Preparing to Meet FTA State of Good Repair Requirements

Developing a General Program to Support Asset Inventory Management and Provide Decision Support Tools

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Key Requirements of 49 CFR 625

Managing State of Good Repair

1. FTA published Transit Asset Management Final Rule July 26, 2016
2. Effective October 1, 2016 – Full implementation over 2 years
3. Establishes a National Transit Asset Management (TAM) System
4. A Transit Asset Management System is "a strategic and systematic process of operating, maintaining, and improving public transportation capital assets effectively through the life cycle of such assets."

Implementing a TAM Program

National Transit Asset Management System Elements

1. The definition of state of good repair
2. Performance measures for capital assets
3. Performance targets for improving the condition of capital assets
4. A requirement to develop and carry out a TAM plan
5. Requirement to report condition of assets
6. Analytical processes and decision support tools

Developing an Inventory and Decision Support Program

History of Development (Decision Support Program)

1. Federal Transit Administration (FTA) grant for development
2. December 2011: Proposal to Federal Transit Administration (FTA)
3. February 2012: Project Implementation Plan approved
4. March 2012: Development began
5. August 2013: Development completion

Development Goals

Key Features

1. Standard formats for data
2. Web Based
3. Search and ranking
4. Log changes to data
5. Customizable and expandable
6. Security features

System Features

Core Functions

1. Asset Inventory Management (all assets)
2. Condition Assessment
3. Work Order Management

Examples of asset inventory and assessment for track and bridges follows. Program is expandable to cover any asset category or class….

Asset Inventory-General

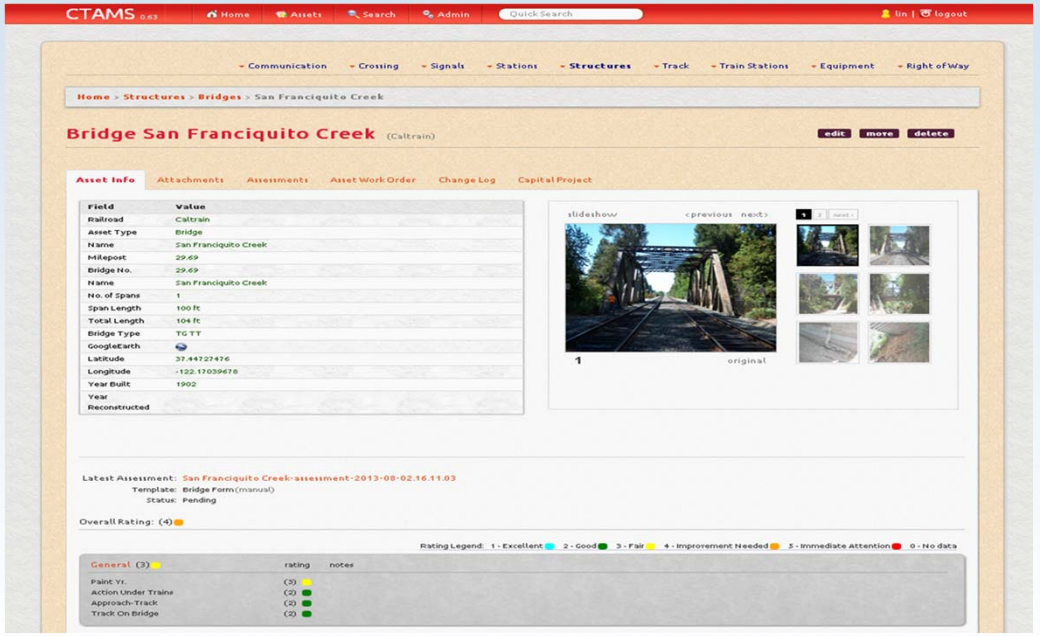
Asset Inventory Goals

1. Centralize information
2. Organize documents and media
3. Monitor asset condition
4. Integrate with Google Earth and System Maps

Bridge Inventory

Key Features

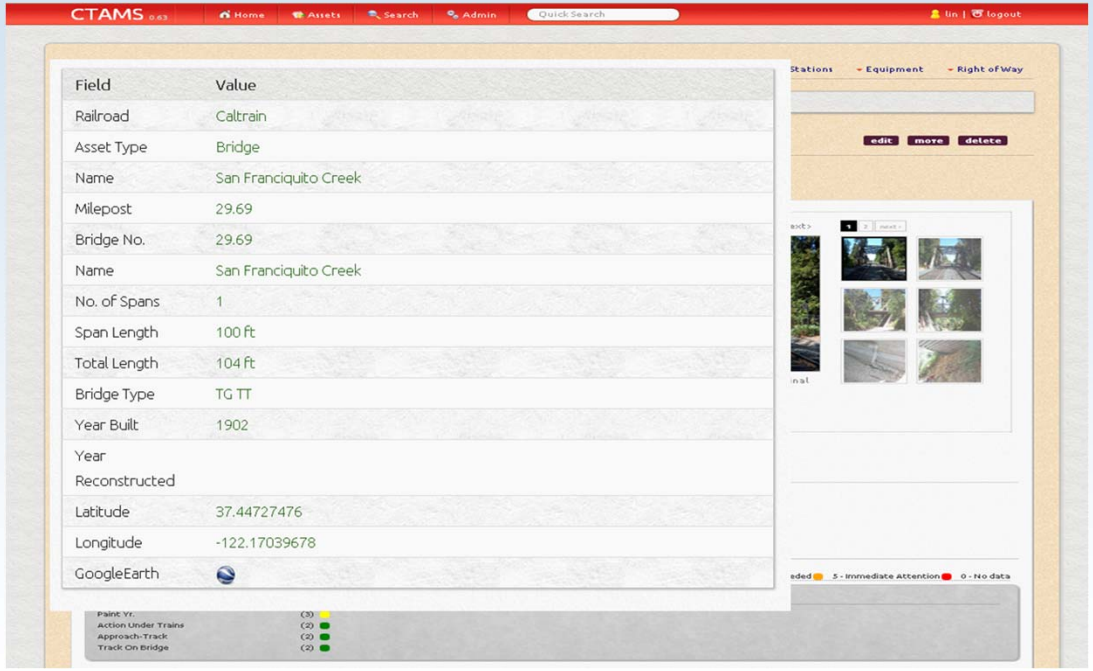
1. General information
2. Support documents
3. Asset Rating
4. Photo gallery



