CTAMS
Caltrain Transit Asset Management

3708 HEATHER CT

FTA Presentation

December 11, 2013

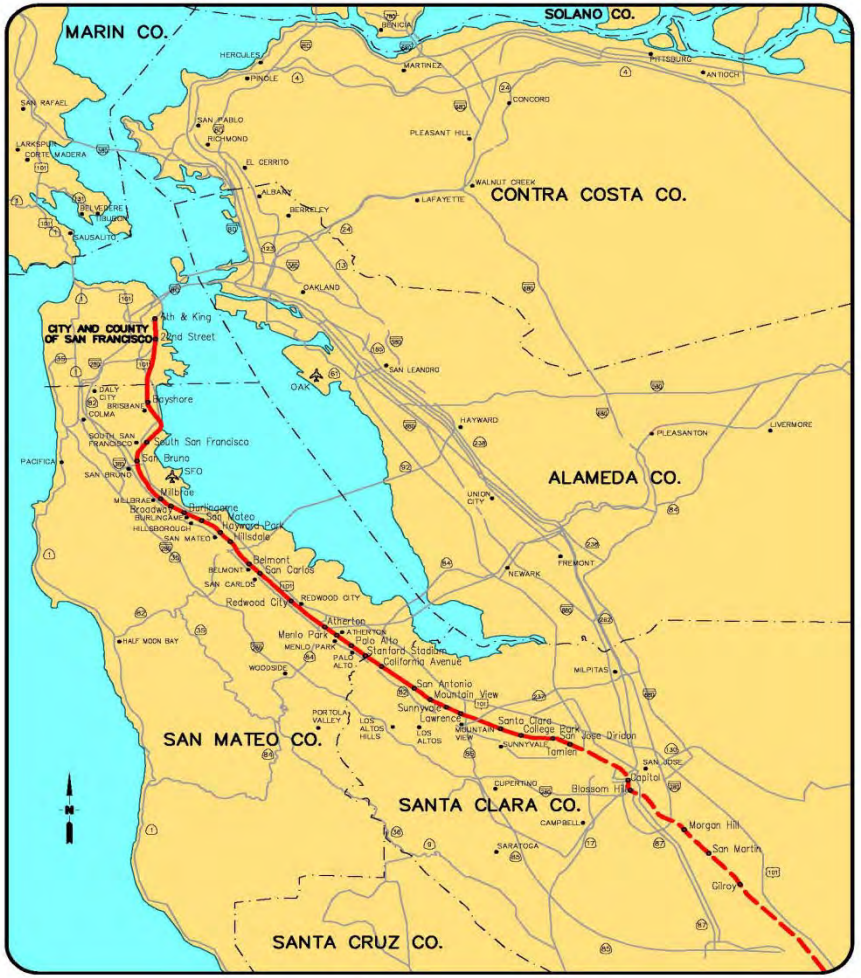
Outline

- Overview
- Features
- Demonstration
- Development Process
- Lessons Learned

Overview

About Caltrain

- Commuter Rail
- San Francisco to Gilroy
- 92 trains per day
- 52 miles of double track
- 28 stations serviced



Project Goal

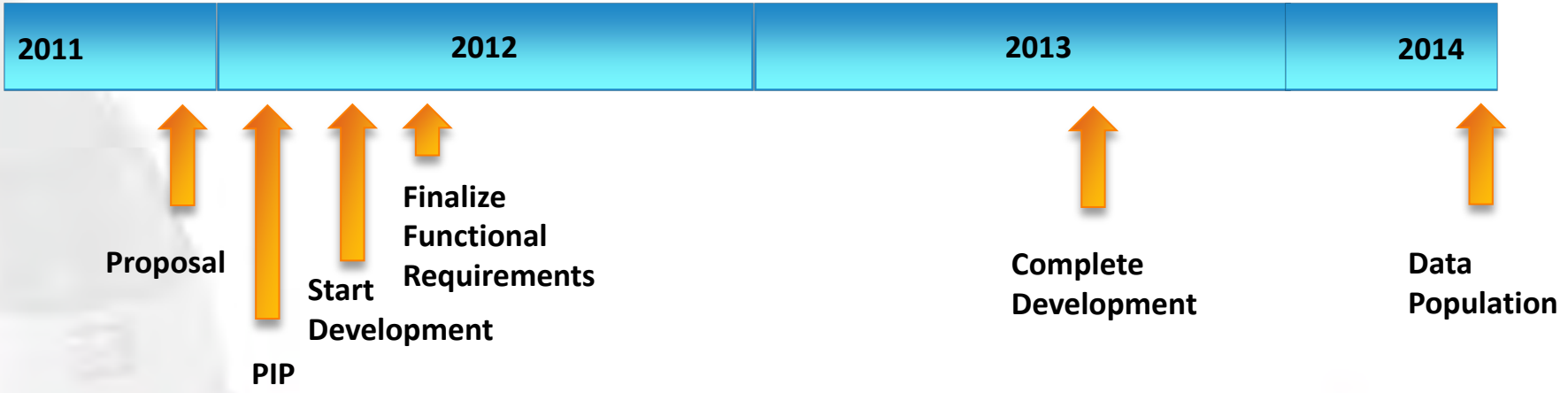
Develop a more efficient Transit Asset Management Program to maintain assets in a state of good repair.

Overview

- **Pilot program**
- **Caltrain and Rail Surveyors and Engineers (RSE) partnership**
  - **Caltrain - oversight and direction**
  - **RSE - application development**

Schedule

- Dec 2011: Proposal
- Feb 2012: Project Implementation Plan approved
- Mar 2012: Development begin
- Aug 2013: Development completion



