.

So that raises two questions …

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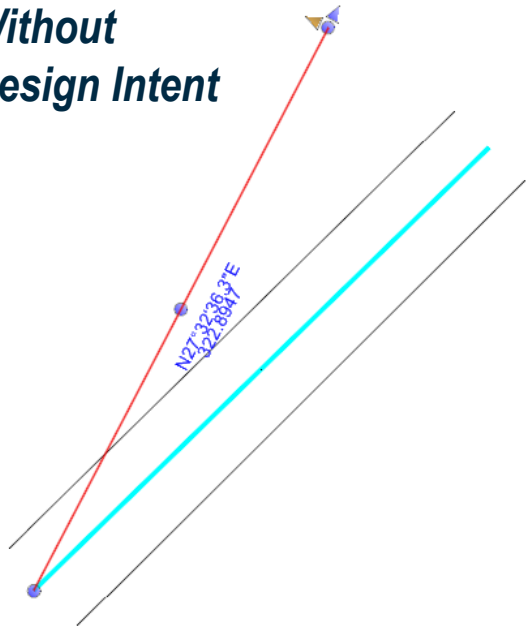
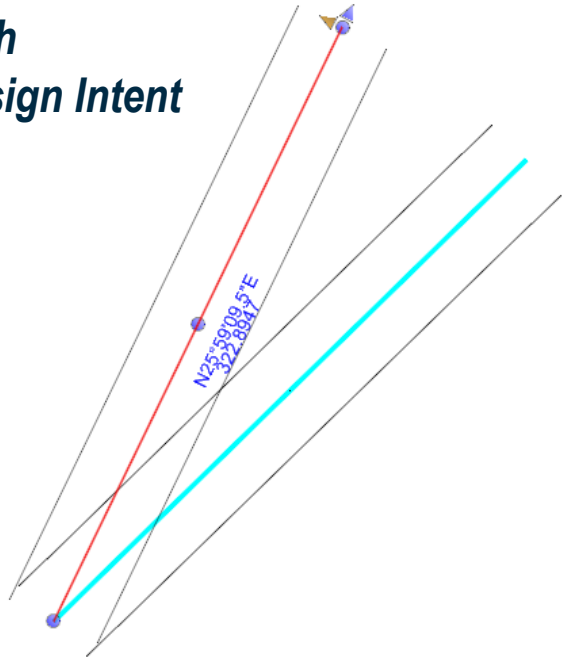
What is Design Intent?

- *Design Intent* is the act of preserving the rules and relationships creating during the design process in order to maximize the downstream benefits of automated updates.

Without Design Intent



With Design Intent



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How Do I Communicate Design Intent?

How do I communicate to the software what I'm intending to do?

This is the key to using ***Design Intent*** properly – making sure that, as a user, I'm able to store rules and relationships that effectively communicate how I expect that design to update.

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Design Intent for Free

In many cases, there is nothing for you as a user to necessarily think about or consider. You just get the proper rules and relationships as part of the *commands* you are using.

- Terrain Models
  - Update from Source

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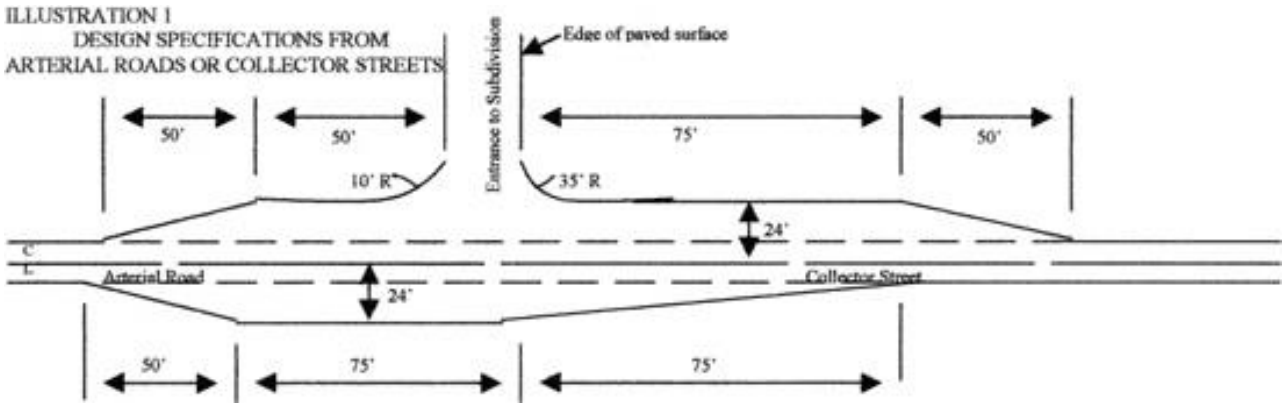
Design Intent for Free

Horizontal Geometry.