Bridge Inventory, continued

General Information

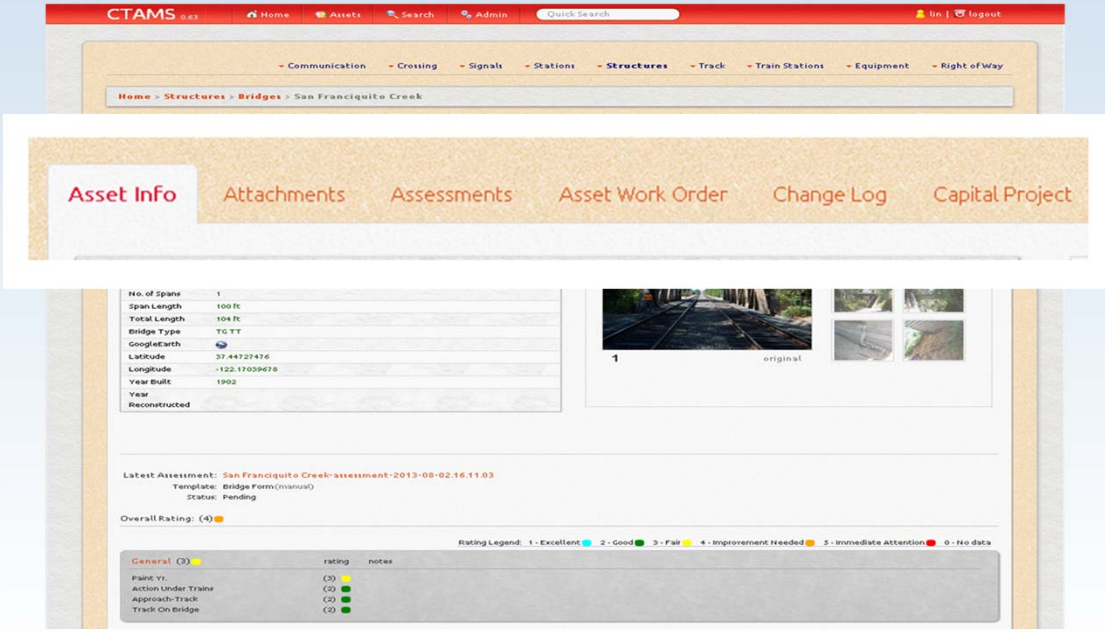
1. Asset Description
2. Type
3. Year Built
4. Location
5. Key Dimensions



Bridge Inventory, continued

Support Documents

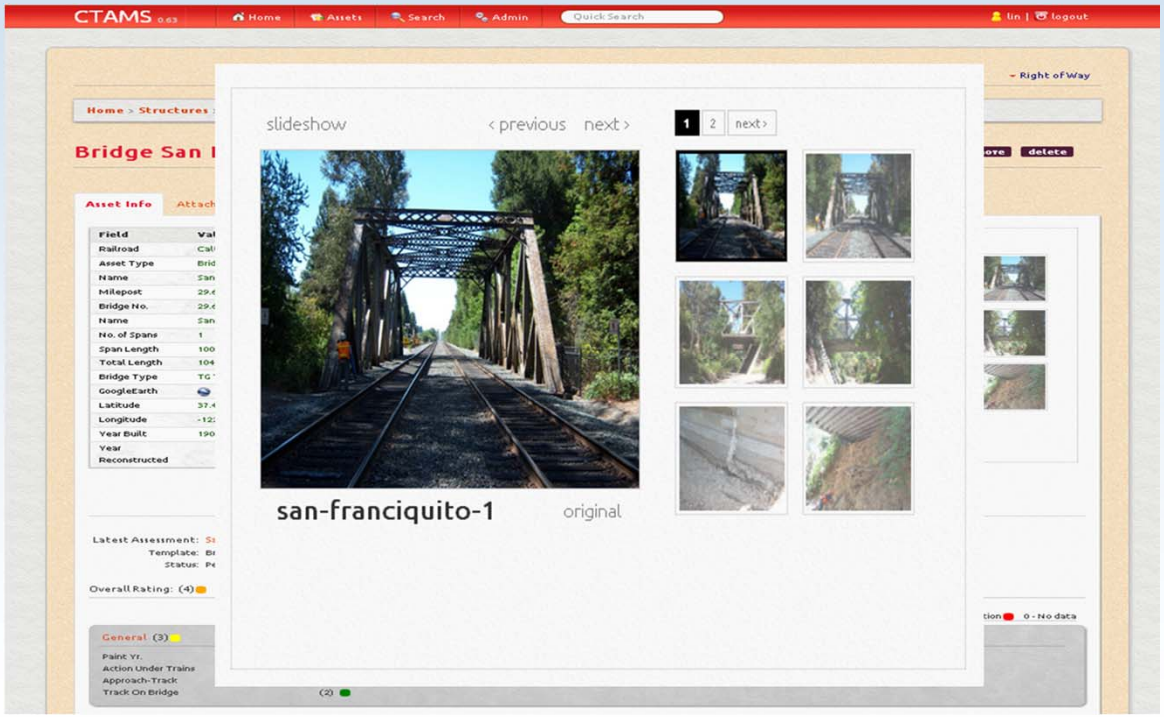
1. Asset Information
2. Attachments
3. Assessments
4. Work Orders
5. Change Log
6. Capital Projects