System Features

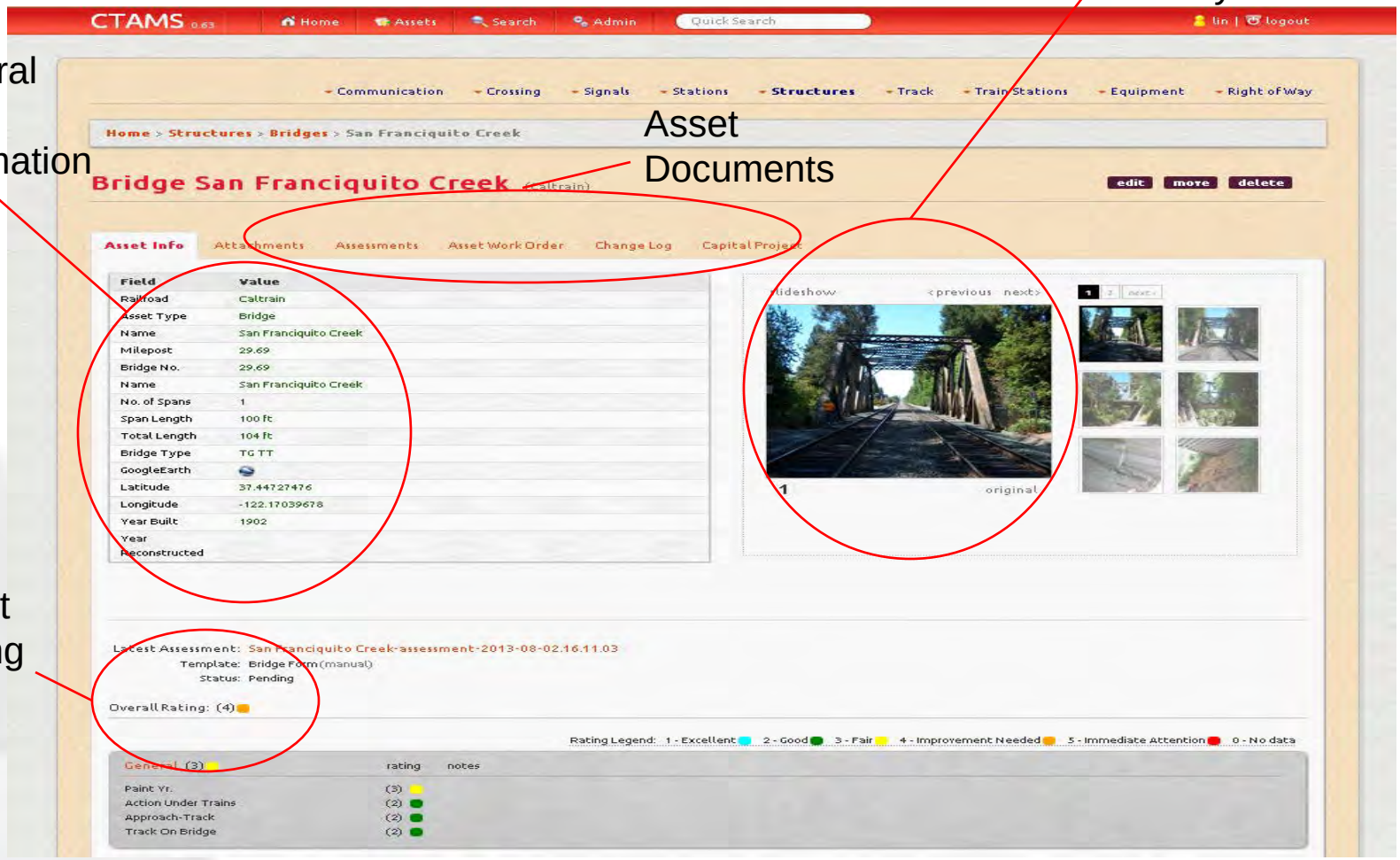
Core Functions

- Asset management
- Condition assessment
- Work order management

Asset Management

- Centralize information
- Organize documents and media
- Monitor asset conditions
- Integrate with Google Earth

