



CALIFORNIA
High-Speed Rail Authority

LESSONS LEARNED FROM SUSTAINABILITY COMPLIANCE TOOLS

Mark Teschauer, Sustainability Compliance Analyst, WSP USA

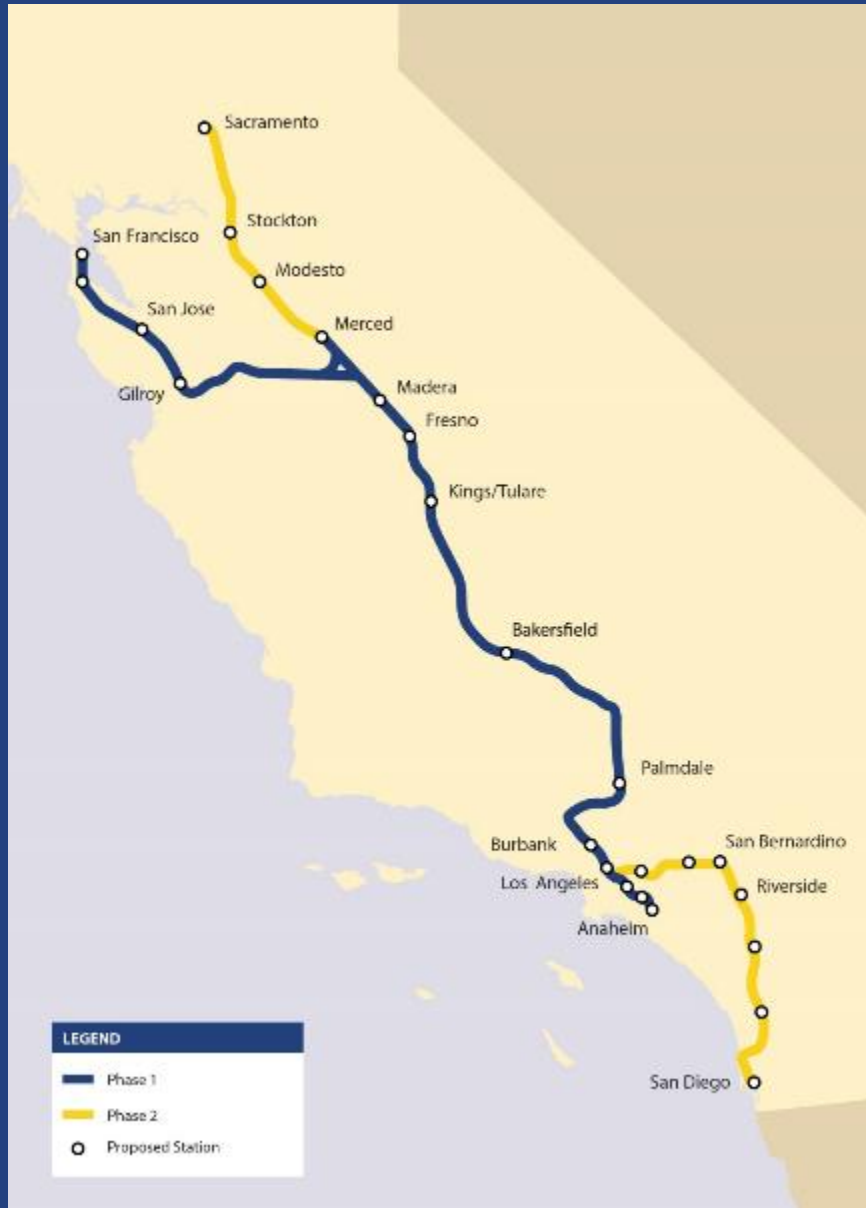
2018 APTA Sustainability & Multimodal Planning Workshop
Vancouver, BC, Canada
July 31, 2018



KEY TAKEAWAYS

- Defining data quality is crucial
- Knowing people well is as good as knowing things
- A good tool takes time to build

CONNECTING CALIFORNIA



Increase Mobility



Needed Alternative



Better Air Quality



Job Growth

HIGH-SPEED RAIL: A New Model For Infrastructure Delivery

- Delivery Sets a New, Green Standard for Infrastructure
 - » Offset 100% of Construction Greenhouse Gas Emissions
 - » Require Recycling Steel and Concrete from Demolition and Construction
 - » Invest in Clean Agricultural Equipment to Offset Emissions
 - » Require the Cleanest Equipment on Site



But how do we guarantee this and more?



