



**QUALITY,
VALUE AND
EXCELLENCE
IN ALL WE DO**

Trimble CCSFlex and GCS900/AccuGrade Compaction Control System for Soil and Asphalt Compactors Mike Hasslbauer



**WESTERN
STATES**



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CCSFlex Overview



- Asphalt and Soil Compactors – only
- Pass count system
- Multiple Add-on options
- Not upgradeable

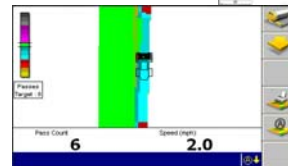




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System Overview

- Affordable
 - \$13,995 USD
- Easy to install
 - Low impact install without damage to the machine
 - Can be installed easily by customer
 - Installed and running in about 2 hours
 - System is easily removed, moved to other compactors
- Easy to use
 - Install and start working
 - 3D designs and GPS base station NOT required



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CCSFlex is Ideal for Contractors Who ...

- Are of any size – small and large
- Want to improve the quality of their compaction operations
- Require a pass count system at an affordable price
- Require a system that is easy to install and use
- Have not yet invested in machine control due to complexity or price



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Applications

- Compaction applications where pass count and uniform compaction coverage has to be achieved most efficiently
 - Road building and improvement
 - Site development, parking lots/car parks
 - Utilities / trench backfilling
 - Retention basins
 - Embankments and slope work
- Add-on options to CCSFlex would also allow applications or project requirements which require:
 - Compaction Value (soil compaction) or
 - Temperature mapping (asphalt compaction)



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Importance of Compaction

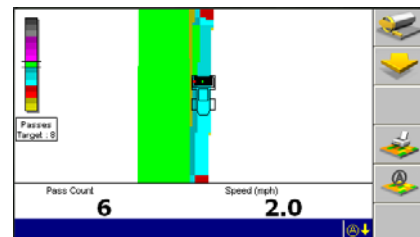
- Good compaction
 - Increases strength
 - Reduces settling
 - Increases durability
 - The result is a high quality product
 - And lower costs
- Poor compaction
 - Reduced strength
 - Increased settling
 - Reduced durability
 - The result is a low quality product
 - And higher costs



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Pass Count and Coverage is Critical

- Below the target pass count → poor compaction
- Above the target pass count → low productivity
- Important to ensure good pass coverage
 - Missed areas = poor compaction



- Good compaction → high quality product
 - And lower costs
- CCSFlex can ensure these critical factors are met on any job!

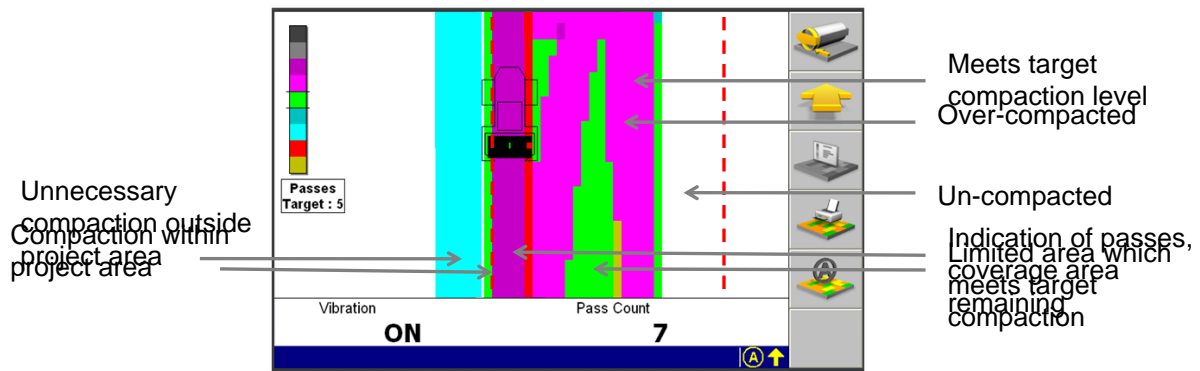


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Compaction with and without CCSFlex