Asset Management



General Asset Information

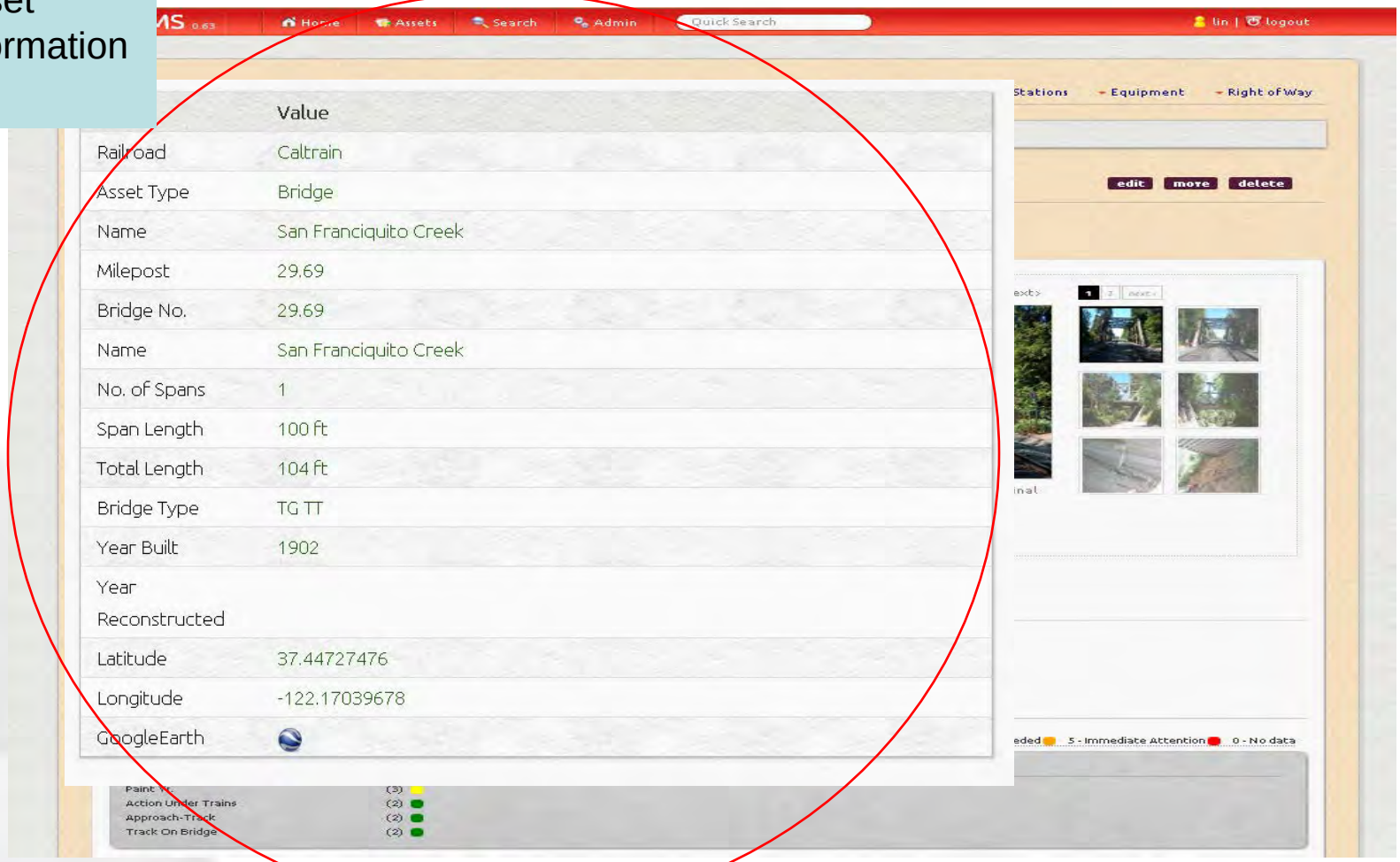
Asset Documents

Photo Gallery

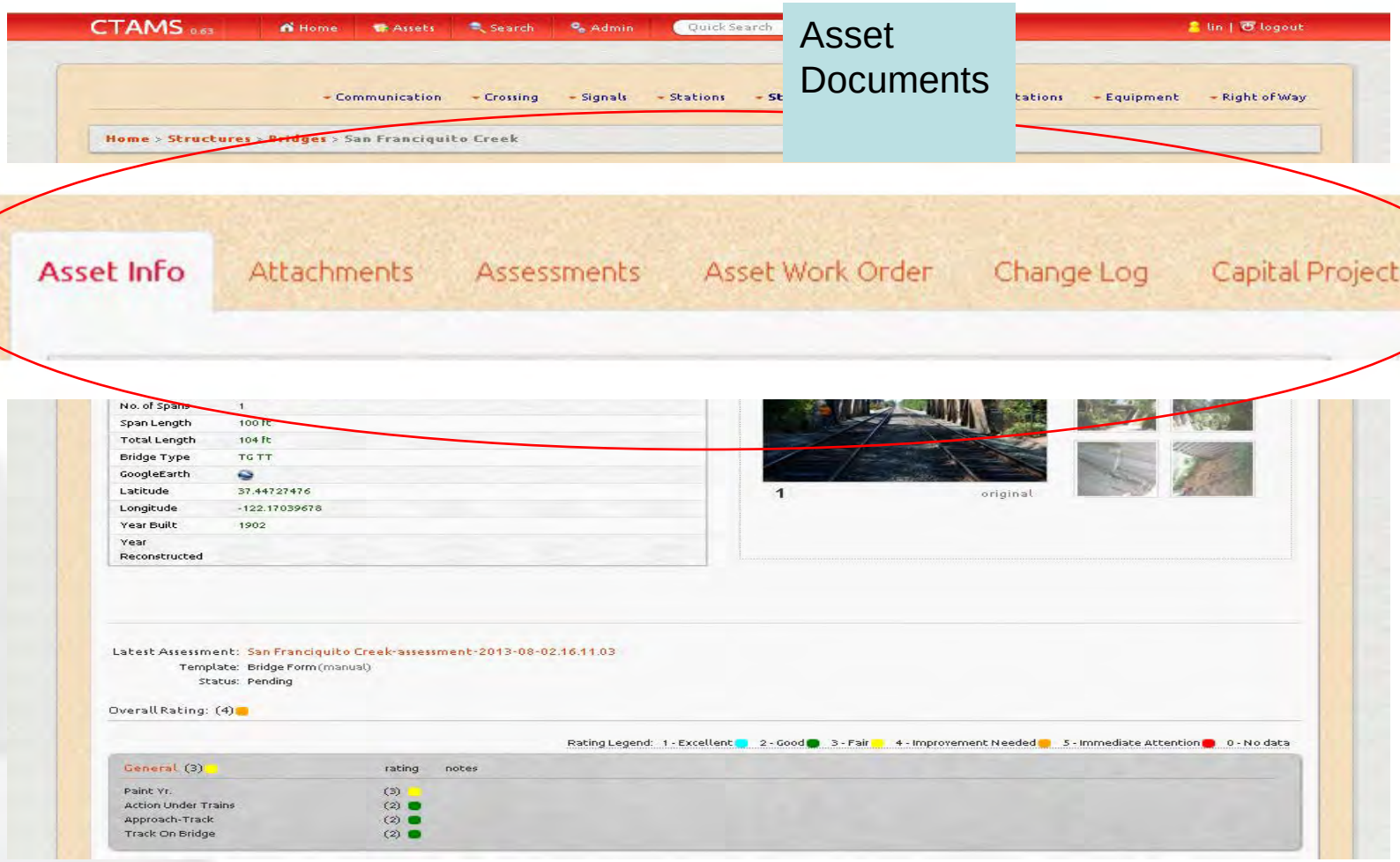
Asset Rating

et Management

General Asset Information

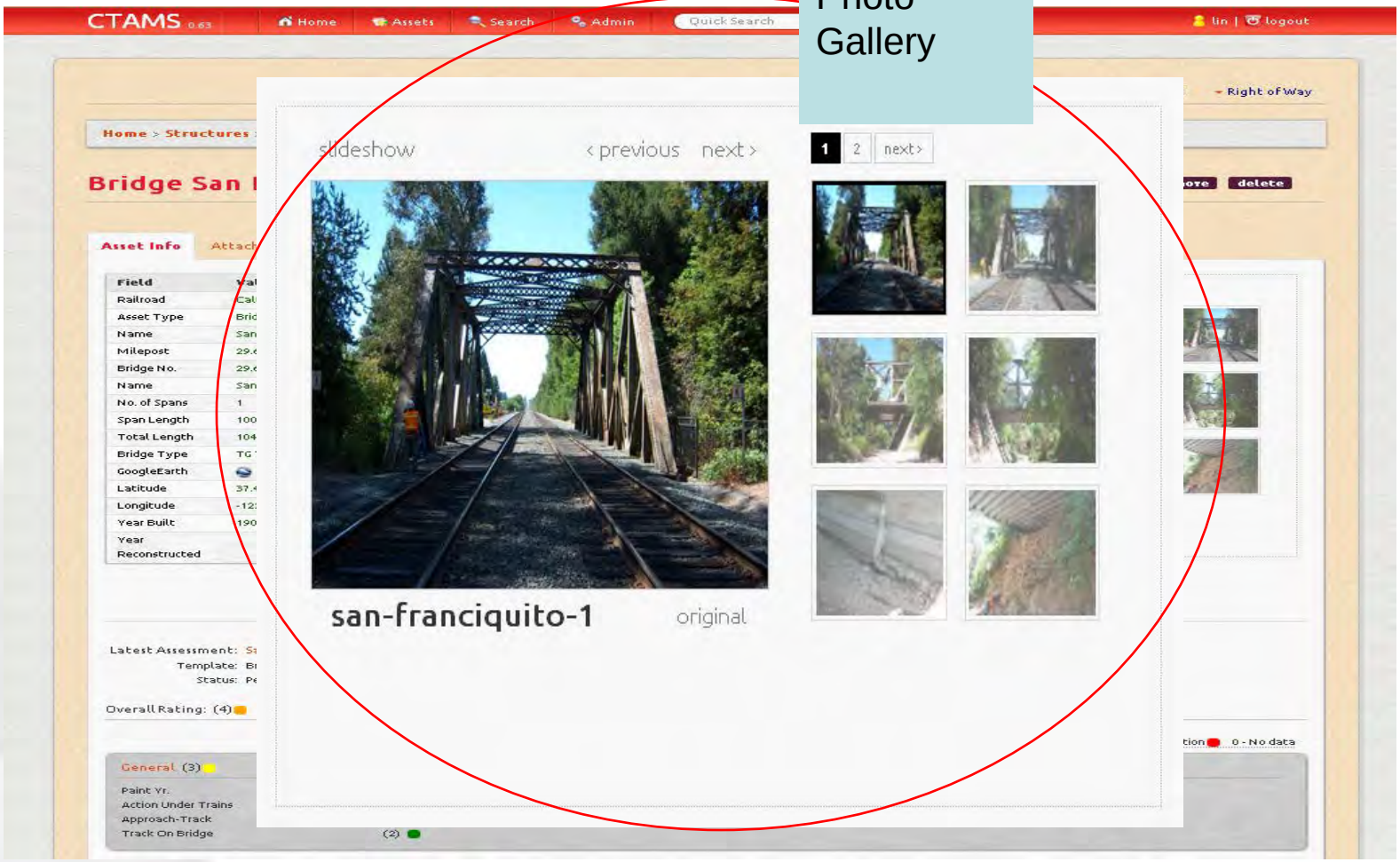


Asset Management