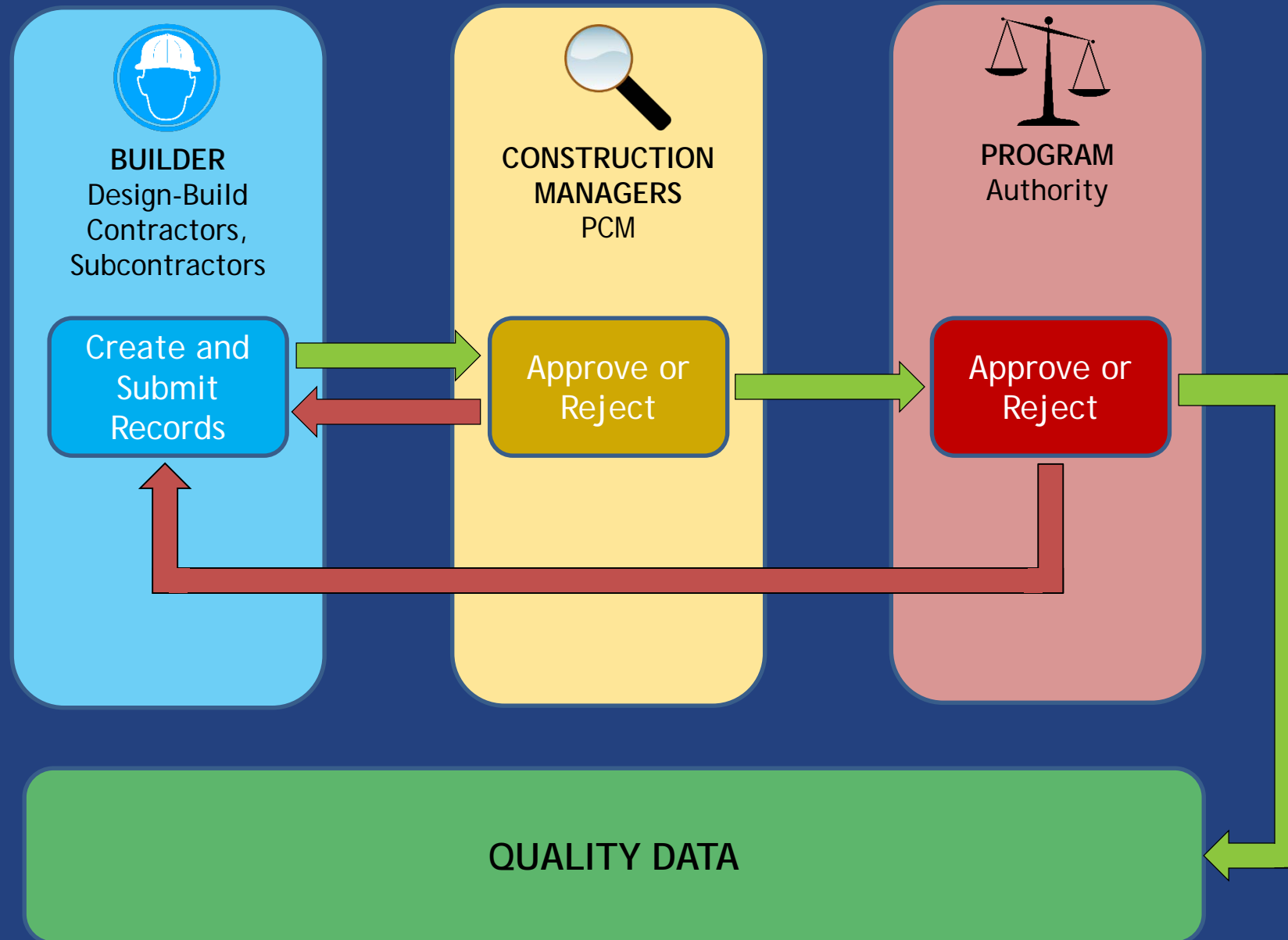
- Custom application for contractors to report data monthly on usage and resource consumption
 - » Also features section on environmental compliance management



- Why custom build?

