



# STANDARD PROFILE ANALYSIS ENHANCEMENTS

BY

GEORGE CHANG, TRANSTEC GROUP – A TERRACON COMPANY



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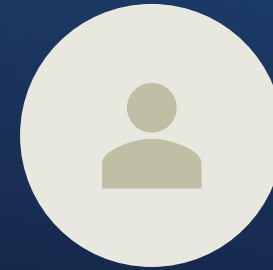
UPCOMING  
ENHANCEMENTS  
OVERVIEW



ADDRESSING  
OPERATIONAL  
GAPS



FOCUS ON AASHTO  
STANDARDS AND  
CREDIBILITY



USER-CENTERED  
DEVELOPMENT



# FHWA/TPF STANDARD PROFILE ANALYSIS

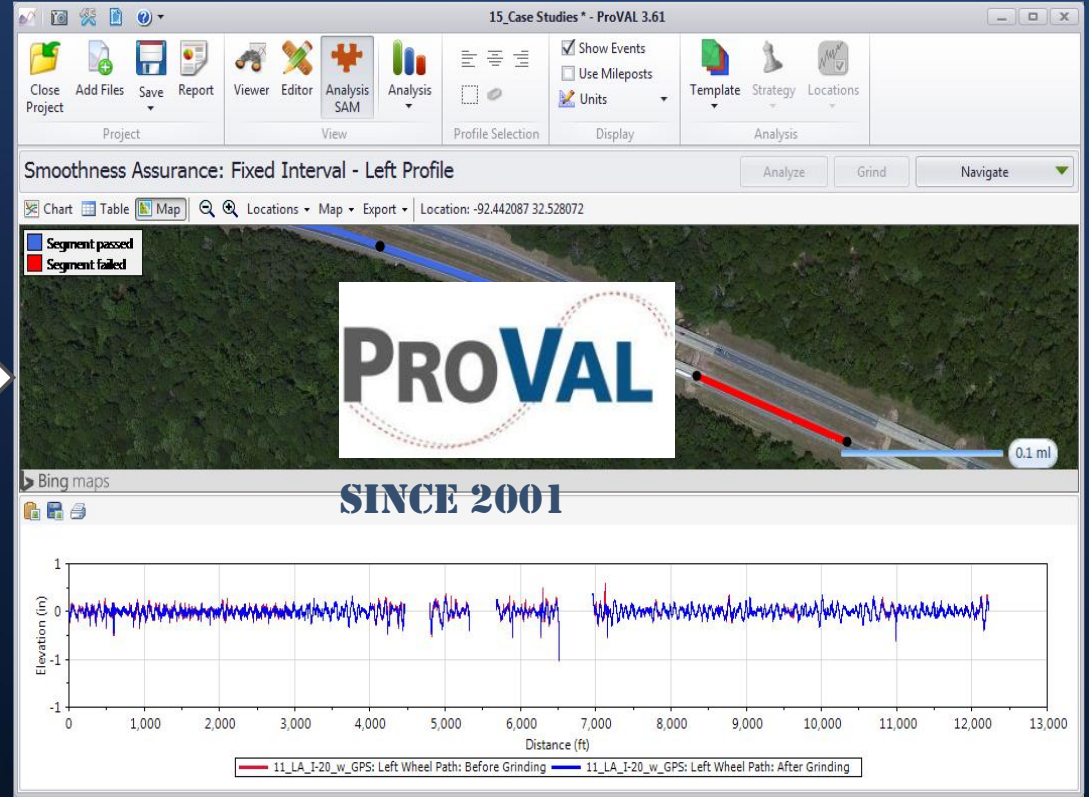
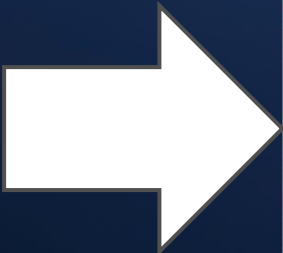
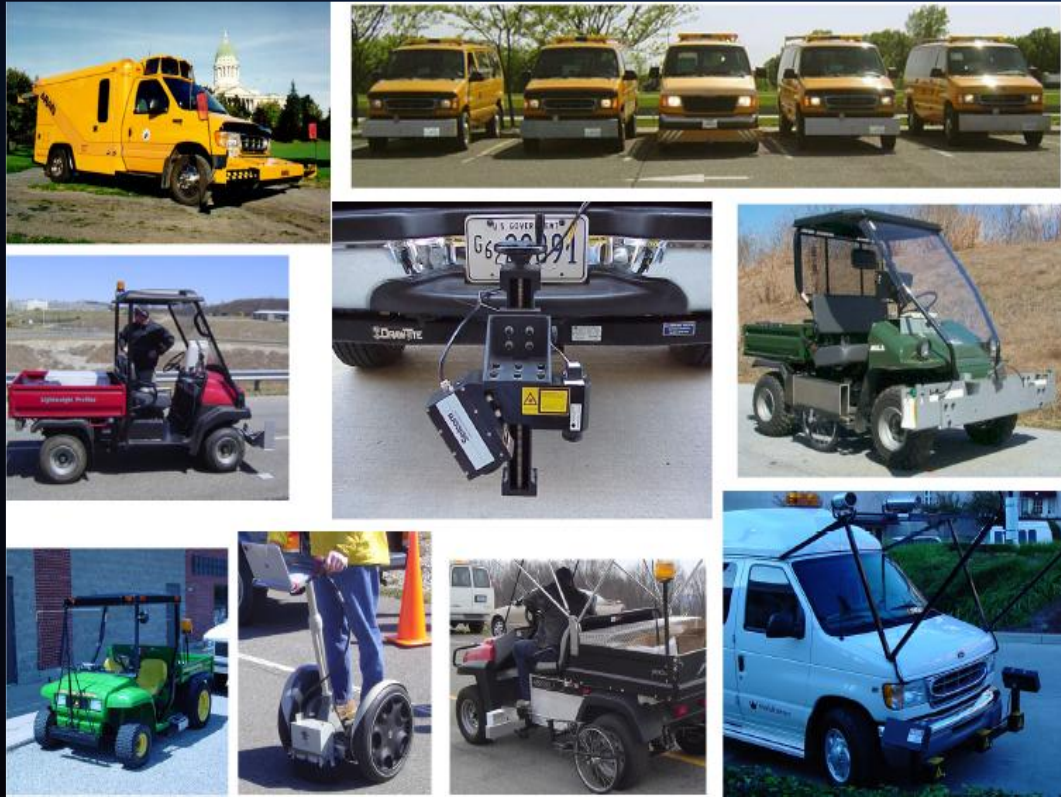