Bridge Inventory, continued

Photo Gallery

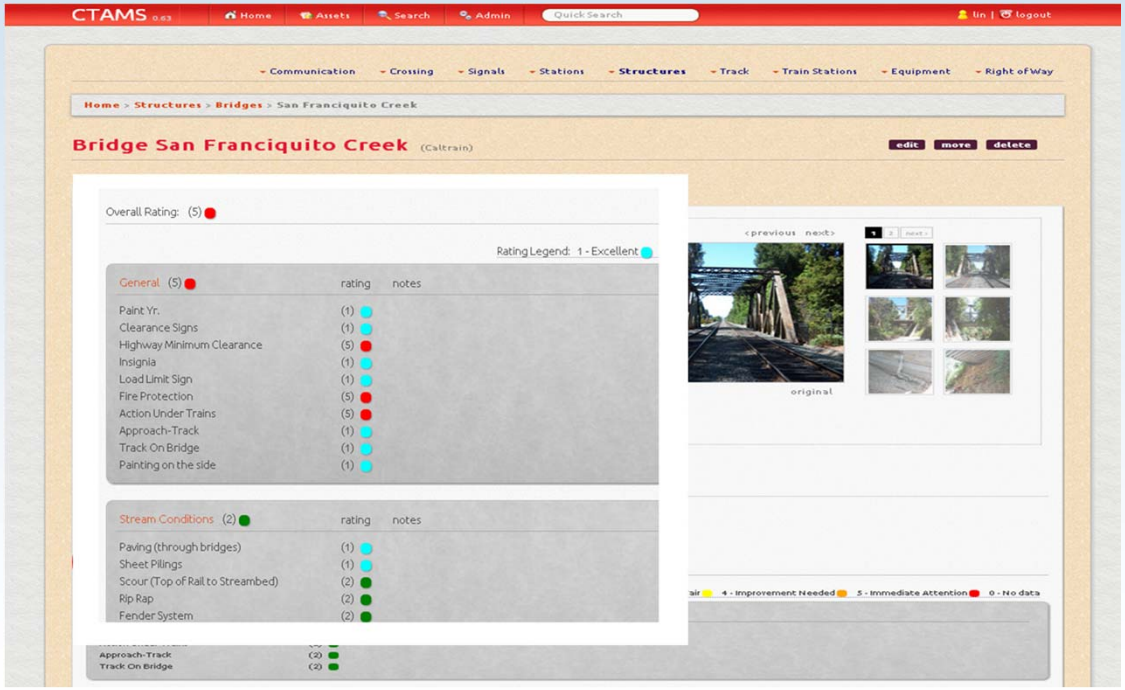
1. General views
2. Detail views
3. Adjacent views
4. Slide show