- Simple Side Road Design
  - Gaps, Offsets, Trimming, etc.



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Design Intent for Free

Vertical Geometry

- Complex from Simple

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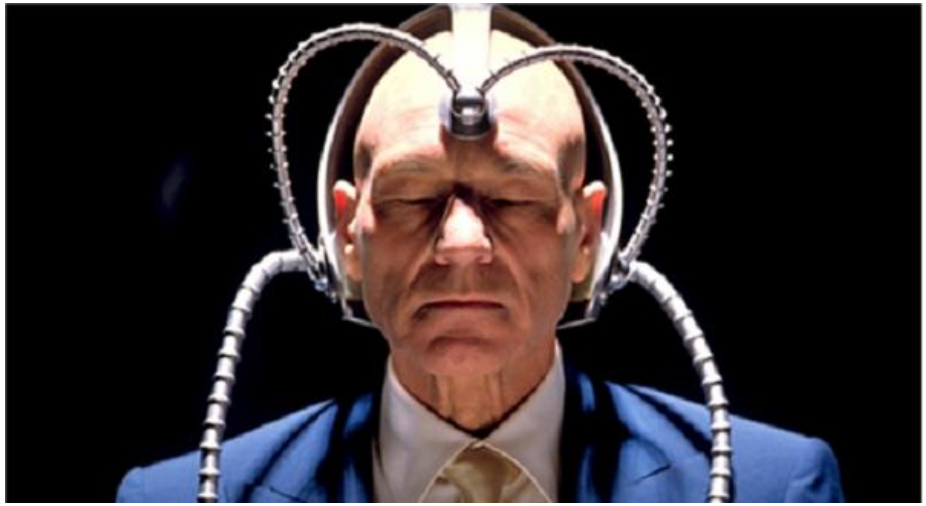
Communicating Design Intent

But keep in mind that the software is not a mind-reader.

As a user, there are times you need to think about what you are doing in order to 'communicate' to the software your design intent. The following examples will cover some techniques that are helpful in doing this.



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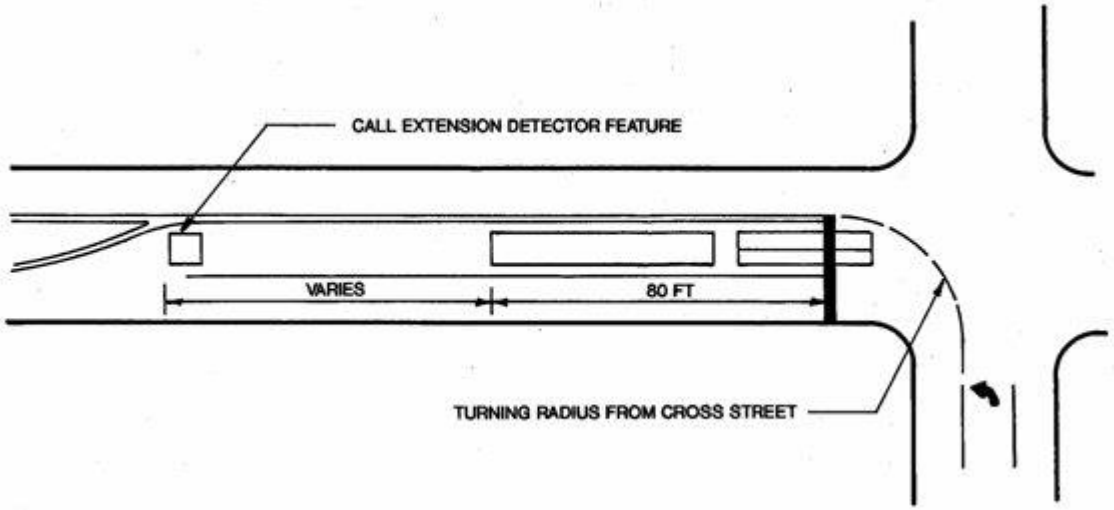
MicroStation Snaps

MicroStation snaps are a simple yet incredibly powerful way of communicating your design intent to the software.