# FHWA/TPF STANDARD PROFILE ANALYSIS

- **PROVAL - FUNDED/SUPPORTED BY FHWA/TPF TO STANDARDIZE PROFILE ANALYSIS NATIONWIDE SINCE 2001**
- **FACILITATING AASHTO STANDARD IMPLEMENTATION (R54/R56 ETC.)**
- **VENDOR-NEUTRAL STANDARDIZED PLATFORM**
- **TRANSPARENCY AND REPEATABILITY**
- **SUPPORT FOR EVOLVING TECHNOLOGIES**
- **CONSISTENT AND DEFENSIBLE DECISIONS**



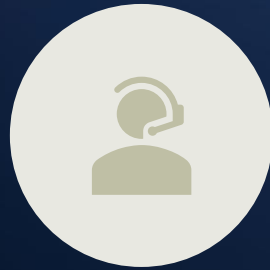
# FHWA/TPF PROVAL – PROFILE VIEWING AND ANALYSIS



# FHWA/TPF PROVAL HISTORY SINCE 2001



**INITIAL RELEASE  
AND PURPOSE**



**CONTINUOUS  
UPDATES AND  
SUPPORT**

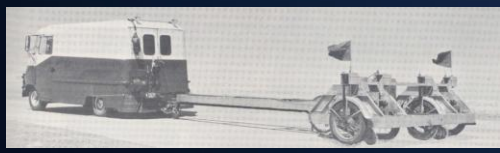


**STANDARDS  
ALIGNMENT**



**WIDESPREAD  
ADOPTION**

# PAVEMENT PROFILING HISTORY



**AASHO  
Road Test**



**World Bank IRI  
Experiment**



**RPUG**  
Road Profile Users' Group

What is the Road Profiler?  
 The South Dakota Department of Transportation developed a low cost, lightweight road profiler and the Road Profiler is now an integral part of pavement management systems in South Dakota. It has been used by other states and is being used by other countries. A User's Group will provide and coordinate the use of Road Profilers and provide information on their use and maintenance.