- » Large program with lots of data
- » Unique needs
- » Transparency with grantors
- » Single system of record ensures consistency between construction packages
- » Quality assurance with more data uniformity
- » Built-in multi-step review process to evaluate submitted records

EMMA WORKFLOW



EMMA SUSTAINABILITY DASHBOARD

Sustainability

HSR Program Management ▾

CP1 ▾

Report Monthly:

Construction Equipment

Fuel Use

Water Conservation

Recycling and Waste Management

Materials Content and Sourcing

Energy Use

Monthly Sustainability Narrative

Report as Needed:

Environmental Preferred Wood

Environmental Public Education

Pollution Control

Innovation

Monthly Submission Status

Select CP: CP2-3 ▾

[Attachment Download](#)

May 2018

Select A Year

2018 ▾

Select A Month

May ▾

Search

CP2-3

Module	Progress	Current Status	Last Activity
Construction Equipment: On Road	✘	Submission Overdue	-
Construction Equipment: Off Road	✘	Submission Overdue	-
Fuel Use	✘	Submission Overdue	-
Water Conservation	✘	Submission Overdue	-
Recycling and Waste Management	✘	Submission Overdue	-
Materials Content and Sourcing	✘	Submission Overdue	-
Energy Use	✘	Submission Overdue	-
Monthly Sustainability Narrative	✘	Submission Overdue	-

[< Previous Month](#)

[Next Month >](#)

BUILDER ENTERS RECORDS

Fuel Use

Year

Month

Volume Of Fuel

Unit

Fuel Type

Select file

Existing Attachment

Attachment Name

Save

| [Back to Grid](#)

SUBMIT FOR REVIEW

EMMA2 Compliance Sustainability Admin My Profile Welcome Emma.test@ Log off

Fuel Use

Fuel Use Review Export

Select A Year Select A Month

2018 June

[Search](#)

Fuel Use						
Month	Year	Volume Of Fuel	Unit	Fuel Type	Attachment	
June	2018	5000	Gallons	Diesel	EMMA2_Test_Attachment_Li	
June	2018	100000	Gallons	Gasoline		

Page 1 of 1 10

Select Review Options *

Peer Review:

Next Level Review:

Select Reviewer

Mark Teschauer

Comments (optional)

Test User: See attachment for summary of fuel use.

[Submit](#)

[Back](#)

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RECORD ASSIGNED TO REVIEWER

EMMA2

Compliance

Sustainability

Admin

My Profile

App Admin

Data Dict.(Preview)

Welcome **Mark.teschauer**

Log off

Sustainability

HSR Program Management ▾

CP1 ▾

Report Monthly:

Construction Equipment

Fuel Use

Water Conservation

Recycling and Waste Management

Materials Content and Sourcing

Energy Use

Monthly Sustainability Narrative

Report as Needed:

Environmental Preferred Wood

Environmental Public Education

Pollution Control

Innovation

Monthly Submission Status

Select CP: CP2-3 ▾

Jun 2018

Select A Year

2018 ▾

Select A Month

June ▾

Search

CP2-3

Module	Progress	Current Status	Last Activity
Construction Equipment: On Road	✘	Submission Overdue	-
Construction Equipment: Off Road	✘	Submission Overdue	-
Fuel Use	🕒	CM Approved	7/23/2018
Water Conservation	✘	Submission Overdue	-
Recycling and Waste Management	✘	Submission Overdue	-
Materials Content and Sourcing	✘	Submission Overdue	-
Energy Use	✘	Submission Overdue	-
Monthly Sustainability Narrative	✘	Submission Overdue	-

[< Previous Month](#)

[Attachment Download](#)

Review Assignments

Total Assignments: 1

All CPs

CP	Module	Report Period	Date Received
CP2-3	Fuel Use	June 2018	7/23/2018

REVIEWER EVALUATES RECORD

Fuel Use

Fuel Use

Review

Export

Select A Year

2018

Select A Month

June

Search

Fuel Use

Month	Year	Volume Of Fuel	Unit	Fuel Type	Attachment
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
June	2018	5000	Gallons	Diesel	EMMA2 Test Attachment
June	2018	100000	Gallons	Gasoline	

Page 1 of 1 10

Select Review Options *

Peer Review:

Reject:

Approved Monthly Report:

Comments (optional)

Test User: See attachment for summary of fuel use.