Bridge Inventory, concluded

Overall Rating

1. Structure rating
2. Paint
3. Approach ratings
4. Sub-Asset ratings
5. Stream conditions



Condition Assessment Overview

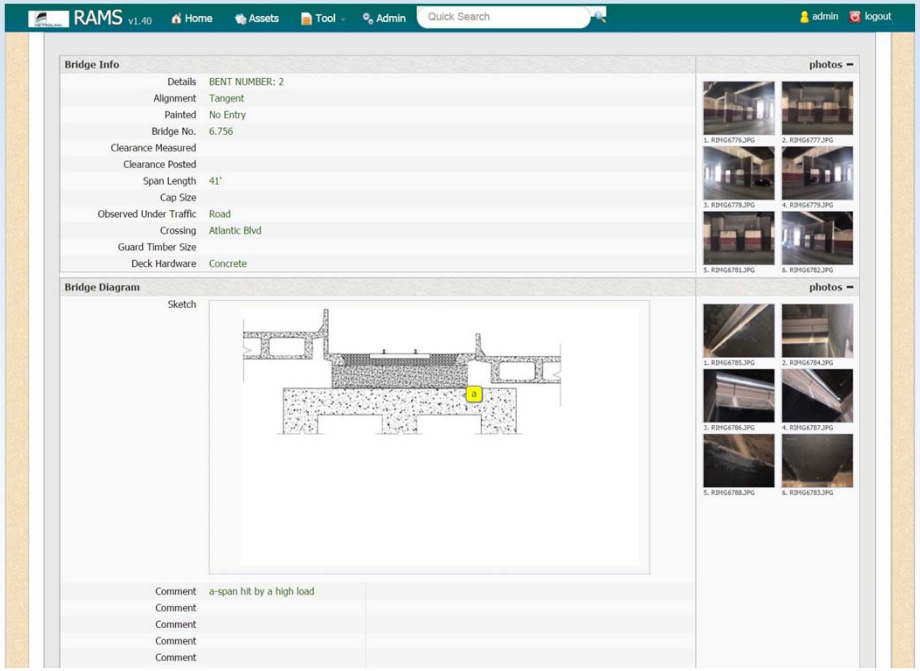
Key Features

1. Automated evaluation where possible
2. Electronic inspection forms for all assets
3. Online review and approval of inspections

Bridge Assessment

Bridge Module Data

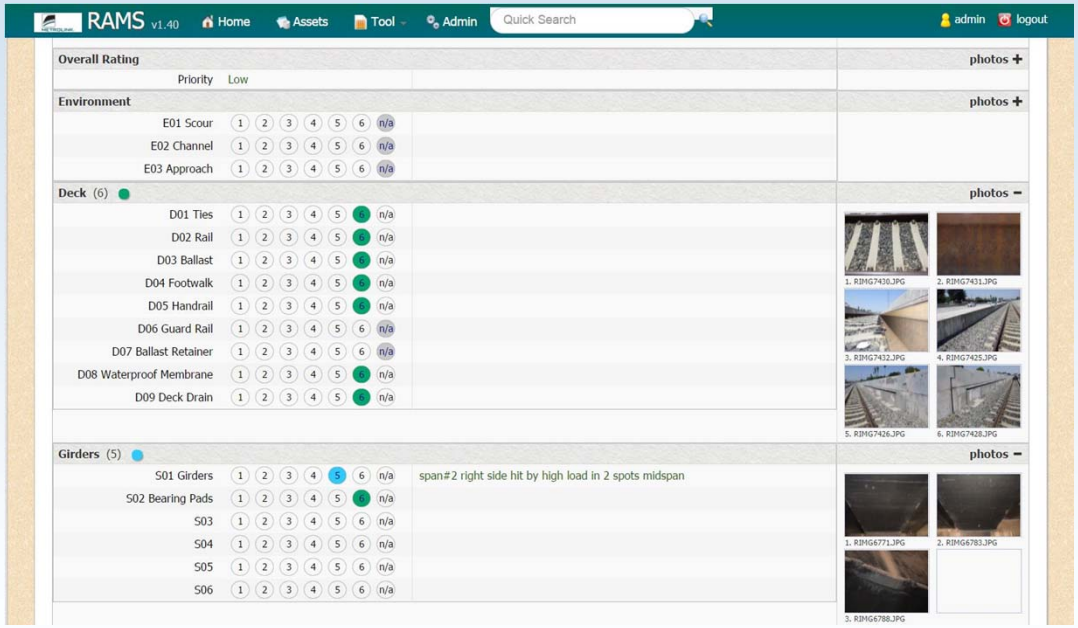
1. Text and graphic data
2. Data entry via electronic tablet with forms
3. Online review and approval of inspections



Bridge Assessment, continued

Bridge Rating

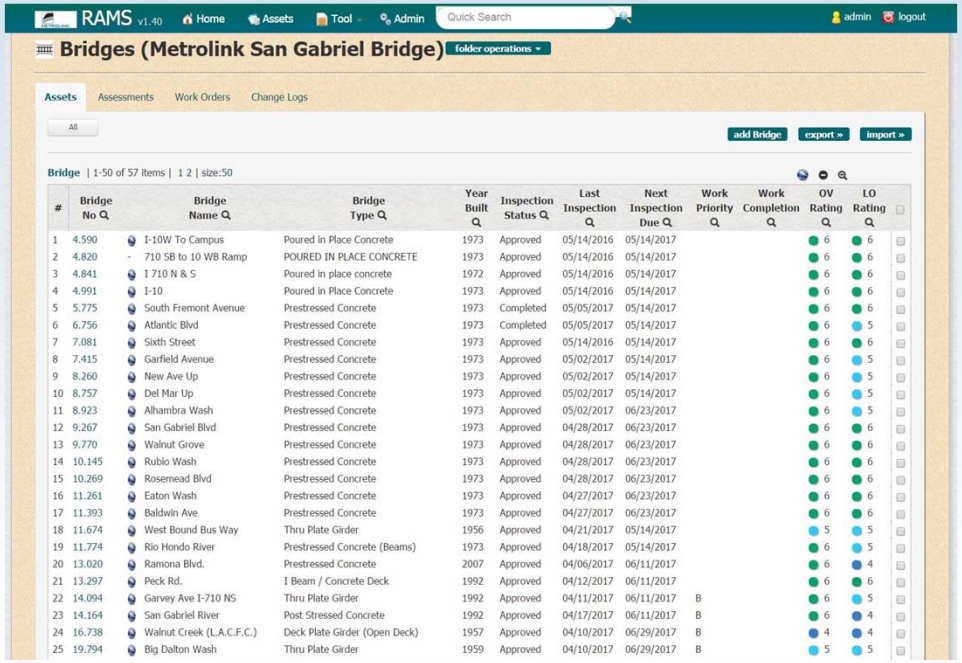
1. Broken into Sub-Assets and components
2. Rating of 1 to 6 (based on FRA recommendation)
3. Lowest Rating of component is rating for bridge