Why Build?  
 Because other states have built or purchased Road Profilers for their own use. This means that there are other users of Road Profilers and they can provide information and advice on their use and maintenance. A User's Group will provide and coordinate the use of Road Profilers and provide information on their use and maintenance.

Who Should Attend?  
 Pavement managers and engineers responsible for the maintenance of pavements. Road Profilers are used by many states and other countries. This meeting will provide information on their use and maintenance.

When and Where is the Meeting?  
 The meeting will be held in Pierre, South Dakota on November 14-15, 1989. Technical sessions will be at the Pierre Convention Center. Registration will be at the Pierre Convention Center.

How Do I Get to Pierre?  
 Pierre is served by Northwest and Continental Airlines. Service is daily. For more information contact: RPUG will appear in a South Dakota news item.

How Do I Register?  
 The register is being prepared by the Research Program at SDOT. Call SDOT at 605/773-4100 for more information. Secure reservations should be made directly with the register. We encourage early reservations.

What is the Registration Fee?  
 The meeting is an open house. Registration is not required. The meeting will be held at the Pierre Convention Center. Registration will be at the Pierre Convention Center.

Who Should Attend?  
 The 1989 RPUG Road Profiler Users' Group Meeting will be held in Pierre, South Dakota on November 14-15, 1989.

Announcement  
 South Dakota Road Profiler Users' Group Meeting  
 Pierre, South Dakota  
 November 14-15, 1989