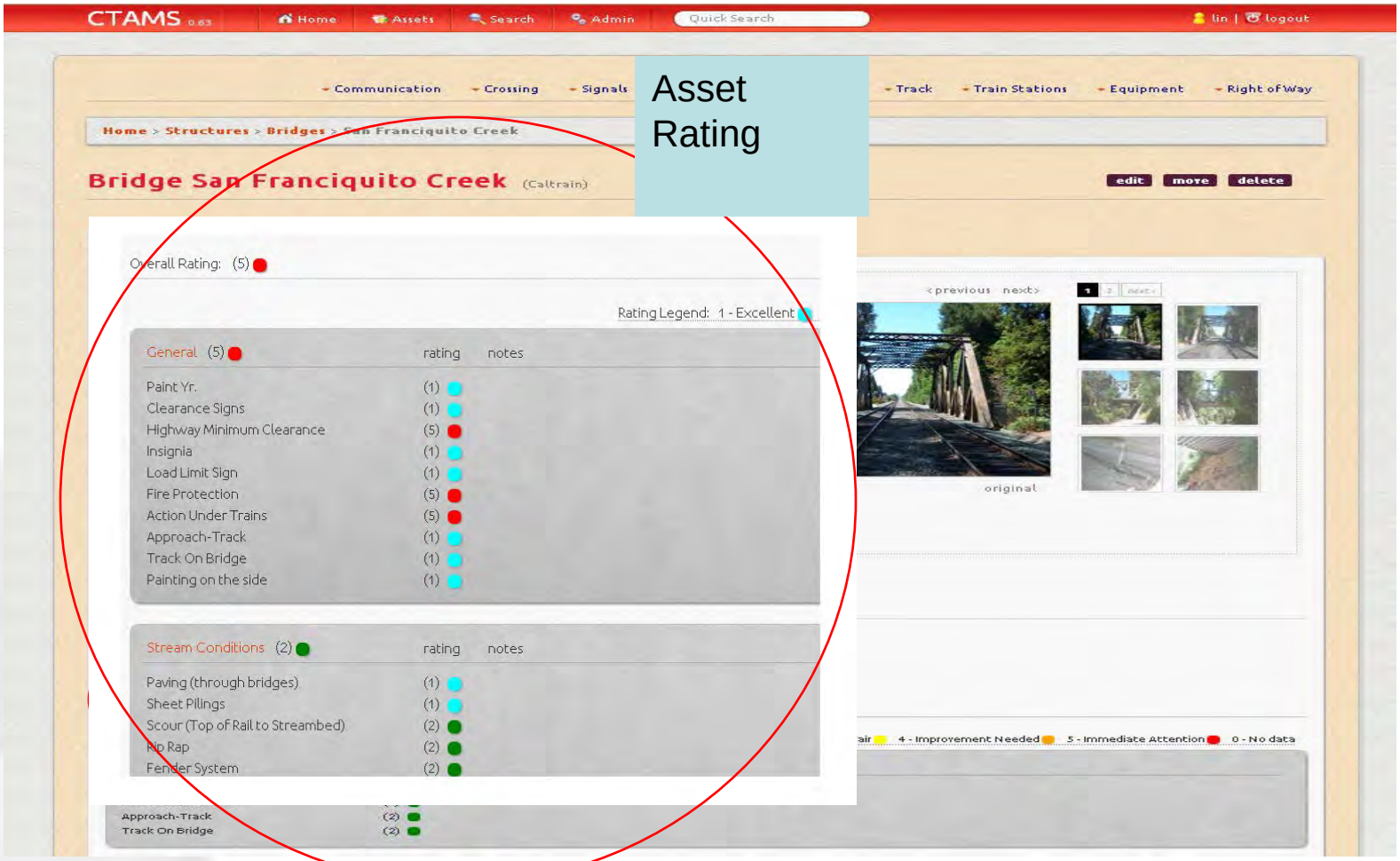


Asset Management

Photo Gallery



Asset Management



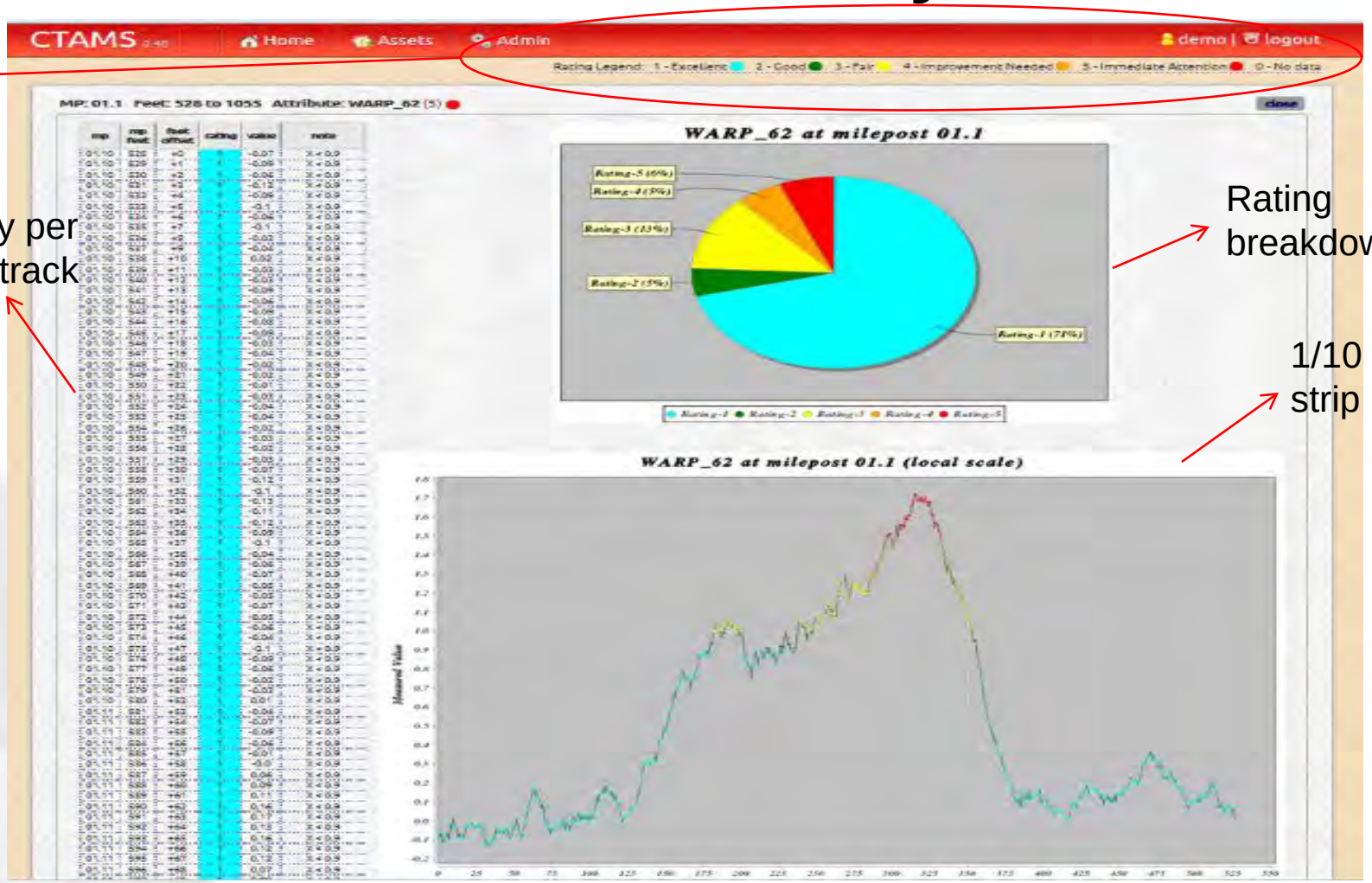
Condition Assessment

- Automated evaluation – track only
- Electronic inspection forms – all assets
- Online review and approval of inspection