Bridge Assessment, concluded

Bridge Roll-up

1. Ratings roll up to overview page
2. Sort or filter by all columns
3. Links back to all data

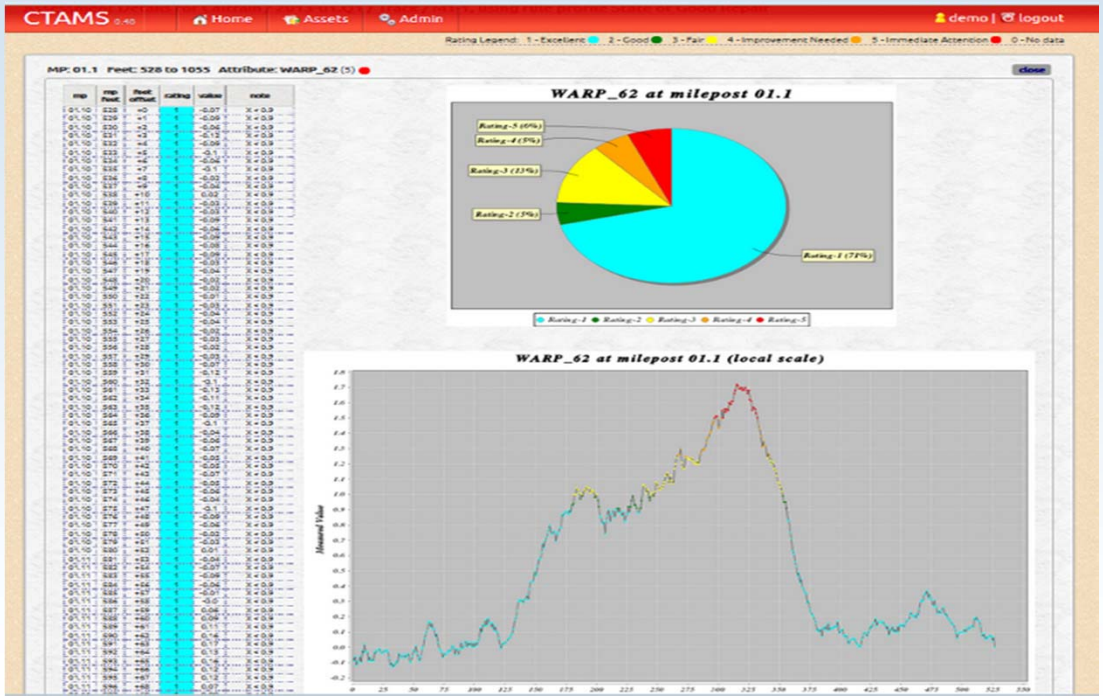


#	Bridge No	Bridge Name	Bridge Type	Year Built	Inspection Status	Last Inspection	Next Inspection Due	Work Priority	Work Completion	OV Rating	LO Rating
1	4.590	I-10W To Campus	Poured in Place Concrete	1973	Approved	05/14/2016	05/14/2017			6	6
2	4.820	710 SB to 10 WB Ramp	POURED IN PLACE CONCRETE	1973	Approved	05/14/2016	05/14/2017			6	6
3	4.841	I 710 N & S	Poured in place concrete	1972	Approved	05/14/2016	05/14/2017			6	6
4	4.991	I-10	Poured in Place Concrete	1973	Approved	05/14/2016	05/14/2017			6	6
5	5.775	South Fremont Avenue	Prestressed Concrete	1973	Completed	05/05/2017	05/14/2017			6	6
6	6.756	Atlantic Blvd	Prestressed Concrete	1973	Completed	05/05/2017	05/14/2017			6	5
7	7.081	Sixth Street	Prestressed Concrete	1973	Approved	05/14/2016	05/14/2017			6	6
8	7.415	Garfield Avenue	Prestressed Concrete	1973	Approved	05/02/2017	05/14/2017			6	5
9	8.260	New Ave Up	Prestressed Concrete	1973	Approved	05/02/2017	05/14/2017			6	5
10	8.757	Del Mar Up	Prestressed Concrete	1973	Approved	05/02/2017	05/14/2017			6	5
11	8.923	Alhambra Wash	Prestressed Concrete	1973	Approved	05/02/2017	06/23/2017			6	5
12	9.267	San Gabriel Blvd	Prestressed Concrete	1973	Approved	04/28/2017	06/23/2017			6	6
13	9.770	Walnut Grove	Prestressed Concrete	1973	Approved	04/28/2017	06/23/2017			6	6
14	10.145	Rubio Wash	Prestressed Concrete	1973	Approved	04/28/2017	06/23/2017			6	6
15	10.269	Rosemead Blvd	Prestressed Concrete	1973	Approved	04/28/2017	06/23/2017			6	6
16	11.261	Eaton Wash	Prestressed Concrete	1973	Approved	04/27/2017	06/23/2017			6	6
17	11.393	Baldwin Ave	Prestressed Concrete	1973	Approved	04/27/2017	06/23/2017			6	6
18	11.674	West Bound Bus Way	Thru Plate Girder	1956	Approved	04/21/2017	05/14/2017			5	5
19	11.774	Rio Hondo River	Prestressed Concrete (Beams)	1973	Approved	04/18/2017	05/14/2017			6	5
20	13.020	Ramona Blvd.	Prestressed Concrete	2007	Approved	04/06/2017	06/11/2017			6	4
21	13.297	Peck Rd.	I Beam / Concrete Deck	1992	Approved	04/12/2017	06/11/2017			6	6
22	14.094	Garvey Ave I-710 NS	Thru Plate Girder	1992	Approved	04/11/2017	06/11/2017	B		6	5
23	14.164	San Gabriel River	Post Stressed Concrete	1992	Approved	04/17/2017	06/11/2017	B		6	4
24	16.738	Walnut Creek (L.A.C.F.C.)	Deck Plate Girder (Open Deck)	1957	Approved	04/10/2017	06/29/2017	B		4	4
25	19.794	Big Dalton Wash	Thru Plate Girder	1959	Approved	04/10/2017	06/29/2017	B		5	5