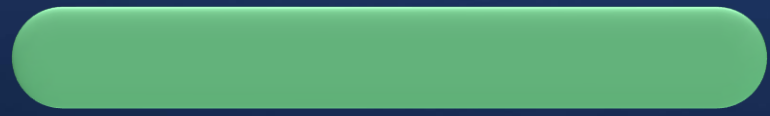
**1st RPUG**

**AASHTO  
Spec**

**ProVAL 1.0**



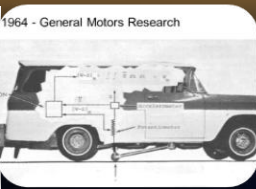
**TPF  
Studies**



**Rolling  
Straightedge**



**BPR  
Roughometer**



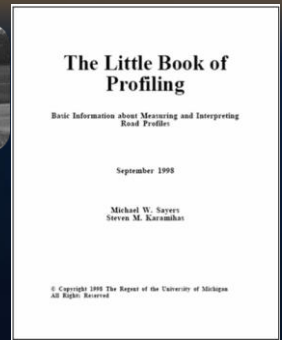
**GMR Profiler**



**OH Profiler**



**SD Profiler**



**The Little Book of  
Profiling**

September 1998  
 Michael V. Savits  
 Steven M. Karaman



**Modern HSIP**



**3D Survey**

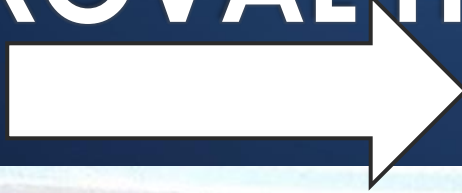


**RPU  
Road Profile Users' Group**

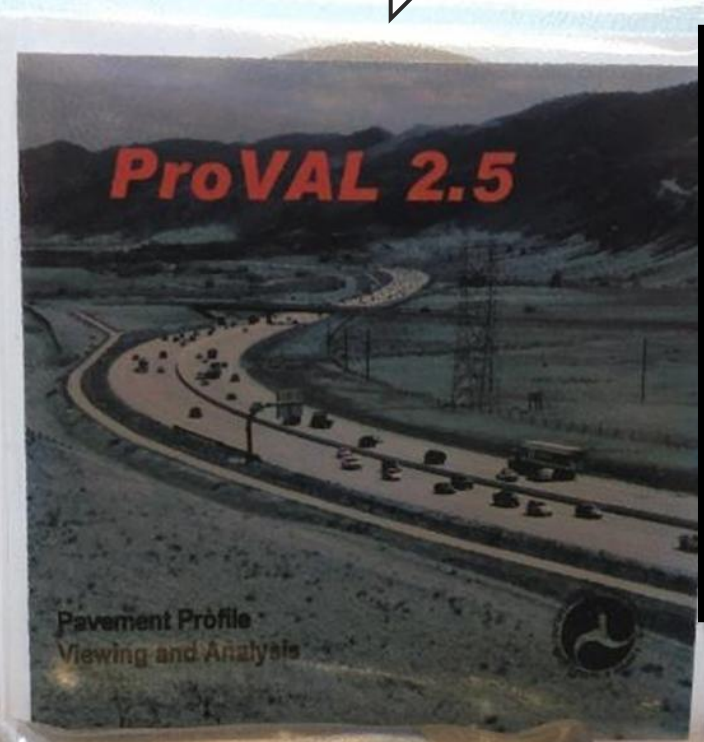
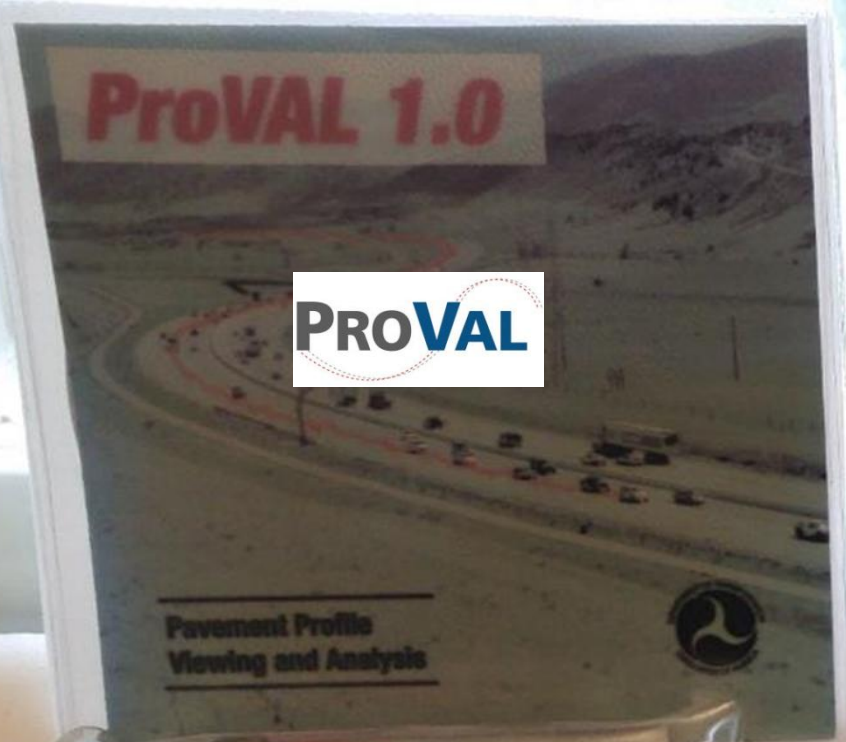