- Turn Lane Design
  - Storage
  - Transition
  - Offsets



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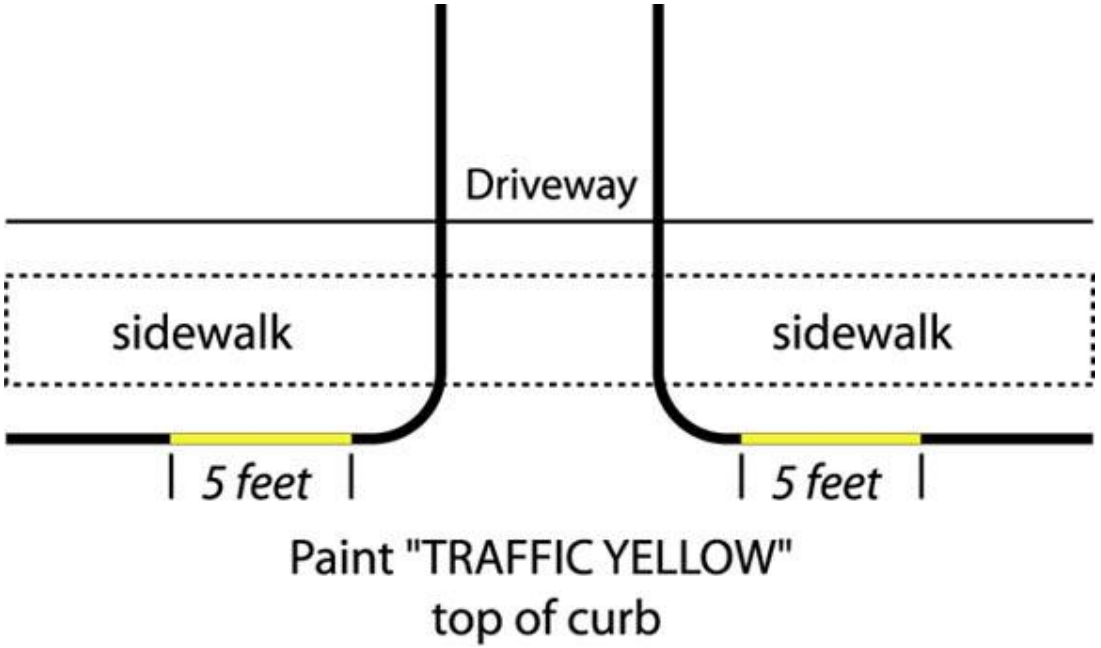
MicroStation Snaps

Another example of using MicroStation snaps to communicate design intent.

- Key Stations



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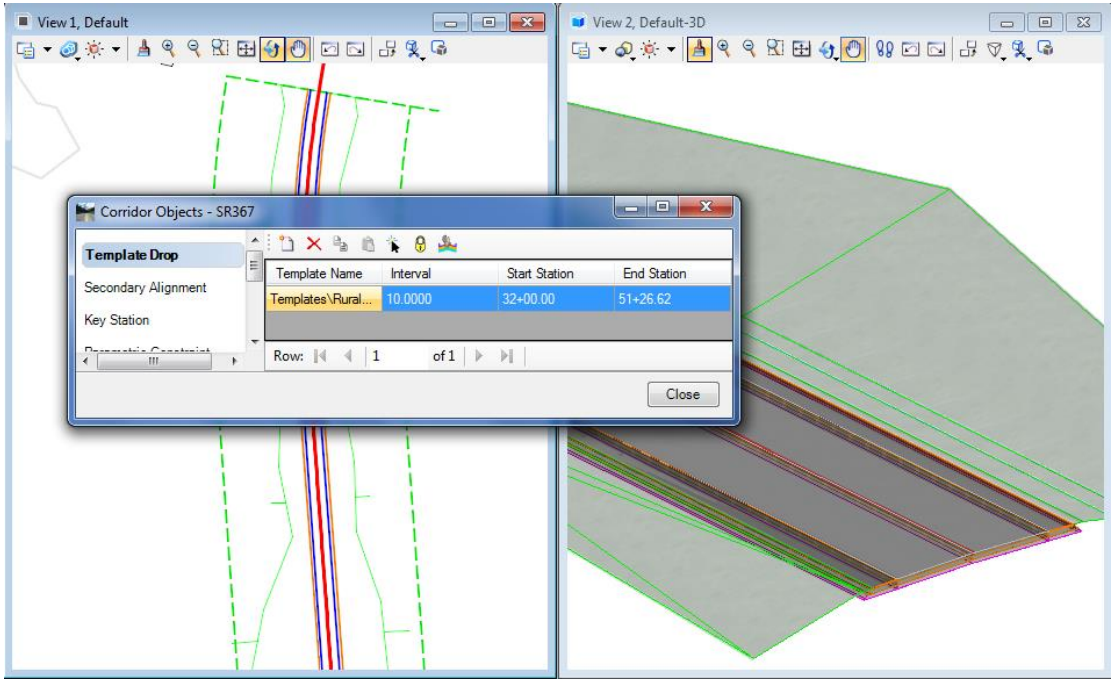
MicroStation Snaps