Automatic Track Geometry Assessment

Rating legend

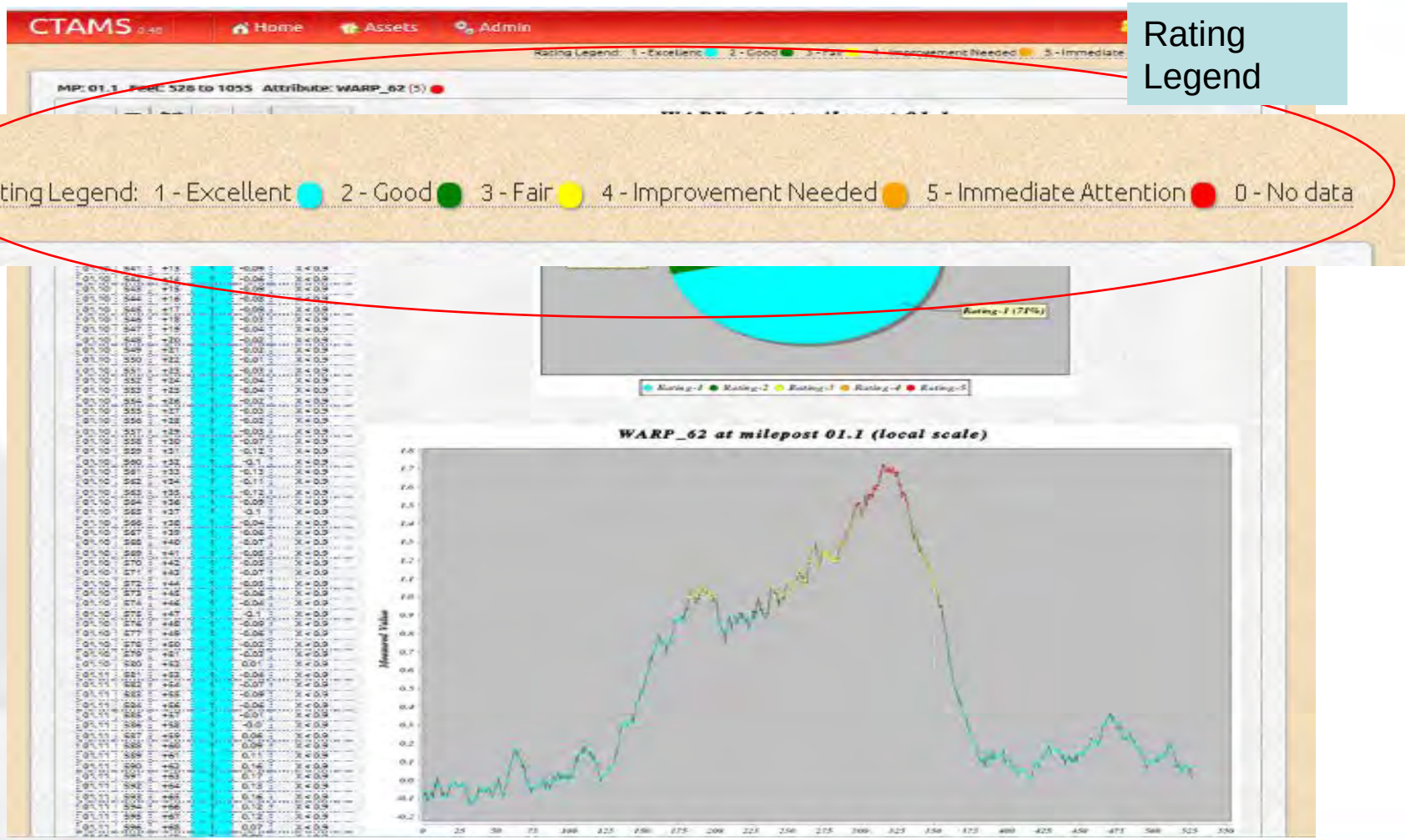
Rating table by per foot of track



Rating breakdown

1/10 mile strip chart

Automatic Track Geometry Assessment

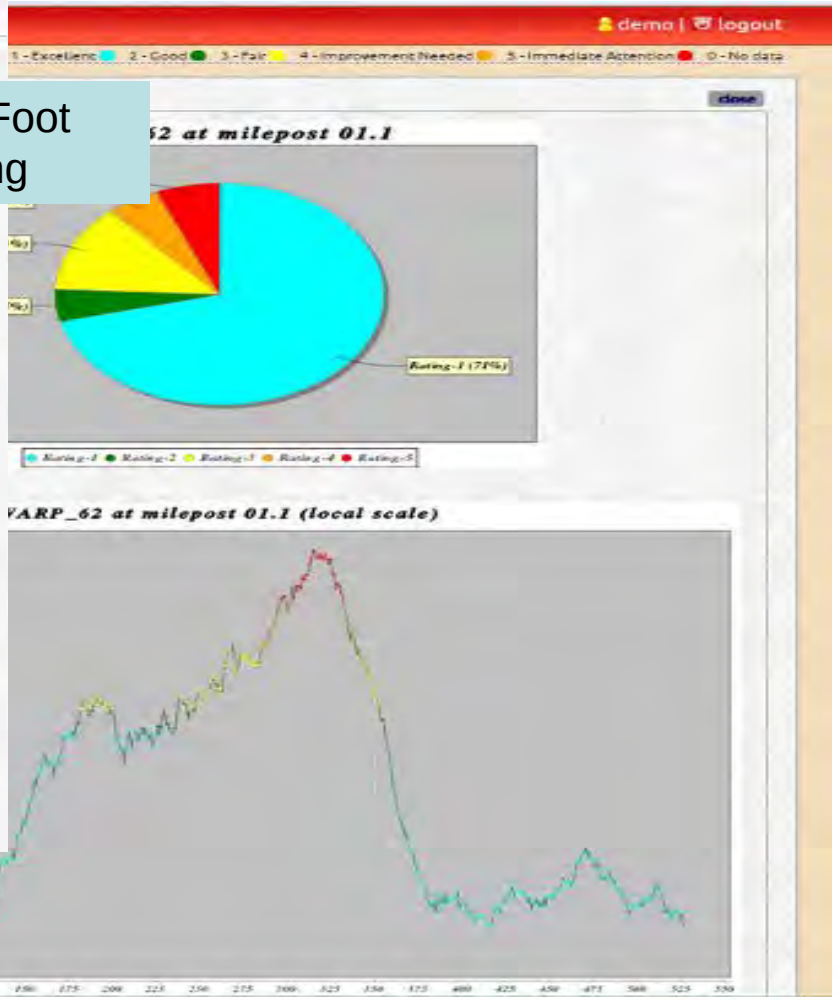


Automatic Track Geometry Assessment

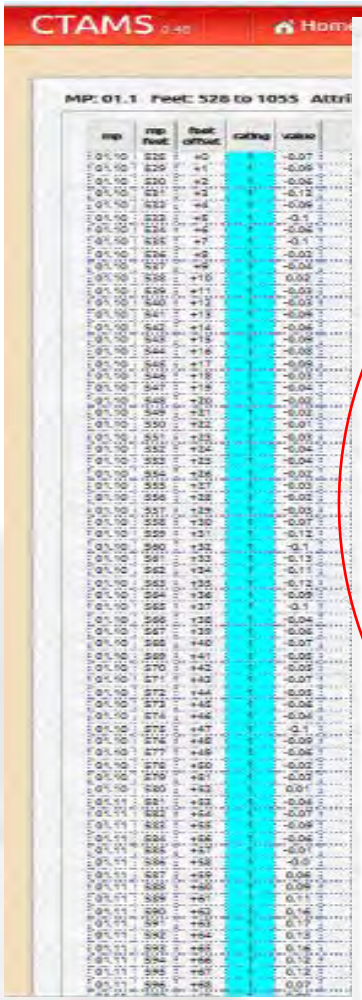
MP: 01.1 Feet: 528 to 1055 Attribute: WARP_62 (5)

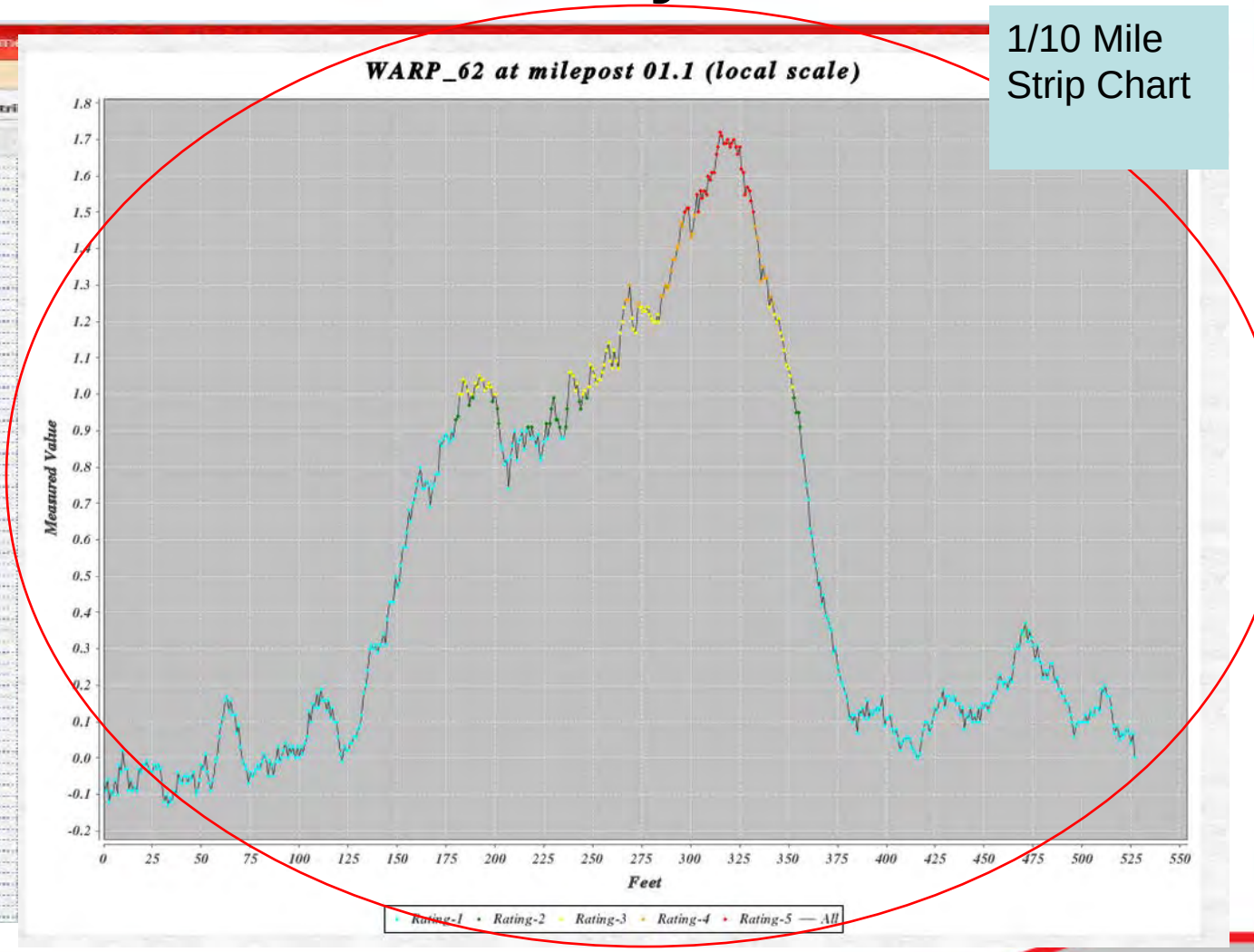
mp	mp feet	feet offset	rating	value	note
01.1000	528	+0	1	-0.07	X < 0.9
01.1001	529	+1	1	-0.09	X < 0.9
01.1003	530	+2	1	-0.06	X < 0.9
01.1005	531	+3	1	-0.12	X < 0.9
01.1007	532	+4	1	-0.09	X < 0.9
01.1009	533	+5	1	-0.1	X < 0.9
01.1011	534	+6	1	-0.06	X < 0.9
01.1013	535	+7	1	-0.1	X < 0.9
01.1015	536	+8	1	-0.02	X < 0.9
01.1017	537	+9	1	-0.04	X < 0.9
01.1018	538	+10	1	0.02	X < 0.9
01.1020	539	+11	1	-0.03	X < 0.9
01.1022	540	+12	1	-0.03	X < 0.9
01.1024	541	+13	1	-0.09	X < 0.9
01.1026	542	+14	1	-0.06	X < 0.9
01.1028	543	+15	1	-0.09	X < 0.9
01.1030	544	+16	1	-0.08	X < 0.9
01.1032	545	+17	1	-0.09	X < 0.9
01.1034	546	+18	1	-0.03	X < 0.9
01.1035	547	+19	1	-0.04	X < 0.9
01.1037	548	+20	1	-0.02	X < 0.9
01.1039	549	+21	1	-0.02	X < 0.9
01.1041	550	+22	1	-0.01	X < 0.9
01.1043	551	+23	1	-0.03	X < 0.9
01.1045	552	+24	1	-0.04	X < 0.9
01.1047	553	+25	1	-0.04	X < 0.9
01.1049	554	+26	1	-0.02	X < 0.9
01.1051	555	+27	1	-0.03	X < 0.9
01.1053	556	+28	1	-0.02	X < 0.9
01.1054	557	+29	1	-0.03	X < 0.9