- Example of compaction operations with and without CCSFlex

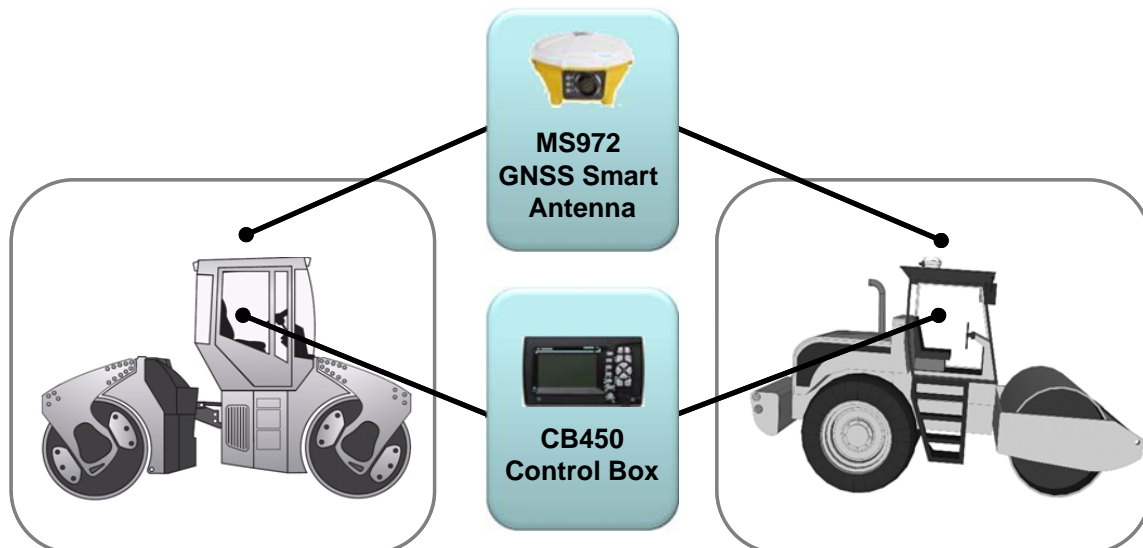
– Compaction with CCSFlex



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System Configurations

- Standard "System in a Case" configuration





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System Configurations



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- GCS-FLEX
- Installed and calibrated in less than 2 hours by the dealer or customer
 - New, easy-to-use quick install guide
- No expensive tools, welding required

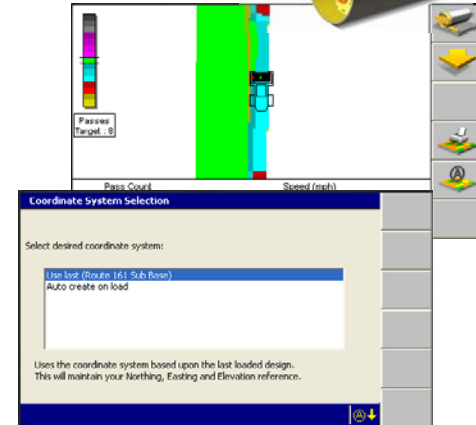




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CCSFlex On-machine Software

- Asphalt and Soil Compactors
- Pass counts mapping
- Coverage mapping
- Production files (.tag)
- Automatic Coordinate System
- Cab-mounted GNSS support



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MS972 GNSS Smart Antenna

- MS972 Base-level configuration
- Autonomous + SBAS + DGPS capable
 - Autonomous
 - 10-15 meter horizontal accuracy
 - SBAS
 - WAAS / EGNOS / MSAS
 - Sub-meter level horizontal positioning
 - DGPS
 - Using SNM940, can use corrections from IBSS for sub-meter level horizontal positioning
- Firmware options
 - Location RTK with precise horizontal positioning
 - 1 cm (horizontal) / 10 cm (vertical)
 - RTK high accuracy positioning
 - 1 cm (horizontal) / 1 cm (vertical)





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Higher end GCS900 Compaction