Another example of using MicroStation snaps to communicate design intent.

- *Template End Stations*



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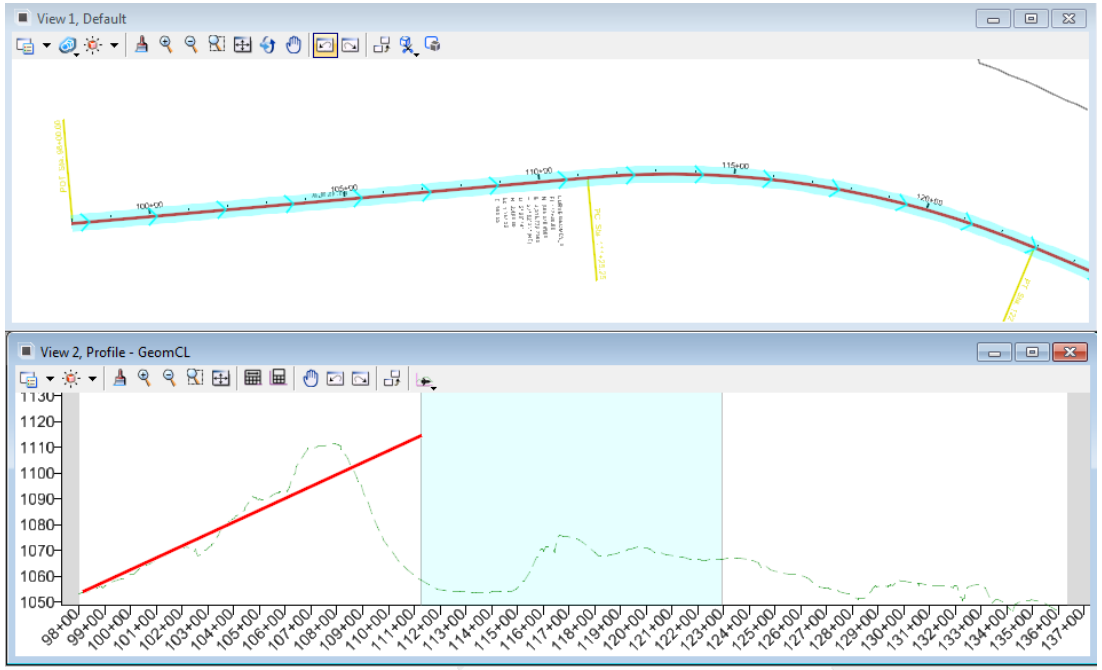
MicroStation Snaps

Another example of using MicroStation snaps to communicate design intent.

- *Vertical Geometry*



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MicroStation Modify Commands

Keep in mind that MicroStation modify commands (e.g. Extend to Trim) are also a tool whose results establish rules and relationships that are remembered throughout the design process.

- Pedestrian Cross-Walk

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Civil AccuDraw

However, there are times that, in order to communicate your design intent, you need more than just a simple MicroStation snap. In these scenarios, Civil AccuDraw becomes an indispensible tool.

- Tying the Turn Lane to the Crosswalk

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Civil AccuDraw

An example from Vertical Geometry.

- *Vertical VPI Locations*

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Civil AccuDraw

An example from Vertical Geometry.

- *Minimum Vertical Clearance*

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Questions

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Thank You!