Submit

Back

REVIEWER EVALUATES RECORD

Fuel Use

Fuel Use

Review

Export

Select A Year

2018

Select A Month

June

Search

Month	Year	Volume Of Fuel	Unit	Fuel Type	Attachment
June	2018	5000	Gallons	Diesel	EMMA2 Test Attachment
June	2018	100000	Gallons	Gasoline	

Page 1 of 1 10

Select Review Options *

Peer Review:

Reject:

Approved Monthly Report:



Comments (optional)

Test User: See attachment for summary of fuel use.

Submit

Back

REVIEWER EVALUATES RECORD

EMMA2 Compliance Sustainability Admin My Profile App Admin Data Dict.(Preview) Welcome Mark.teschauer Log off

Fuel Use

Fuel Use Review Export

Select A Year: 2018 Select A Month: June

Search

Month	Year	Volume Of Fuel	Unit	Fuel Type	Attachment
June	2018	5000	Gallons	Diesel	EMMA2 Test Attachment
June	2018	100000	Gallons	Gasoline	

Page 1 of 1 10

Select Review Options *

Peer Review:


Reject:

Approved Monthly Report:

Comments (optional)

Test User: See attachment for summary of fuel use.

Submit



100,000 SEEMS TOO HIGH...



BILL TO: High-Speed Rail Builders
700 L Street
Sacramento, CA 95814

RECEIPT
FOR JUNE 2018

UNIT	ITEM CODE	ITEM DESCRIPTION	QUANTITY DELIVERED	PACKAGE DESCRIPTION
A004	433A004	DIESEL	5,000	BULK GALS
B001	433B001	GASOLINE	10,000	BULK GALS



BILL TO: High-Speed Rail Builders
700 L Street
Sacramento, CA 95814

RECEIPT
FOR JUNE 2018

UNIT	ITEM CODE	ITEM DESCRIPTION	QUANTITY DELIVERED	PACKAGE DESCRIPTION
A004	433A004	DIESEL	5,000	BULK GALS
B001	433B001	GASOLINE	10,000	BULK GALS

YES, DUE TO USER ERROR

REVIEWER ADDS COMMENT AND RETURNS RECORD

EMMA2 Compliance Sustainability Admin My Profile App Admin Data Dict.(Preview) Welcome Mark.teschauer Log off

Fuel Use

Fuel Use Review Export

Select A Year: 2018 Select A Month: June

Search

Month	Year	Volume Of Fuel	Unit	Fuel Type	Attachment
June	2018	5000	Gallons	Diesel	EMMA2 Test Attachment
June	2018	100000	Gallons	Gasoline	

Page 1 of 1 10

Select Review Options *

Peer Review:

Reject:

Approved Monthly Report:

Submit

Back

Comments (optional)

Test User: See attachment for summary of fuel use.

MT: Attachment shows 10,000 gallons of gasoline were used in this month. Test User reported one too many 0's for the Gasoline Volume of Fuel. Returning the record to request that the Test User fix the record.

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REVIEWER ADDS COMMENT AND RETURNS RECORD

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Fuel Use

Fuel Use Review Export

Select A Year: 2018 Select A Month: June

Search

Month	Year	Volume Of Fuel	Unit	Fuel Type	Attachment
June	2018	5000	Gallons	Diesel	EMMA2 Test Attachment
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Page 1 of 1 10

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Approved Monthly Report:

Comments (optional)

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Submit

Back

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RECORD RETURNED TO SUBMITTER

Sustainability

DFJV (CP2-3 Builder) ▾

CP2-3 ▾

Report Monthly:

Construction Equipment

Fuel Use

Water Conservation

Recycling and Waste Management

Materials Content and Sourcing

Energy Use

Monthly Sustainability Narrative

Report as Needed:

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Environmental Public Education

