Paving for Smoothness

Who is Topcon?
WELCOME TO TOPCON
Topcon boasts a global development, manufacturing and support network that is talent rich and interconnected.

1932
Founded in Japan

1947
Ophthalmic and medical instruments business

1970
Global expansion into USA and Europe

1980
World's first EDM Theodolite

1991
World's first robotic total station

1993
World's first target scanning lasers

1994
Established Topcon Positioning in CA

1999
World's first LPS 3-D machine control system

2000
World's first GPS+GLONASS system

2005
World's first vehicle mounted scanning

2006
Entered global Precision Ag Market

2012
Launched cloud-based site management

2016
Topcon Agricultural Group formed in EU

- Tokyo Optical Co., Ltd. was established September, 1932
- Listed on Tokyo Stock Exchange
- Expanded manufacturing to include binoculars, cameras, ophthalmic and optical instruments
- Entered construction laser business in 1990
- Acquired Advanced Grade Technology to enter machine control business in 1993
- Positioning Company started as Topcon Laser Systems in 1994
- Acquired GNSS technology in 2000
- Accelerated growth of 3-D machine control with Millimeter GPS
- Acquired precision agriculture software developer in 2006
- Created JV telematics company—pioneered development of cloud-based workflow and site management solutions

- 27 COUNTRIES
- 86 COMPANIES
- 5142 EMPLOYEES
- 1.8 Billion GLOBAL REVENUE
To be first to market with products customers never before imagined, but realize immediately that they need.

Road construction process and Topcon

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P-32 Sonic Paver System

MMGPS and LPS HMA Paving
Intelligent Compaction

Thermal Mapping
PaveLink Real Time Data Sharing

Smoothness

Figure 3.1: Effect of roughness on fuel consumption vs. at-scale SIS inputs

(b) 80% 21%
Smooth Road Surface, No Construction Delays
Less Smooth Road Surface, No Construction Delays
Not Sure

45% 21% 10% 10% 21% Not Sure
SmoothRide

Time  Safety  Quality  Cost

Smoothride uses these Core Technologies

- GNSS
- Equipment Automation
- Mobile Mapping
SmoothRide

- RD-M1
  - A purpose-built data collection tool for precision scanning of road surfaces to be utilized by machine control for elevation reference.

- Collage
  - Point cloud software used to process and edit scanned data.

- Magnet Resurfacing
  - Design software used to create a smooth road within material thickness requirements.

- RD-MC
  - A way of controlling milling machines and asphalt pavers based on the data collected.
The process...

Current
RD-M1 Road Scanning
• LIDAR scanner
• GNSS receiver
• IMU
• Wheel encoder
Immersive Point Cloud Software

- Simple way to combine mass data sets
- Advanced matching and ground control functionality
- Quick surface creation
- Extensive project analysis
Project Software

- Easy input of project parameters
- Variable depth entry
- Smoothing longitudinal profile
- Cross slope correction
- Material management

MAGNET Construction

Design surface

MAGNET Construction
• Cross Section report
• Profile Report
• Resurface Report
• Slope Report
• VC Report
**SmoothRide Milling**

RT. 83 Wisconsin

- Resurfacing Project
- IRI from +200 down to 30
Thank you.