Track Assessment

Geometry Channels

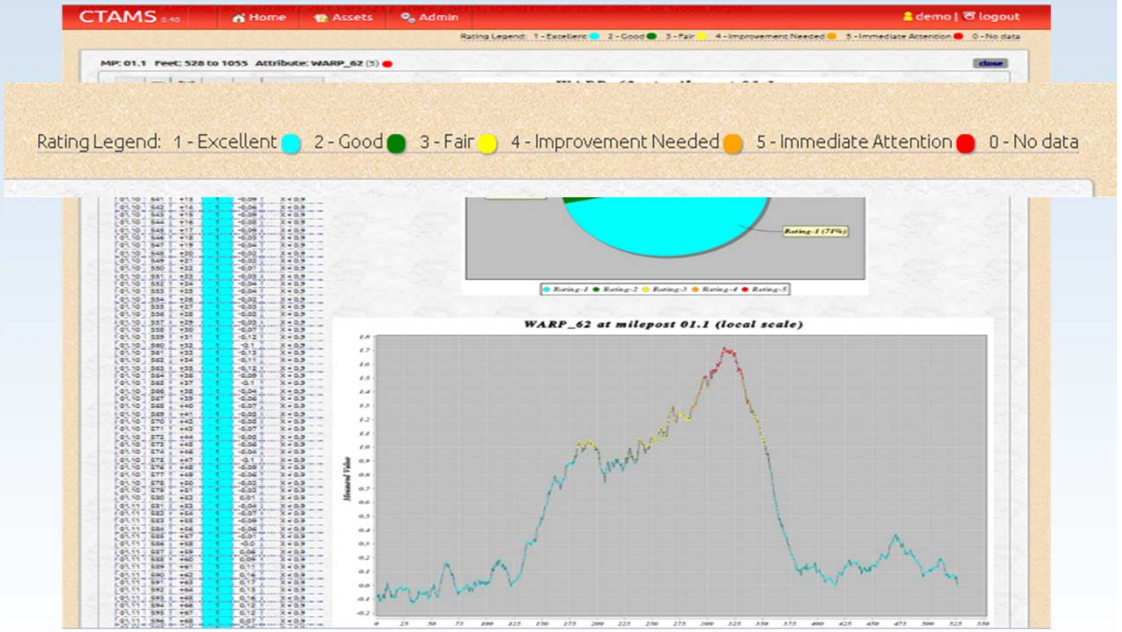
1. Segmented by 1/10 m
2. Detailed data by foot of track
3. Breakdown of rating by foot over 1/10 mile
4. Graph by 1/10 mile
5. Five point rating scale