Per-Foot Rating



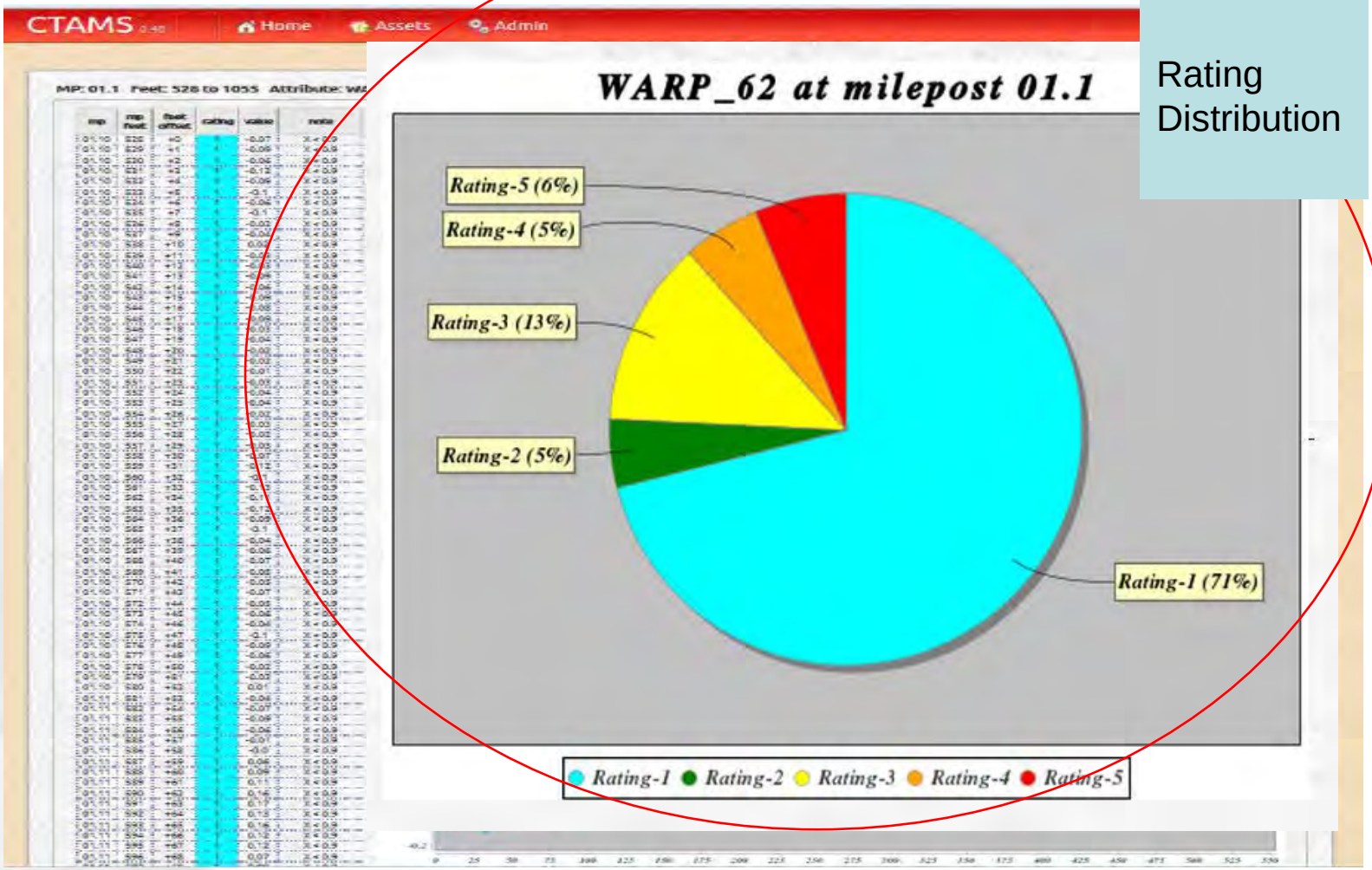
Automatic Track Geometry Assessment





1/10 Mile Strip Chart

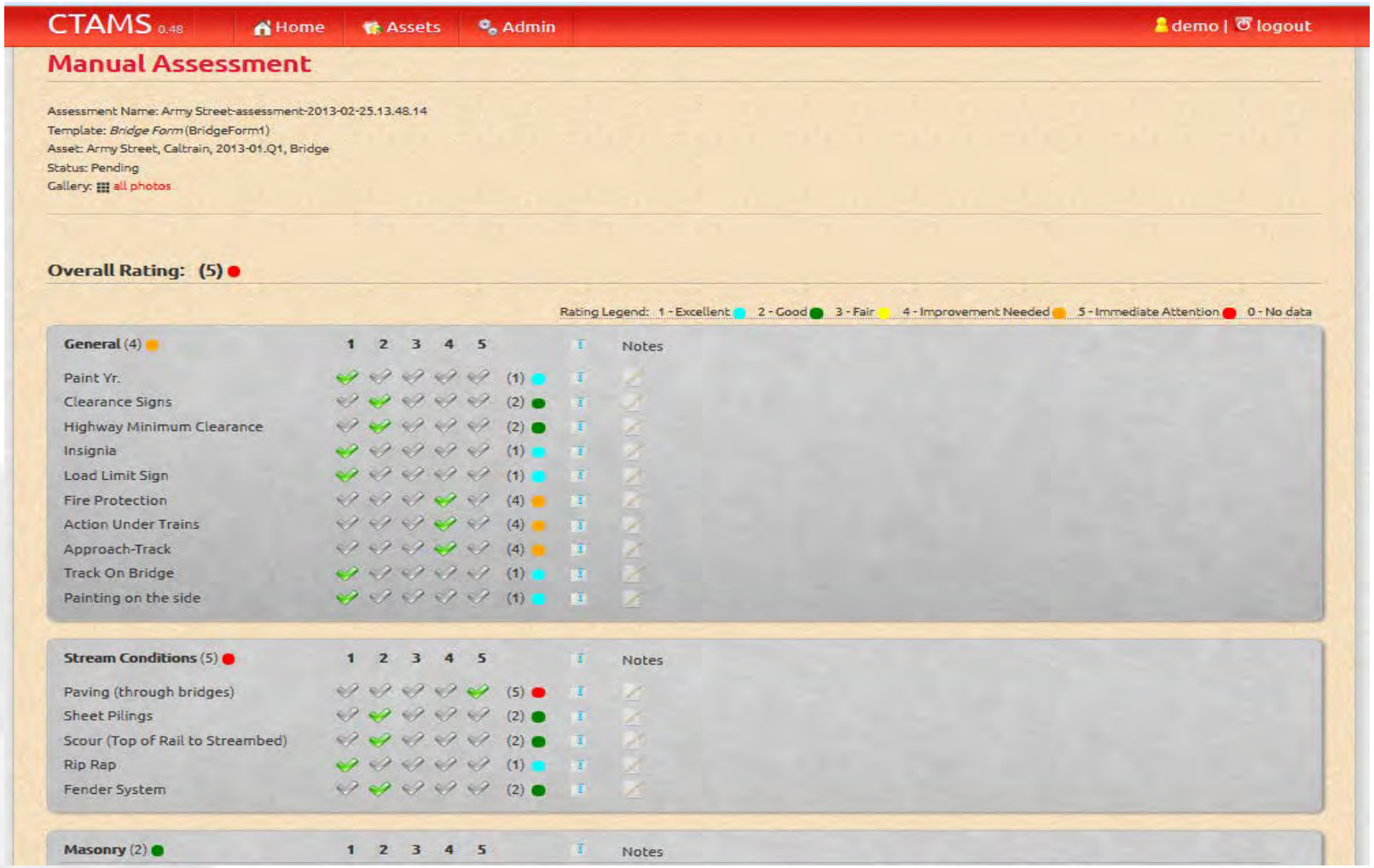
Automatic Track Geometry Assessment



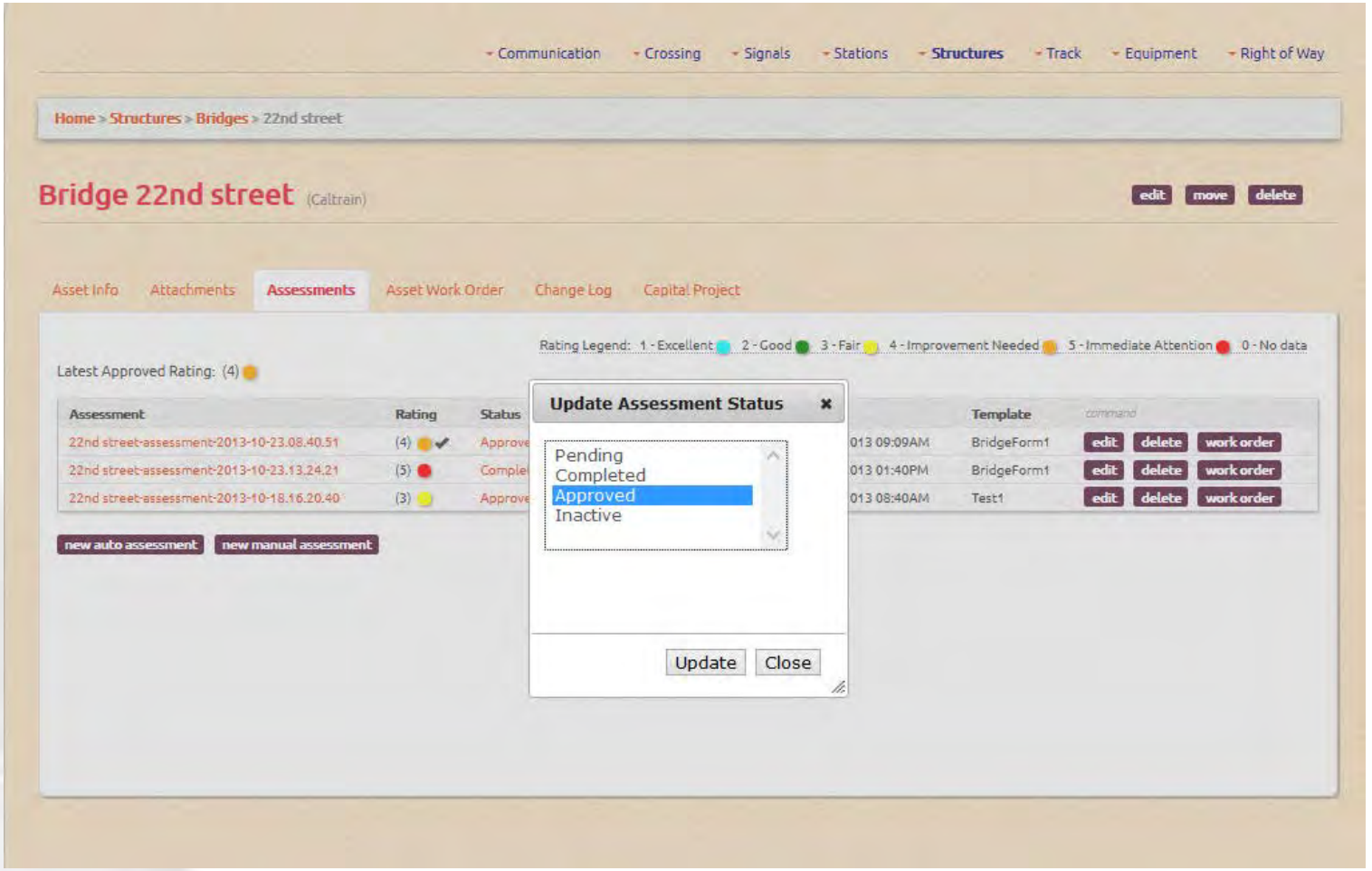
Rating Distribution

Automatic Track Geometry Assessment

Manual Assessment



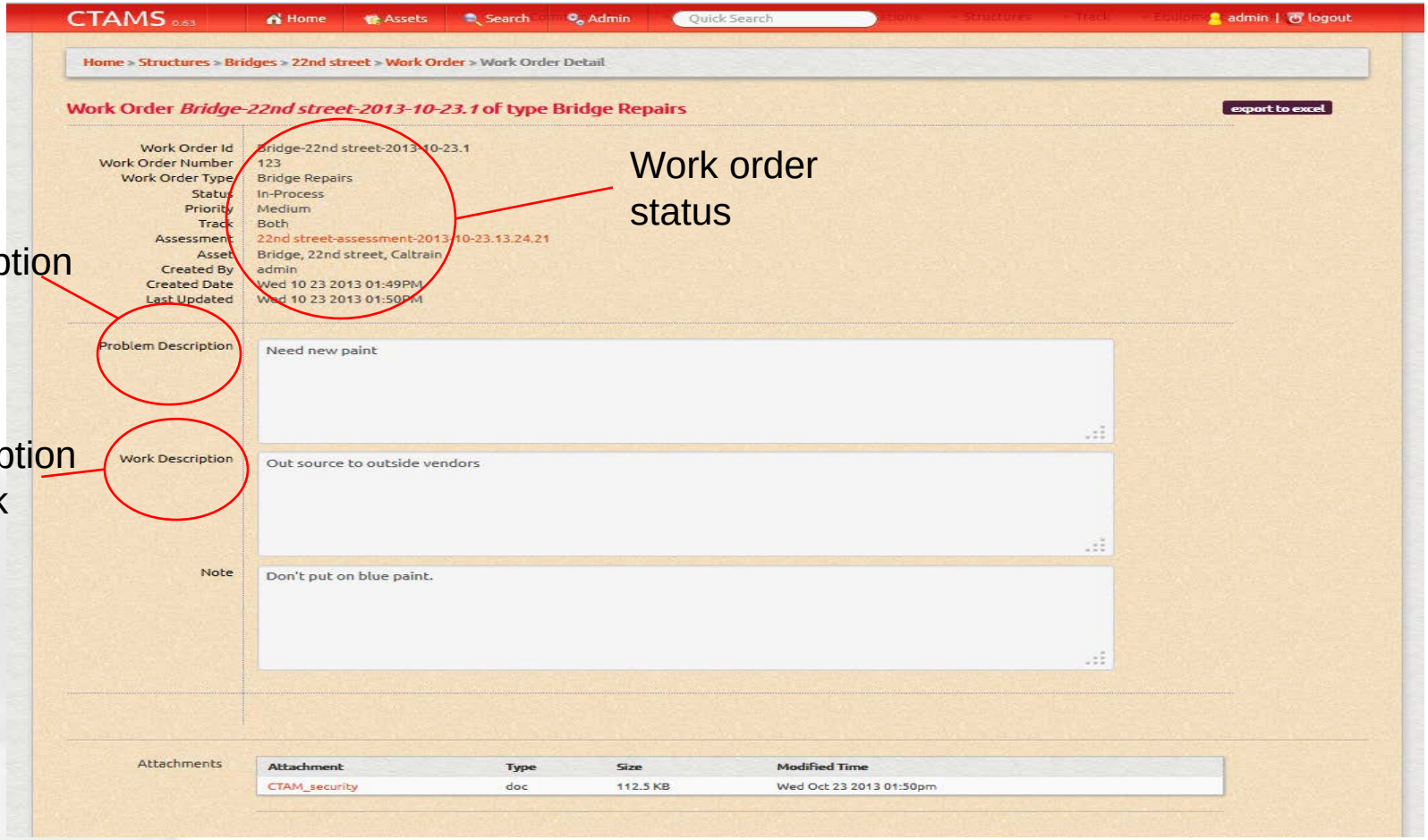
Assessment Approval



Work Order Management

- Create work orders
- Track progress
- Review work history

Work Order Management

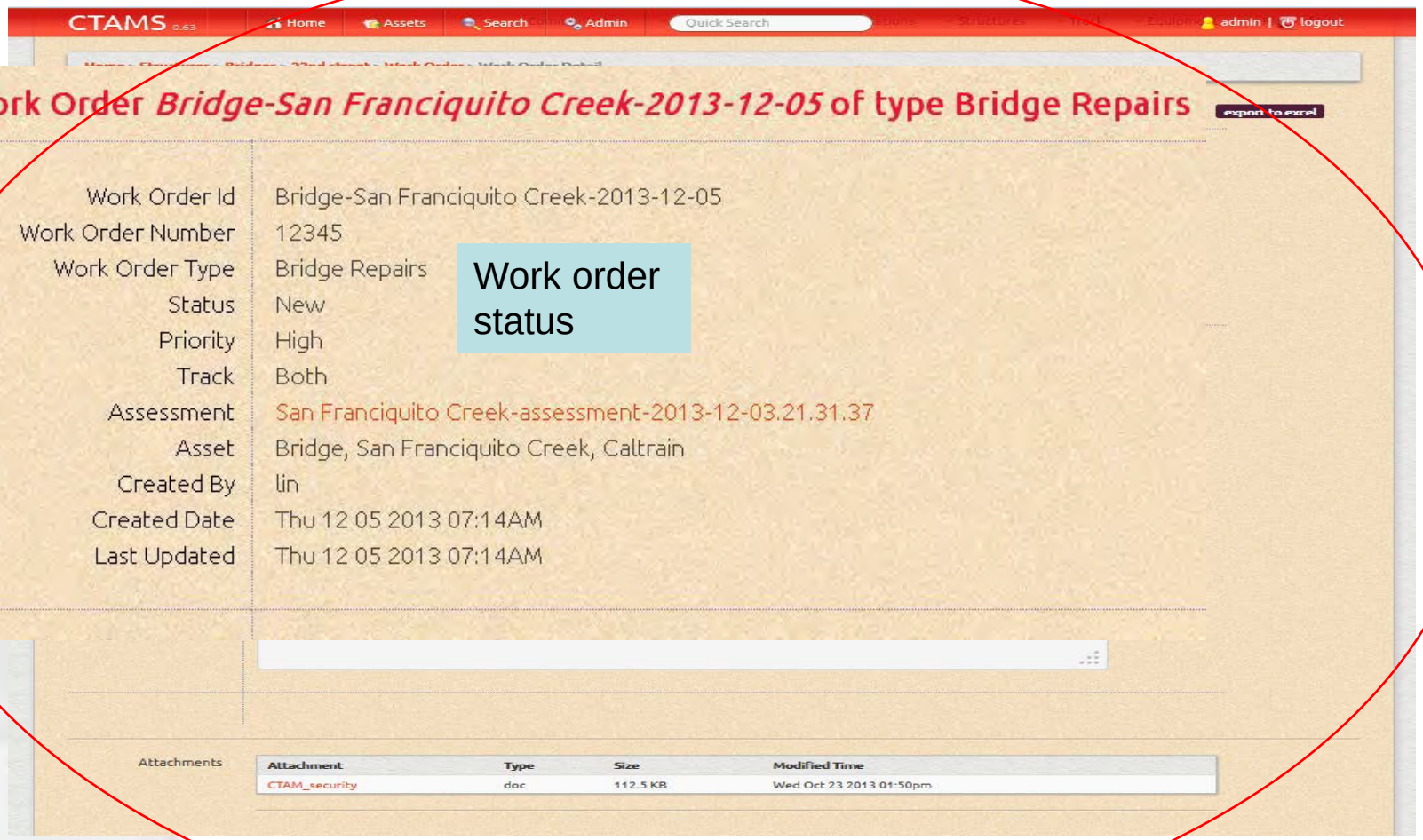


Defect Description

Work order status

Description of work

Work Order Management



Extended Features

- Customizable
- Web based
- Enhanced security
- Quick search
- Standardized data format
- Asset change log

Demo