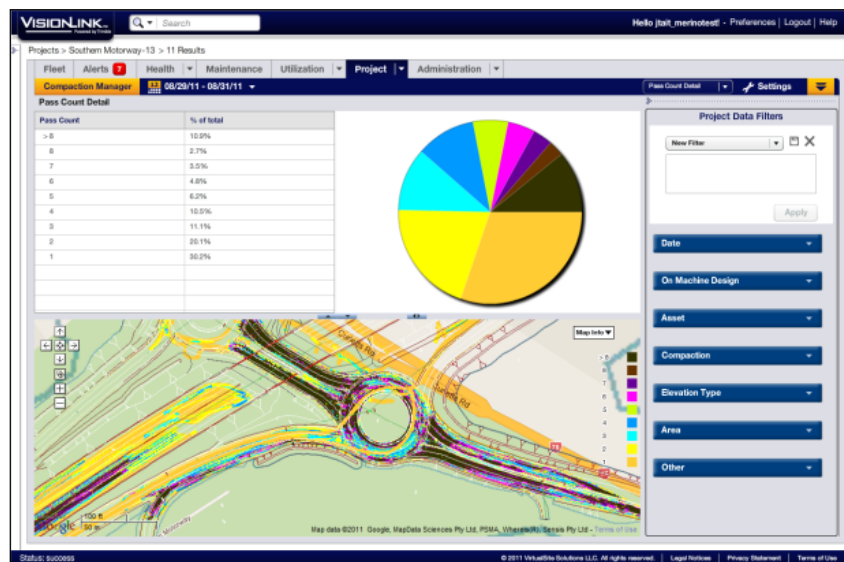
- Tracks compaction by layer
- Pass counts
 - Monitors pass count over entire surface from one or multiple machines against a target pass count value
 - Highlights over- or under-compaction areas
- CMV values
 - Monitors the Compaction Meter Values (CMV) over the entire surface from one or multiple machines
 - Highlights compaction inconsistencies such as soft spots
- Machine Drive Power (MDP) values
- If pass count and CMV / MDP consistency is good then surface is likely to pass inspection
- Temperature mapping values (asphalt compaction)



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GCS900 Compaction Reporting

- **CCV/CMV values**
 - Summary
- **Temperature**
- **MDP values**
- **Pass count**
 - Summary
 - Detail





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Compaction Control Benefits Summary

- GCS FLEX Easy to use and install
 - Install and start working
 - No 3D designs or GPS reference stations are required
 - Customer installed, up and running in less than 2 hours
 - Easily move the system to other compactors in the fleet
- GCS FLEX Affordable
 - Ideal for the price-sensitive contractor
- GCS FLEX and GCS900 Real-time compaction progress
 - In-cab control box displays passes over of the compacted surface
 - Optional third-party printer provides real-time in-field reports
- GCS FLEX and GCS900 Increase compaction productivity
 - Less experienced operators become more productive, more quickly
 - Reduces the number of unnecessary passes
- GCS FLEX and GCS900 Increased quality
 - Achieve uniform compaction coverage and quality
 - Record compaction data for quality inspections
- GCS900 and Accugrade
 - Two-way data support
 - Uses same 3D model as Paver PCS900 System



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Take The Power Of VisionLink Connectivity To The Field

- m.myvisionlink.com
- Included with any 2D or 3D Project Monitoring subscription
- 2D and 3D Project Monitoring data in the field – empowering the foreman or site manager
- Use mobile device GPS to identify problem areas and mark them for rework.
- View project data on site and react quickly





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VisionLink Mobile

View current 3D project data such as elevation maps details on your mobile device.



