



SURFACE SYSTEMS & INSTRUMENTS, INC.

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smoothroad.com

3D MODELING & IRI TESTING



CS9500 Survey-Profiler

Full Lane 3D Scanning and Rut Measurement

Merges RTK GPS or Control Points for Precise 3D Elevations

Generate Design for Smoothness & Machine Control

(configurable slope, cut/fill parameters, optimized for IRI)

Also a DOT Certified Inertial Profiler for IRI Testing

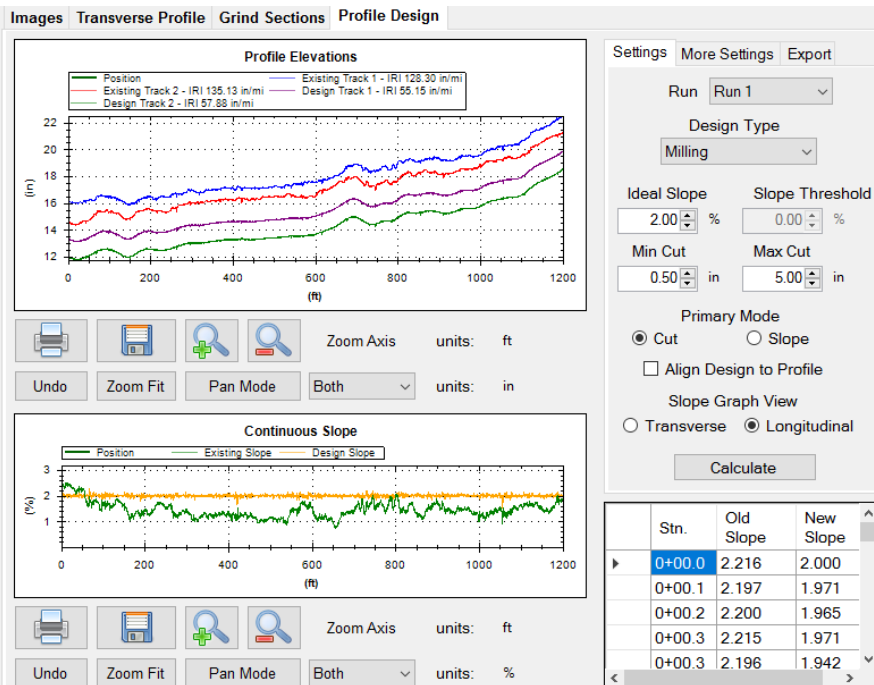
Scalable: Start with IRI; add X-Slope, Rut & 3D Scan

HARDWARE FEATURES

- DOT certified inertial profiler for IRI smoothness testing (AASHTO M328, R054, R056-057 and ASTM E-950).
- **Scalable:** Add transverse profile system for rut depth and other measurements under AASHTO PP69-10 & 70-10.
- **Scalable:** Add IMU for cross-slope, GPS for 2D/3D survey.
- Quickly generate dense, open area 2D or 3D surfaces.
- Highest resolution scanning merges 7500+ laser points/profile sampled at <2 in (<50 mm), IMU and corrected GPS data sets.
- Add occasional control points for tighter, more accurate elevation data—near total stations accuracy!
- Multiple configurations available; examples:
 - 2 laser track profiles, IMU and GPS for 2D relative profile.
 - 3 laser track profiles, IMU and corrected GPS for 3D Topo.
 - 6 laser full lane width profile, IMU and corrected GPS for highest resolution 3D Topo.
- Choice of vehicle platforms:
 - High speed system attaches to front or rear of host vehicle.
 - Lightweight system on Polaris Ranger 570 EFI (2 or 3 laser).
- One setup for multiple passes, slopes, and lanes.
- Corrected GPS with RTK post processing (3D system).
- Interface with external GPS devices to use existing hardware.
- Works with third party machine control systems for variable depth milling, paving or grinding machines.
- Detachable core components minimizes risk of damage or theft.
- Panasonic Toughbook rugged operator interface computer.
- Reusable shipping/storage container. • Patented technology.

SOFTWARE FEATURES

- Ride quality and rut depth reporting in accordance with DOT specifications • Fully compatible with ProVal.
- User configurable data collection and analysis parameters.
- Easy software for calibration, collection and analysis of data on in-vehicle Toughbook; software license for use on Windows desktop PCs.
- Inertial profiler data combined with IMU for 2D surface and corrected GPS/Control for 3D.
- Dense surface data for better designs.
- Create a design file with 2D or 3D survey data in conventional survey formats, but with higher resolution.
- Use surface data in SSI Profile Design module to analyze existing surface and optimize design for best smoothness values.
- Configurable design parameters for slope, cut/fill and smoothness.
- Data compatible with third-party CAD design software.
- On-the-Fly adjustments to design data and ongoing machine control
- Design flexibility—resurvey surface to assess changes as project build progresses. *Build based on the True Surface Profile.*
- Surface designs work with both milling and paving machines.
- Separate or combined data formats: profile only, slope only, GPS only, or integrated 2D/3D survey data.
- Multiple export formats: PNEZD, PLLHD, Excel, CSV, ERD/PPF & PDF.
- Precisely calculate areas of localized roughness for corrections or bonus/penalty results. • On-screen GPS navigation along profile data.
- Surface data complies with all DOT & Industry specifications.
- Full service, rapid response customer support.
- Web based issue reporting and automatic software updating.



• Profile Design Module Optimizes Survey Data for Smoothness

• Variable Depth Machine Control for Smoothness

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