Caltrain Asset Management System

Future Enhancements

- Cost tracking
- Automated trending and forecasting
- Life cycle analysis
- Defect alerts
- Module expansion
  - PTC
  - Rolling Stock
  - Electrification

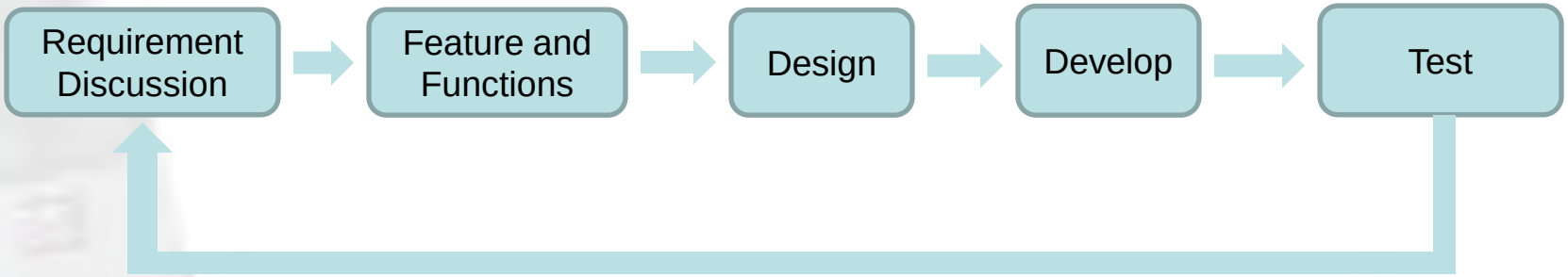
Development Process

Define Baseline Requirements

- End user needs – Engineering, contract operator, operations
- Grant requirements
- Agency IT standards
- System security

Iterative Development Process

1. Discuss requirements
2. Define features and functions
3. Design
4. Develop
5. Review and test
6. Repeat



Caltrain Experience

- Review existing Caltrain SOGR Excel database
- Define system requirements
- Evaluate technology
- Select software applications
- Build workable framework
- Implement specific features
- Test and launch application
- Migrate data

Lessons Learned

What Worked

- Industry experts work closely with developer
- Small, diverse, and stable core project team
- Iterative development approach
- Weekly working sessions with specific deliverables
- Open to new ideas

What Could Be Better

- Aggressive schedule
- Involvement of other internal customers
- User interface design

Challenges Ahead

- Data migration
- Transition
- Maintenance
- Expansion of modules
- Addition of features

Q & A

Special Acknowledgement

- Caltrain Team
  - SOGR Manager and technical expert – Pete Gutierrez
  - Project Oversight – Stephen Chao

- RSE Team
  - Database architect – William Wong
  - Project Support – James Chan, Jennifer Ma, Phil Leong, Stacy Ingersoll