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Real-time production information at your foreman's fingertips

- You ask your foreman to make critical real-time decisions
- Give your foreman real-time information on the progress of the project
 - Target and actual loads per hour – total loads
 - Idle, working and off hours for machines
 - Volume per hour moved

**Requires 2D or 3D
Project Monitoring
Subscription**

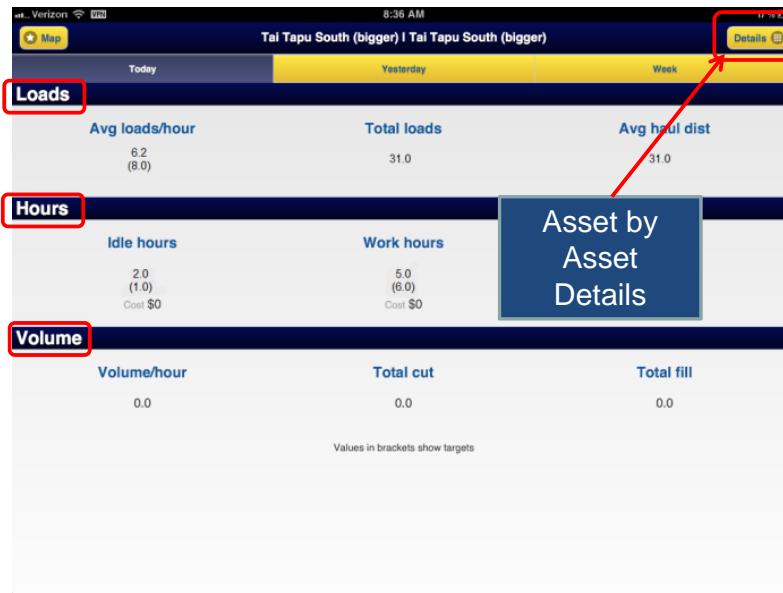
| Tal Tapu South (bigger) Tal Tapu South (bigger) | | |
|---|--|---------------------------|
| Today | Yesterday | Week |
| Loads | | |
| Avg loads/hour 6.2 (8.0) | Total loads 31.0 | Avg haul dist 31.0 |
| Hours | | |
| Idle hours 2.0 (1.0) Cost \$0 | Work hours 5.0 (6.0) Cost \$0 | Off hours 0.0 (0.0) |
| Volume | | |
| Volume/hour 0.0 | Total cut 0.0 | Total fill 0.0 |
| Values in brackets show targets | | |



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VisionLink Mobile

2D Dashboard – provides information for all assets on the selected site



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Map Settings

Select Map View:

- Coverage
- Elevation
- Cut/Fill

Select Map Type:

- Map
- Satellite

Return to Project Selection page

View: Coverage

Map type: Map

Select project/monitored site

Logout

Refresh

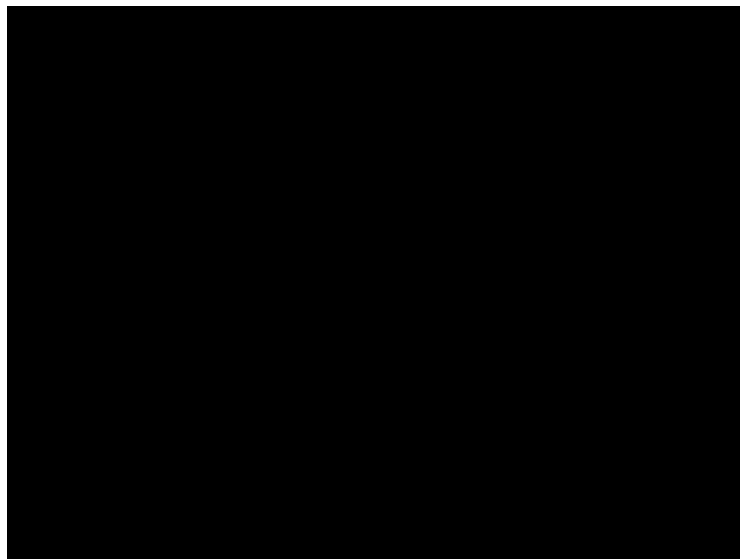


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Local Airports 3D Milling and Paving



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3d [Airport](#) Pave



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We have handfull of discounted ticket available at this time

Gold Sponsors



Silver Sponsors



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Thank You

Also thank you to Motley and Motley for demo pit.