# FHWA/TPF PROVAL HISTORY

2001

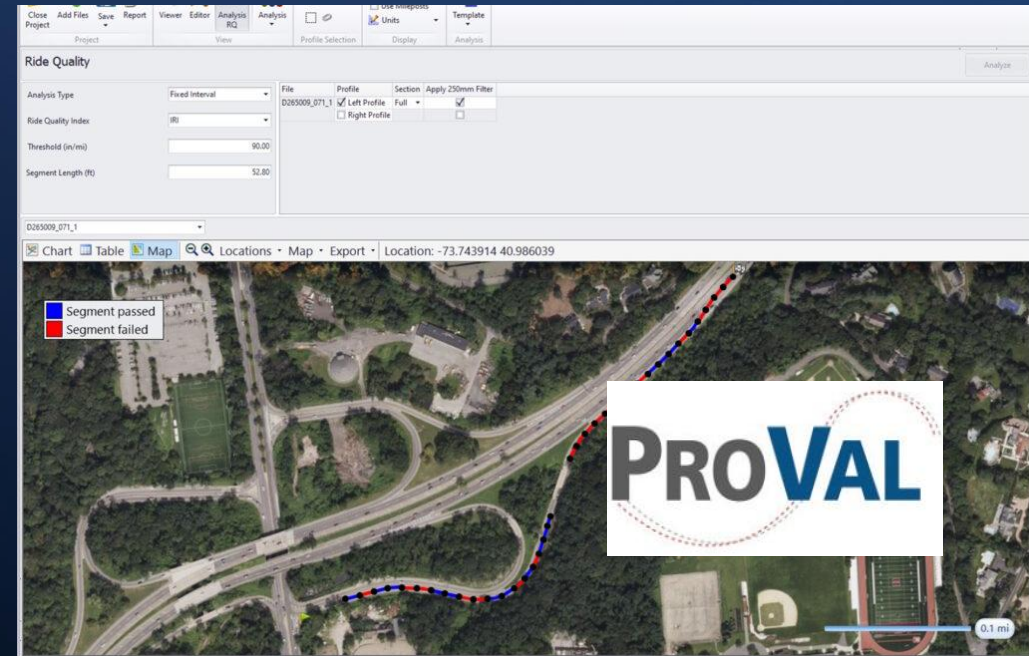


2026



# WHAT FHWA/TPF PROVAL ANALYSIS DOES TODAY

- **VENDOR-NEUTRAL DATA IMPORT AND VISUALIZATION**
- **DOT RIDE QUALITY AND ROUGHNESS ANALYSIS**
- **DOT PROFILER CERTIFICATION AND REPORTING**
- **STANDARD USER WORKFLOW CONTINUITY**





# PROFILE ANALYSIS ENHANCEMENTS FOR 2026–2027



# 2026–2027 ENHANCEMENT ROADMAP

1. SPEED PROFILES & STOP AND GO EXCLUSIONS
2. AASHTO R56-25 PROFILER CERTIFICATION ANALYSIS
3. STATIONING SUPPORT (LIMITED, REPORTING ONLY)
4. MISCELLANEOUS USABILITY AND PERFORMANCE UPDATES

# 1 - SPEED PROFILES AND STOP-AND-GO EXCLUSIONS

**Limitations  
of Traditional  
Profilers**

**Integration  
of Speed  
Profile Data**

**User-  
Controlled  
Exclusions**

**Balancing  
Automation  
and Control**

# 1 - SPEED PROFILES AND STOP-AND-GO EXCLUSIONS

- **PROBLEM:** CONVENTIONAL HSIPs PRODUCE INVALID DATA AT LOW SPEED
- **ENHANCEMENT:** IMPORT AND VISUALIZE SPEED PROFILES
- **BENEFIT:** IDENTIFY AND EXCLUDE INVALID STOP AND GO DATA
- **HOW IT WORKS:** SPEED-BASED EXCLUSION RULES
- **FEEDBACK NEEDED:** GUI CLARITY AND CONTROL LEVEL

# SPEED PROFILES: EXAMPLE WORKFLOW

1

**Import profile  
+ speed data**

2

**Identify low  
speed or stop  
events**

3

**Review  
suggested  
exclusions**

4

**Apply  
exclusions to  
analyses and  
reports**

# 2 - SUPPORTING PROFILER CERTIFICATION ANALYSIS FOR AASHTO R56-25

**Expanded  
Certification  
Scope**

**ProVAL  
Module  
Enhancements**

**Analytical  
Methods**

**Transparent  
and Auditable  
Results**

# 2 - SUPPORTING PROFILER CERTIFICATION ANALYSIS FOR AASHTO R56-25

- **PROBLEM:** R56-25 ADDS NEW OPERATING CONDITIONS
- **ENHANCEMENT:** EXTEND PCM BEYOND CONSTANT SPEED
- **BENEFIT:** ENABLE AGENCIES TO IMPLEMENT R56-25
- **HOW IT WORKS:** MODE-SPECIFIC ANALYSES
- **FEEDBACK NEEDED:** WORKFLOW TRANSPARENCY

# 2- R56-25 PROFILER CERTIFICATION ANALYSIS

- MINIMUM OPERATING SPEED VERIFICATION
- BRAKING OPERATION VERIFICATION
- STOP-AND-GO VERIFICATION
- INVALID AREA CONFIRMATION USING CONTINUOUS IRI OVERLAY