Pollution Control

Innovation

Monthly Submission Status

Select CP: CP2-3 ▾

Jun 2018

Select A Year

2018 ▾

Select A Month

June ▾

Search

CP2-3

Module	Progress	Current Status	Last Activity
Construction Equipment: On Road	✘	Submission Overdue	-
Construction Equipment: Off Road	✘	Submission Overdue	-
Fuel Use	🕒	Program Review Reject	7/23/2018
Water Conservation	✘	Submission Overdue	-
Recycling and Waste Management	✘	Submission Overdue	-
Materials Content and Sourcing	✘	Submission Overdue	-
Energy Use	✘	Submission Overdue	-
Monthly Sustainability Narrative	✘	Submission Overdue	-

< Previous Month

Attachment Download

Review Assignments

Total Assignments: 1

All CPs

CP	Module	Report Period	Date Received
CP2-3	Fuel Use	June 2018	7/23/2018

RECORD FIXED AND READY FOR REVIEW

EMMA2 Compliance Sustainability Admin My Profile Welcome Emma.test10 Log off

Fuel Use

Fuel Use Review Export

Select A Year: 2018 Select A Month: June

Search

Month	Year	Volume Of Fuel	Unit	Fuel Type	Attachment
June	2018	5000	Gallons	Diesel	EMMA2 Test Attachment
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Page 1 of 1 10

Select Review Options *

Peer Review:

Next Level Review:

Select Reviewer

Mark Teschauer

Submit

Back

Comments (optional)

Test User: See attachment for summary of fuel use.

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Test User: Fixed the record.

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READY FOR APPROVAL

Fuel Use

Fuel Use

Review

Export

Select A Year

2018

Select A Month

June

Search

Fuel Use

Month	Year	Volume Of Fuel	Unit	Fuel Type	Attachment
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
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Reject:

Approved Monthly Report:

Comments (optional)

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Test User: Fixed the record.

MT: All looks good now! Ready to approve.

Submit

Back

APPROVED RECORD

EMMA2

Compliance

Sustainability

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Log off

Sustainability

HSR Program Management ▾

CP1 ▾

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CP2-3 ▾

[Attachment Download](#)

Jun 2018

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2018 ▾

Select A Month

June ▾

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Materials Content and Sourcing	✘	Submission Overdue	-
Energy Use	✘	Submission Overdue	-
Monthly Sustainability Narrative	✘	Submission Overdue	-

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Recycling and Waste Management	✘	Submission Overdue	-
Materials Content and Sourcing	✘	Submission Overdue	-
Energy Use	✘	Submission Overdue	-
Monthly Sustainability Narrative	✘	Submission Overdue	-

< Previous Month

A tool is only as good as its users

DEFINE AND REINFORCE DATA QUALITY

- User training is critical
 - » But go beyond Usage 101 and define data quality



KNOW PEOPLE, NOT JUST THINGS

- Have good relationships with your primary data reviewers
- Know the contract, but also know someone who knows it better than you

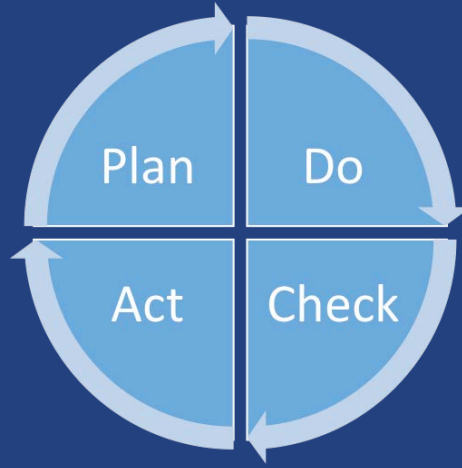


NEW TOOLS TAKE TIME AND RESOURCES TO BUILD

- Have confidence in your reporting and QA/QC process
- Find the proper balance between sophistication and simplicity
- Listen to users



DATA-DRIVEN DECISION MAKING



- **Ask questions to develop baselines and improve procurement, such as:**
 - » What kinds of technologies in off-road equipment can we target in future contracts to greatly reduce construction emissions?
 - » What are the local standard specifications for recycled content of materials, and can we require more in future contracts?
 - » What is the local supply and availability of recycled content for materials, e.g., fly ash, other SCM for concrete, etc.?

FUTURE ENHANCEMENTS

- Expanding reporting features
- New modules
- Incorporate operations and utility tracking alongside capital projects

THANK YOU

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