Track Assessment, continued

Rating Legend

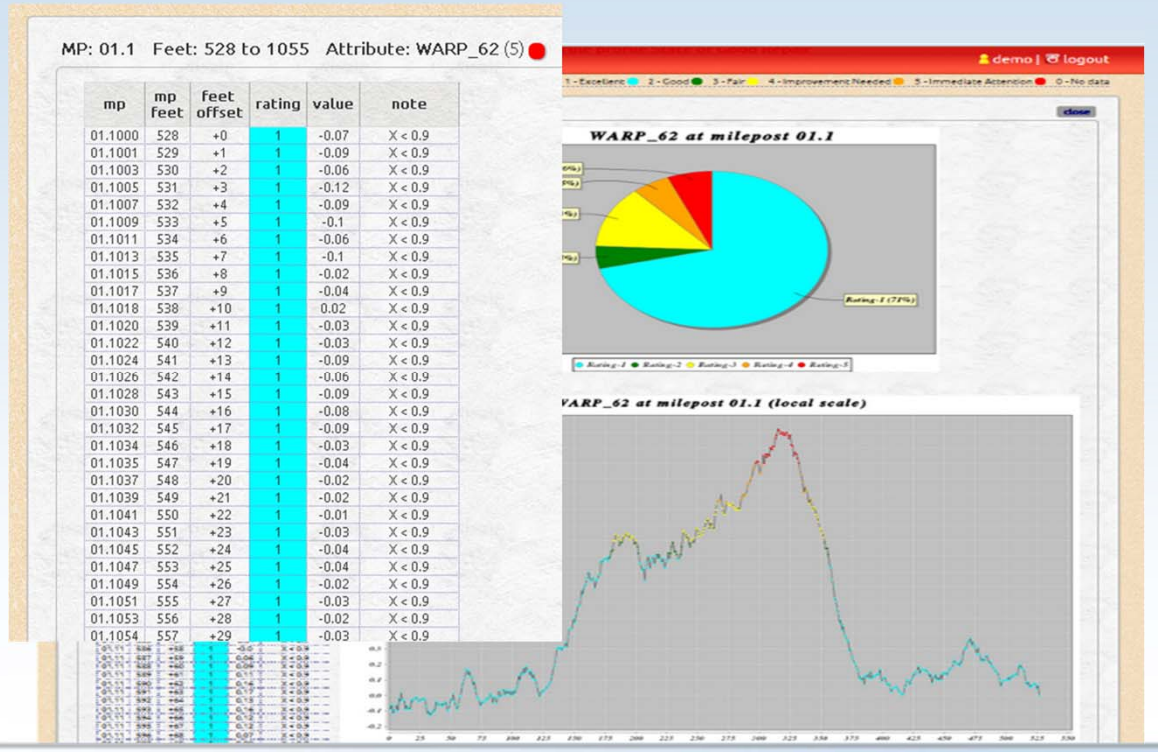
1. Excellent
2. Good
3. Fair
4. Improvement needed
5. Immediate attention
6. No data



Track Assessment, continued

Tabular Data

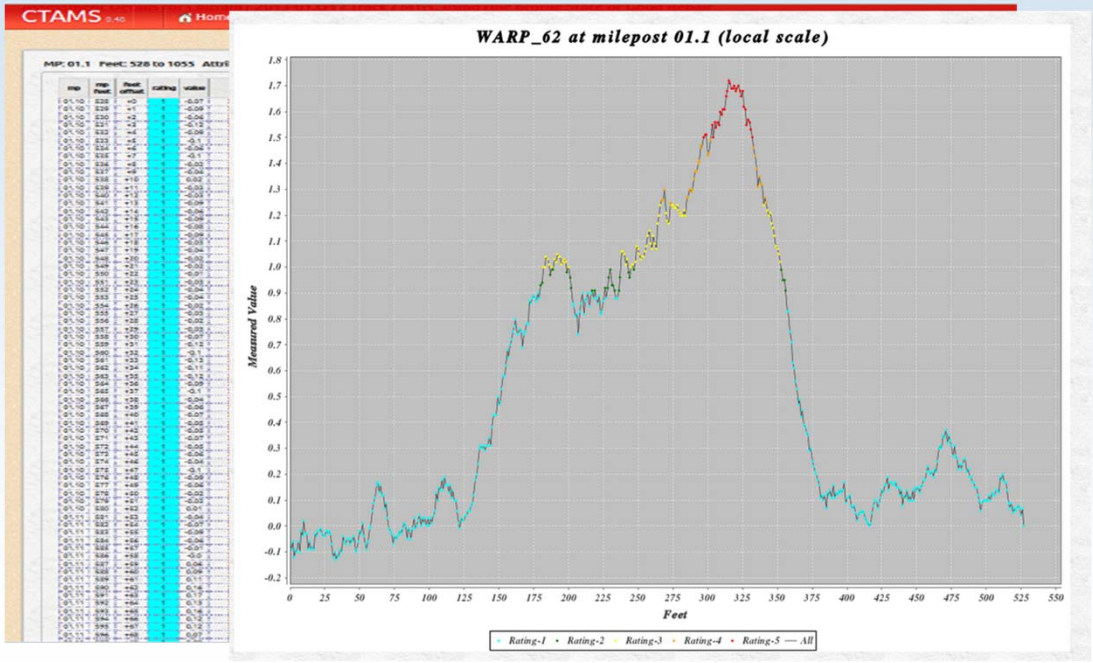
1. Channel
2. Milepost
3. Chainage
4. MP + feet
5. Rating
6. Measured value