# 3 - SUPPORT FOR STATIONING REPORT

**Stationing  
Support  
Purpose**

**Technical  
Challenges**

**Controlled  
Functionality**

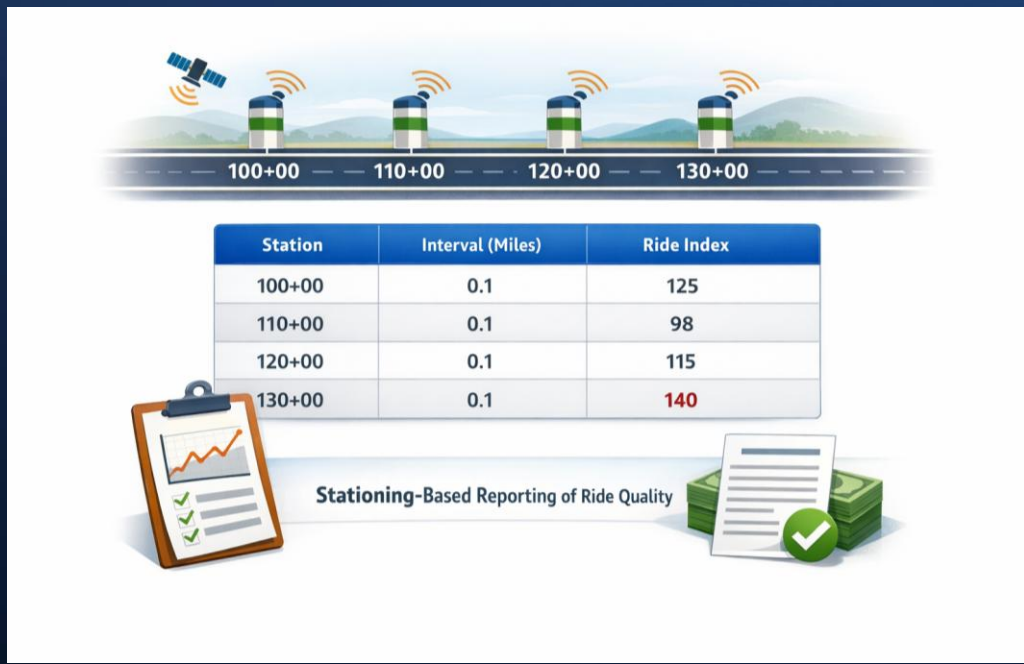
**Benefits of  
Enhancement**

# 3 - STATIONING REPORT SUPPORT

- **PROBLEM:** AGENCIES REPORT BY STATION, NOT DISTANCE
- **ENHANCEMENT:** STATION-BASED REPORTING ONLY
- **BENEFIT:** ALIGN REPORTS WITH AGENCY PRACTICES
- **HOW IT WORKS:** GPS-REFERENCED STATION MAPPING
- **NOT INCLUDED:** PROFILE DISPLAY VS STATION

# STATIONING: USE CASE

- **FIXED INTERVAL RIDE INDEX BY STATION**
- **PAYMENT AND ACCEPTANCE REPORTING**
- **CONSISTENT TABULAR OUTPUTS**



# 4 - MISC ANALYSIS IMPROVEMENTS



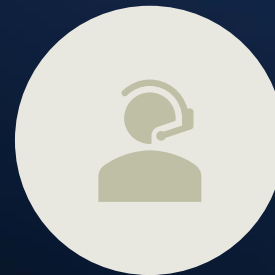
**Operating System  
Support Updates**



**File Import Wizard  
Enhancements**



**Editor and  
Measurement  
Improvements**



**User Experience  
and Support**



# RISKS & FEEDBACK

# RISKS, LIMITATIONS, AND WHAT IS NOT CHANGING



CERTIFICATION  
WORKFLOW  
STABILITY



STATIONING  
SUPPORT  
LIMITATIONS



DEPENDENCE ON  
SPEED DATA



INTENTIONAL  
SAFEGUARDS

# RISKS, LIMITATIONS & WHAT'S NOT CHANGING

- NO CHANGE TO EXISTING R56-2018 WORKFLOWS
- NO RE-INTERPRETATION OF STANDARDS
- STATIONING LIMITED TO REPORTING ONLY
- SPEED SUPPORT DEPENDS ON DATA AVAILABILITY