Track Assessment, continued

Graph of Segment

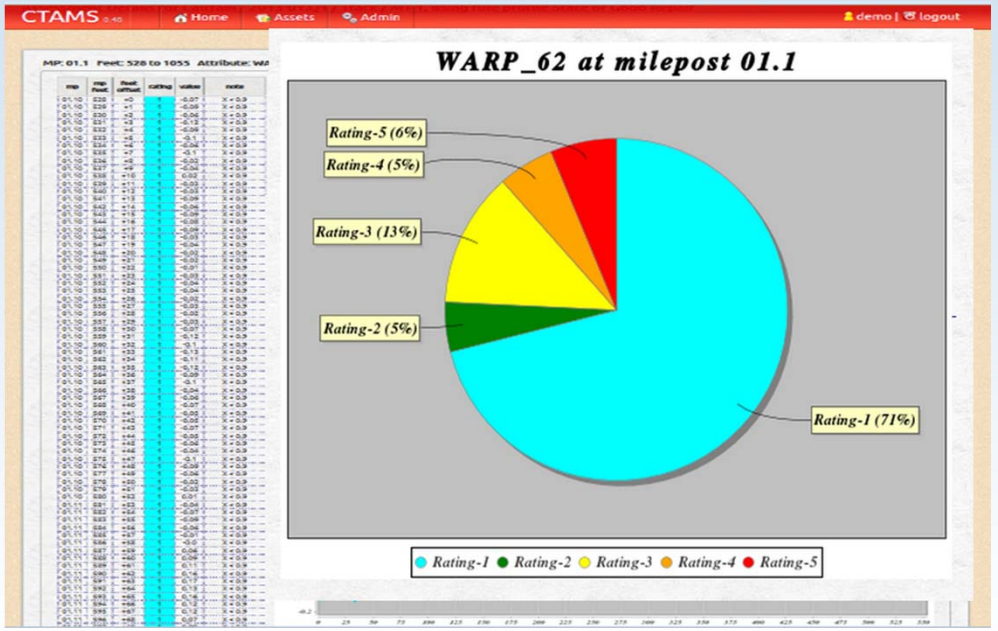
1. Graph detail by channel
2. Measured Value by foot over 1/10 mile segment
3. Rating based on measurement



Track Assessment, continued

Distribution within Segment

1. Smoothing function to eliminate outliers
2. Worst rating is rating for segment
3. Guide for spot maintenance or consideration for program



Track Assessment, concluded

Location

1. Google Earth
2. Rating by segment
3. Rapid assessment potential work areas

Work Order Management

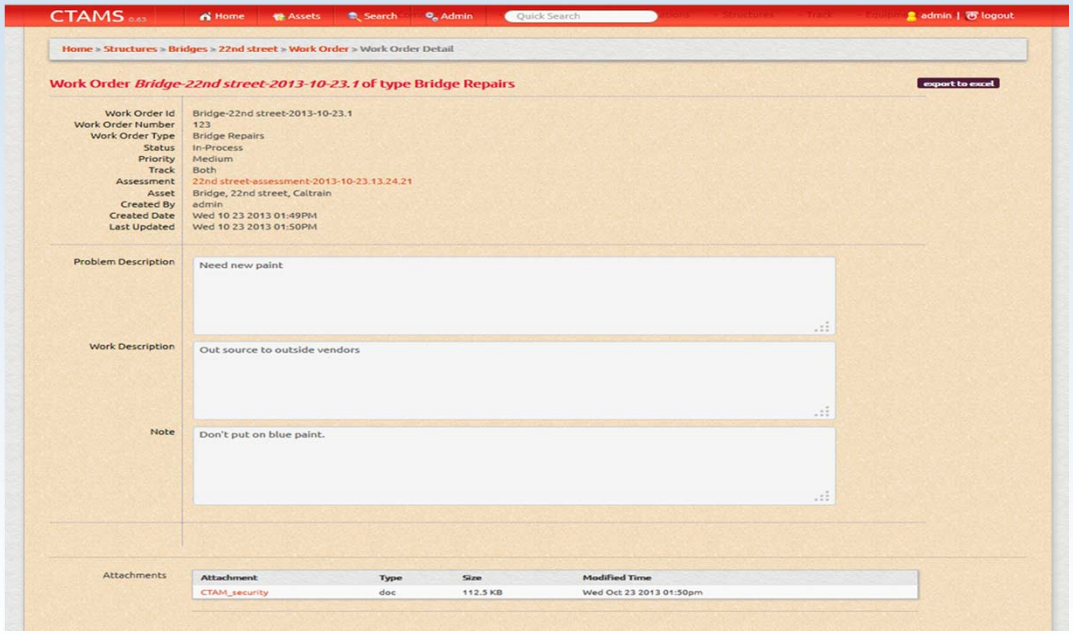
Key Features

1. Create Work Orders
2. Track Progress
3. Review Work History

Work Orders, continued

Work Order Details

1. Defect description
2. Description of work
3. Work order status



Work Orders, concluded

Work Order Status

1. Asset Description
2. Work Order ID
3. Work Order Type
4. Latest Assessment
5. Date Created
6. Last update

Development Process

Iterative Development Process

1. Discuss requirements with end users
2. Define features and functions
3. Preliminary design
4. Preliminary development
5. Review and test
6. Refine

General Approach

Write Specifications

1. Review existing assessment process and data records
2. Define requirements
3. Evaluate technology available for measurement and assessment
4. Review applications

Implementation

1. Build on expandable framework
2. Implement specific features
3. Test and launch application
4. Migrate data

Implementation

Considerations

1. Data migration format and transfer requirements
2. Training for transition from manual or other systems
3. Multiple data streams
4. Expansion of modules
5. Addition of features
6. System maintenance and improvement

Lessons Learned

What worked

1. Supervisors and engineers work closely with developer
2. Small, diverse, and stable core project team
3. Iterative development approach
4. Weekly working sessions with specific deliverables
5. Open to new ideas

Lessons Learned, concluded

What could be better…

1. Less aggressive schedule coupled with phased development
2. Involvement of other departments for wider application
3. User interface design

Future Development

Key Features

1. Cost tracking
2. Automated trending and forecasting
3. Life cycle analysis
4. Defect alerts
5. Module Expansion

Questions?