# FEEDBACK COLLECTION AND SUMMARY



**IMPORTANCE OF  
USER FEEDBACK**



**FEEDBACK  
COLLECTION  
METHODS**



**GOAL OF  
ENHANCEMENTS**



**COMMUNITY  
COLLABORATION**



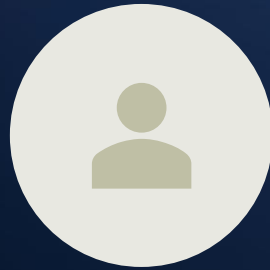
# WE NEED YOUR FEEDBACK

- **SPEED PROFILE VISUALIZATION CLARITY**
- **EXCLUSION RULE TRANSPARENCY**
- **R56-25 WORKFLOW NAVIGATION**
- **ERROR MESSAGING AND DEFAULTS**

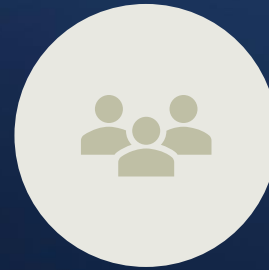
# FEEDBACK COLLECTION PLAN



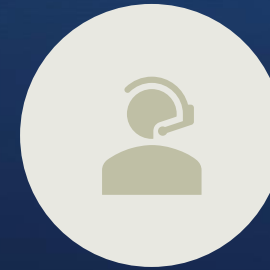
LIVE DISCUSSION



USER FORUMS IN  
2026



BETA REVIEWS WITH  
PANEL MEMBERS



SUPPORT TICKET  
FEEDBACK

# TPF-Funded Technical Support

# WWW.ROADPROFILE.COM



View and analyze pavement profiles

SOFTWARE

WORKSHOPS

LIBRARY

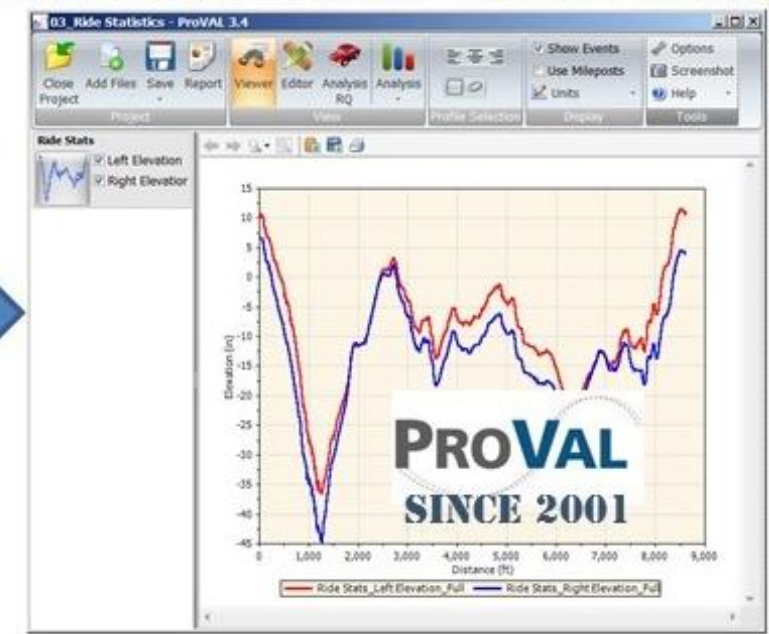
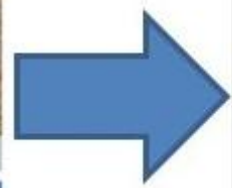
FAQ

SUPPORT

## Many Different Profilers...



## One Standard Software



# TPF-Funded Technical Support



# PROVAL USERS FORUM

forum.roadprofile.com Forum

## Forum.RoadProfile.Com

ProVAL Forum [Add topic](#)

Category	Topics	Posts	Forum Participants
ProVAL New Features	1	1	1
ProVAL Bug Fixes	4	6	3
ProVAL Wish List	1	1	1



# SUMMARY

- **FHWA/TPF ProVAL CONTINUES TO EVOLVE WITH PRACTICE**
- **ENHANCEMENTS ADDRESS REAL OPERATIONAL GAPS**
- **USER FEEDBACK WILL SHAPE FINAL DESIGN**
- **ASSISTING ALL DOTs TO IMPLEMENT EXCLUSIONS, STATIONING, R56-25.**

